HISTORICAL CLIMATOLOGY SERIES 6-2

TROPICAL CYCLONES OF THE NORTH ATLANTIC OCEAN 1851-2006

(INCLUDES 2007 & 2008 TRACK MAPS)

U.S. DEPARTMENT OF COMMERCE-National Oceanic and Atmospheric Administration
National Weather Service-National Environmental Satellite, Data, and Information Service

Front cover: NOAA GOES-12 4-km infrared image of Hurricane Wilma (19 Oct 2005, 1245 UTC) in the western Caribbean, near the time it reached an Atlantic-basin record minimum central pressure of 882 mb. Maximum sustained 1-min winds near the center of the hurricane are estimated to be 160 kt at this time, category 5 on the Saffir/Simpson Hurricane scale. Two days later (21 Oct 2145 UTC) Wilma made landfall on the island of Cozumel, Mexico as a category 4 hurricane, and subsequently made a final landfall along the southwest coast of Florida as a category 3 hurricane (24 Oct 1030 UTC). (Image courtesy of the NOAA Satellite and Information Service Environmental Visualization Program.)

Back cover: Full-disk water vapor image, NOAA GOES-12 (13 Sep 2006, 1145 UTC). Tropical Depression Helene (30 kt) is seen off the coast of Africa, Hurricane Gordon (80 kt) is tracking northward across the mid-Atlantic while Hurricane Florence (70 kt) has become extratropical and is now passing Newfoundland. The cloudy area near the Pacific coast of Mexico (south of Acapulco) is about to become eastern Pacific Tropical Depression Lane. (Image courtesy of NOAA Satellite and Information Service ISCCP.)

To order this publication, contact: The National Climatic Data Center, 151 Patton Avenue, Room 120, Asheville NC 28801-5001. Telephone: (828) 271-4800, 271-4876 Fax, 271-4010 TDD.

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HISTORICAL CLIMATOLOGY SERIES 6-2

TROPICAL CYCLONES OF THE NORTH ATLANTIC OCEAN, 1851 – 2006

(with 2007 and 2008 track maps included)

Colin J. McAdie, Christopher W. Landsea, Charles J. Neumann[1],
Joan E. David, and Eric S. Blake
National Hurricane Center

Gregory R. Hammer
National Climatic Data Center

Asheville, NC
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[1] Retired

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Tropical Cyclones of the North Atlantic Ocean, 1851-2006

1. INTRODUCTION

Over the 156-year period 1851 through 2006, a total of 1,370 tropical cyclones reaching at least tropical storm strength (including subtropical storms) have been documented over the North Atlantic area. The formation of these storms, and possible intensification into mature hurricanes, takes place over warm tropical and subtropical waters. Eventual dissipation or modification, averaging seven to eight days later, typically occurs over the colder waters of the North Atlantic, or when the storms move over land and away from the sustaining marine environment.

The geographical areas influenced by tropical cyclones are often referred to as tropical cyclone basins. Figure 1 shows the areal extent of the Atlantic tropical cyclone basin; it includes much of the North Atlantic Ocean, the Caribbean Sea, the Gulf of Mexico and a substantial portion of the adjacent coastal area. From the global perspective, the Atlantic tropical cyclone basin is one of seven; others in the Northern Hemisphere are the eastern North Pacific, the western North Pacific and the northern Indian Ocean. The Southern Hemisphere basins are the southwestern Indian Ocean, the Australia/southeastern Indian Ocean and the Australia/SW Pacific. Tropical cyclones have been observed in the South Atlantic (McAdie and Rappaport 1991; Dias 2006) but are extremely rare events. The eastern portion of the South Pacific is virtually devoid of tropical cyclones. On rare occasions, tropical cyclones traverse from one basin to an adjacent basin within a given hemisphere. In the Northern Hemisphere, an example would be North Atlantic Hurricane Cesar (1996) which moved westward across Central America as a weak system and then became Hurricane Douglas over the eastern North Pacific.

Tropical cyclone climatologies are based upon long-term records of tropical cyclone occurrence and are the basis for much of the work in this field. A review of the construction and use of these climatologies is provided by Murnane and Liu (2004).

Because of the destructive potential of hurricanes, interest in these systems has always been great. Numerous publications, technical and non-technical, describe tropical cyclone climate on various scales. Studies by Crutcher and Quayle (1974) and by Neumann and Hill (1976) and Neumann (1993) contain charts describing tropical cyclone frequency and motion characteristics over the various global basins. Gray (1968, 1975) presents an instructive and more theoretical treatment of global tropical cyclone climatology, including a discussion of the conditions associated with tropical cyclone development. Many studies on individual basins (Elsner and Kara 1999; Blake et al. 2008) or even portions of basins such as for Florida alone (Barnes 1998; Schwartz 2007) can be found in most meteorological libraries.

Tropical cyclones have always been of concern to shipping and, through mariner reports, may be reasonably well-documented over remote oceanic areas, even in the 19th century and earlier. Ludlum (1963) for example, presents a history of Atlantic tropical cyclones dating back to the time of the Columbus explorations.

Collation and dissemination of global tropical cyclone data is the responsibility of the National Climatic Data Center (NCDC), Asheville, NC. Data are obtained in an agreed upon format from World Meteorological Organization (WMO) designated Regional Specialized Meteorological Centers (RSMC), and other global meteorological services. In the United States, the National Hurricane Center (NHC) in Miami, Florida, serves as an RSMC, with responsibility for both the North Atlantic and eastern North Pacific basins.

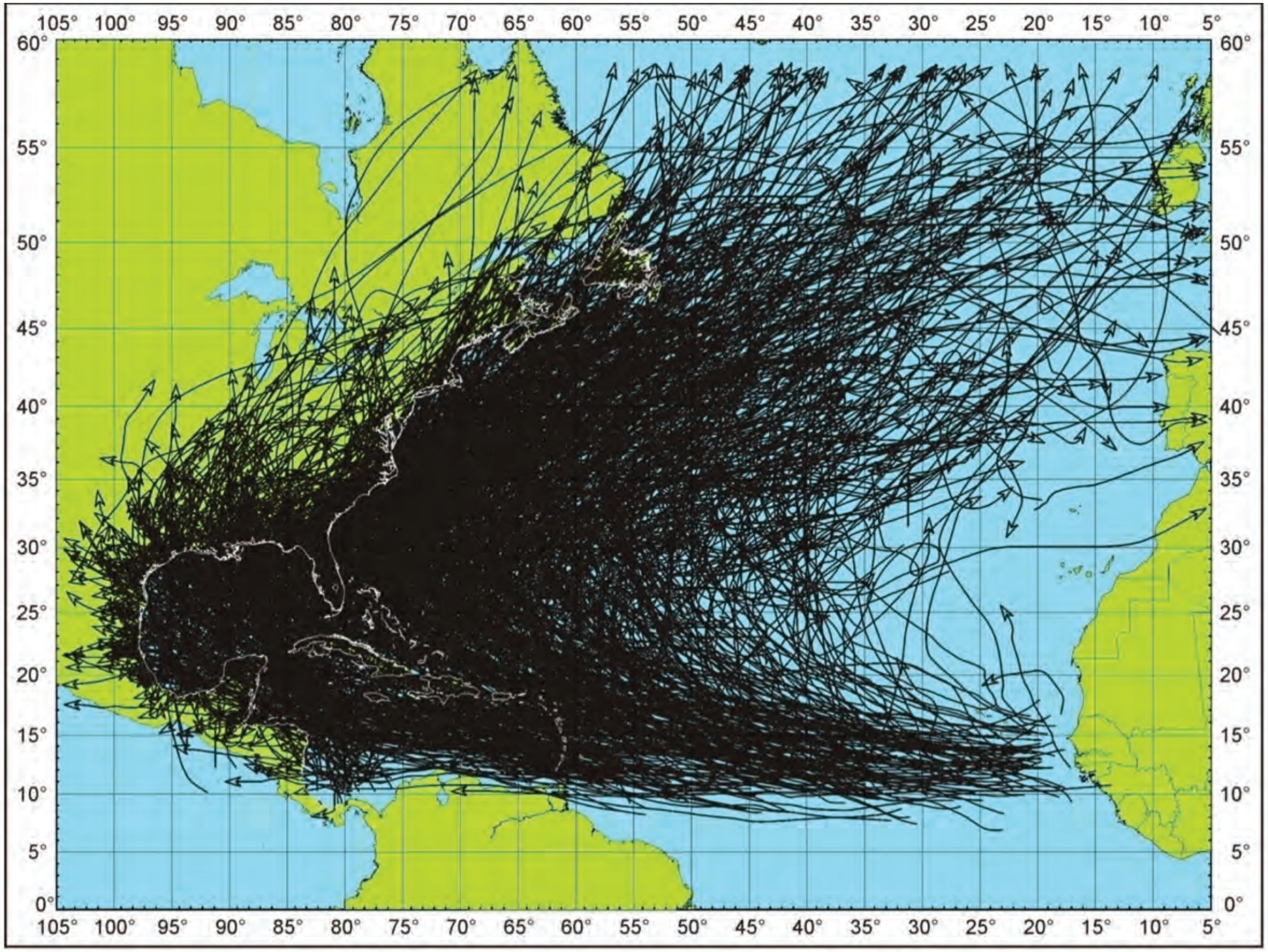

Figure 1. Tracks of the 1370 known North Atlantic tropical cyclones reaching at least tropical storm (see Table 1) intensity over the 156-year period 1851-2006.

For the Atlantic basin, tropical cyclone tracks have been published at irregular intervals. U.S. Weather Bureau Technical Paper 36 (Cry et al. 1959) provided tracks and associated statistics for the years 1886 to 1958. Five years later, Cry (1965) extended the tracks back through 1871, forward through 1963, and extended the statistical analysis. For a number of years, that publication was the standard reference for Atlantic tropical cyclone activity. Cry's work remains the nucleus of this, the sixth, revision.

2. SCOPE

Together with related statistical summaries, this study presents annual plots of tropical cyclone tracks for the period 1851-2006 for systems reaching at least tropical storm strength. A detailed analysis of individual tracks is not attempted. This is a departure from Cry (1965) who included a considerable amount of track analysis and interpretation. The omission was prompted by the desire to keep the size of the book from becoming excessive, especially with the addition of many decades of data.

Those familiar with previous editions of this publication will note the addition of track charts and data for the years 1851-1870, and the significant revision of data from 1871-1920. The contribution of José Fernández-Partagás to this work (through 1910) cannot be understated. His careful reconstruction of tropical cyclone tracks from disparate written accounts (Fernández-Partagás and Diaz 1995a, 1995b, 1996a, 1996b, 1997, 1999) provided the foundation for the addition of these decades of data. The mechanism for the evaluation and incorporation of this new data and a number of other changes is an ongoing reanalysis project described in Landsea et al. (2004, 2008). For current information on this project and additional background, see http://www.aoml.noaa.gov/hrd/data_sub/re_anal.html. It is important to note that the reanalysis is an ongoing project. This edition captures changes only through 1920.

Readers are also referred to other publications that deal specifically with the analysis of Atlantic tropical cyclones. These include NOAA publications prepared for the Federal Flood Insurance Program and the U.S. Army Corps of Engineers (Myers 1975; Overland 1975; Ho et al. 1987) and studies to satisfy the needs of the National Hurricane Center (Hope and Neumann 1971; Rappaport and Fernández-Partagás 1995; Hebert and McAdie 1997; Jarrell et al. 1992; Blake et al. 2007). The National Climatic Data Center contributed to tropical cyclone studies to satisfy the needs of the U.S. Navy (Crutcher and Quinlan 1971a-c; Crutcher and Qualye 1974). The NHC web site http://www.nhc.noaa.gov contains a large amount of information on current and historical tropical cyclone activity. Information found there can be used to update this text until such time as additional editions are issued. Also available on the NHC web site are the digitized tracks of all Atlantic tropical cyclones since 1851. Charts presented in Chart Series A and B are based on these data, known formally as HURDAT (Jarvinen et al. 1984) but more often referred to simply as the "best-track" file.

The NHC annually receives hundreds of requests for tropical cyclone related information from both official and non-official sources. One of the goals of this publication is to provide readily available, correct, and consistent answers to some of these queries. A knowledge of climatology is important in the forecast process and this publication also provides Hurricane Specialists at the NHC with a reliable source of reference material on Atlantic tropical cyclones.

3. CHARACTERISTICS OF TROPICAL CYCLONES

Broadly speaking, any closed circulation in which the winds rotate counterclockwise in the Northern Hemisphere or clockwise in the Southern Hemisphere, is called a cyclone. The term “tropical cyclone” refers to such a circulation that develops over tropical or subtropical waters. A more detailed definition will be given in Section 4.1.

It is somewhat beyond the scope of this study to discuss details of tropical cyclone characteristics and structure. A few comments are necessary, however, for proper interpretation of the material presented. The reader is referred to Miller (1967) or Anthes (1982) for further information. Texts by Riehl (1979) and Palmen and Newton (1969) devote chapters to tropical cyclones, and texts by Dunn and Miller (1960), Simpson and Riehl (1981), Pielke and Pielke (1997), and Emanuel (2005) are devoted entirely to that topic. Certain specialized topics, such as forecasting of tropical cyclone motion and intensity are discussed by Simpson (1973b), the American Meteorological Society (1986, 1993), Sheets (1990), Holland (1993), and Rappaport et al. (2009).

Cyclones which form outside the tropics (extratropical cyclones) have structure, energetics, and appearance when viewed from weather satellites or radar that are different from tropical cyclones. They derive their energy primarily from large-scale horizontal contrasts of temperature and are typically associated with cold and warm fronts.

Tropical cyclones, with their energy derived from the latent heat of condensation of water vapor, are generally smaller in extent than extratropical cyclones and typically range from 100 to 600 nautical miles in diameter at maturity. Winds normally increase radially inward toward the center of the tropical cyclone with sustained speeds sometimes exceeding 100 knots near the center. Occasionally, sustained winds exceeding 140 knots, with higher gusts, may occur in well-developed systems. Apart from the wind, other destructive features of tropical cyclones include torrential rains over a large area and coastal storm tides of 15 to 30 feet above normal in extreme cases. Indeed, with some exceptions such as Hurricane Andrew (1992) in south Florida, coastal inundation from the storm surge has been primarily responsible for deaths and damage from these storms in the United States.

A unique feature of tropical cyclones is the central “eye,” about which the winds rotate counterclockwise in the Northern Hemisphere (clockwise in the Southern Hemisphere) and whose diameter averages some 10 to 30 miles across. This small central region of the storm is typically associated with light winds, minimum cloud cover and minimum sea-level pressure; the latter being much less than over the larger area encompassing the entire storm circulation (Dunn and Miller 1960; Anthes 1982). The eye (note the distinct eye of Hurricane Wilma on the cover illustration) provides a convenient visual and physical entity that can be tracked

4. CLASSIFICATIONS OF ATLANTIC TROPICAL CYCLONES

In the course of their life cycle, tropical cyclones, like other atmospheric weather systems, pass through stages of genesis, intensification, maturity, and decay or modification. Satellite imagery has confirmed that most North Atlantic tropical cyclones classically develop from tropical waves that regularly move westward off the coast of Africa near 15ºN latitude. The relationship between these waves and Atlantic tropical cyclones has been studied by a number of researchers, one of the earliest being Riehl (1945). Later, Carlson (1969) presented case histories, while Shapiro (1977) discussed theoretical aspects of the transformation of certain waves into tropical cyclones. Avila and Clark (1988) found that intense hurricanes tend to develop from tropical waves. In other basins, atmospheric conditions which initiate tropical cyclones may be quite different.

During the 1967 Atlantic hurricane season, Simpson et al. (1968) initiated an annual "census" of African disturbances (Agee 1972) and other features associated with tropical cyclone genesis. A more recent continuation of this annual census (Pasch et al. 1998) includes long-term averages of these data where it can be noted that, May through November, an average of 61 waves move off the African coast, or about one wave every three days. Interannual variability of these waves is discussed in Thorncroft and Hodges (2001).

Satellite observations over the last several decades also have shown that tropical cyclones may develop in association with upper-level cold low-pressure areas that have initial "cold-core" circulations as opposed to the "warm-core" circulations of tropical cyclones. Beginning in the late 1960's, these latter systems were designated as "subtropical cyclones" (Hebert 1973) during the period in which they exhibited both cold- and warm-core characteristics. Finally, many tropical cyclones, after moving out of the tropical environment, may lose their tropical characteristics and become "extratropical." While the primary purpose of this publication is to discuss tropical systems, it is necessary, for continuity, to discuss subtropical and extratropical cyclones as well.

4.1 Tropical Cyclones

Tropical cyclones are technically defined (OCFM 2007) as warm-core, nonfrontal, low pressure synoptic-scale[1] systems that develop over tropical or subtropical waters and have a closed surface circulation and organized deep convection about a well-defined center. Further classification depends upon the wind speed near the center of the system. The terms, "tropical depression," "tropical storm," or "hurricane" are assigned depending whether sustained winds are respectively, <34 knots, 34 to <64 knots or ≥ 64 knots. More complete definitions are given in Table 1. Tropical cyclones are not named unless they reach at least tropical storm strength.

[1]Synoptic-scale refers to large-scale weather systems as distinguished from local systems such as thunderstorms.

The term "sustained wind," as used in the United States, refers to the near-surface (10-meter) wind associated with the tropical cyclone circulation averaged over 1-minute. Shorter period gusts or lulls in the wind, perhaps only a few seconds duration, can be much higher or lower than the sustained wind. In other countries, the averaging period defining a sustained wind can be longer than 1-minute.

The wind criteria separating the various stages of tropical cyclones are rather rigidly defined, but the ability to measure the winds with the precision implied by the definitions seldom exists. The maximum wind speed must often be inferred in post-analysis by indirect evidence such as storm surge, damage, pressure, remotely-sensed winds, or the analysis of satellite imagery (Dvorak 1984; Velden et al. 2006). In practice, a maximum sustained wind is assigned at 6-hourly intervals by the responsible analyst after considering all available evidence. The uncertainties in the resulting estimate of maximum wind must be kept in mind when examining the intensity information given in Chart Series A and elsewhere.

4.2 Extratropical Cyclones

During the final stages of their life cycle, tropical cyclones are often classified as extratropical. This indicates that modification of the tropical circulation has started by movement of the system into a non-tropical environment. The transformation is a gradual process: the size of the circulation usually expands, the speed of the maximum wind usually decreases, and the distribution of winds, rainfall, and temperatures around the center becomes increasingly asymmetric. While these characteristic features develop, some tropical features, such as a small area of strong, often hurricane force, winds near the center, the remnants of an eye, and extremely

Table 1. Classification criteria for tropical, subtropical, and extratropical cyclones.

Stage of Development	Years Used	Criteria
Tropical depression (development)	1886-2006	The formative stages of a tropical cyclone in which the maximum sustained (1-min mean) surface wind is < 34 kt (<39 mph, <18 m/s).
Tropical storm	1851-2006	A tropical cyclone in which the maximum sustained surface wind (1-min mean) ranges from 34 to <64 kt (39 to <74 mph, 18 to <33 m/s).
Hurricane	1851-2006	A tropical cyclone in which the maximum sustained surface wind (1-min mean) is at least 64 kt (74 mph, 33 m/s)
Major hurricane	1851-2006	A hurricane classified as category 3 or higher, with maximum sustained surface wind (1-min mean) of at least 96 kt (111 mph, 50 m/s).
Tropical depression (dissipation)	1871-2006	The decaying stages of a tropical cyclone in which the maximum sustained surface wind (1-min mean) has dropped below 34 kt (39 mph, 18 m/s).
Extratropical cyclone	1851-2006	A tropical cyclone that has been modified by interaction with a nontropical environment, and whose primary energy source is baroclinic. There are no wind speed criteria, and maximum winds may exceed hurricane force.
Subtropical depression	1968-2006	A low pressure system that develops over subtropical waters and initially may have a nontropical circulation but in which some elements of tropical cyclone cloud structure are present. Surface winds are below 34 kt (39 mph, 18 m/s).
Subtropical storm	1968-2006	Same definition as subtropical depression except that wind is at least 34 kt (39mph, 18 m/s). Also, winds may exceed hurricane force.

heavy rainfall may be retained for a considerable time. The 1938 New England storm (number 4, 1938), described in physical terms by Pierce (1939) and in narrative form by Allen (1976), is a good example of a storm that was beginning to transition into an extratropical system at the time of landfall, but that still maintained hurricane-like characteristics and caused catastrophic damage.

An operational tool known as Cyclone Phase Space Analysis (Hart 2003) was developed to help to quantify the thermodynamical differences between tropical, subtropical and extratropical cyclones.

There are no wind speed criteria associated with the term extratropical and such systems may indeed have hurricane force winds. Usually, when storms move out of the tropics, wind speeds near the center of a storm gradually subside. In some cases, however, reintensification of the system may occur when mechanisms conducive to extratropical development predominate.

4.3 Subtropical Cyclones

Until the late 1960's, the terms tropical (warm-core) and extratropical (cold-core), as described in sections 4.1 and 4.2, were exclusively used to categorize a cyclone. Although it was often suspected that a given storm was a "hybrid" in that it exhibited both tropical and extratropical characteristics, the lack of sufficient observational evidence or official sanction precluded the use of other terminology. The problem often led to some storms not being initially included in the annual summaries. Spiegler (1972), Ferguson (1973), and Simpson (1973a) give additional information on this topic.

By 1968, availability of continuous satellite imagery and other observational evidence confirmed the existence of this intermediate class of storm with both tropical (warm-core) and extratropical (cold-core) characteristics. The *Monthly Weather Review*'s annual review for the 1970 and 1971 hurricane seasons (Simpson and Pelissier 1971; Simpson and Hope 1972) call attention to this nomenclature problem. By 1972, however, the term "subtropical" was adopted as official terminology and the annual summary article for that season includes the tracks of the subtropical stages (if any) of tropical systems. Satellite imagery and other observational evidence enabled Hebert and Poteat (1975) to re-examine official tracks for the 1968-1971 seasons and to identify subtropical portions of the tropical cyclones for those years. The re-evaluation included the addition of the storms suggested earlier by Spiegler (1971).

A subtropical cyclone is defined (OFCM 2007) as a non-frontal low pressure system that develops over tropical or subtropical waters and may have an initial non-tropical circulation but in which some elements of tropical cyclone cloud structure are present. The maximum winds are typically farther away from the center than in purely tropical systems, perhaps 100 n mi or more (OFCM 2007). Many of these eventually develop into tropical (warm-core) systems, but others remain as subtropical. On rare occasions, such as storm 8 of 1973, subtropical systems have evolved from tropical systems.

Depending on wind speed, two classes of subtropical cyclones are recognized: subtropical depressions and subtropical storms. The former have maximum sustained winds < 34 knots while the latter have maximum winds exceeding that speed. More complete definitions are given in Table 1. There is no upper wind limit associated with subtropical storms as there is with tropical storms. Experience has shown that when and if surface winds in subtropical storms reach at least 64 knots, the system typically has taken on sufficient tropical characteristics to be designated a hurricane (see, for example, storm 3, 1972). In rare cases, such systems do attain hurricane force winds without associated tropical conditions. In this case, the term "subtropical" is retained. An example of such an occurrence is storm 6, 1968, having had hurricane force winds September 20 and 21.

4.4 Summary of Classification Criteria

A summary of the various storm classification criteria and years over which each is applicable are given in Table 1. Although determining storm intensity is clearly more difficult for occurrences in the nineteenth century and earlier, this should not be interpreted as a complete lack of knowledge on these early storms. Indeed, portions of many of these tracks were well-documented if they were associated with disasters either ashore or at sea. For example, the hurricane of August, 1873 (number 2) which destroyed over 1,200 vessels, and the hurricane of August, 1893 (number 6) which inundated the islands off the coast of Georgia and South Carolina, resulting in large loss of life and property, are described by Garriott (1900) and others. Persons seeking specific information on these, and on other hurricane events occurring in later years, should consult the references given in Section 10.

The reanalysis project (Landsea et al. 2004, 2008) has enabled us to identify the tropical depression phase somewhat earlier than in previous editions of this volume. The dissipating phase (at least for those systems decaying over land) is now identified beginning in 1871, while the somewhat more difficult to determine initial development stage is now identified beginning in 1886. As previously noted, classification of a subtropical phase (if present) became possible in the satellite era, and begins in 1968.

5. DATA SOURCES

For the period 1871 through 1963, the primary reference for the storm tracks and associated intensity criteria was Cry (1965). Although the main purpose of this and of previous editions of this volume was to update the track charts, some of these original charts have been modified based on additional information that has come to the attention of the authors. Specific details on these modifications are given later in this section. As noted, the present revision extends the track charts back to 1851 in conjunction with the reanalysis project (Landsea et al. 2004, 2008) and forward through the 2006 season. Reanalyzed track charts are available only through 1920 at the time of publication.

5.1 Data Sources 1851-1870

For these additional decades new to this edition, the work of Partagás (Fernández-Partagás and Diaz 1995a, 1995b, 1996a, 1996b, 1997, 1999) is the principal reference. The ship reports appearing in period newspapers are a rich source of information, and were heavily mined by Partagás. Other important sources are Tannehill (1956), Dunn and Miller (1960), Ludlum (1963), and Ho et al. (1987). These sources are summarized in full in Landsea et al. (2004).

5.2 Data Sources 1871-1963

This section, with references updated, is quoted directly from Cry's (1965) original study.

"The history of hurricanes extends back to the early voyages of discovery in the late fifteenth century. These early records are fragmentary and incomplete. One of the earliest compilations of hurricane tracks (1804-1853) was prepared by Redfield (1846, 1854). Millas (1962) more recently attempted to document many of the early storms. Ludlum (1963) has also prepared a hurricane chronology extending through 1870."

"Information from many sources has been used to define the tracks of the tropical cyclones presented in this text. U.S. Weather Bureau Technical Paper 36 (Cry et al. 1959) provided the nucleus. The primary continuing reference, the *Monthly Weather Review*, first appeared in June 1872 and has been published without interruption to the present, although changes in format, emphasis, and content have been numerous. Monthly reports on North Atlantic tropical cyclone activity and tracks have been included in most volumes and, since 1922, annual summary articles have also appeared in most years. Numerous papers discussing various aspects of tropical cyclones or complete details of specific storms, have been published in the *Review* throughout the years. Summaries of each tropical cyclone season 1950-1980 are found in *Climatological Data National Summary*. More recently, tropical cyclone summaries have appeared in *Storm Data*; details of hurricanes affecting the United States are given there and in the appropriate monthly issues of *Climatological Data* for individual states."

"The first comprehensive climatological analyses of the early series of Signal Service synoptic weather maps were made between 1874 and 1889 by Professor Elias Loomis of Yale. Of his many papers (Loomis 1874-1889), one was devoted to North Atlantic tropical cyclone activity during the years 1871 through 1880."

"Several summaries containing complete series of tropical cyclone tracks and information on various storm features have been published periodically since the turn of the century. In preparing this paper, we have relied heavily on the works of Garriott (1900), which contain tracks for the years 1878-1900; Fassig (1913) 1876-1911; Mitchell (1924, 1932) 1887-1932; Cline (1926) 1900-1924 and Tannehill (1956) 1901-1955. Additional unpublished chronologies of tropical cyclone tracks have been available, including the charts and notes of Tingley (undated) for 1871-1930; charts probably prepared by Mitchell (undated) 1898-1920; and track charts centered on the Gulf of Mexico prepared at the U.S. Weather Bureau Office, New Orleans, Louisiana (unpublished) 1875-1956."

"In addition to these primary sources containing relatively long series of tracks, the following less extensive sources have been used: Alexander (1902); Bonnelly (1959); Bowie (1922); Contreas Arias (1959); Deutsche Seewarte (1899); Elwar (1907); Fischer (1908); Gray (1933); Hall (1917); Newnham (1922); Salivia (1950); Sarasola (1928); Tannehill (1934); and Viñes (1898). Comprehensive texts by various authors (Anthes 1982; Dunn 1951; Pielke and Pielke 1997; Simpson and Riehl 1981) contain complete discussions of various aspects of tropical cyclones, including a continuation of Tannehill's chronology in Dunn and Miller (1960)."

5.3 Additional Data Sources 1871-1963

In connection with its research and operational commitments, the National Hurricane Center maintains and continuously updates a database containing Atlantic tropical cyclone tracks back to the year 1851. Initially, the database was developed from data presented in Technical Paper 36 (Cry 1959). However, they have been continually updated over the years and currently contain storm positions, sustained wind speeds, and central pressures (when available) beginning in 1851. Some of the more significant changes that have been made to the Cry (1965) tracks are:

1) The track of storm 2, 1929, was adjusted to pass over Andros Island in accordance with the findings of Sugg et al. (1971).

2) The 7 p.m. EST, November 4 position of storm number 6, 1935, was moved southwestward along the original track to agree with official observations.

3) An additional storm was added for the year 1945 (number 11) in accordance with a study by Fernández-Partagás (1966).

4) To be consistent with current operational practice, the hurricane stage of storm number 4, 1938, was extended northward.

5) In accordance with published and unpublished data, the tracks and intensities of storms number 2 and 19 of 1933, and storm number 3, 1951, were modified.

6) In accordance with documentation cited by Tannehill (1956), the track of storm number 4, 1928 (the famous "San Felipe" storm) was made to pass over the island of Guadeloupe.

7) Unpublished information on file at the NHC suggested that minor changes be made to some of the original Cry et al. (1959) tracks for the years 1932, 1933, 1960, 1961 and 1966. Also minor changes were made to the tracks for years 1971 and 1975.

Additional minor differences still exist between the current official database and Cry's (1965) tracks. For example, detailed records indicate that the exact 7 a.m. September 18 position of storm number 6, 1926 was 25.6N, 80.3W rather than 25.8N, 80.1W. However, such small changes are hardly discernible in the scale used on Chart Series A and the original charts prepared for Cry's original paper.

Additional data sources for the period through 1963 include: U.S. Navy Annual Tropical Storm Reports (1950-1968); Bowden (1974); Carney and Hardy (1969); Carter (1970); Cambriaso (1959); Purvis (1964); U.S. Army Air Force (1945-1948); U.S. Army Corps of Engineers (1956, 1961); and various published (undated) and unpublished notes on hurricanes in Jamaica, W.I.

Also note that many changes, too numerous to list in detail here, have been made for the period prior to 1921 via the reanalysis project. The reader is referred to http://www.aoml.noaa.gov/hrd/data_sub/re_anal.html for a complete listing.

5.4 Data Sources 1964-2006

The principal data sources in the preparation of the charts for the additional 43 years, 1964 through 2006, were the annual summary reports of Atlantic tropical activity prepared by the NHC (*Monthly Weather Review*, 1964-2006) and the HURDAT (Jarvinen et al. 1984) database, often referred to as the "best-track" file. In recent years this track information has also been encoded into the "b-decks" of the Automated Tropical Cyclone Forecast (ATCF) system (Miller et al. 1990). In addition, summary articles tailored to specific user groups appear annually in the popular weather magazine *Weatherwise* (e.g. Franklin and Brown 2007) and *Mariner's Weather Log* (e.g. Beven and Brown 2007). Annual summary articles dealing with the genesis of Atlantic tropical cyclones also occasionally appear in the *Monthly Weather Review* (e.g. Simpson et al. 1967; Pasch et al. 1998). Finally, annual summaries describing other aspects of each hurricane season, such as tabulated storm (best-track) positions, aircraft reconnaissance and satellite-derived storm positions, and forecast verifications were issued by the NHC for the years 1974-1992 (e.g. Hope et al. 1976; McAdie and Rappaport 1991).

The annual tropical cyclone track charts that appear in individual issues of the *Monthly Weather Review* for the period subsequent to 1963 were prepared in the same general format used in Cry (1965). The maps, beginning with the 1968 season, include the subtropical stages (if any) of the storm tracks. The 1970 map includes the unnamed storms discussed by Spiegler (1971).

Determination of the storm tracks for the years following 1963 was obviously less burdensome than for the earlier years; the only complicating factor being the need to deal with the concept of subtropical cyclones beginning in 1968. The decision to include these latter storms was based on climatological considerations. In earlier years, subtropical systems were not formally recognized as separate entities and, in most cases, they were designated as tropical systems. Consequently, failure to include these systems would produce a discontinuity in the climatological tabulations beginning in 1968.

6. ACCURACY OF TRACKS AND INTENSITY CLASSIFICATIONS

Tropical cyclones often traverse thousands of miles, but spend most of their lives over, and derive their energy from, the ocean. Before the era of aircraft reconnaissance and weather satellites (see Figure 2), the detection of these storms was dependent on chance encounters with shipping or populated land areas. Over the Atlantic basin, the intersection of mean tropical cyclone tracks with shipping lanes and populated islands makes it likely that most major storms would be detected even well back into the 19th century. However, even with the knowledge of a storm's presence, it can be difficult, without additional data, to specify an exact location and intensity. It is likely, too, that some weaker, short duration early storms were not detected at all.

It is estimated by Landsea et al. (2008) that roughly four to six tropical cyclones may have been missed each year from 1851 to 1885, and that three to four may have been missed yearly from 1886-1920. Likewise intensity values (as they appear in the revised database) are estimated to be low, on average, by 15 kt for the period 1851-1885 and by 10 kt for the period 1886-1920, while average absolute errors may be twice that amount. Average track position errors are estimated to be about 120 n mi for the period 1851-1885, and about 100 n mi for the period 1886-1920. These averages may reduce to about 60 n mi in cases of landfall in settled areas.

Agencies responsible for determining earlier storm tracks and intensities did not have the benefit of satellite data and, before 1944, of aircraft reconnaissance. Consequently, the over-water portions of these earlier tracks are subject to considerable uncertainties. There were, however, certain milestones in communications, observation, and track accuracy. In 1845 the first telegraph line was completed between Washington D.C. and Boston, providing the means for sending weather information by a network of volunteers to the Smithsonian in 1848 (Fitzpatrick 1999). In 1846 the cup anemometer was invented by T. R. Robinson of the Armagh Observatory, Ireland.

Advancements from 1870 onward are treated in some detail by Cry (1965), and much of the following is quoted directly or indirectly from his account.

For many years following the establishment of the U.S. Government Weather Service in 1870, data for a precise

Figure 2. Some milestones in tropical cyclone observing, data processing, and communication systems since 1850.

determination of the location and intensity of tropical cyclones were scarce, widely scattered, of generally poor quality, and sometimes conflicting. Reports from United States land stations were relayed to central forecast offices by telegraph, but observations from ships were not received until the vessels returned to port, sometimes months later. Although such late reports were of no immediate value for forecasting purposes, they were used extensively for the construction of tracks of all major storms occurring over the oceans. These tracks appeared in the International Meteorology Section of the *Monthly Weather Review* for several years. The files of marine observations also served as a basic source for the work of Garriott (1900); Fassig (1913); Mitchell (1924, 1932, some additional undated material) and others.

The first operational radio weather report from a ship underway was received December 3, 1905; the first message reporting a hurricane was sent August 26, 1909, by the SS Cartago from the southern Gulf of Mexico near Yucatan. The amount and quality of marine weather data increased gradually during the succeeding years. During the June-November tropical cyclone season of 1935, more than 21,000 observations were received from the tropical portions of the Atlantic. By 1959, the number of observations from the ships during a corresponding period exceeded 64,000. Since the early 1960's the number has increased less rapidly, because of changes in the characteristics of the shipping industry and the availability of satellite observations over oceanic areas.

The World War II development of storm-tracking radar and subsequent improvements in range and accuracy further increased observational capabilities when storms approached land.

Technological advances since World War II have resulted in more precise tropical cyclone detection, positioning, intensity determination and prediction. Many of these advances, together with earlier noteworthy events, are depicted in Figure 2. Improved radiosonde and rawinsonde equipment for measuring weather conditions above the earth's surface have provided additional knowledge of factors affecting tropical cyclone motion and intensity. The use of aircraft to obtain data inside a hurricane was found to be feasible in 1943 (Sheets 1990), and U. S. Air Force and Navy aircraft made routine flights into tropical cyclones beginning in 1944. Before the operational availability of satellite data in the mid-1960's, these flights proved to be especially important in the early detection of storms.

An important product of the NASA Space Program was the development of weather satellites, now the standard observational tool for the viewing of tropical cyclones on a global scale. After the introduction of continuous weather satellite surveillance in the mid-1960's, augmented by aircraft reconnaissance when storms were near critical areas, there is a high probability that the location of the storm center and the intensity were determined with a rea-sonable degree of accuracy. The first research pictures of a tropical cyclone were transmitted by the polar-orbiting TIROS-1 satellite in 1960. By 1966 the first completely operational weather satellite, ESSA-1, was placed in orbit. The ESSA series were also polar-orbiting satellites and provided views of tropical cyclones once per day. By the late 1960's geostationary satellites allowed continuous daylight viewing and, in 1974, the nighttime viewing gap was closed with the launch of the first Geostationary Operational Environmental Satellite (GOES). Systems for viewing, processing and analyzing these data have also evolved and improved over the last several decades (Sheets 1990).

By reviewing thousands of satellite cloud signatures, Dvorak (1973), Hebert and Poteat (1975) and others were able to systematically estimate the location and intensity of a tropical cyclone. The resulting "Dvorak technique" was modified a decade later (Dvorak 1984) and is now used throughout the world (Velden et al. 2006).

The role of satellite and aircraft data in tropical cyclone prediction is discussed by Sheets (1990), Gray et al. (1991), and Rappaport et al. (2009). Since all of the storm tracks and intensity classifications for the 1964 through 2006 Atlantic hurricane seasons were prepared with the benefit of satellite imagery (as well as aircraft reconnaissance and other conventional data) the track accuracy should be near optimum, considering the scale of the maps and the scale of the motion depicted.

A significant milestone occurred during the 1977 hurricane season when a complex system known as the Aircraft Satellite Data Link (ASDL) enabled aircraft measurements taken inside a storm at 60-second intervals to be delivered to the forecaster within a few minutes. It is significant to contrast this with an earlier statement concerning the receipt of ship observations months after the observation was taken. Thus, the temporal gap between taking a weather observation and receipt of the data by the ultimate user continued to close.

Currently, tropical cyclones are primarily detected and tracked by satellite, although supplemental aircraft data are needed to obtain more precise environmental data in and around the storm area (Rappaport et al. 2009). In addition to military aircraft reconnaissance, the National Oceanic and Atmospheric Administration (NOAA) operates two Orion P3 aircraft with sophisticated instrumentation for the collection of detailed data that are used primarily for research but are also important for the operational needs of the NHC.

The installation of a national network of powerful Doppler radars (Crum and Alberty 1993) was begun in 1990 and completed in 1997 (Whiton et al. 1998). Coastal radar is particularly useful in detecting sudden changes in the direction and intensity of tropical cyclones when these storms are within about 250 miles of the radar site. This permits "last-minute" adjustments in community preparedness efforts as these storms move ashore.

Marine data is now supplied by meteorological data buoys positioned at strategic locations. These floating platforms transmit observations of wind, pressure, waves, ocean and air temperatures in and around tropical cyclones and other weather systems (Cione et al. 2000).

In 1997 the NOAA aircraft fleet was augmented with a G-IV jet aircraft, allowing sampling of the upper atmosphere and release of dropsondes over a much wider area (Aberson and Franklin 1999). New Global Positioning System (GPS) aircraft-released dropsondes provide vastly improved data quality and quantity over earlier aircraft dropsondes (Franklin et al. 2003a). These data also feed into complex numerical models that can predict tropical cyclone motion with improved accuracy (McAdie and Lawrence 2000; Franklin et al. 2003b).

Within the last decade advances have also been made in satellite-borne remote-sensing platforms. Among these are the polar-orbiting NASA Seawinds scatterometer (QuikSCAT), an active microwave sensor that provides estimates of wind speed and direction near the sea surface (Von Ahn et al. 2006). The Ad-vanced Microwave Sounding Unit (AMSU) was launched on the NOAA-15 polar orbiter in 1998 (Kidder et al. 2000). AMSU provides forecasters with temperature and moisture soundings which have proved useful in determining tropical cyclone structure and, by inference, intensity (Brueske and Velden 2003).

The 156 years from 1851 through 2006 cover the complete period of the development of meteorology and organized weather services. In general, the quality and quantity of tropical cyclone data are consistent with technical advances depicted in Figure 2. Better processing, understanding and application of these data are leading to continuously improving tropical cyclone motion forecasts (McAdie and Lawrence 2000; Franklin et al. 2003b). There is every reason to expect continued improvement.

In the early years, observations simply did not exist or were very uncertain. Not knowing the location of a storm nor the properties of the atmosphere in which the storm was embedded and how this was changing with time made forecasting tropical cyclone movement and associated intensity extremely uncertain. Today, a widespread network of land stations, ships, aircraft, radar, satellites, data buoys, etc., along with sophisticated instrumentation and communication, is available for the detection, tracking and understanding of tropical cyclones.

7. NORTH ATLANTIC TROPICAL CYCLONE TRACKS

7.1 Chart Series A

The tracks of all recorded Atlantic tropical cyclones that reached at least tropical storm strength for each year from 1851 through 2008 are presented in Chart Series A (Appendix A). For the period before 1964, several steps were used by Cry (1965) to obtain the final tracks. First, all cyclones considered to be of tropical origin in any given year were listed together with all relevant intensity data. Second, all versions of each storm track were plotted on charts. Comparisons of these differing interpretations and evaluations of information from all sources, including daily synoptic charts (U.S. Army Air Force 1945-1948; U.S. Weather Bureau 1872-1963), were made, and the track configuration for each storm most consistent with all the data was selected. These positions and intensities were plotted on the annual charts of Series A.

The objective was to depict accurately, throughout their existence, the position and intensity of each significant tropical cyclone in the North Atlantic. Unfortunately, the quality of some of the data prevented full attainment of this goal; many positions and intensities, particularly for the earlier years, are estimates, representing compromise to significant differences in the references. Cry (1965) did not attempt to estimate intensity before 1899. As noted previously, subsequent work now incorporated into this edition (Fernández-Partagás and Diaz 1995b, 1996a, 1996b, 1997, 1999; Landsea 2004, 2008) does provide basic intensity estimates starting in 1851, a dissipating tropical depression phase starting in 1871, and an initial tropical depression phase starting in 1886. Beginning in 1968, the classification of subtropical (see section 4.3) was added.

The tropical cyclone tracks presented here are often referred to as "best-tracks." They represent the best estimate (at 6-hourly intervals) of the smoothed path of the center as it moves across the earth's surface. Smoothing is necessary to remove small-scale oscillatory motions of the storm center, which can deviate some 5 to 30 nautical miles from a mean path. These smaller-scale motions are transitory and are not representative of the more conservative motion of the entire storm envelope (Lawrence and Mayfield 1977; Sheets 1986). The storm tracks in Chart Series A and B should therefore be considered as the average path of the larger-scale storm circulation, rather than the precise location of the center at any given time.

Before 1950, there was no formal nomenclature for the identification of cyclones. Noteworthy storms were informally designated by such descriptive terms as "Yankee hurricane," "New England hurricane," "Labor Day hurricane," "Galveston storm," etc. Official naming of Atlantic tropical cyclones began in 1950. Initially, the 1950 vintage phonetic alphabet (Able, Baker, Charlie, etc.) was used. However, for the 1953 season, the practice of using women's names, first used in the western Pacific during World War II, was introduced. This convention continued until 1979 when both men's and women's names were used alternately. In the same year, French and Spanish names were introduced. In Chart Series A, certain storms lack names even after the formal naming of tropical cyclones began. Some of these remained subtropical. Others, originally thought to be nontropical or not of tropical storm intensity, were added after post-analysis indicated they did have tropical characteristics. The naming of subtropical systems began in 2002.

7.2 Chart Series B

Another series of charts (Series B) provides storm groupings according to selected intraseasonal periods. A similar series presented by Cry (1965) has always been useful for both operational and research purposes. It is evident that Chart Series B was generated without the manual intervention necessary for Series A.

A Mercator projection, true at 22.5ºN latitude was used in Chart Series B. In a manner similar to that employed in previous editions, the tracks are presented without regard to stage, other than they are assigned to the period in which they first reached tropical storm strength. The intent is to show the spatial and temporal shifts in tropical cyclone occurrence.

Series B charts are presented for the months of May through December and for 10- (or 11-) day periods, June through November. Figure 1, illustrating the entire storm sample can also be considered as part of Series B. This rendition of the entire 1370 storm sample serves to illustrate the bounds of the North Atlantic tropical cyclone basin. The relative frequency of storms in any given area can be roughly identified by the track density.

The tracks were drawn by means of a computer interpolation routine suggested by Akima (1970). Storm positions, at 6-hourly intervals are specified as anchor points. In a few cases, however, the 6-hourly positions are insufficient to define tight loops or sudden changes in direction.

8. FREQUENCY OF NORTH ATLANTIC TROPICAL CYCLONES

8.1 Monthly and Annual Frequencies

Tables 2 and 3 present monthly and annual frequencies of recorded Atlantic-basin tropical cyclones (including subtropical storms) and hurricanes for each year 1851 through 2006. Grouping in these tables is based on the initial date (UTC) of tropical storm intensity (Table 2) or hurricane intensity (Table 3); the tropical depression stage (if any) was not included. For example, a storm reaching tropical storm strength on August 31, reaching hurricane strength on September 5 and dissipating on September 20, would be counted as an August storm in Table 2, and a September hurricane in Table 3.

In any discussion of tropical cyclone frequency, especially when considering data spanning over a century of tremendous technological change, the consistency of the data must be considered. Figure 3 illustrates this point. The average storm duration (shown averaged per year) in Figure 3a and smoothed in Figure 3b, indicates that duration is not well-known prior to perhaps the mid-1880s. Indeed, some of these early systems appear in the database in a very fragmentary way, the extreme cases being systems known only at a single point. In these cases the existence of a system may have been captured in mid-ocean by a single (but reliable) ship observation. In other cases the only data may be in the area of landfall. No attempt is made to artificially extend the track beyond what is known. Other factors affecting average duration are the omission of the initial tropical depression phase prior to 1886 (Table 1), and the fact that for a number of tracks during this period the data are only adequate for a description of a hurricane phase. Thus, while we might have reasonable confidence in that portion of track, its total duration is not known. While the data set is as complete as possible by the inclusion of this data, care must be taken not to unduly bias average quantities.

Thus, Figure 4 is based on all Atlantic tropical cyclone tracks from 1886 through 2006, and the median duration of a tropical cyclone, including the depression stage (if recorded) is found to be 5.75 days. Note that duration may vary from less than two to over 30 full days. A storm which begins at 0600 UTC on one day and ends 0600 UTC on the next would be assigned a duration of one day rather than two. The smoothed modal (most frequently occurring duration) is 3.4 days. The mean duration is 6.62 days.

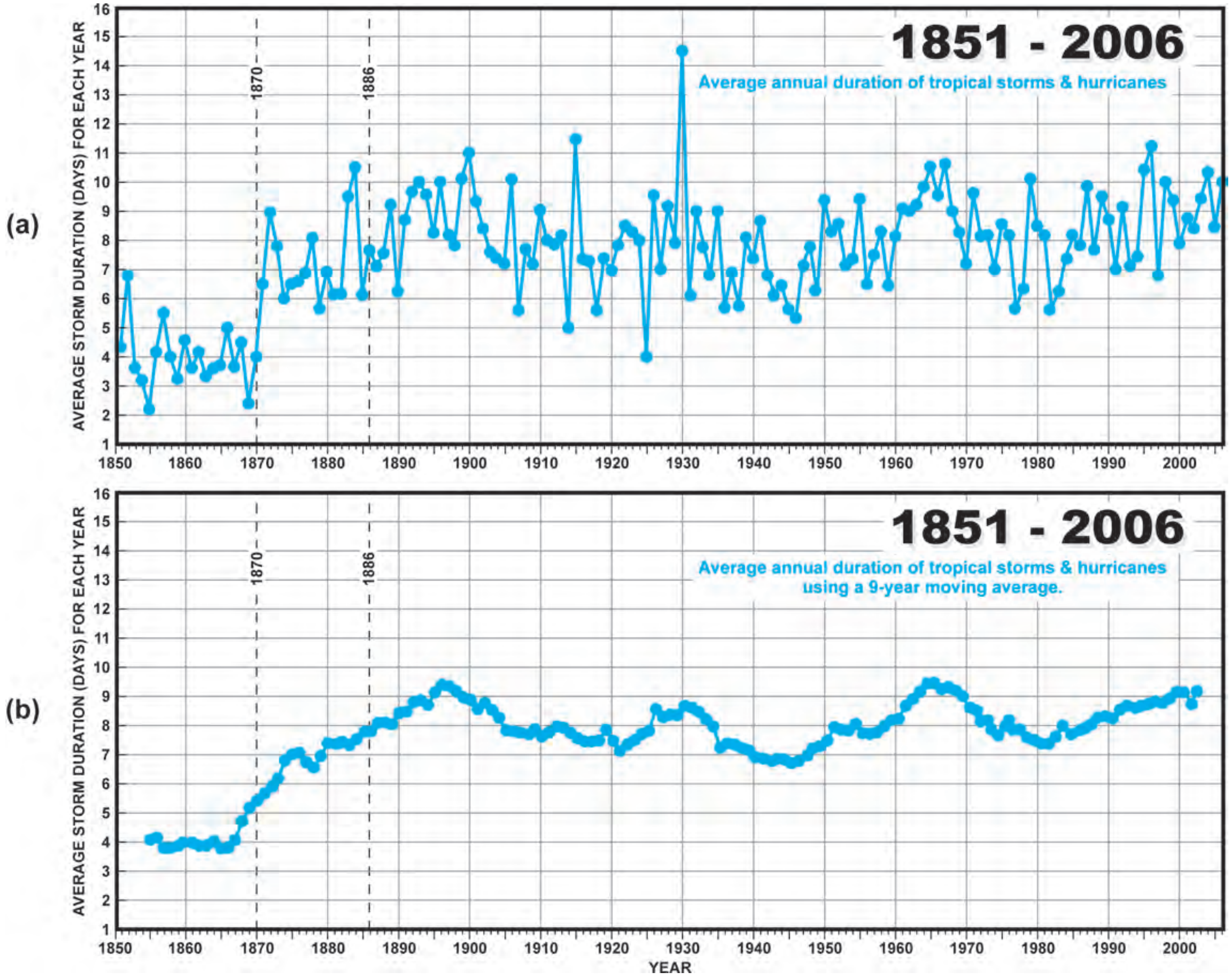

Figure 3. (a) Average annual duration of tropical storms and hurricanes from 1851-2006. (b) As in (a) except smoothed using 9-year moving average. Before 1870, data is only sufficient for designating the tropical storm, and extratropical phases. Beginning in 1886 all phases except subtropical are included. Subtropical designation begins in 1968.

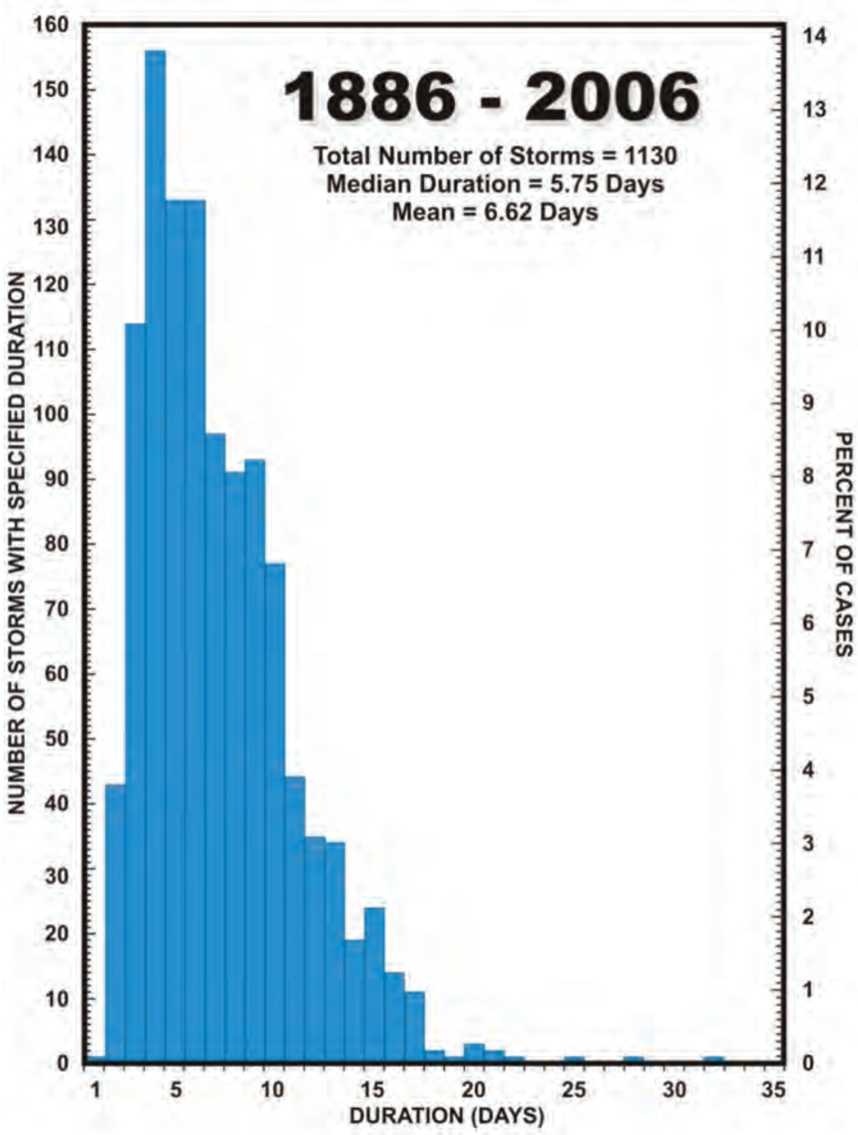

Figure 4. Distribution of observed duration (number of days) of Atlantic tropical cyclones, 1886-2006, including depression and subtropical stages but excluding extratropical stage.

The climatology of the basin (Appendix B) is such that very brief storms typically form in the Gulf of Mexico and dissipate over adjacent land areas, often before reaching full maturity. Storm number 3, 1946 is a good example.

Including the depression and tropical storm stages and excluding the extratropical stage, hurricanes of long duration include Ginger, occurring September 6 to October 3, 1971, Inga, occurring September 20 to October 15, 1969, and Kyle from September 20 to October 12, 2002 (all dates UTC). All three storms meandered slowly around the western and central Atlantic for much of their existence. Other long-duration storms include those that form in the eastern Atlantic, travel westward, recurve near or over the United States East Coast and then move northeastward across the open Atlantic.

Figure 5, spanning the entire extended data set, shows that the effect of data quality is somewhat less dramatic when simply

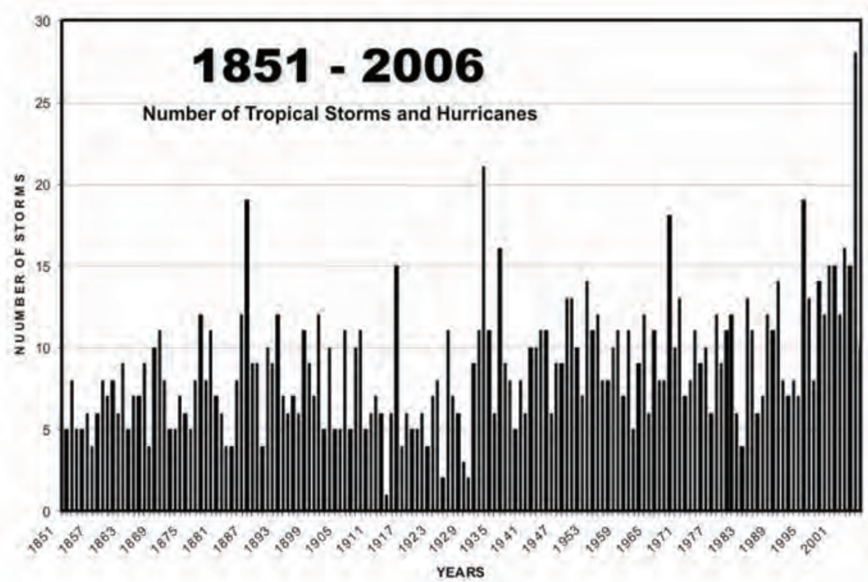

Figure 5. Number of tropical storms and hurricanes from 1851-2006.

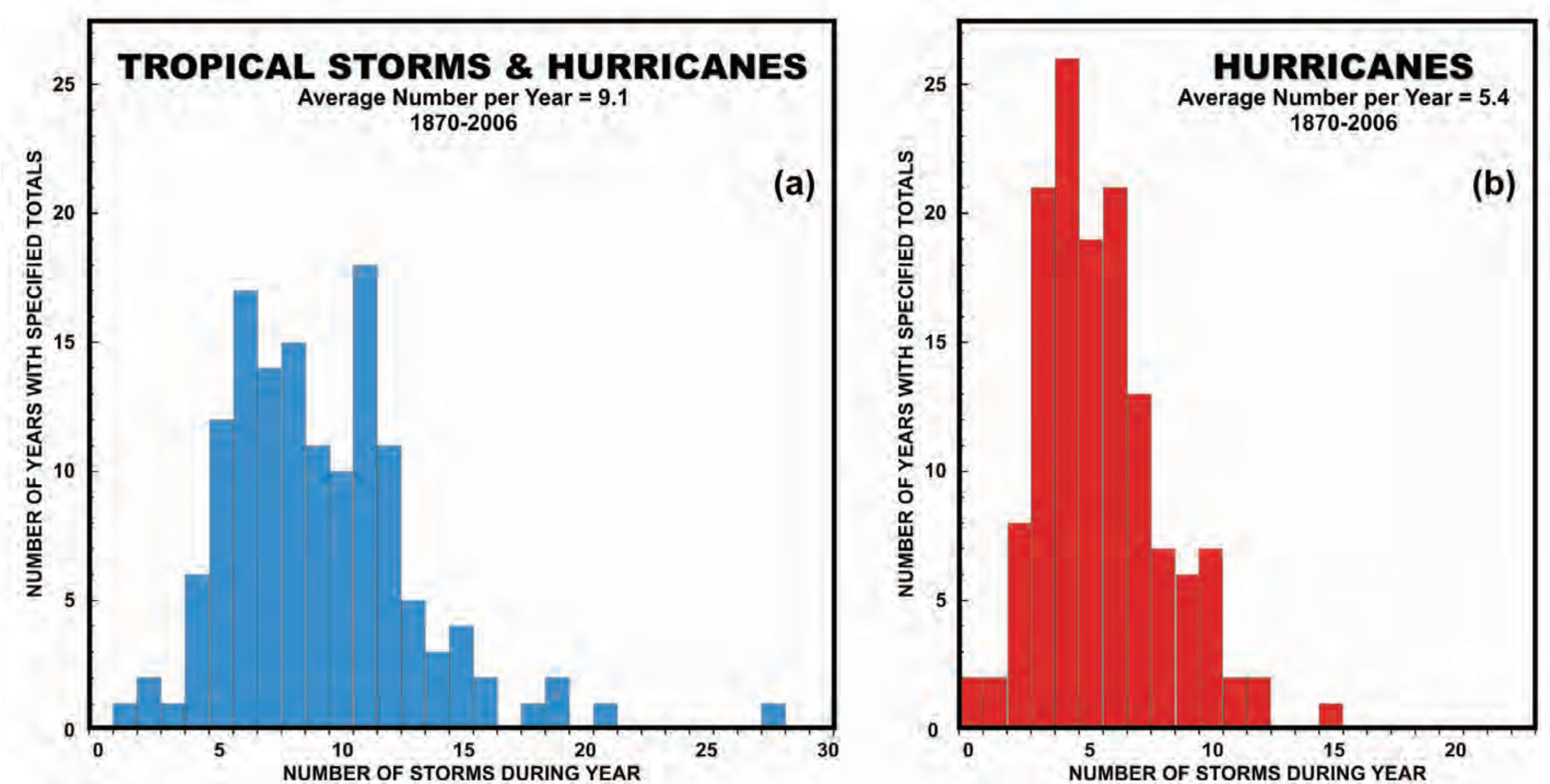

Figure 6. Distribution of annual number of tropical cyclones with maximum winds of at least (a) 34 kts and (b) 64 kts, 1870-2006.

considering the number of systems, without regard to intensity or duration. Given the discussion above, however, one is left with the central dilemma of any tropical cyclone climatology, which is the combined effect of data quality, data completeness, and natural variability present in tropical cyclone occurrence.

Before the aircraft reconnaissance era, it is considered likely that short-duration and, perhaps even some longer-duration over-water storms were either undetected or were misclassified in regard to location and intensity. After the mid-1940's, when aircraft reconnaissance began, it became increasingly likely that most storms would be detected, except perhaps in the distant eastern Atlantic. After the introduction of operational weather satellites in the mid-1960's, even the more remote areas became viewable. In

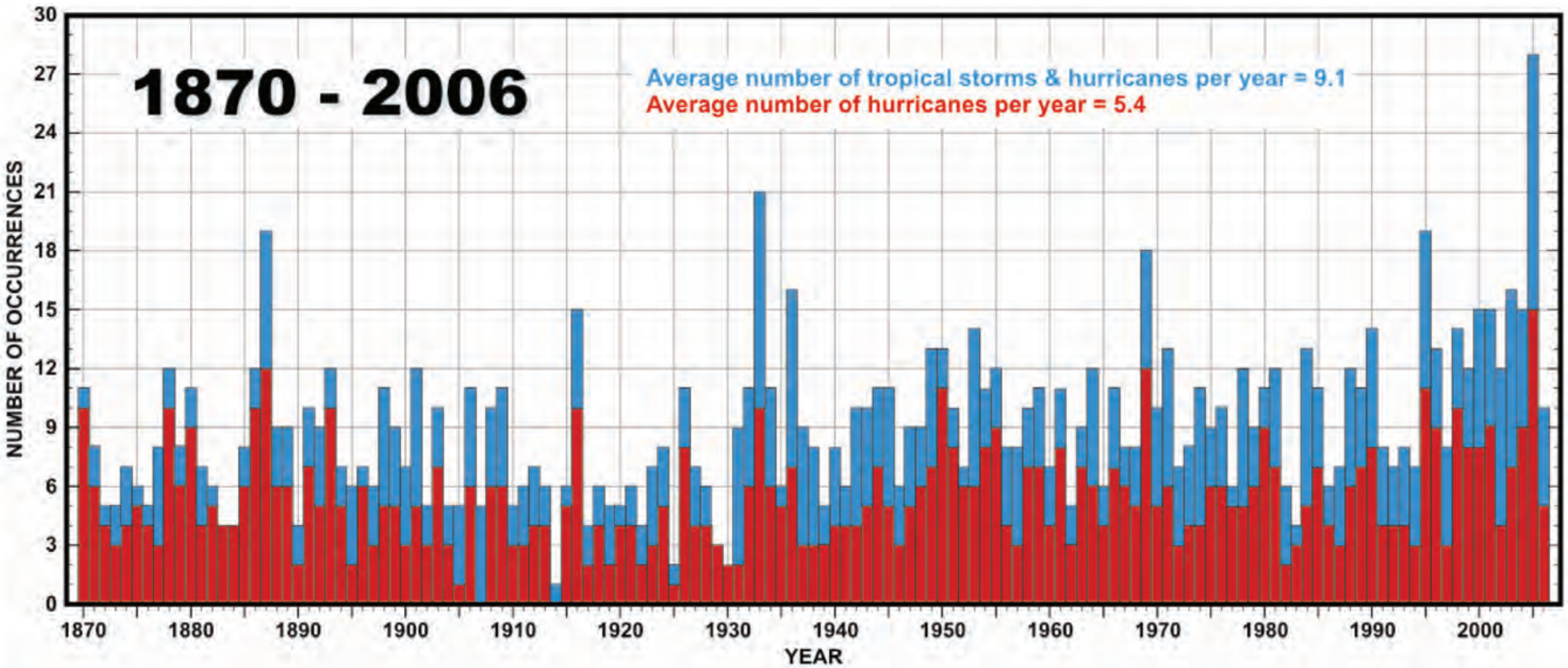

Figure 7. Annual distribution of the 1245 tropical cyclones reaching at least tropical storm strength (blue) and the 738 reaching hurricane strength (red), 1870-2006. The average number per year is 9.1 and 5.4 respectively.

this regard, Landsea (2007) estimates that about two systems per year may have been missed from 1900-1965 due to lack of satellite imagery, and conversely that roughly one additional system per year has been identified through new technology since about 2000. As the latter are typically very short-lived systems, those conducting interdecadal comparisons have sought to characterize seasonal activity by utilizing some measure of total energy (one example being the Accumulated Energy Index, or ACE [Bell and Chellah 2006]) rather than raw storm count.

In addition to observational deficiencies, it is known that large-scale atmospheric conditions such as El Niño or variations in sea-surface temperatures, in general, can influence tropical cyclone frequency and intensity. Some of these factors are discussed by Wendland (1977), Gray (1984), and Shapiro (1989).

The number of storms occurring in any given year does vary widely, as shown by the frequency distributions presented in Figures 6 and 7. One year, 1914, had only one occurrence, while 21 tropical storms or hurricanes occurred in 1933. 2005 witnessed an unprecedented 28 named systems. There were no storms reaching hurricane strength in the years 1907 and 1914, while 12 hurricanes occurred in 1887 and 1969. The record year for hurricanes was 2005, with 15 occurrences.

Table 2. Number of recorded Atlantic cyclones (excluding tropical depressions and including subtropical cyclones) that reached at least tropical storm intensity in specified month, 1851-2006. Refer to Table 4 for summaries of these data.

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1851						1	2	1	1	1			6
1852								1	3	1			5
1853								3	4	1			8
1854						1		1	2	1			5
1855								4	1				5
1856								5	1				6
1857						1			3				4
1858						1		1	3	1			6
1859							1	1	3	3			8
1860								2	4	1			7
1861							1	2	2	2	1		8
1862						1		1	1	2	1		6
1863								4	5				9
1864							2	1	1	1			5
1865					1	1		1	3	1			7
1866							1	1	4	1			7
1867						1	1	2	2	3			9
1868									1	3			4
1869								3	5	2			10
1870							1	1	3	6			11
1871						2		3	2	1			8
1872							1	1	2	1			5
1873						1		1	3				5
1874							1	2	3	1			7
1875								1	3	2			6
1876									4	1			5
1877								1	4	2	1		8
1878							1	3	3	4	1		12
1879								4		3	1		8
1880						1		4	3	3			11
1881								5	2				7
1882								1	4	1			6
1883								2	1	1			4
1884									3	1			4
1885								3	4	1			8
1886						3	1	3	2	3			12
1887					2	1	2	2	3	6	1	2	19
1888						1	1	2	2	1	2		9
1889					1	1		1	5	1			9
1890					1			2		1			4
1891							1	2	3	3	1		10
1892						1		1	4	3			9
1893						1	1	5	3	1	1		12
1894						1		2	1	3			7
1895								2	1	3			6
1896							1	1	2	2	1		7
1897								1	3	2			6
1898								2	6	3			11
1899						1	1	2	1	3	1		9
1900								1	3	3			7
1901						1	2	3	3	3			12
1902						2			1	1	1		5
1903							1	1	4	3	1		10
1904						1			1	3			5
1905									3	2			5
1906						2		2	3	3	1		11
1907						1			2	1	1		5
1908			1		1		2	1	3	2			10
1909						3	1	3	2	1	1		11
1910								2	2	1			5
1911								3	2	1			6
1912						1	1		2	2	1		7
1913						1		3		2			6
1914									1				1
1915							1	3	2				6

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1916					1		3	4	3	3	1		15
1917							1	2	1				4
1918								4	2				6
1919							1		3		1		5
1920									5				5
1921						1			3	2			6
1922						1			1	2			4
1923								1	1	5			7
1924						1		2	2	2	1		8
1925									1		1		2
1926							2	1	5	2	1		11
1927								1	3	3			7
1928								2	3	1			6
1929						1			1	1			3
1930								2					2
1931						1	1	2	3	1	1		9
1932					1			3	3	3	1		11
1933					1	1	3	7	5	3	1		21
1934					1	1	1	2	2	3	1		11
1935								3	1	2			6
1936						3	2	6	4	1			16
1937							1	2	6				9
1938								3	1	3	1		8
1939						1		1	1	2			5
1940					1			3	2	2			8
1941									4	2			6
1942								3	3	3	1		10
1943							1	2	4	3			10
1944							3	2	4	2			11
1945						1	1	4	3	2			11
1946						1	1	1	1	2			6
1947							1	2	3	3			9
1948					1		1	2	3	1	1		9
1949								3	7	2	1		13
1950								4	3	6			13
1951					1			3	3	3			10
1952		1						2	2	2			7
1953					1			3	4	4	1	1	14
1954						1	1	2	4	1	1	1	11
1955							1	4	5	2			12
1956						1	1	1	4		1		8
1957						2		1	4	1			8
1958						1		4	4	1			10
1959					1	2	2	1	3	2			11
1960						1	2	2	2				7
1961							1		6	2	2		11
1962								2	1	2			5
1963								2	5	2			9
1964						1	1	3	5	1	1		12
1965						1		2	2	1			6
1966						1	4	1	4		1		11
1967								1	4	3			8
1968						3		1	3	1			8
1969							1	5	6	5	1		18
1970					1		1	3	3	2			10
1971							1	4	6	1	1		13
1972					1	1		2	2		1		7
1973							2	2	2	2			8
1974						1	1	4	4	1			11
1975						1	1	2	3	1		1	9
1976					1		1	5	2	1			10
1977								1	3	2			6
1978	1						1	4	3	3			12
1979						1	2	3	2	1			9
1980								3	5	1	2		11

Table 2. (Continued)

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1981					1	1		2	5	1	2		12
1982						2		1	2	1			6
1983								2	2				4
1984								4	6	1	1	1	13
1985							2	3	3	2	1		11
1986						2		1	2		1		6
1987								3	3	1			7
1988								3	7	1	1		12
1989						1	2	4	2	1	1		11
1990							2	6	2	4			14
1991							1	1	3	3			8
1992				1				1	4	1			7
1993						1		4	3				8
1994							1	2	2		2		7
1995						1	4	7	3	4			19
1996						1	2	4	2	3	1		13
1997						1	4		1	2			8
1998							1	4	6	2	1		14
1999						1		4	3	3	1		12
2000								4	7	4			15
2001						1		3	4	4	3		15
2002							1	3	8				12
2003				1		1	2	3	5	2		2	16
2004								8	4	2	1		15
2005						2	5	5	5	7	3	1	28
2006						1	2	3	4				10

Another record of interest is the maximum number of hurricanes in consecutive years. The following data are found in the annual totals given in Table 3:

- the 2004-2005 seasons (2 consecutive years) observed 24 hurricanes;
- the 2003-2005 seasons (3 consecutive years) observed 31 hurricanes;
- the 2003-2006 seasons (4 consecutive years) observed 36 hurricanes;
- the 2001-2005 seasons (5 consecutive years) observed 44 hurricanes.

Considering the entire Atlantic basin, there are several areas off the eastern coast of the United States that observe the maximum number (frequency) of hurricanes. These areas are located about 150 n mi east of the North Carolina/South Carolina border, and about 280 n mi east of the central east coast of Florida. Both of these offshore areas observe about 40 to 42 hurricanes per 100 years (that is, the centers of these hurricanes track through a circle of radius 75 n mi centered in those locations). (Figure 12, Section 8.5 addresses hurricane counts for coastal areas.)

Long-term upward or downward trends in the frequency of tropical cyclones, if not accounted for, make the average frequency a function of the period of record. To illustrate, data from Tables 2 and 3 have been averaged over four periods: 1870-2006, 1910-1930, 1944-2006, and 1966-2006 (see Table 4). The first period begins in the era when observational tools were limited; the second period shows a minimum in frequency with an average of only about six storms per year; the third period, 1944-2006 begins with the introduction of aircraft reconnaissance, while the last period spans the years during which satellite imagery has been available. The averages for the four periods appear in Table 4. While substantial differences in the monthly and annual frequencies can be noted, omitting the pre-satellite era (i.e. the years before 1966) from the 1944 to 2006 period results in a modest increase in average storms and hurricanes (.5 systems per year), no change in the average number of hurricanes, and a slight decrease in average number of major hurricanes.

8.2 Daily Frequencies

Figures 8a and b illustrate the incidence of tropical cyclones over the North Atlantic basin on a daily basis for the 8-month period that covers the principal season. Except for the longer period of record, Figure 8a is similar to one presented by Cry (1965). Figure 8b uses the same data as Figure 8a except that it has been smoothed using a 9-day moving average. These smoothed frequencies eliminate much of the “noise” inherent in the raw data, yet preserve the larger-scale seasonal cycles.

Referring to Figure 8b, the seasonal fluctuations in tropical cyclone frequency include, in chronological order, a slight maximum around mid-June, followed by a slight decline until early-July, a rapid increase in frequency starting in early August, with a peak occurring around September 10. A sharp decline in frequency occurs thereafter, interrupted by a slight increase in mid-October.

It can be noted in Figures 8a and b that the storm frequency on any given day is specified in units of “Number of storms per 100 years.” This unit of measurement is convenient for comparing Atlantic storm frequencies with similarly normalized charts for other basins having dissimilar periods of record. In preparing these figures, multiple storm occurrences on single days were included in the overall totals. Thus, the occurrence of three storms on a given date for a single year would yield the same average as a single storm on the same date for each of three years. This counting methodology needs to be considered when interpreting these data.

The latter topic is specifically addressed in Figure 9 where it can be noted that multiple storm occurrences on single days are reasonably common during the peak of the hurricane season. Figure 9a shows that, except for the period from about August 30 to September 25, there is a greater chance of not observing a tropical cyclone on any given day than there is of observing at least one tropical cyclone over the North Atlantic basin.

The maximum multiple occurrence event depicted on these figures is the “at least three” category. The maximum number of simultaneous occurrences on a single day over the North Atlantic is four, although such an event is quite rare, being observed in only eight of the 137 years, 1870-2006. The longest daily span of a four-storm event occurred in 1893 when four tropical storms or hurricanes were in existence during August 15-24. The most recent occurrence of such an event was in 1998 when four tropical cyclones (Georges, Ivan, Jeanne and Karl) occurred simultaneously, during September 24-27. Also, during the very active 1995 season, there were four storms present from August 29-September 1 (Humberto, Iris, Karen and Luis).

There were only two years (1893 and 1998) when 4 hurricanes existed simultaneously. The 1998 hurricanes were Georges, Ivan, Jeanne and Karl and the dates were September 25

Table 3. Number of recorded Atlantic cyclones (excluding tropical depressions and including subtropical cyclones) that reached at least hurricane intensity in specified month, 1851-2006. Refer to Table 4 for summaries of these data.

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1851						1	1	1					3
1852								1	3	1			5
1853									3	1			4
1854						1			2				3
1855								3	1				4
1856								3	1				4
1857									3				3
1858						1		1	3	1			6
1859							1	1	3	2			7
1860								2	2	2			6
1861							1	2	2		1		6
1862								1	1	1			3
1863								4	1				5
1864							1	1		1			3
1865									2	1			3
1866							1	1	4	1			7
1867						1	1	2	1	2			7
1868									1	3			4
1869								3	3	1			7
1870							1	1	2	6			10
1871								3	1	2			6
1872								1	1	2			4
1873								1	2				3
1874								1	2		1		4
1875								1	2	2			5
1876									2	2			4
1877									3				3
1878								3	3	4			10
1879								4		1	1		6
1880								4	3	2			9
1881								3	1				4
1882								1	3	1			5
1883								2	1	1			4
1884									3	1			4

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1885								2	3	1			6
1886						3	1	3	2	1			10
1887							1	2	3	3	2	1	12
1888						1		2	1	1	1		6
1889					1	1		1	3				6
1890								1		1			2
1891							1	2	2	2			7
1892								1	2	2			5
1893						1	1	5	3				10
1894									2	3			5
1895								1		1			2
1896							1	1	2	2			6
1897									2	1			3
1898								2	3				5
1899							1	2	1	1			5
1900									3				3
1901							1	1	2		1		5
1902						1			1	1			3
1903							1	1	3	1	1		7
1904						1			1	1			3
1905										1			1
1906						1		1	2	1	1		6
1907													0
1908			1		1		1		2	1			6
1909						1	1	1	1	1	1		6
1910									2	1			3
1911								2	1				3
1912									1	2	1		4
1913						1			1	2			4
1914													0
1915								3	2				5
1916							3	3	2	2			10
1917								1	1				2
1918								3	1				4
1919									2				2
1920									4				4
1921						1			2	1			4
1922									1	1			2
1923									2	1			3
1924								2	1	1	1		5
1925												1	1
1926							1	2	4	1			8
1927								1	3				4
1928								2	1	1			4
1929						1			1	1			3
1930								2					2
1931									2				2
1932								2	2		2		6
1933						1	1	3	3	2			10
1934						1	1	1	1	1	1		6
1935								1	2	1	1		5
1936						1	1	3	2				7
1937									3				3
1938								2	1				3
1939								1		2			3
1940								3	1				4
1941									3	1			4
1942								3			1		4
1943							1	1	2	1			5
1944							2	1	3	1			7
1945						1		1	1	2			5
1946							1		1	1			3
1947								2	1	2			5
1948								1	3	1	1		6
1949								2	3	2			7
1950								4	2	5			11
1951					1			1	3	3			8
1952								1	3	2			6
1953								1	4	1			6
1954						1		1	3	2		1	8
1955								3	5	1			9
1956							1	1	1		1		4
1957						1			2				3
1958								3	3	1			7
1959						1	2		3	1			7
1960							1	1	2				4
1961							1		4	2	1		8
1962								1		2			3
1963								2	4	1			7
1964								1	4	1			6
1965								2	1	1			4
1966						1	3	1	1		1		7
1967									4	2			6
1968						2		1	1	1			5
1969								3	5	2	2		12
1970					1			1	1	2			5
1971								2	4				6
1972						1		1	1				3
1973							1	1	1	1			4
1974								2	2				4
1975							1	2	3				6
1976								4	1	1			6
1977								1	3	1			5
1978								2	2	1			5
1979							1	1	3	1			6
1980								3	3	1	2		9
1981								1	5		1		7
1982						1			1				2
1983								2	1				3
1984									2	1	1	1	5
1985							1	3	1	1	1		7
1986						1		1	1		1		4
1987								1	1	1			3
1988									4	1	1		6
1989								3	3	1			7
1990							1	2	1	4			8
1991								1	1	1	1		4
1992								1	2	1			4
1993								1	3				4
1994								1			2		3
1995						1		5	2	3			11
1996							2	3	2	1	1		9
1997							2		1				3
1998								2	5	2	1		10
1999								3	2	2	1		8
2000								2	5	1			8
2001									4	2	3		9
2002									4				4
2003							2	2	3				7
2004								5	3	1			9
2005							3	2	5	4		1	15
2006								1	4				5

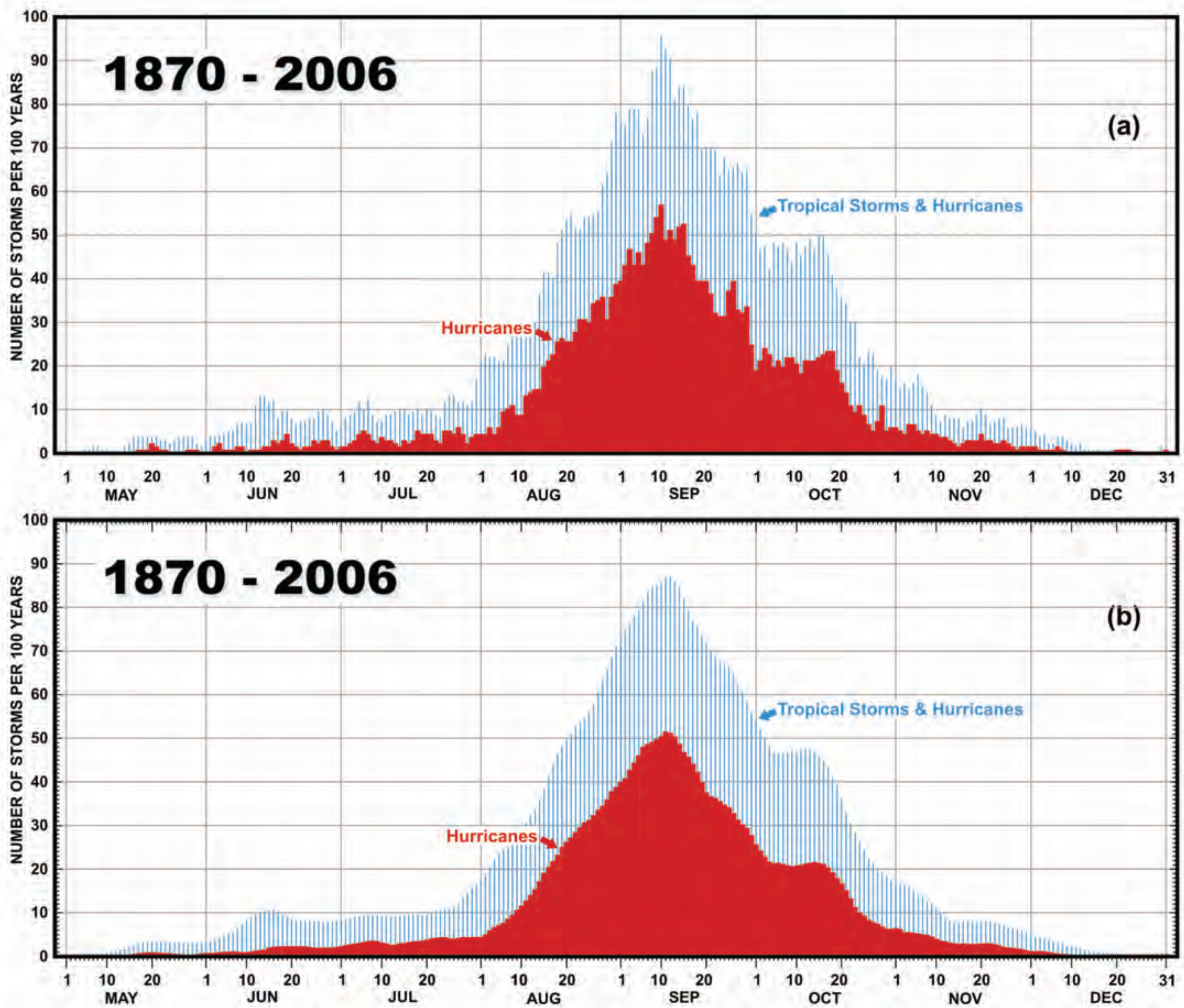

Figure 8. (a) Intraseasonal variations in the 100-year expectancy of tropical cyclone occurrence. Red bar is for hurricanes while blue bar is for hurricanes and tropical storms combined. Summary is based on the 137-year period 1870-2006. (b) As in (a) except smoothed by a 9-day moving average.

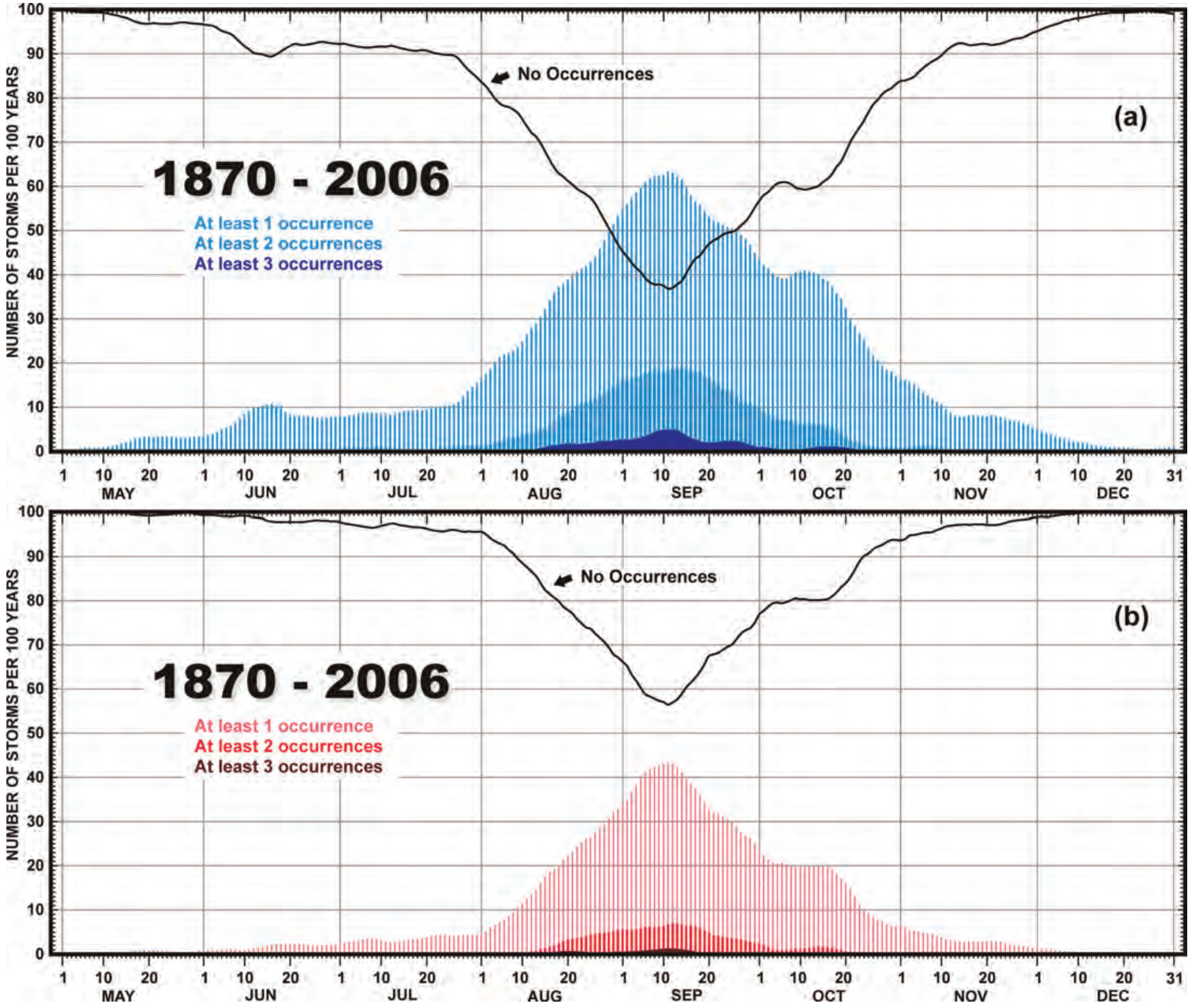

Figure 9. Intraseasonal variation in the 100-year frequency of specified tropical cyclone events. Summary is for a) hurricanes and tropical storms combined and is based on the period of record 1870 - 2006. (b) As in (a) except for hurricanes alone.

and 26. The "official" Atlantic hurricane season extends from June 1 to November 30. However, the season sometimes begins or ends "outside" of these somewhat arbitrary limits. Figure 10 presents a cumulative percentage frequency distribution (Anderson et al. 2008) of the beginning and ending dates of the Atlantic tropical cyclone season. Although there are a few instances when the first storm began earlier than May 1 (see Table 2) these pre-season events were not included in Figure 10. The figure shows that the median (50% cumulative percentage frequency) starting date is June 29 while the median ending date is October 30.

There are no well-defined statistical relationships between the beginning and ending dates; that is, the seasons that began early or late do not necessarily end early or late. There is only a weak statistical relationship between starting date and the number of storms. Although seasons that begin early tend to have more storms than those that begin late, the low linear correlation coefficient (-0.21) indicates that there are many exceptions to this "rule."

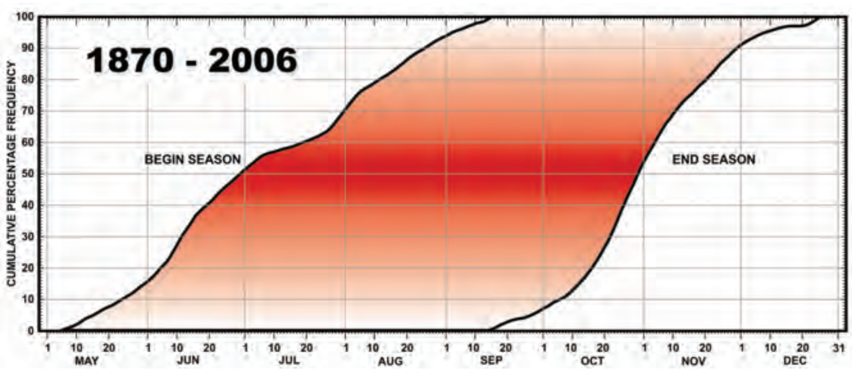

Figure 10. Cumulative percentage frequency distribution of beginning and ending dates of Atlantic tropical cyclone season. (Dates are of first and last recorded position with at least tropical storm strength.) Data have been smoothed using a 9-day moving average.

8.3 Areas of Formation

Seasonal shifts in the principal areas of tropical cyclone formation over the Atlantic basin have been recognized for many decades and the reader is referred to references such as Dunn (1951) or Dunn and Miller (1960) for discussions. These seasonal shifts become quite apparent after a review of Chart Series B. Early season tropical cyclones are almost exclusively confined to the western Caribbean and the Gulf of Mexico. However, by the end of June or early July, the area of formation gradually shifts eastward with a slight decline in the number of storms. By late July, the frequency gradually increases, and the centroid of formation shifts still farther eastward. By mid-August, tropical cyclones form over a broad area that extends eastward to near the Cape Verde Islands off Africa. The period from about August 20 to September 15 encompasses the maximum occurrence of the "Cape Verde" type storms, so-named because they can traverse the entire Atlantic and are often a threat to the Caribbean Islands and the United States.

Many additional features relating to temporal and spatial variations in storm frequency can be identified by careful analysis of Chart Series B. It often is helpful to consider these charts in conjunction with Figures 8a and b, depicting the daily frequencies. As discussed in Section 2, readers wishing to perform their own analysis of the storm tracks can download the basic data from the National Hurricane Center Internet Web site at http://www.nhc.noaa.gov.

8.4 Tropical Cyclones Affecting the U.S.

Of the 1370 tropical cyclones that have been recorded over the Atlantic tropical cyclone basin, 1851-2006, a total of 521 or about 38% have crossed or passed immediately adjacent to the United States coastline, Texas to Maine. Figure 11 shows the year-to-year distribution of these 521 storms. It is interesting to note that since the mid-1860s there has been at least one coastal crossing

Table 4. Total and average number of tropical cyclones (excluding tropical depressions) beginning each month. Data have been summarized from Tables 2 and 3. Subtropical systems are included. Asterisk (*) indicates less than 0.05 storms.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
1870-2006													
TROPICAL STORMS & HURRICANES	1	1	1	2	18	73	96	314	415	255	60	9	1245
AVERAGE OVER PERIOD	*	*	*	*	0.1	0.5	0.7	2.3	3	1.9	0.4	0.1	9.1
HURRICANES ONLY	0	0	1	0	4	27	48	208	275	139	33	3	738
AVERAGE OVER PERIOD	0.0	0.0	*	0.0	*	0.2	0.4	1.5	2.0	1.0	0.2	*	5.4
MAJOR HURRICANES ONLY	0	0	0	0	1	3	9	101	121	38	5	0	278
AVERAGE OVER PERIOD	0.0	0.0	0.0	0.0	*	*	0.1	0.7	0.9	0.3	*	0.0	2.0
1910-1930													
TROPICAL STORMS & HURRICANES	0	0	0	0	1	6	9	30	43	27	6	0	122
AVERAGE OVER PERIOD	0.0	0.0	0.0	0.0	*	0.3	0.4	1.4	2.0	1.3	0.3	0.0	5.8
HURRICANES ONLY	0	0	0	0	0	3	6	22	29	14	3	0	77
AVERAGE OVER PERIOD	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.0	1.4	0.7	0.1	0.0	3.7
MAJOR HURRICANES ONLY	0	0	0	0	0	0	4	8	13	5	1	0	31
AVERAGE OVER PERIOD	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.6	0.2	*	0.0	1.5
1944-2006													
TROPICAL STORMS & HURRICANES	1	1	0	2	8	36	60	176	228	115	33	7	667
AVERAGE OVER PERIOD	*	*	0.0	*	0.1	0.6	1.0	2.8	3.6	1.8	0.5	0.1	10.6
HURRICANES ONLY	0	0	0	0	2	11	27	105	153	67	21	2	388
AVERAGE OVER PERIOD	0.0	0.0	0.0	0.0	*	0.2	0.4	1.7	2.4	1.1	0.3	*	6.2
MAJOR HURRICANES ONLY	0	0	0	0	1	3	4	57	80	19	4	0	168
AVERAGE OVER PERIOD	0.0	0.0	0.0	0.0	*	*	0.1	0.9	1.3	0.3	0.1	0.0	2.7
1966-2006													
TROPICAL STORMS & HURRICANES	1	0	0	2	4	24	44	126	150	73	25	5	454
AVERAGE OVER PERIOD	*	0.0	0.0	*	0.1	0.6	1.1	3.1	3.7	1.8	.6	0.1	11.1
HURRICANES ONLY	0	0	0	0	1	7	19	71	98	39	18	1	254
AVERAGE OVER PERIOD	0.0	0.0	0.0	0.0	*	0.2	0.5	1.7	2.4	1.0	0.4	*	6.2
MAJOR HURRICANES ONLY	0	0	0	0	0	1	3	35	45	7	3	0	94
AVERAGE OVER PERIOD	0.0	0.0	0.0	0.0	0.0	*	0.1	0.9	1.1	0.2	0.1	0.0	2.3

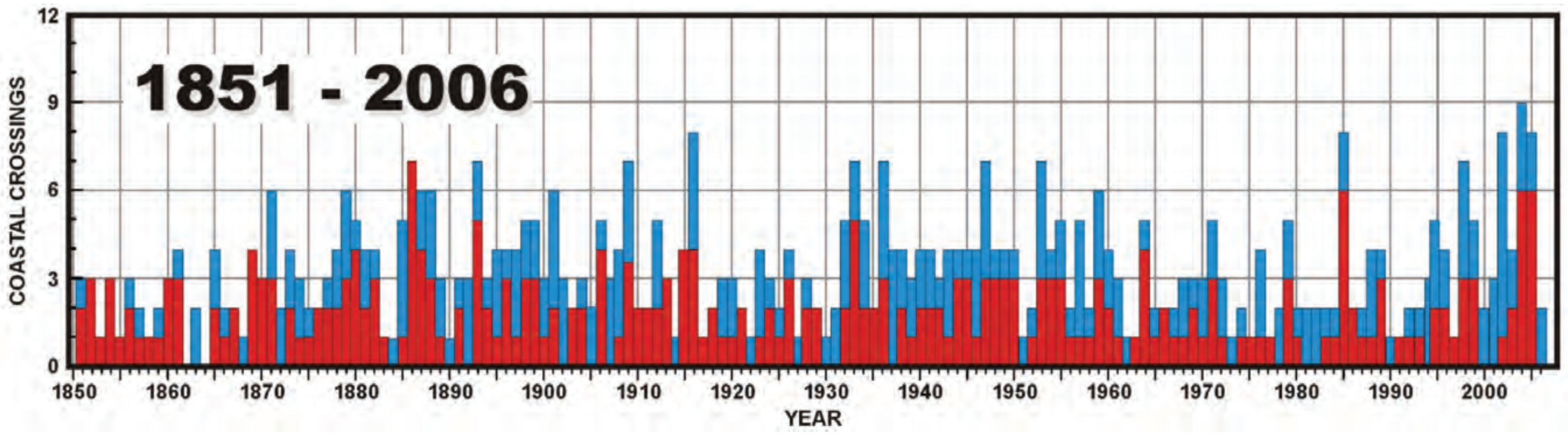

Figure 11. Annual distribution of the 521 tropical storms and hurricanes (blue bars) and the 278 hurricanes alone (red bars) that have crossed or passed immediately adjacent to the U.S. coastline (Texas to Maine) over the 156-year period 1851-2006. The average number of these events is 3.3 and 1.8 respectively per year.

per year. It is possible that some smaller systems were missed in sparsely settled coastal areas, especially in Florida, Louisiana, and Texas before 1900 (Landsea et al. 2004).

Locations of the coastal crossings referred to in Figure 11 can be found on the appropriate yearly map in Chart Series A. In regard to these coastal crossings, the weather is usually very asymmetrical in the area of landfall. Looking in the direction of storm motion, the worst weather is normally to the storm's right side where rotational winds and translational (forward) motion are complementary; thus, for a hurricane moving into the Florida peninsula from the east, the strongest winds and storm surge would normally be on the right (north) side; for a storm moving into the Florida west coast from the Gulf, the maximum wind and storm surge would be expected south of the center.

Other meteorological conditions and terrain features also contribute to wind, wind gusts, weather and storm surge asymmetries such that it is difficult to speculate on the extent and nature of storm damage at a particular site given only the storm track and storm classification. Also, building codes vary from location to location. Accordingly, persons desiring to know the specific effects or potential effects of past or future storms on a given site should seek further meteorological or engineering advice.

8.5 Coastal Variation of U.S. Tropical Cyclone Threat

Many factors relate to the geographical variation of coastal tropical cyclone frequency and intensity from Texas to Maine. Since the maximum possible intensity of hurricanes depends on a continuous supply of warm and very moist air near the surface, a marine environment with warm sea-surface temperatures is an important factor. Thus, in general, storms hitting the cooler northeast coast are apt to be less frequent and less intense than those hitting the south or the southeast coast. Another factor is the location and orientation of the coastline in relation to mean storm tracks. Storms located in the Gulf of Mexico are almost certain to

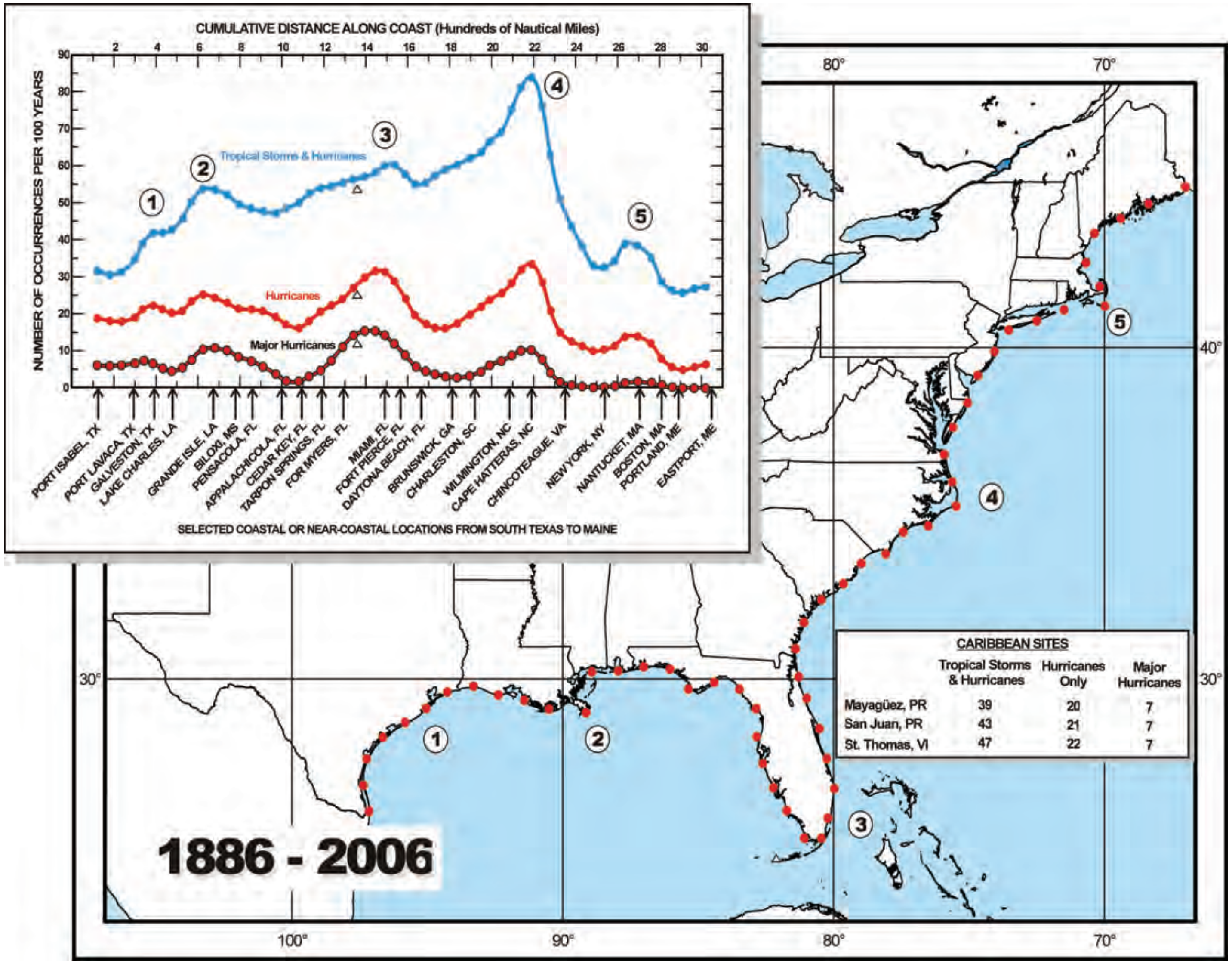

Figure 12. Variation of tropical cyclone frequency and intensity along the U.S. coastline, south Texas to Maine. For three different intensity categories, inset chart gives the frequency of tropical cyclones passing near selected coastal points shown by small red circles on map (small white triangles in insert give data for and location of Key West, FL). Comparable data for a few Caribbean sites are given in the lower right corner of map. See Section 8.5 for further explanation.

Table 5. Saffir-Simpson Hurricane Scale (Saffir 1977). Important note: The scale is given below in its current form. As such, it includes ranges for storm surge and other effects. However, it should be noted that storm surge is determined by many factors (e.g. storm size, bathymetry, coastal configuration) which cannot be accounted for by maximum wind alone. Thus, a large category 2 hurricane may cause storm surge much greater than implied by this scale, or a small category 4 could cause less. An effort is underway within the NWS to modify the scale to remove explicit storm surge values and flooding effects which may cause potential confusion among those under a hurricane warning. The modified scale will be used on an experimental basis during the 2009 Hurricane season. If adopted, a formatted page will be made available for insertion in this publication. For further information on the status of this proposed change, please see: http://www.weather.gov/infoservicechanges/sshws.pdf.

Scale	Winds	Effects
1	74 to 95 mph (64 to 82 kt)	Damage primarily to shrubbery, trees, foliage, and unanchored mobile homes. No real damage to other structures. Some damage to poorly constructed signs. And/or: storm surge 4 to 5 feet above normal. Low-lying coastal roads inundated, minor pier damage, some small craft in exposed anchorage torn from moorings.
2	96 to 110 mph (83 to 95 kt)	Considerable damage to shrubbery and tree foliage; some trees blown down. Major damage to exposed mobile homes. Extensive damage to poorly constructed signs. Some damage to roofing materials and buildings; some window and door damage. And/or: storm surge 6 to 8 feet above normal. Coastal roads and low-lying escape routes inland cut by rising water 2 to 4 hours before arrival of hurricane center. Considerable damage to piers. Marinas flooded. Small craft in unprotected anchorages torn from moorings. Evacuation of some shoreline residences and low-lying island areas required.
3	111 to 130 mph (96 to 113 kt)	Foliage torn from trees; large trees blown down. Practically all poorly constructed signs blown down. Some structural damage to roofing materials of buildings; some window and door damage. Some structural damage to small buildings. Mobile homes destroyed. And/or: storm surge 9 to 12 feet above normal. Serious flooding at coast and many smaller structures near coast destroyed; larger structures near coast damaged by battering waves and floating debris. Low-lying escape routes inland cut by rising water 3 to 5 hours before hurricane center arrives. Flat terrain 5 feet or less above sea level flooded 8 miles or more. Evacuation of low-lying residences within several blocks of shoreline possibly required.
4	131 to 155 mph (114 to 135 kt)	Shrubs and trees blown down; all signs down. Extensive damage to roofing materials, windows and doors. Complete failure of roofs on many small residences. Complete destruction of mobile homes. And/or: storm surge 13 to 18 feet above normal. Flat terrain 10 feet or less above sea level flooded inland as far as 6 miles. Major damage to lower floors of structures near shore due to flooding and battering by waves and floating debris. Low-lying escape routes inland cut by rising water 3 to 5 hours before hurricane center arrives. Major erosion of beaches. Massive evacuation of all residences within 500 yards of shore possibly required, and of single-story residences on low ground within 2 miles of shore.
5	greater than 155 mph (> 135 kt)	Shrubs and trees blown down; considerable damage to roofs of buildings; all signs down. Very severe and extensive damage to windows and doors. Complete failure of roofs on many residences and industrial buildings. Extensive shattering of glass in windows and doors. Some complete building failures. Small buildings overturned or blown away. Complete destruction of mobile homes. And/or: storm surge greater than 18 feet above normal. Major damage to lower floors of all structures less than 15 feet above sea level within 500 yards of shore. Low-lying escape routes inland cut by rising waters 3 to 5 hours before hurricane center arrives. Massive evacuation of residential areas on low ground within 5 to 10 miles of shore possibly required.

Table 6. Chronological listing of U.S. hurricane landfalls, 1851-2006, with impact according to the Saffir-Simpson scale, by state or subregion. (I) after state abbreviation indicates inland effect. Maximum category at landfall shown in brackets at the end of each listing (also see endnote).

Storm No	Year	Month	Day	Storm Name	Coastal States affected and Category
1	1851	Jun	25	---------	TX(C)1, [1]
4	1851	Aug	23	---------	FL(NW)3,GA(I)1, [3]
1	1852	Aug	22	---------	FL(SW)2,AL3,MS3,LA2,FL(NW)1, [3]
3	1852	Sep	12	---------	FL(SW)1, [1]
5	1852	Oct	9	---------	FL(NW)2,GA(I)1, [2]
8	1853	Oct	21	---------	GA1, [1]
1	1854	Jun	26	---------	TX(S)1, [1]
3	1854	Sep	8	---------	GA3,SC2,FL(NE)1, [3]
4	1854	Sep	18	---------	TX(C)2, [2]
5	1855	Sep	16	---------	LA3,MS3, [3]
1	1856	Aug	10	---------	LA4, [4]
5	1856	Aug	31	---------	FL(NW)2,AL(I)1,GA(I)1, [2]
2	1857	Sep	13	---------	NC1, [1]
3	1858	Sep	16	---------	NY1,CT1,RI1,MA1, [1]
5	1859	Sep	16	---------	AL1,FL(NW)1, [1]
1	1860	Aug	11	---------	LA3,MS3,AL2, [3]
4	1860	Sep	15	---------	LA2,MS2,AL1, [2]
6	1860	Oct	2	---------	LA2, [2]
2	1861	Aug	16	---------	FL(SW)1, [1]
5	1861	Sep	27	---------	NC1, [1]
8	1861	Nov	2	---------	NC1, [1]
4	1865	Sep	13	---------	LA2,TX(N)1, [2]
7	1865	Oct	23	---------	FL(SW)2,FL(SE)1, [2]
1	1866	Jul	15	---------	TX(C)2, [2]
1	1867	Jun	22	---------	SC1, [1]
7	1867	Oct	2	---------	TX(S)1,TX(N)1,LA2,FL(NW)1, [2]
2	1869	Aug	17	---------	TX(C)2, [2]
5	1869	Sep	5	---------	LA1, [1]
6	1869	Sep	8	---------	NY1,RI3,MA3,CT1, [3]
10	1869	Oct	4	---------	MA1,ME2, [2]
1	1870	Jul	30	---------	AL1, [1]
6	1870	Oct	10	---------	FL(SW)1,FL(SE)1, [1]
9	1870	Oct	20	---------	FL(SW)1, [1]
3	1871	Aug	17	---------	FL(SE)3,FL(NE)1,FL(NW)1, [3]
4	1871	Aug	25	---------	FL(SE)2,FL(NE)1, [2]
6	1871	Sep	6	---------	FL(NW)1,FL(SW)1, [1]
3	1873	Sep	19	---------	FL(NW)1, [1]
5	1873	Oct	7	---------	FL(SW)3,FL(SE)2,FL(NE)1, [3]
6	1874	Sep	28	---------	FL(NW)1,SC1,NC1, [1]
3	1875	Sep	16	---------	TX(C)3,TX(S)2, [3]
2	1876	Sep	17	---------	NC1,VA1, [1]
5	1876	Oct	19	---------	FL(SW)2,FL(SE)1, [2]
2	1877	Sep	18	---------	LA1,FL(NW)1, [1]
4	1877	Oct	3	---------	FL(NW)3,GA(I)1, [3]
5	1878	Sep	10	---------	FL(NW)2,FL(SW)2,FL(NE)1,SC1,GA1, [2]
11	1878	Oct	21	---------	NC2,VA1,MD1,DE1,NJ1,PA(I)1, [2]
2	1879	Aug	18	---------	NC3,VA2,MA1, [3]
3	1879	Aug	23	---------	TX(N)2,LA2, [2]
4	1879	Sep	1	---------	LA3, [3]
2	1880	Aug	13	---------	TX(S)3, [3]
4	1880	Aug	29	---------	FL(SE)2,FL(NE)1,FL(NW)1, [2]
6	1880	Sep	9	---------	NC1, [1]
9	1880	Oct	8	---------	FL(NW)1, [1]
5	1881	Aug	28	---------	GA2,SC1, [2]
6	1881	Sep	9	---------	NC2, [2]
2	1882	Sep	10	---------	FL(NW)3,AL(I)1, [3]
3	1882	Sep	15	---------	LA2,TX(N)1, [2]
6	1882	Oct	11	---------	FL(NW)1, [1]
3	1883	Sep	11	---------	NC2,SC1, [2]
2	1885	Aug	24	---------	SC3,NC2,GA1,FL(NE)1, [3]
1	1886	Jun	14	---------	TX(N)2,LA2, [2]
2	1886	Jun	21	---------	FL(NW)2,GA(I)1, [2]
3	1886	Jun	30	---------	FL(NW)2,GA(I)1, [2]
4	1886	Jul	19	---------	FL(NW)1, [1]
5	1886	Aug	20	---------	TX(C)4, [4]
8	1886	Sep	23	---------	TX(S)1,TX(C)1, [1]
10	1886	Oct	12	---------	LA3,TX(N)2, [3]
4	1887	Jul	27	---------	FL(NW)1,AL(I)1, [1]
6	1887	Aug	20	---------	NC1, [1]
9	1887	Sep	21	---------	TX(S)2, [2]
13	1887	Oct	19	---------	LA1, [1]
1	1888	Jun	17	---------	TX(C)1, [1]
3	1888	Aug	16	---------	FL(SE)3,FL(SW)1,LA2, MS(I)1, [3]
7	1888	Oct	11	---------	FL(NW)2,FL(NE)1, [2]
6	1889	Sep	23	---------	LA1, [1]
1	1891	Jul	5	---------	TX(C)1,TX(N)1, [1]
3	1891	Aug	24	---------	FL(SE)1, [1]
4	1893	Aug	24	---------	NY1,CT1, [1]
6	1893	Aug	27	---------	GA3,SC3,NC(I)1,FL(NE)1, [3]
8	1893	Sep	7	---------	LA2, [2]
9	1893	Oct	13	---------	SC3,NC2,VA(I)1, [3]
10	1893	Oct	2	---------	LA4,MS2,AL2, [4]
4	1894	Sep	25	---------	FL(SW)2,FL(NE)1,SC1,VA1, [2]
5	1894	Oct	9	---------	FL(NW)3,GA(I)1,NY1,RI1,CT1, [3]
2	1895	Aug	30	---------	TX(S)1, [1]
1	1896	Jul	7	---------	FL(NW)2, [2]
2	1896	Sep	10	---------	RI1,MA1, [1]
4	1896	Sep	29	---------	FL(NW)3,FL(NE)3,GA2,SC1,NC(I)1,VA(I), [3]
2	1897	Sep	12	---------	LA1,TX(N)1, [1]
1	1898	Aug	3	---------	FL(NW)1, [1]
2	1898	Aug	31	---------	GA1,SC1, [1]
7	1898	Oct	2	---------	GA4,FL(NE)2, [4]
2	1899	Aug	1	---------	FL(NW)2, [2]
3	1899	Aug	18	---------	NC3, [3]
8	1899	Oct	31	---------	SC2,NC2, [2]
1	1900	Sep	9	---------	TX(N)4, [4]
3	1901	Jul	11	---------	NC1, [1]
4	1901	Aug	14	---------	LA1,MS1,AL1, [1]
3	1903	Sep	11	---------	FL(SE)1,FL(NW)1, [1]
4	1903	Sep	16	---------	NJ1,DE1, [1]
2	1904	Sep	14	---------	SC1, [1]
3	1904	Oct	17	---------	FL(SE)1, [1]
2	1906	Jun	17	---------	FL(SW)1,FL(SE)1, [1]
5	1906	Sep	17	---------	SC1,NC1, [1]
6	1906	Sep	27	---------	MS2,AL2,FL(NW)2,LA1, [2]
8	1906	Oct	18	---------	FL(SW)3,FL(SE)3, [3]
3	1908	Jul	31	---------	NC1, [1]
2	1909	Jun	29		TX(S)2, [2]

Storm No	Year	Month	Day	Storm Name	Coastal States affected and Category
4	1909	Jul	21	---------	TX(N)3, [3]
6	1909	Aug	27	---------	TX(S)1, [1]
8	1909	Sep	21	---------	LA3,MS2, [3]
10	1909	Oct	11	---------	FL(SE)3,FL(SW)3, [3]
3	1910	Sep	14	---------	TX(S)2, [2]
5	1910	Oct	18	---------	FL(SW)2, [2]
2	1911	Aug	11	---------	FL(NW)1,AL1, [1]
3	1911	Aug	28	---------	GA1,SC2, [2]
4	1912	Sep	14	---------	AL1,FL(NW)1, [1]
6	1912	Oct	16	---------	TX(S)2, [2]
1	1913	Jun	28	---------	TX(S)1, [1]
4	1913	Sep	3	---------	NC1, [1]
5	1913	Oct	8	---------	SC1, [1]
1	1915	Aug	1	---------	FL(NE)1, [1]
2	1915	Aug	17	---------	TX(N)4,TX(C)1,LA1, [4]
4	1915	Sep	4	---------	FL(NW)1, [1]
6	1915	Sep	29	---------	LA3,MS2, [3]
2	1916	Jul	5	---------	MS3,AL2,FL(NW)2, [3]
4	1916	Jul	14	---------	SC2, [2]
6	1916	Aug	18	---------	TX(S)4, [4]
14	1916	Oct	18	---------	AL2,FL(NW)2, [2]
4	1917	Sep	28	---------	FL(NW)3,LA2,AL1, [3]
1	1918	Aug	6	---------	LA3,TX(N)1, [3]
3	1918	Aug	24	---------	NC1, [1]
2	1919	Sep	9	---------	FL(SW)4,FL(SE)2,TX(S)3,TX(C)3, [4]
2	1920	Sep	22	---------	LA2, [2]
1	1921	Jun	22	---------	TX(C)2, [2]
6	1921	Oct	25	---------	FL(SW)3,FL(NE)2, [3]
3	1923	Oct	16	---------	LA1, [1]
4	1924	Sep	15	---------	FL(NW)1, [1]
7	1924	Oct	21	---------	FL(SW)1, [1]
2	1925	Dec	1	---------	FL(SW)1, [1]
1	1926	Jul	28	---------	FL(NE)2, [2]
3	1926	Aug	26	---------	LA3, [3]
6	1926	Sep	18	---------	FL(SE)4,FL(SW)3,FL(NW)3,AL3, [4]
1	1928	Aug	8	---------	FL(SE)2, [2]
4	1928	Sep	17	---------	FL(SE)4,FL(NE)2,GA1,SC1, [4]
1	1929	Jun	28	---------	TX(C)1, [1]
2	1929	Sep	28	---------	FL(SE)3,FL(NW)2, [3]
2	1932	Aug	14	---------	TX(N)4, [4]
3	1932	Sep	1	---------	AL1, [1]
5	1933	Jul	30	---------	TX(S)2,FL(SE)1, [2]
8	1933	Aug	23	---------	NC2,VA2, [2]
11	1933	Sep	5	---------	TX(S)3, [3]
12	1933	Sep	4	---------	FL(SE)3, [3]
13	1933	Sep	16	---------	NC3, [3]
2	1934	Jun	16	---------	LA3, [3]
3	1934	Jul	25	---------	TX(S)2, [2]
2	1935	Sep	3	---------	FL(SW)5,FL(NW)2, [5]
6	1935	Nov	4	---------	FL(SE)2, [2]
3	1936	Jun	27	---------	TX(S)1, [1]
5	1936	Jul	31	---------	FL(NW)3, [3]
13	1936	Sep	18	---------	NC2, [2]
2	1938	Aug	15	---------	LA1, [1]
4	1938	Sep	21	---------	NY3,CT3,RI3,MA3, [3]
2	1939	Aug	11	---------	FL(SE)1, FL(NW)1, [1]
2	1940	Aug	7	---------	TX(N)2, LA2, [2]
3	1940	Aug	11	---------	GA2, SC2, [2]

Storm No	Year	Month	Day	Storm Name	Coastal States affected and Category
2	1941	Sep	23	---------	TX(N)3, [3]
5	1941	Oct	6	---------	FL(SE)2,FL(SW)2,FL(NW)2, [2]
1	1942	Aug	21	---------	TX(N)1, [1]
2	1942	Aug	30	---------	TX(C)3, [3]
1	1943	Jul	27	---------	TX(N)2, [2]
3	1944	Aug	1	---------	NC1, [1]
7	1944	Sep	14	---------	NC3,VA3,NY3,CT3,RI3,MA2, [3]
11	1944	Oct	19	---------	FL(SW)3,FL(NE)2, [3]
1	1945	Jun	24	---------	FL(NW)1, [1]
5	1945	Aug	27	---------	TX(C)2, [2]
9	1945	Sep	15	---------	FL(SE)3, [3]
5	1946	Oct	8	---------	FL(SW)1, [1]
3	1947	Aug	24	---------	TX(N)1, [1]
4	1947	Sep	17	---------	FL(SE)4,LA3,MS3,FL(SW)2, [4]
8	1947	Oct	11	---------	GA2,SC2,FL(SE)1, [2]
5	1948	Sep	4	---------	LA1, [1]
7	1948	Sep	21	---------	FL(SW)3,FL(SE)2, [3]
8	1948	Oct	5	---------	FL(SE)2, [2]
1	1949	Aug	24	---------	NC1, [1]
2	1949	Aug	27	---------	FL(SE)3, [3]
10	1949	Oct	4	---------	TX(N)2, [2]
2	1950	Aug	31	BAKER	AL1, [1]
5	1950	Sep	5	EASY	FL(NW)3, [3]
11	1950	Oct	18	KING	FL(SE)3, [3]
2	1952	Aug	31	ABLE	SC1, [1]
2	1953	Aug	14	BARBARA	NC1, [1]
4	1953	Sep	7	CAROL	ME1, [1]
8	1953	Sep	26	FLORENCE	FL(NW)1, [1]
3	1954	Aug	31	CAROL	NY3,CT3,RI3,NC2, [3]
5	1954	Sep	11	EDNA	MA3,ME1, [3]
9	1954	Oct	15	HAZEL	SC4,NC4,MD2, [4]
2	1955	Aug	12	CONNIE	NC3,VA1, [3]
3	1955	Aug	17	DIANE	NC1, [1]
9	1955	Sep	19	IONE	NC3, [3]
7	1956	Sep	24	FLOSSY	LA2,FL(NW)1, [2]
2	1957	Jun	27	AUDREY	TX(N)4,LA4, [4]
8	1958	Sep	27	HELENE	NC3, [3]
4	1959	Jul	9	CINDY	SC1, [1]
5	1959	Jul	25	DEBRA	TX(N)1, [1]
8	1959	Sep	29	GRACIE	SC3, [3]
5	1960	Sep	10	DONNA	FL(SW)4,NC3,NY3,FL(NE)2,CT2,RI2,MA1,NH1,ME1, [4]
6	1960	Sep	15	ETHEL	MS1, [1]
3	1961	Sep	11	CARLA	TX(C)4, [4]
4	1963	Sep	17	CINDY	TX(N)1, [1]
5	1964	Aug	27	CLEO	FL(SE)2, [2]
6	1964	Sep	10	DORA	FL(NE)2, [2]
10	1964	Oct	4	HILDA	LA3, [3]
11	1964	Oct	14	ISBELL	FL(SW)2,FL(SE)2, [2]
3	1965	Sep	8	BETSY	FL(SE)3,LA3, [3]
1	1966	Jun	9	ALMA	FL(NW)2, [2]
9	1966	Oct	4	INEZ	FL(SW)1, [1]
2	1967	Sep	20	BEULAH	TX(S)3, [3]
8	1968	Oct	19	GLADYS	FL(NW)2,FL(NE)1, [2]
3	1969	Aug	18	CAMILLE	LA5,MS5, [5]
3	1970	Aug	3	CELIA	TX(S)3, [3]
6	1971	Sep	16	EDITH	LA2, [2]
7	1971	Sep	10	FERN	TX(C)1, [1]
8	1971	Sep	30	GINGER	NC1, [1]

Storm No	Year	Month	Day	Storm Name	Coastal States affected and Category
2	1972	Jun	19	AGNES	FL(NW)1,NY1,CT1, [1]
6	1974	Sep	8	CARMEN	LA3, [3]
5	1975	Sep	23	ELOISE	FL(NW)3,AL(I)1, [3]
3	1976	Aug	10	BELLE	NY1, [1]
2	1977	Sep	5	BABE	LA1, [1]
2	1979	Jul	11	BOB	LA1, [1]
4	1979	Sep	3	DAVID	FL(SE)2,FL(NE)2,GA2,SC2, [2]
6	1979	Sep	13	FREDERIC	AL3,MS3, [3]
1	1980	Aug	10	ALLEN	TX(S)3, [3]
1	1983	Aug	18	ALICIA	TX(N)3, [3]
5	1984	Sep	13	DIANA	NC2, [2]
2	1985	Jul	25	BOB	SC1, [1]
4	1985	Aug	15	DANNY	LA1, [1]
5	1985	Sep	2	ELENA	AL3,MS3,FL(NW)3, [3]
7	1985	Sep	27	GLORIA	NC3,NY3,CT2,NH2,ME1, [3]
10	1985	Oct	28	JUAN	LA1, [1]
11	1985	Nov	21	KATE	FL(NW)2,GA(I)1, [2]
2	1986	Jun	26	BONNIE	TX(N)1, [1]
3	1986	Aug	17	CHARLEY	NC1, [1]
7	1987	Oct	12	FLOYD	FL(SW)1, [1]
7	1988	Sep	10	FLORENCE	LA1, [1]
3	1989	Aug	1	CHANTAL	TX(N)1, [1]
8	1989	Sep	22	HUGO	SC4,NC(I)1, [4]
10	1989	Oct	16	JERRY	TX(N)1, [1]
2	1991	Aug	19	BOB	NY2,CT2,RI2,MA2, [2]
2	1992	Aug	24	ANDREW	FL(SE)5,FL(SW)4,LA3,1, [5]
5	1993	Aug	31	EMILY	NC3, [3]
5	1995	Aug	2	ERIN	FL(SE)1,FL(NW)2, [2]
15	1995	Oct	4	OPAL	FL(NW)3,AL(I)1, [3]
2	1996	Jul	12	BERTHA	NC2, [2]
6	1996	Sep	6	FRAN	NC3, [3]
5	1997	Jul	18	DANNY	LA1,AL1, [1]
2	1998	Aug	27	BONNIE	NC2, [2]
5	1998	Sep	3	EARL	FL(NW)1, [1]
7	1998	Sep	25	GEORGES	FL(SW)2,MS2, [2]
2	1999	Aug	23	BRET	TX(S)3, [3]
6	1999	Sep	16	FLOYD	NC2, [2]
9	1999	Oct	15	IRENE	FL(SW)1, [1]
12	2002	Oct	3	LILI	LA1, [1]
3	2003	Jul	15	CLAUDETTE	TX(C)1, [1]
9	2003	Sep	18	ISABEL	NC2,VA1, [2]
1	2004	Aug	3	ALEX	NC1, [1]
3	2004	Aug	13	CHARLEY	FL(SW)4,FL(SE)1,FL(NE)1,SC1,NC1, [4]
6	2004	Sep	5	FRANCES	FL(SE)2,FL(SW)1, [2]
7	2004	Aug	29	GASTON	SC1, [1]
9	2004	Sep	16	IVAN	AL3,FL(NW)3, [3]
10	2004	Sep	26	JEANNE	FL(SE)3,FL(SW)1,FL(NW)1, [3]
3	2005	Jul	6	CINDY	LA1, [1]
4	2005	Jul	10	DENNIS	FL(NW)3, AL(I)1, [3]
11	2005	Aug	25	KATRINA	FL(SE)1,FL(SW)1,LA3,MS3,AL1, [3]
15	2005	Sep	15	OPHELIA	NC1, [1]
17	2005	Sep	24	RITA	FL(SW)1,LA3,TX(N)2, [3]
22	2005	Oct	24	WILMA	FL(SW)3, FL(SE)2, [3]

Table 7. Number of Saffir-Simpson (SS) category events for specified coastal states, 1851-2006. State totals represent only the highest category experienced for each hurricane. (Note that totals will fluctuate due to ongoing reanalysis project.)

	Category Number						Major Hurricanes (3,4,5)
	1	2	3	4	5	All	
U.S. (Texas to Maine)	108	74	75	18	3	278	96
Texas (TX)	24	18	12	7	0	61	19
(North)	13	7	3	4	0	27	7
(Central)	8	5	3	2	0	18	5
(South)	7	7	7	1	0	22	8
Louisiana (LA)	19	15	16	3	1	54	20
Mississippi (MS)	2	6	8	0	1	17	9
Mississippi (MS) (inland)	1	0	0	0	0	1	0
Alabama (AL)	11	5	5	0	0	21	5
Alabama (AL) (inland)	6	0	0	0	0	6	0
Florida (FL)	43	34	29	6	2	114	37
(Northwest)	26	18	14	0	0	58	14
(Northeast)	13	8	1	0	0	22	1
(Southwest)	17	10	8	4	1	38	13
(Southeast)	13	14	11	3	1	42	15
Georgia (GA)	6	5	2	1	0	14	3
Georgia (GA) (inland)	8	0	0	0	0	8	0
South Carolina (SC)	17	7	4	2	0	30	6
North Carolina (NC)	21	14	11	1	0	47	12
North Carolina (NC) (inland)	3	0	0	0	0	3	0
Virginia (VA)	5	2	1	0	0	8	1
Virginia (VA) (inland)	2	0	0	0	0	2	0
Maryland (MD)	1	1	0	0	0	2	0
Delaware (DE)	2	0	0	0	0	2	0
Pennsylvania (inland)	1	0	0	0	0	1	0
New Jersey (NJ)	2	0	0	0	0	2	0
New York (NY)	6	1	5	0	0	12	5
Connecticut (CT)	5	3	3	0	0	11	3
Rhode Island (RI)	3	2	4	0	0	9	4
Massachusetts (MA)	5	2	3	0	0	10	3
New Hampshire (NH)	1	1	0	0	0	2	0
Maine (ME)	5	1	0	0	0	6	0

make landfall in either the U.S. or Mexico, whereas those off the U.S. East Coast may recurve and remain at sea.

Tropical cyclone variation along the United States Gulf and East Coast is depicted in Figure 12. At fifty-seven coastal locations, approximately fifty miles apart, counts were made of the number of tropical cyclones whose centers passed within 75 nautical miles of the sampling point (1886-2006). These fifty-seven locations are shown by the red dots along the coast. The count was stratified by the following thresholds: 34 knots (all tropical storms and hurricanes), 64 knots (hurricanes) and 96 knots (major hurricanes).

The upper left inset of Figure 12 shows the results of the above counting procedure. The number of tropical cyclones counted in the process (normalized to number of storms per 100 years) is shown by the vertical axis on the left side of the inset. The first point on the left side of the chart is for south Texas (Port Isabel) while that on the extreme right is for northeastern Maine. A few well-known locations (not necessarily at the same locations as the evenly spaced fifty-seven sampling points) are listed across the bottom axis for convenience.

Looking at the upper (blue) line in the inset, note that, in general, there is a gradual but irregular increase in the frequency of weaker tropical cyclones (tropical storms) from South Texas, around Florida to Cape Hatteras ④ with a rapid decline in frequency thereafter. Superimposed on this larger-scale pattern, local maxima can be noted near Galveston ①, the Mississippi Delta area ②, southern Florida ③, and the southeastern Massachusetts-Nantucket area ⑤.

Insofar as hurricanes are concerned (middle red line), two rather distinct maxima occur: over southern Florida ③ and near Cape Hatteras ④. Finally, the lowermost line (major hurricanes) shows maxima over southern Florida ③ and the Keys, near the Mississippi Delta ② and again, the Cape Hatteras ④ area.

Figure 12 does not specifically address tropical cyclones that cross the coast, although there is a reasonably good correlation between coastal crossings and the frequencies shown on the figure. One notable exception occurs in the north Florida/south Georgia coastal area where the number of tropical cyclones crossing the coast from the Atlantic is rather small. However, Figure 13 suggests a relatively high frequency of tropical cyclone events in that area. Most of this high frequency is caused by tropical storms that approached from a southwesterly direction from the Gulf and were weakened by their passage over the Florida Peninsula. The number of major hurricanes affecting the north Florida/south Georgia area is observed to be quite low and this is consistent with Figure 12.

8.6 Hurricane Damage Potential

The previous sections (8.4 and 8.5) dealt with all tropical cyclones, regardless of intensity. This section concerns only hurricanes; that is, storms having sustained winds near the center of at least 64 knots. Figure 11 shows that, of the 521 coastal crossings, 1851-2006, 278 or slightly over one-half were classified as hurricanes. Depending upon the section of coastline under consideration, this average can vary from 40 to 60%.

The amount of damage caused by hurricanes is highly variable and depends on a number of factors. Obviously, more intense storms can be expected to yield more damage. However, there are numerous other factors which need be considered such as wind gusts, storm size, the speed of translational motion (affecting rainfall and fresh-water flooding), storm surge (affected by offshore water depth and coastal configuration), astronomical tide, terrain features, local building codes, distance from coast, etc.

In 1972, the National Weather Service accepted a hurricane damage scale devised by Herbert Saffir, and later expanded upon by Robert Simpson. The Saffir-Simpson Hurricane Scale (Saffir 1977; OFCM 2007), as it has come to be known (Table 5), relates the strength of hurricane-force winds and associated storm surge with potential damage. The scale is now widely used in public awareness programs and by the news media. It gives the public and disaster preparedness officials a good estimate of what damage can be expected from various levels of intensity.

In general, damage from hurricanes in the continental U.S. increases by a factor of four for each increase in category on the Saffir-Simpson Hurricane Scale (Pielke et al. 2008). Even though major hurricanes (category 3 and above) account for only 20% of all U.S. landfalling hurricanes, they cause over 85% of the damage. As of 2005, tropical cyclones cause on average about $10 billion (in 2005 dollars) in direct damage per year. This amount is roughly doubling every 10-15 years because of dramatically increasing population, infrastructure, and per capita wealth along the U.S. coastlines (Pielke et al. 2008).

Hebert and Taylor (1975) carefully analyzed all hurricanes that had affected the United States, beginning with the 1900 season, and classified them according to the Saffir-Simpson Hurricane Scale as given in Table 5. The analysis has been extended back to 1851 by Landsea et al. (2004, 2008) and was amended to include later years (with some modifications) by Blake et al. (2007) (Table 6).

Ideally, a Saffir-Simpson scale assignment would be made in terms of observed damage with consideration being given to local building codes. However, the amount of damage in some historical storms was not always known, nor was the wind or the building code. Accordingly, the original authors based their damage-scale estimates on central pressure. Central pressure is a quantity more often retrievable from historical records, much more so than the wind. Furthermore, pressure is considered a more conservative quantity than wind and, in the inverse sense, is well-correlated with wind speed.

Currently, winds or wind estimates are generally available when hurricanes make landfall. Accordingly, a decision was made after the 1995 season by NHC officials to base future Saffir-Simpson scale assignments on the wind. At the time of this publication, assignment of Saffir-Simpson category at landfall for the period 1851-1920, and from 1996 onward, is based upon the estimated maximum 1-min sustained wind (Table 6).

In 2007 the NHC agreed to include in Table 6, and related data sets, an indicator for well-documented hurricane force winds observed inland. For example, the sequence FL(NW)2, GA(I)1 indicates a category 2 landfall along the Florida panhandle and subsequent category 1 winds inland in Georgia. These effects can be differentiated from a coastal Atlantic hurricane landfall in Georgia which continues to be designated as GA1 (assuming a category one landfall). A resulting storm count thus remains compatible with previous work.

The data presented in Table 6 are summarized by state in Table 7. Because of their long coastlines, Florida and Texas are further subdivided geographically. In Florida, the north-south dividing line is roughly from Cape Canaveral to Tarpon Springs. In Texas, the south zone is roughly from the Mexico border to Corpus Christi; central is from north of Corpus Christi to Matagorda Bay and north is from Matagorda Bay to the Louisiana border.

Entries in Table 7 may be made for the same hurricane more than once if it affected more than one section or state; thus, sectional totals cannot be summed to get national totals. The initial line of Table 7 is an actual count of the number of hurricanes that have affected the United States, where only the highest Saffir-Simpson category in any individual state is used.

Thus, over the 156-year period 1851 through 2006, a total of 278 category 1 through 5 hurricanes have crossed the U.S. coastline at one or more points. This is somewhat less than two hurricanes per year, on average. Since some hurricanes affect or threaten more than one coastal segment, occurrence of hurricane warnings average closer to two per year over some coastal segments of the United States. Economic aspects of these warnings are discussed by Sugg (1967) and by Neumann (1975); societal aspects are discussed by Pielke (1990).

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Those familiar with the previous black-and-white versions of this publication will appreciate the work involved in redrafting the entire 156-yr track chart series in color for this edition. This huge task was undertaken and ably performed by Joan David of our staff. The gracious application of her skills in designing and redesigning figures is also greatly appreciated.

Eric Blake undertook the heroic task of not only checking the text, tables, and figures, but the entire series of track charts, for which the first author is especially grateful.

As mentioned earlier, a comprehensive reanalysis of all available data, published and unpublished, relating to Atlantic tropical cyclones continues. It is anticipated that the next edition will encompass the complete reanalysis.

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APPENDIX A

TRACKS OF NORTH ATLANTIC TROPICAL CYCLONES BY YEARS, 1851-2006
(CHART SERIES A)

INFORMATION INCLUDED ON CHART
(See Table 1 for definition of various stages)

1851-1870 Tropical storm, hurricane, and extratropical phase only.

1871-2006 Tropical storm, hurricane, extratropical phase, and dissipating tropical depression phase.

1886-2006 Initial tropical depression phase, tropical storm, hurricane, extratropical phase, and dissipating tropical depression phase.

1968-2006 Initial tropical depression phase, tropical storm, hurricane, extratropical phase, dissipating tropical depression phase, subtropical depression, subtropical storm phase (if present).

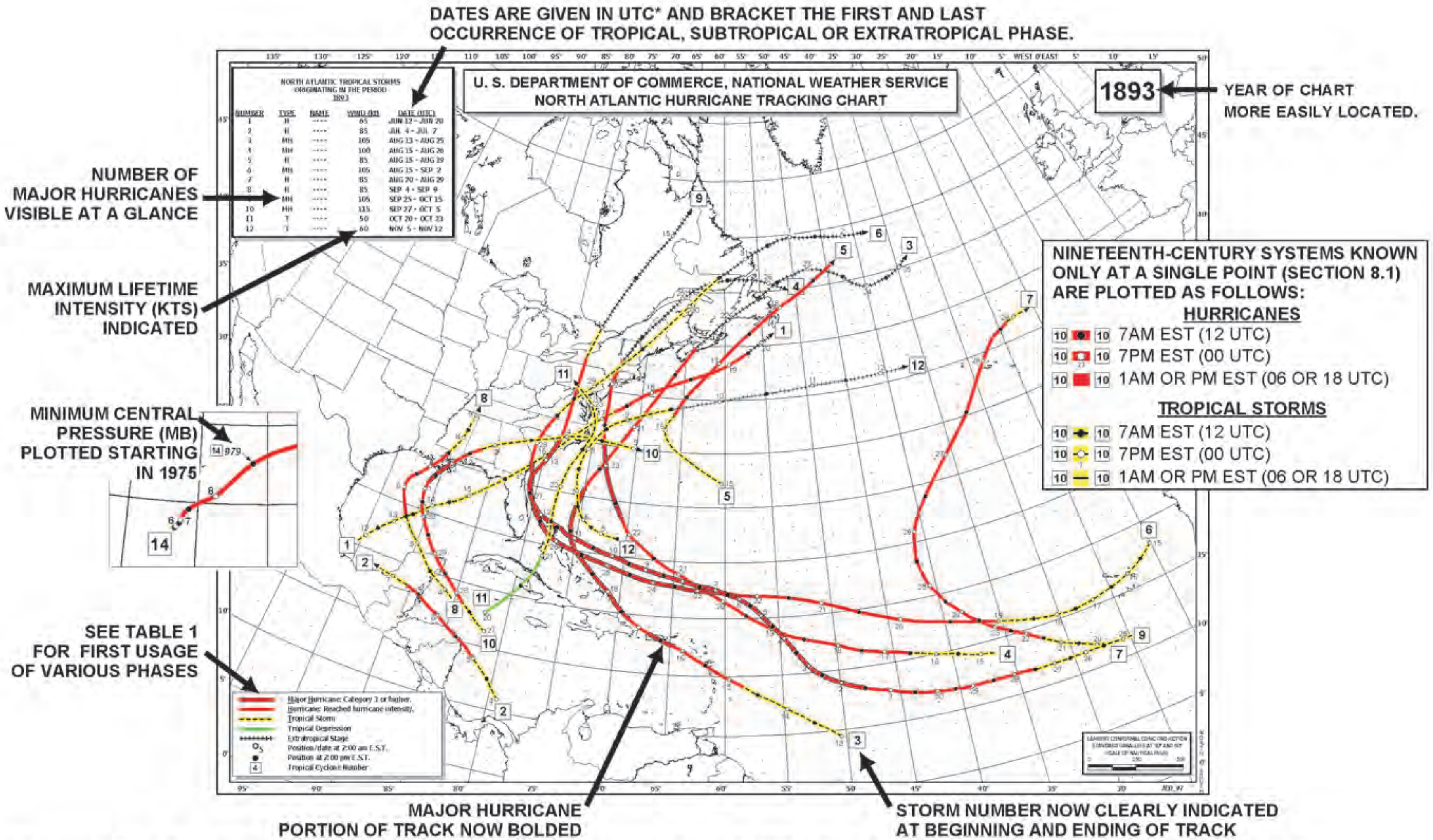
1975-2006 Tropical depression, tropical storm, hurricane, subtropical depression, subtropical storm and extratropical storm, with lifecycle minimum central pressure indicated.

Note: A set of blank track charts has been provided for attaching track maps after publication. These are normally published in the Monthly Weather Review, and are also available for download at http://www.nhc.noaa.gov. (For the convenience of the reader the 2007 and 2008 track charts have been included.)

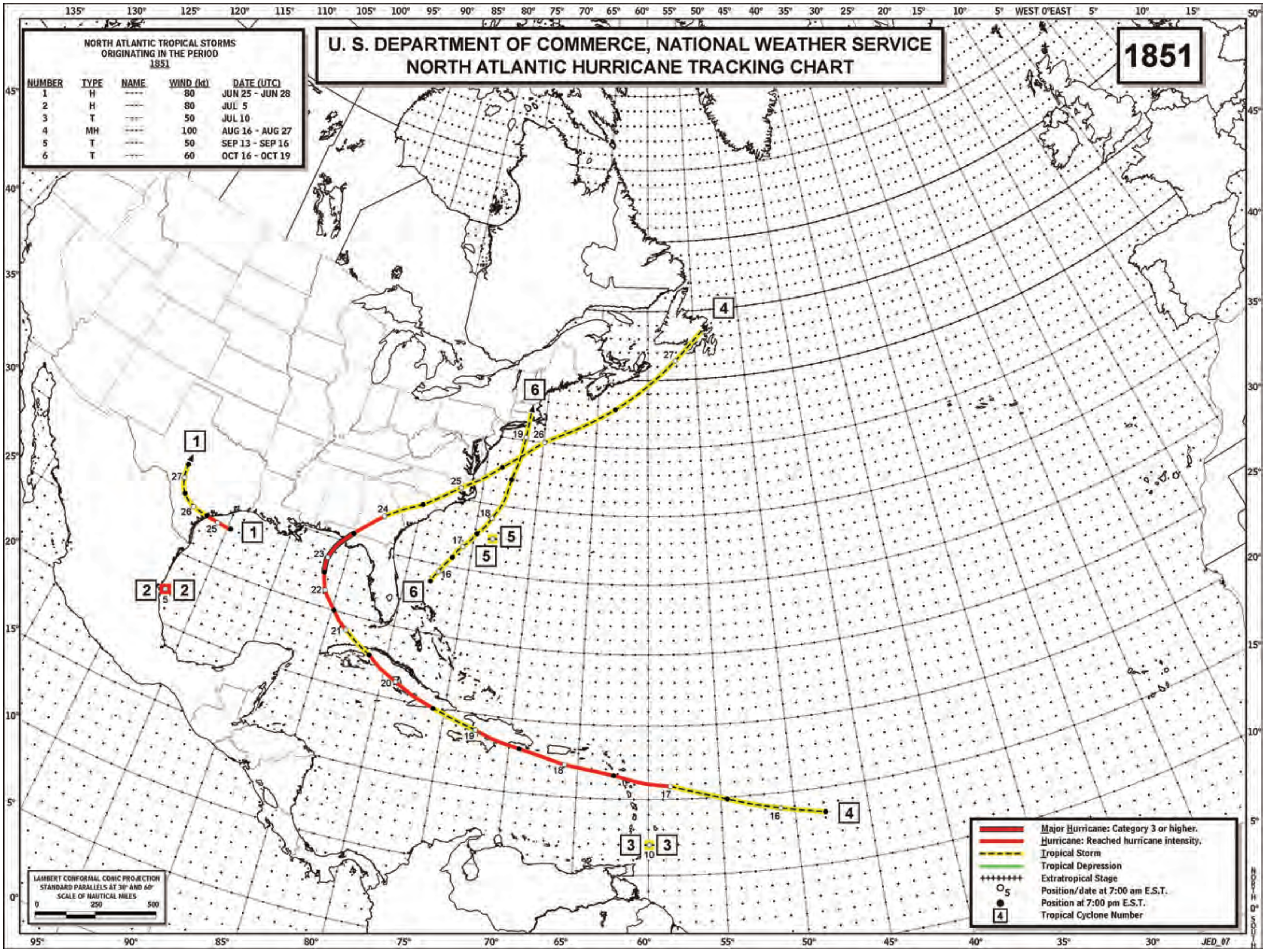
See the following page for additional notes on the sixth addition.

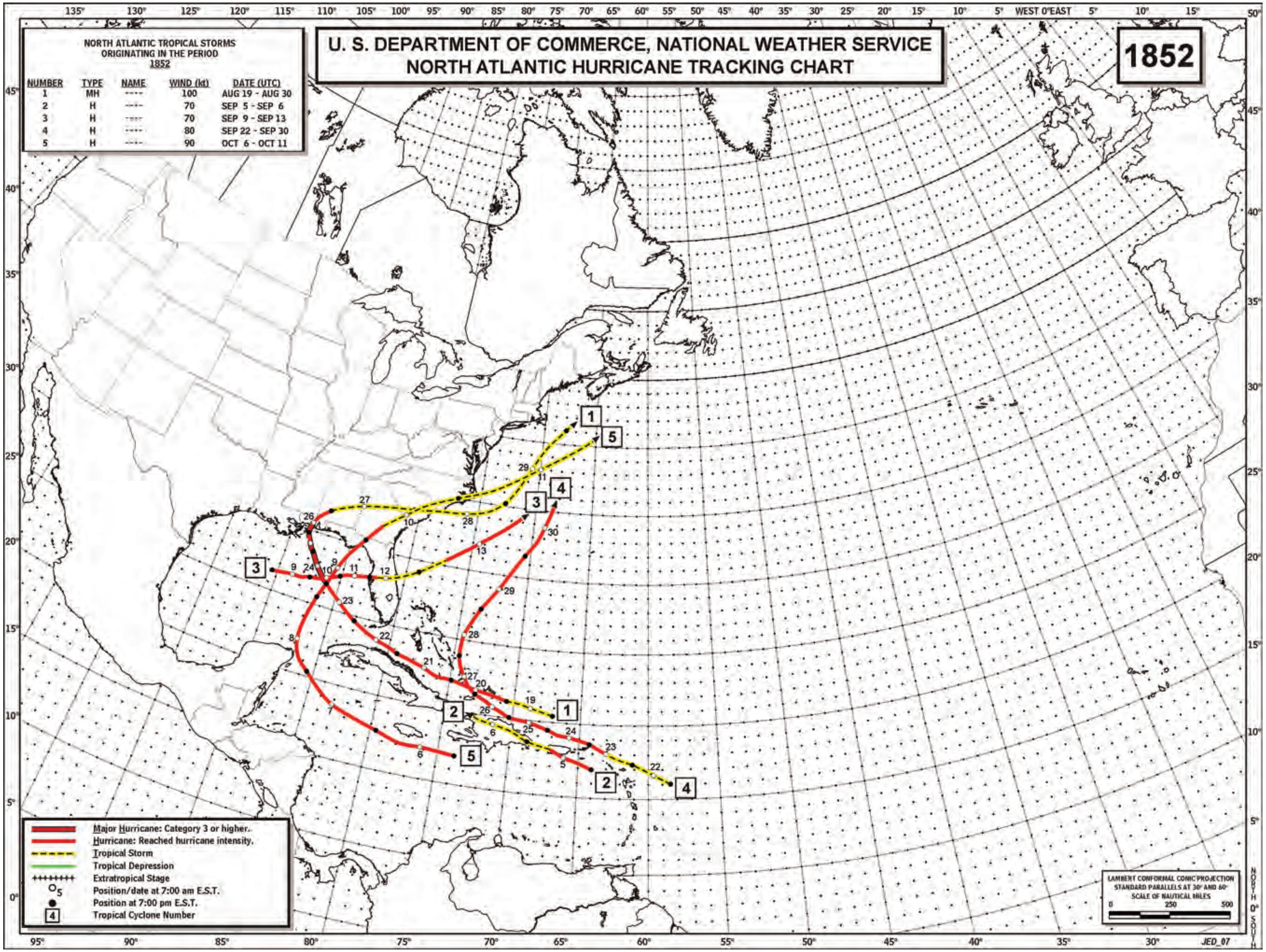
GUIDE TO THE REVISED TRACK MAPS FOR THE SIXTH EDITION (CHART SERIES A)

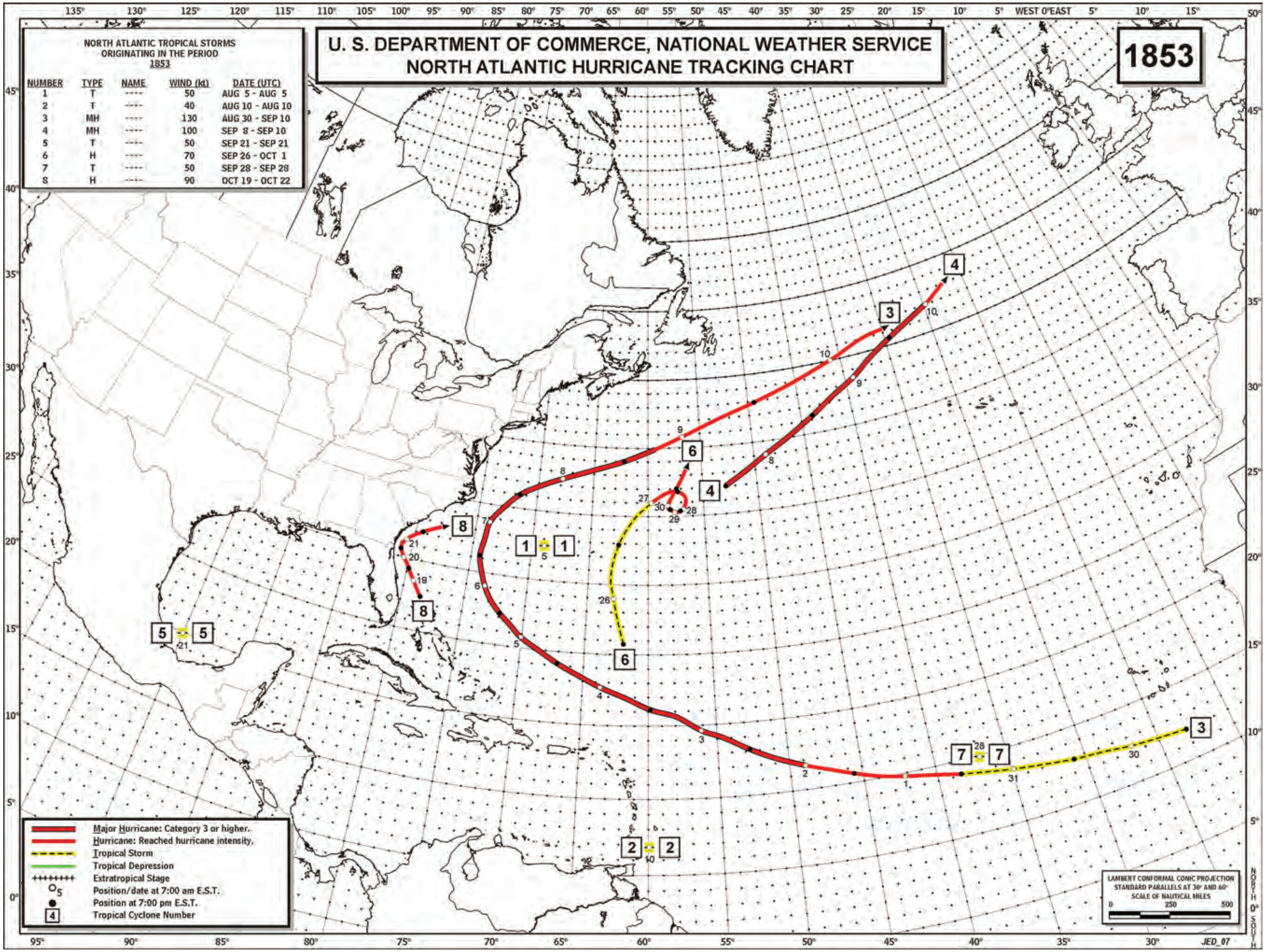
The authors have sought to improve the utility of the track maps for this edition in several ways, the most obvious being the transition to color. Color has been used to emphasize the various phases, as described in Table 1, while retaining distinguishing line-type features as a visual aid.

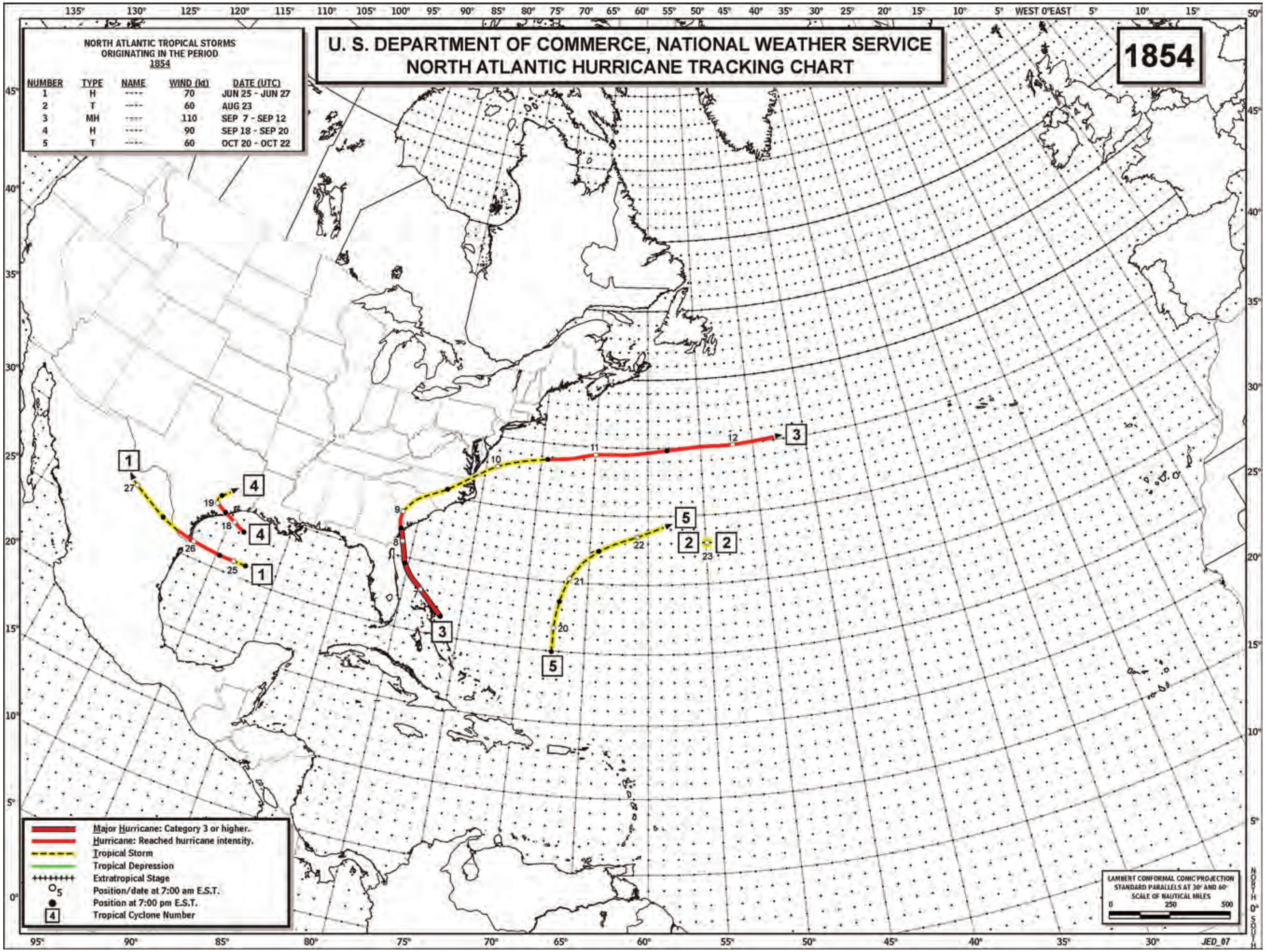


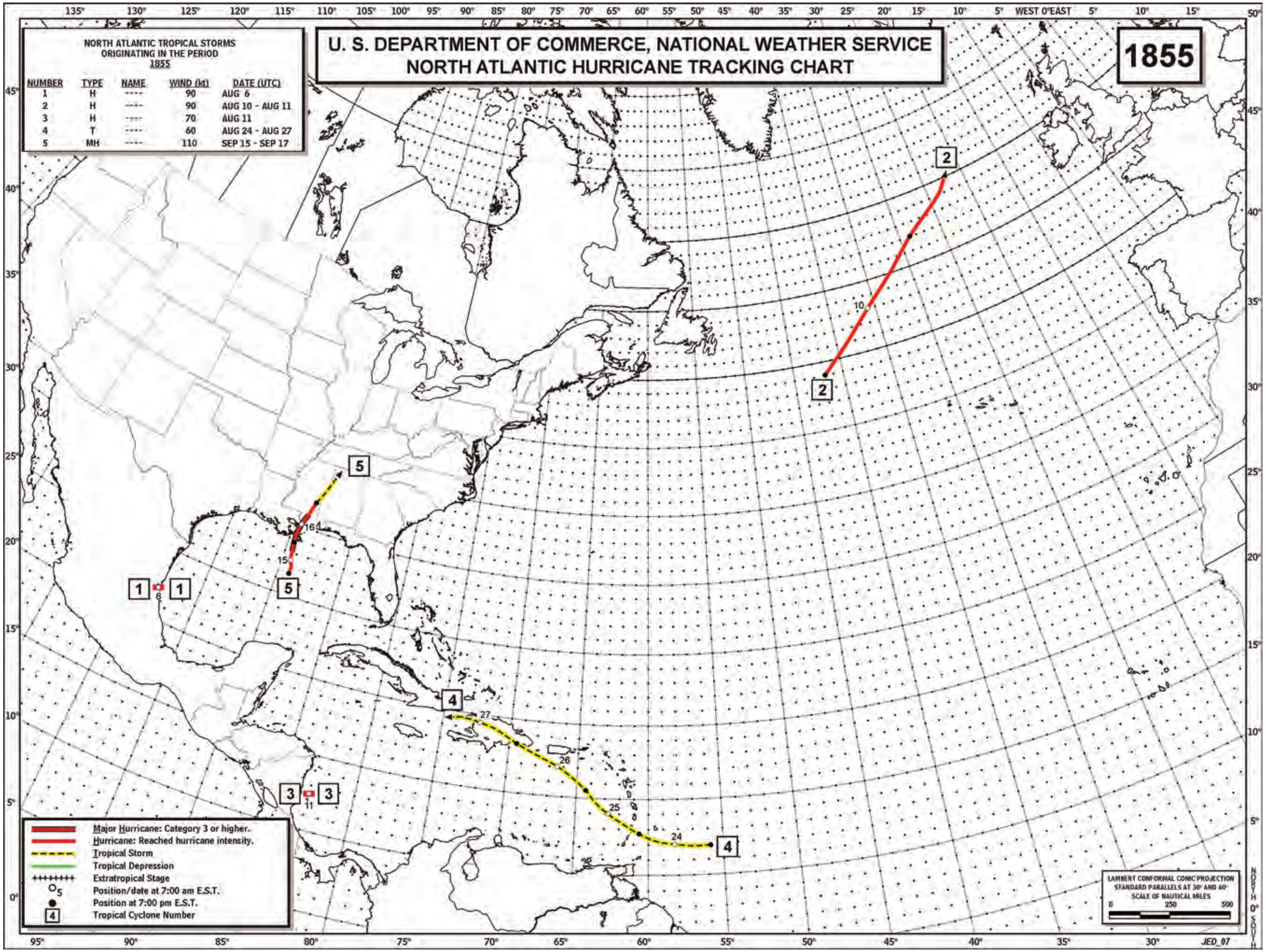
Universal **T**ime **C**oordinates (UTC) *The time at the Greenwich Meridian. 0 UTC = 7pm EST, 6 UTC = 1am EST, 12 UTC = 7am EST, 18 UTC = 1pm EST*

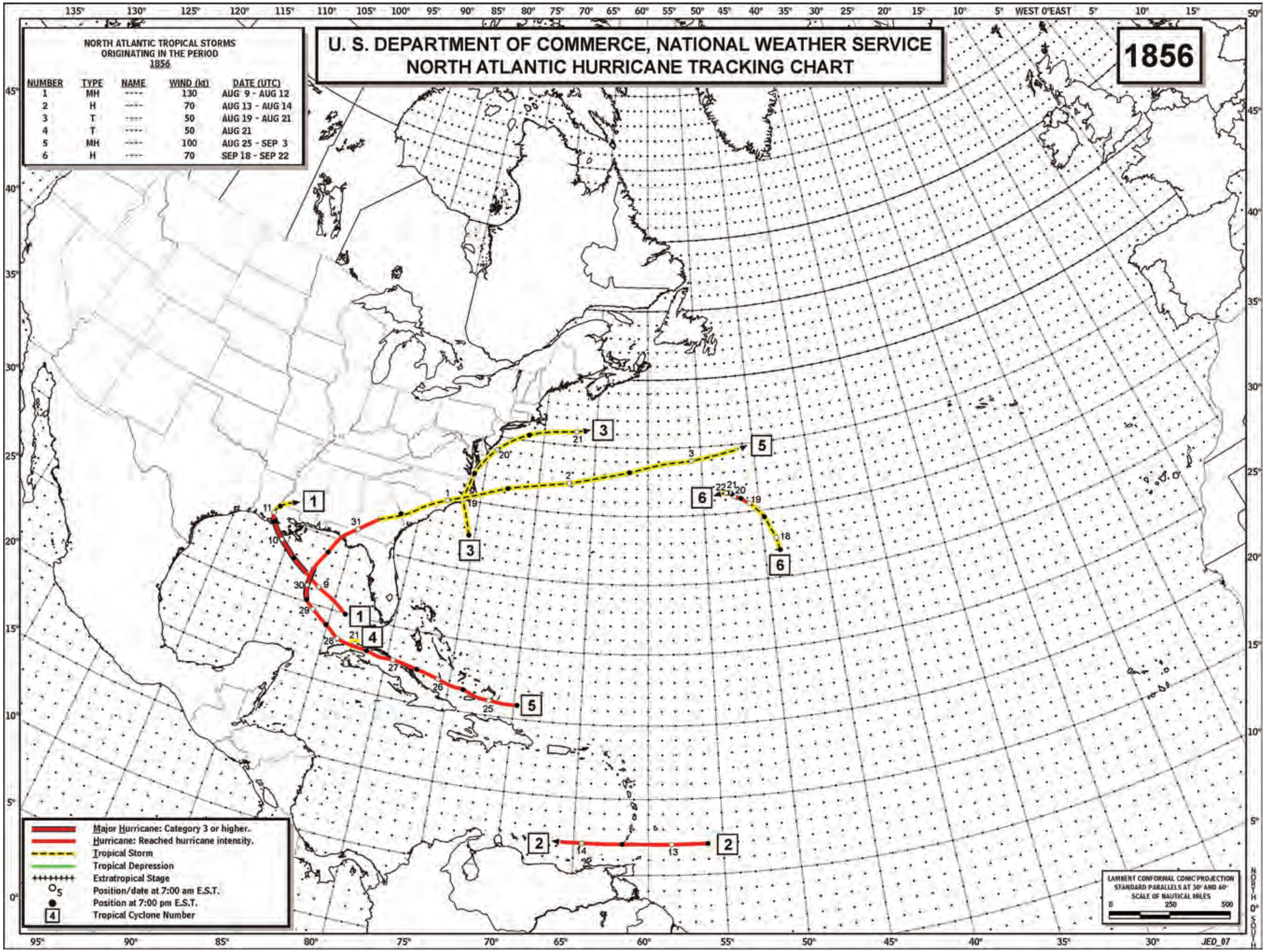

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1851
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1851
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 80 JUN 25 - JUN 28
2 H ---- 80 JUL 5
3 T ---- 50 JUL 10
4 MH ---- 100 AUG 16 - AUG 27
5 T ---- 50 SEP 13 - SEP 16
6 T ---- 60 OCT 16 - OCT 19
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

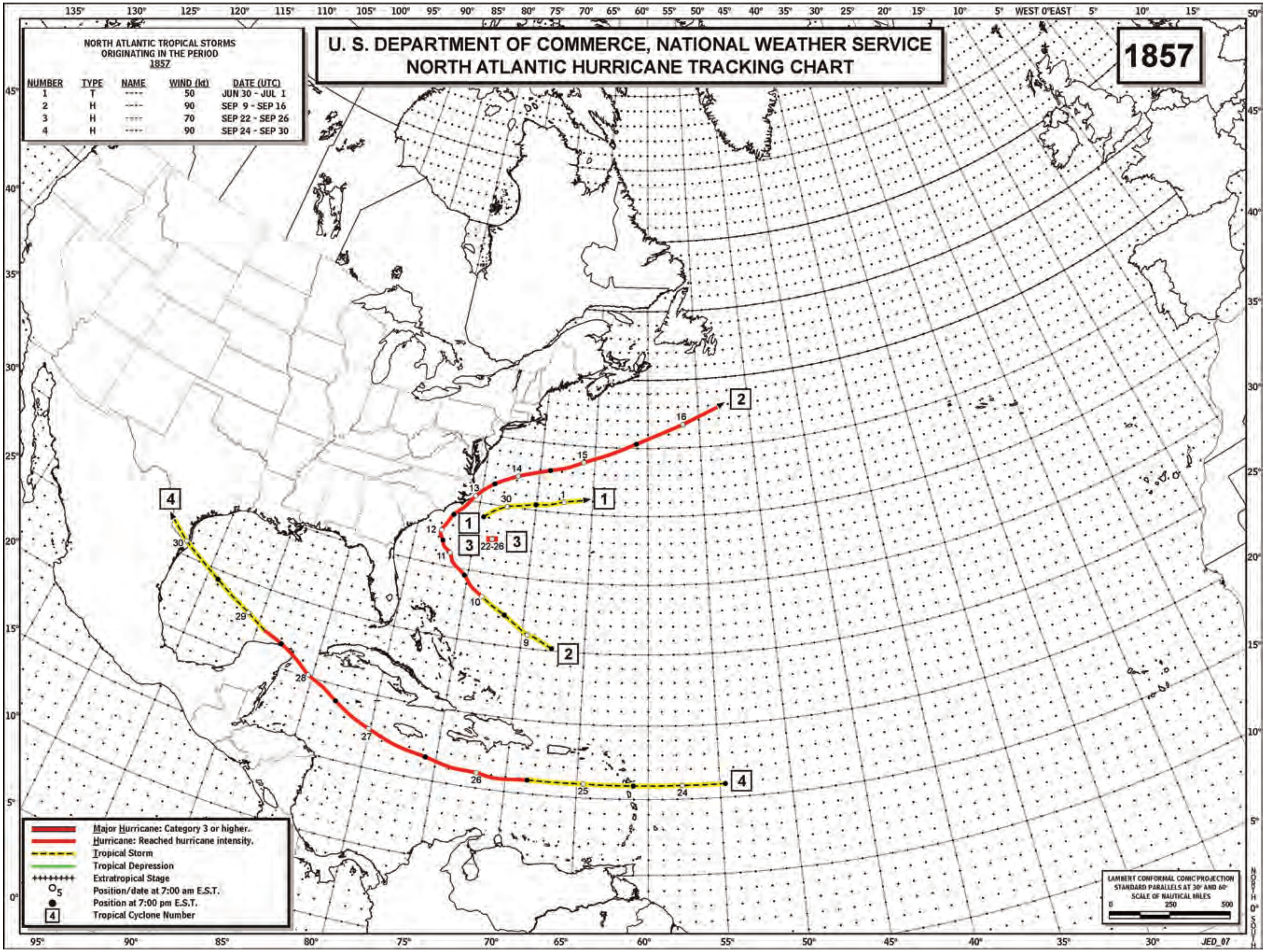

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1852
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1852
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ---- 100 AUG 19 - AUG 30
2 H ---- 70 SEP 5 - SEP 6
3 H ---- 70 SEP 9 - SEP 13
4 H ---- 80 SEP 22 - SEP 30
5 H ---- 90 OCT 6 - OCT 11
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
NORTH
SOUTH
WEST 0° EAST
JED_07

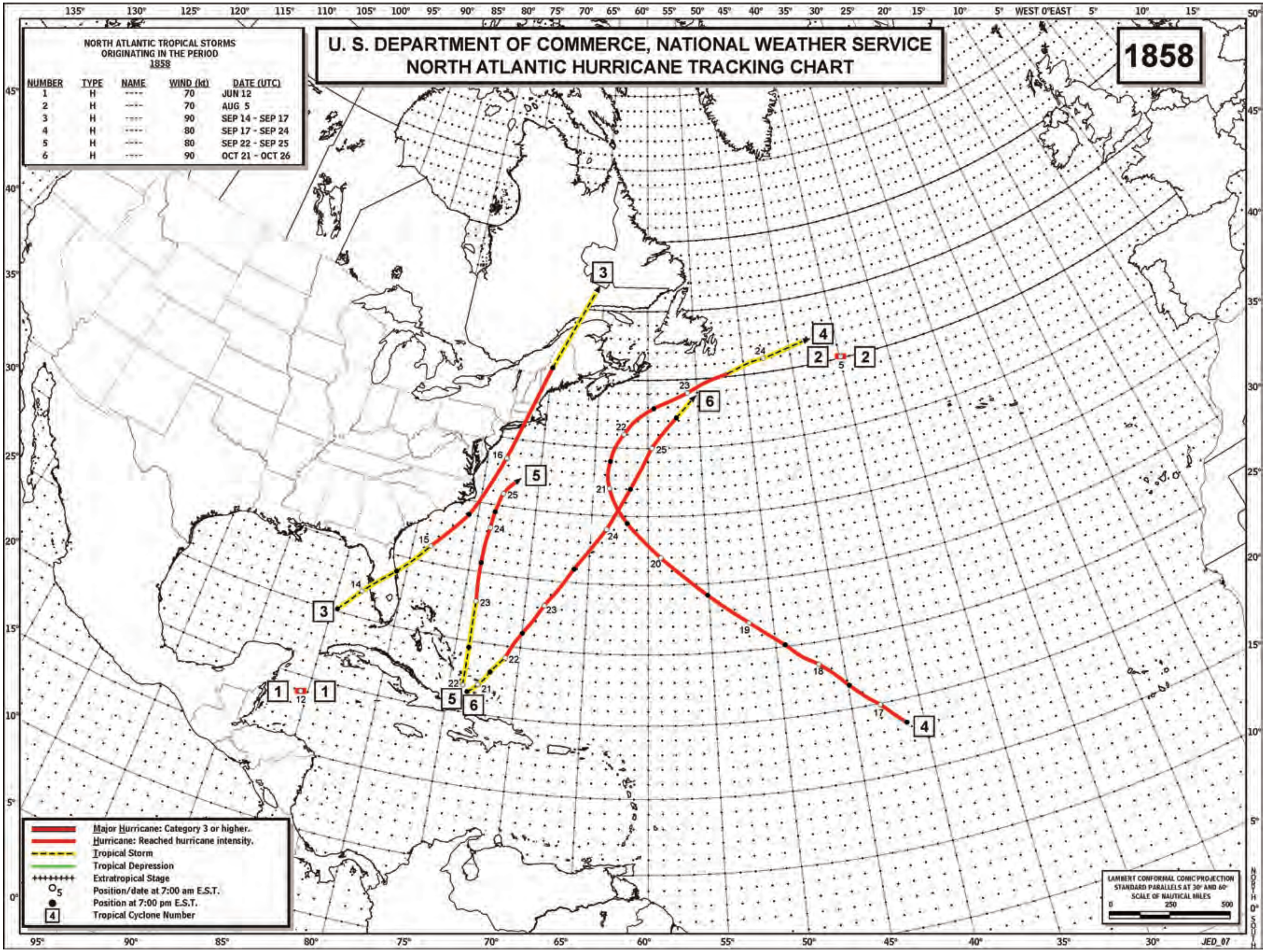

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1853
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1853
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 AUG 5 - AUG 5
2 T ---- 40 AUG 10 - AUG 10
3 MH ---- 130 AUG 30 - SEP 10
4 MH ---- 100 SEP 8 - SEP 10
5 T ---- 50 SEP 21 - SEP 21
6 H ---- 70 SEP 26 - OCT 1
7 T ---- 50 SEP 28 - SEP 28
8 H ---- 90 OCT 19 - OCT 22
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

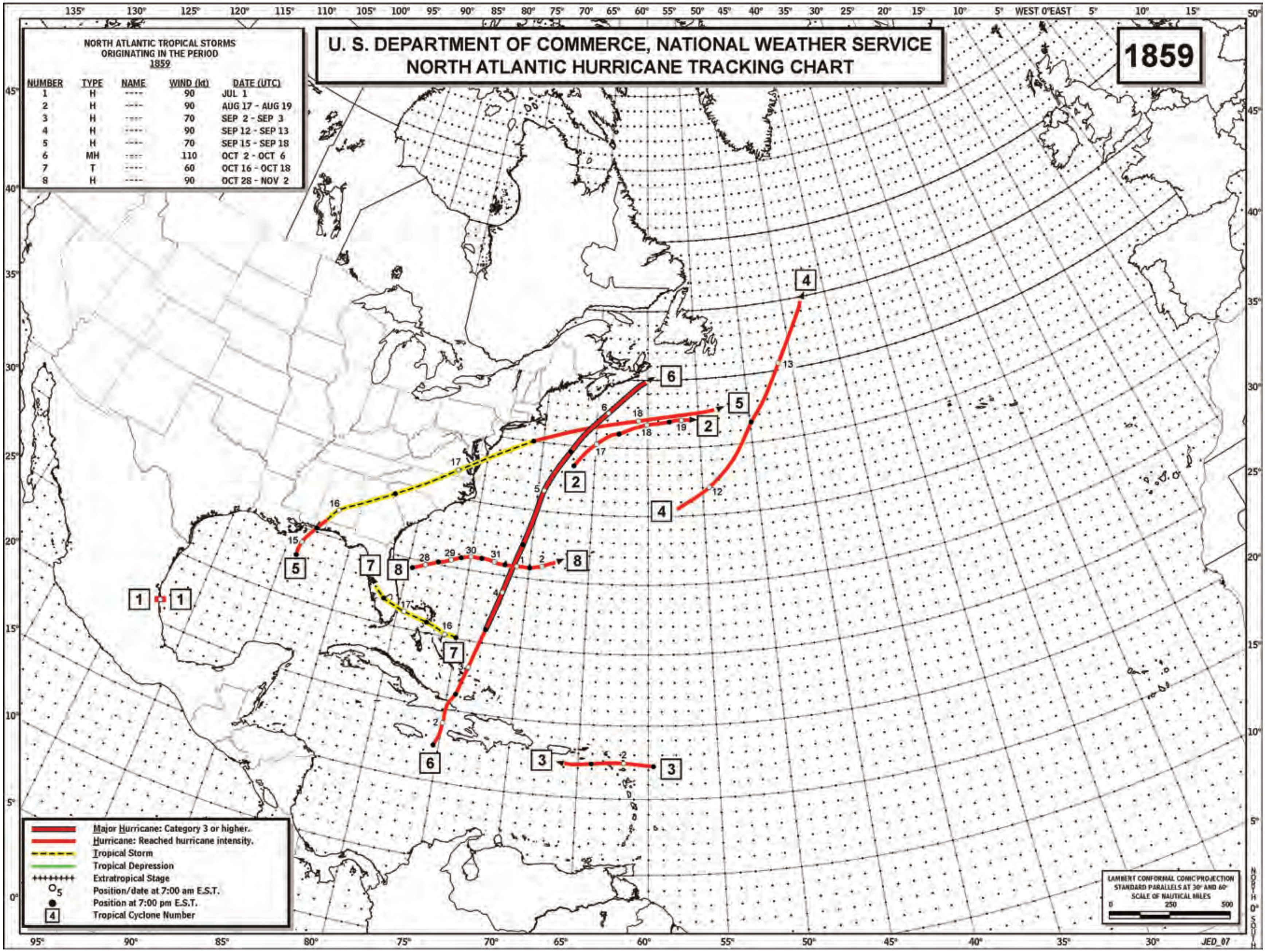

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1854
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1854
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 JUN 25 - JUN 27
2 T ---- 60 AUG 23
3 MH ---- 110 SEP 7 - SEP 12
4 H ---- 90 SEP 18 - SEP 20
5 T ---- 60 OCT 20 - OCT 22
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
NORTH 0° SOUTH
WEST 0° EAST
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1855
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1855
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 90 AUG 6
2 H ---- 90 AUG 10 - AUG 11
3 H ---- 70 AUG 11
4 T ---- 60 AUG 24 - AUG 27
5 MH ---- 110 SEP 15 - SEP 17
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

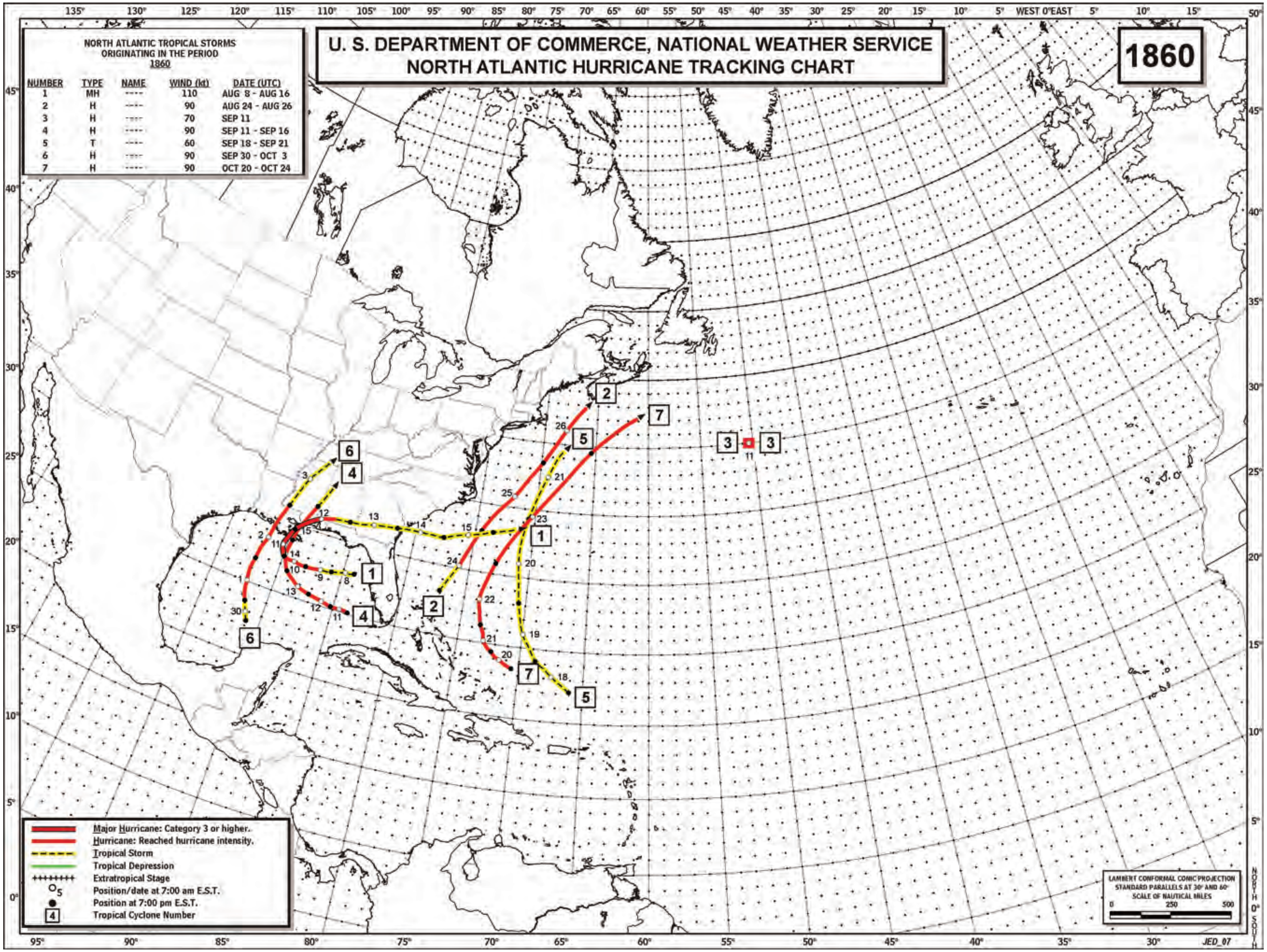

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1856
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1856
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ---- 130 AUG 9 - AUG 12
2 H ---- 70 AUG 13 - AUG 14
3 T ---- 50 AUG 19 - AUG 21
4 T ---- 50 AUG 21
5 MH ---- 100 AUG 25 - SEP 3
6 H ---- 70 SEP 18 - SEP 22
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

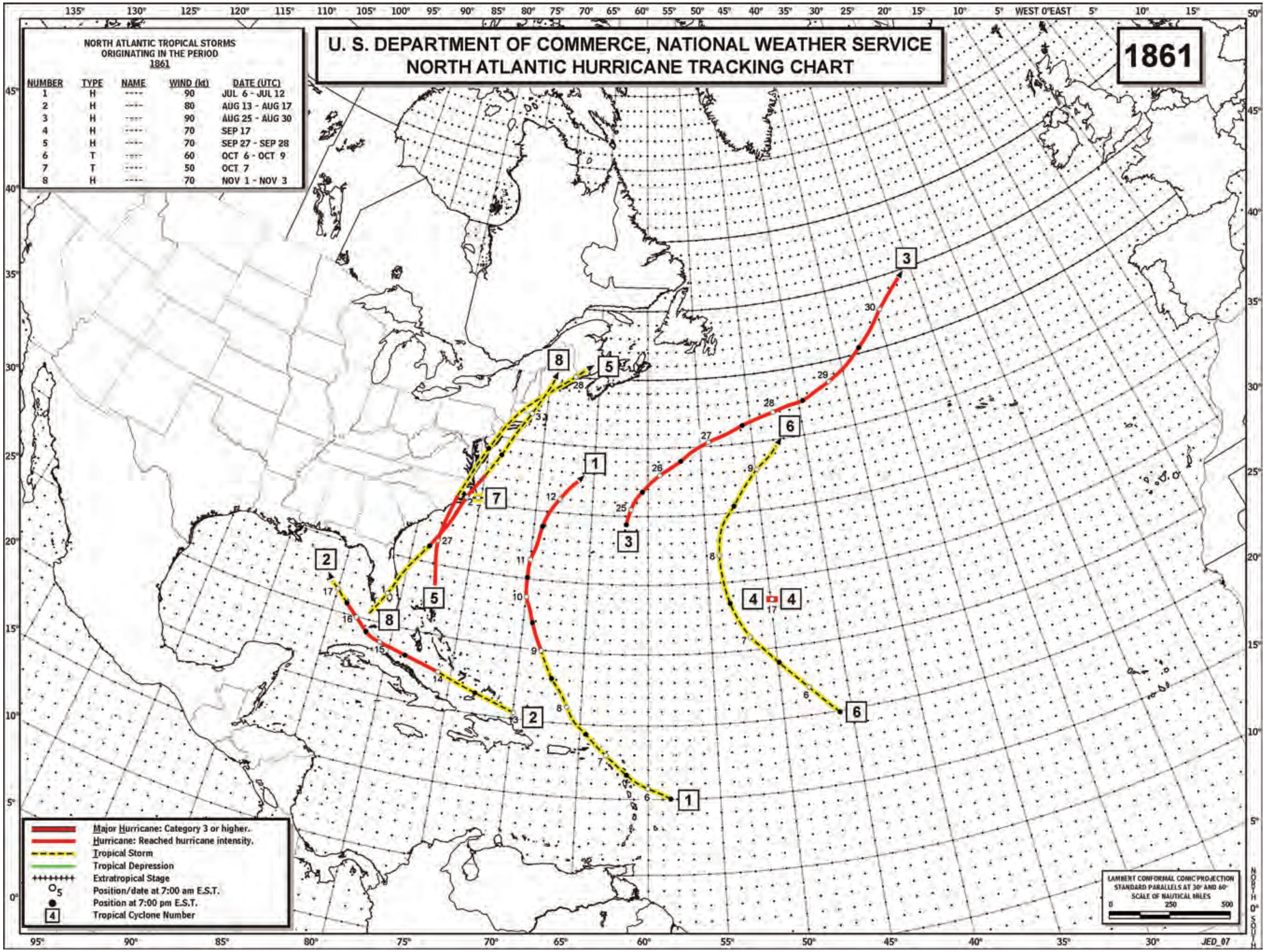

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1857
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1857
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 JUN 30 - JUL 1
2 H ---- 90 SEP 9 - SEP 16
3 H ---- 70 SEP 22 - SEP 26
4 H ---- 90 SEP 24 - SEP 30
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

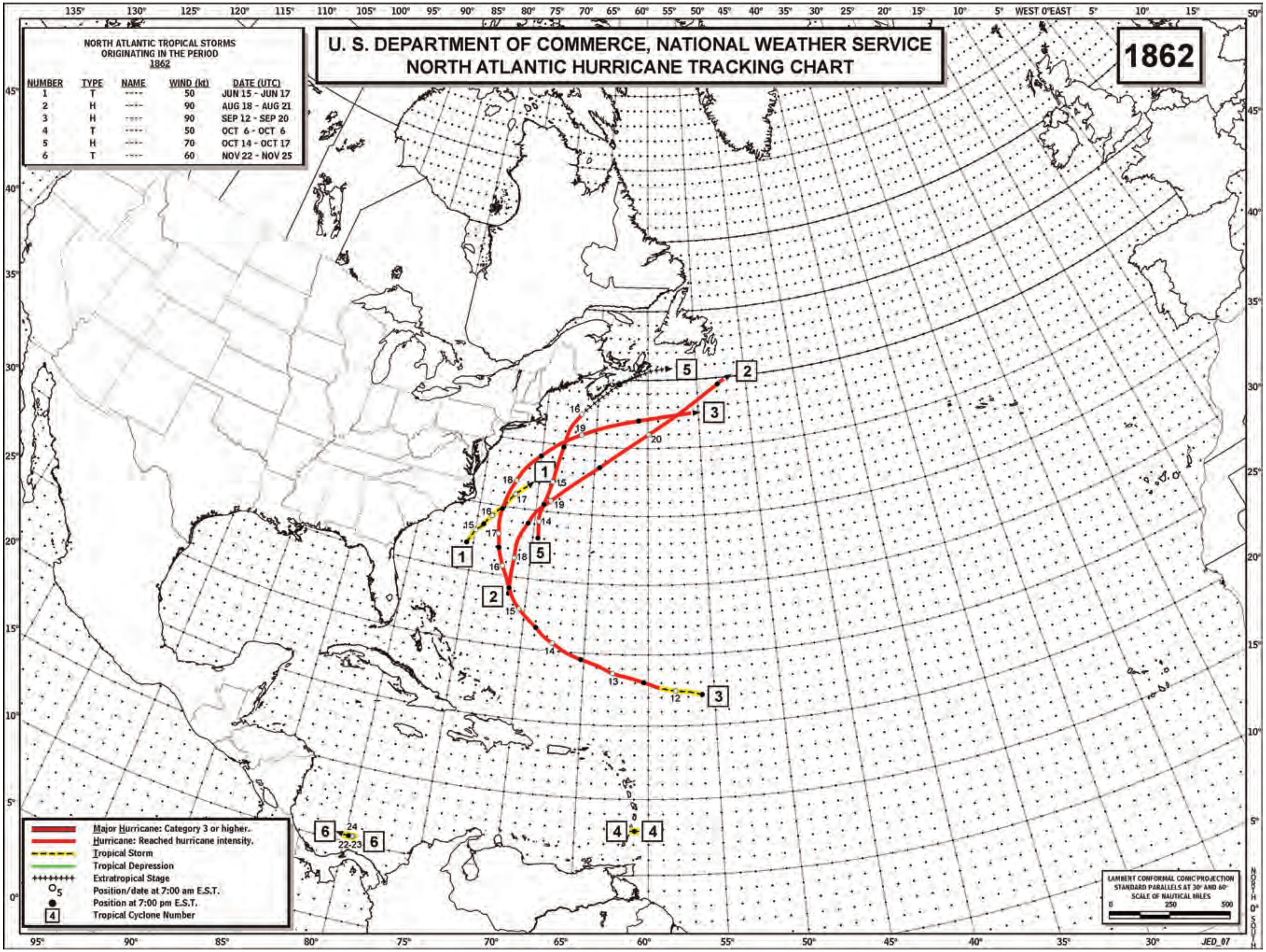

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1858
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1858
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 JUN 12
2 H ---- 70 AUG 5
3 H ---- 90 SEP 14 - SEP 17
4 H ---- 80 SEP 17 - SEP 24
5 H ---- 80 SEP 22 - SEP 25
6 H ---- 90 OCT 21 - OCT 26
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
NORTH
SOUTH
WEST 0° EAST
JED_07

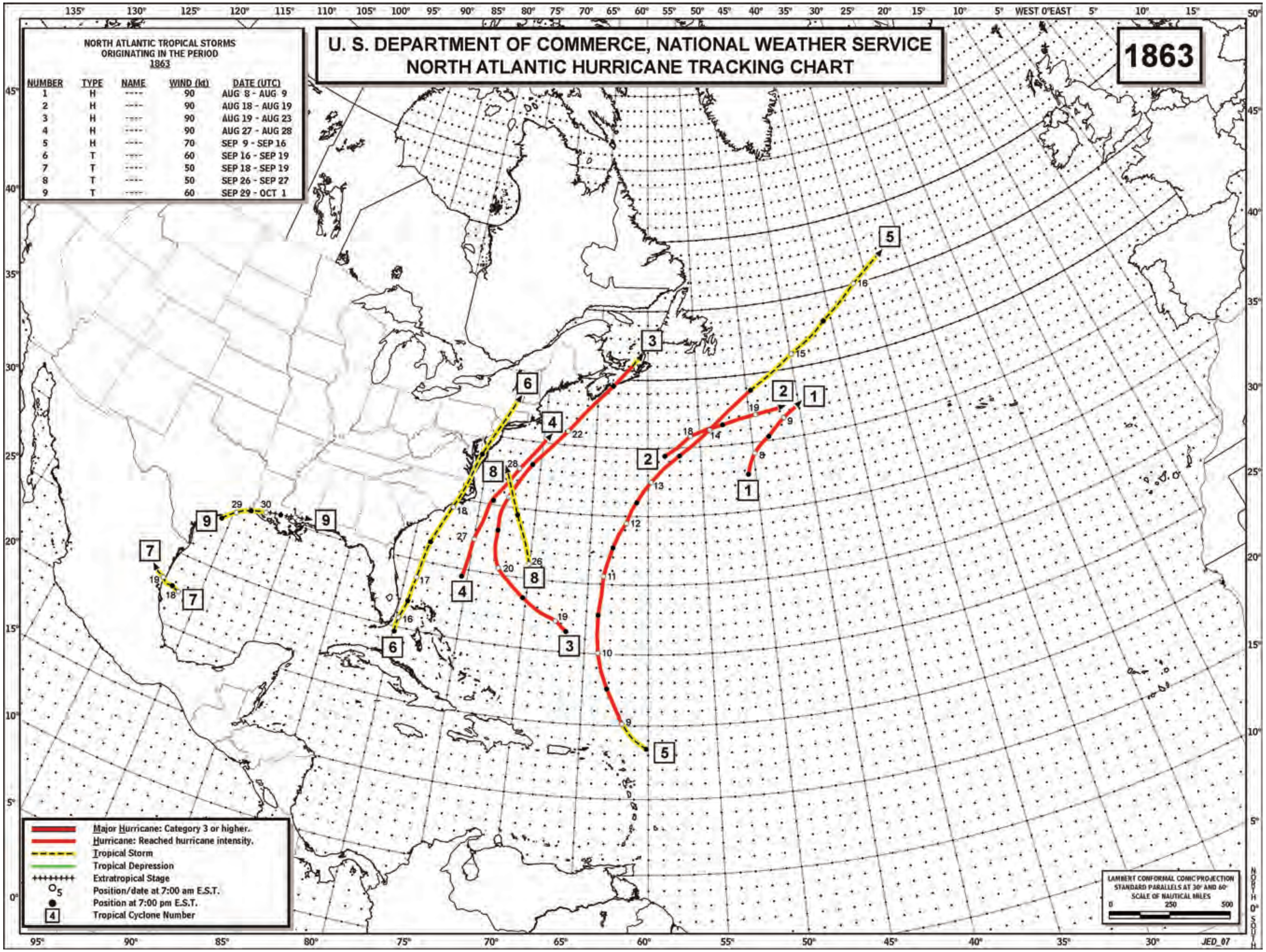


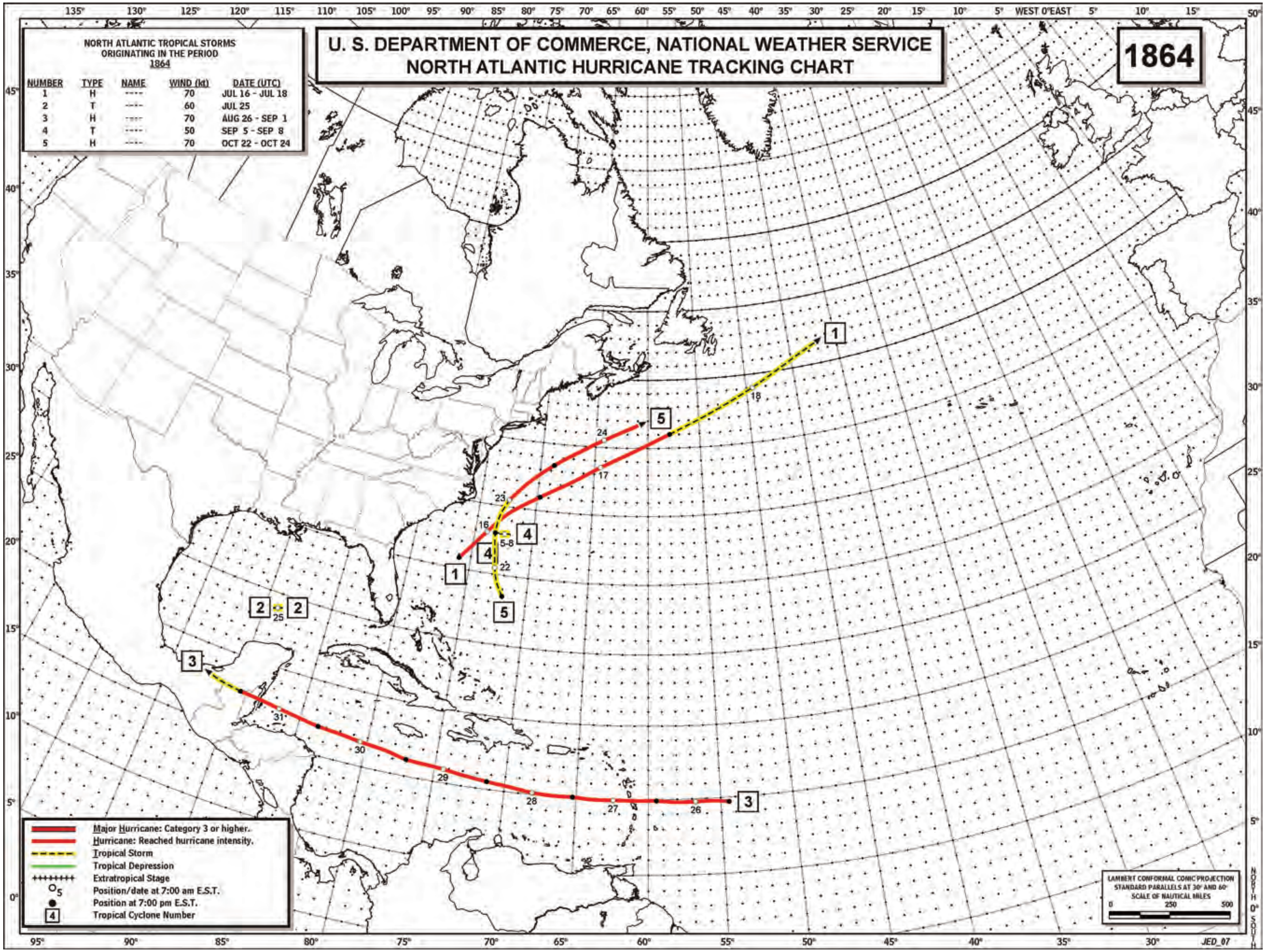
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1859
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1859
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 90 JUL 1
2 H ---- 90 AUG 17 - AUG 19
3 H ---- 70 SEP 2 - SEP 3
4 H ---- 90 SEP 12 - SEP 13
5 H ---- 70 SEP 15 - SEP 18
6 MH ---- 110 OCT 2 - OCT 6
7 T ---- 60 OCT 16 - OCT 18
8 H ---- 90 OCT 28 - NOV 2
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
NORTH
SOUTH
JED_07

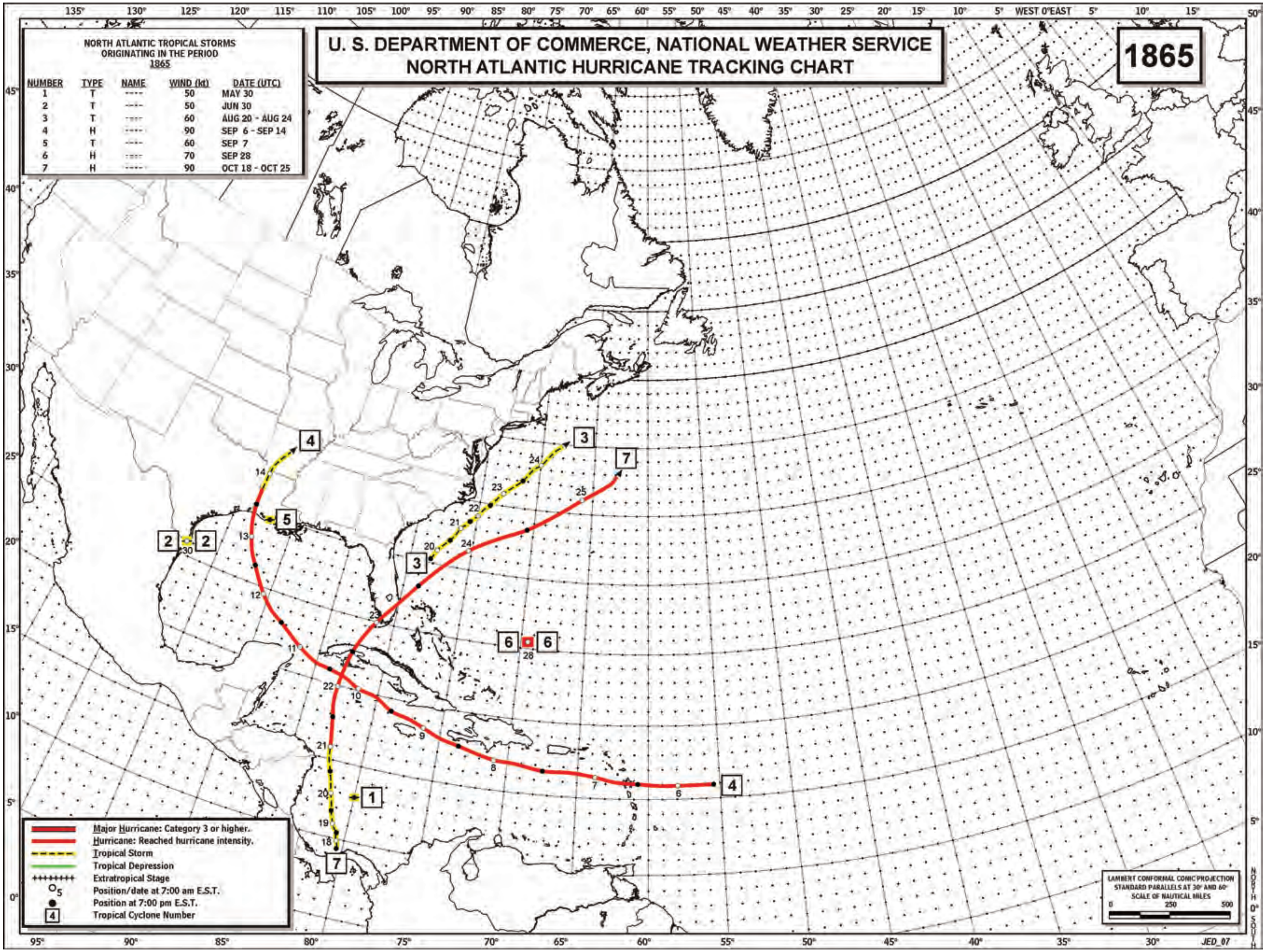

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1860
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1860
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ---- 110 AUG 8 - AUG 16
2 H ---- 90 AUG 24 - AUG 26
3 H ---- 70 SEP 11
4 H ---- 90 SEP 11 - SEP 16
5 T ---- 60 SEP 18 - SEP 21
6 H ---- 90 SEP 30 - OCT 3
7 H ---- 90 OCT 20 - OCT 24
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

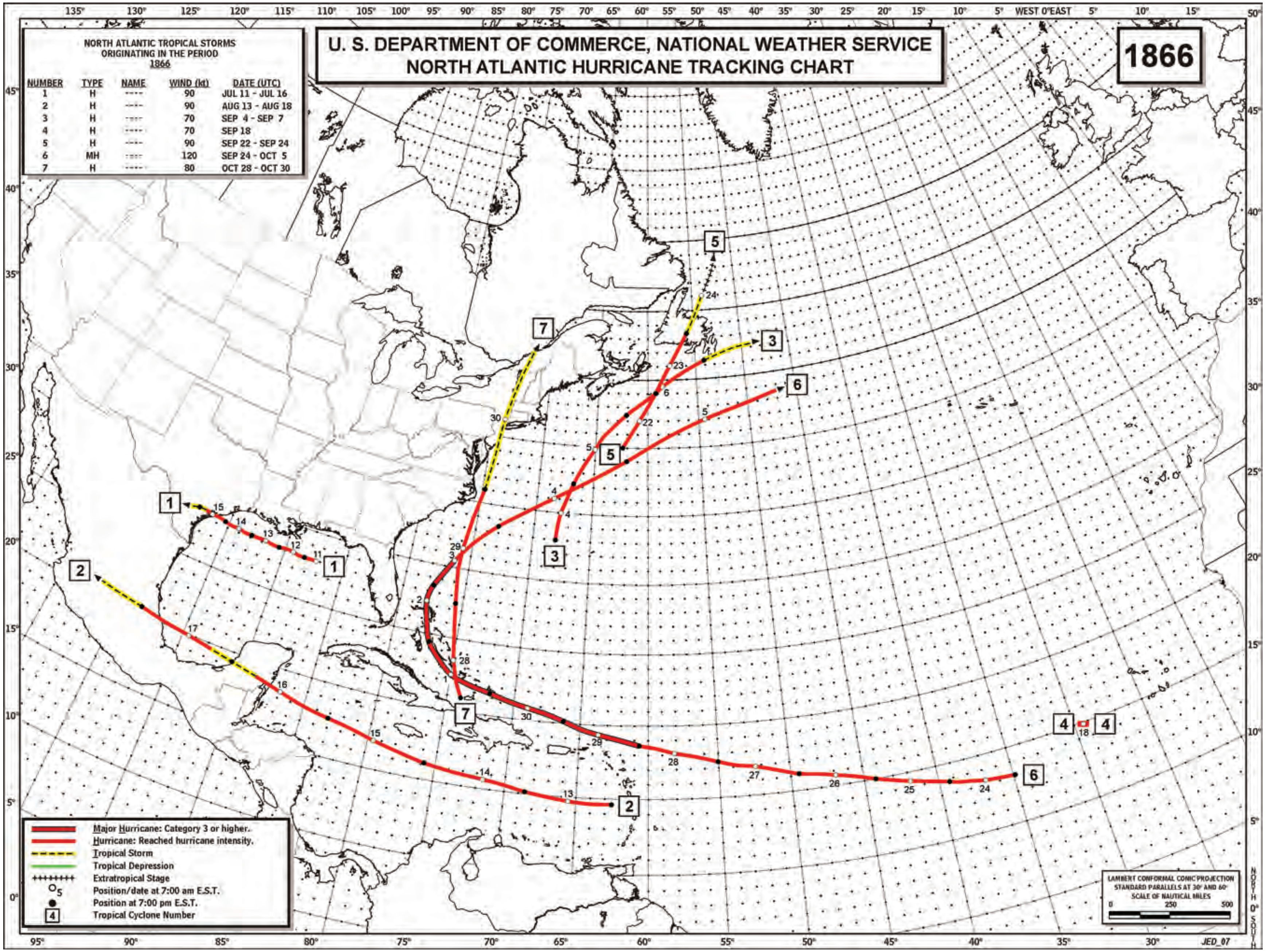

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1861
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1861
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 90 JUL 6 - JUL 12
2 H ---- 80 AUG 13 - AUG 17
3 H ---- 90 AUG 25 - AUG 30
4 H ---- 70 SEP 17
5 H ---- 70 SEP 27 - SEP 28
6 T ---- 60 OCT 6 - OCT 9
7 T ---- 50 OCT 7
8 H ---- 70 NOV 1 - NOV 3
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
NORTH
SOUTH
WEST 0° EAST
JED_07

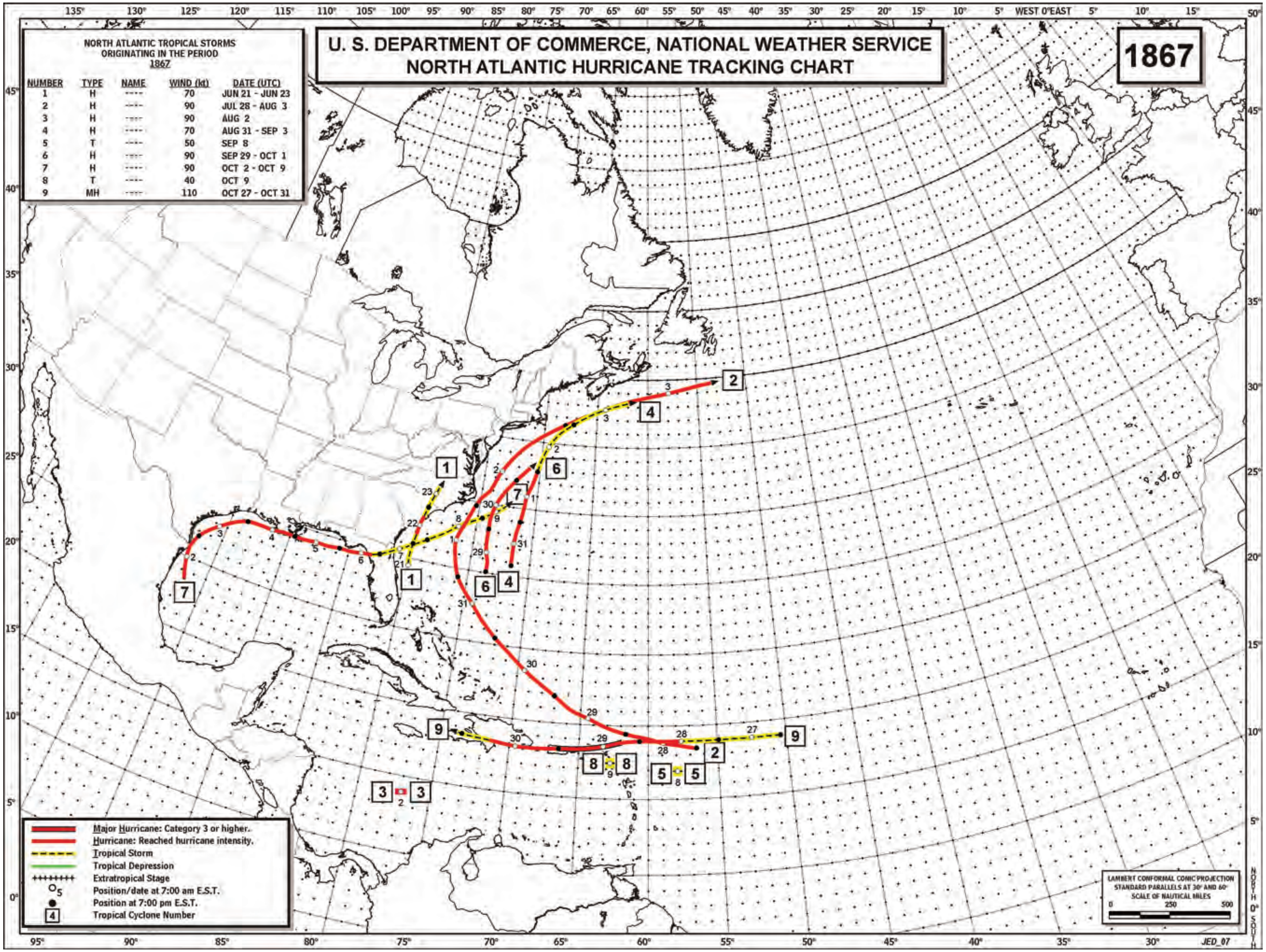

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1862
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1862
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 JUN 15 - JUN 17
2 H ---- 90 AUG 18 - AUG 21
3 H ---- 90 SEP 12 - SEP 20
4 T ---- 50 OCT 6 - OCT 6
5 H ---- 70 OCT 14 - OCT 17
6 T ---- 60 NOV 22 - NOV 25
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

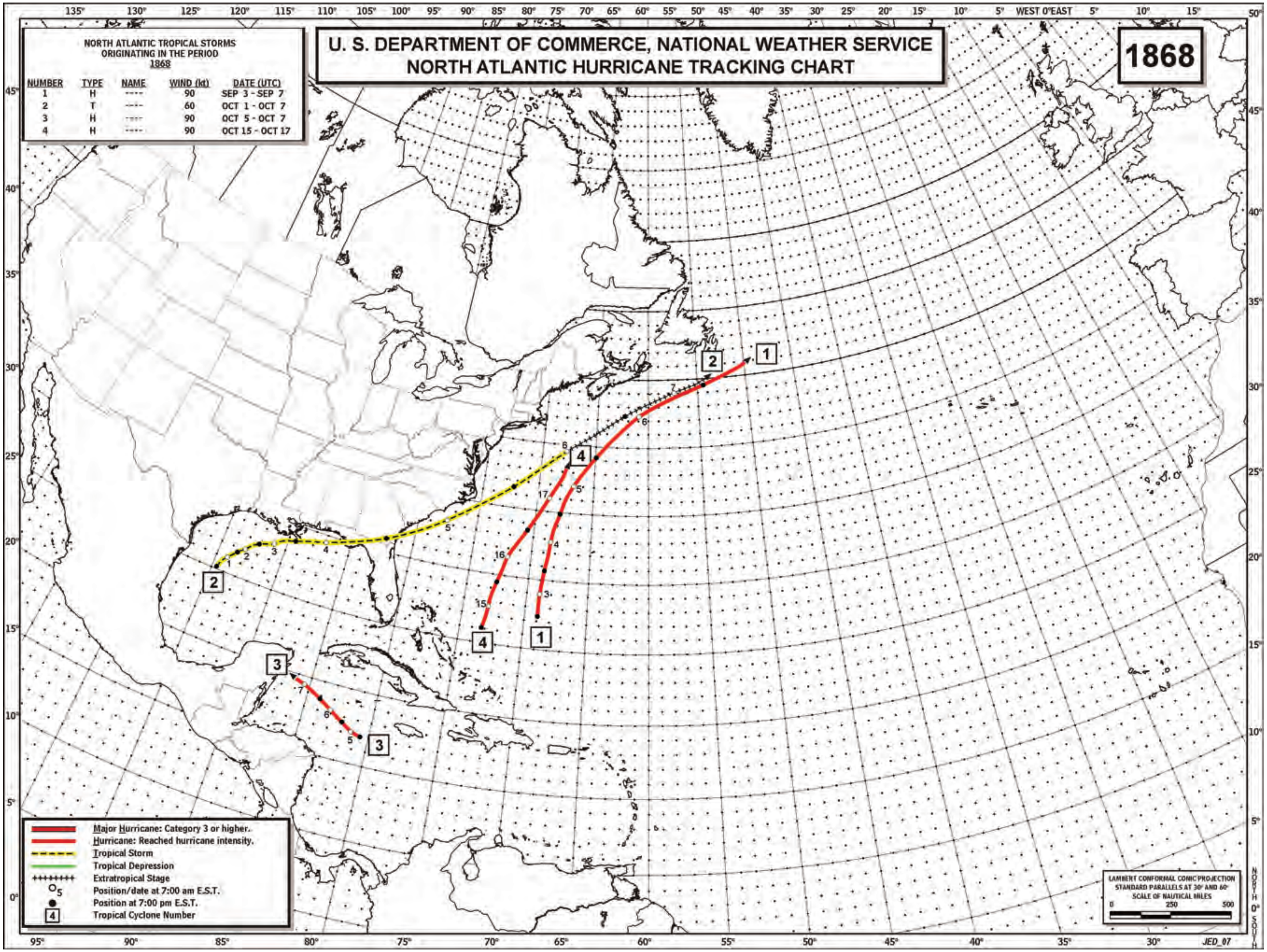

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1863
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1863
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 90 AUG 8 - AUG 9
2 H ---- 90 AUG 18 - AUG 19
3 H ---- 90 AUG 19 - AUG 23
4 H ---- 90 AUG 27 - AUG 28
5 H ---- 70 SEP 9 - SEP 16
6 T ---- 60 SEP 16 - SEP 19
7 T ---- 50 SEP 18 - SEP 19
8 T ---- 50 SEP 26 - SEP 27
9 T ---- 60 SEP 29 - OCT 1
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1864
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1864
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 JUL 16 - JUL 18
2 T ---- 60 JUL 25
3 H ---- 70 AUG 26 - SEP 1
4 T ---- 50 SEP 5 - SEP 8
5 H ---- 70 OCT 22 - OCT 24
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

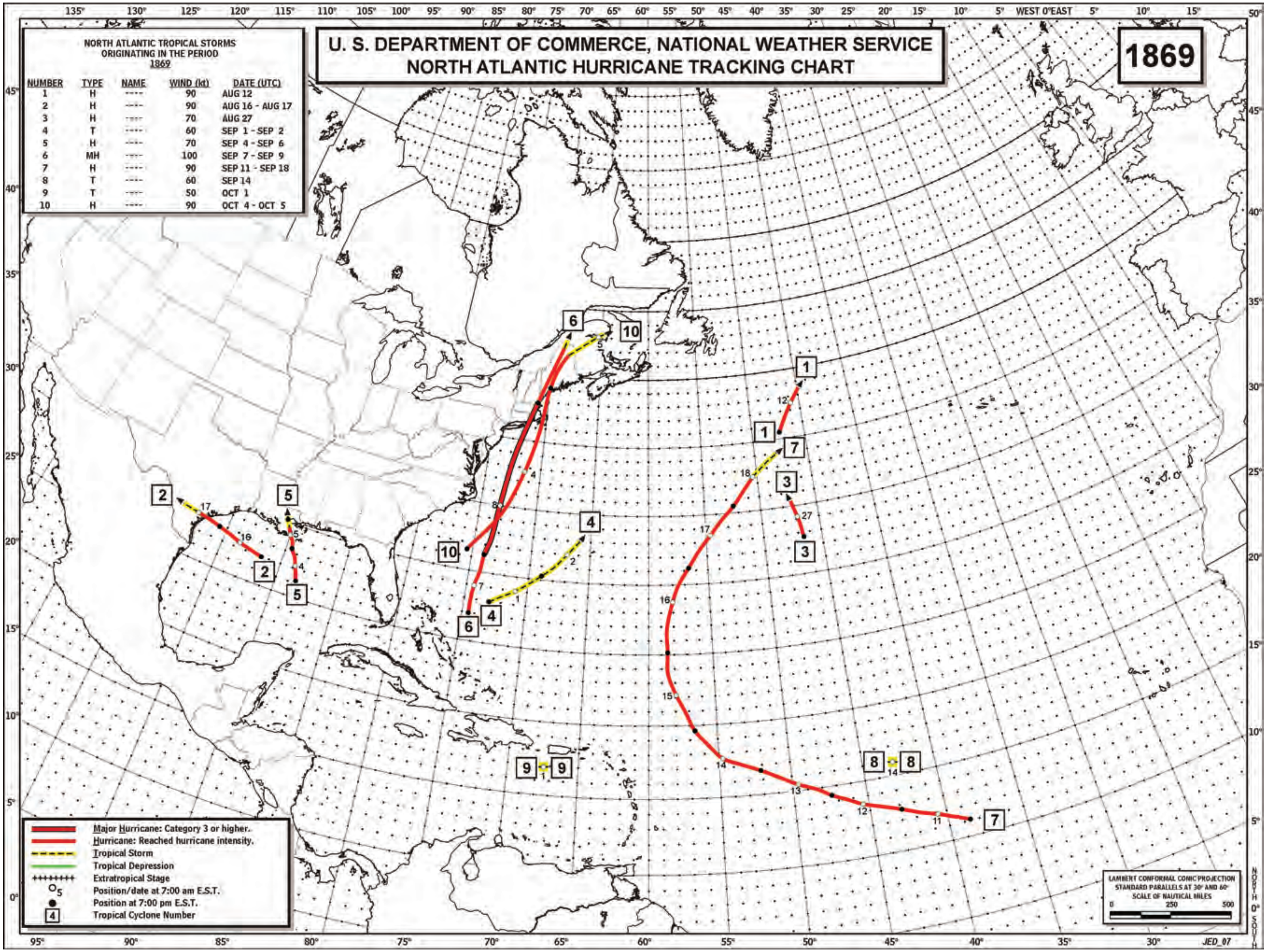

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1865
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1865
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 MAY 30
2 T ---- 50 JUN 30
3 T ---- 60 AUG 20 - AUG 24
4 H ---- 90 SEP 6 - SEP 14
5 T ---- 60 SEP 7
6 H ---- 70 SEP 28
7 H ---- 90 OCT 18 - OCT 25
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1866
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1866
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ----- 90 JUL 11 - JUL 16
2 H ----- 90 AUG 13 - AUG 18
3 H ----- 70 SEP 4 - SEP 7
4 H ----- 70 SEP 18
5 H ----- 90 SEP 22 - SEP 24
6 MH ----- 120 SEP 24 - OCT 5
7 H ----- 80 OCT 28 - OCT 30
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
NORTH SOUTH
WEST 0° EAST
JED_07

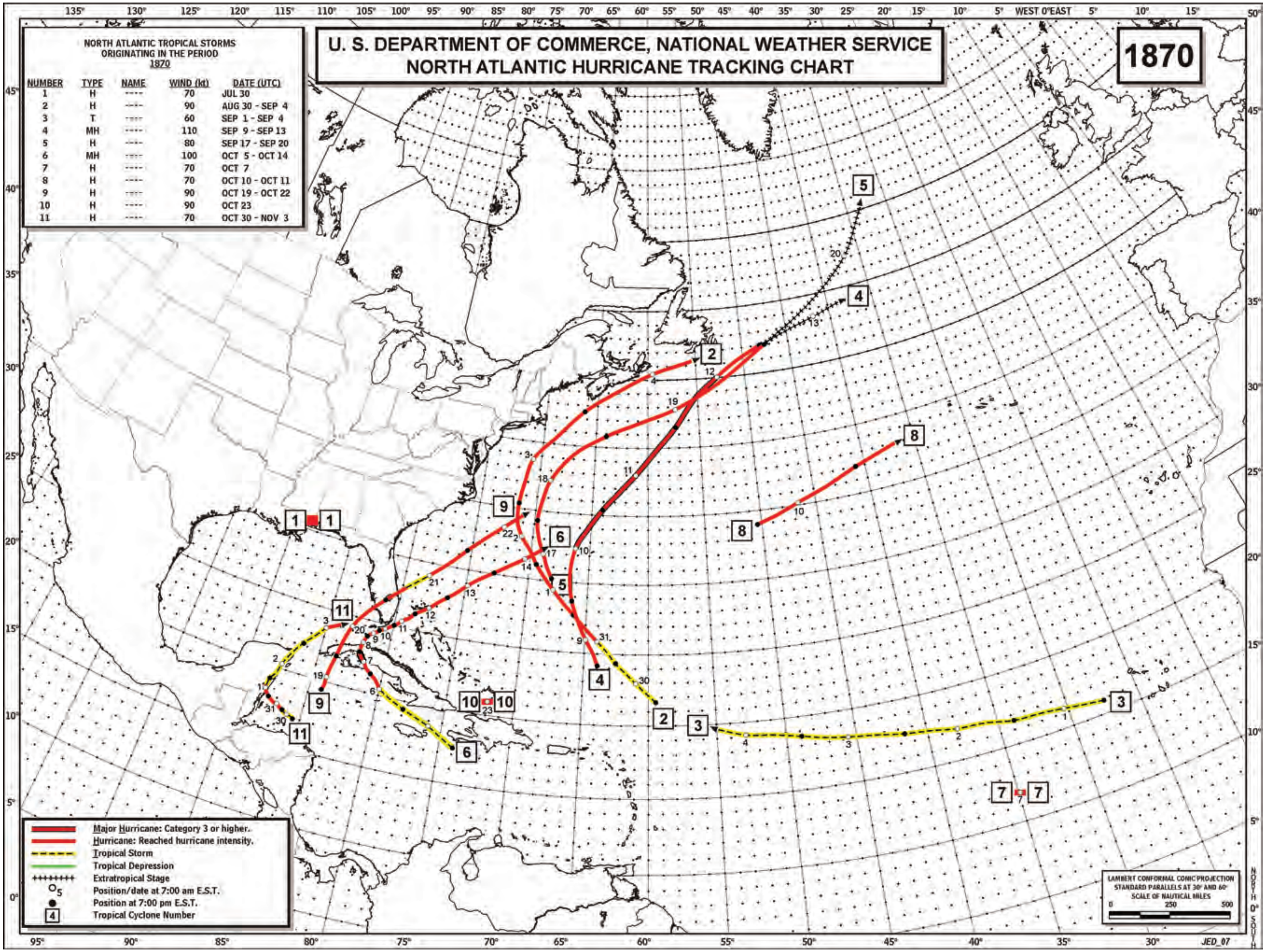

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1867
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1867
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 JUN 21 - JUN 23
2 H ---- 90 JUL 28 - AUG 3
3 H ---- 90 AUG 2
4 H ---- 70 AUG 31 - SEP 3
5 T ---- 50 SEP 8
6 H ---- 90 SEP 29 - OCT 1
7 H ---- 90 OCT 2 - OCT 9
8 T ---- 40 OCT 9
9 MH ---- 110 OCT 27 - OCT 31
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
WEST 0° EAST
NORTH
SOUTH
JED_07

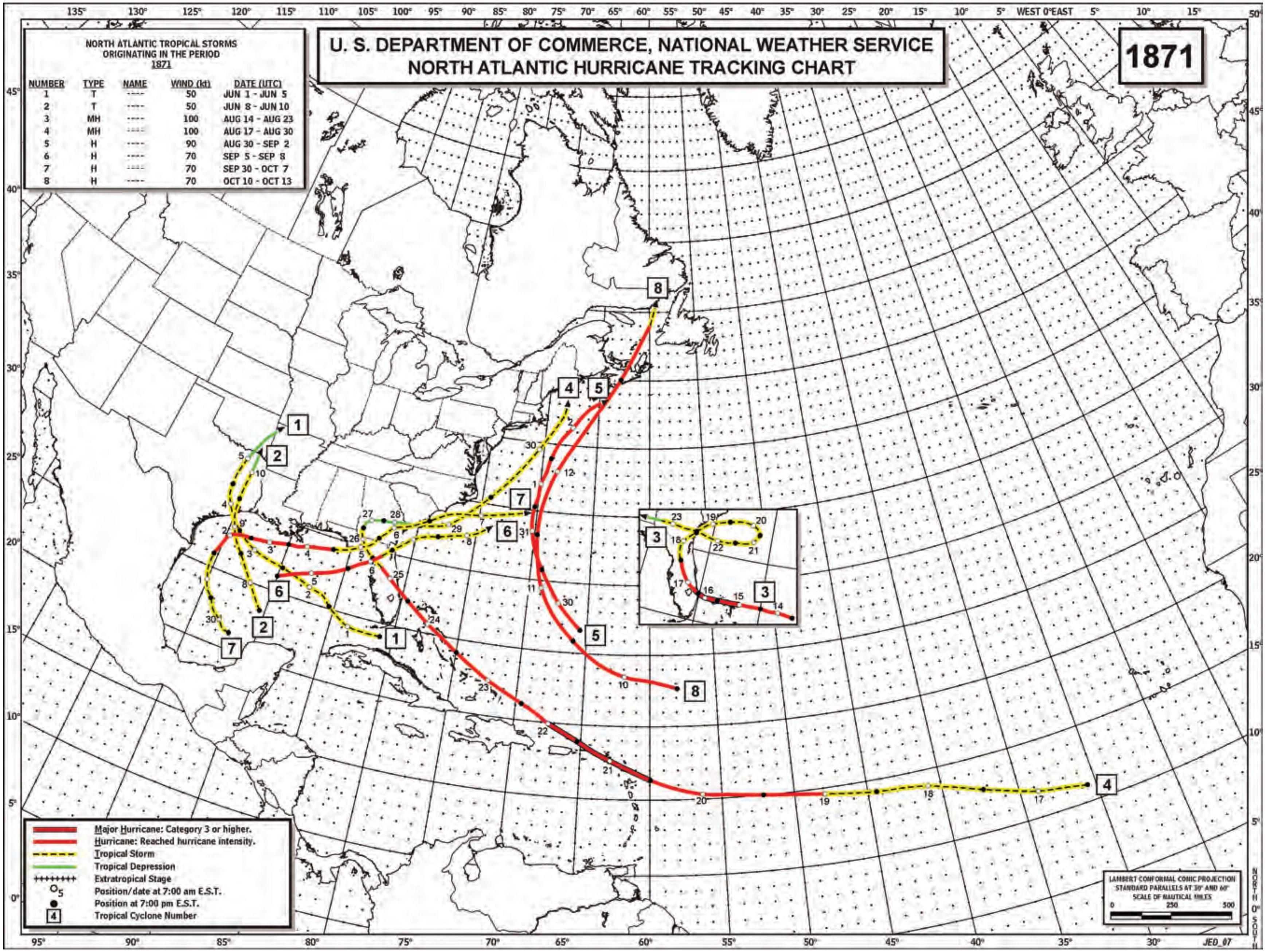


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1868
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1868
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 90 SEP 3 - SEP 7
2 T ---- 60 OCT 1 - OCT 7
3 H ---- 90 OCT 5 - OCT 7
4 H ---- 90 OCT 15 - OCT 17
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
WEST 0° EAST
NORTH
SOUTH
JED_07

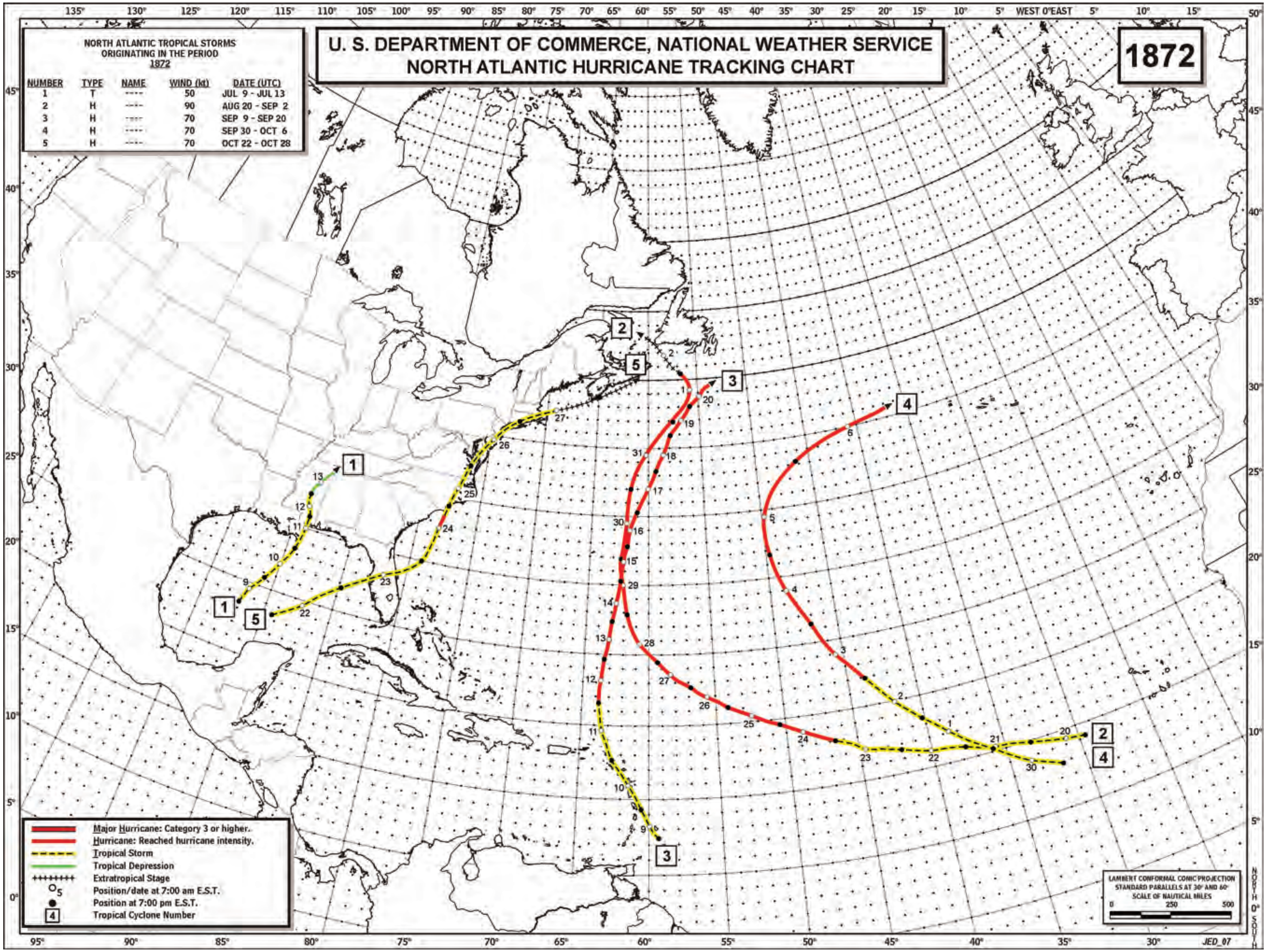


NUMBER	TYPE	NAME	WIND (kt)	DATE (UTC)
1	H	----	90	AUG 12
2	H	----	90	AUG 16 - AUG 17
3	H	----	70	AUG 27
4	T	----	60	SEP 1 - SEP 2
5	H	----	70	SEP 4 - SEP 6
6	MH	----	100	SEP 7 - SEP 9
7	H	----	90	SEP 11 - SEP 18
8	T	----	60	SEP 14
9	T	----	50	OCT 1
10	H	----	90	OCT 4 - OCT 5

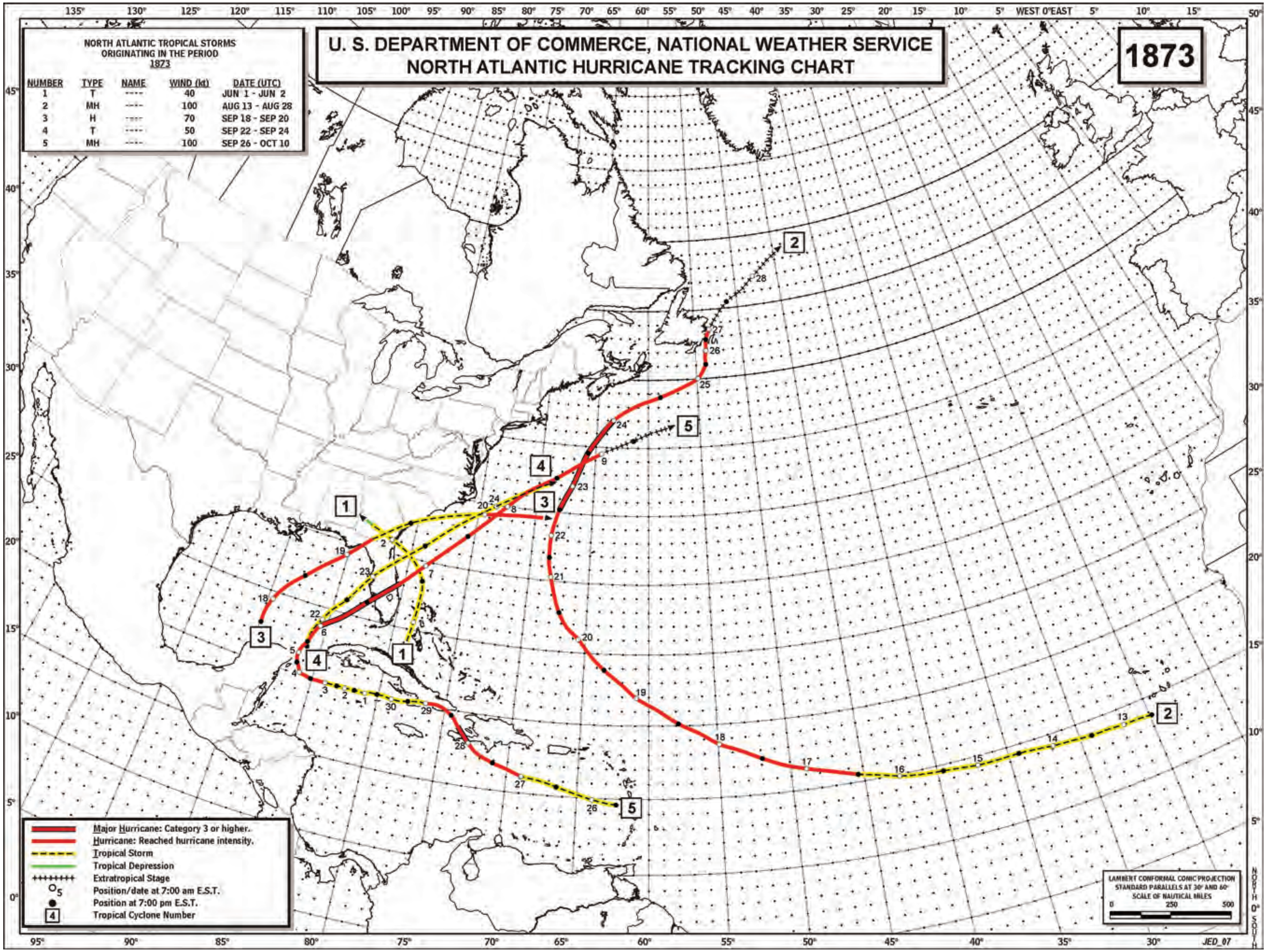

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1870
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1870
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 JUL 30
2 H ---- 90 AUG 30 - SEP 4
3 T ---- 60 SEP 1 - SEP 4
4 MH ---- 110 SEP 9 - SEP 13
5 H ---- 80 SEP 17 - SEP 20
6 MH ---- 100 OCT 5 - OCT 14
7 H ---- 70 OCT 7
8 H ---- 70 OCT 10 - OCT 11
9 H ---- 90 OCT 19 - OCT 22
10 H ---- 90 OCT 23
11 H ---- 70 OCT 30 - NOV 3
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
WEST 0° EAST
NORTH
SOUTH
JED_07

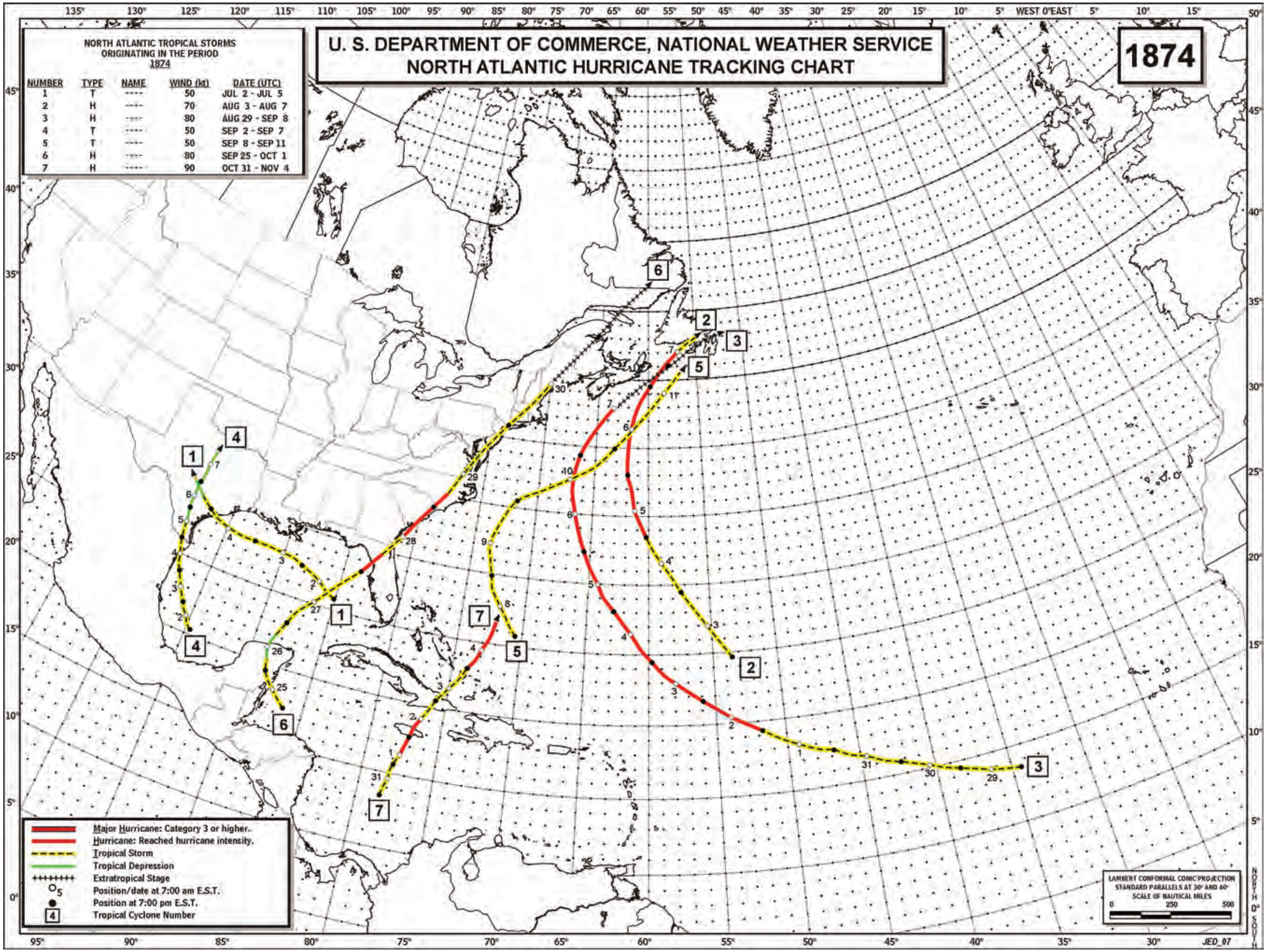


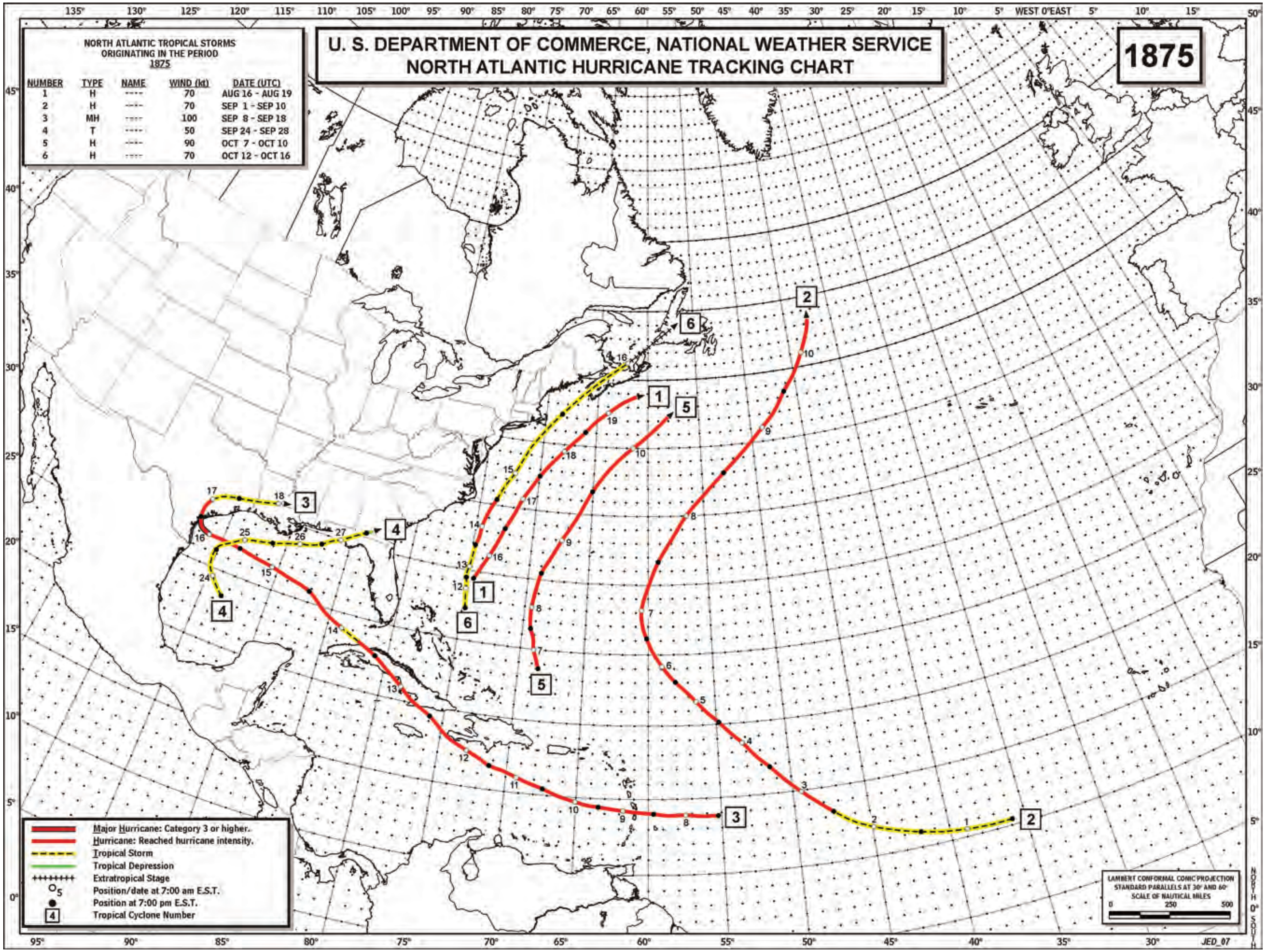
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1871
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1871
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 JUN 1 - JUN 5
2 T ---- 50 JUN 8 - JUN 10
3 MH ---- 100 AUG 14 - AUG 23
4 MH ---- 100 AUG 17 - AUG 30
5 H ---- 90 AUG 30 - SEP 2
6 H ---- 70 SEP 5 - SEP 8
7 H ---- 70 SEP 30 - OCT 7
8 H ---- 70 OCT 10 - OCT 13
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

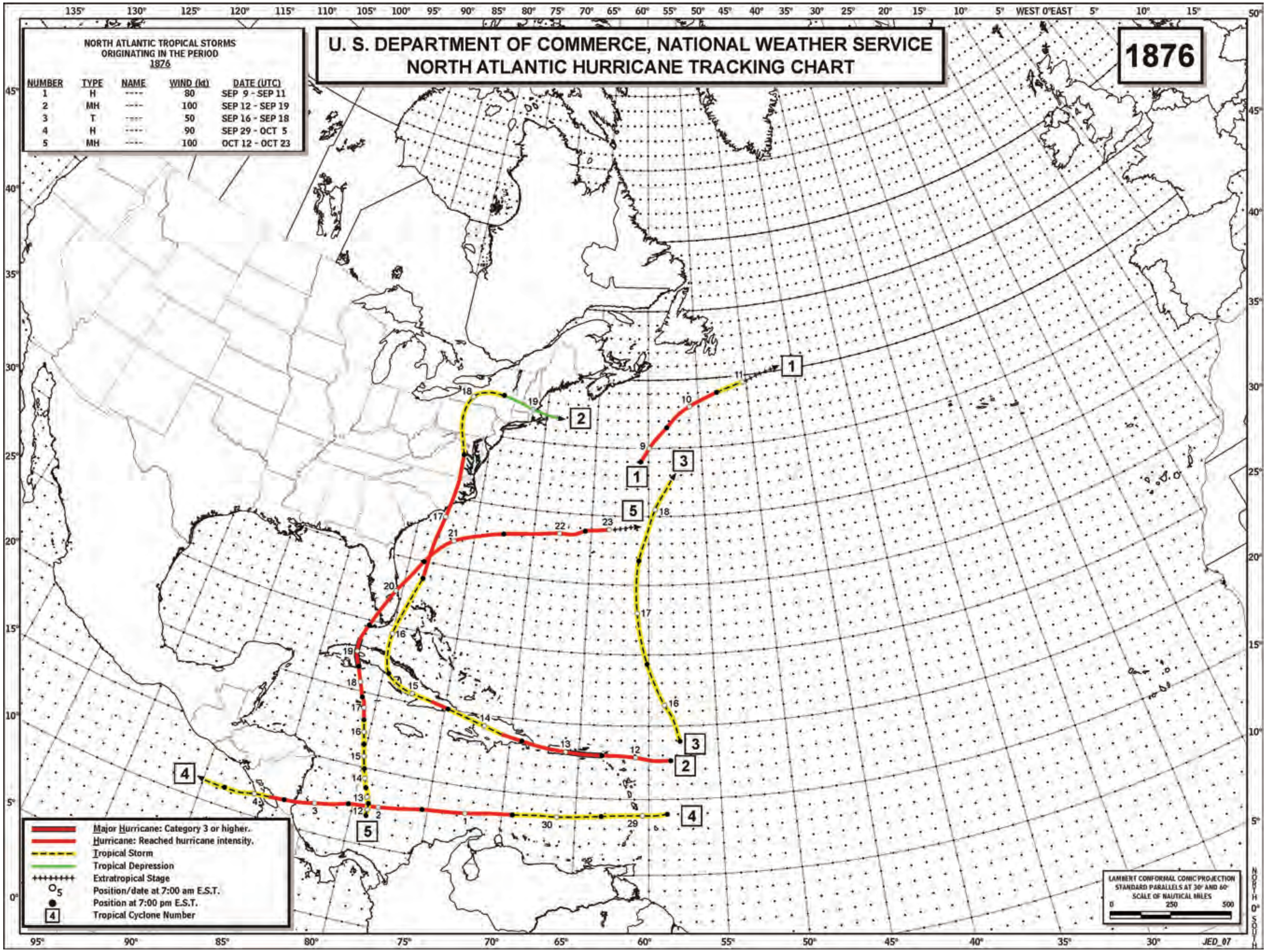


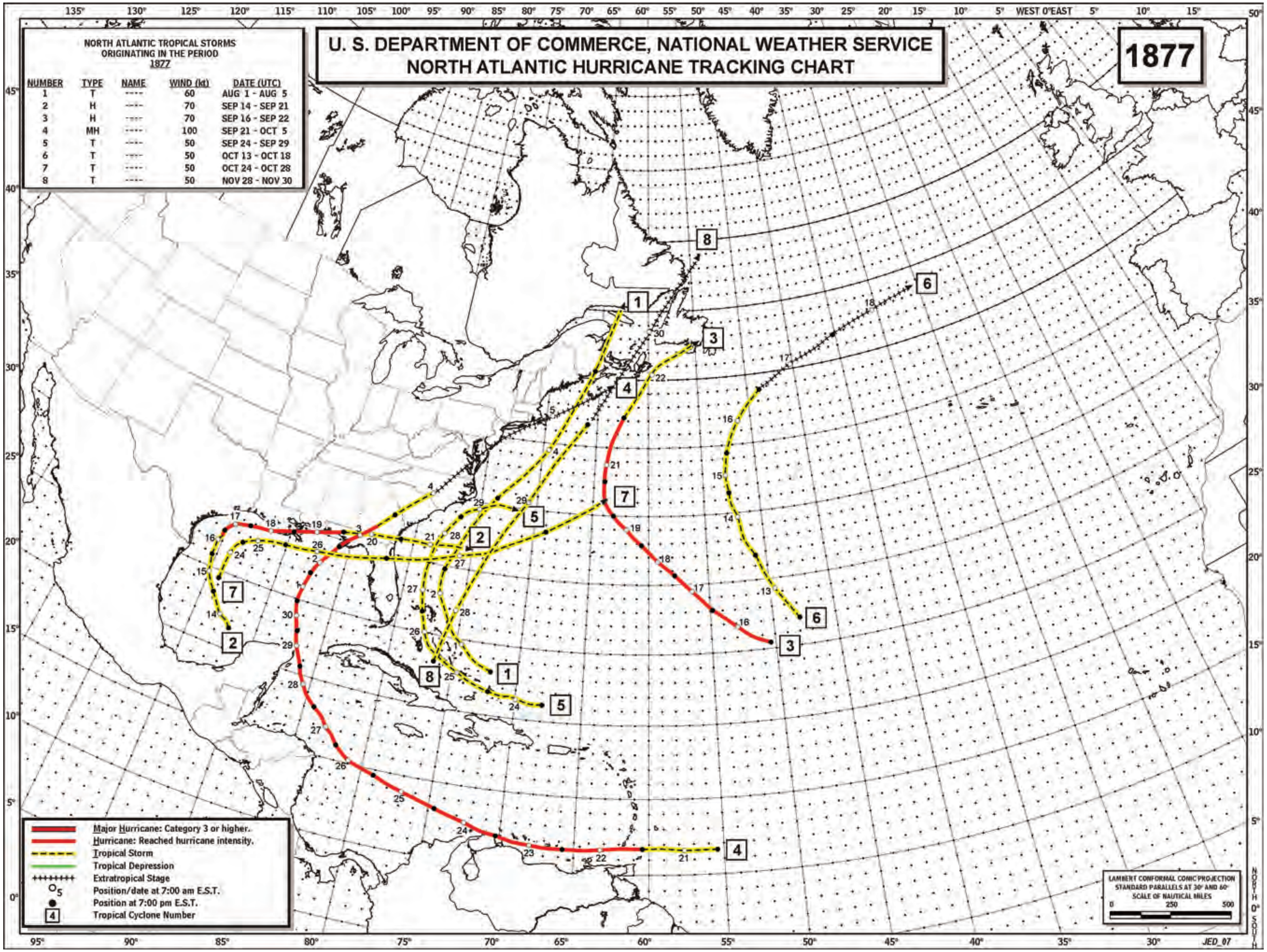
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1872
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1872
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 JUL 9 - JUL 13
2 H ---- 90 AUG 20 - SEP 2
3 H ---- 70 SEP 9 - SEP 20
4 H ---- 70 SEP 30 - OCT 6
5 H ---- 70 OCT 22 - OCT 28
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

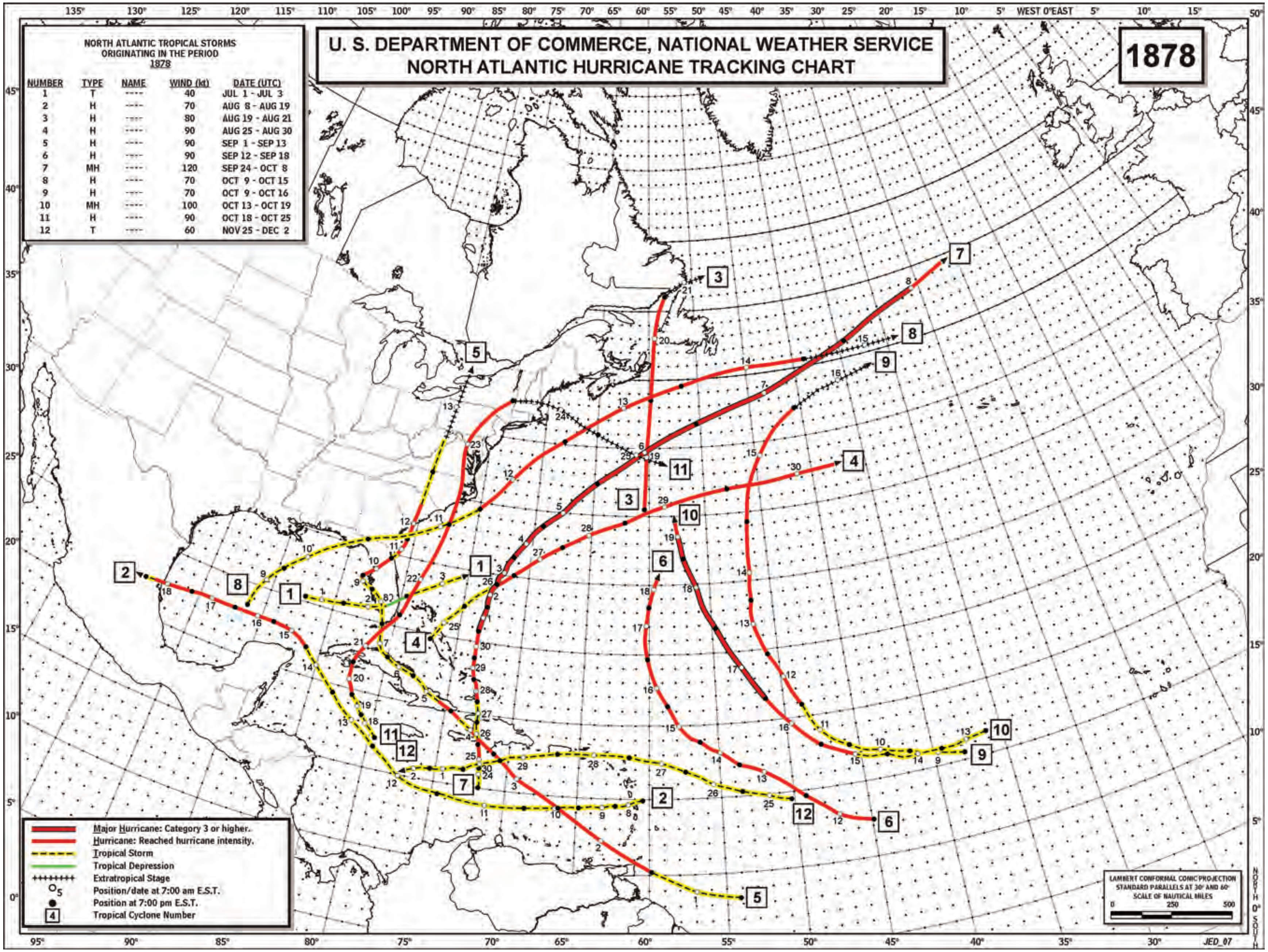

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1873
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1873
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 40 JUN 1 - JUN 2
2 MH ---- 100 AUG 13 - AUG 28
3 H ---- 70 SEP 18 - SEP 20
4 T ---- 50 SEP 22 - SEP 24
5 MH ---- 100 SEP 26 - OCT 10
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

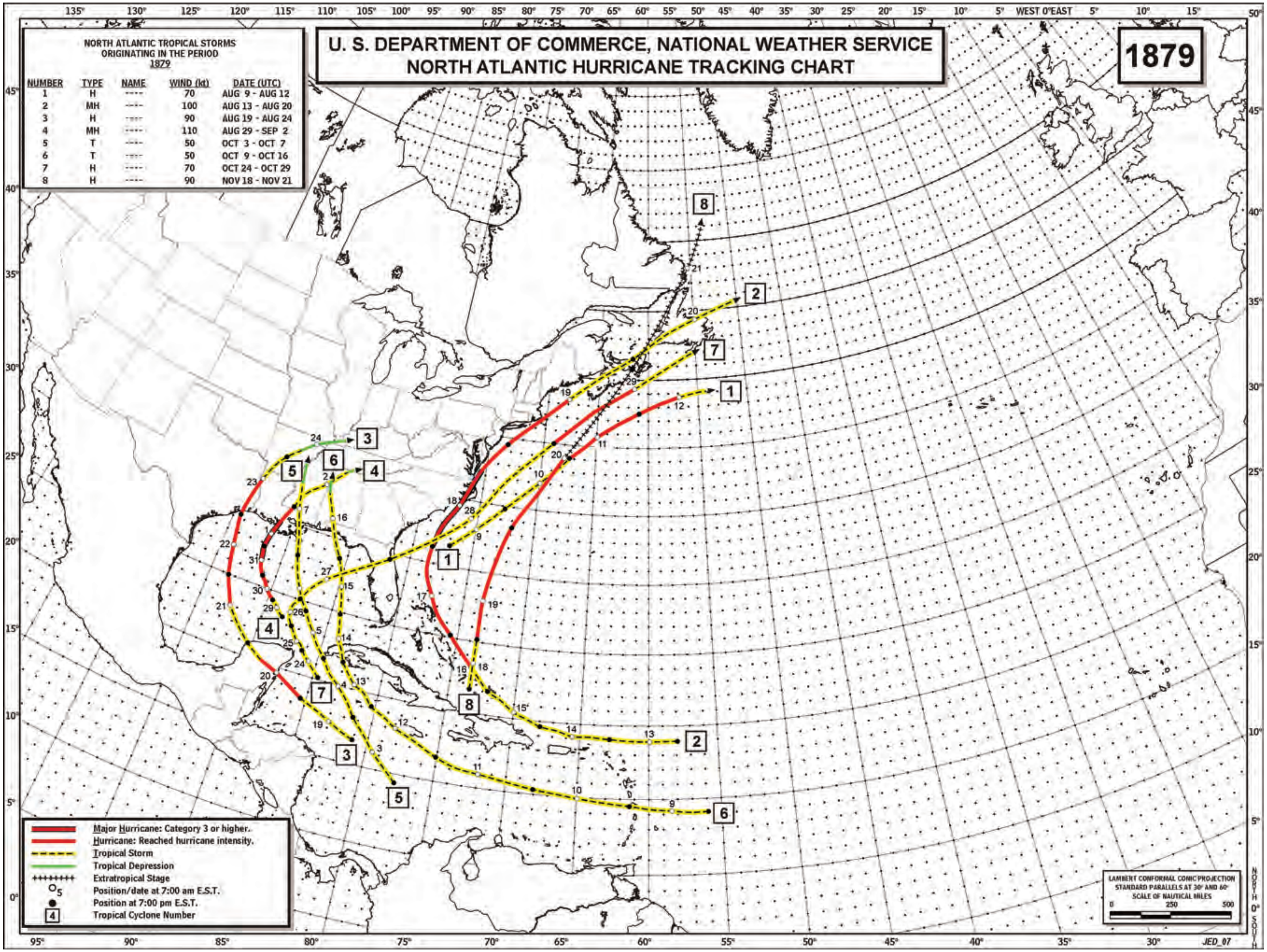

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1874
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1874
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 JUL 2 - JUL 5
2 H ---- 70 AUG 3 - AUG 7
3 H ---- 80 AUG 29 - SEP 8
4 T ---- 50 SEP 2 - SEP 7
5 T ---- 50 SEP 8 - SEP 11
6 H ---- 80 SEP 25 - OCT 1
7 H ---- 90 OCT 31 - NOV 4
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1875
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1875
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 AUG 16 - AUG 19
2 H ---- 70 SEP 1 - SEP 10
3 MH ---- 100 SEP 8 - SEP 18
4 T ---- 50 SEP 24 - SEP 28
5 H ---- 90 OCT 7 - OCT 10
6 H ---- 70 OCT 12 - OCT 16
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
WEST 0° EAST
NORTH
SOUTH
JED_07

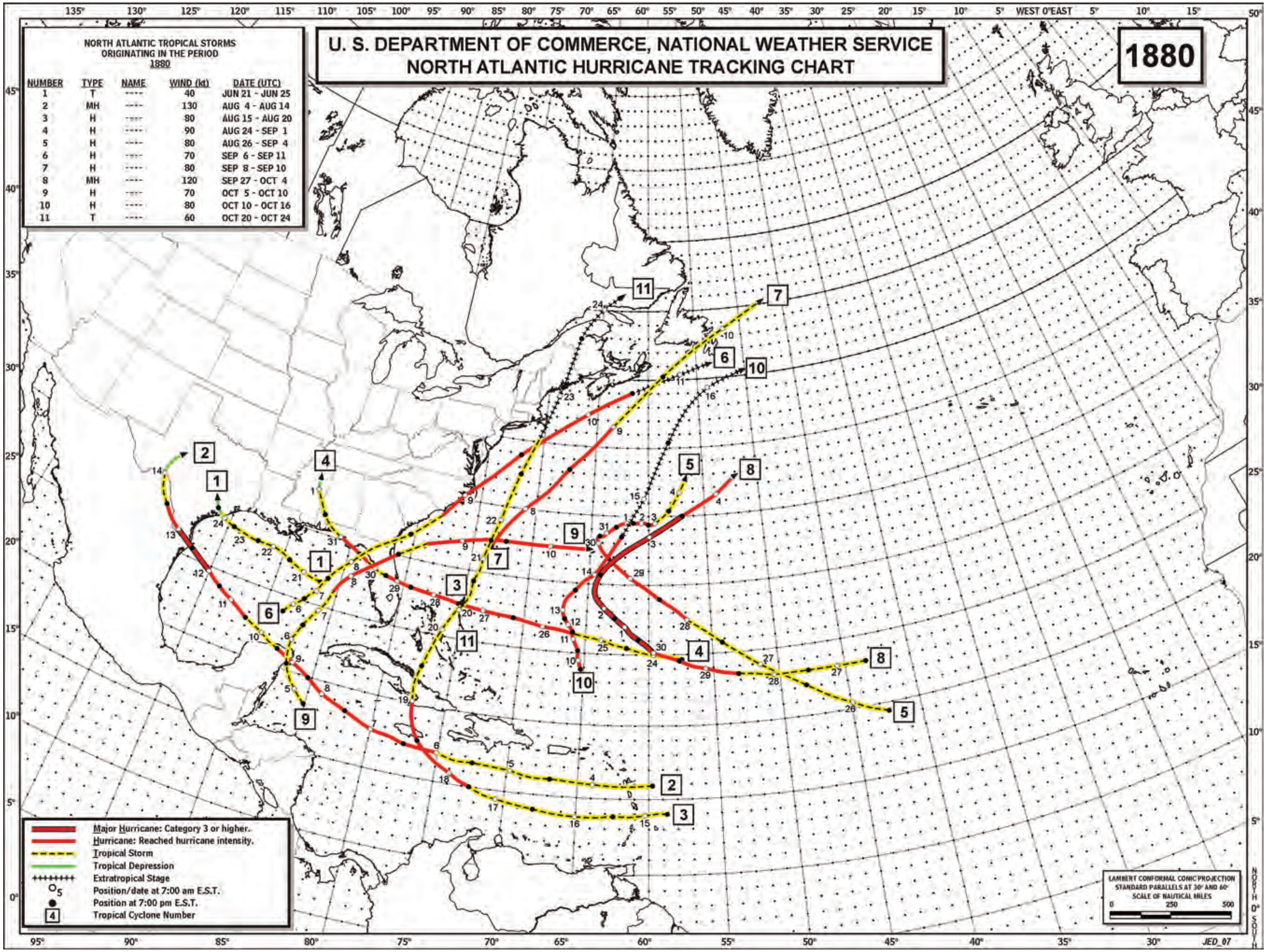

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1876
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1876
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 80 SEP 9 - SEP 11
2 MH ---- 100 SEP 12 - SEP 19
3 T ---- 50 SEP 16 - SEP 18
4 H ---- 90 SEP 29 - OCT 5
5 MH ---- 100 OCT 12 - OCT 23
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

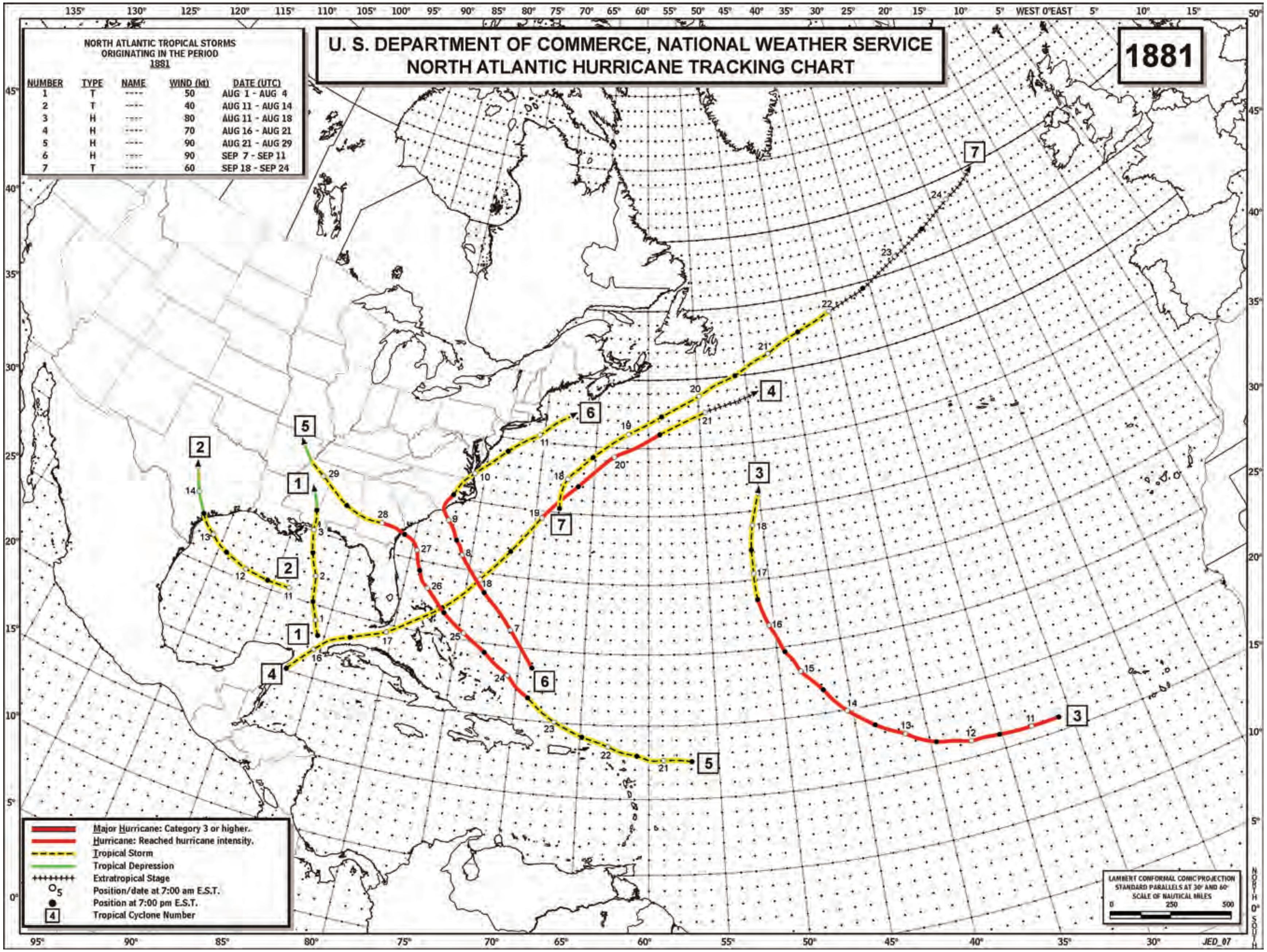

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1877
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1877
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 60 AUG 1 - AUG 5
2 H ---- 70 SEP 14 - SEP 21
3 H ---- 70 SEP 16 - SEP 22
4 MH ---- 100 SEP 21 - OCT 5
5 T ---- 50 SEP 24 - SEP 29
6 T ---- 50 OCT 13 - OCT 18
7 T ---- 50 OCT 24 - OCT 28
8 T ---- 50 NOV 28 - NOV 30
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

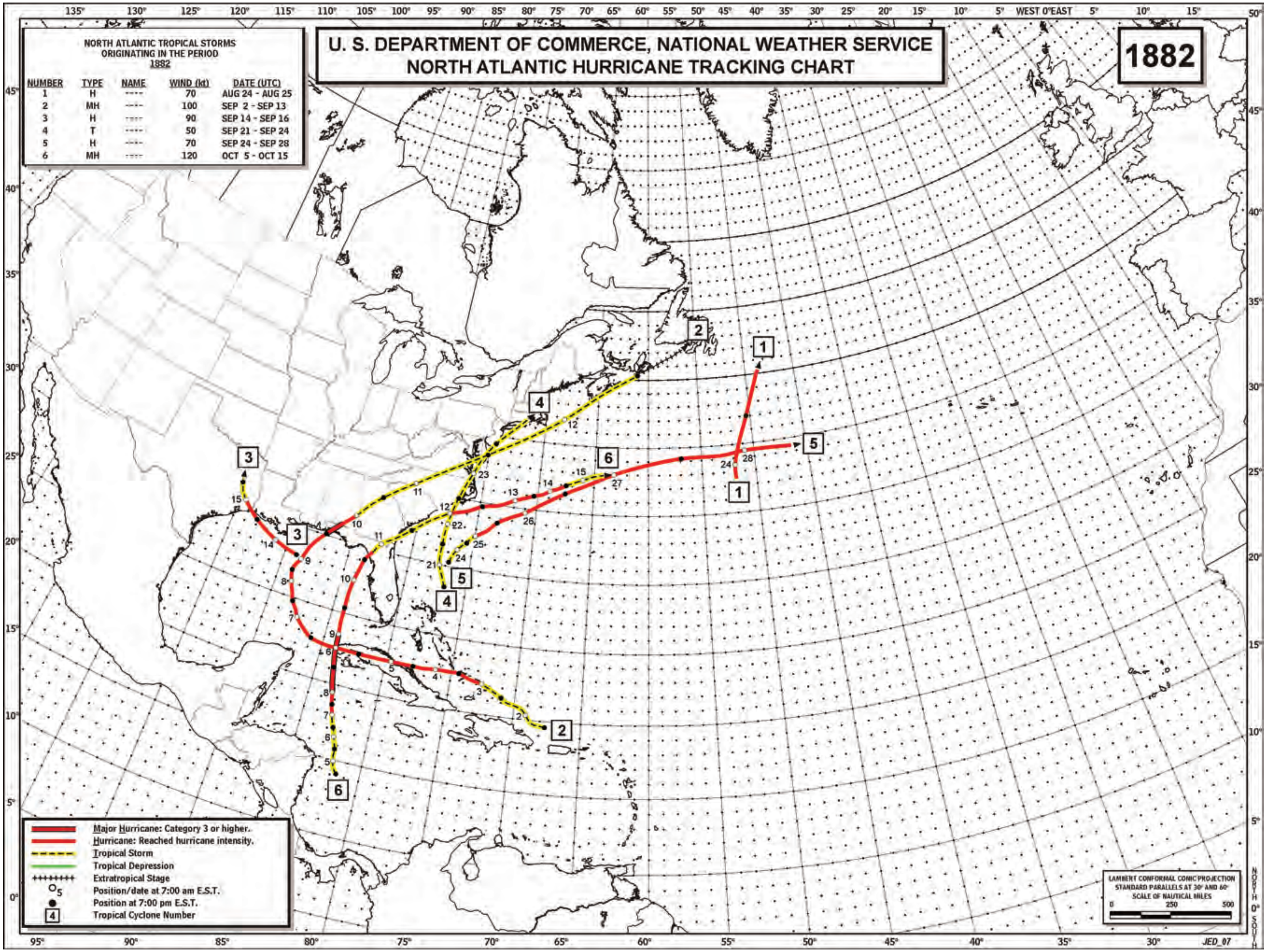

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1878
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1878
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 40 JUL 1 - JUL 3
2 H ---- 70 AUG 8 - AUG 19
3 H ---- 80 AUG 19 - AUG 21
4 H ---- 90 AUG 25 - AUG 30
5 H ---- 90 SEP 1 - SEP 13
6 H ---- 90 SEP 12 - SEP 18
7 MH ---- 120 SEP 24 - OCT 8
8 H ---- 70 OCT 9 - OCT 15
9 H ---- 70 OCT 9 - OCT 16
10 MH ---- 100 OCT 13 - OCT 19
11 H ---- 90 OCT 18 - OCT 25
12 T ---- 60 NOV 25 - DEC 2
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

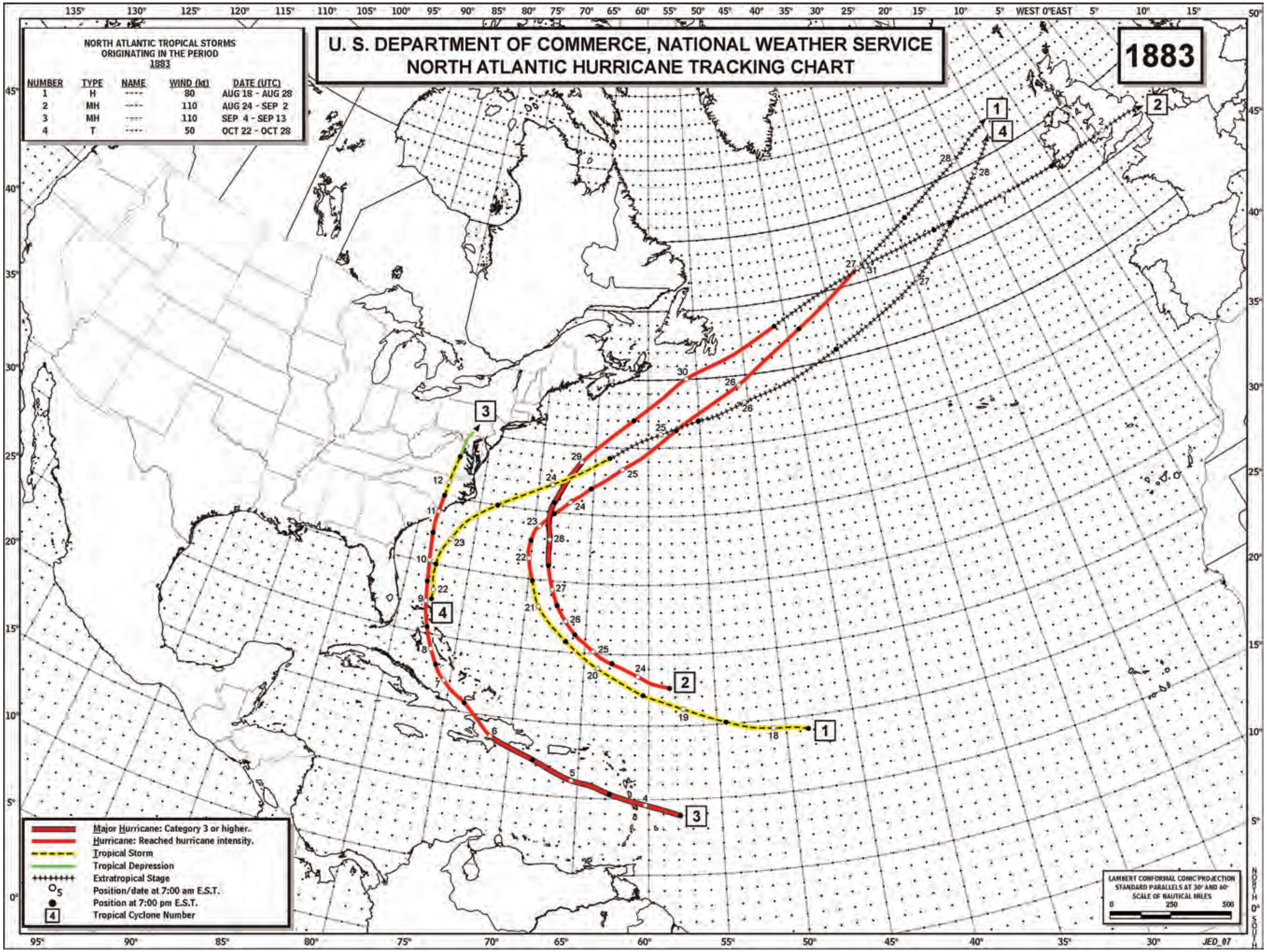


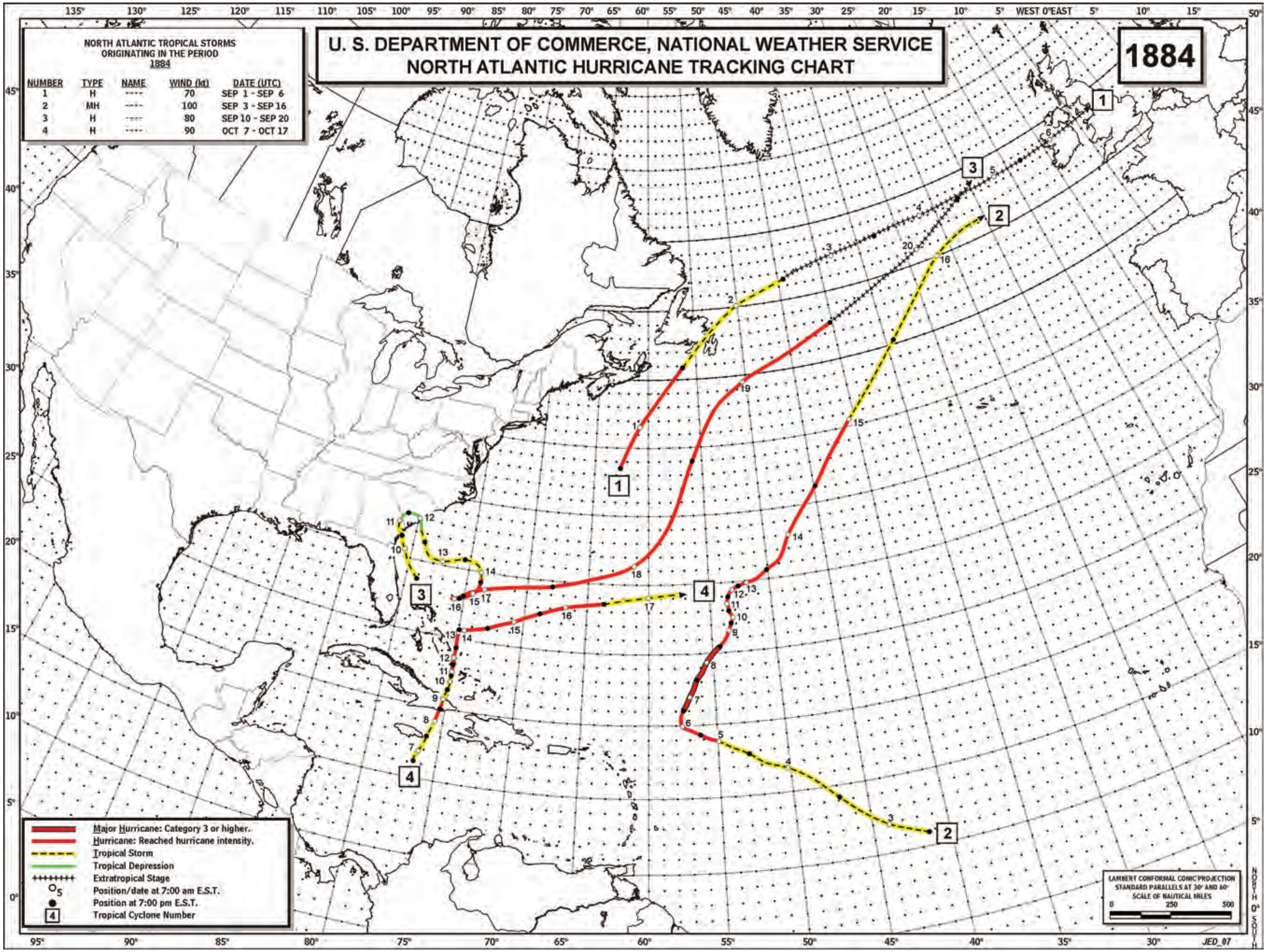
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1879
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1879
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 AUG 9 - AUG 12
2 MH ---- 100 AUG 13 - AUG 20
3 H ---- 90 AUG 19 - AUG 24
4 MH ---- 110 AUG 29 - SEP 2
5 T ---- 50 OCT 3 - OCT 7
6 T ---- 50 OCT 9 - OCT 16
7 H ---- 70 OCT 24 - OCT 29
8 H ---- 90 NOV 18 - NOV 21
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

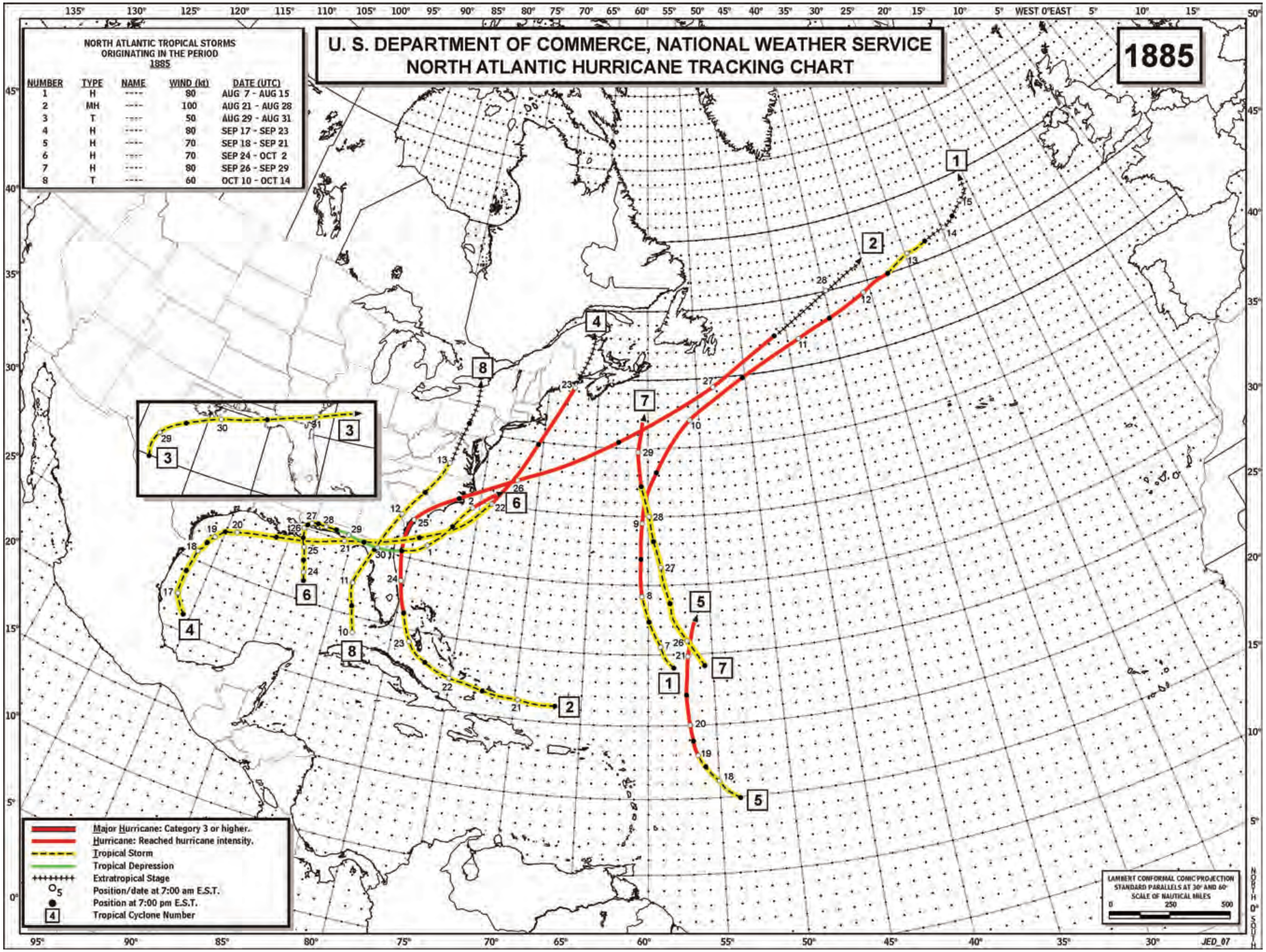

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1880
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1880
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 40 JUN 21 - JUN 25
2 MH ---- 130 AUG 4 - AUG 14
3 H ---- 80 AUG 15 - AUG 20
4 H ---- 90 AUG 24 - SEP 1
5 H ---- 80 AUG 26 - SEP 4
6 H ---- 70 SEP 6 - SEP 11
7 H ---- 80 SEP 8 - SEP 10
8 MH ---- 120 SEP 27 - OCT 4
9 H ---- 70 OCT 5 - OCT 10
10 H ---- 80 OCT 10 - OCT 16
11 T ---- 60 OCT 20 - OCT 24
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1881
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1881
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 AUG 1 - AUG 4
2 T ---- 40 AUG 11 - AUG 14
3 H ---- 80 AUG 11 - AUG 18
4 H ---- 70 AUG 16 - AUG 21
5 H ---- 90 AUG 21 - AUG 29
6 H ---- 90 SEP 7 - SEP 11
7 T ---- 60 SEP 18 - SEP 24
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

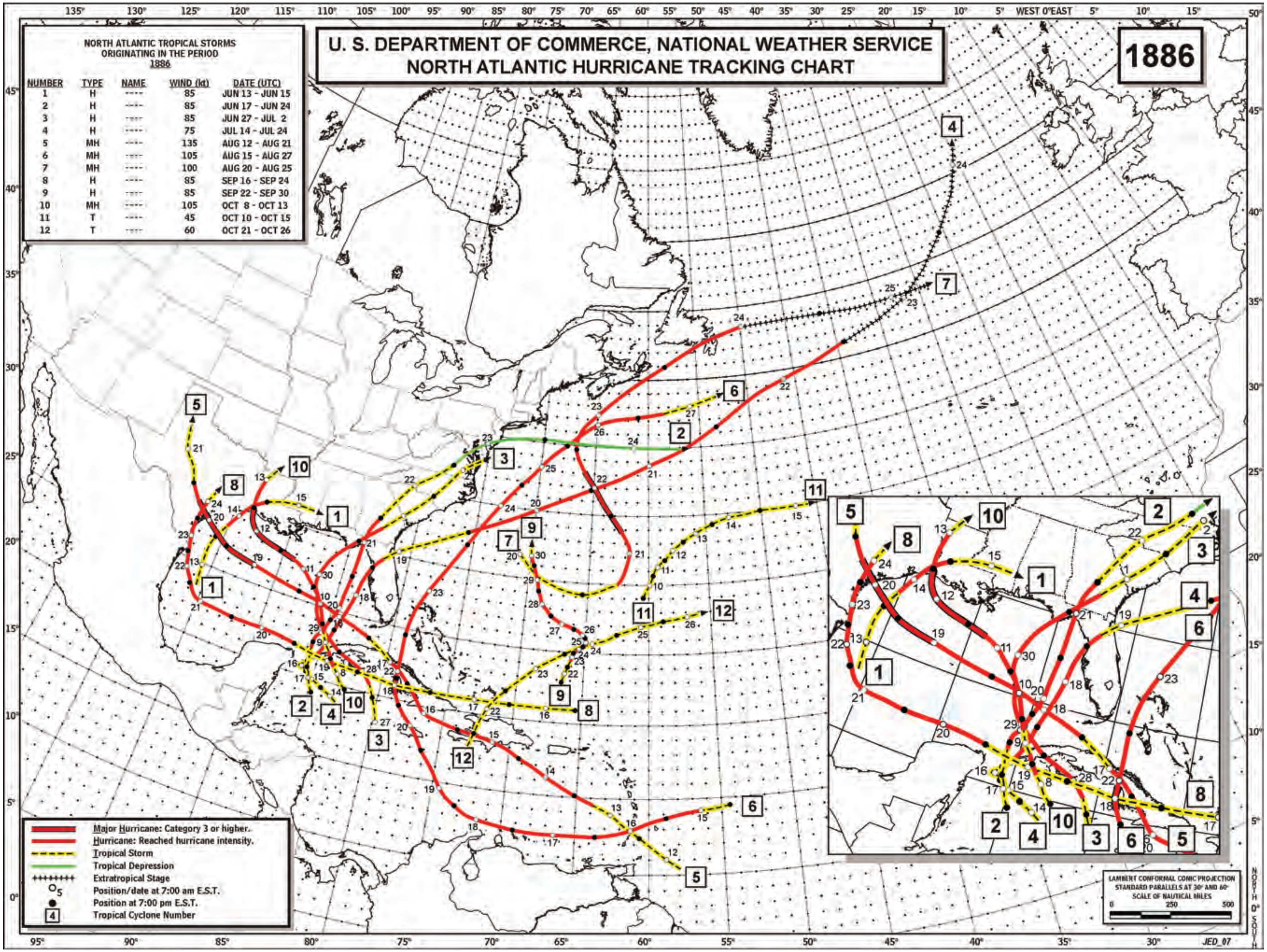

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1882
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1882
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 AUG 24 - AUG 25
2 MH ---- 100 SEP 2 - SEP 13
3 H ---- 90 SEP 14 - SEP 16
4 T ---- 50 SEP 21 - SEP 24
5 H ---- 70 SEP 24 - SEP 28
6 MH ---- 120 OCT 5 - OCT 15
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

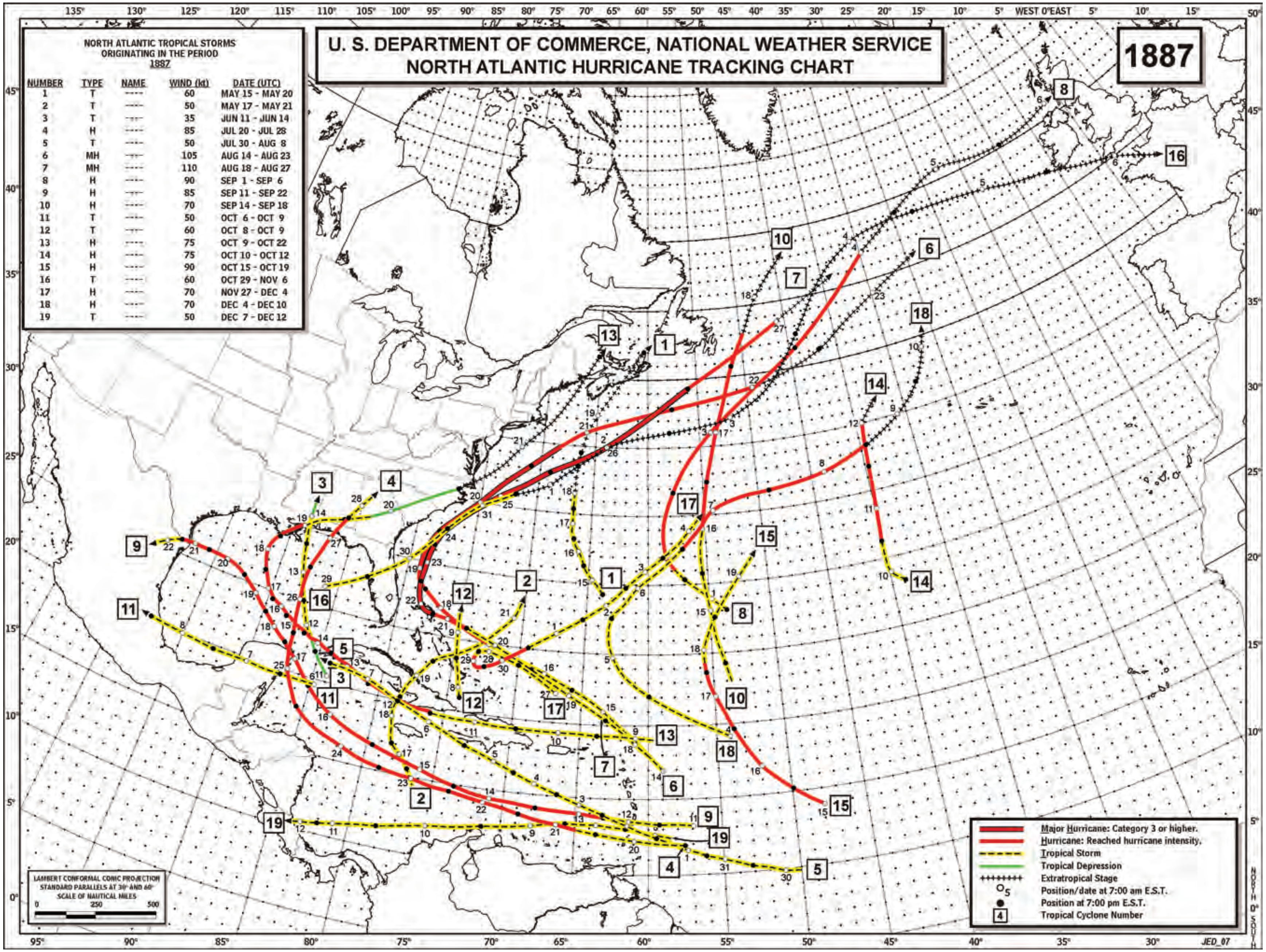

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1883
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1883
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 80 AUG 18 - AUG 28
2 MH ---- 110 AUG 24 - SEP 2
3 MH ---- 110 SEP 4 - SEP 13
4 T ---- 50 OCT 22 - OCT 28
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1884
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1884
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 SEP 1 - SEP 6
2 MH ---- 100 SEP 3 - SEP 16
3 H ---- 80 SEP 10 - SEP 20
4 H ---- 90 OCT 7 - OCT 17
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
WEST 0° EAST
NORTH 0° SOUTH
JED_07



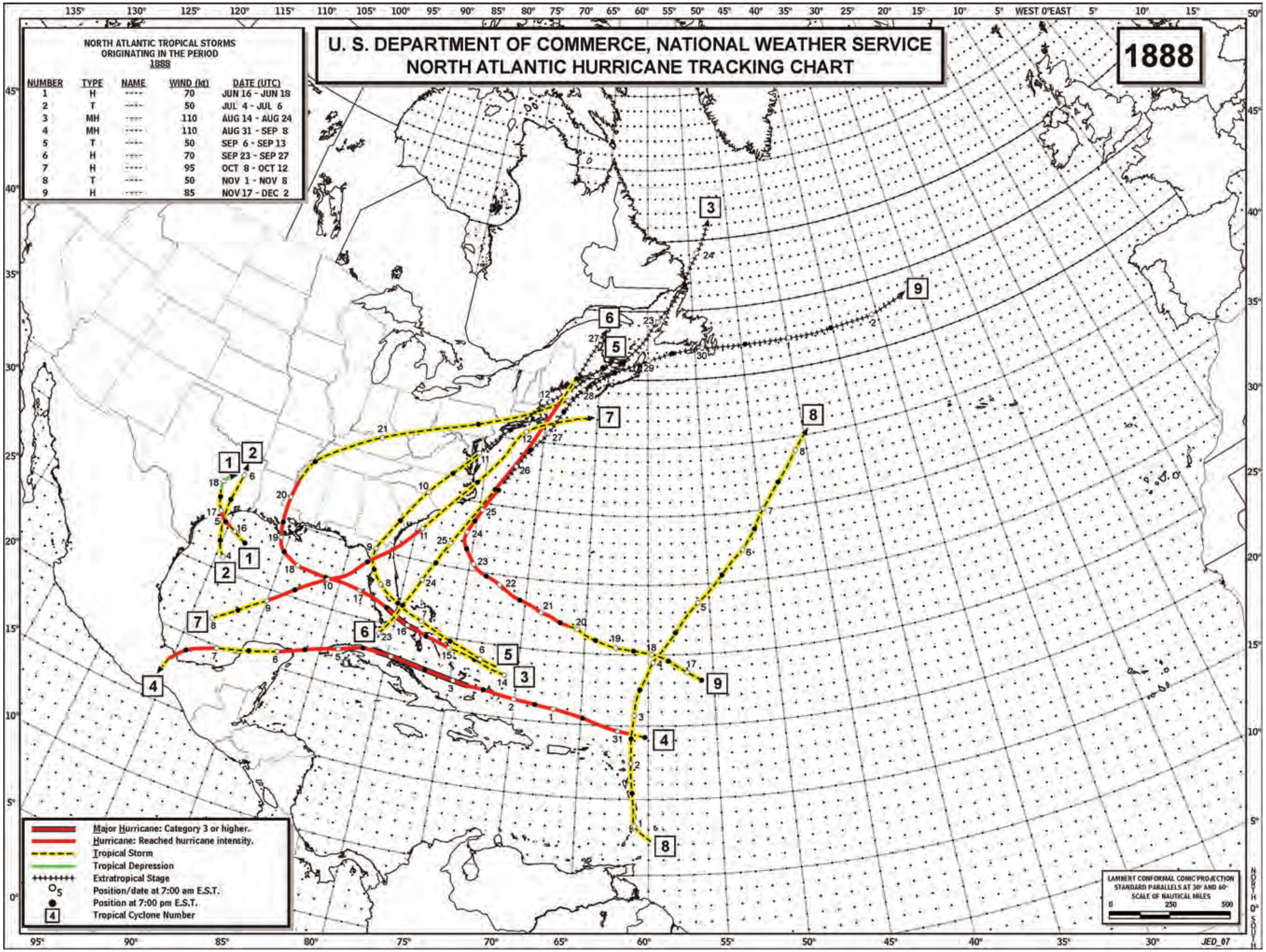
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1885
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1885
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 80 AUG 7 - AUG 15
2 MH ---- 100 AUG 21 - AUG 28
3 T ---- 50 AUG 29 - AUG 31
4 H ---- 80 SEP 17 - SEP 23
5 H ---- 70 SEP 18 - SEP 21
6 H ---- 70 SEP 24 - OCT 2
7 H ---- 80 SEP 26 - SEP 29
8 T ---- 60 OCT 10 - OCT 14
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

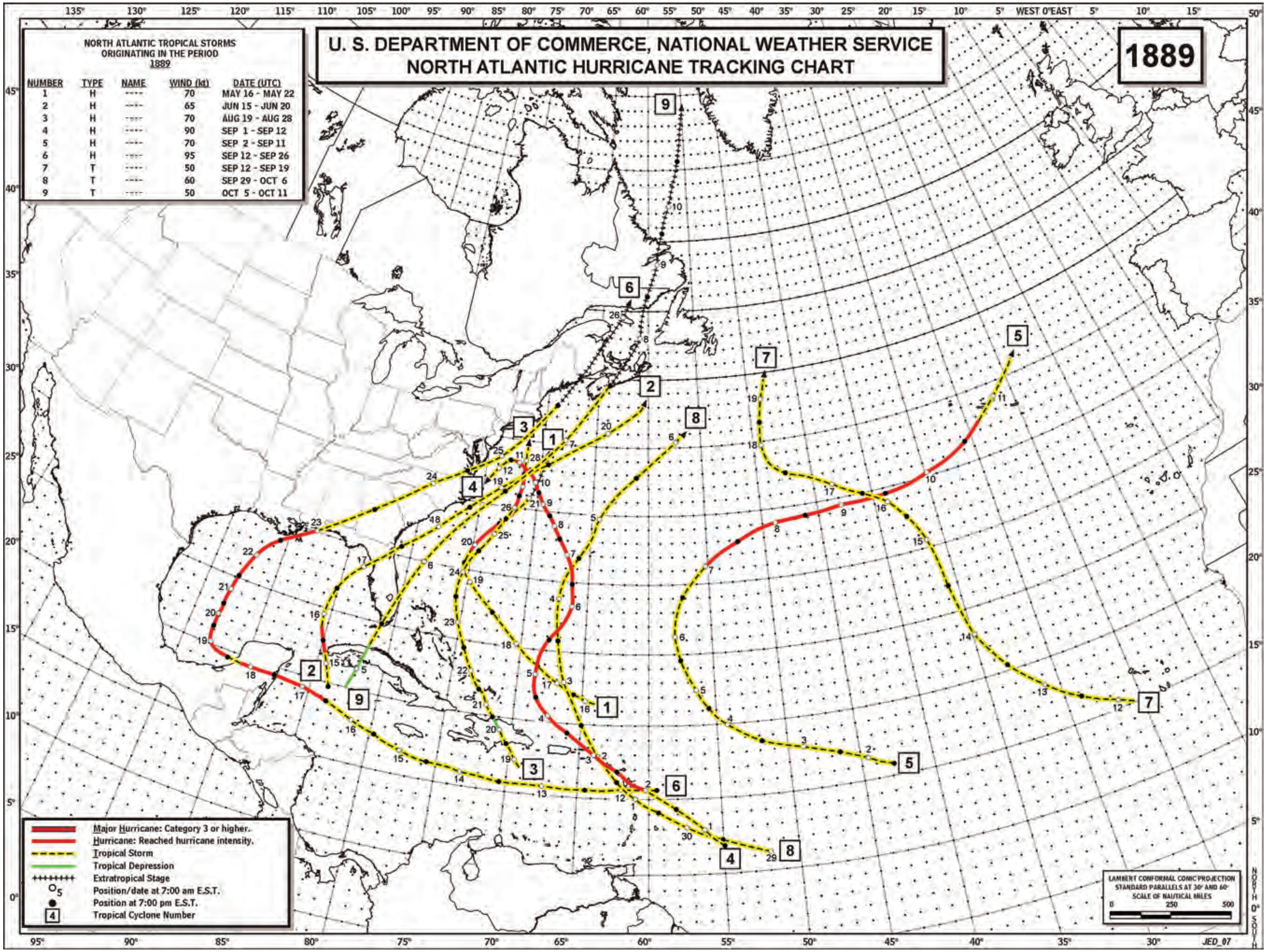

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1886
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1886
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 85 JUN 13 - JUN 15
2 H ---- 85 JUN 17 - JUN 24
3 H ---- 85 JUN 27 - JUL 2
4 H ---- 75 JUL 14 - JUL 24
5 MH ---- 135 AUG 12 - AUG 21
6 MH ---- 105 AUG 15 - AUG 27
7 MH ---- 100 AUG 20 - AUG 25
8 H ---- 85 SEP 16 - SEP 24
9 H ---- 85 SEP 22 - SEP 30
10 MH ---- 105 OCT 8 - OCT 13
11 T ---- 45 OCT 10 - OCT 15
12 T ---- 60 OCT 21 - OCT 26
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

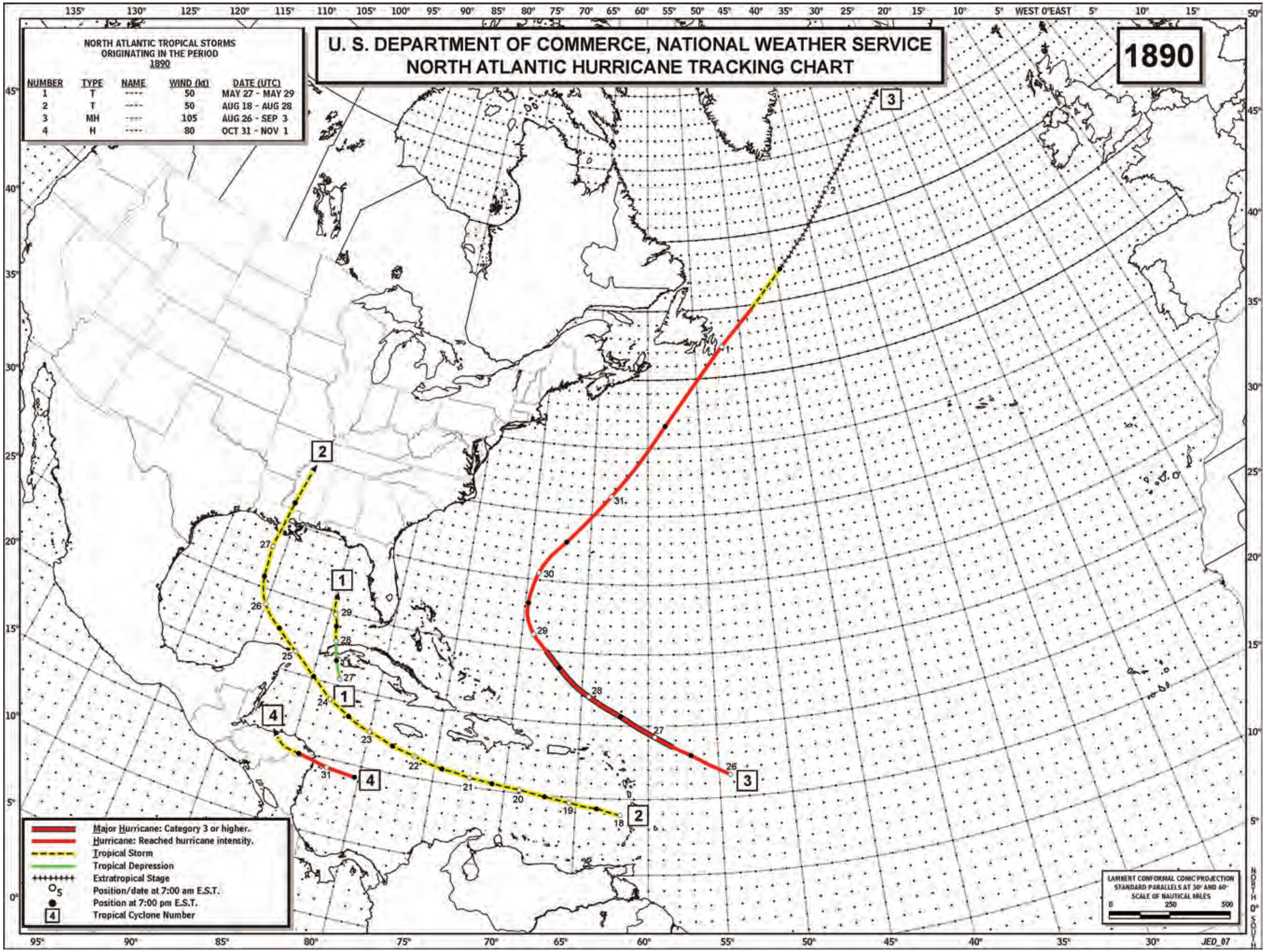


NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1887

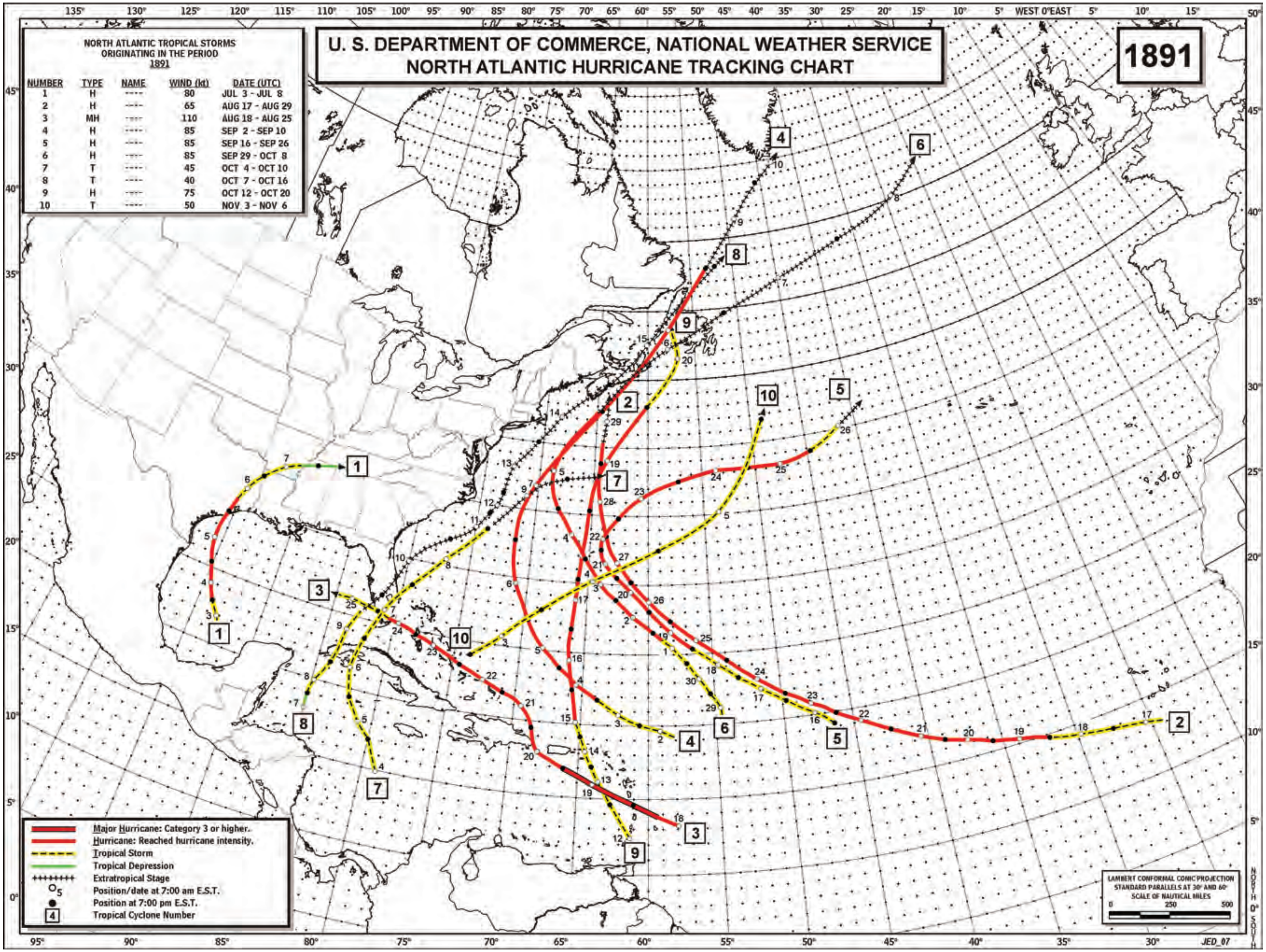
NUMBER	TYPE	NAME	WIND (kt)	DATE (UTC)
1	T	----	60	MAY 15 - MAY 20
2	T	----	50	MAY 17 - MAY 21
3	T	----	35	JUN 11 - JUN 14
4	H	----	85	JUL 20 - JUL 28
5	T	----	50	JUL 30 - AUG 8
6	MH	----	105	AUG 14 - AUG 23
7	MH	----	110	AUG 18 - AUG 27
8	H	----	90	SEP 1 - SEP 6
9	H	----	85	SEP 11 - SEP 22
10	H	----	70	SEP 14 - SEP 18
11	T	----	50	OCT 6 - OCT 9
12	T	----	60	OCT 8 - OCT 9
13	H	----	75	OCT 9 - OCT 22
14	H	----	75	OCT 10 - OCT 12
15	H	----	90	OCT 15 - OCT 19
16	T	----	60	OCT 29 - NOV 6
17	H	----	70	NOV 27 - DEC 4
18	H	----	70	DEC 4 - DEC 10
19	T	----	50	DEC 7 - DEC 12

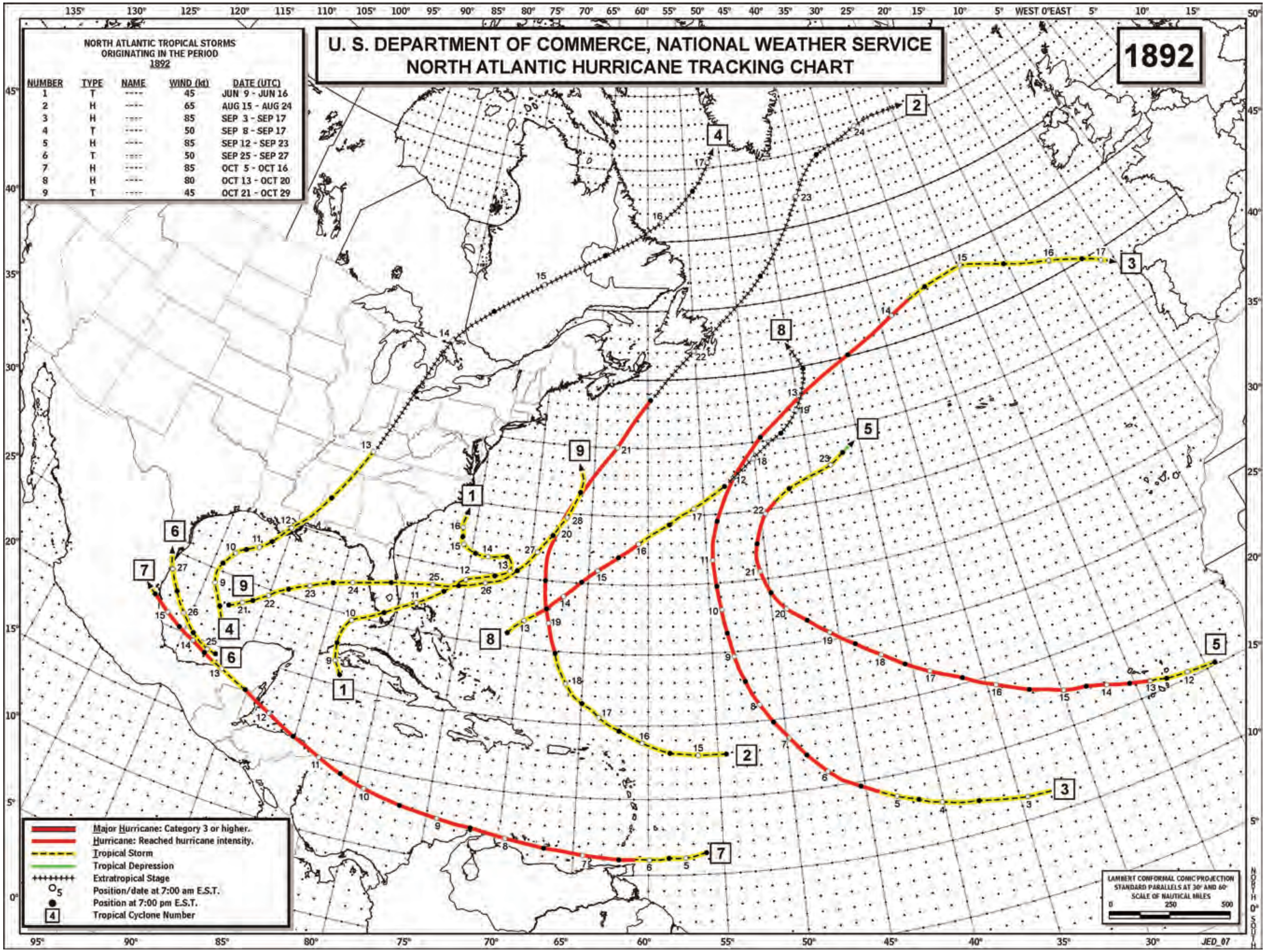

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1888
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1888
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 JUN 16 - JUN 18
2 T ---- 50 JUL 4 - JUL 6
3 MH ---- 110 AUG 14 - AUG 24
4 MH ---- 110 AUG 31 - SEP 8
5 T ---- 50 SEP 6 - SEP 13
6 H ---- 70 SEP 23 - SEP 27
7 H ---- 95 OCT 8 - OCT 12
8 T ---- 50 NOV 1 - NOV 8
9 H ---- 85 NOV 17 - DEC 2
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

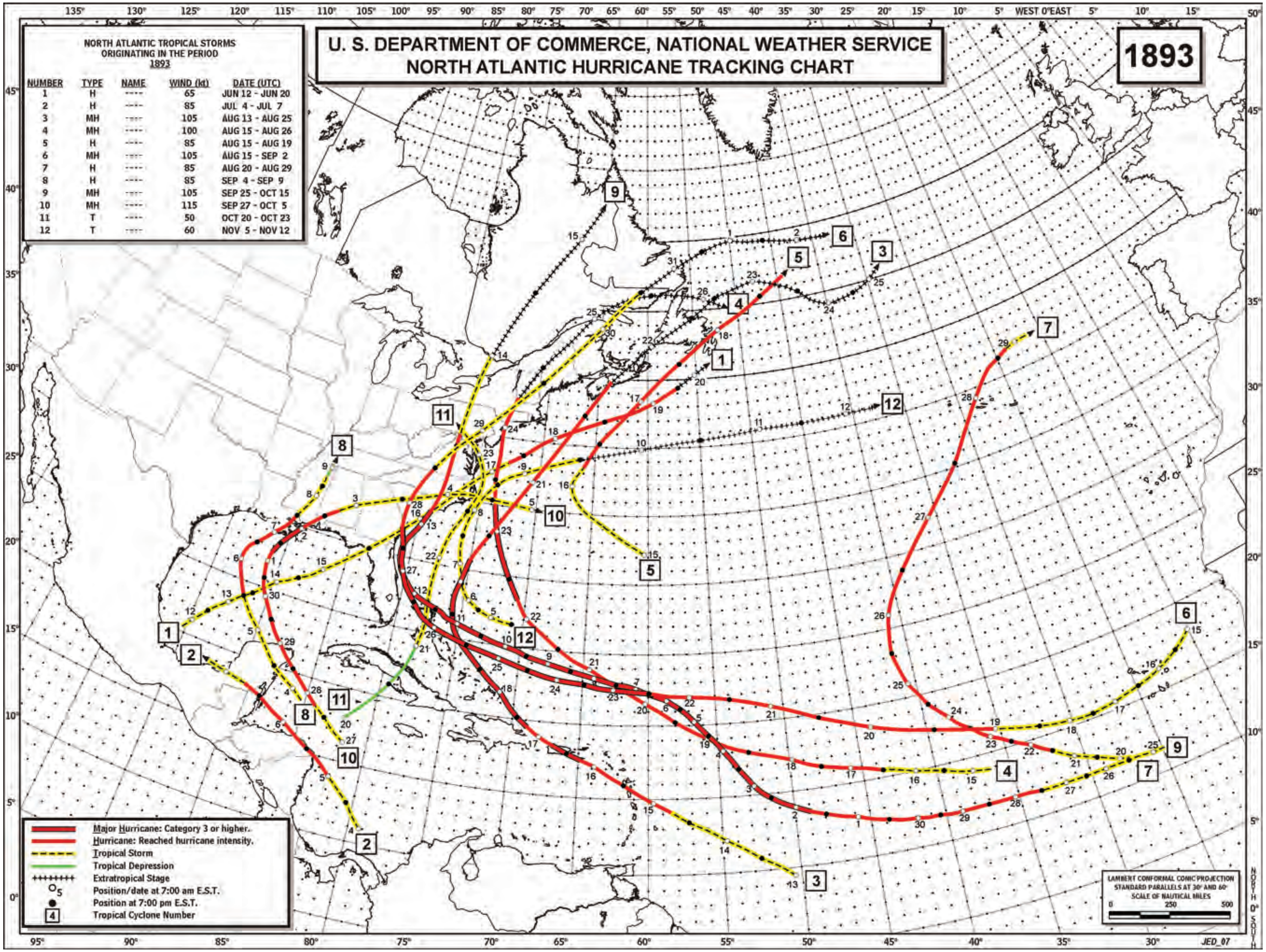

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1889
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1889
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 MAY 16 - MAY 22
2 H ---- 65 JUN 15 - JUN 20
3 H ---- 70 AUG 19 - AUG 28
4 H ---- 90 SEP 1 - SEP 12
5 H ---- 70 SEP 2 - SEP 11
6 H ---- 95 SEP 12 - SEP 26
7 T ---- 50 SEP 12 - SEP 19
8 T ---- 60 SEP 29 - OCT 6
9 T ---- 50 OCT 5 - OCT 11
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07



NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1890
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 MAY 27 - MAY 29
2 T ---- 50 AUG 18 - AUG 28
3 MH ---- 105 AUG 26 - SEP 3
4 H ---- 80 OCT 31 - NOV 1
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1890
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

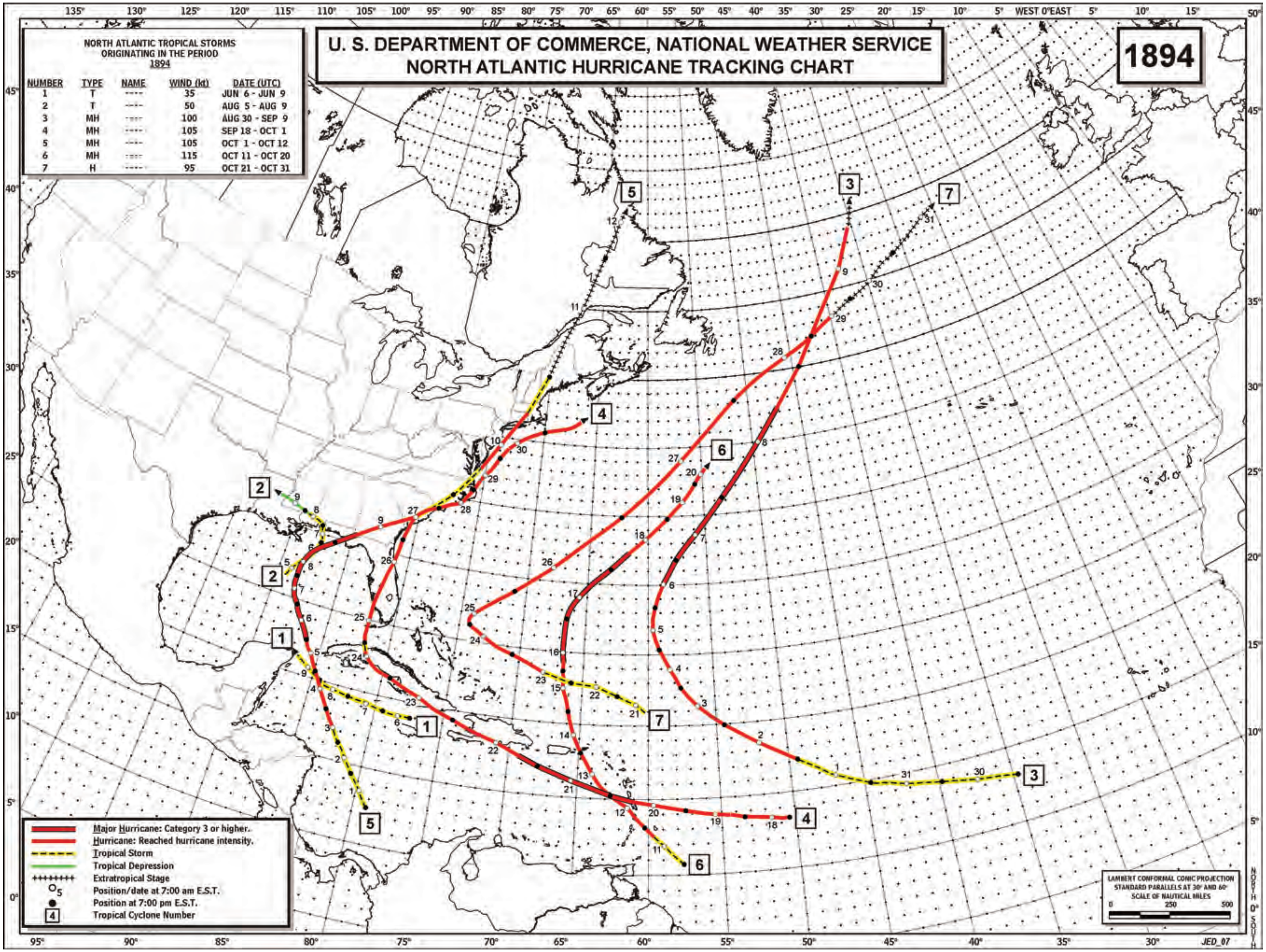

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1891
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1891
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 80 JUL 3 - JUL 8
2 H ---- 65 AUG 17 - AUG 29
3 MH ---- 110 AUG 18 - AUG 25
4 H ---- 85 SEP 2 - SEP 10
5 H ---- 85 SEP 16 - SEP 26
6 H ---- 85 SEP 29 - OCT 8
7 T ---- 45 OCT 4 - OCT 10
8 T ---- 40 OCT 7 - OCT 16
9 H ---- 75 OCT 12 - OCT 20
10 T ---- 50 NOV 3 - NOV 6
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

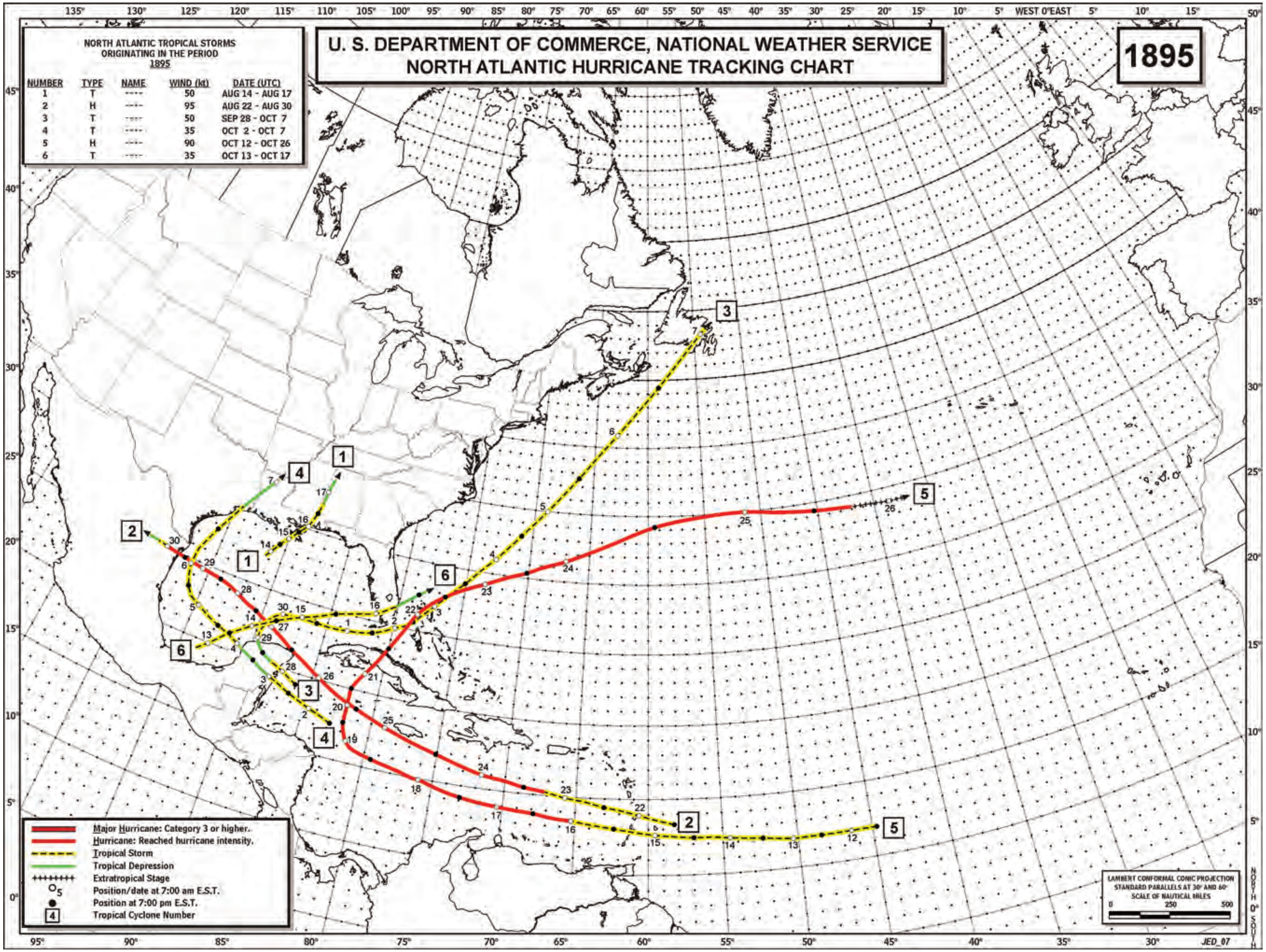

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1892
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1892
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 45 JUN 9 - JUN 16
2 H ---- 65 AUG 15 - AUG 24
3 H ---- 85 SEP 3 - SEP 17
4 T ---- 50 SEP 8 - SEP 17
5 H ---- 85 SEP 12 - SEP 23
6 T ---- 50 SEP 25 - SEP 27
7 H ---- 85 OCT 5 - OCT 16
8 H ---- 80 OCT 13 - OCT 20
9 T ---- 45 OCT 21 - OCT 29
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

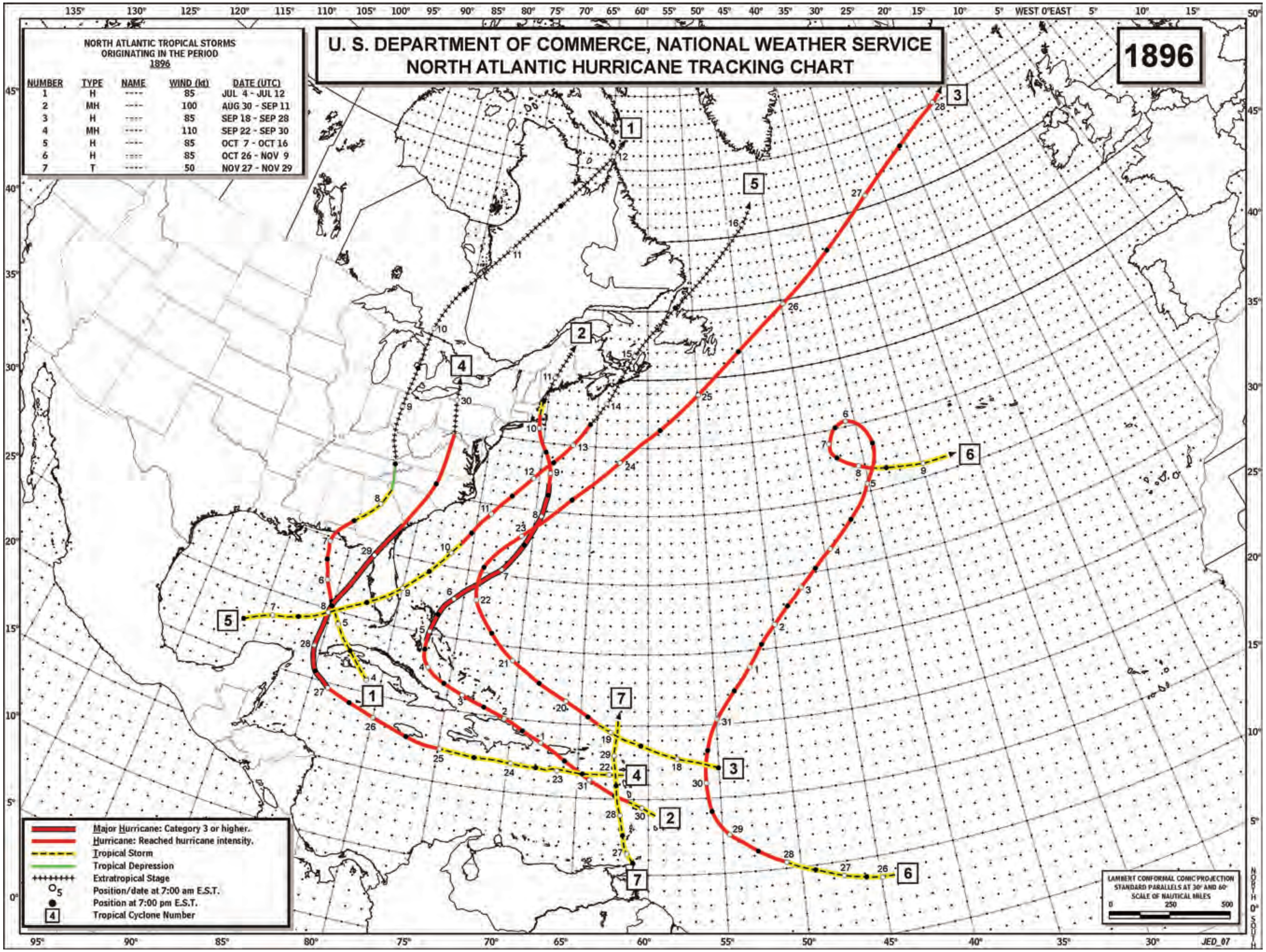

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1893
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1893

NUMBER	TYPE	NAME	WIND (kt)	DATE (UTC)
1	H	----	65	JUN 12 - JUN 20
2	H	----	85	JUL 4 - JUL 7
3	MH	----	105	AUG 13 - AUG 25
4	MH	----	100	AUG 15 - AUG 26
5	H	----	85	AUG 15 - AUG 19
6	MH	----	105	AUG 15 - SEP 2
7	H	----	85	AUG 20 - AUG 29
8	H	----	85	SEP 4 - SEP 9
9	MH	----	105	SEP 25 - OCT 15
10	MH	----	115	SEP 27 - OCT 5
11	T	----	50	OCT 20 - OCT 23
12	T	----	60	NOV 5 - NOV 12

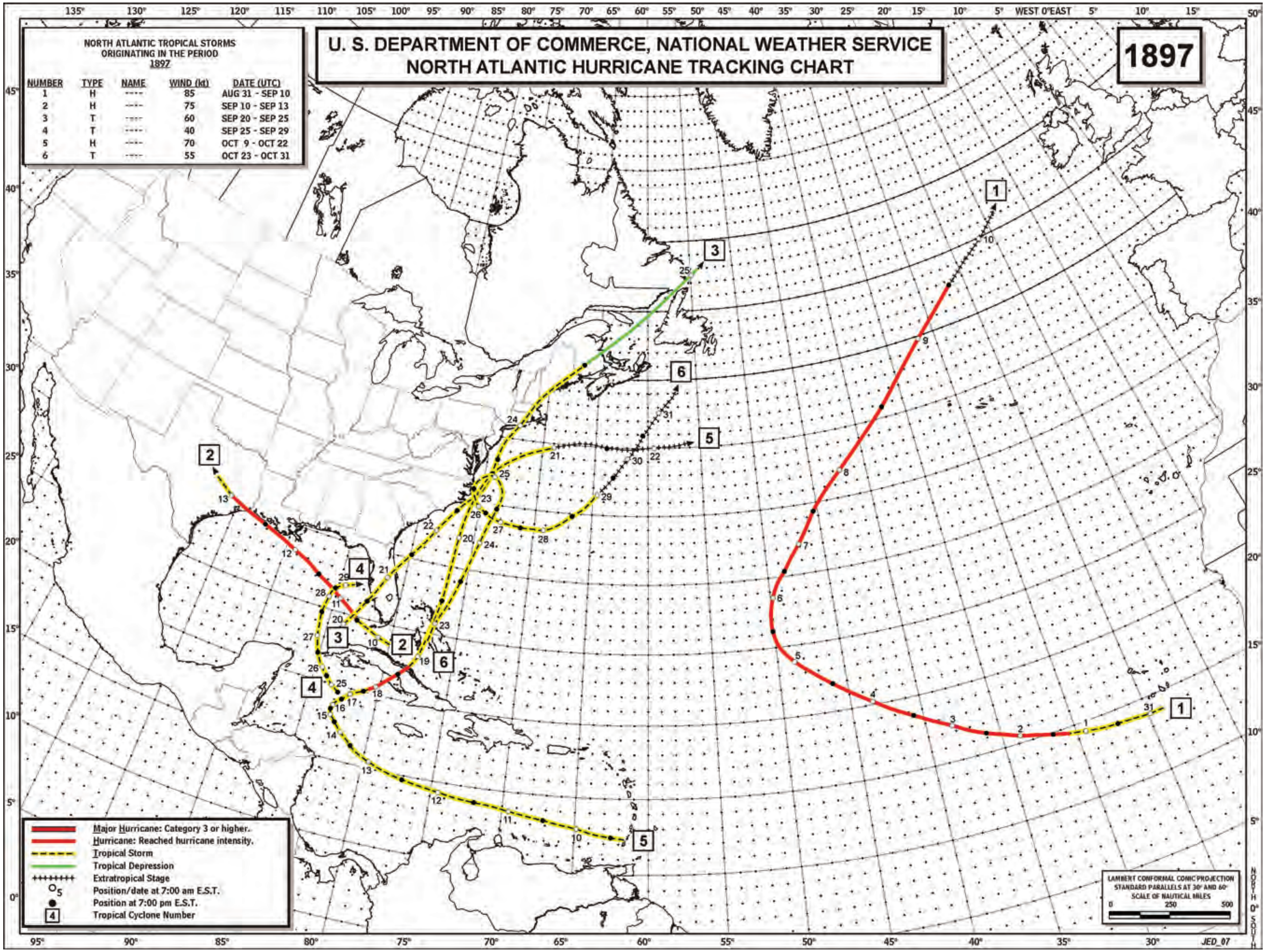
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
WEST 0° EAST
NORTH 0° SOUTH
JED_07

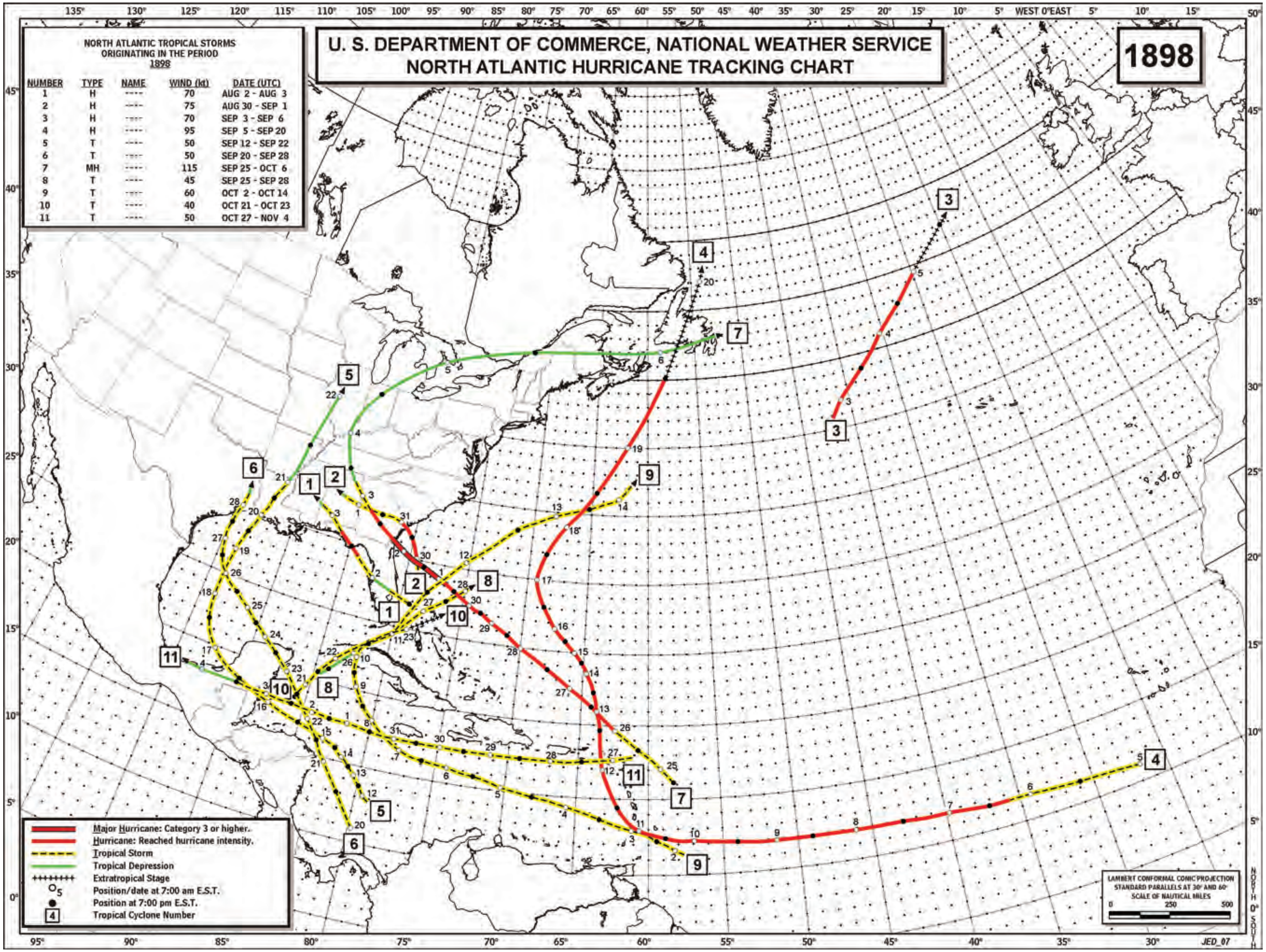

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1894
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1894
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 35 JUN 6 - JUN 9
2 T ---- 50 AUG 5 - AUG 9
3 MH ---- 100 AUG 30 - SEP 9
4 MH ---- 105 SEP 18 - OCT 1
5 MH ---- 105 OCT 1 - OCT 12
6 MH ---- 115 OCT 11 - OCT 20
7 H ---- 95 OCT 21 - OCT 31
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1895
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1895
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 AUG 14 - AUG 17
2 H ---- 95 AUG 22 - AUG 30
3 T ---- 50 SEP 28 - OCT 7
4 T ---- 35 OCT 2 - OCT 7
5 H ---- 90 OCT 12 - OCT 26
6 T ---- 35 OCT 13 - OCT 17
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

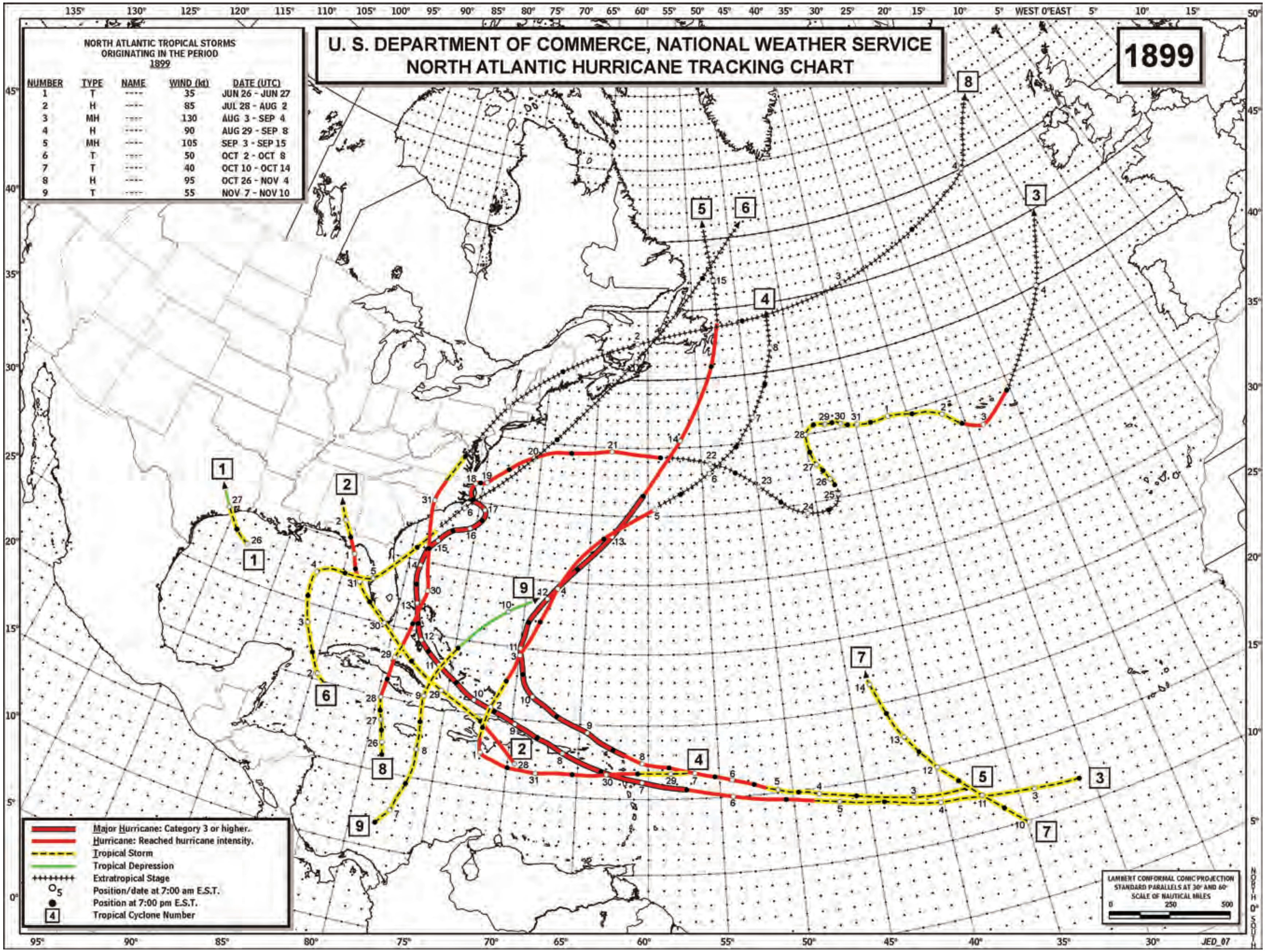


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1896
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1896
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 85 JUL 4 - JUL 12
2 MH ---- 100 AUG 30 - SEP 11
3 H ---- 85 SEP 18 - SEP 28
4 MH ---- 110 SEP 22 - SEP 30
5 H ---- 85 OCT 7 - OCT 16
6 H ---- 85 OCT 26 - NOV 9
7 T ---- 50 NOV 27 - NOV 29
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
NORTH
SOUTH
WEST 0° EAST
JED_07

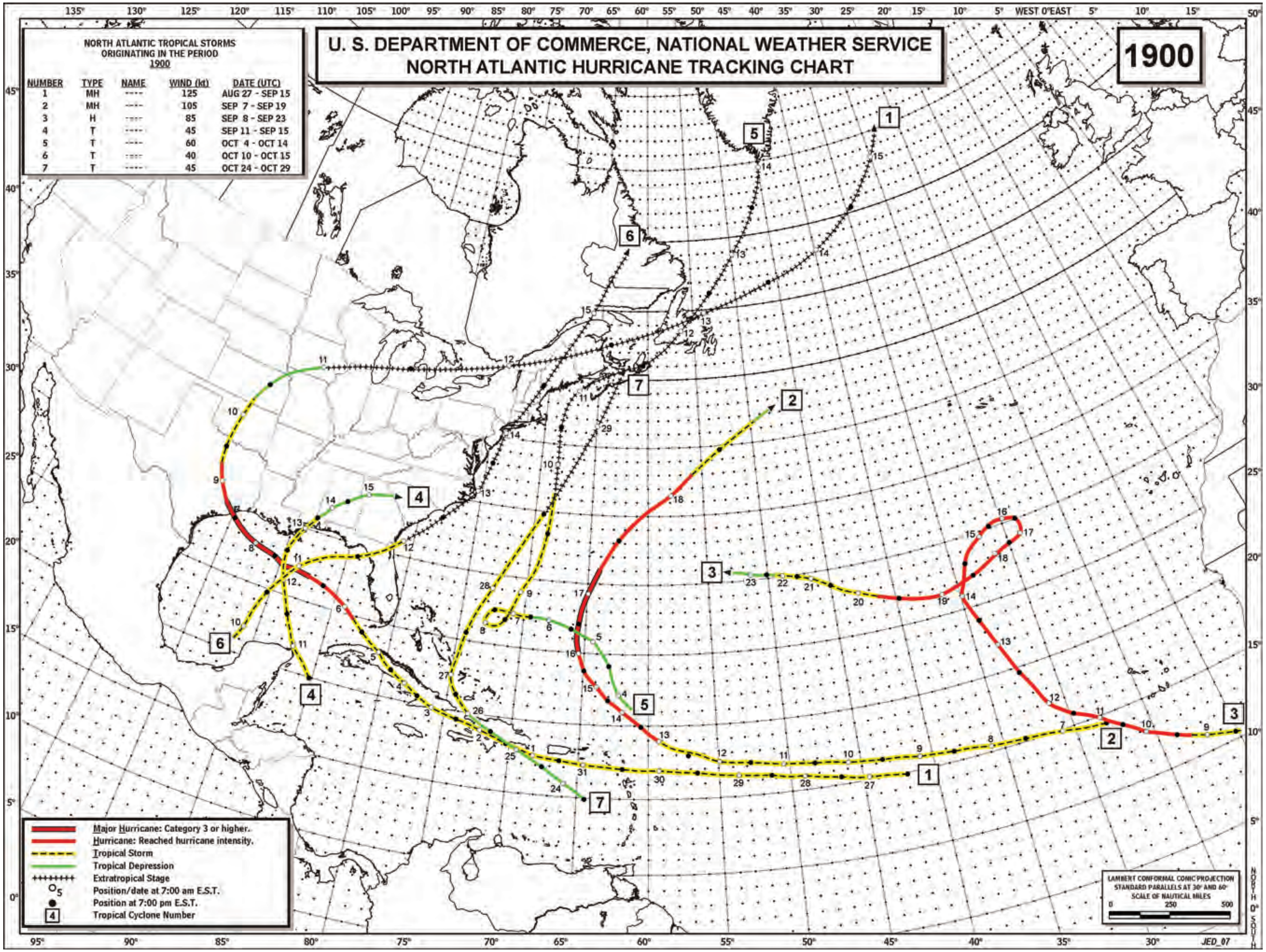

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1897
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1897
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 85 AUG 31 - SEP 10
2 H ---- 75 SEP 10 - SEP 13
3 T ---- 60 SEP 20 - SEP 25
4 T ---- 40 SEP 25 - SEP 29
5 H ---- 70 OCT 9 - OCT 22
6 T ---- 55 OCT 23 - OCT 31
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

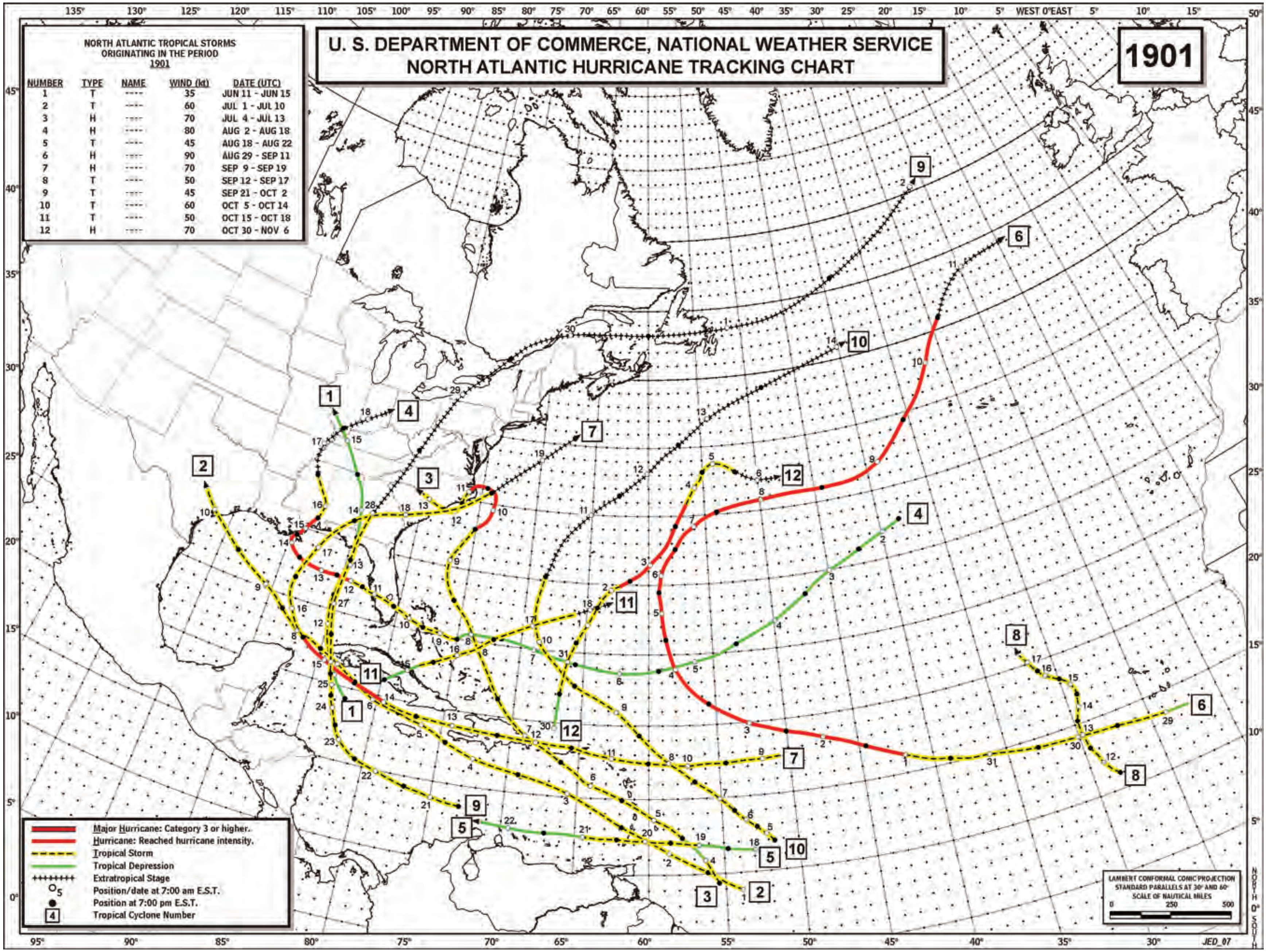


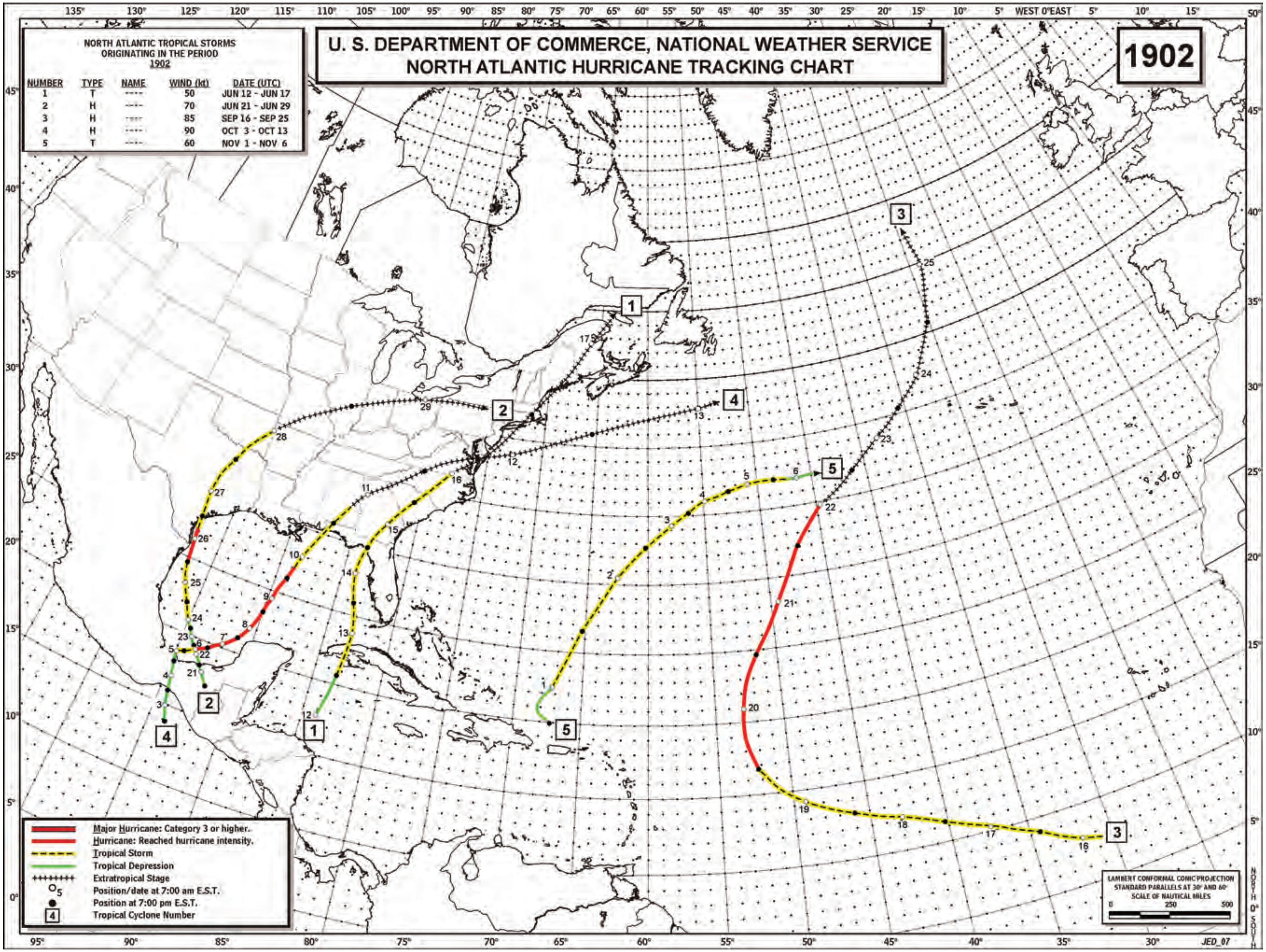
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1898
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1898
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 AUG 2 - AUG 3
2 H ---- 75 AUG 30 - SEP 1
3 H ---- 70 SEP 3 - SEP 6
4 H ---- 95 SEP 5 - SEP 20
5 T ---- 50 SEP 12 - SEP 22
6 T ---- 50 SEP 20 - SEP 28
7 MH ---- 115 SEP 25 - OCT 6
8 T ---- 45 SEP 25 - SEP 28
9 T ---- 60 OCT 2 - OCT 14
10 T ---- 40 OCT 21 - OCT 23
11 T ---- 50 OCT 27 - NOV 4
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

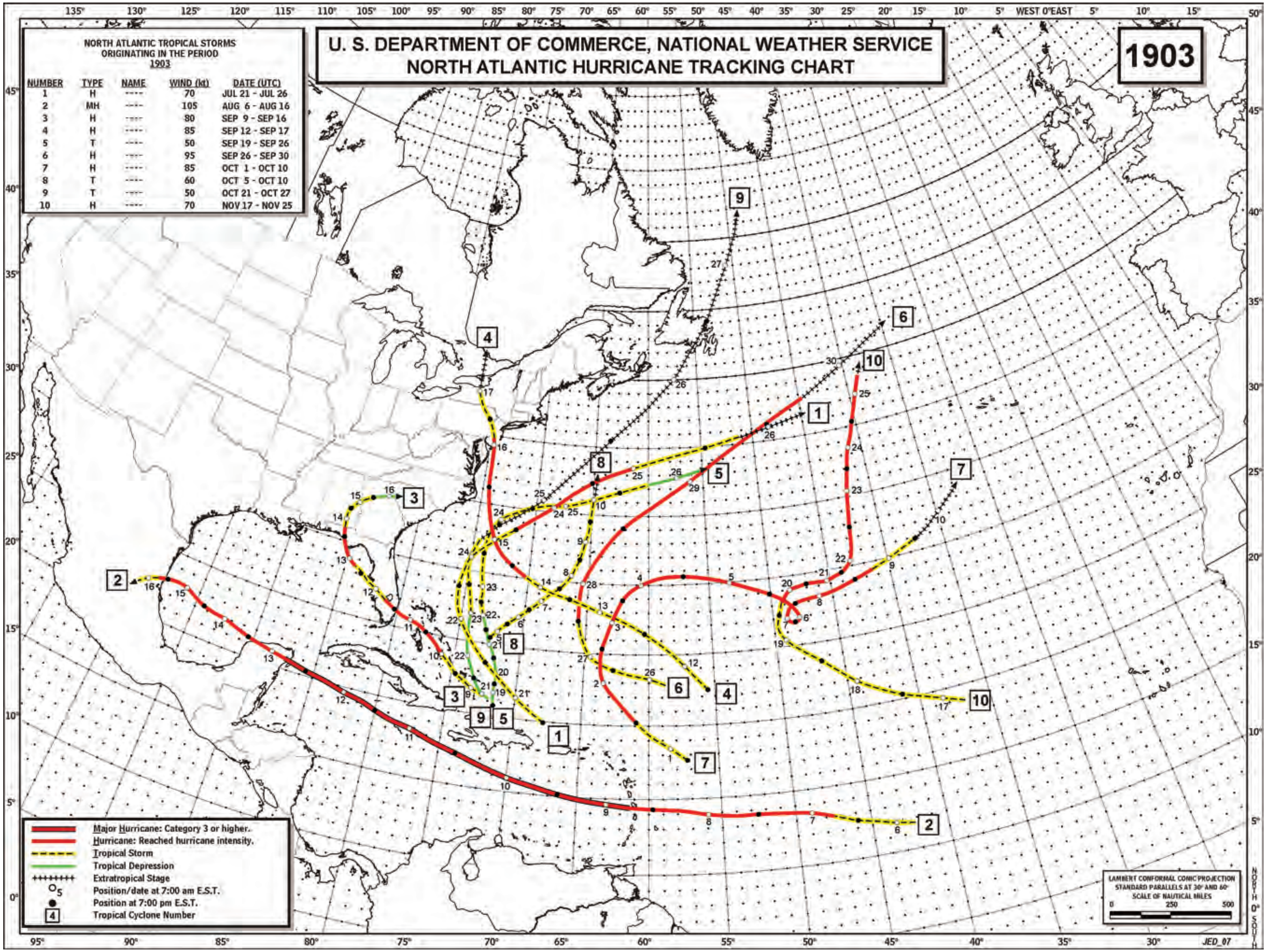


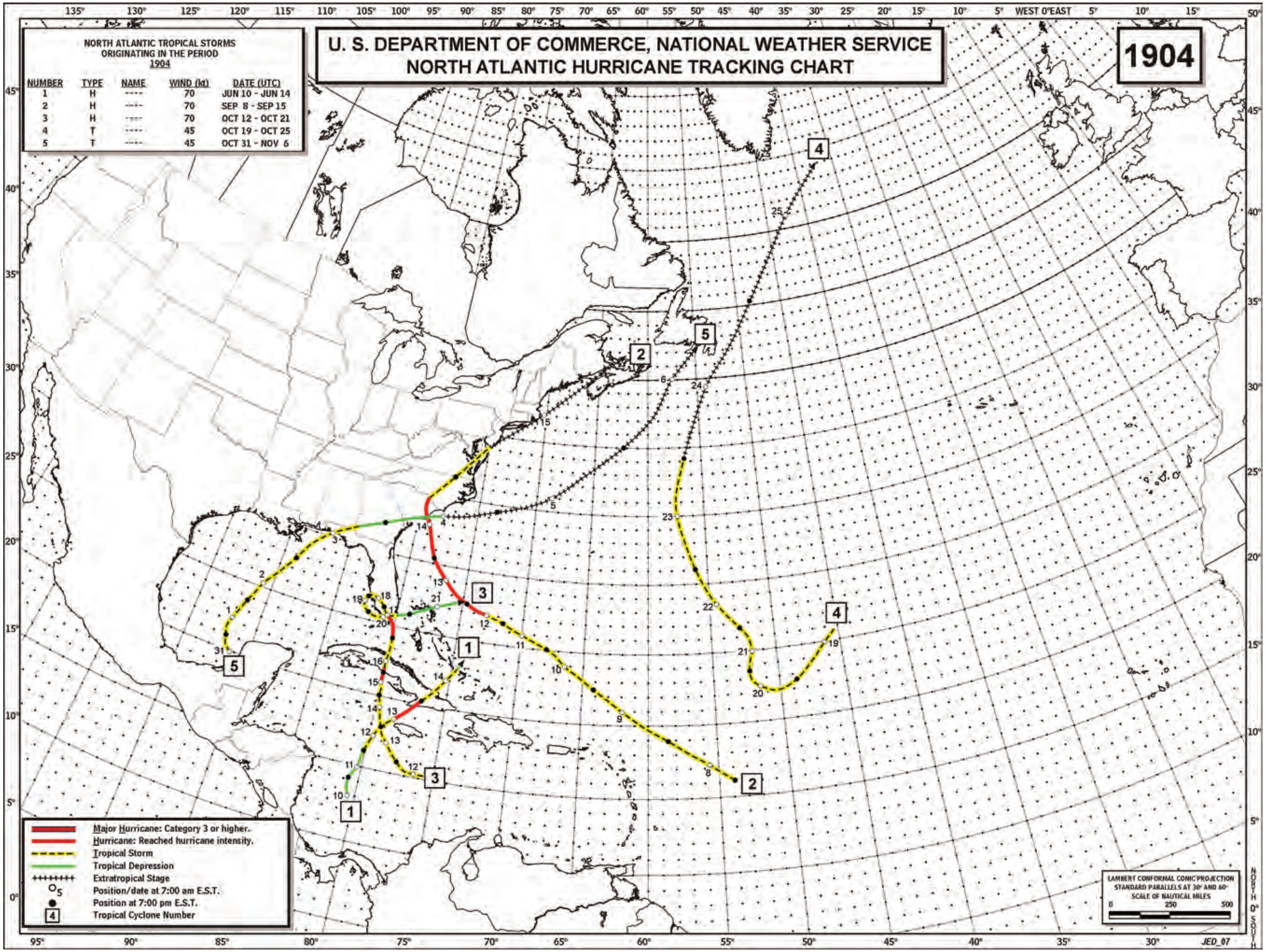
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1899
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1899
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 35 JUN 26 - JUN 27
2 H ---- 85 JUL 28 - AUG 2
3 MH ---- 130 AUG 3 - SEP 4
4 H ---- 90 AUG 29 - SEP 8
5 MH ---- 105 SEP 3 - SEP 15
6 T ---- 50 OCT 2 - OCT 8
7 T ---- 40 OCT 10 - OCT 14
8 H ---- 95 OCT 26 - NOV 4
9 T ---- 55 NOV 7 - NOV 10
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

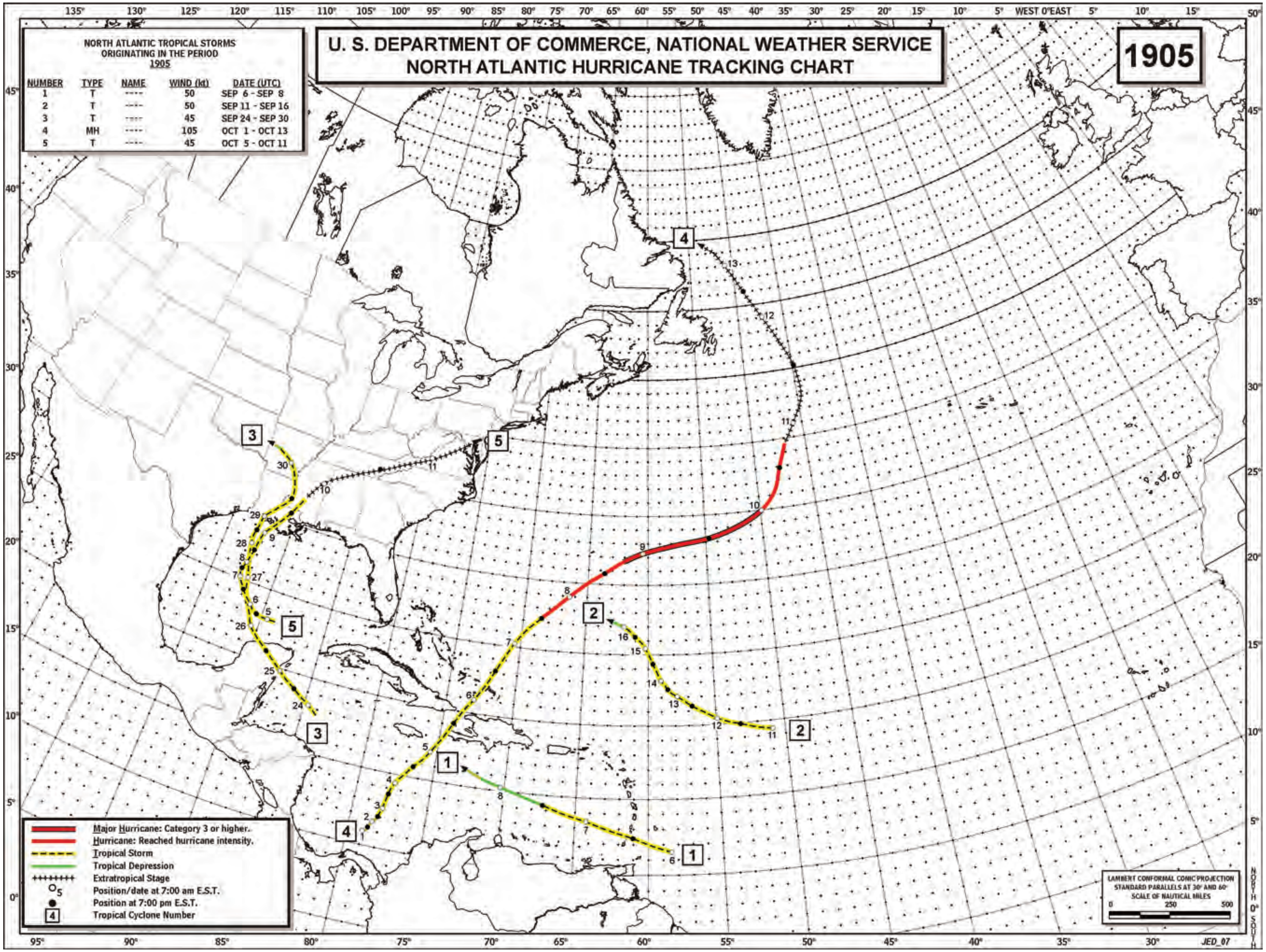

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1900
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1900
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ---- 125 AUG 27 - SEP 15
2 MH ---- 105 SEP 7 - SEP 19
3 H ---- 85 SEP 8 - SEP 23
4 T ---- 45 SEP 11 - SEP 15
5 T ---- 60 OCT 4 - OCT 14
6 T ---- 40 OCT 10 - OCT 15
7 T ---- 45 OCT 24 - OCT 29
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

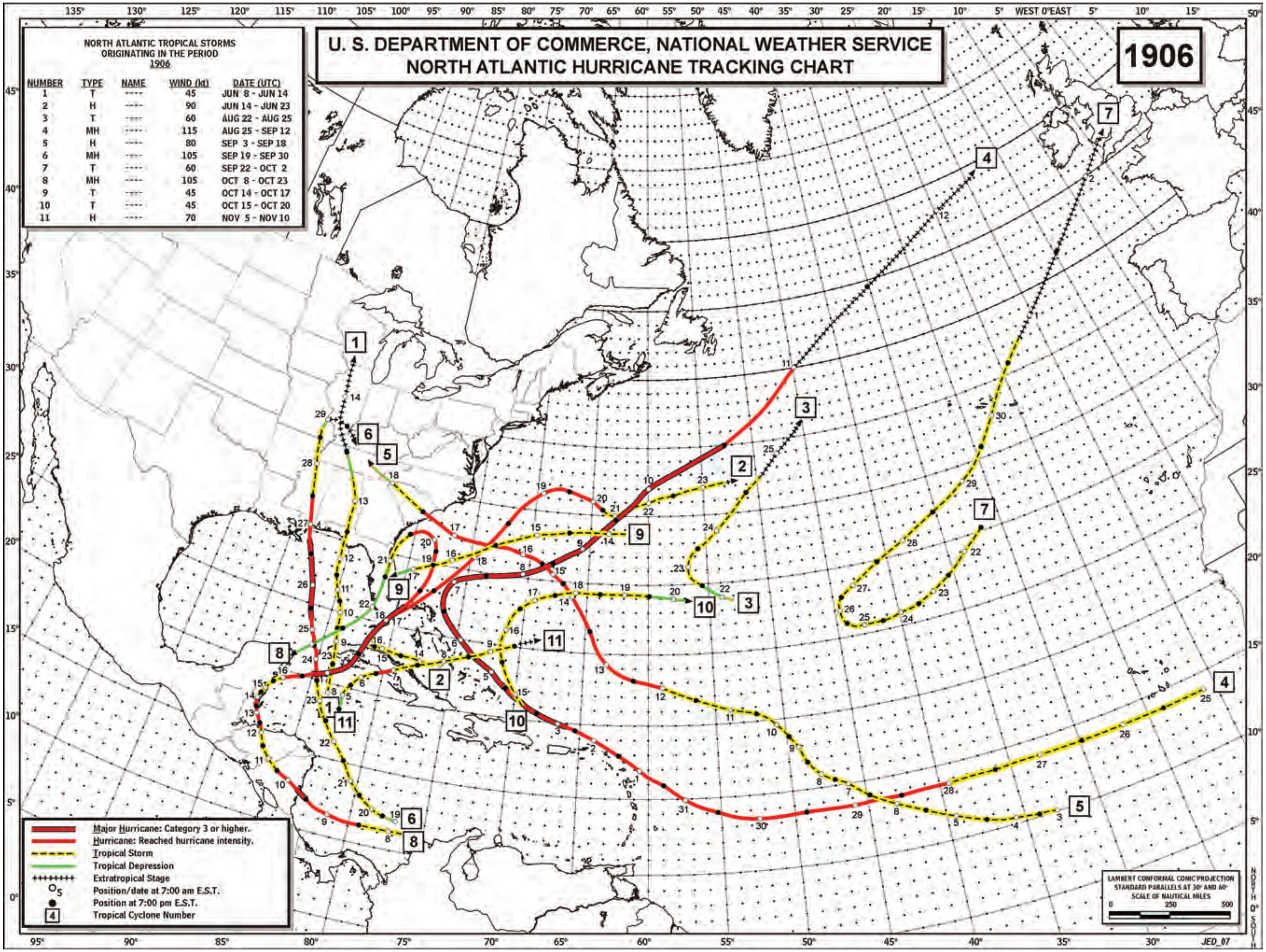

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1901
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1901
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 35 JUN 11 - JUN 15
2 T ---- 60 JUL 1 - JUL 10
3 H ---- 70 JUL 4 - JUL 13
4 H ---- 80 AUG 2 - AUG 18
5 T ---- 45 AUG 18 - AUG 22
6 H ---- 90 AUG 29 - SEP 11
7 H ---- 70 SEP 9 - SEP 19
8 T ---- 50 SEP 12 - SEP 17
9 T ---- 45 SEP 21 - OCT 2
10 T ---- 60 OCT 5 - OCT 14
11 T ---- 50 OCT 15 - OCT 18
12 H ---- 70 OCT 30 - NOV 6
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

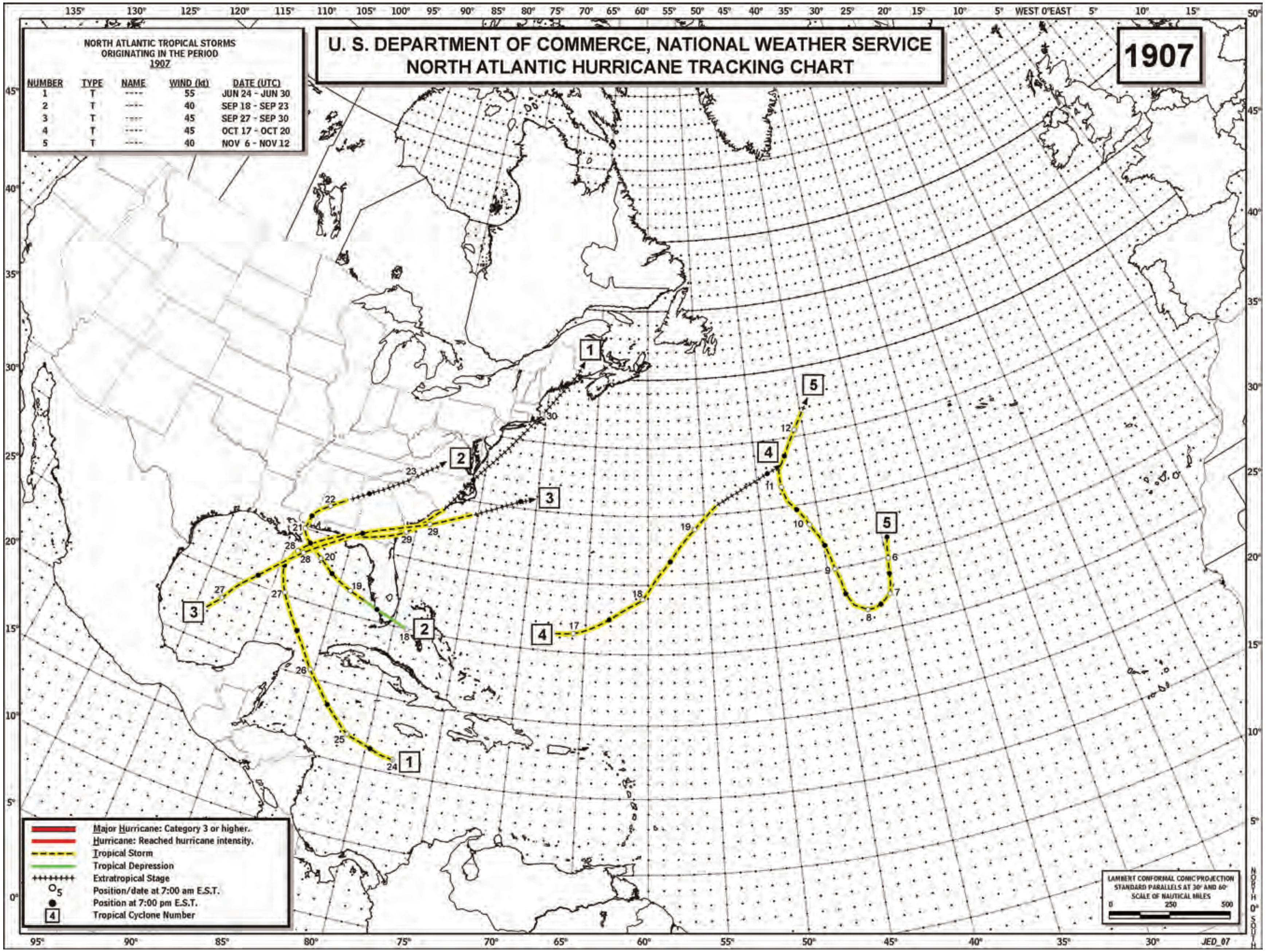

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1902
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1902
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 JUN 12 - JUN 17
2 H ---- 70 JUN 21 - JUN 29
3 H ---- 85 SEP 16 - SEP 25
4 H ---- 90 OCT 3 - OCT 13
5 T ---- 60 NOV 1 - NOV 6
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

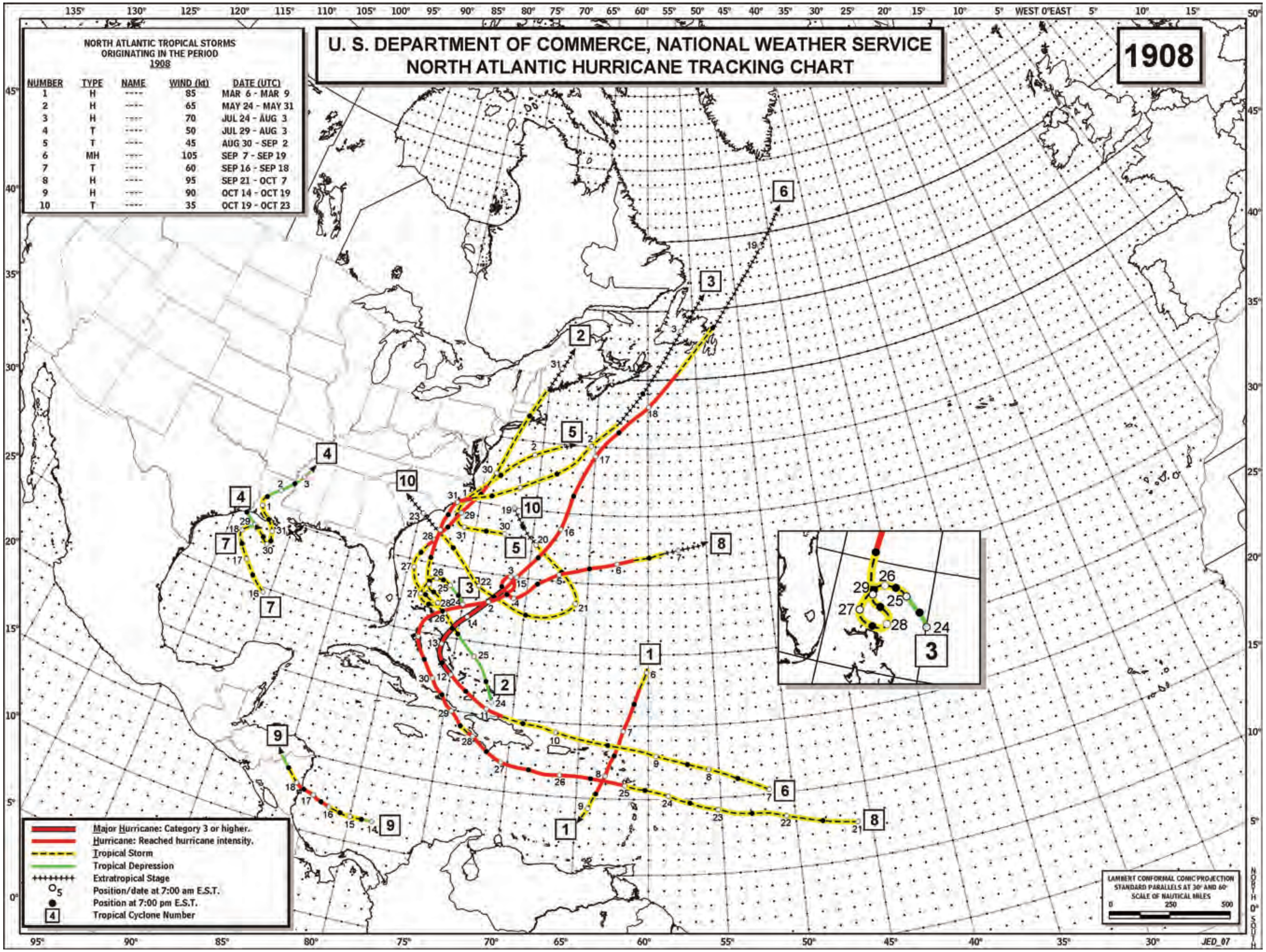

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1903
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1903
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 JUL 21 - JUL 26
2 MH ---- 105 AUG 6 - AUG 16
3 H ---- 80 SEP 9 - SEP 16
4 H ---- 85 SEP 12 - SEP 17
5 T ---- 50 SEP 19 - SEP 26
6 H ---- 95 SEP 26 - SEP 30
7 H ---- 85 OCT 1 - OCT 10
8 T ---- 60 OCT 5 - OCT 10
9 T ---- 50 OCT 21 - OCT 27
10 H ---- 70 NOV 17 - NOV 25
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

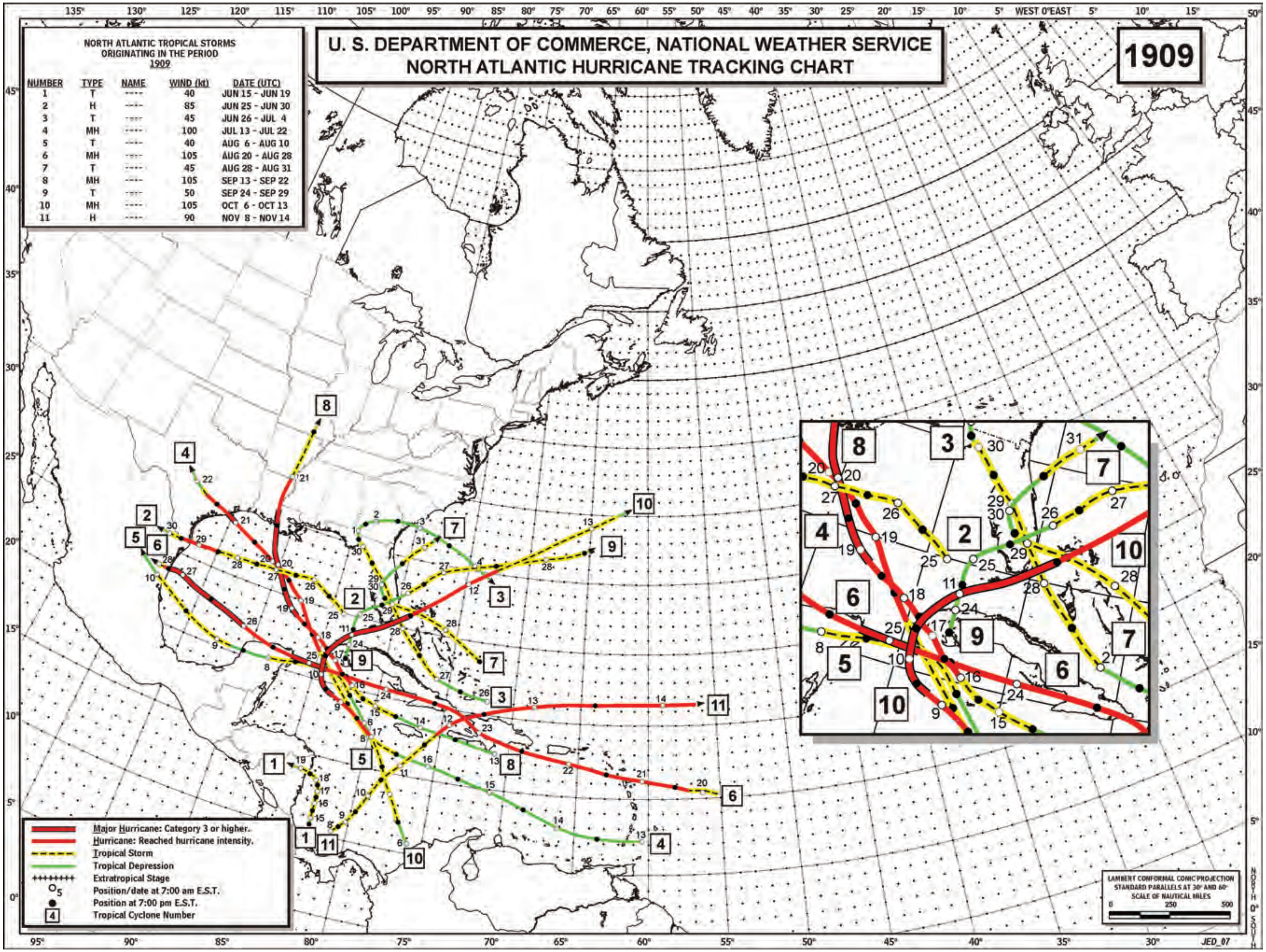

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1904
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1904
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 JUN 10 - JUN 14
2 H ---- 70 SEP 8 - SEP 15
3 H ---- 70 OCT 12 - OCT 21
4 T ---- 45 OCT 19 - OCT 25
5 T ---- 45 OCT 31 - NOV 6
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
NORTH 0° SOUTH
WEST 0°EAST
JED_07

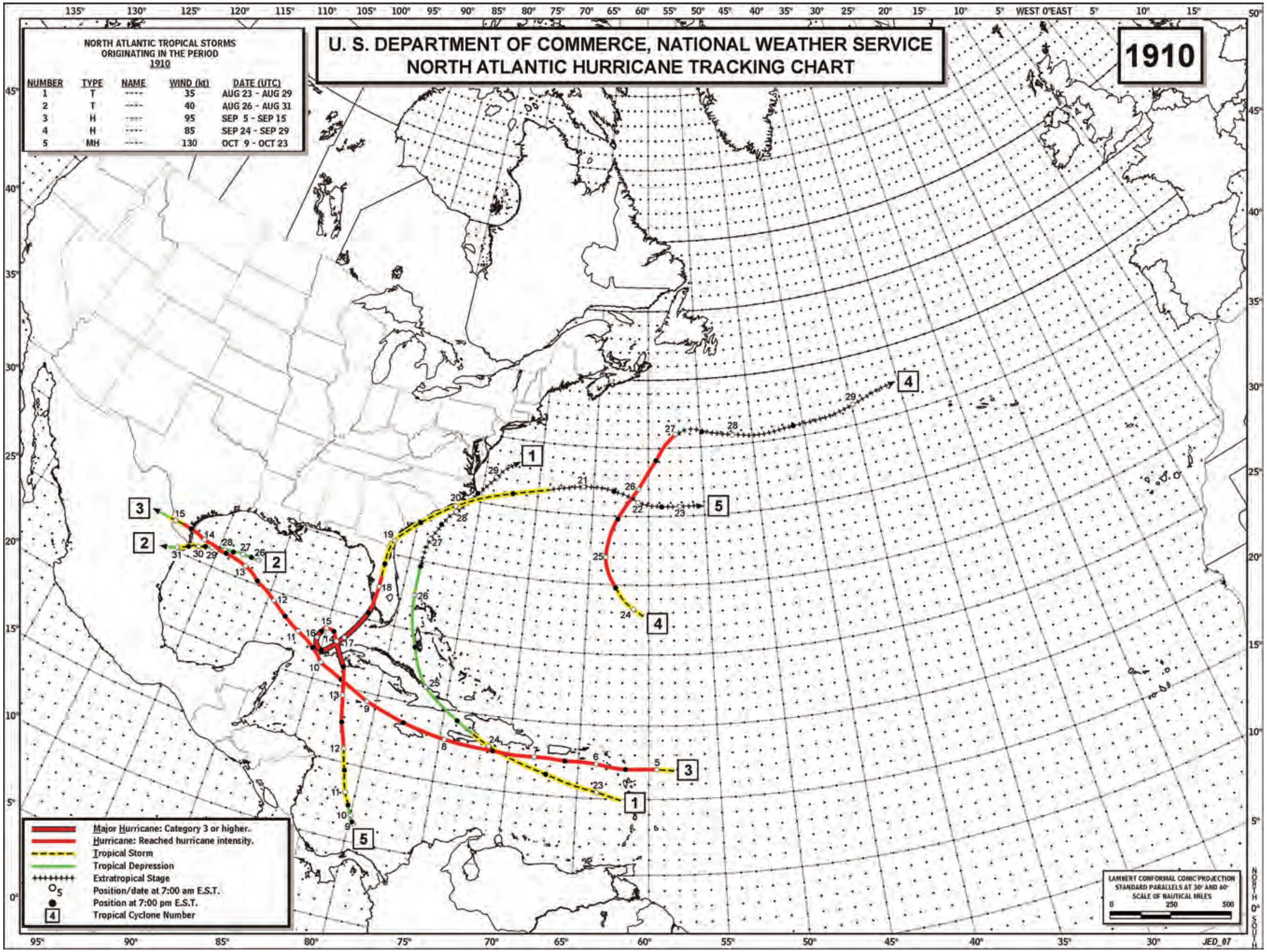

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1905
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1905
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 SEP 6 - SEP 8
2 T ---- 50 SEP 11 - SEP 16
3 T ---- 45 SEP 24 - SEP 30
4 MH ---- 105 OCT 1 - OCT 13
5 T ---- 45 OCT 5 - OCT 11
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

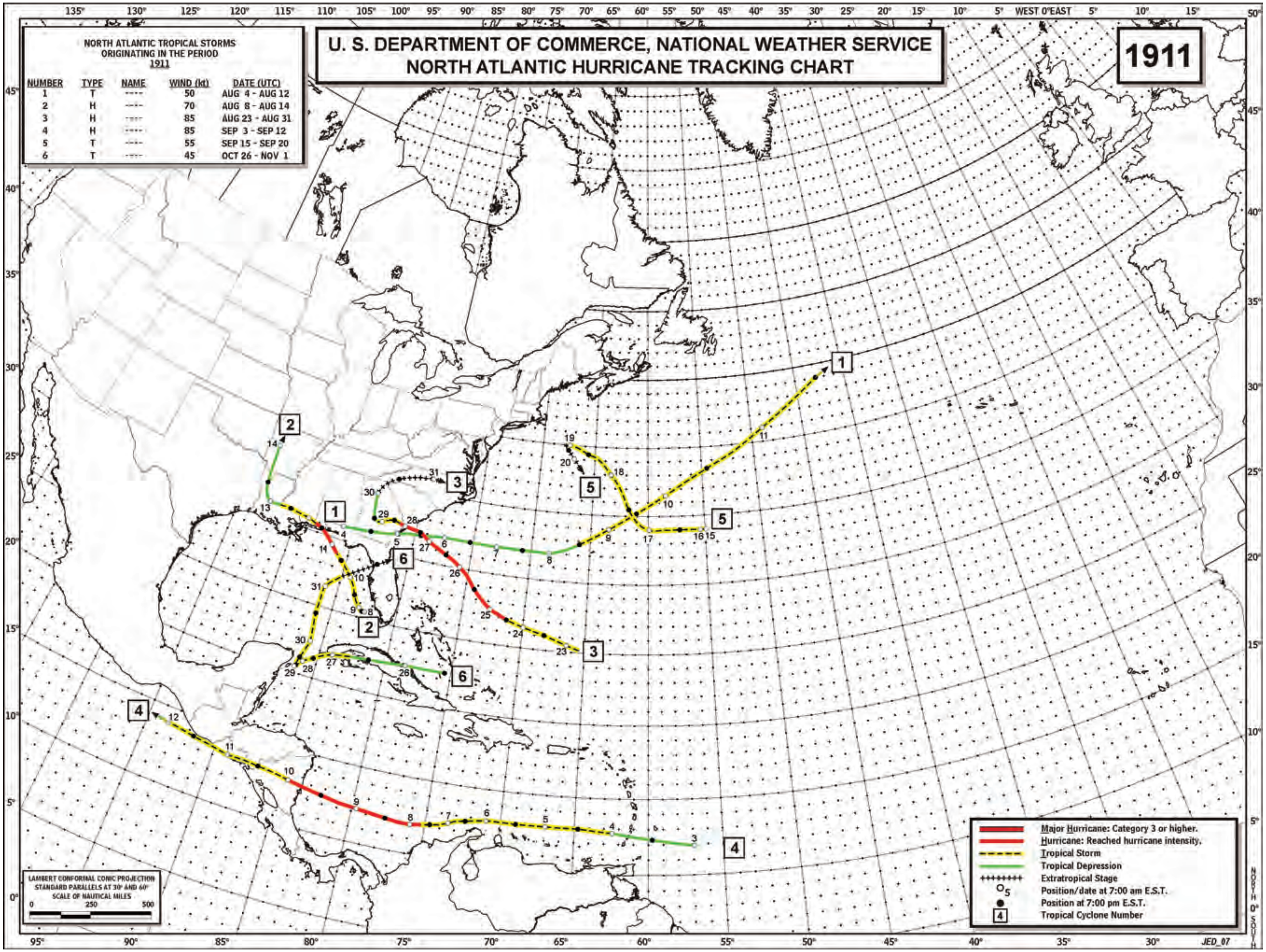

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1906
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1906
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 45 JUN 8 - JUN 14
2 H ---- 90 JUN 14 - JUN 23
3 T ---- 60 AUG 22 - AUG 25
4 MH ---- 115 AUG 25 - SEP 12
5 H ---- 80 SEP 3 - SEP 18
6 MH ---- 105 SEP 19 - SEP 30
7 T ---- 60 SEP 22 - OCT 2
8 MH ---- 105 OCT 8 - OCT 23
9 T ---- 45 OCT 14 - OCT 17
10 T ---- 45 OCT 15 - OCT 20
11 H ---- 70 NOV 5 - NOV 10
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
WEST 0°EAST
NORTH
SOUTH
JED_07

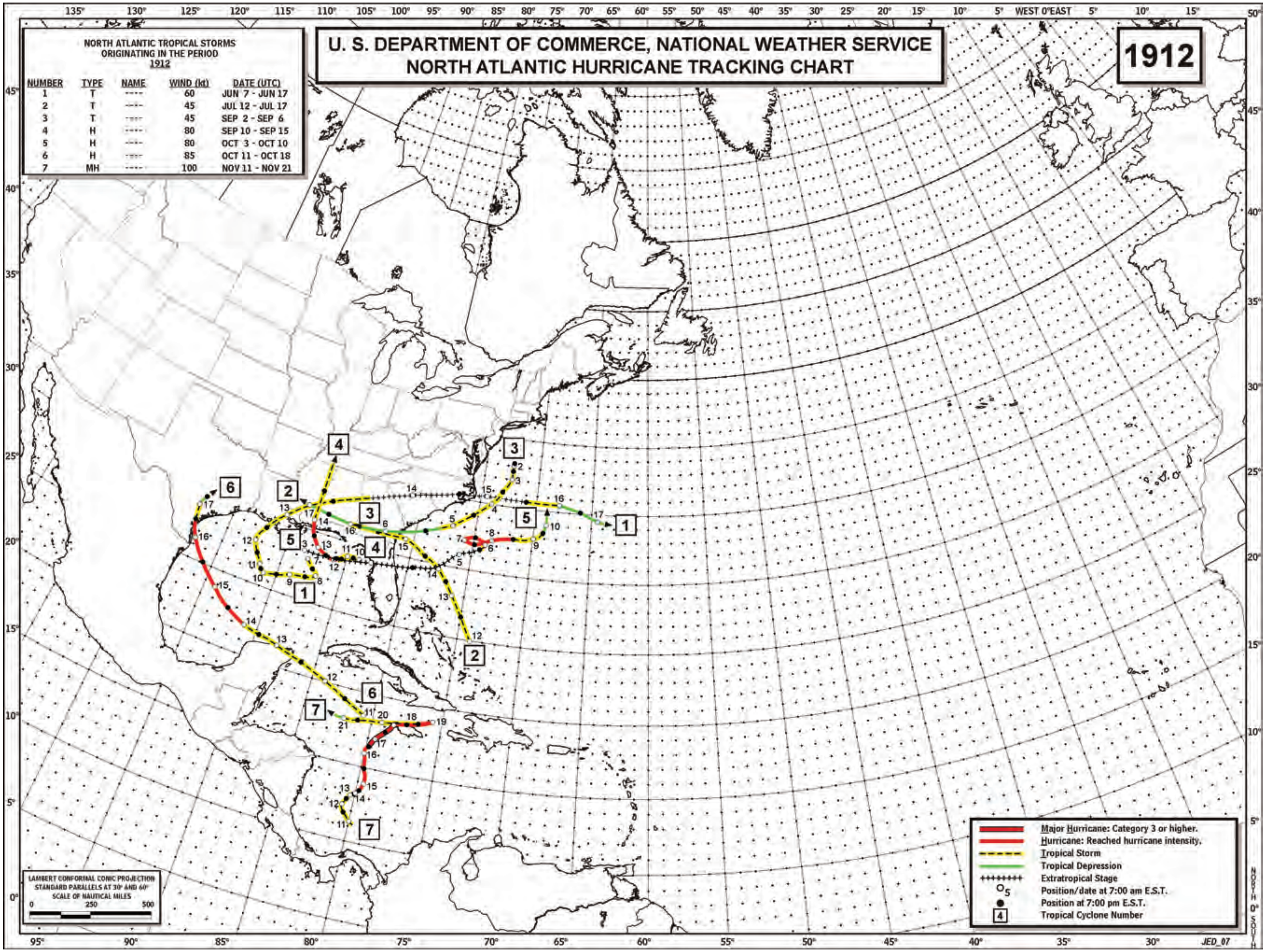

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1907
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1907
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 55 JUN 24 - JUN 30
2 T ---- 40 SEP 18 - SEP 23
3 T ---- 45 SEP 27 - SEP 30
4 T ---- 45 OCT 17 - OCT 20
5 T ---- 40 NOV 6 - NOV 12
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

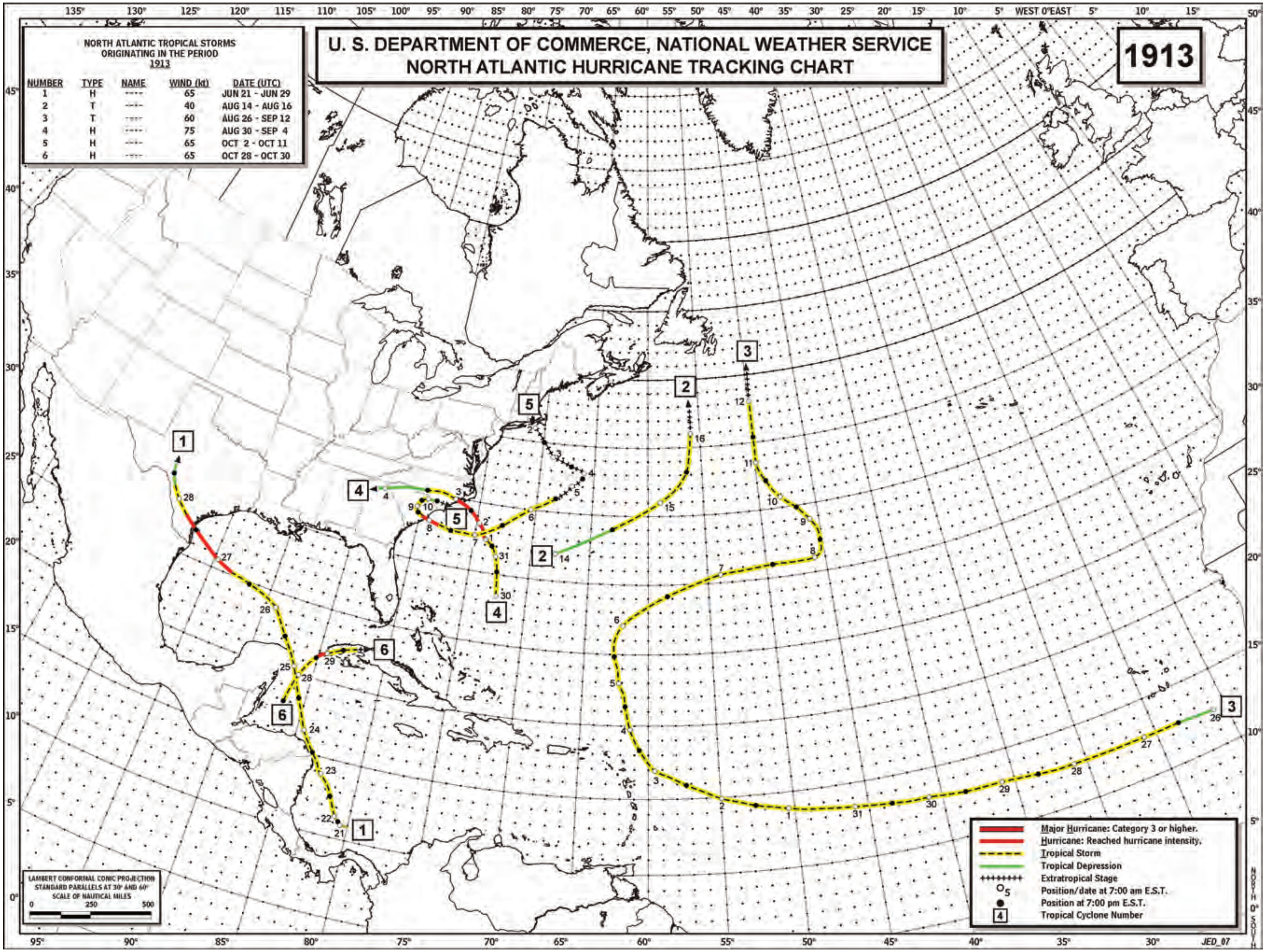

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1908
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1908
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 85 MAR 6 - MAR 9
2 H ---- 65 MAY 24 - MAY 31
3 H ---- 70 JUL 24 - AUG 3
4 T ---- 50 JUL 29 - AUG 3
5 T ---- 45 AUG 30 - SEP 2
6 MH ---- 105 SEP 7 - SEP 19
7 T ---- 60 SEP 16 - SEP 18
8 H ---- 95 SEP 21 - OCT 7
9 H ---- 90 OCT 14 - OCT 19
10 T ---- 35 OCT 19 - OCT 23
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1909
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1909
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 40 JUN 15 - JUN 19
2 H ---- 85 JUN 25 - JUN 30
3 T ---- 45 JUN 26 - JUL 4
4 MH ---- 100 JUL 13 - JUL 22
5 T ---- 40 AUG 6 - AUG 10
6 MH ---- 105 AUG 20 - AUG 28
7 T ---- 45 AUG 28 - AUG 31
8 MH ---- 105 SEP 13 - SEP 22
9 T ---- 50 SEP 24 - SEP 29
10 MH ---- 105 OCT 6 - OCT 13
11 H ---- 90 NOV 8 - NOV 14
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

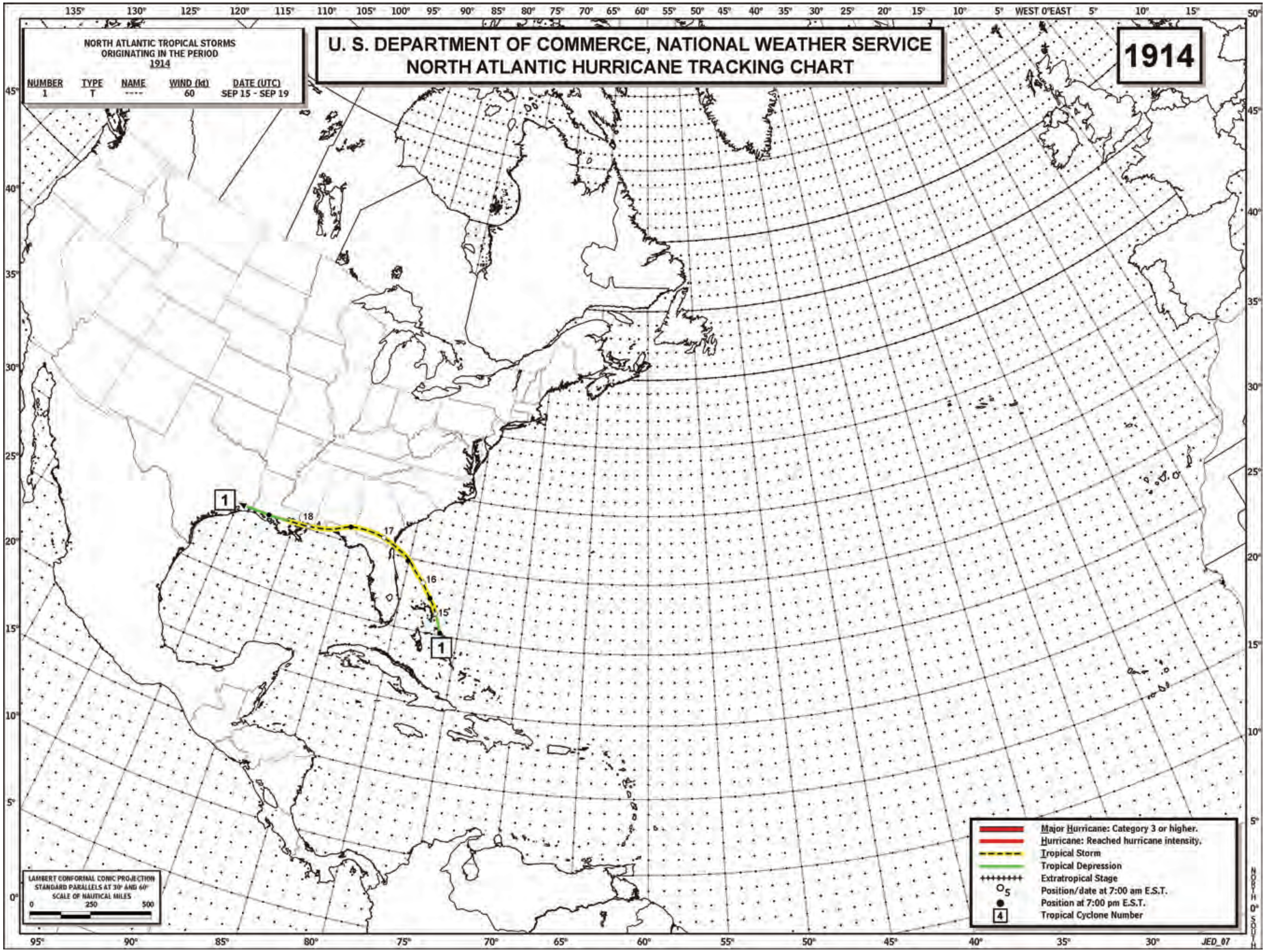

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1910
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1910
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 35 AUG 23 - AUG 29
2 T ---- 40 AUG 26 - AUG 31
3 H ---- 95 SEP 5 - SEP 15
4 H ---- 85 SEP 24 - SEP 29
5 MH ---- 130 OCT 9 - OCT 23
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
WEST 0°EAST
NORTH 0° SOUTH
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1911
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1911
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 AUG 4 - AUG 12
2 H ---- 70 AUG 8 - AUG 14
3 H ---- 85 AUG 23 - AUG 31
4 H ---- 85 SEP 3 - SEP 12
5 T ---- 55 SEP 15 - SEP 20
6 T ---- 45 OCT 26 - NOV 1
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

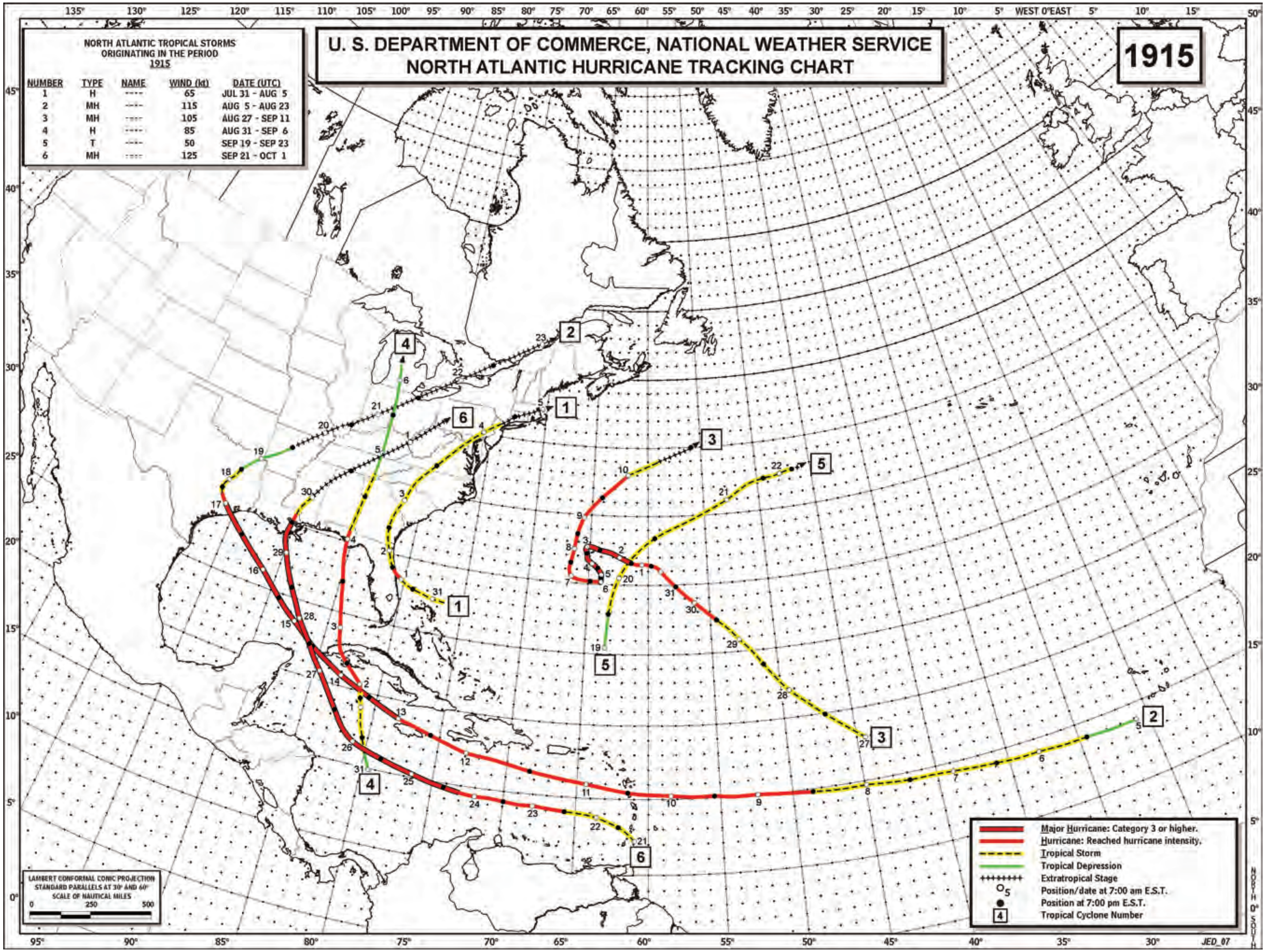

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1912
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1912
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 60 JUN 7 - JUN 17
2 T ---- 45 JUL 12 - JUL 17
3 T ---- 45 SEP 2 - SEP 6
4 H ---- 80 SEP 10 - SEP 15
5 H ---- 80 OCT 3 - OCT 10
6 H ---- 85 OCT 11 - OCT 18
7 MH ---- 100 NOV 11 - NOV 21
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

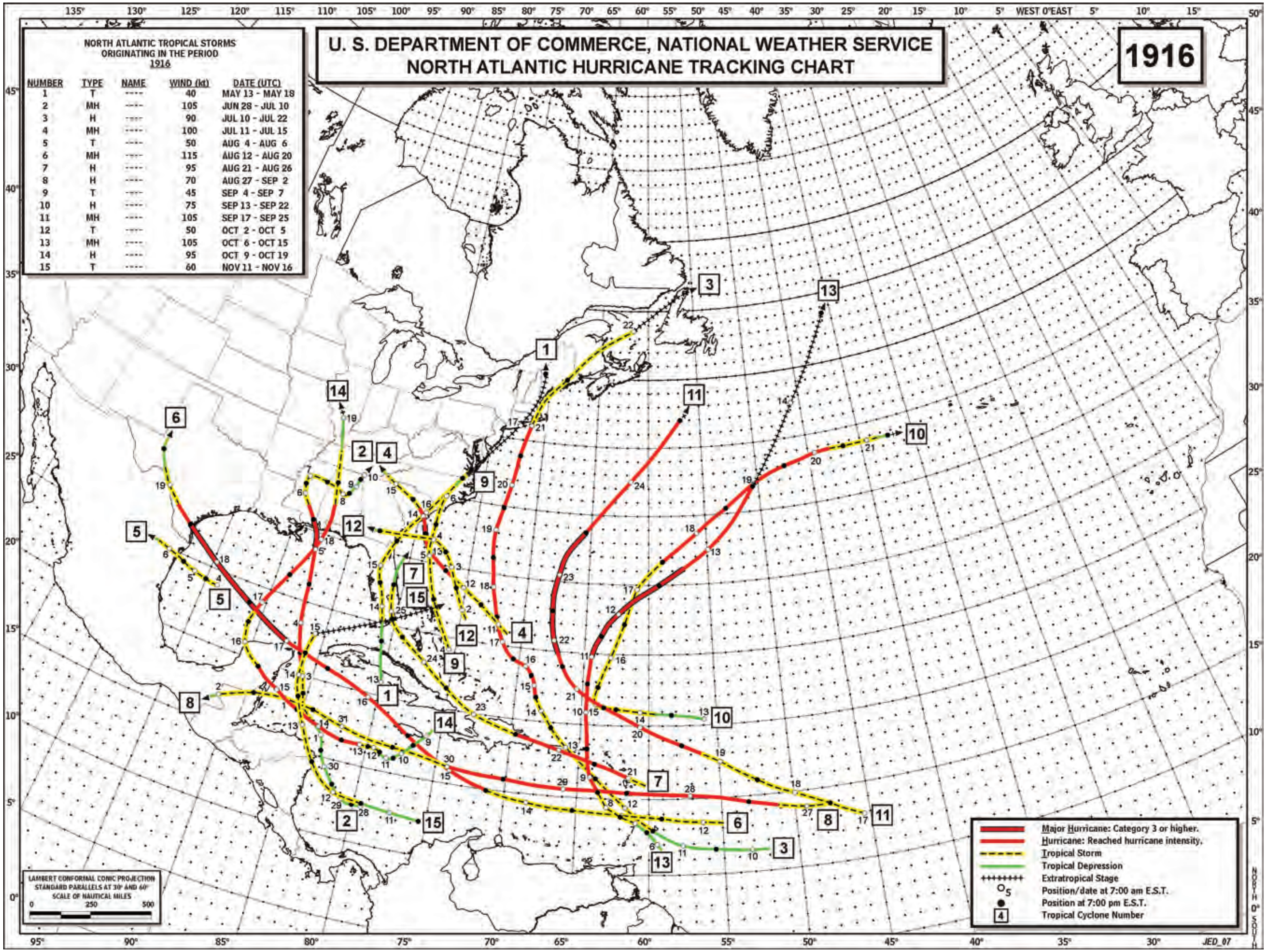


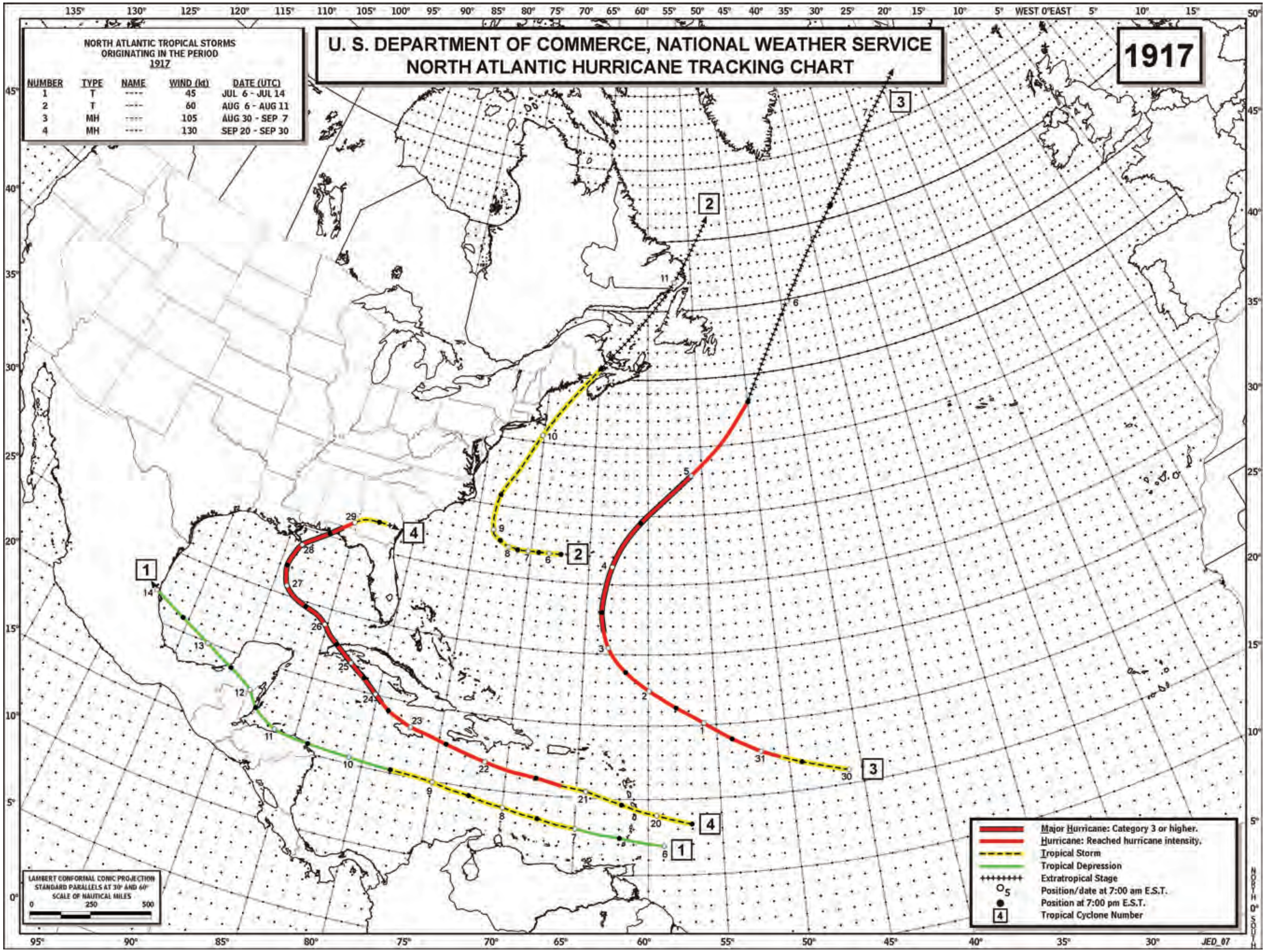
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1913
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1913
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ----- 65 JUN 21 - JUN 29
2 T ----- 40 AUG 14 - AUG 16
3 T ----- 60 AUG 26 - SEP 12
4 H ----- 75 AUG 30 - SEP 4
5 H ----- 65 OCT 2 - OCT 11
6 H ----- 65 OCT 28 - OCT 30
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

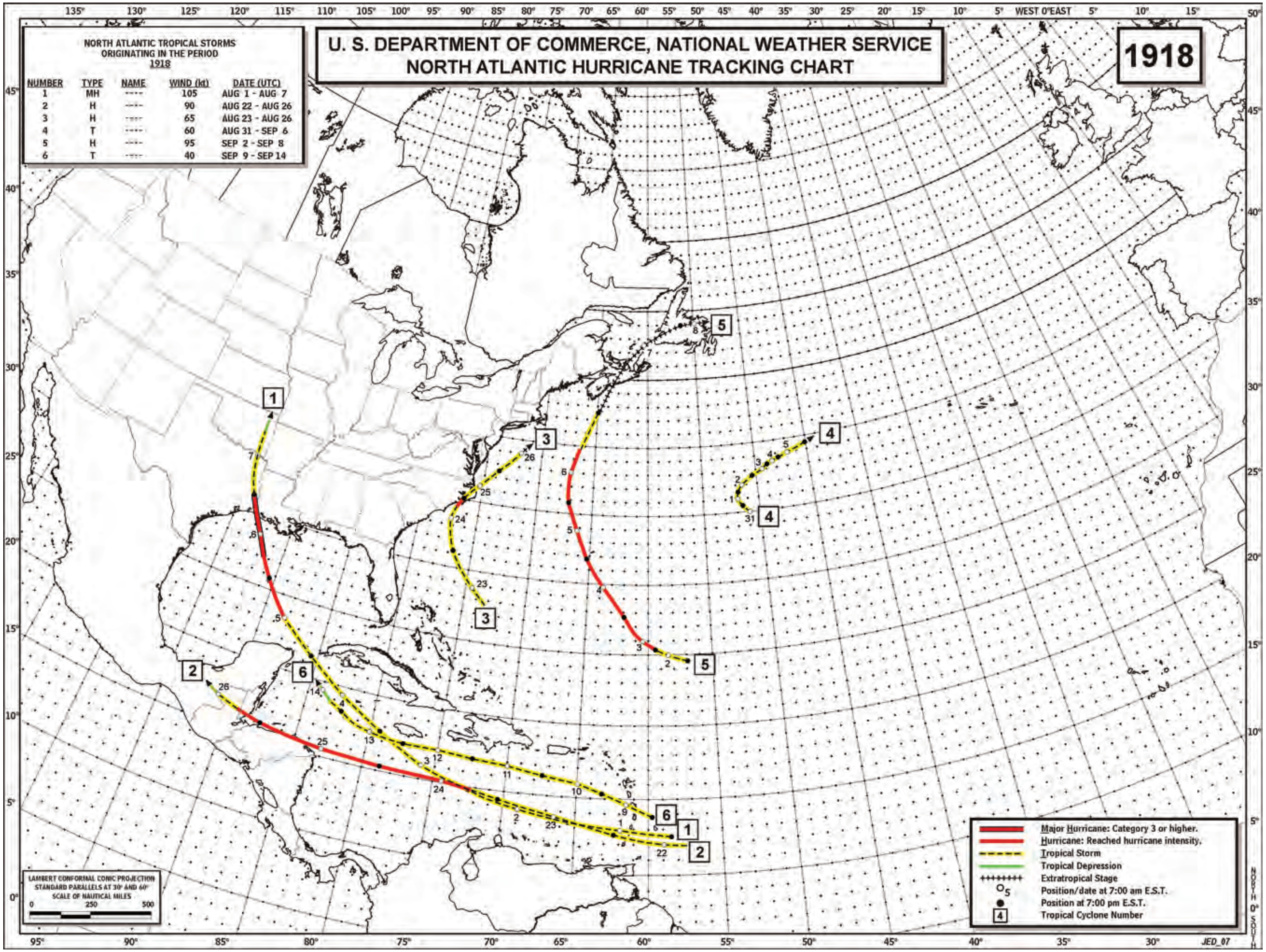


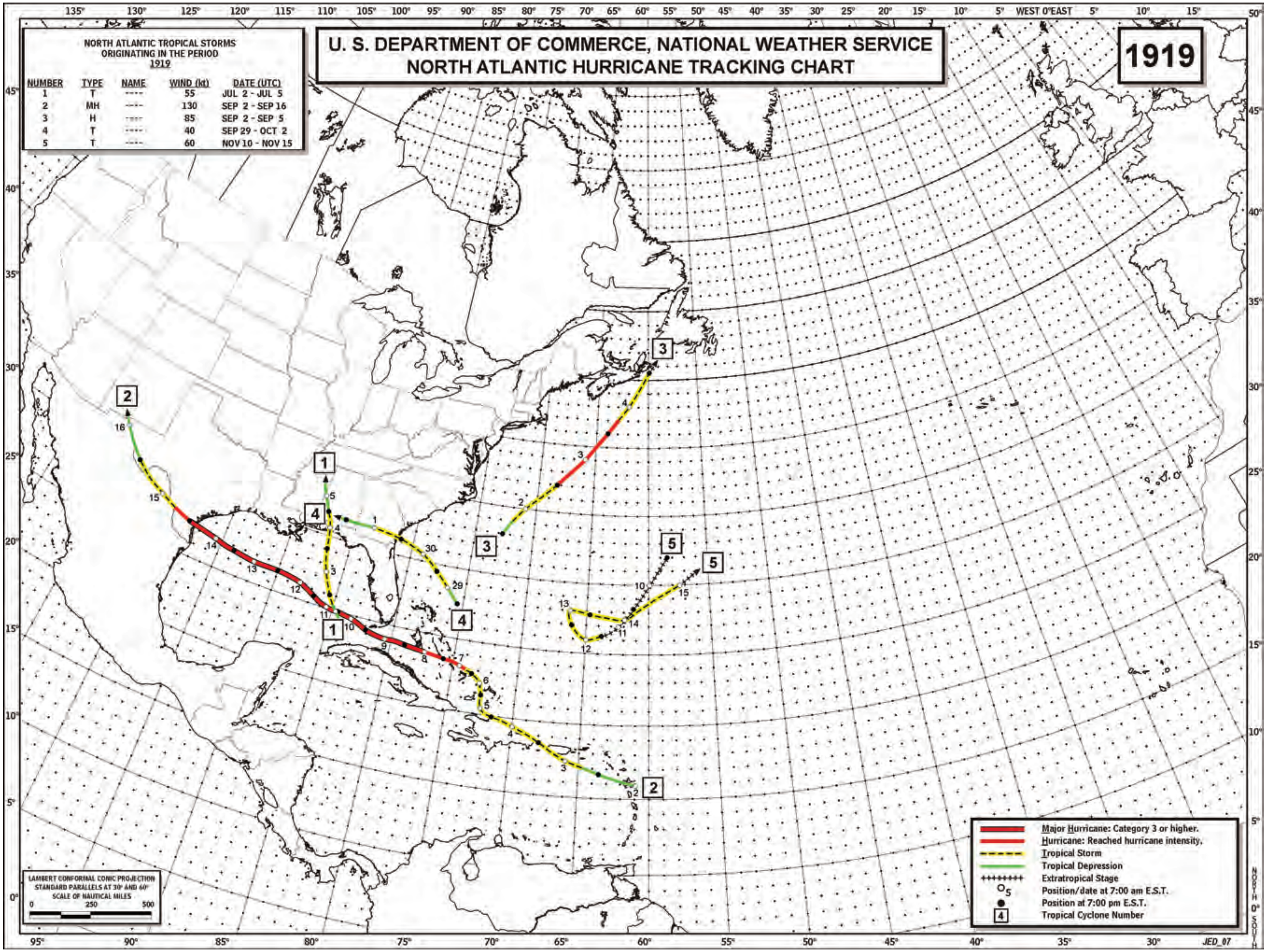
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1914
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1914
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 60 SEP 15 - SEP 19
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

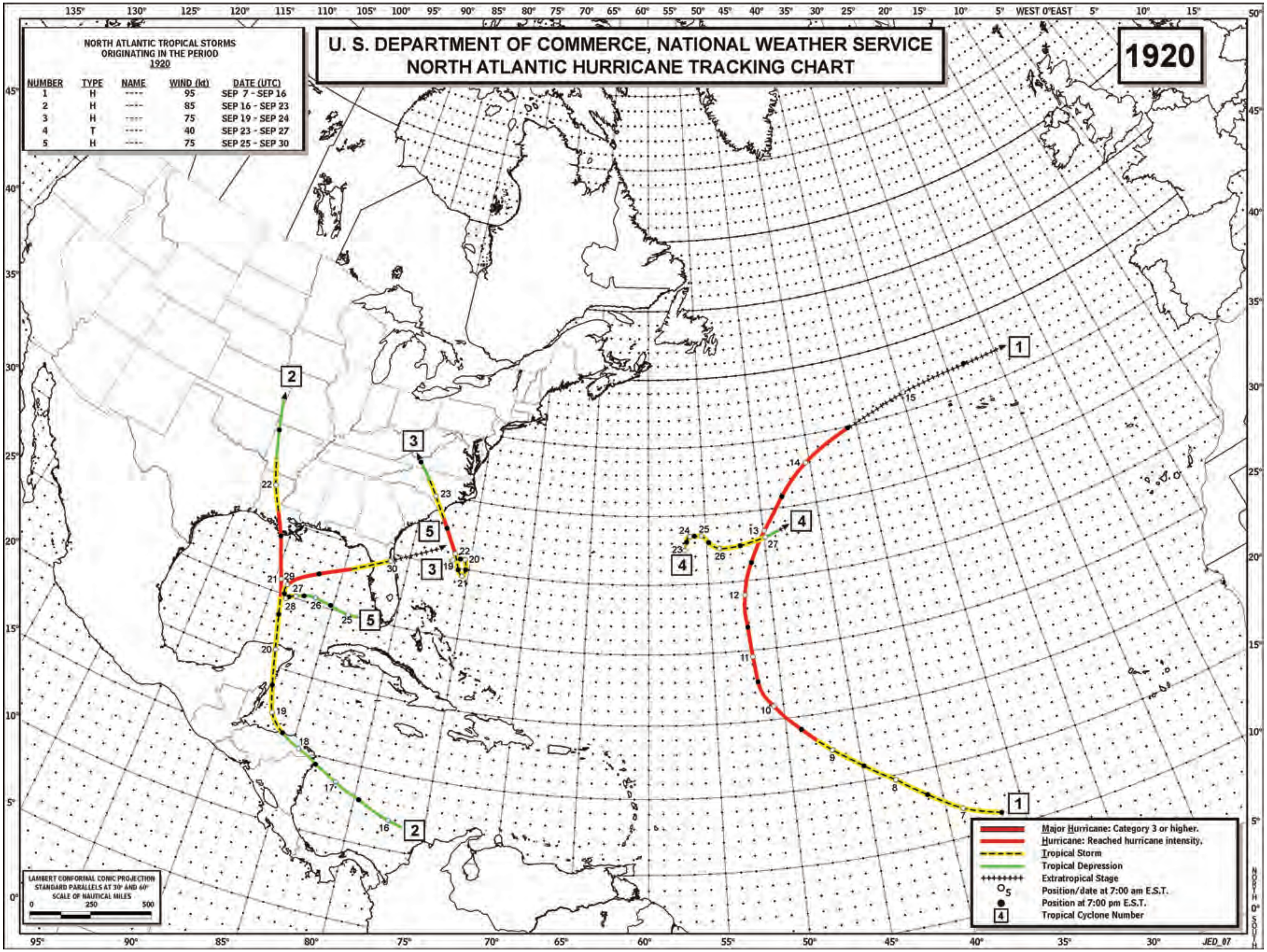

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1915
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1915
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 65 JUL 31 - AUG 5
2 MH ---- 115 AUG 5 - AUG 23
3 MH ---- 105 AUG 27 - SEP 11
4 H ---- 85 AUG 31 - SEP 6
5 T ---- 50 SEP 19 - SEP 23
6 MH ---- 125 SEP 21 - OCT 1
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

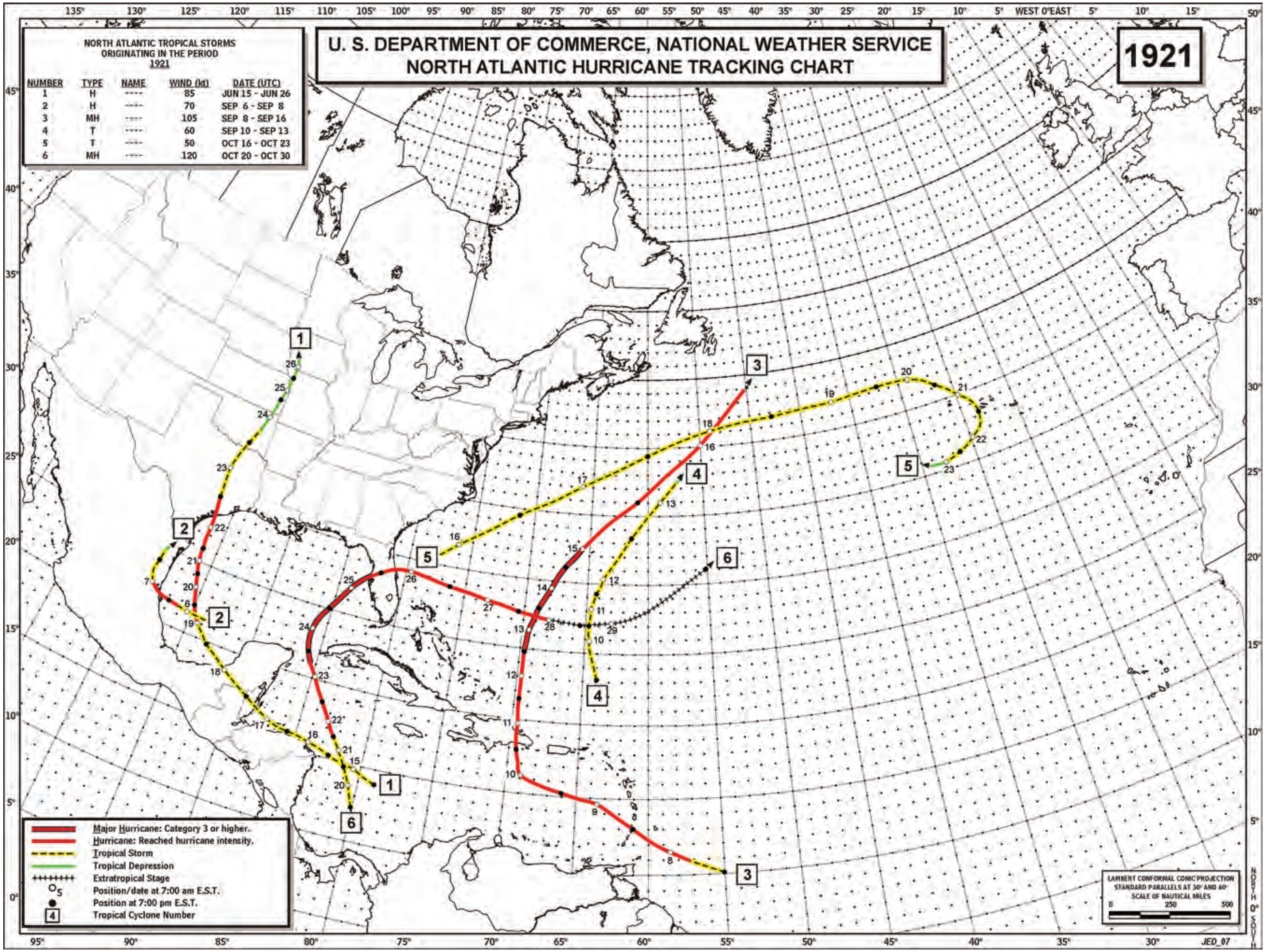

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1916
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1916
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 40 MAY 13 - MAY 18
2 MH ---- 105 JUN 28 - JUL 10
3 H ---- 90 JUL 10 - JUL 22
4 MH ---- 100 JUL 11 - JUL 15
5 T ---- 50 AUG 4 - AUG 6
6 MH ---- 115 AUG 12 - AUG 20
7 H ---- 95 AUG 21 - AUG 26
8 H ---- 70 AUG 27 - SEP 2
9 T ---- 45 SEP 4 - SEP 7
10 H ---- 75 SEP 13 - SEP 22
11 MH ---- 105 SEP 17 - SEP 25
12 T ---- 50 OCT 2 - OCT 5
13 MH ---- 105 OCT 6 - OCT 15
14 H ---- 95 OCT 9 - OCT 19
15 T ---- 60 NOV 11 - NOV 16
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

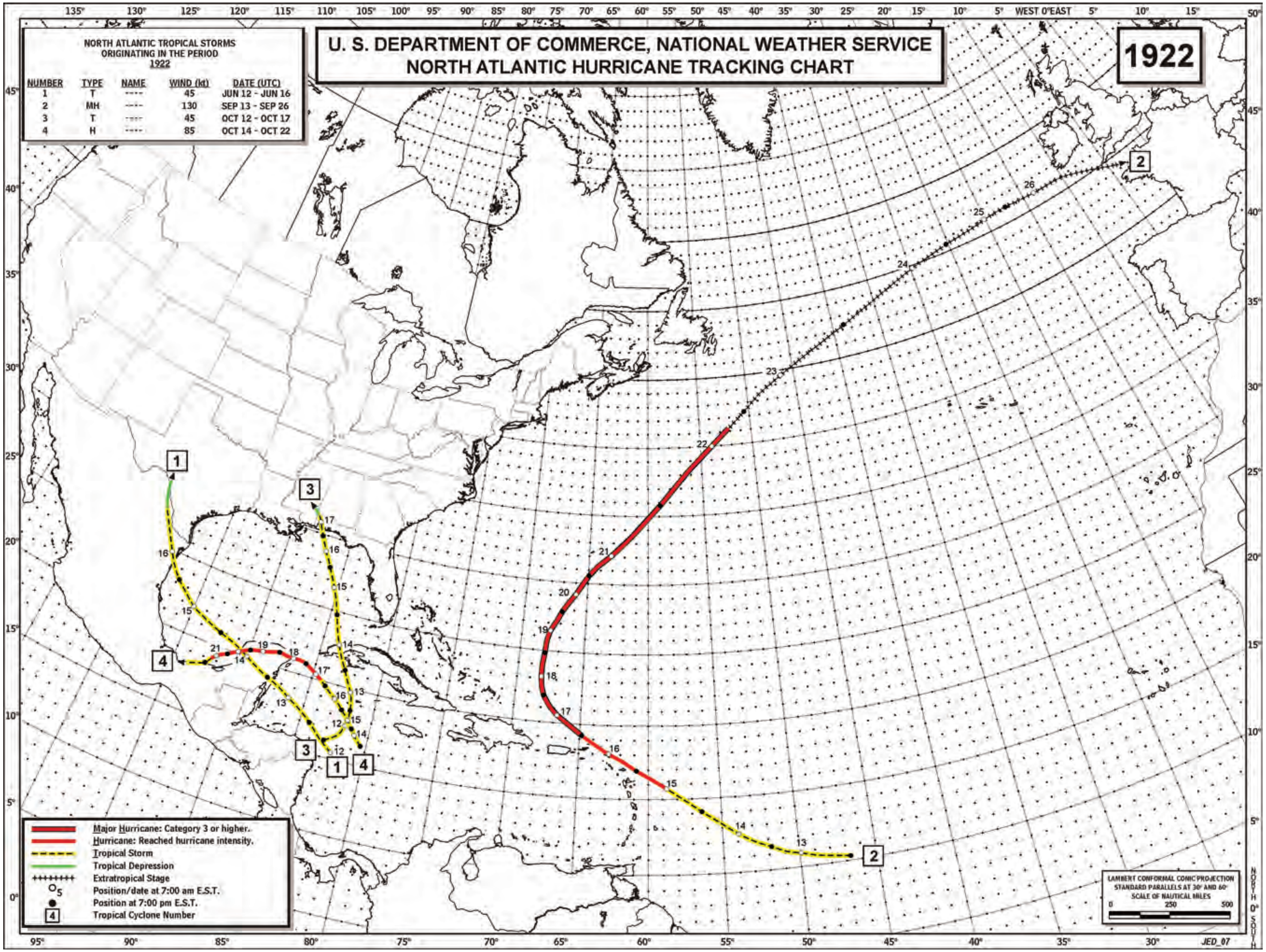

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1917
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1917
NUMBER | TYPE | NAME | WIND (kt) | DATE (UTC)
1 | T | ---- | 45 | JUL 6 - JUL 14
2 | T | ---- | 60 | AUG 6 - AUG 11
3 | MH | ---- | 105 | AUG 30 - SEP 7
4 | MH | ---- | 130 | SEP 20 - SEP 30
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1918
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1918
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ---- 105 AUG 1 - AUG 7
2 H ---- 90 AUG 22 - AUG 26
3 H ---- 65 AUG 23 - AUG 26
4 T ---- 60 AUG 31 - SEP 6
5 H ---- 95 SEP 2 - SEP 8
6 T ---- 40 SEP 9 - SEP 14
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

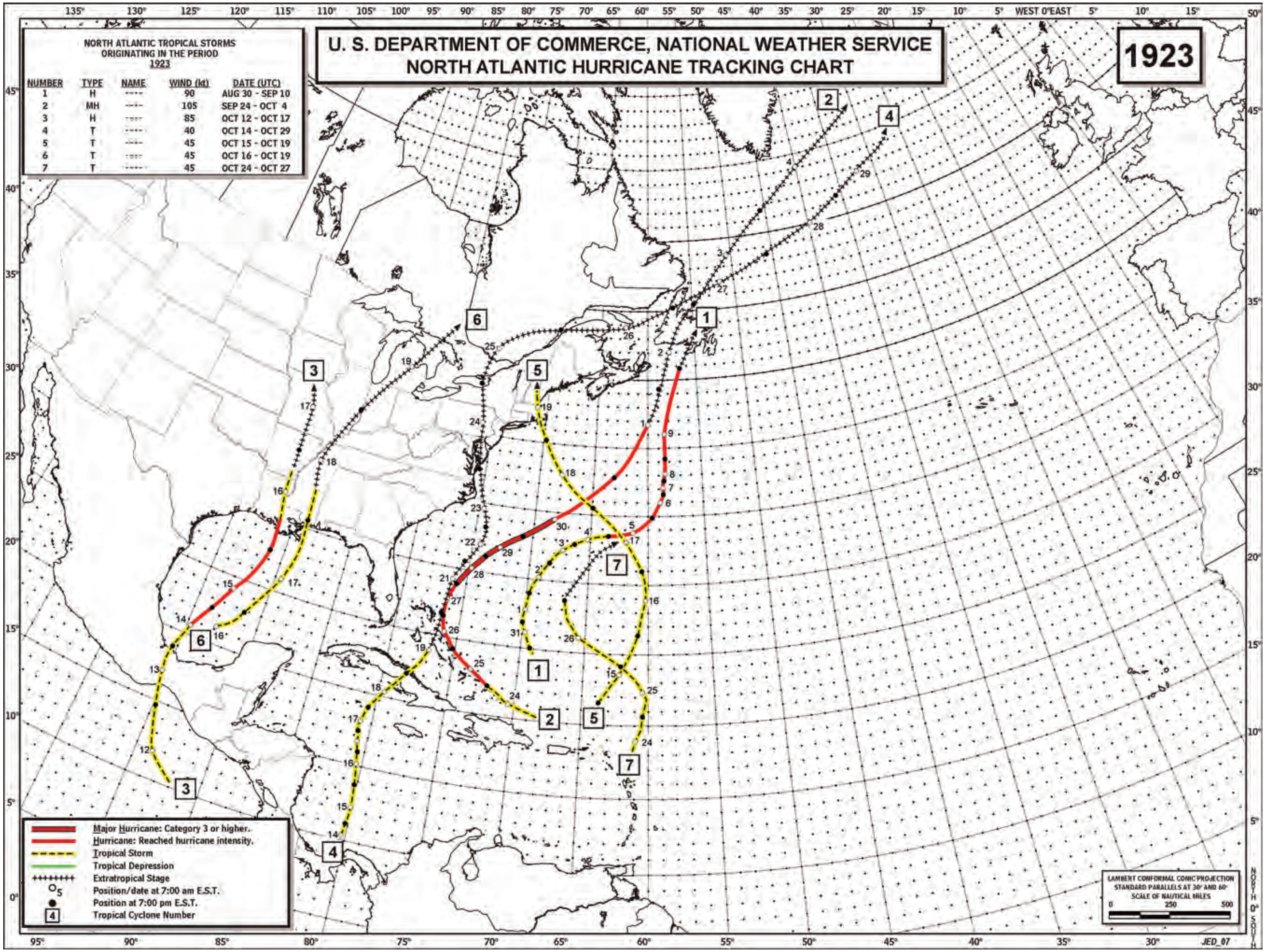

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1919
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1919
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ----- 55 JUL 2 - JUL 5
2 MH ----- 130 SEP 2 - SEP 16
3 H ----- 85 SEP 2 - SEP 5
4 T ----- 40 SEP 29 - OCT 2
5 T ----- 60 NOV 10 - NOV 15
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

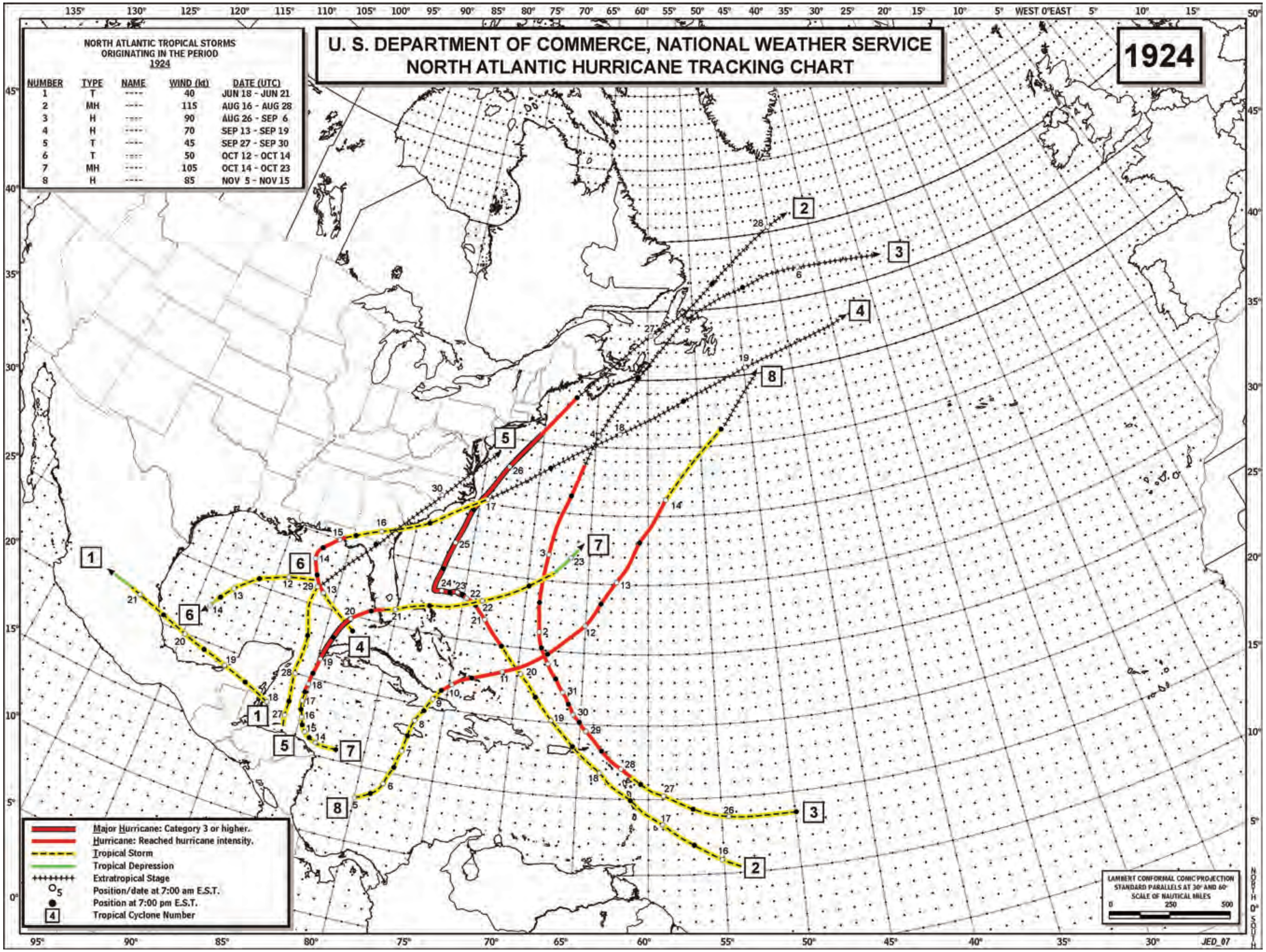

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1920
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1920
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 95 SEP 7 - SEP 16
2 H ---- 85 SEP 16 - SEP 23
3 H ---- 75 SEP 19 - SEP 24
4 T ---- 40 SEP 23 - SEP 27
5 H ---- 75 SEP 25 - SEP 30
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1921
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1921
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 85 JUN 15 - JUN 26
2 H ---- 70 SEP 6 - SEP 8
3 MH ---- 105 SEP 8 - SEP 16
4 T ---- 60 SEP 10 - SEP 13
5 T ---- 50 OCT 16 - OCT 23
6 MH ---- 120 OCT 20 - OCT 30
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

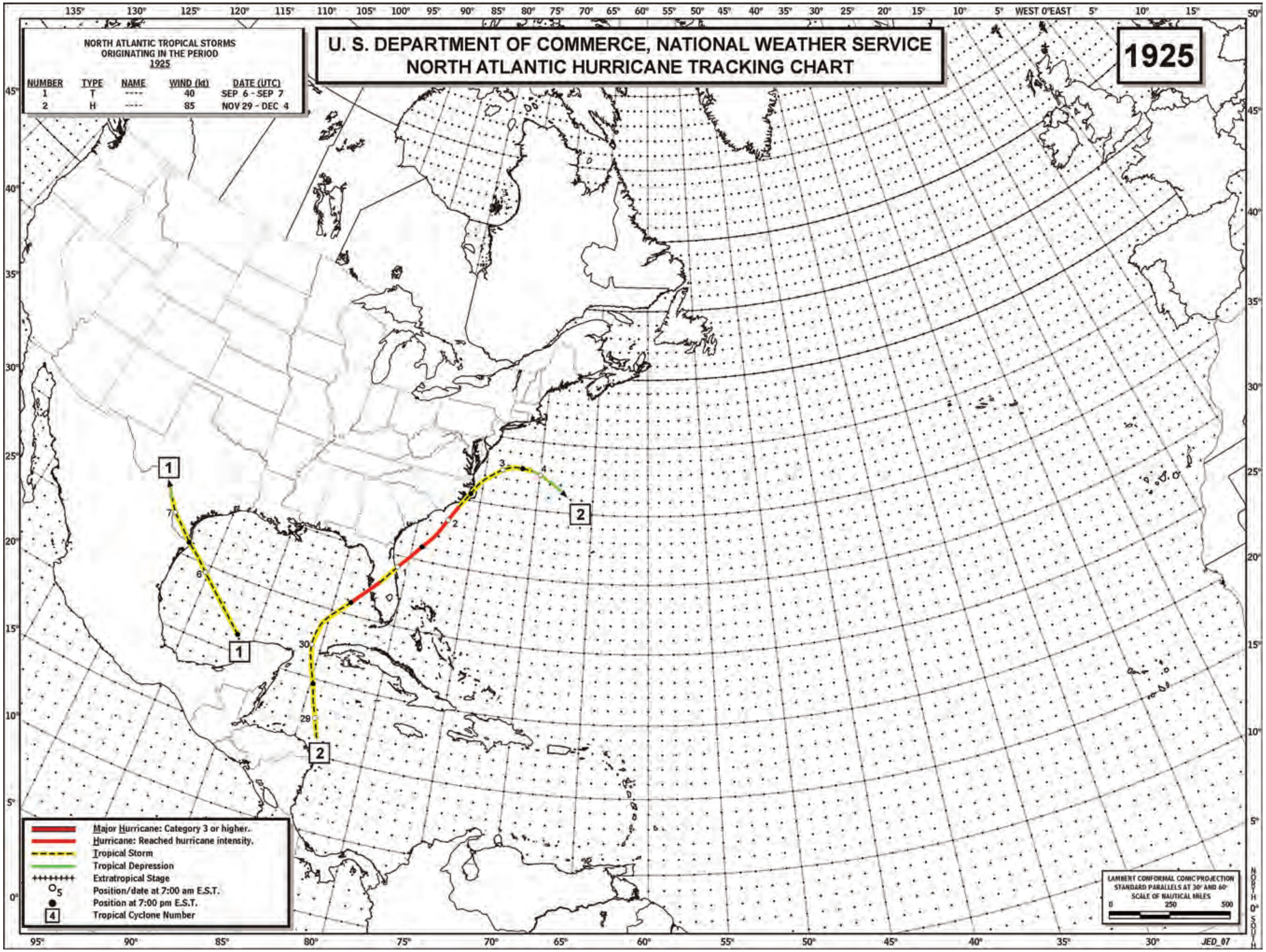


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1922
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1922
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 45 JUN 12 - JUN 16
2 MH ---- 130 SEP 13 - SEP 26
3 T ---- 45 OCT 12 - OCT 17
4 H ---- 85 OCT 14 - OCT 22
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
WEST 0° EAST
NORTH
SOUTH
JED_07

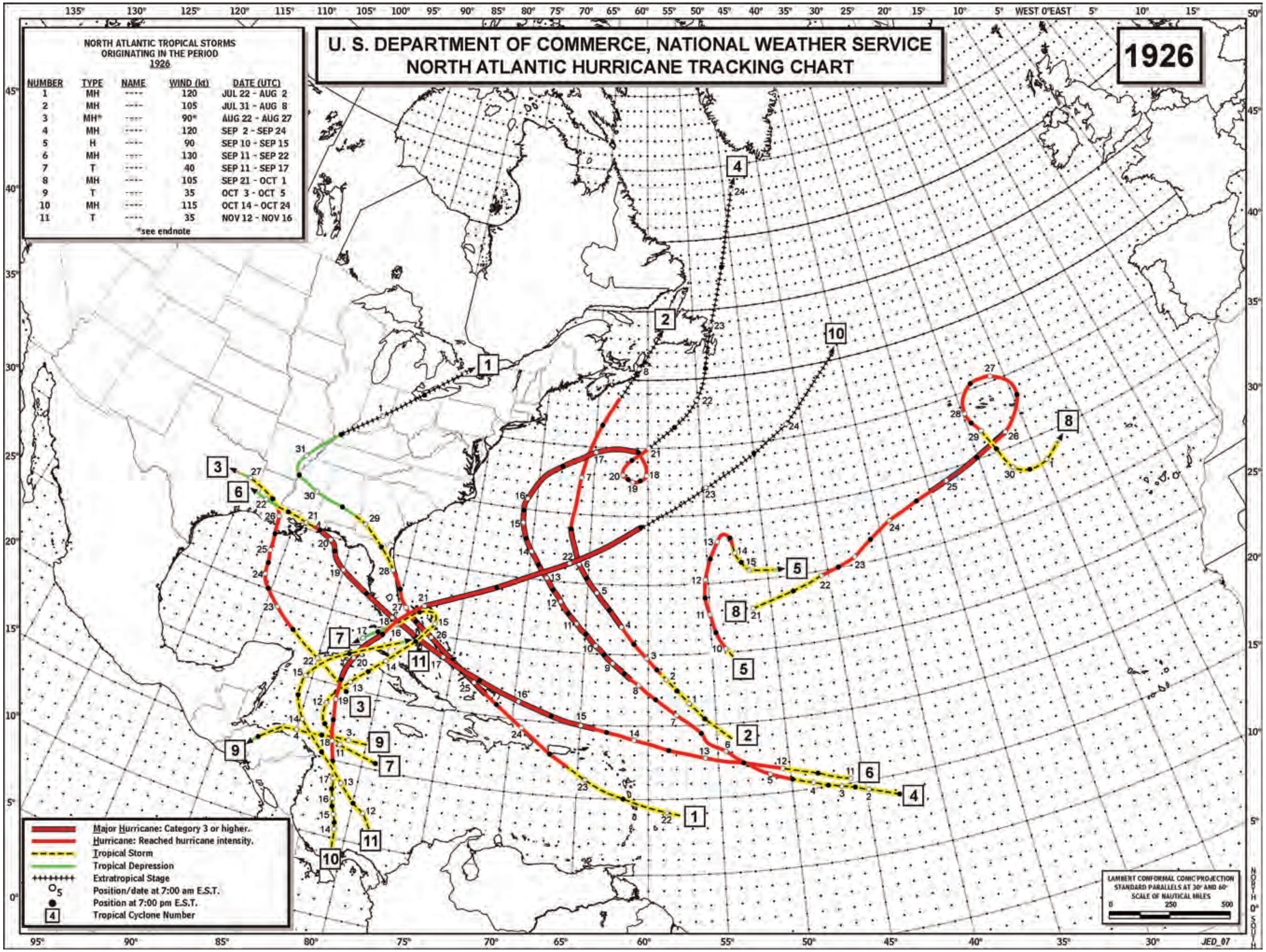

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1923
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1923
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 90 AUG 30 - SEP 10
2 MH ---- 105 SEP 24 - OCT 4
3 H ---- 85 OCT 12 - OCT 17
4 T ---- 40 OCT 14 - OCT 29
5 T ---- 45 OCT 15 - OCT 19
6 T ---- 45 OCT 16 - OCT 19
7 T ---- 45 OCT 24 - OCT 27
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07



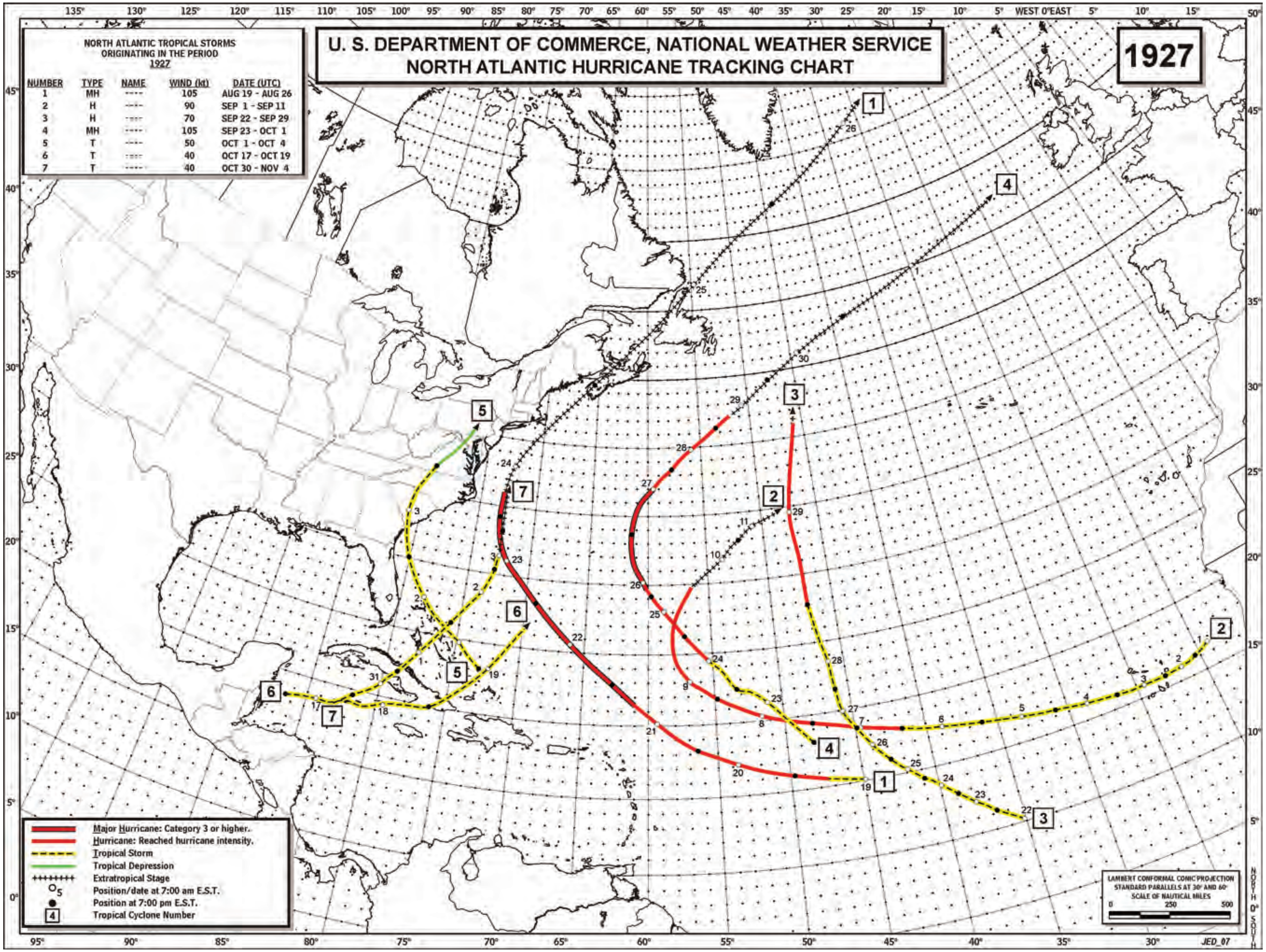
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1924
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1924
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 40 JUN 18 - JUN 21
2 MH ---- 115 AUG 16 - AUG 28
3 H ---- 90 AUG 26 - SEP 6
4 H ---- 70 SEP 13 - SEP 19
5 T ---- 45 SEP 27 - SEP 30
6 T ---- 50 OCT 12 - OCT 14
7 MH ---- 105 OCT 14 - OCT 23
8 H ---- 85 NOV 5 - NOV 15
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
NORTH
SOUTH
WEST 0° EAST
JED_07

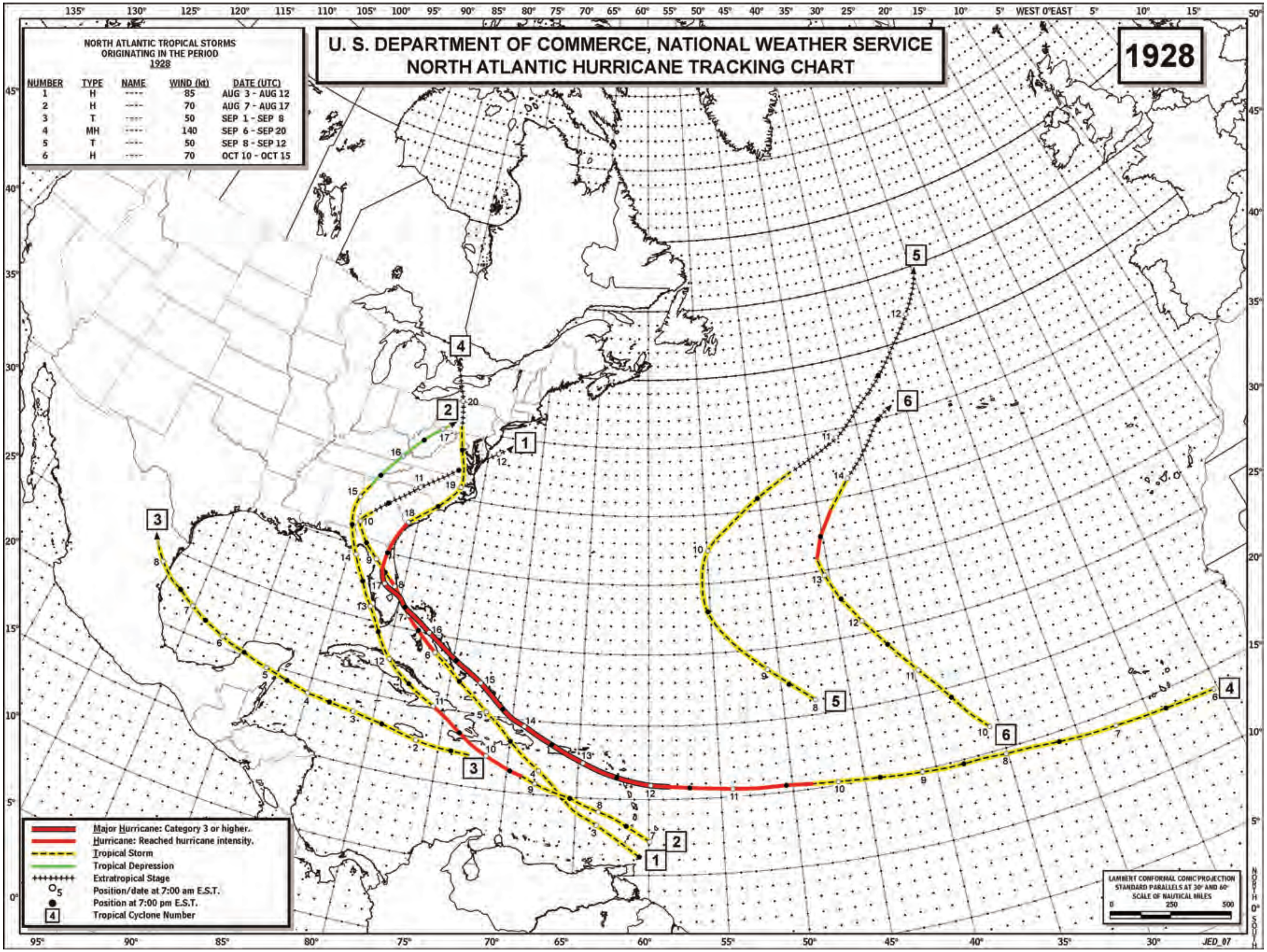


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1925
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1925
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 40 SEP 6 - SEP 7
2 H ---- 85 NOV 29 - DEC 4
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

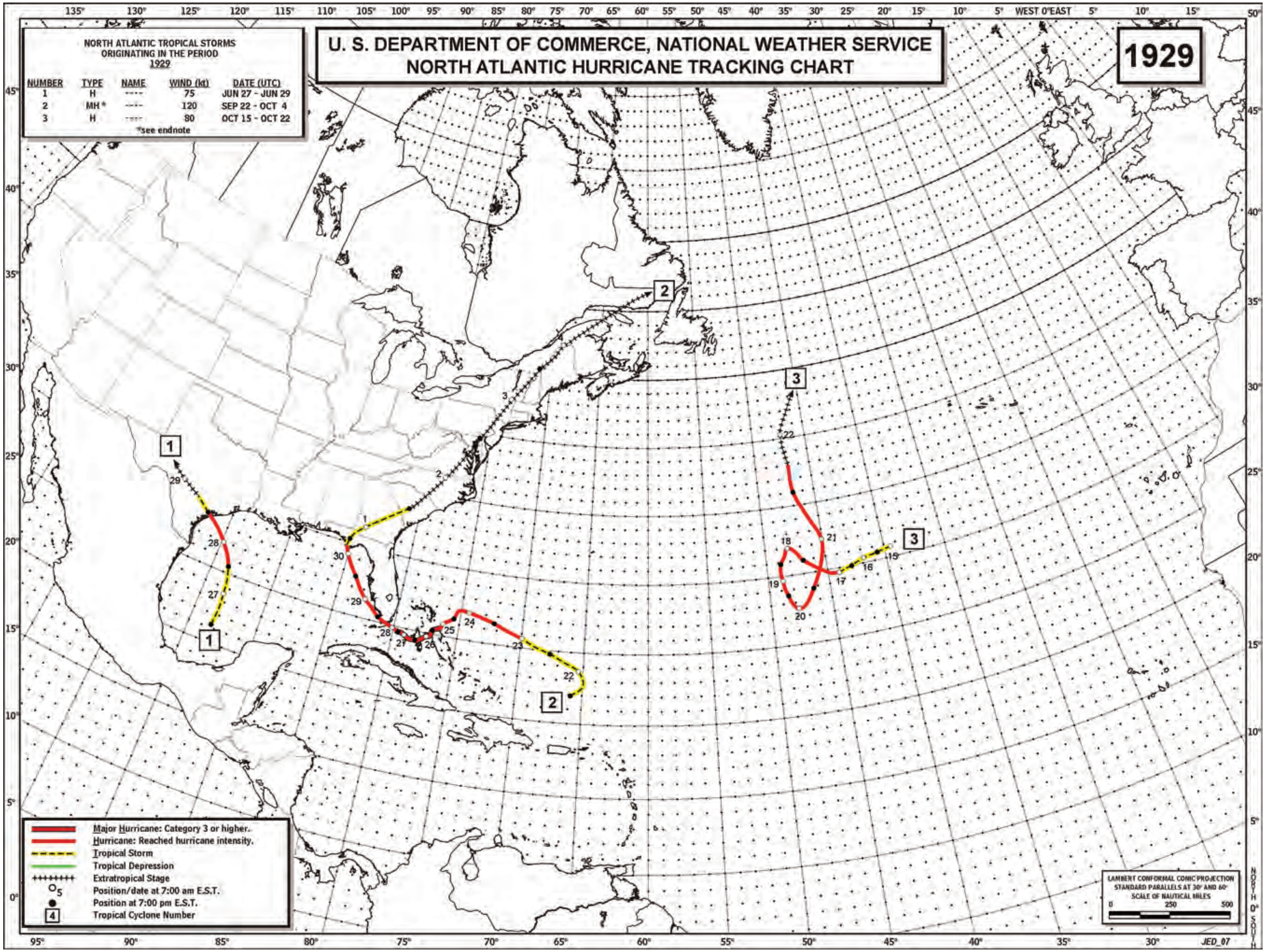


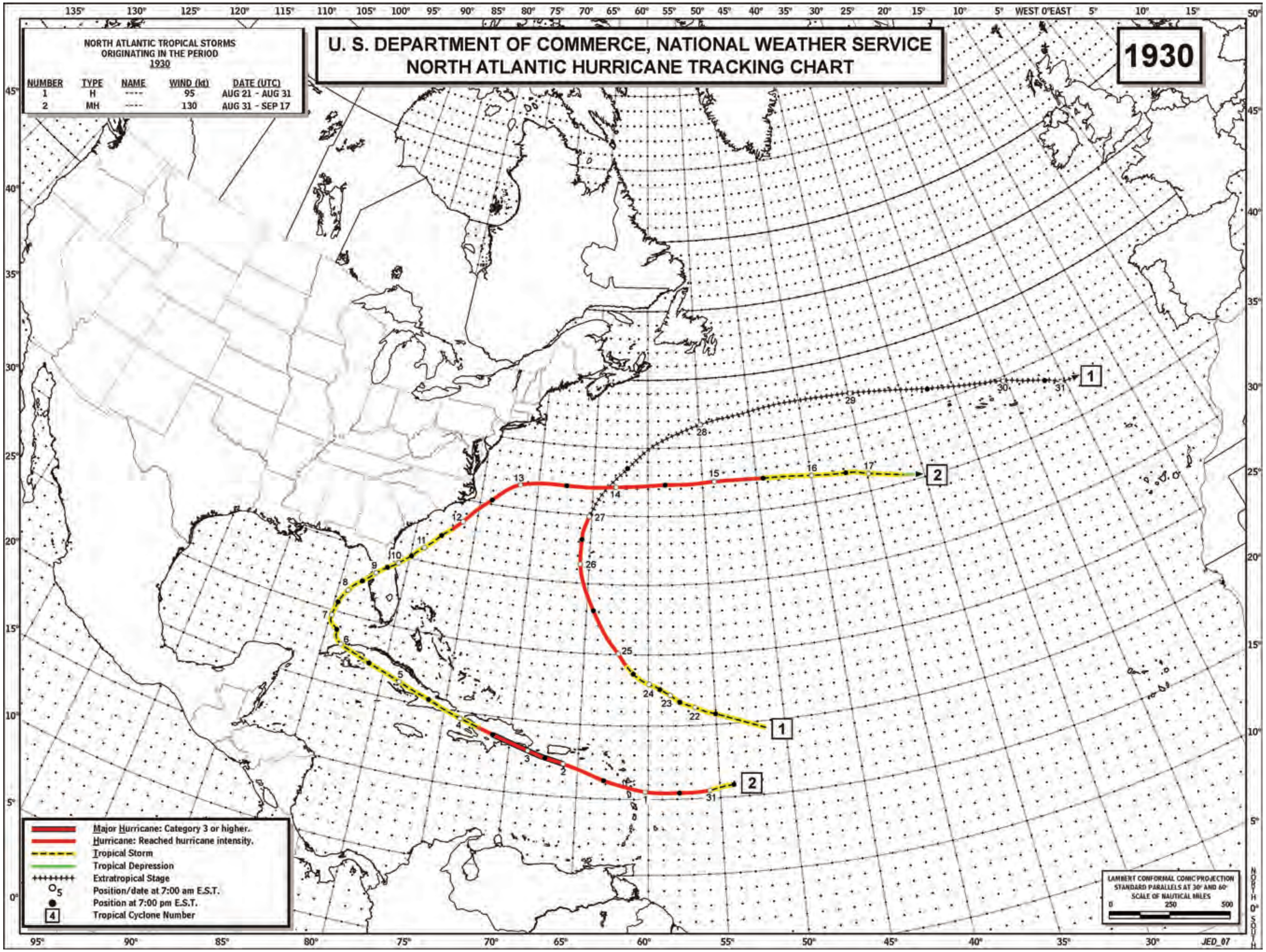
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1926
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1926
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ---- 120 JUL 22 - AUG 2
2 MH ---- 105 JUL 31 - AUG 8
3 MH* ---- 90* AUG 22 - AUG 27
4 MH ---- 120 SEP 2 - SEP 24
5 H ---- 90 SEP 10 - SEP 15
6 MH ---- 130 SEP 11 - SEP 22
7 T ---- 40 SEP 11 - SEP 17
8 MH ---- 105 SEP 21 - OCT 1
9 T ---- 35 OCT 3 - OCT 5
10 MH ---- 115 OCT 14 - OCT 24
11 T ---- 35 NOV 12 - NOV 16
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

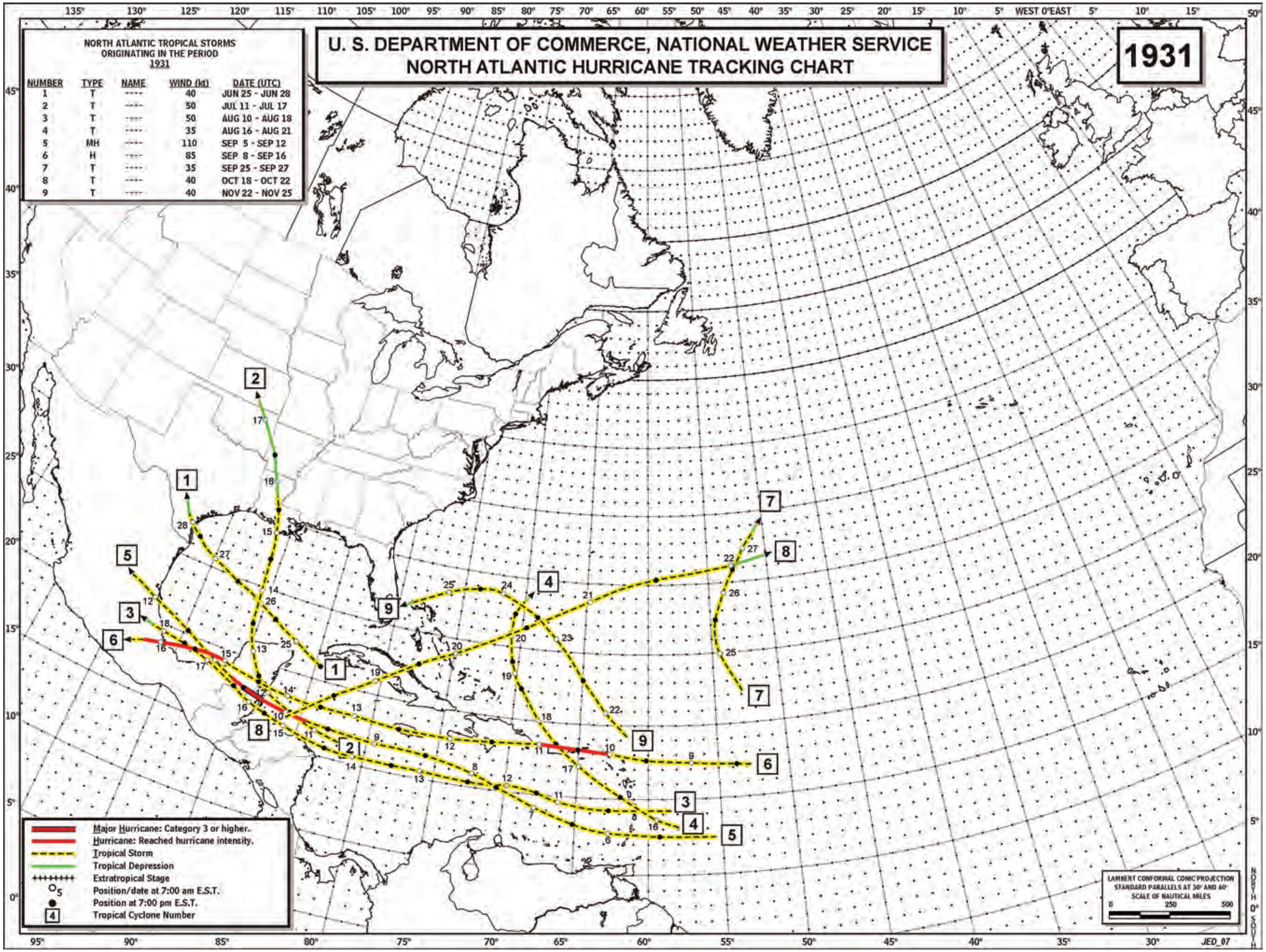

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1927
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1927
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ---- 105 AUG 19 - AUG 26
2 H ---- 90 SEP 1 - SEP 11
3 H ---- 70 SEP 22 - SEP 29
4 MH ---- 105 SEP 23 - OCT 1
5 T ---- 50 OCT 1 - OCT 4
6 T ---- 40 OCT 17 - OCT 19
7 T ---- 40 OCT 30 - NOV 4
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

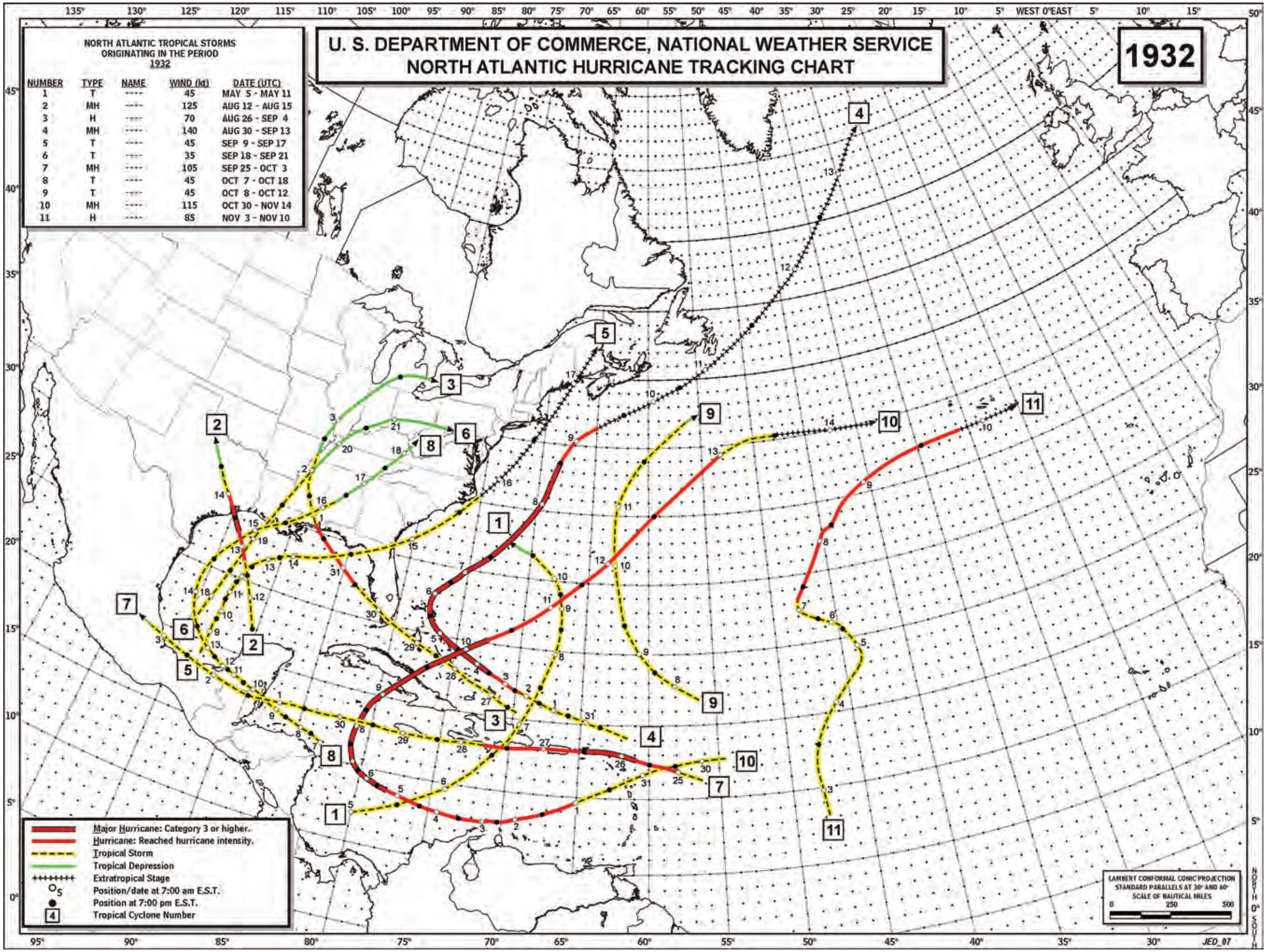


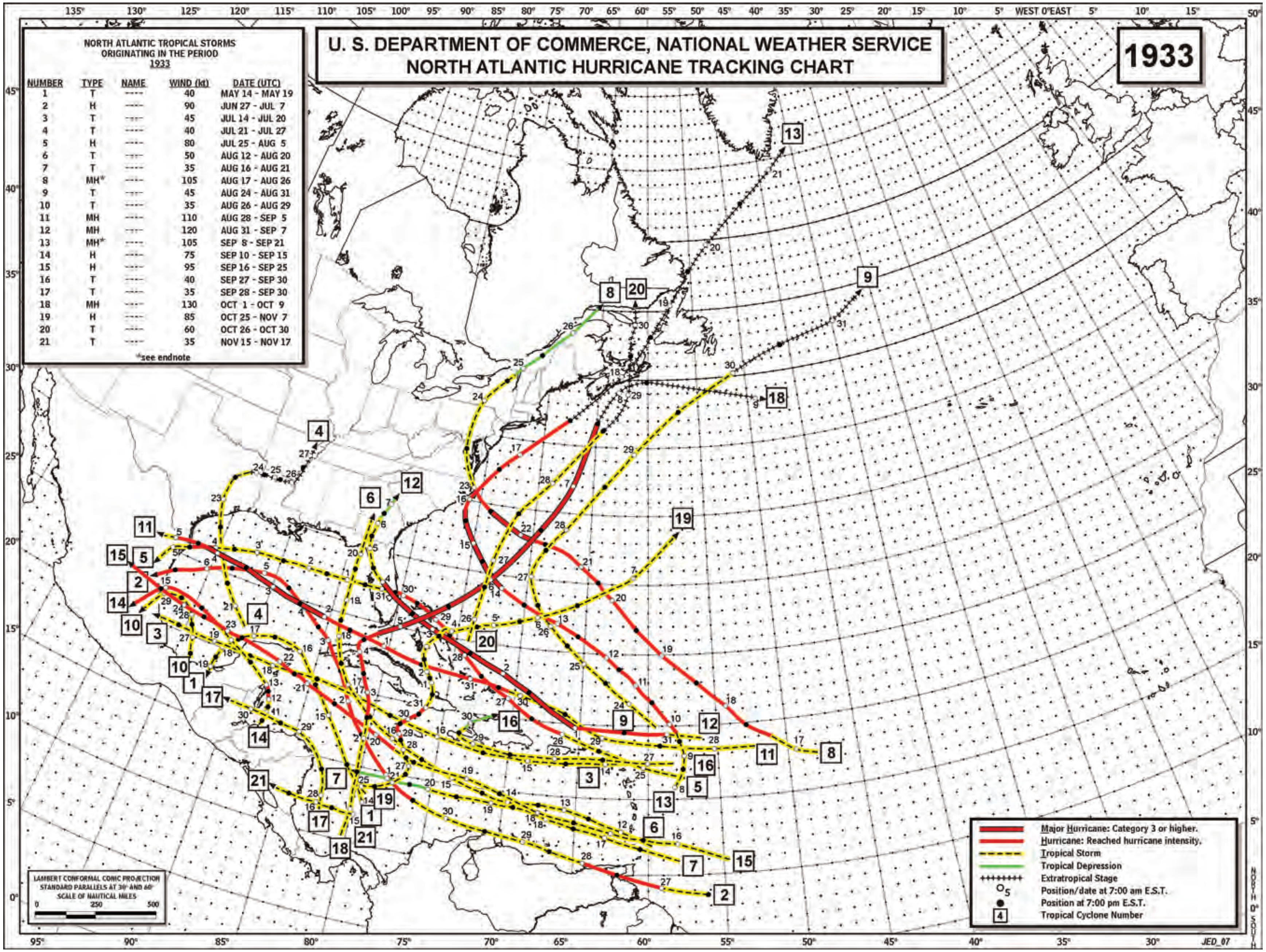
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1928
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1928
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 85 AUG 3 - AUG 12
2 H ---- 70 AUG 7 - AUG 17
3 T ---- 50 SEP 1 - SEP 8
4 MH ---- 140 SEP 6 - SEP 20
5 T ---- 50 SEP 8 - SEP 12
6 H ---- 70 OCT 10 - OCT 15
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
WEST 0° EAST
NORTH 0° SOUTH
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1929
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1929
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 75 JUN 27 - JUN 29
2 MH* ---- 120 SEP 22 - OCT 4
3 H ---- 80 OCT 15 - OCT 22
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1930
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1930
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ----- 95 AUG 21 - AUG 31
2 MH ----- 130 AUG 31 - SEP 17
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

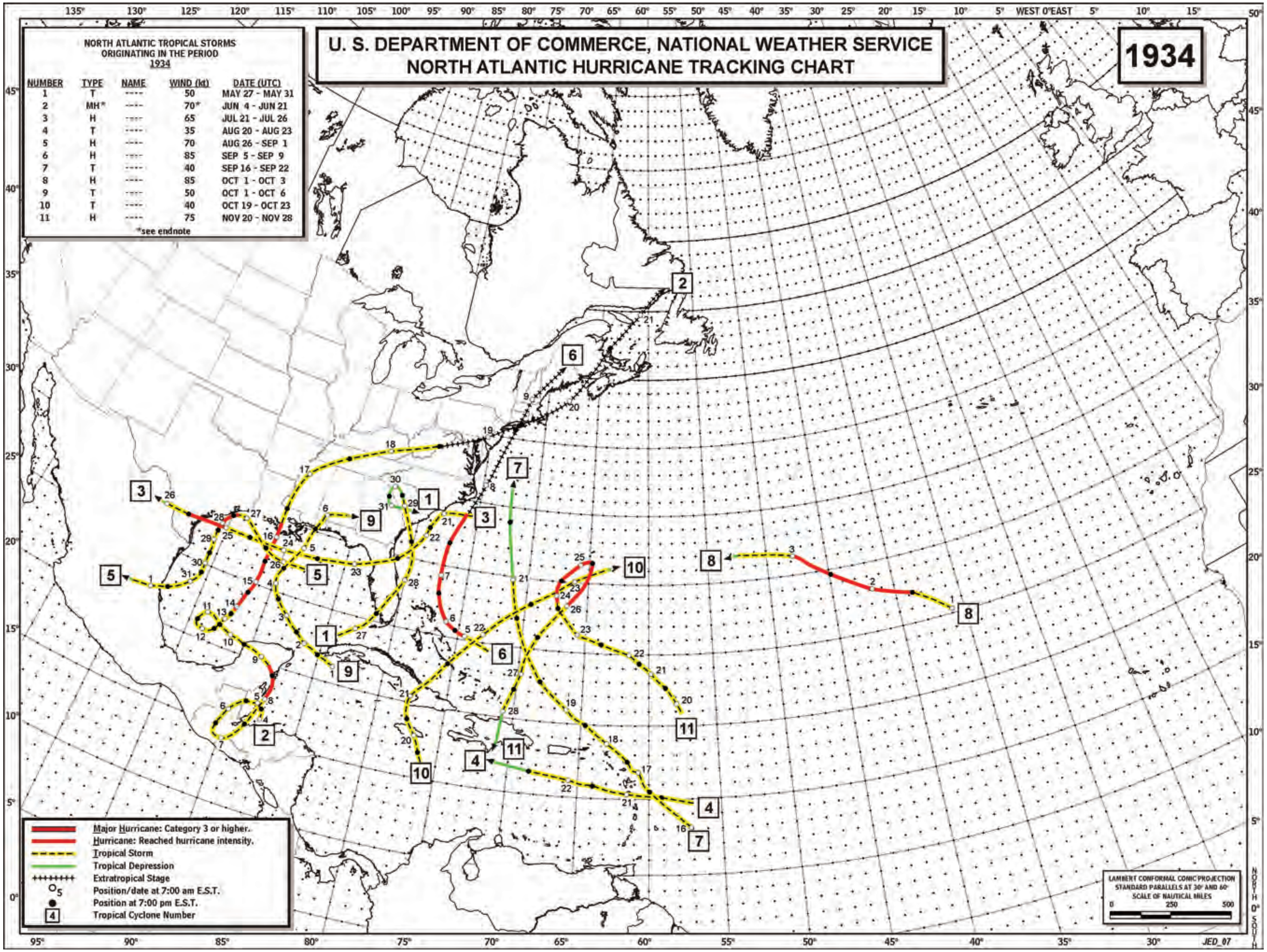

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1931
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1931
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 40 JUN 25 - JUN 28
2 T ---- 50 JUL 11 - JUL 17
3 T ---- 50 AUG 10 - AUG 18
4 T ---- 35 AUG 16 - AUG 21
5 MH ---- 110 SEP 5 - SEP 12
6 H ---- 85 SEP 8 - SEP 16
7 T ---- 35 SEP 25 - SEP 27
8 T ---- 40 OCT 18 - OCT 22
9 T ---- 40 NOV 22 - NOV 25
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

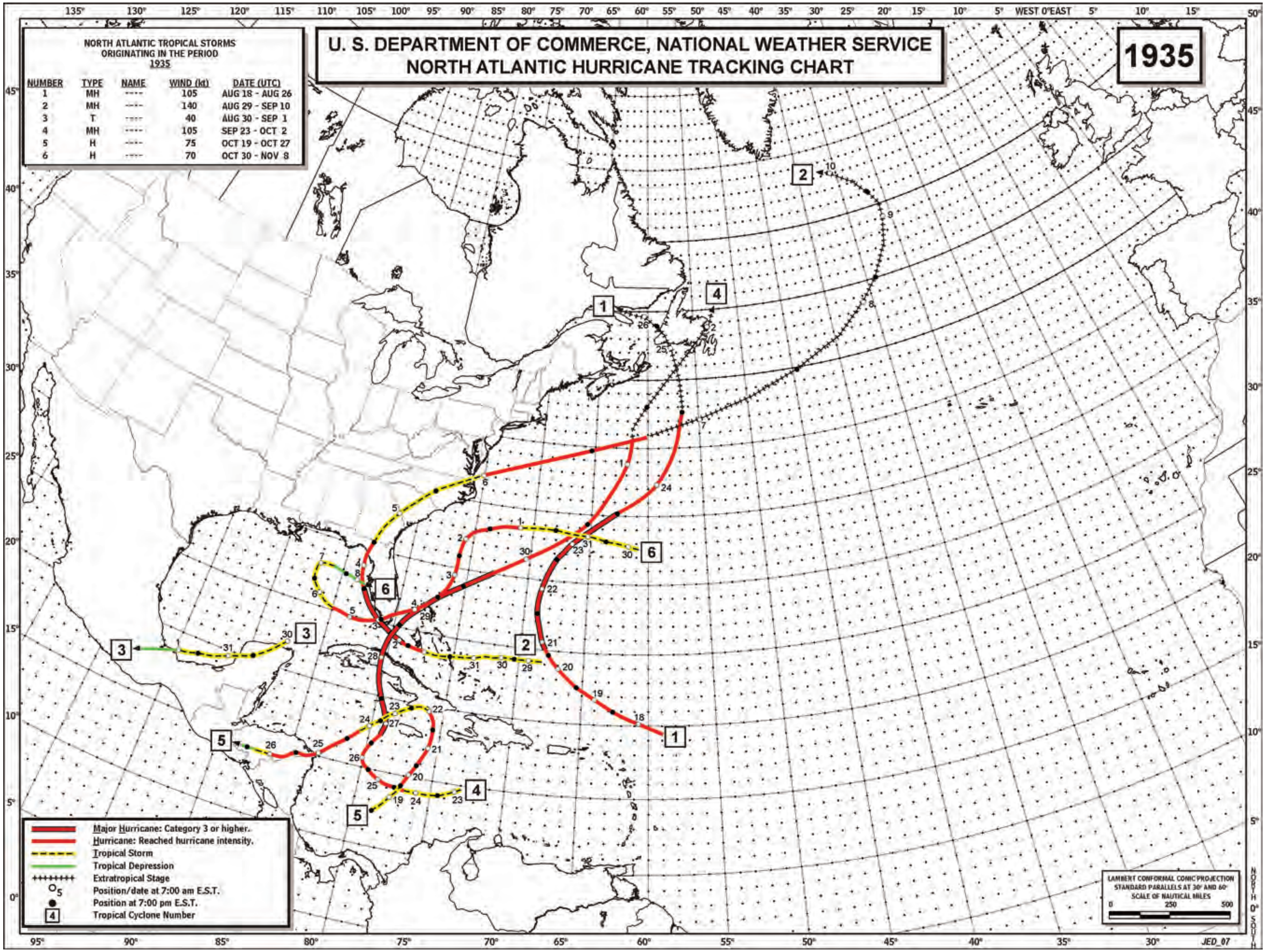

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1932
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1932
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 45 MAY 5 - MAY 11
2 MH ---- 125 AUG 12 - AUG 15
3 H ---- 70 AUG 26 - SEP 4
4 MH ---- 140 AUG 30 - SEP 13
5 T ---- 45 SEP 9 - SEP 17
6 T ---- 35 SEP 18 - SEP 21
7 MH ---- 105 SEP 25 - OCT 3
8 T ---- 45 OCT 7 - OCT 18
9 T ---- 45 OCT 8 - OCT 12
10 MH ---- 115 OCT 30 - NOV 14
11 H ---- 85 NOV 3 - NOV 10
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

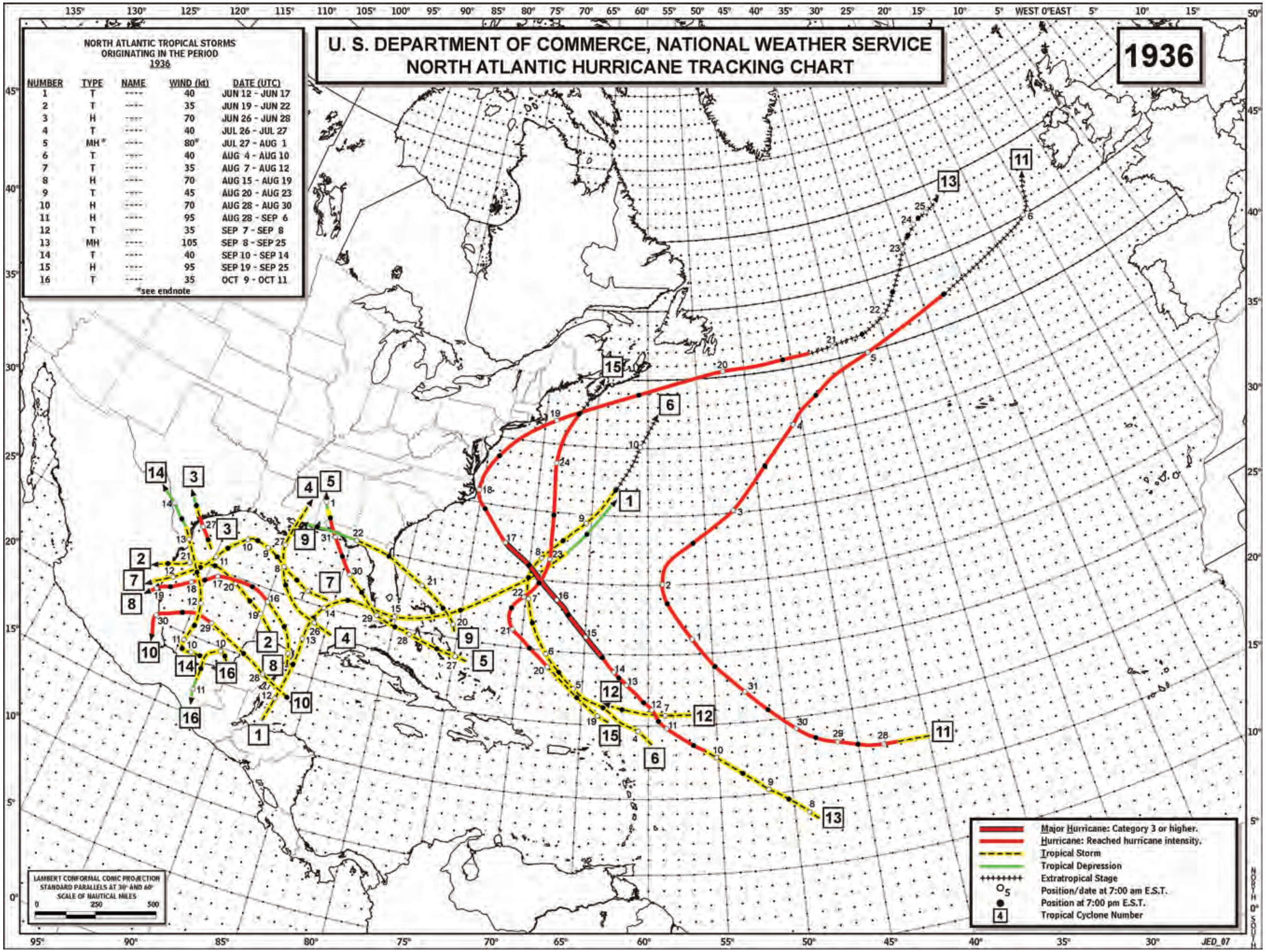

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1933
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1933

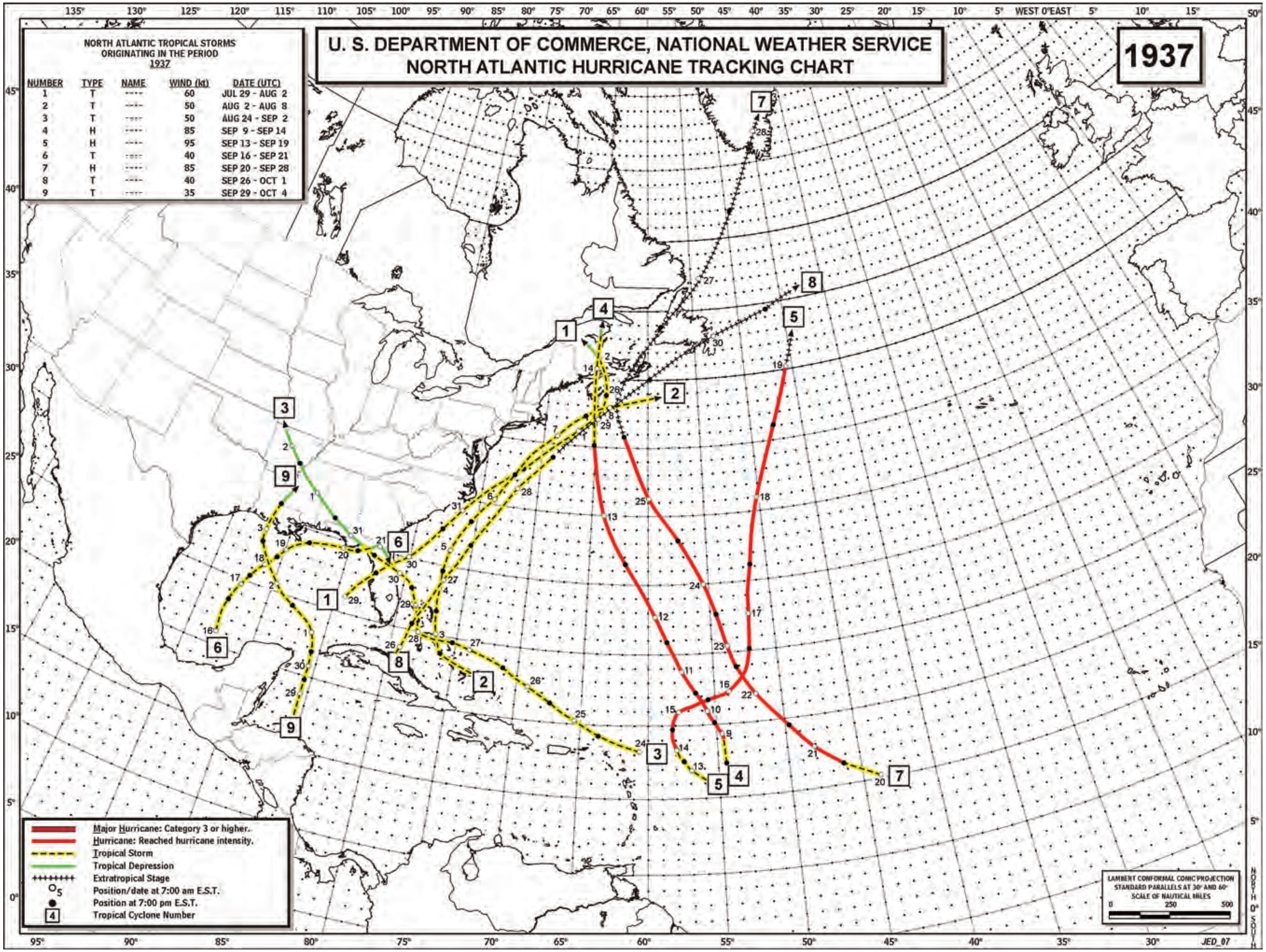
NUMBER	TYPE	NAME	WIND (kt)	DATE (UTC)
1	T	----	40	MAY 14 - MAY 19
2	H	----	90	JUN 27 - JUL 7
3	T	----	45	JUL 14 - JUL 20
4	T	----	40	JUL 21 - JUL 27
5	H	----	80	JUL 25 - AUG 5
6	T	----	50	AUG 12 - AUG 20
7	T	----	35	AUG 16 - AUG 21
8	MH*	----	105	AUG 17 - AUG 26
9	T	----	45	AUG 24 - AUG 31
10	T	----	35	AUG 26 - AUG 29
11	MH	----	110	AUG 28 - SEP 5
12	MH	----	120	AUG 31 - SEP 7
13	MH*	----	105	SEP 8 - SEP 21
14	H	----	75	SEP 10 - SEP 15
15	H	----	95	SEP 16 - SEP 25
16	T	----	40	SEP 27 - SEP 30
17	T	----	35	SEP 28 - SEP 30
18	MH	----	130	OCT 1 - OCT 9
19	H	----	85	OCT 25 - NOV 7
20	T	----	60	OCT 26 - OCT 30
21	T	----	35	NOV 15 - NOV 17

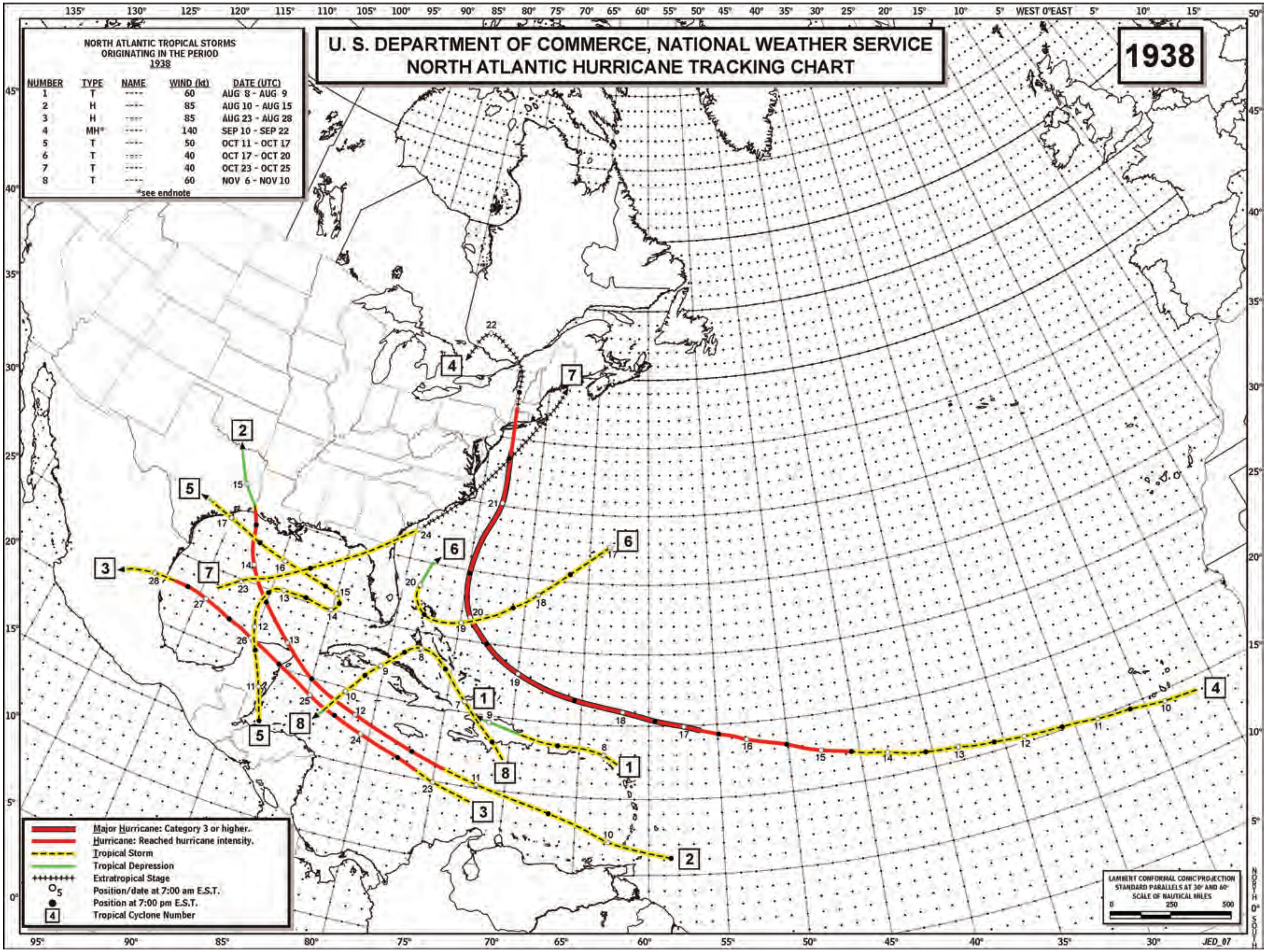
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

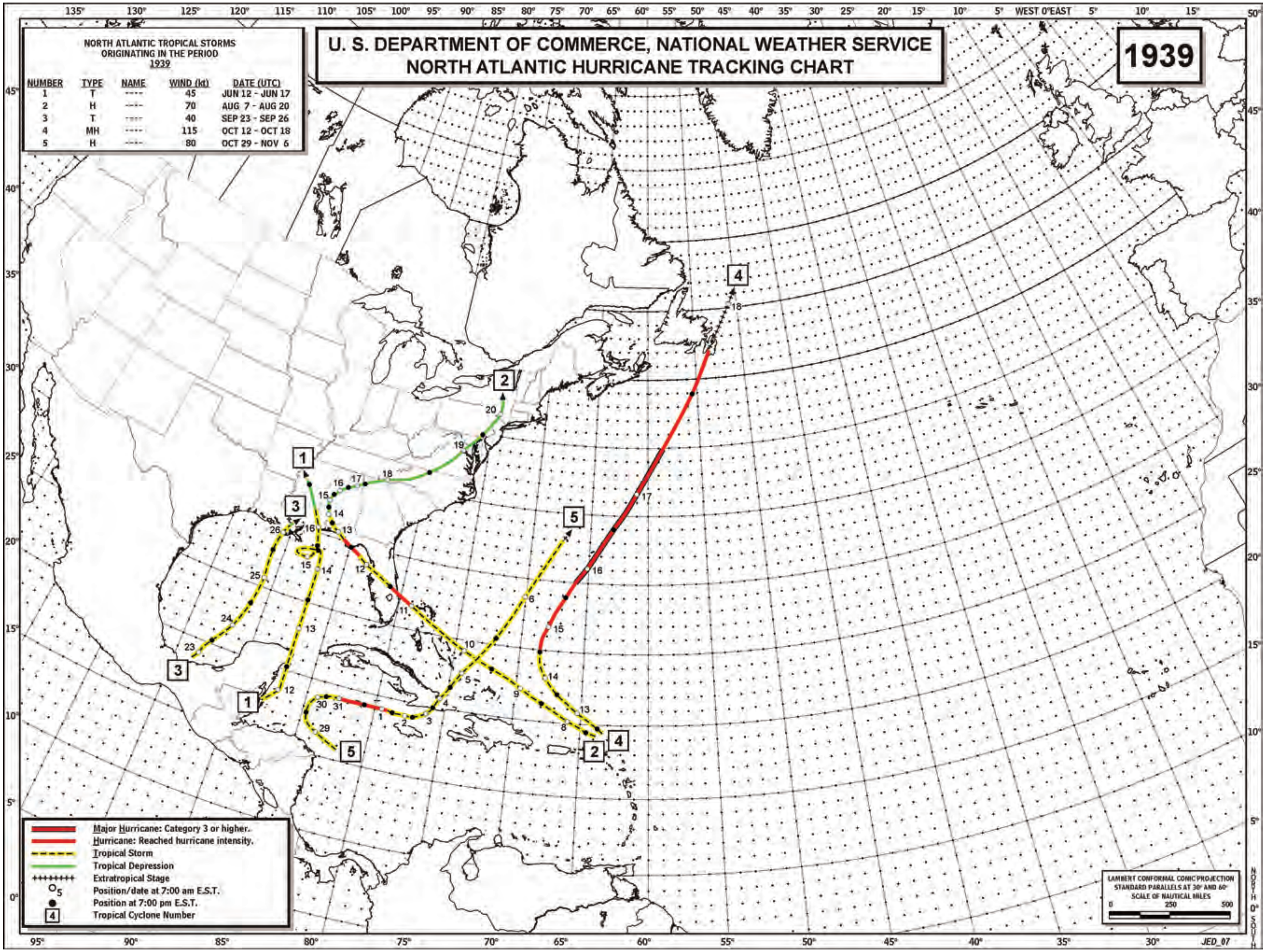

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1934
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1934
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 MAY 27 - MAY 31
2 MH* ---- 70* JUN 4 - JUN 21
3 H ---- 65 JUL 21 - JUL 26
4 T ---- 35 AUG 20 - AUG 23
5 H ---- 70 AUG 26 - SEP 1
6 H ---- 85 SEP 5 - SEP 9
7 T ---- 40 SEP 16 - SEP 22
8 H ---- 85 OCT 1 - OCT 3
9 T ---- 50 OCT 1 - OCT 6
10 T ---- 40 OCT 19 - OCT 23
11 H ---- 75 NOV 20 - NOV 28
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

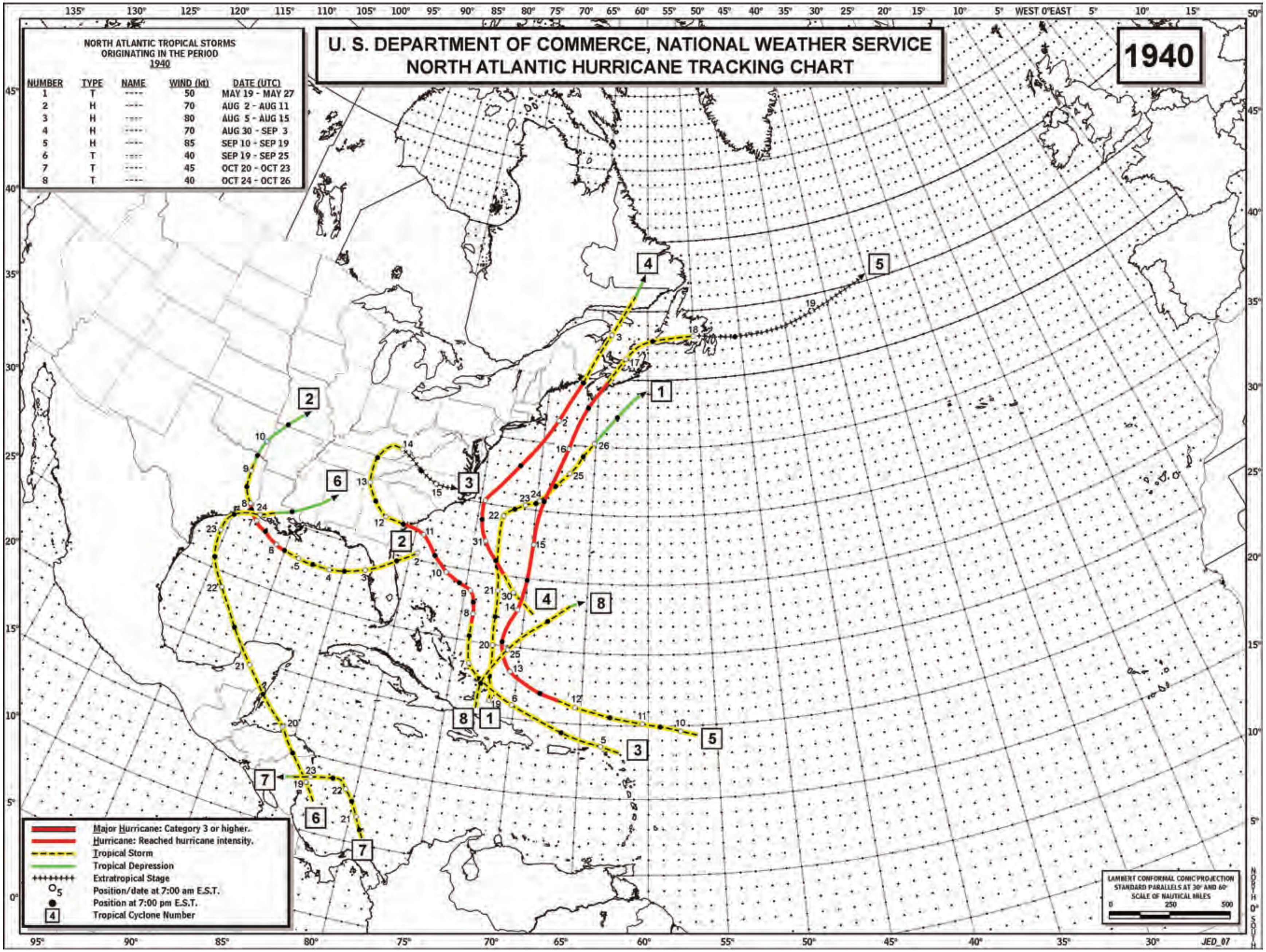

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1935
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1935
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ---- 105 AUG 18 - AUG 26
2 MH ---- 140 AUG 29 - SEP 10
3 T ---- 40 AUG 30 - SEP 1
4 MH ---- 105 SEP 23 - OCT 2
5 H ---- 75 OCT 19 - OCT 27
6 H ---- 70 OCT 30 - NOV 8
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

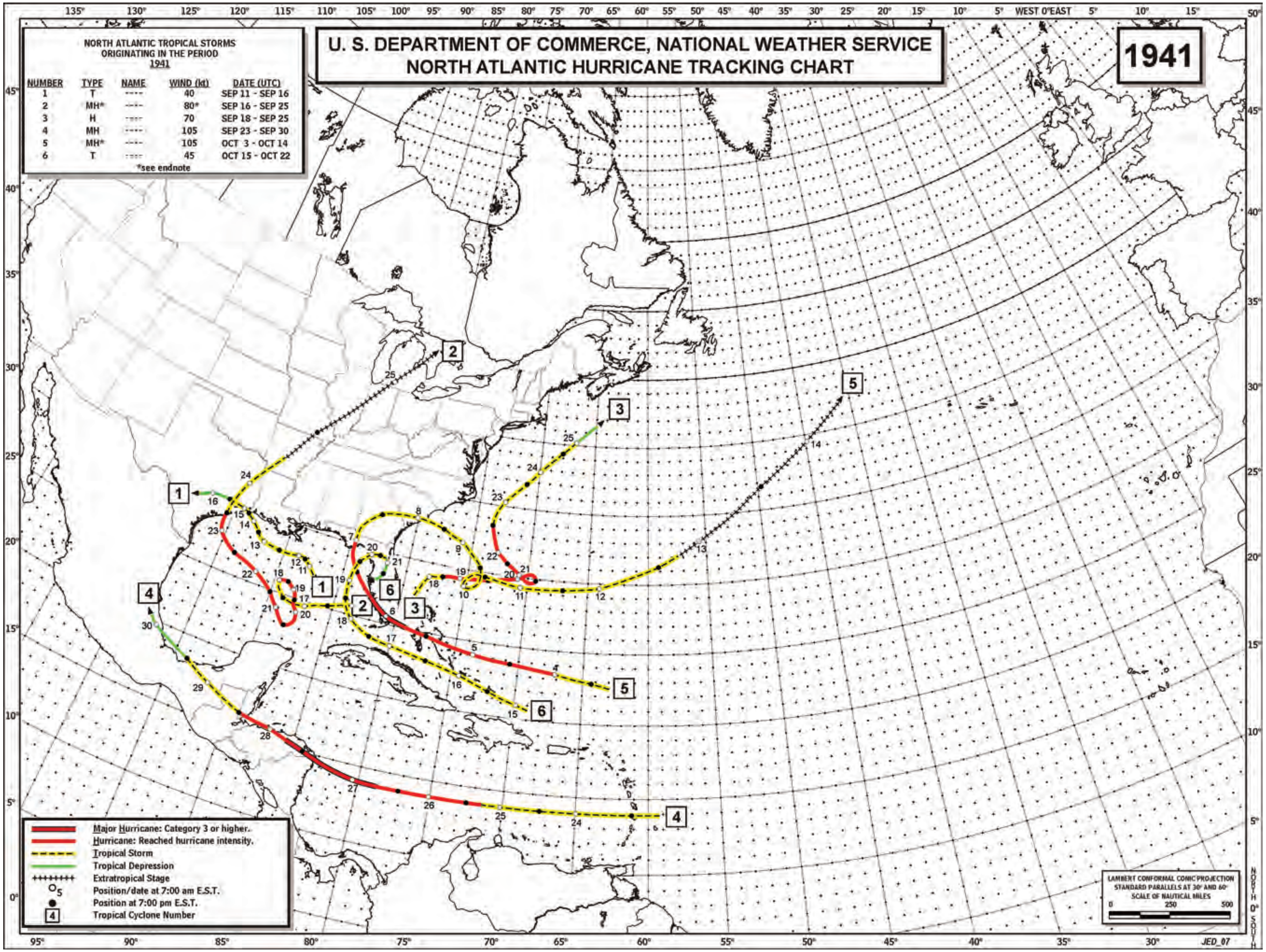

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1936
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1936
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 40 JUN 12 - JUN 17
2 T ---- 35 JUN 19 - JUN 22
3 H ---- 70 JUN 26 - JUN 28
4 T ---- 40 JUL 26 - JUL 27
5 MH* ---- 80* JUL 27 - AUG 1
6 T ---- 40 AUG 4 - AUG 10
7 T ---- 35 AUG 7 - AUG 12
8 H ---- 70 AUG 15 - AUG 19
9 T ---- 45 AUG 20 - AUG 23
10 H ---- 70 AUG 28 - AUG 30
11 H ---- 95 AUG 28 - SEP 6
12 T ---- 35 SEP 7 - SEP 8
13 MH ---- 105 SEP 8 - SEP 25
14 T ---- 40 SEP 10 - SEP 14
15 H ---- 95 SEP 19 - SEP 25
16 T ---- 35 OCT 9 - OCT 11
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

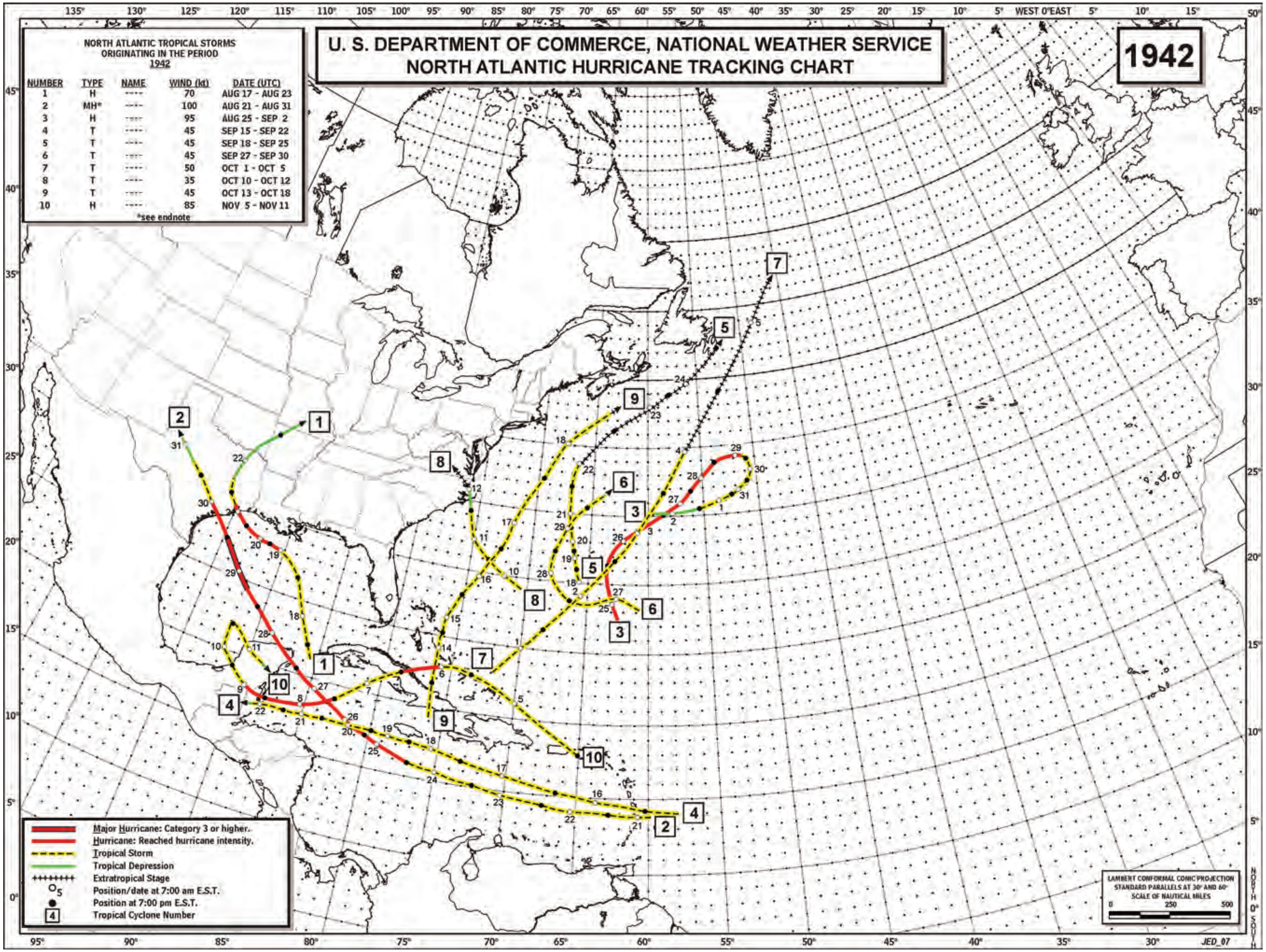

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1937
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1937
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 60 JUL 29 - AUG 2
2 T ---- 50 AUG 2 - AUG 8
3 T ---- 50 AUG 24 - SEP 2
4 H ---- 85 SEP 9 - SEP 14
5 H ---- 95 SEP 13 - SEP 19
6 T ---- 40 SEP 16 - SEP 21
7 H ---- 85 SEP 20 - SEP 28
8 T ---- 40 SEP 26 - OCT 1
9 T ---- 35 SEP 29 - OCT 4
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

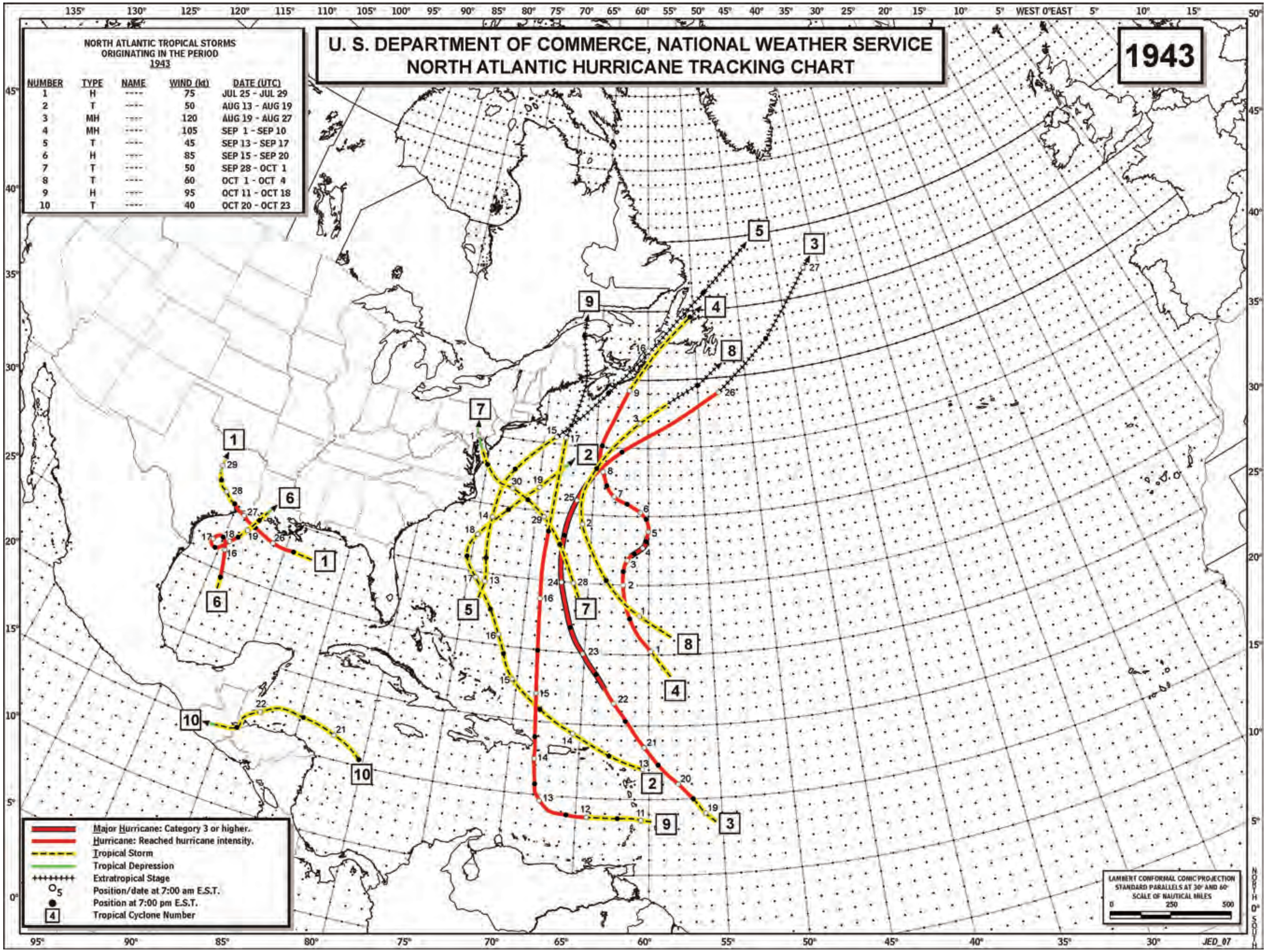

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1938
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1938
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 60 AUG 8 - AUG 9
2 H ---- 85 AUG 10 - AUG 15
3 H ---- 85 AUG 23 - AUG 28
4 MH* ---- 140 SEP 10 - SEP 22
5 T ---- 50 OCT 11 - OCT 17
6 T ---- 40 OCT 17 - OCT 20
7 T ---- 40 OCT 23 - OCT 25
8 T ---- 60 NOV 6 - NOV 10
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

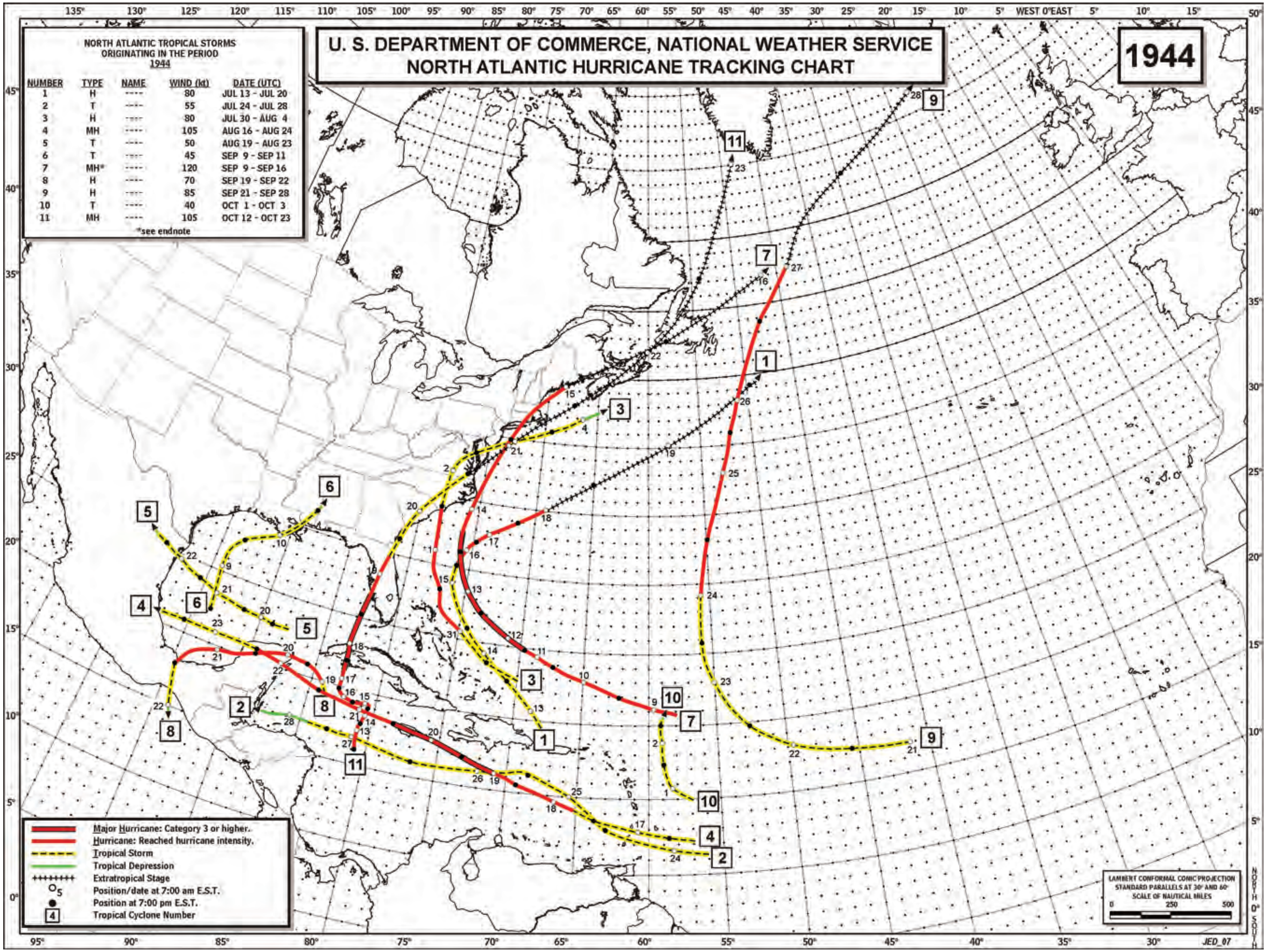

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1939
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1939
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 45 JUN 12 - JUN 17
2 H ---- 70 AUG 7 - AUG 20
3 T ---- 40 SEP 23 - SEP 26
4 MH ---- 115 OCT 12 - OCT 18
5 H ---- 80 OCT 29 - NOV 6
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
NORTH
SOUTH
JED_07

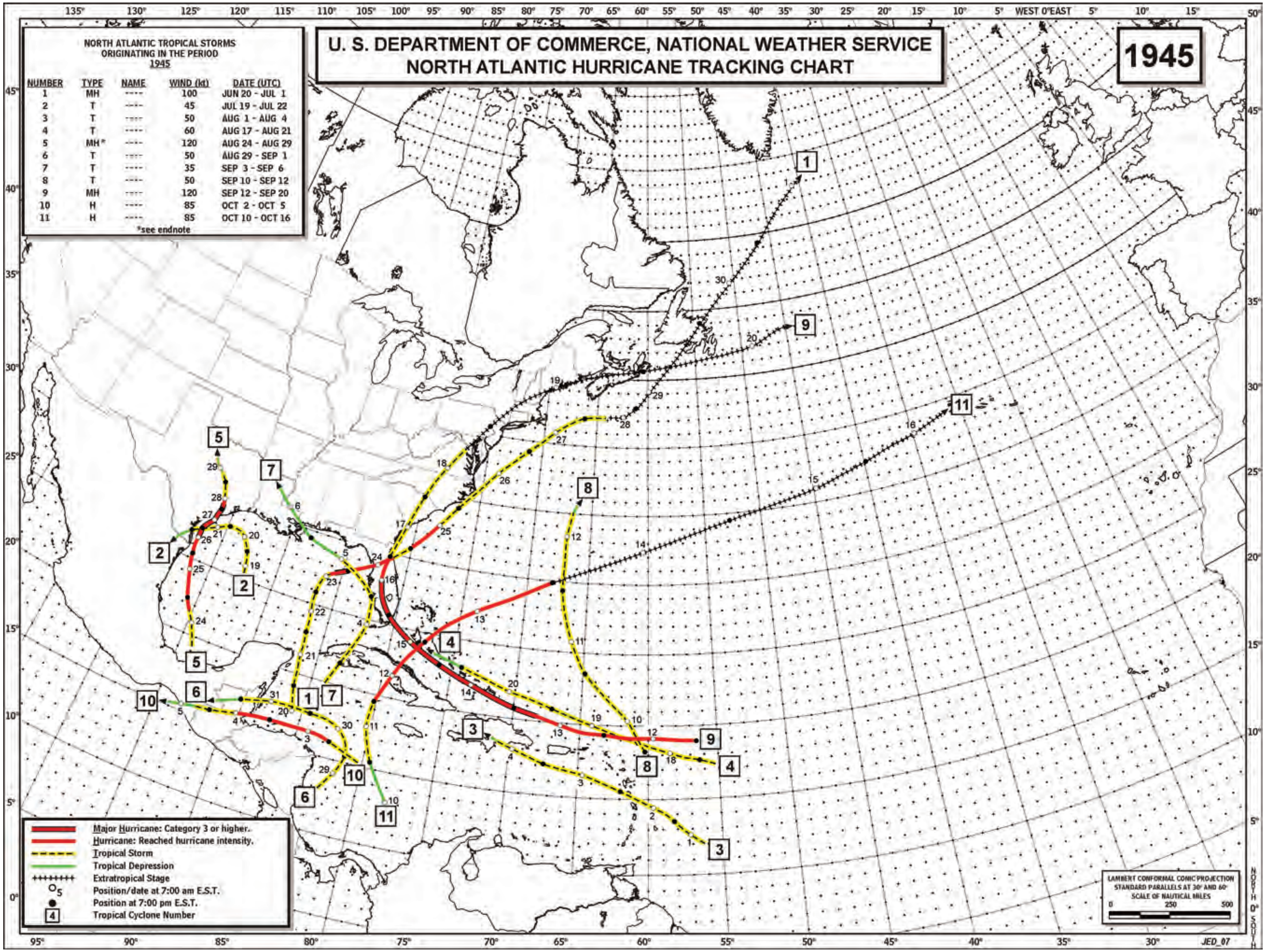

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1940
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1940
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 MAY 19 - MAY 27
2 H ---- 70 AUG 2 - AUG 11
3 H ---- 80 AUG 5 - AUG 15
4 H ---- 70 AUG 30 - SEP 3
5 H ---- 85 SEP 10 - SEP 19
6 T ---- 40 SEP 19 - SEP 25
7 T ---- 45 OCT 20 - OCT 23
8 T ---- 40 OCT 24 - OCT 26
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

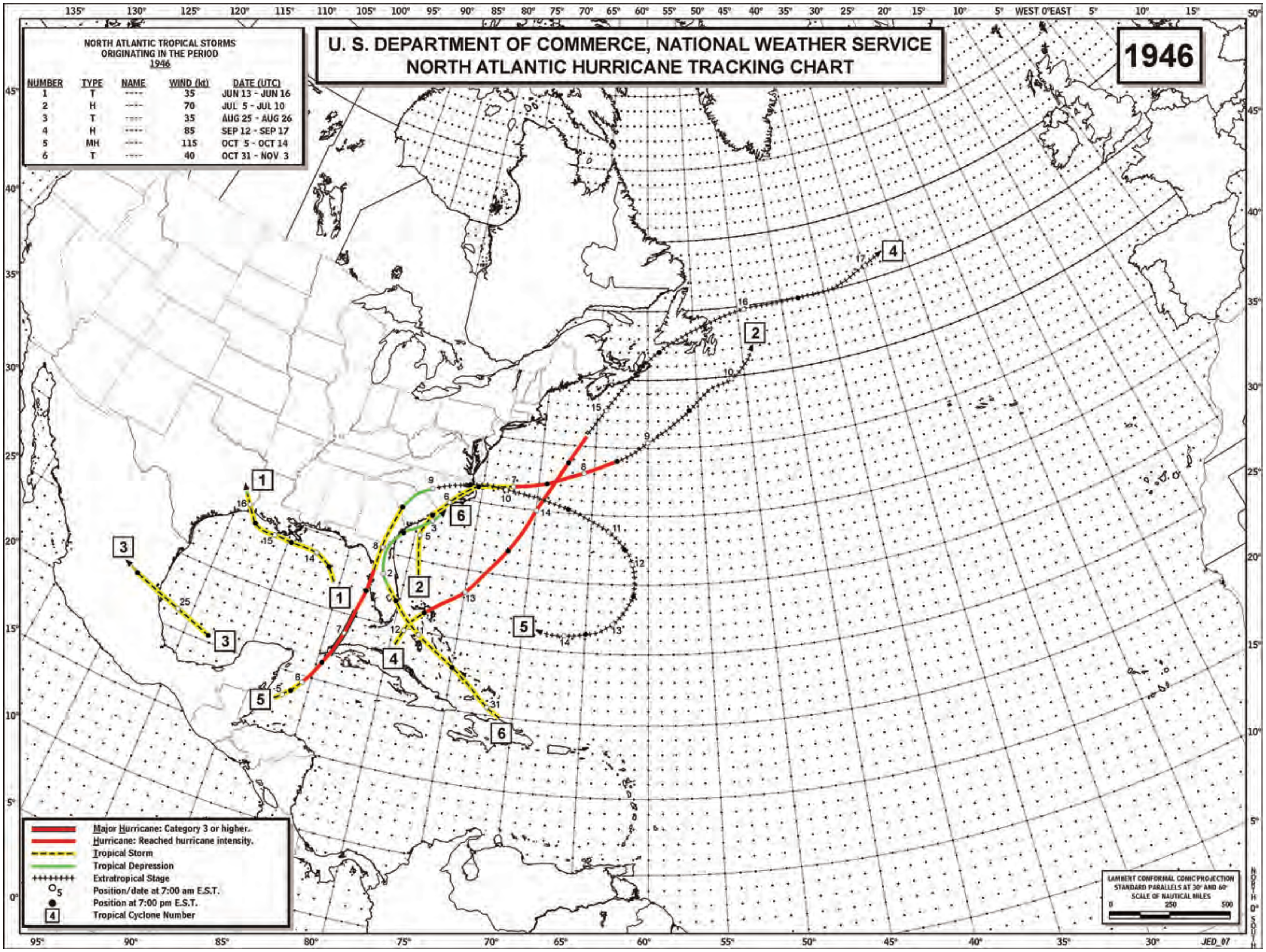

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1941
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1941
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 40 SEP 11 - SEP 16
2 MH* ---- 80* SEP 16 - SEP 25
3 H ---- 70 SEP 18 - SEP 25
4 MH ---- 105 SEP 23 - SEP 30
5 MH* ---- 105 OCT 3 - OCT 14
6 T ---- 45 OCT 15 - OCT 22
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

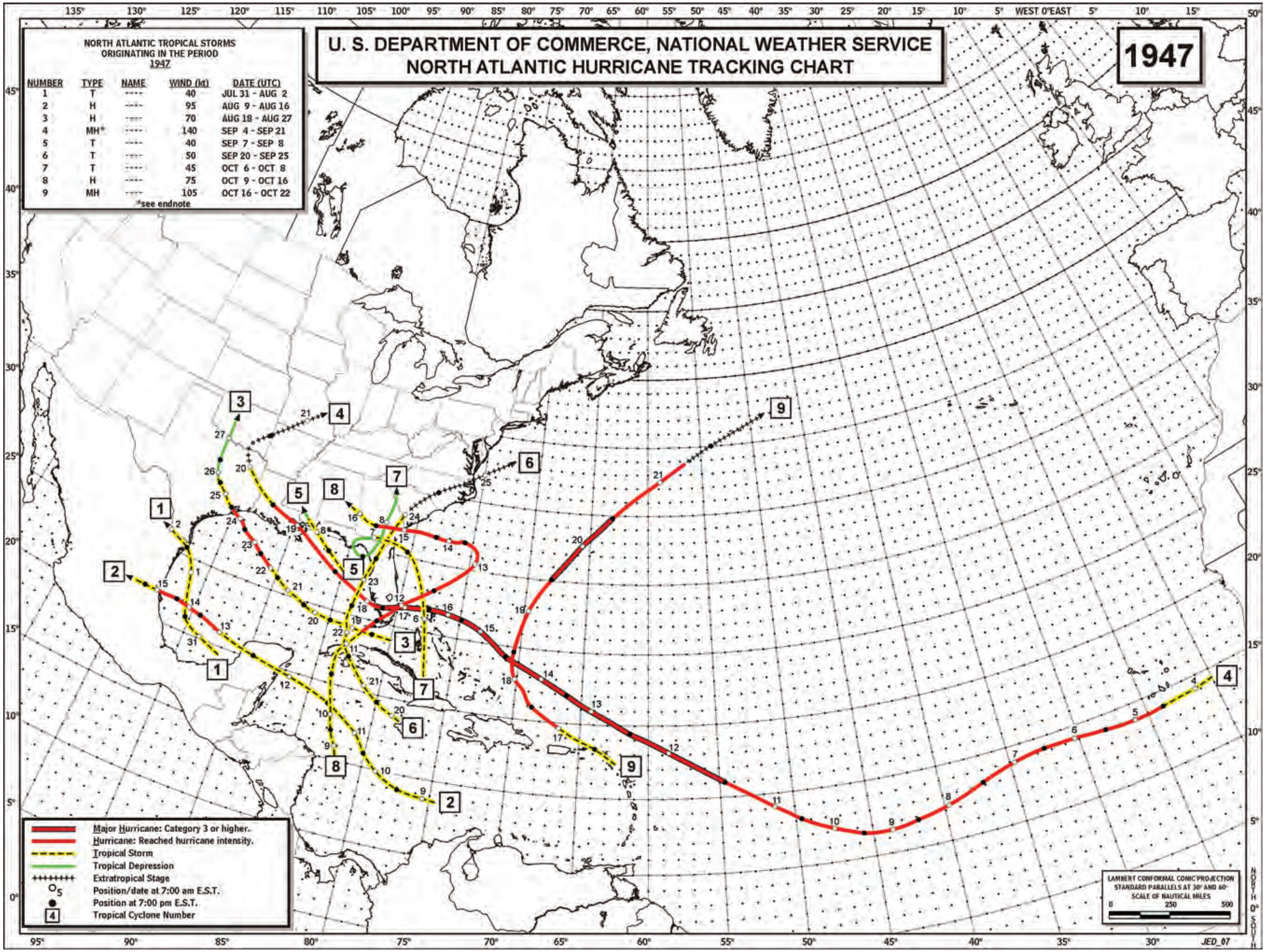

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1942
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1942
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 70 AUG 17 - AUG 23
2 MH* ---- 100 AUG 21 - AUG 31
3 H ---- 95 AUG 25 - SEP 2
4 T ---- 45 SEP 15 - SEP 22
5 T ---- 45 SEP 18 - SEP 25
6 T ---- 45 SEP 27 - SEP 30
7 T ---- 50 OCT 1 - OCT 5
8 T ---- 35 OCT 10 - OCT 12
9 T ---- 45 OCT 13 - OCT 18
10 H ---- 85 NOV 5 - NOV 11
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1943
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1943
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 75 JUL 25 - JUL 29
2 T ---- 50 AUG 13 - AUG 19
3 MH ---- 120 AUG 19 - AUG 27
4 MH ---- 105 SEP 1 - SEP 10
5 T ---- 45 SEP 13 - SEP 17
6 H ---- 85 SEP 15 - SEP 20
7 T ---- 50 SEP 28 - OCT 1
8 T ---- 60 OCT 1 - OCT 4
9 H ---- 95 OCT 11 - OCT 18
10 T ---- 40 OCT 20 - OCT 23
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1944
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1944
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 80 JUL 13 - JUL 20
2 T ---- 55 JUL 24 - JUL 28
3 H ---- 80 JUL 30 - AUG 4
4 MH ---- 105 AUG 16 - AUG 24
5 T ---- 50 AUG 19 - AUG 23
6 T ---- 45 SEP 9 - SEP 11
7 MH* ---- 120 SEP 9 - SEP 16
8 H ---- 70 SEP 19 - SEP 22
9 H ---- 85 SEP 21 - SEP 28
10 T ---- 40 OCT 1 - OCT 3
11 MH ---- 105 OCT 12 - OCT 23
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1945
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1945
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ---- 100 JUN 20 - JUL 1
2 T ---- 45 JUL 19 - JUL 22
3 T ---- 50 AUG 1 - AUG 4
4 T ---- 60 AUG 17 - AUG 21
5 MH* ---- 120 AUG 24 - AUG 29
6 T ---- 50 AUG 29 - SEP 1
7 T ---- 35 SEP 3 - SEP 6
8 T ---- 50 SEP 10 - SEP 12
9 MH ---- 120 SEP 12 - SEP 20
10 H ---- 85 OCT 2 - OCT 5
11 H ---- 85 OCT 10 - OCT 16
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1946
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1946
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 35 JUN 13 - JUN 16
2 H ---- 70 JUL 5 - JUL 10
3 T ---- 35 AUG 25 - AUG 26
4 H ---- 85 SEP 12 - SEP 17
5 MH ---- 115 OCT 5 - OCT 14
6 T ---- 40 OCT 31 - NOV 3
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1947
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1947
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 40 JUL 31 - AUG 2
2 H ---- 95 AUG 9 - AUG 16
3 H ---- 70 AUG 18 - AUG 27
4 MH* ---- 140 SEP 4 - SEP 21
5 T ---- 40 SEP 7 - SEP 8
6 T ---- 50 SEP 20 - SEP 25
7 T ---- 45 OCT 6 - OCT 8
8 H ---- 75 OCT 9 - OCT 16
9 MH ---- 105 OCT 16 - OCT 22
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
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SCALE OF NAUTICAL MILES
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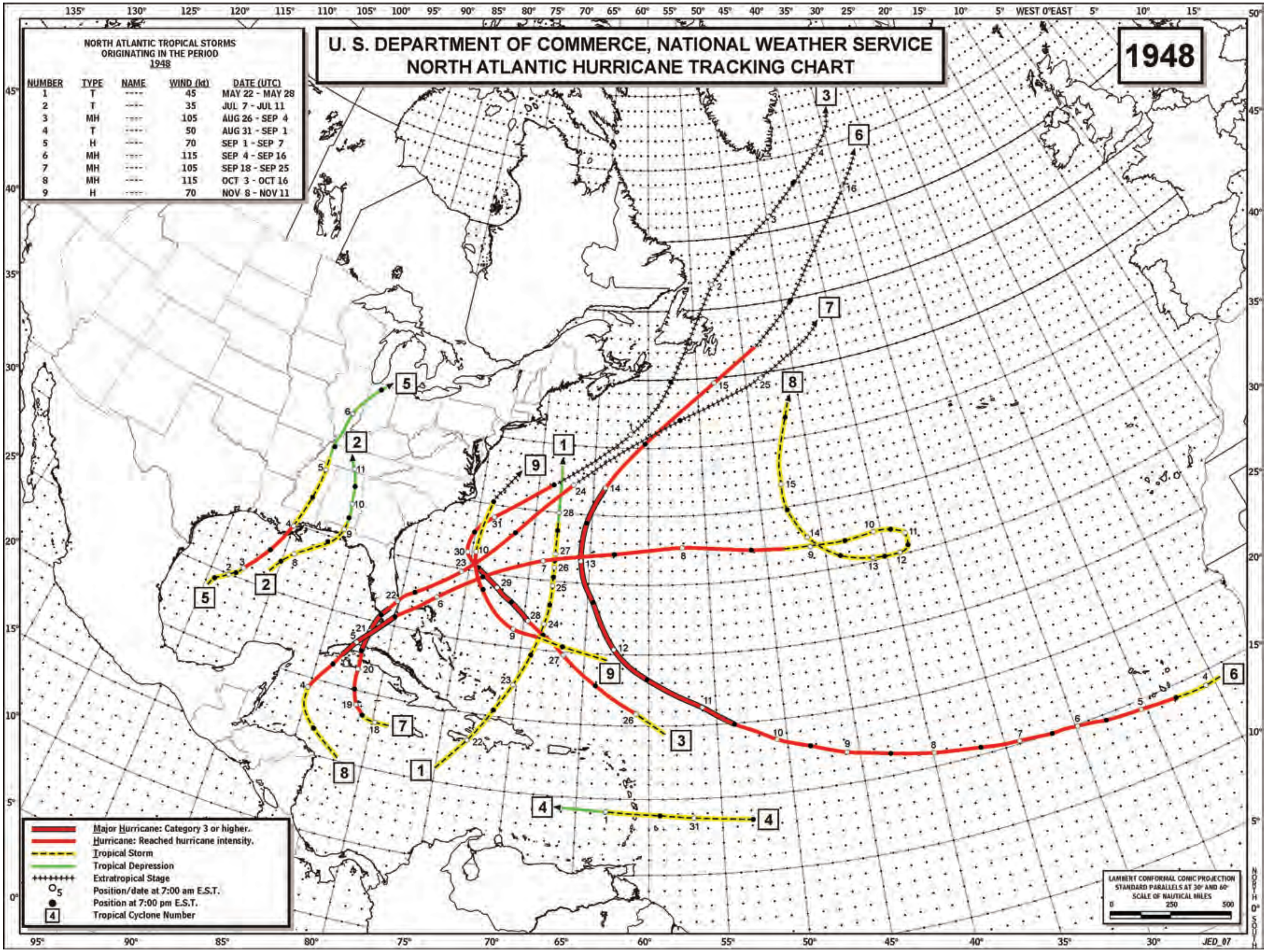
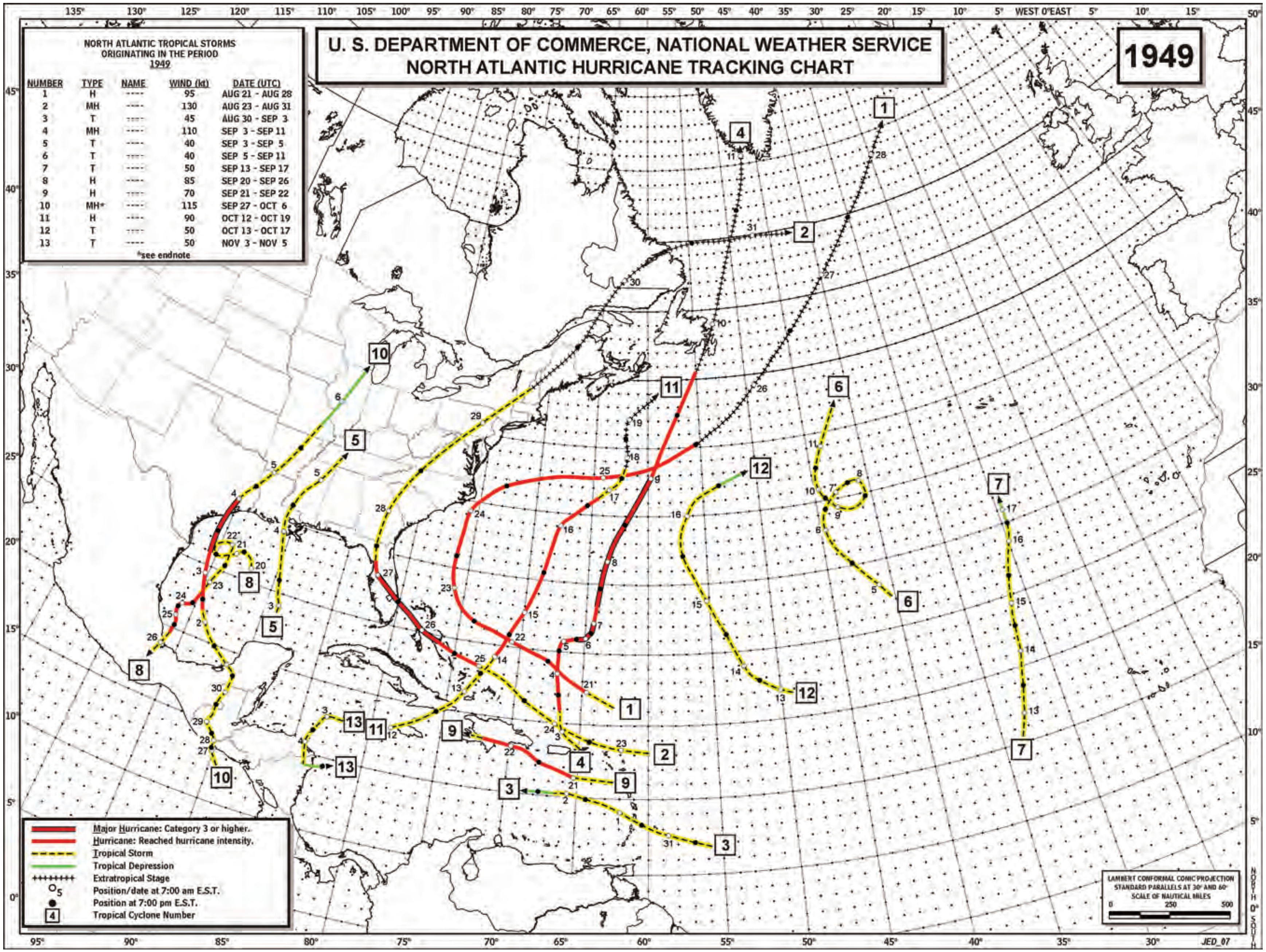
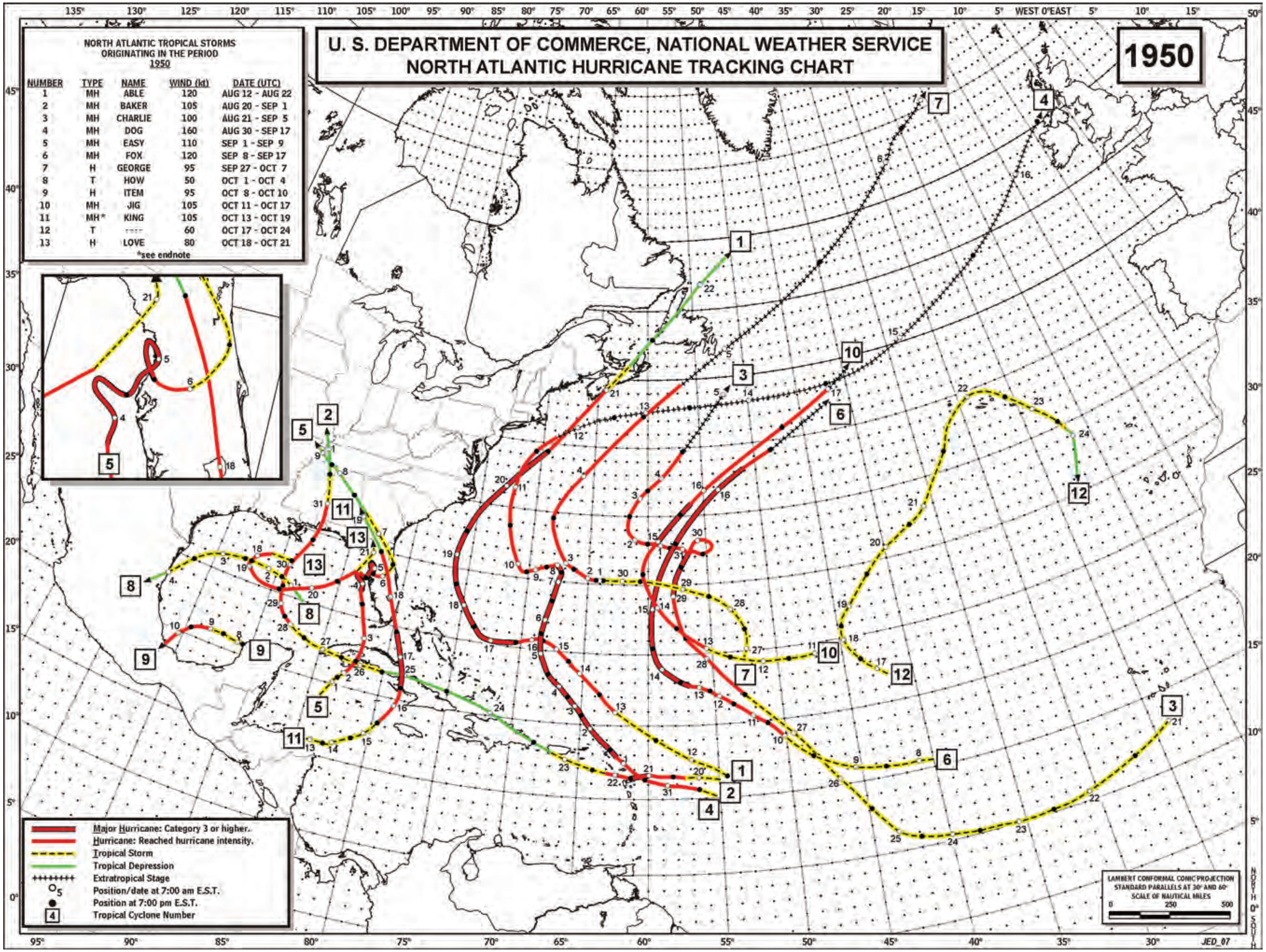
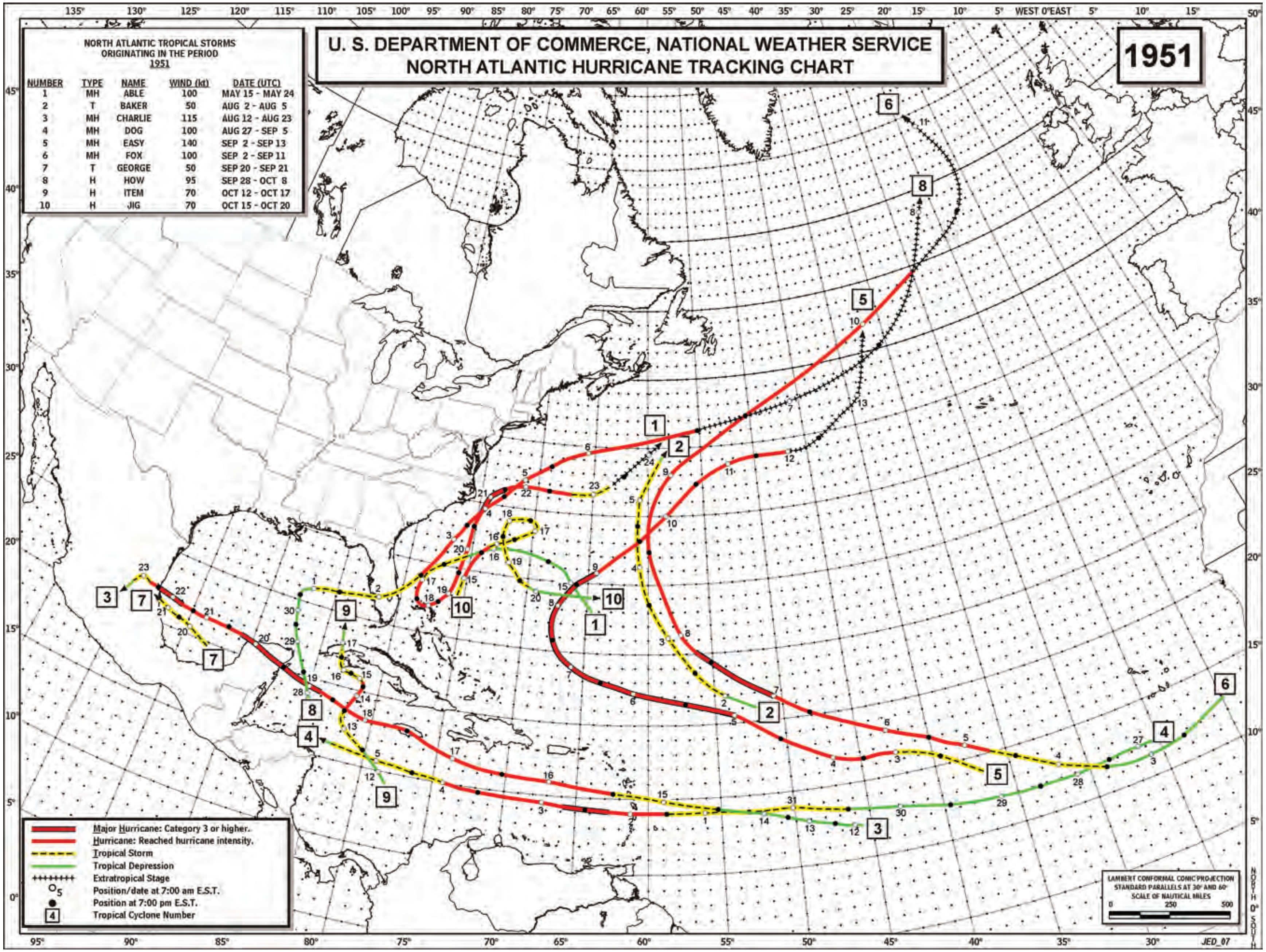
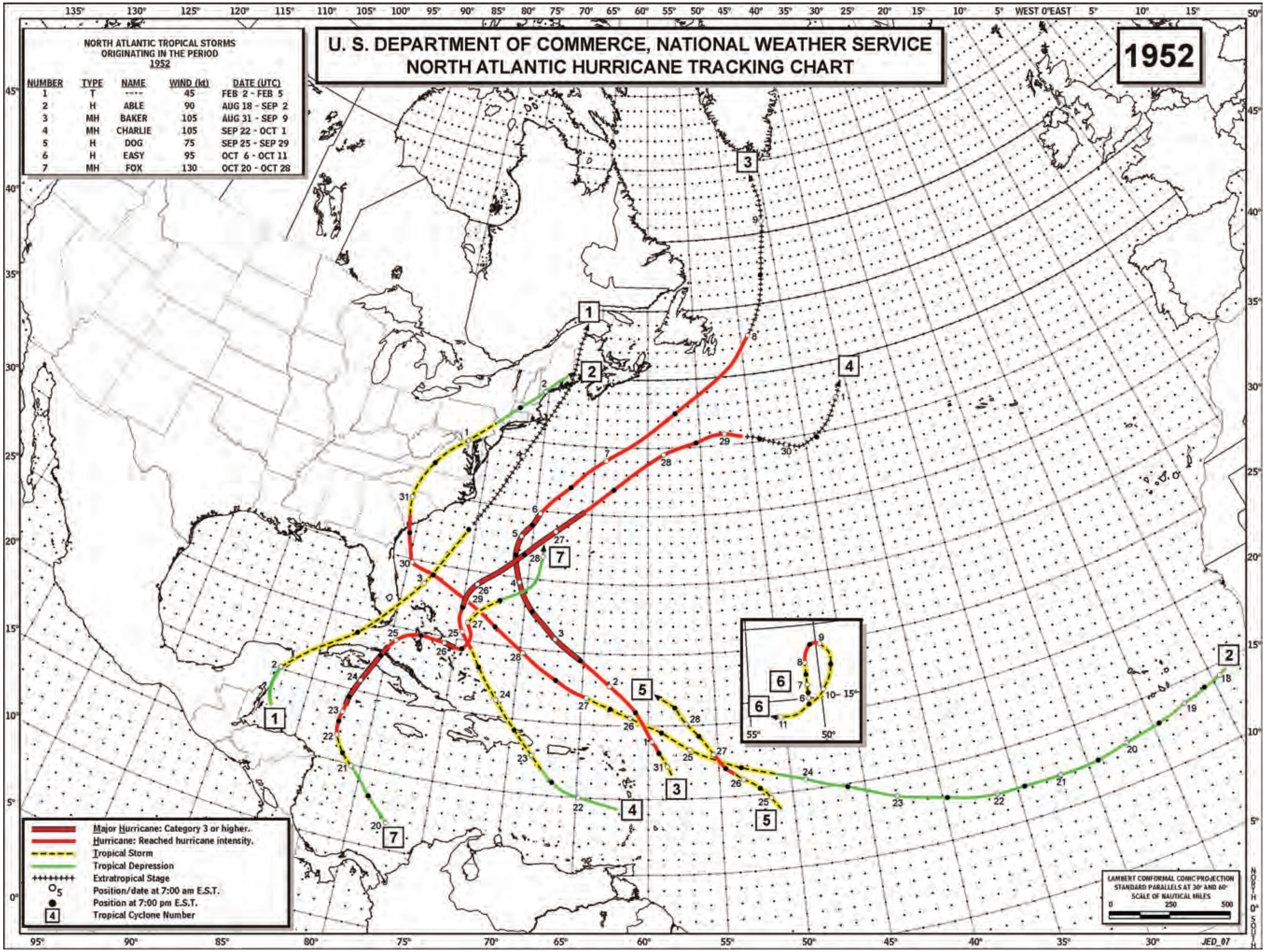

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1948
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1948
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 45 MAY 22 - MAY 28
2 T ---- 35 JUL 7 - JUL 11
3 MH ---- 105 AUG 26 - SEP 4
4 T ---- 50 AUG 31 - SEP 1
5 H ---- 70 SEP 1 - SEP 7
6 MH ---- 115 SEP 4 - SEP 16
7 MH ---- 105 SEP 18 - SEP 25
8 MH ---- 115 OCT 3 - OCT 16
9 H ---- 70 NOV 8 - NOV 11
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

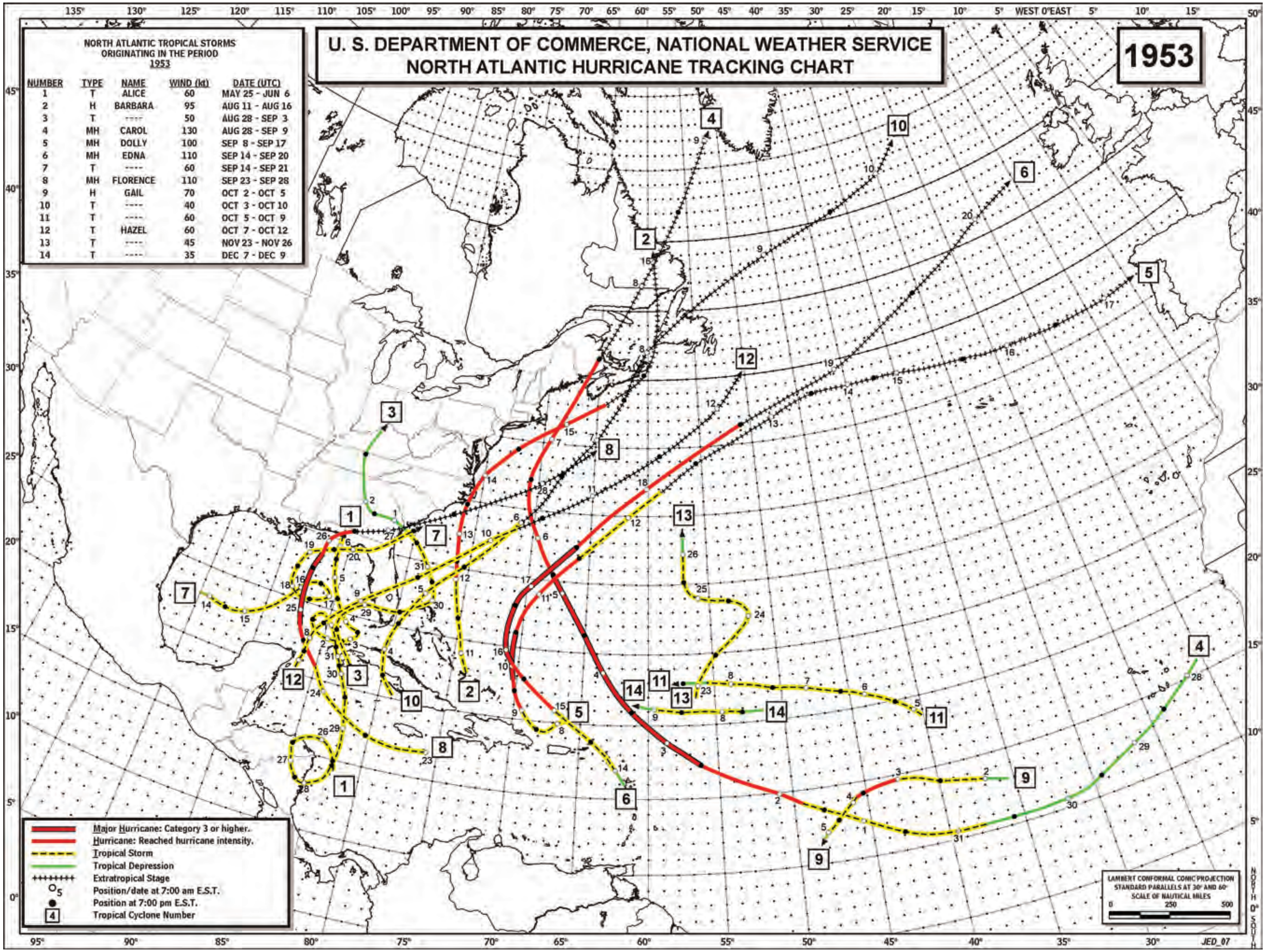

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1949
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1949
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ---- 95 AUG 21 - AUG 28
2 MH ---- 130 AUG 23 - AUG 31
3 T ---- 45 AUG 30 - SEP 3
4 MH ---- 110 SEP 3 - SEP 11
5 T ---- 40 SEP 3 - SEP 5
6 T ---- 40 SEP 5 - SEP 11
7 T ---- 50 SEP 13 - SEP 17
8 H ---- 85 SEP 20 - SEP 26
9 H ---- 70 SEP 21 - SEP 22
10 MH* ---- 115 SEP 27 - OCT 6
11 H ---- 90 OCT 12 - OCT 19
12 T ---- 50 OCT 13 - OCT 17
13 T ---- 50 NOV 3 - NOV 5
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
WEST 0° EAST
JED_07

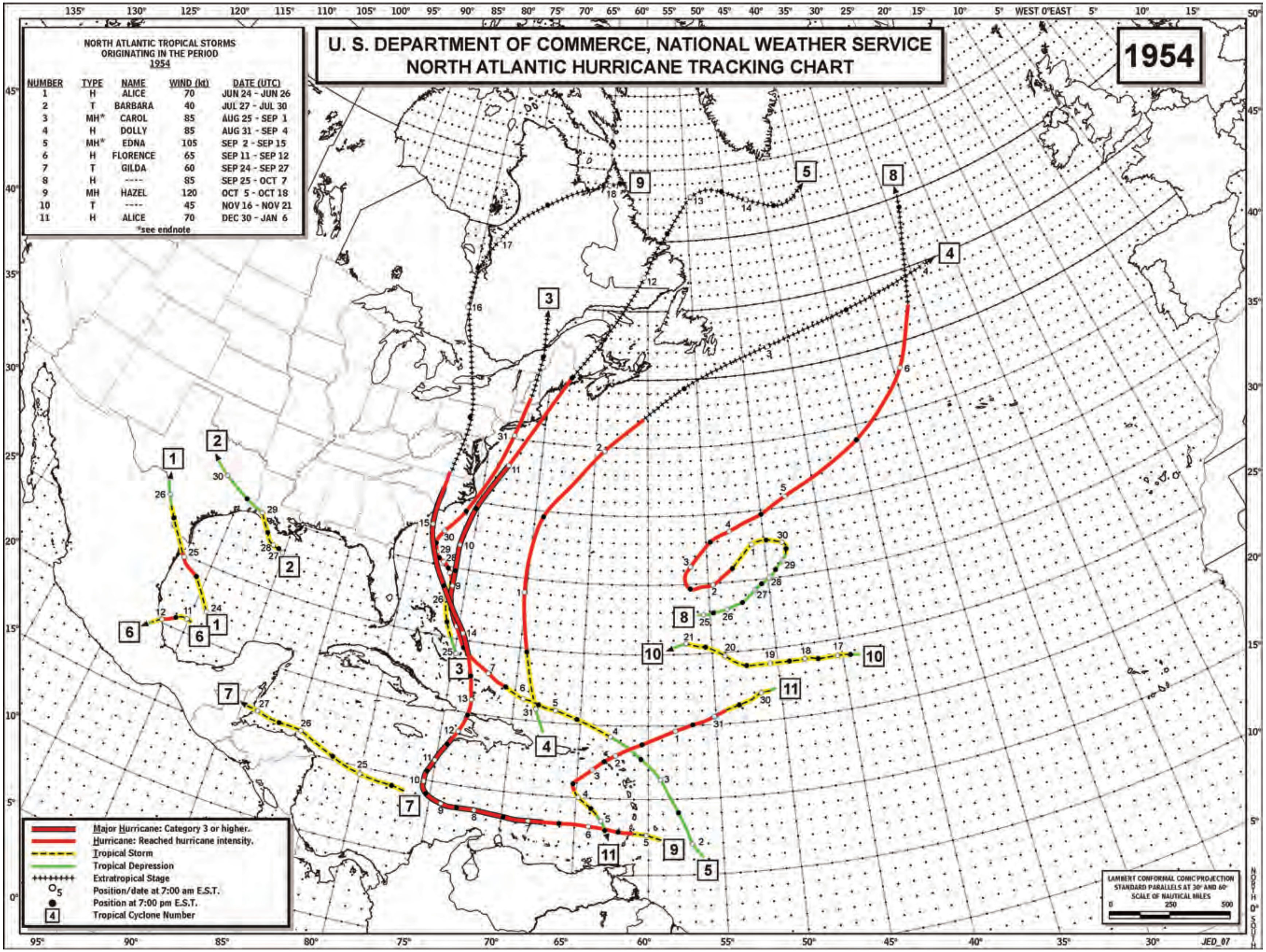

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1950
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1950
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ABLE 120 AUG 12 - AUG 22
2 MH BAKER 105 AUG 20 - SEP 1
3 MH CHARLIE 100 AUG 21 - SEP 5
4 MH DOG 160 AUG 30 - SEP 17
5 MH EASY 110 SEP 1 - SEP 9
6 MH FOX 120 SEP 8 - SEP 17
7 H GEORGE 95 SEP 27 - OCT 7
8 T HOW 50 OCT 1 - OCT 4
9 H ITEM 95 OCT 8 - OCT 10
10 MH JIG 105 OCT 11 - OCT 17
11 MH* KING 105 OCT 13 - OCT 19
12 T ---- 60 OCT 17 - OCT 24
13 H LOVE 80 OCT 18 - OCT 21
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

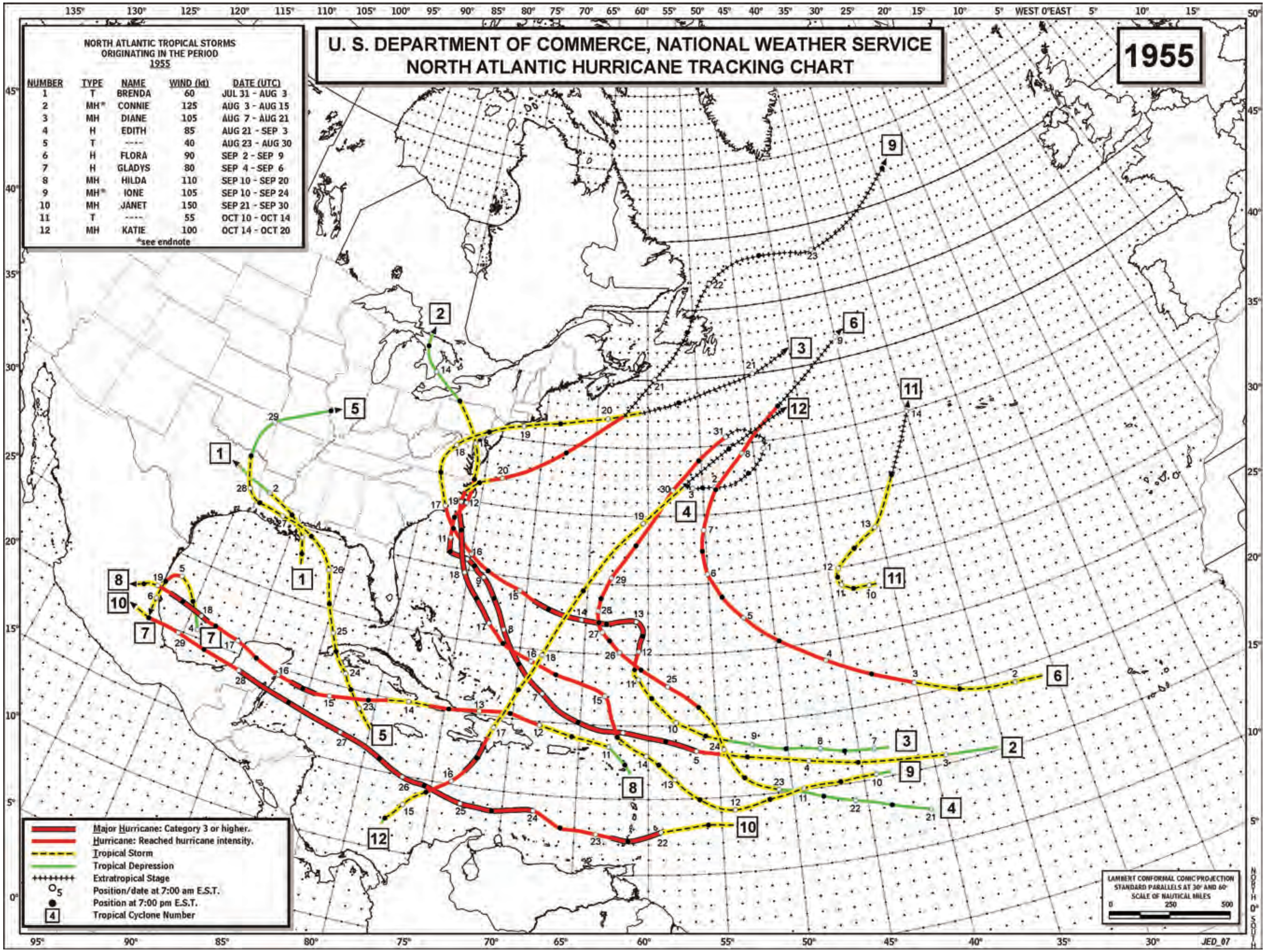


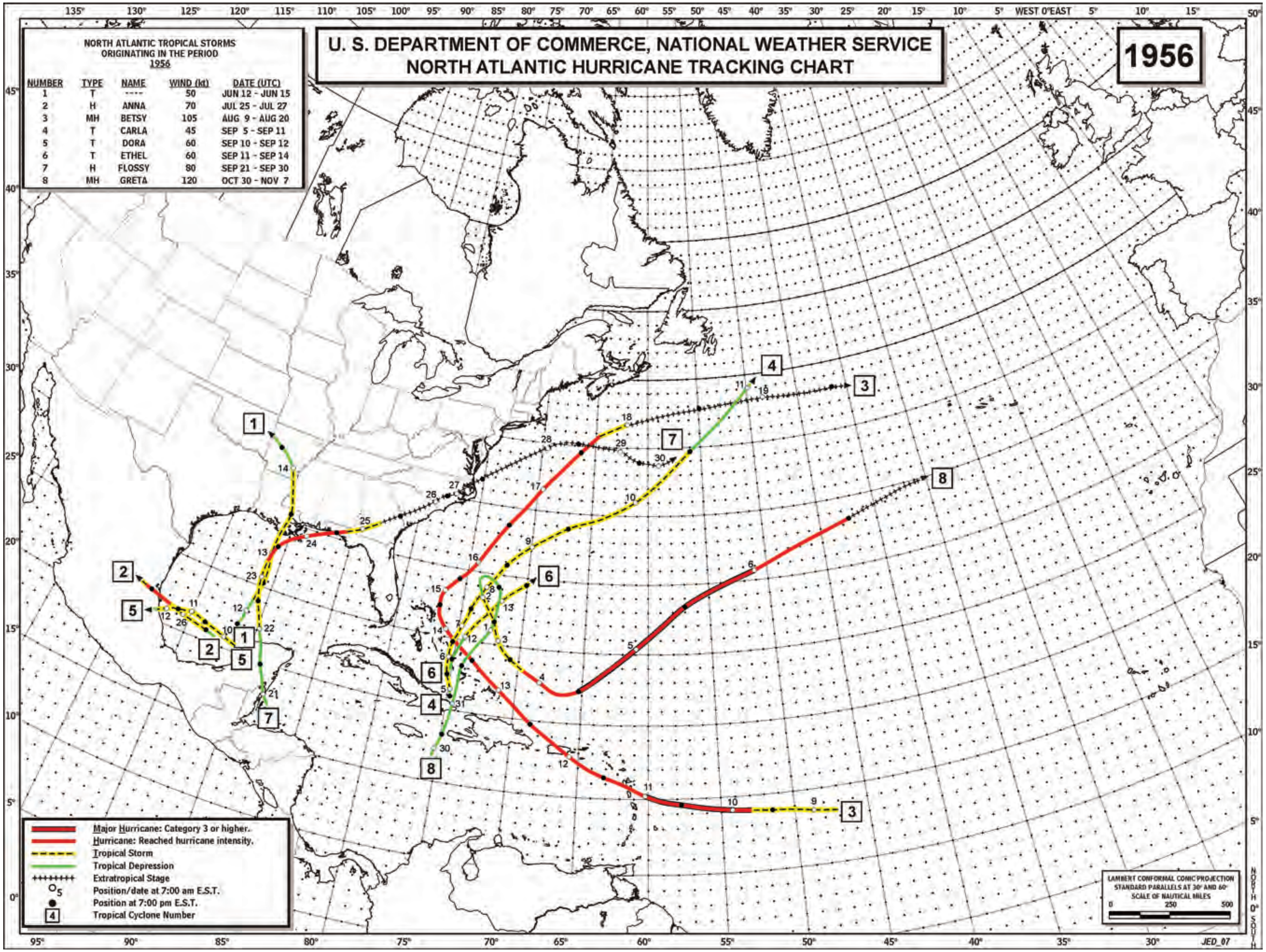
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1951
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1951
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ABLE 100 MAY 15 - MAY 24
2 T BAKER 50 AUG 2 - AUG 5
3 MH CHARLIE 115 AUG 12 - AUG 23
4 MH DOG 100 AUG 27 - SEP 5
5 MH EASY 140 SEP 2 - SEP 13
6 MH FOX 100 SEP 2 - SEP 11
7 T GEORGE 50 SEP 20 - SEP 21
8 H HOW 95 SEP 28 - OCT 8
9 H ITEM 70 OCT 12 - OCT 17
10 H JIG 70 OCT 15 - OCT 20
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1952
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1952
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 45 FEB 2 - FEB 5
2 H ABLE 90 AUG 18 - SEP 2
3 MH BAKER 105 AUG 31 - SEP 9
4 MH CHARLIE 105 SEP 22 - OCT 1
5 H DOG 75 SEP 25 - SEP 29
6 H EASY 95 OCT 6 - OCT 11
7 MH FOX 130 OCT 20 - OCT 28
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

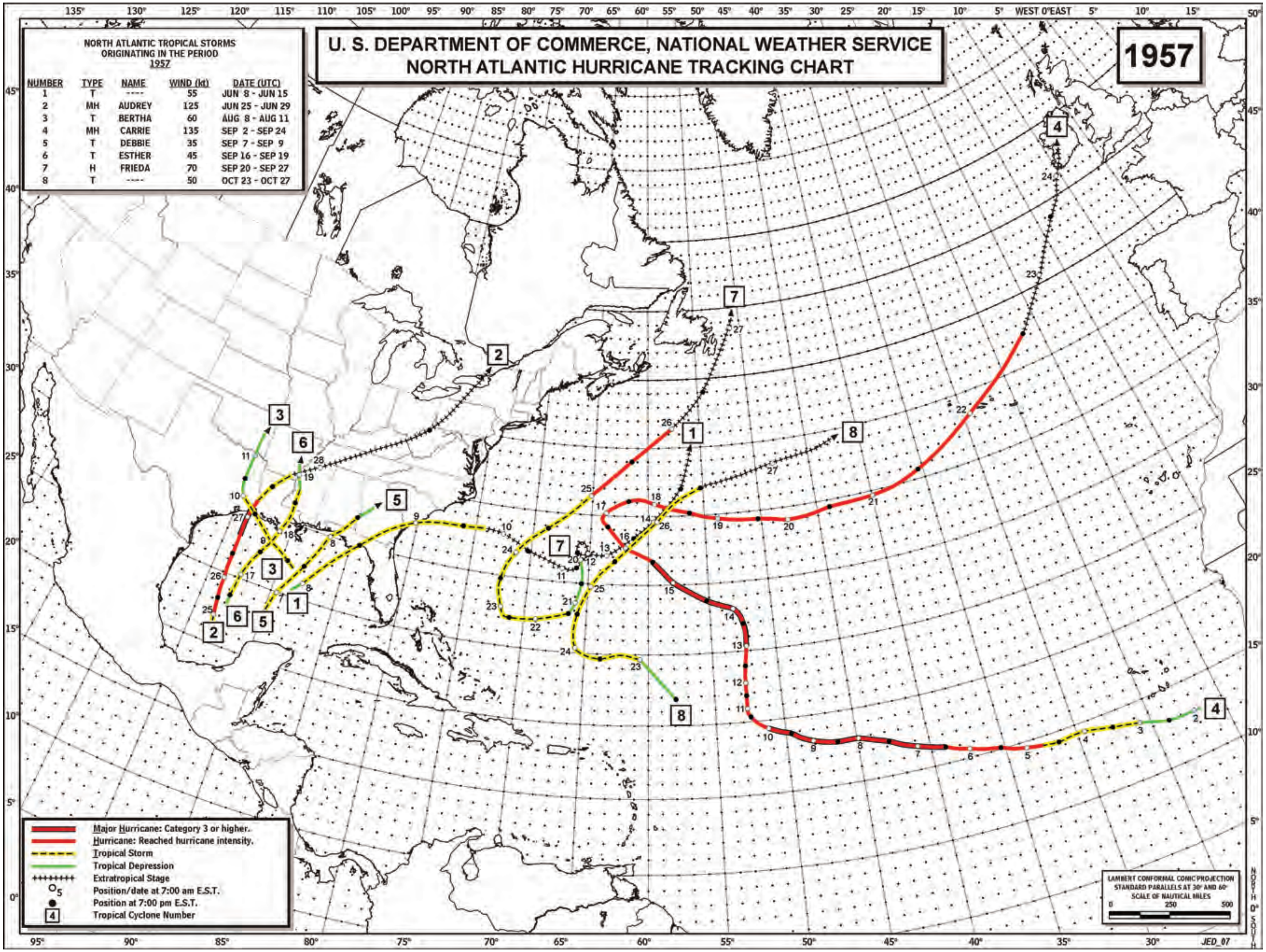

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1953
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1953
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ALICE 60 MAY 25 - JUN 6
2 H BARBARA 95 AUG 11 - AUG 16
3 T ---- 50 AUG 28 - SEP 3
4 MH CAROL 130 AUG 28 - SEP 9
5 MH DOLLY 100 SEP 8 - SEP 17
6 MH EDNA 110 SEP 14 - SEP 20
7 T ---- 60 SEP 14 - SEP 21
8 MH FLORENCE 110 SEP 23 - SEP 28
9 H GAIL 70 OCT 2 - OCT 5
10 T ---- 40 OCT 3 - OCT 10
11 T ---- 60 OCT 5 - OCT 9
12 T HAZEL 60 OCT 7 - OCT 12
13 T ---- 45 NOV 23 - NOV 26
14 T ---- 35 DEC 7 - DEC 9
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

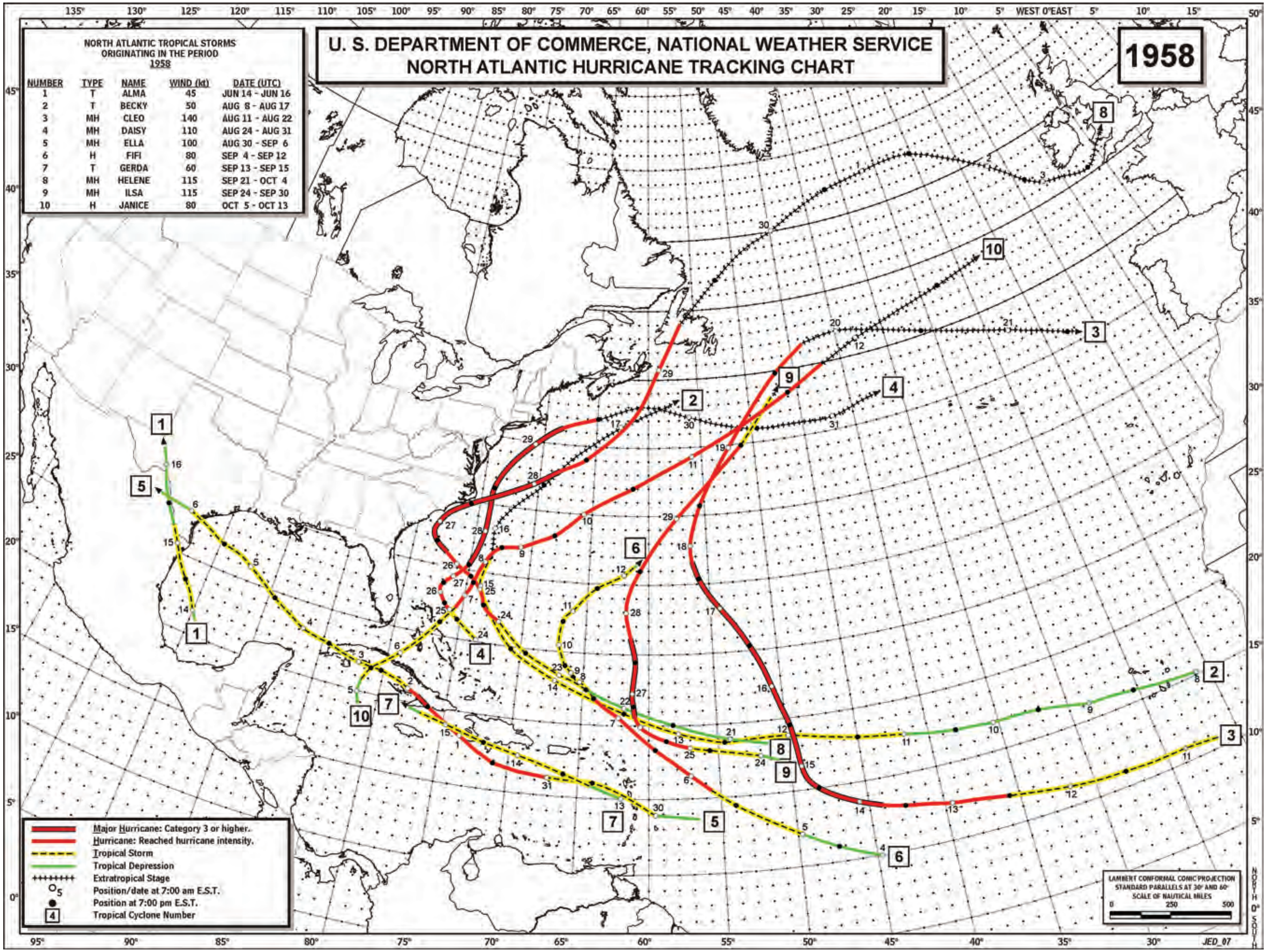

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1954
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1954
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ALICE 70 JUN 24 - JUN 26
2 T BARBARA 40 JUL 27 - JUL 30
3 MH* CAROL 85 AUG 25 - SEP 1
4 H DOLLY 85 AUG 31 - SEP 4
5 MH* EDNA 105 SEP 2 - SEP 15
6 H FLORENCE 65 SEP 11 - SEP 12
7 T GILDA 60 SEP 24 - SEP 27
8 H ---- 85 SEP 25 - OCT 7
9 MH HAZEL 120 OCT 5 - OCT 18
10 T ---- 45 NOV 16 - NOV 21
11 H ALICE 70 DEC 30 - JAN 6
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

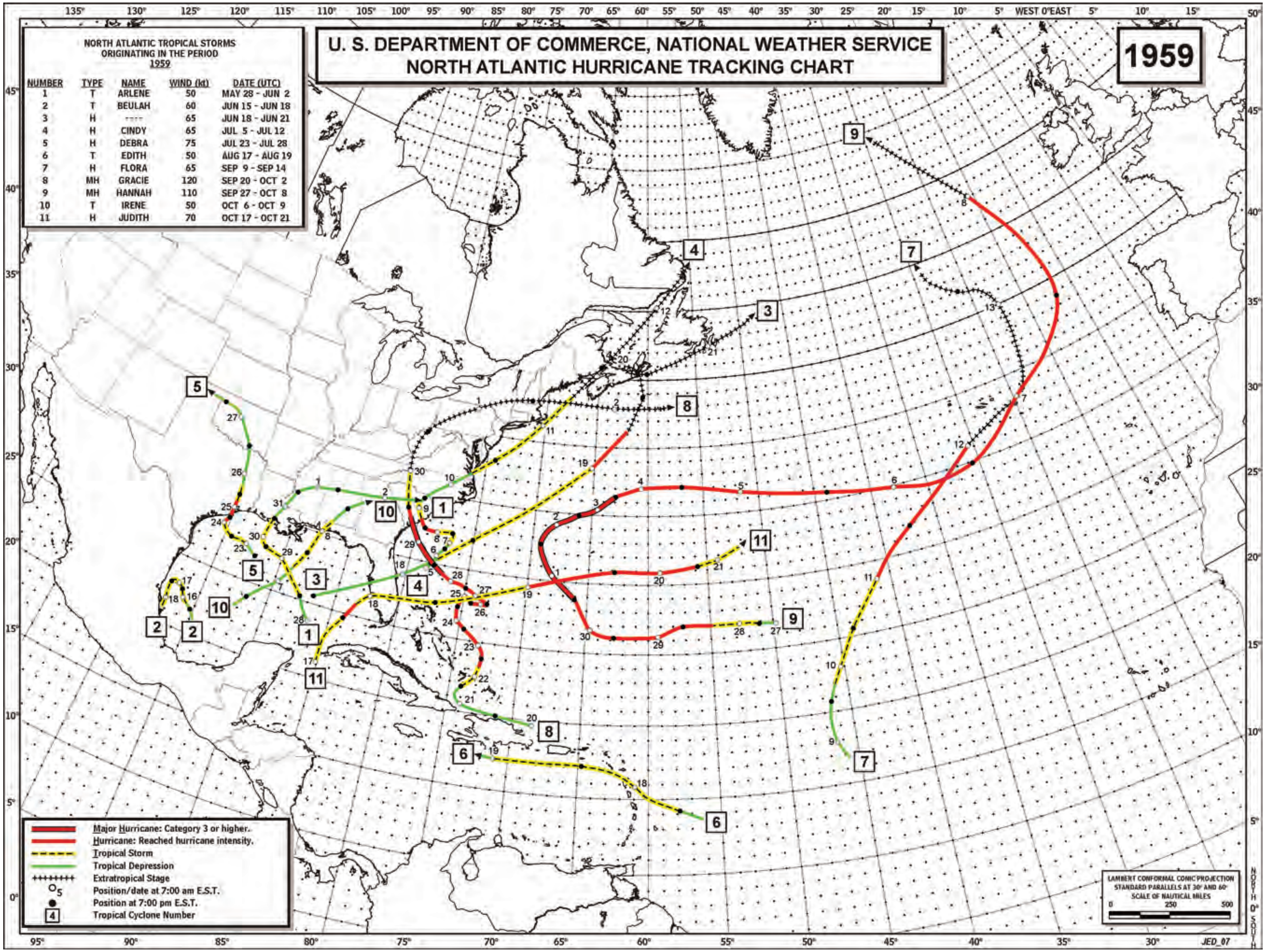

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1955
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1955
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T BRENDA 60 JUL 31 - AUG 3
2 MH* CONNIE 125 AUG 3 - AUG 15
3 MH DIANE 105 AUG 7 - AUG 21
4 H EDITH 85 AUG 21 - SEP 3
5 T ---- 40 AUG 23 - AUG 30
6 H FLORA 90 SEP 2 - SEP 9
7 H GLADYS 80 SEP 4 - SEP 6
8 MH HILDA 110 SEP 10 - SEP 20
9 MH* IONE 105 SEP 10 - SEP 24
10 MH JANET 150 SEP 21 - SEP 30
11 T ---- 55 OCT 10 - OCT 14
12 MH KATIE 100 OCT 14 - OCT 20
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07



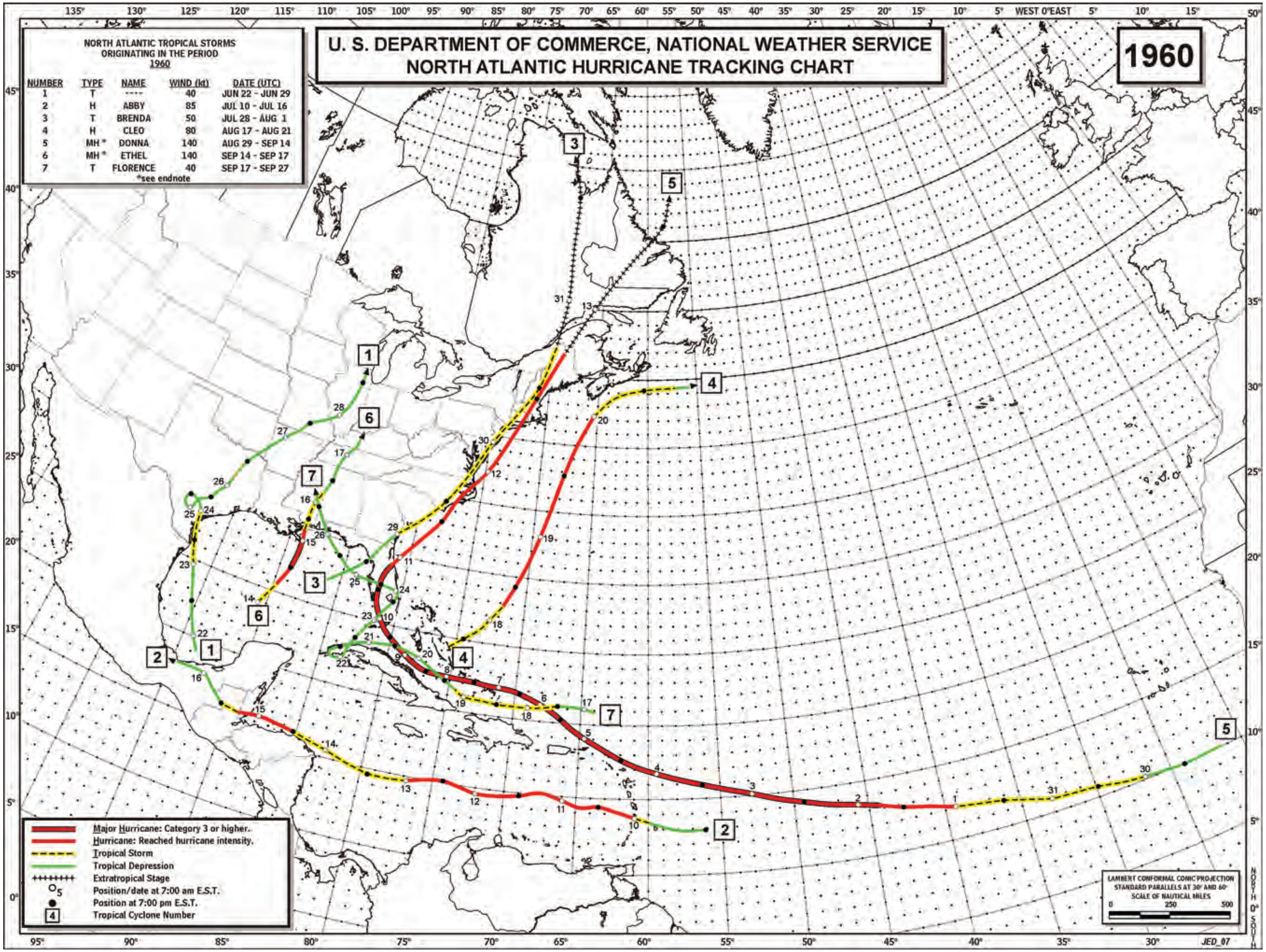
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1956
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1956
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 JUN 12 - JUN 15
2 H ANNA 70 JUL 25 - JUL 27
3 MH BETSY 105 AUG 9 - AUG 20
4 T CARLA 45 SEP 5 - SEP 11
5 T DORA 60 SEP 10 - SEP 12
6 T ETHEL 60 SEP 11 - SEP 14
7 H FLOSSY 80 SEP 21 - SEP 30
8 MH GRETA 120 OCT 30 - NOV 7
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

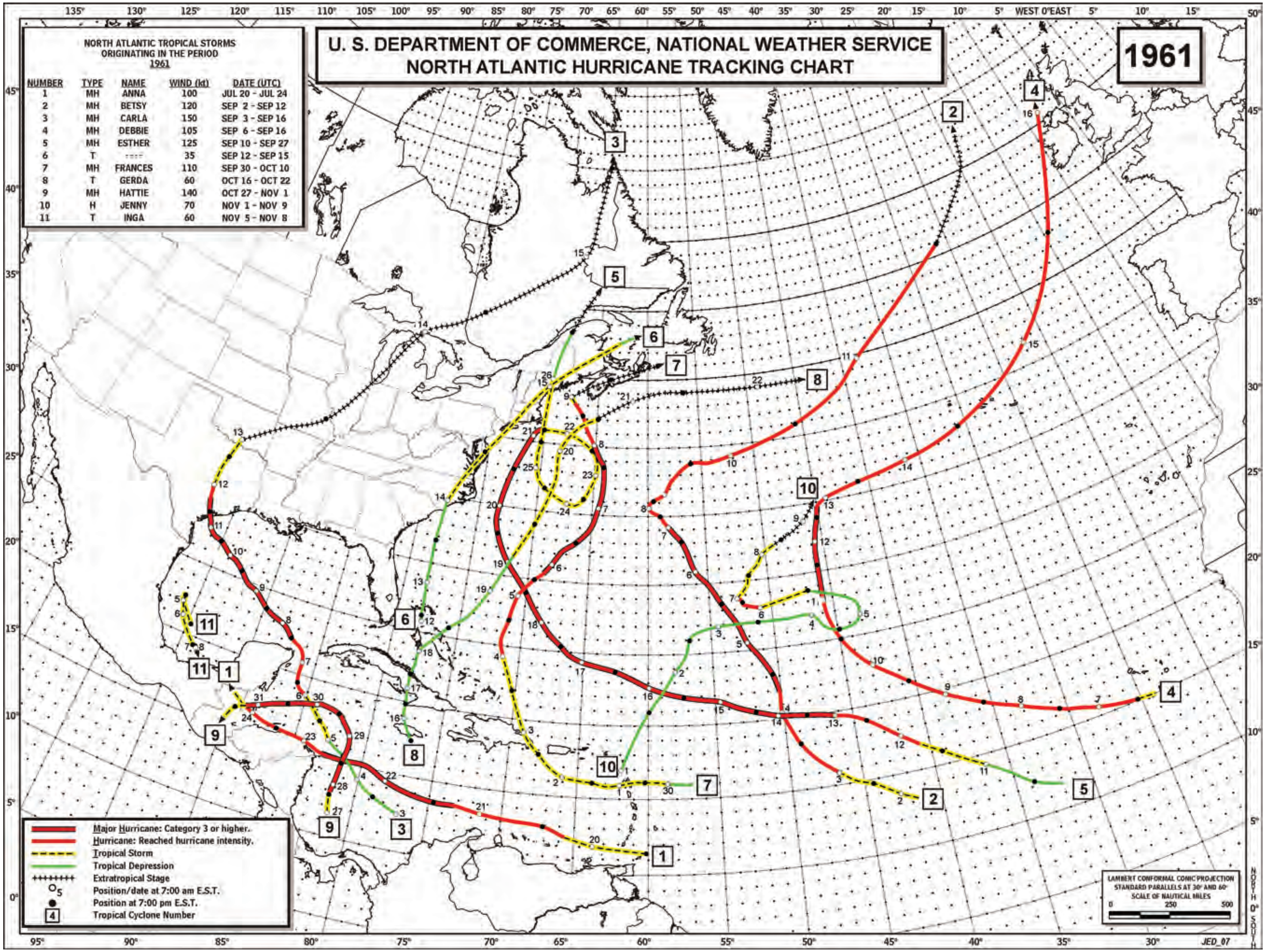

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1957
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1957
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 55 JUN 8 - JUN 15
2 MH AUDREY 125 JUN 25 - JUN 29
3 T BERTHA 60 AUG 8 - AUG 11
4 MH CARRIE 135 SEP 2 - SEP 24
5 T DEBBIE 35 SEP 7 - SEP 9
6 T ESTHER 45 SEP 16 - SEP 19
7 H FRIEDA 70 SEP 20 - SEP 27
8 T ---- 50 OCT 23 - OCT 27
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

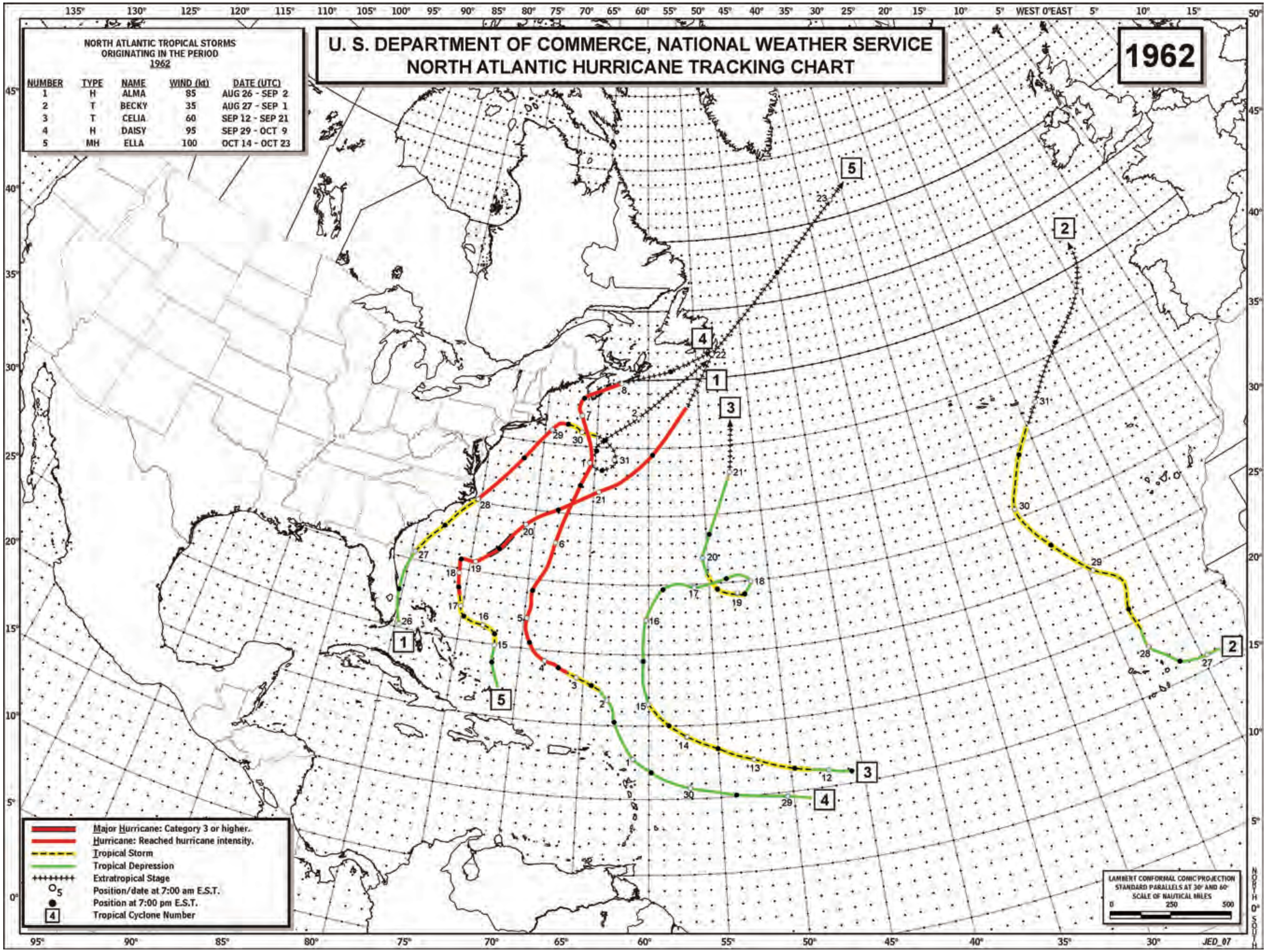

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1958
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1958
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ALMA 45 JUN 14 - JUN 16
2 T BECKY 50 AUG 8 - AUG 17
3 MH CLEO 140 AUG 11 - AUG 22
4 MH DAISY 110 AUG 24 - AUG 31
5 MH ELLA 100 AUG 30 - SEP 6
6 H FIFI 80 SEP 4 - SEP 12
7 T GERDA 60 SEP 13 - SEP 15
8 MH HELENE 115 SEP 21 - OCT 4
9 MH ILSA 115 SEP 24 - SEP 30
10 H JANICE 80 OCT 5 - OCT 13
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

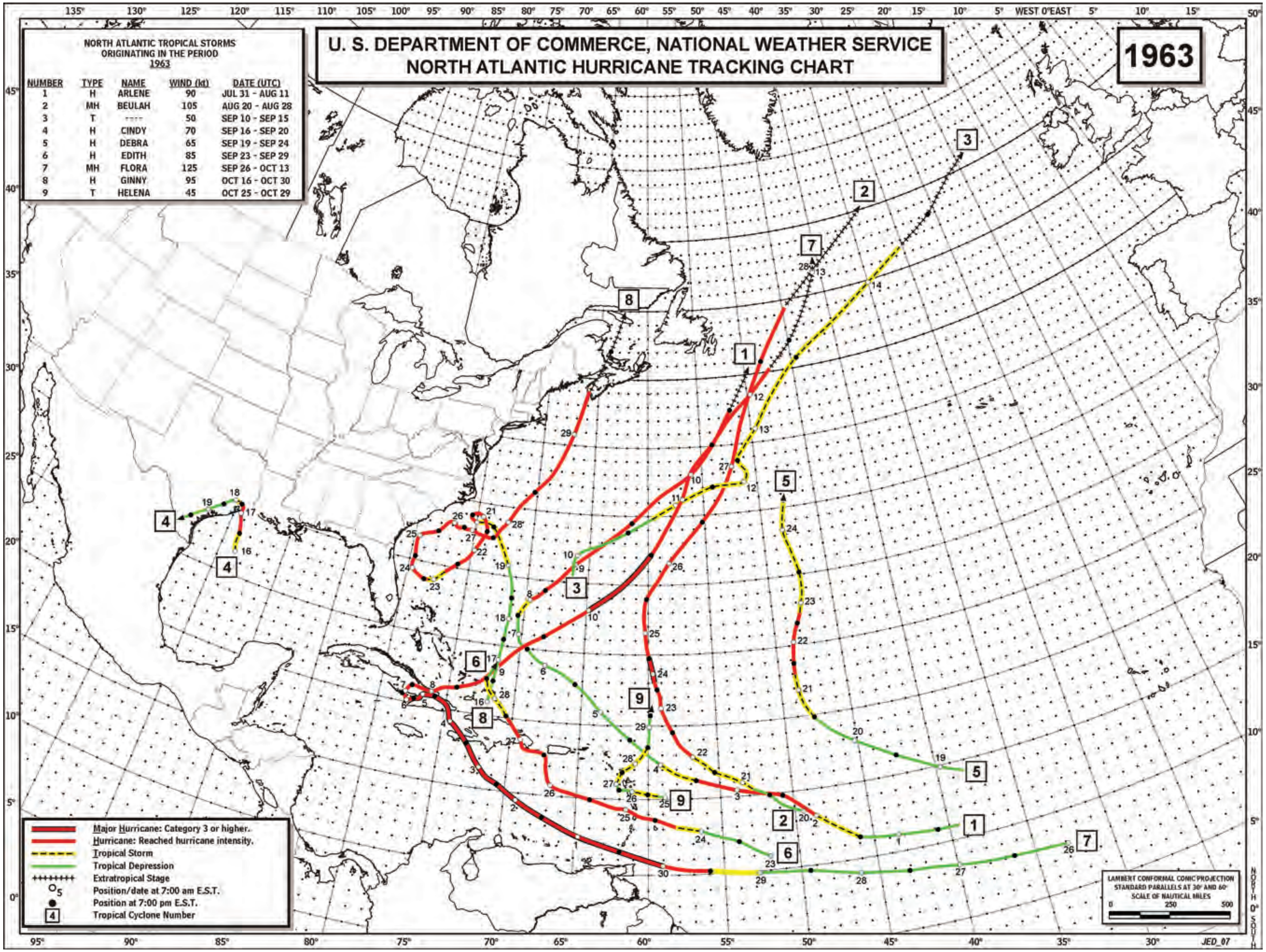


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1959
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1959
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ARLENE 50 MAY 28 - JUN 2
2 T BEULAH 60 JUN 15 - JUN 18
3 H ---- 65 JUN 18 - JUN 21
4 H CINDY 65 JUL 5 - JUL 12
5 H DEBRA 75 JUL 23 - JUL 28
6 T EDITH 50 AUG 17 - AUG 19
7 H FLORA 65 SEP 9 - SEP 14
8 MH GRACIE 120 SEP 20 - OCT 2
9 MH HANNAH 110 SEP 27 - OCT 8
10 T IRENE 50 OCT 6 - OCT 9
11 H JUDITH 70 OCT 17 - OCT 21
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

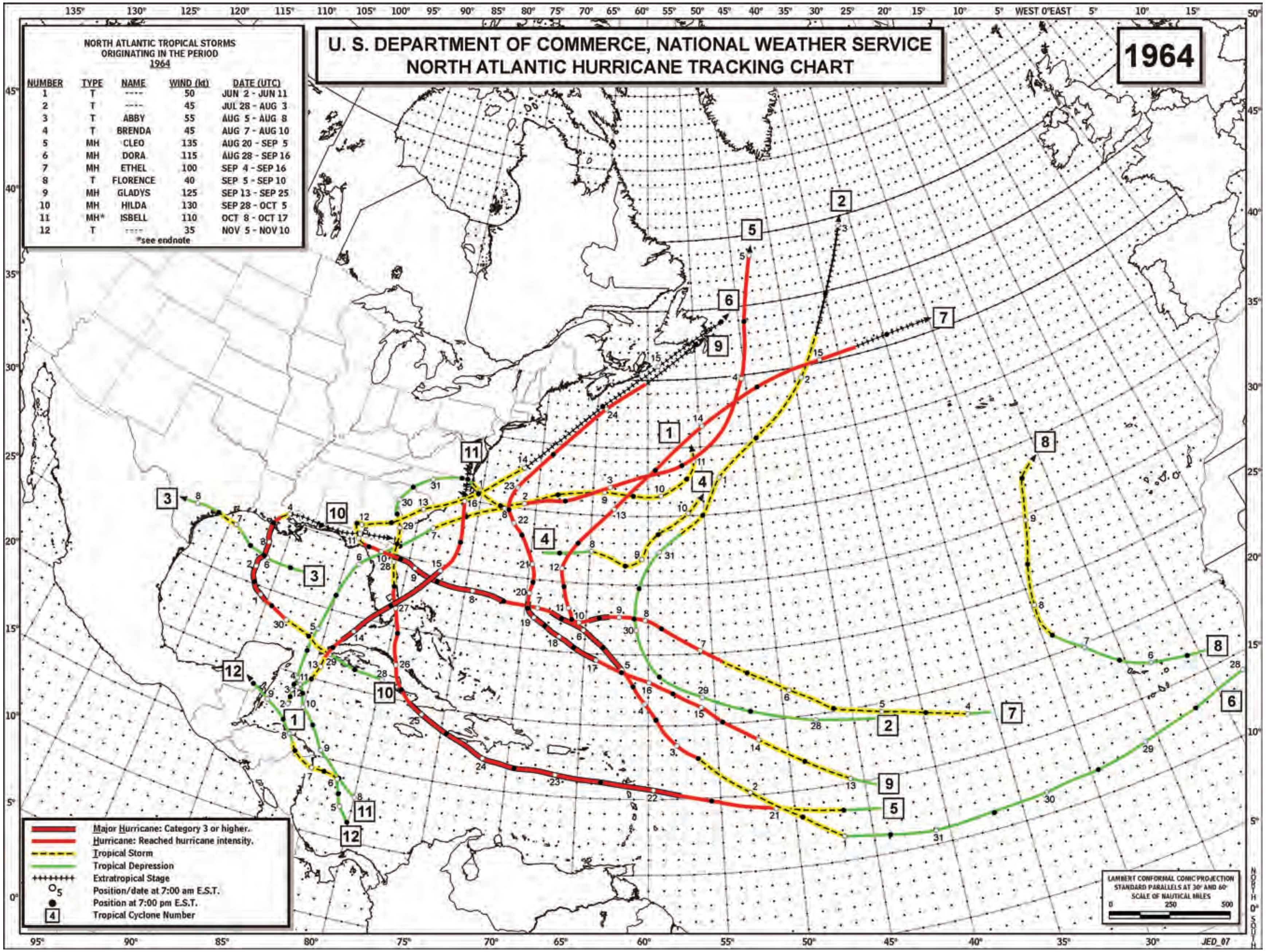

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1960
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1960
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 40 JUN 22 - JUN 29
2 H ABBY 85 JUL 10 - JUL 16
3 T BRENDA 50 JUL 28 - AUG 1
4 H CLEO 80 AUG 17 - AUG 21
5 MH * DONNA 140 AUG 29 - SEP 14
6 MH * ETHEL 140 SEP 14 - SEP 17
7 T FLORENCE 40 SEP 17 - SEP 27
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

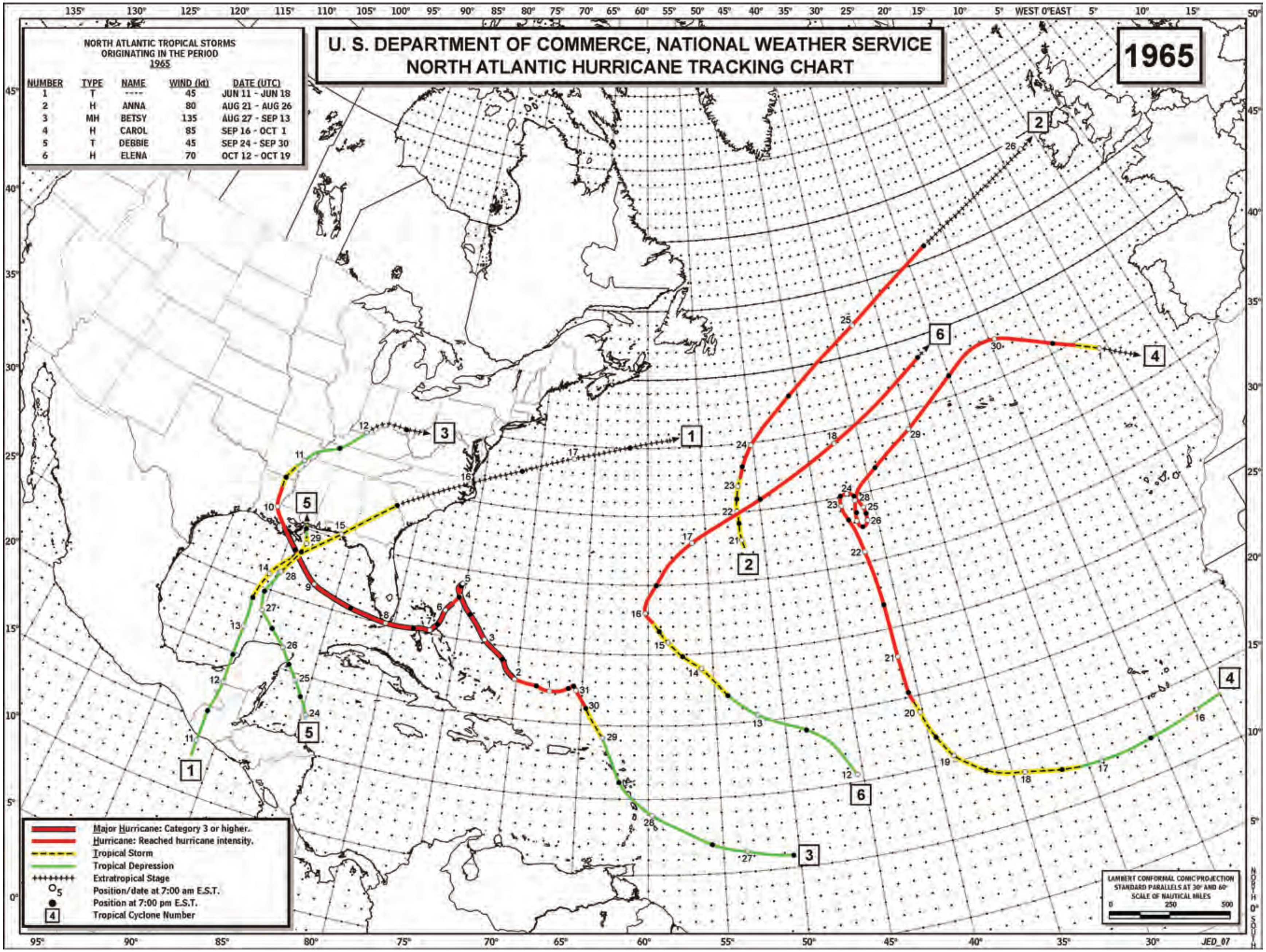

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1961
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1961
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ANNA 100 JUL 20 - JUL 24
2 MH BETSY 120 SEP 2 - SEP 12
3 MH CARLA 150 SEP 3 - SEP 16
4 MH DEBBIE 105 SEP 6 - SEP 16
5 MH ESTHER 125 SEP 10 - SEP 27
6 T ---- 35 SEP 12 - SEP 15
7 MH FRANCES 110 SEP 30 - OCT 10
8 T GERDA 60 OCT 16 - OCT 22
9 MH HATTIE 140 OCT 27 - NOV 1
10 H JENNY 70 NOV 1 - NOV 9
11 T INGA 60 NOV 5 - NOV 8
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

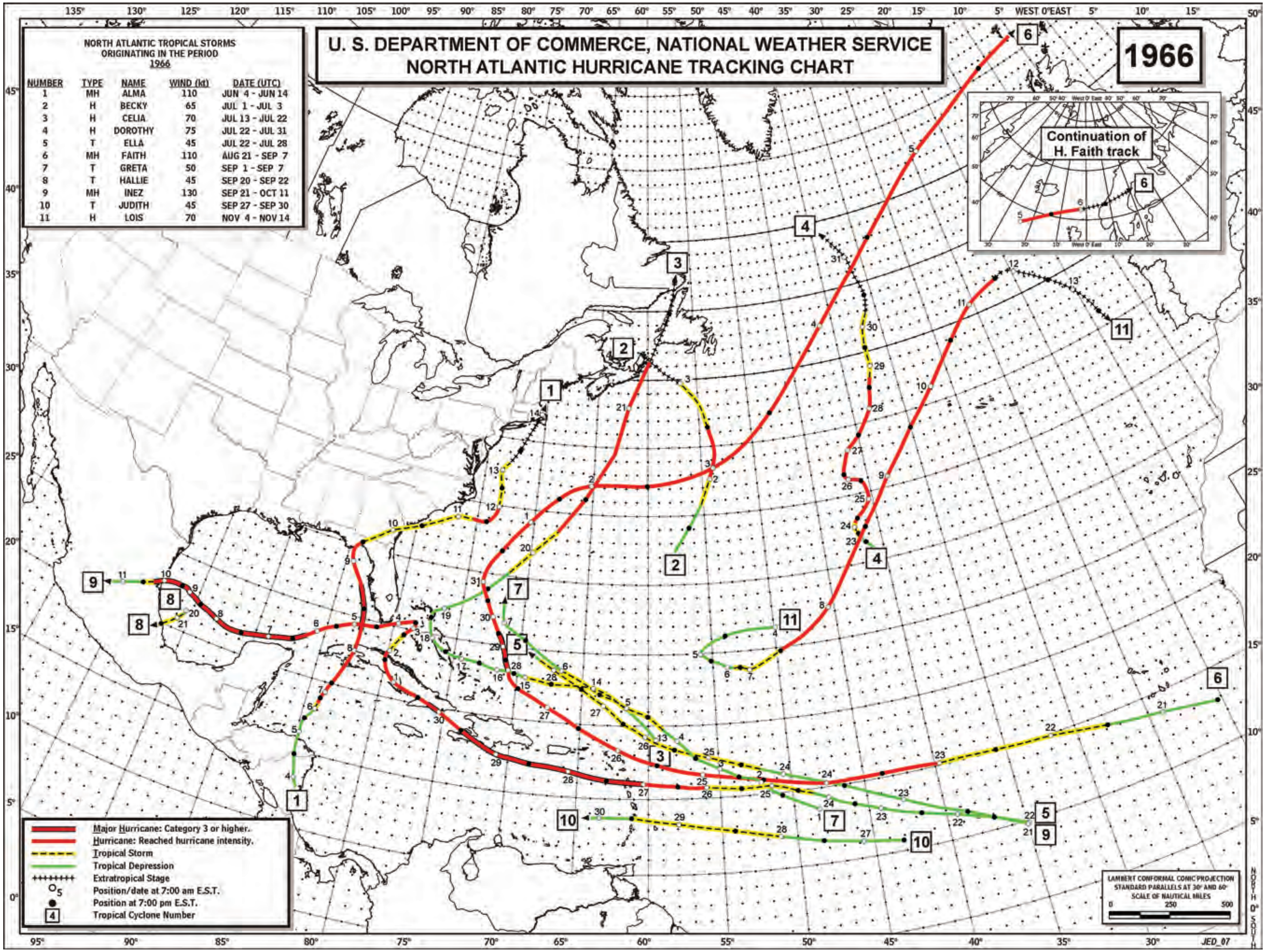

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1962
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1962
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ALMA 85 AUG 26 - SEP 2
2 T BECKY 35 AUG 27 - SEP 1
3 T CELIA 60 SEP 12 - SEP 21
4 H DAISY 95 SEP 29 - OCT 9
5 MH ELLA 100 OCT 14 - OCT 23
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

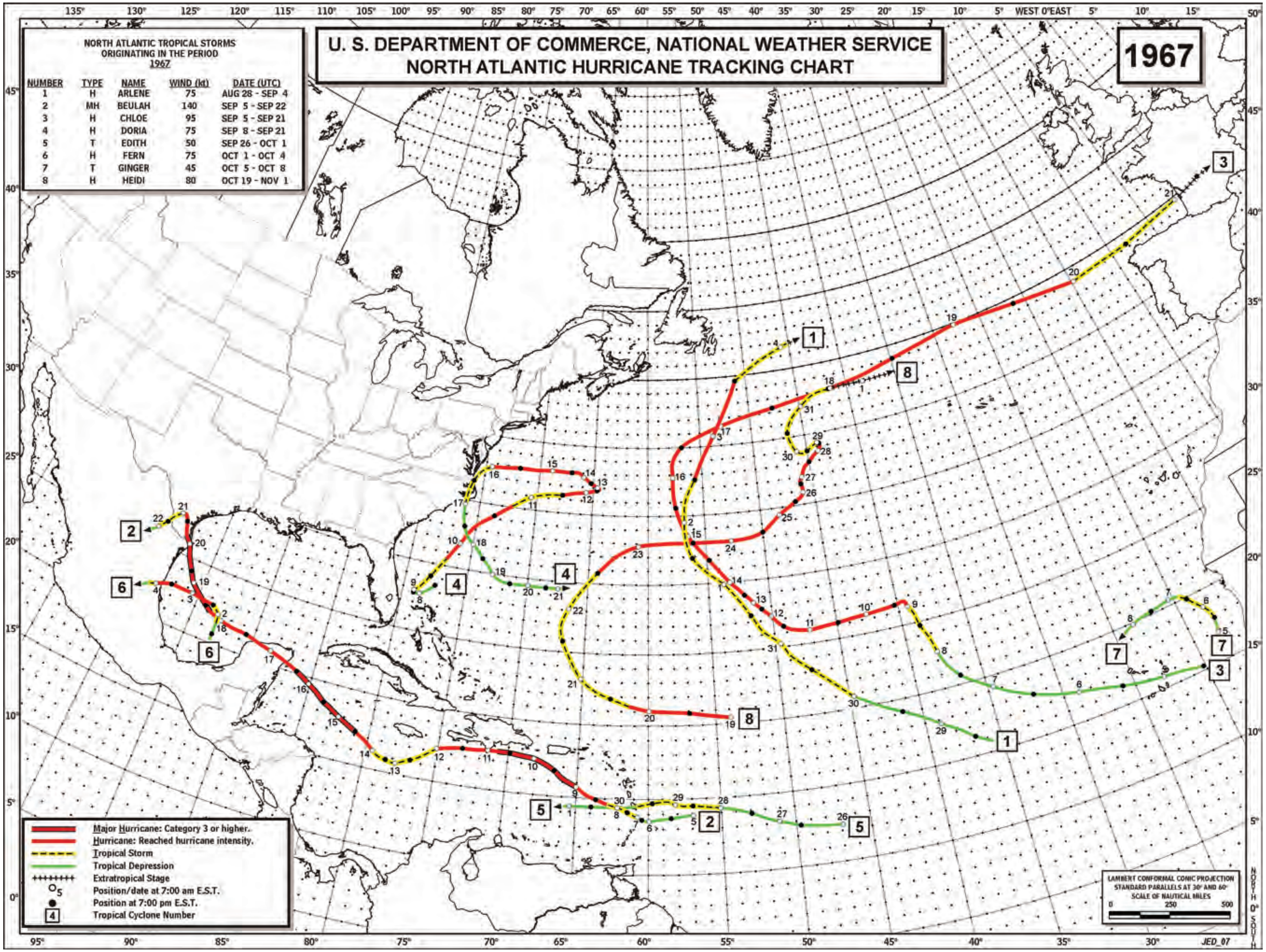


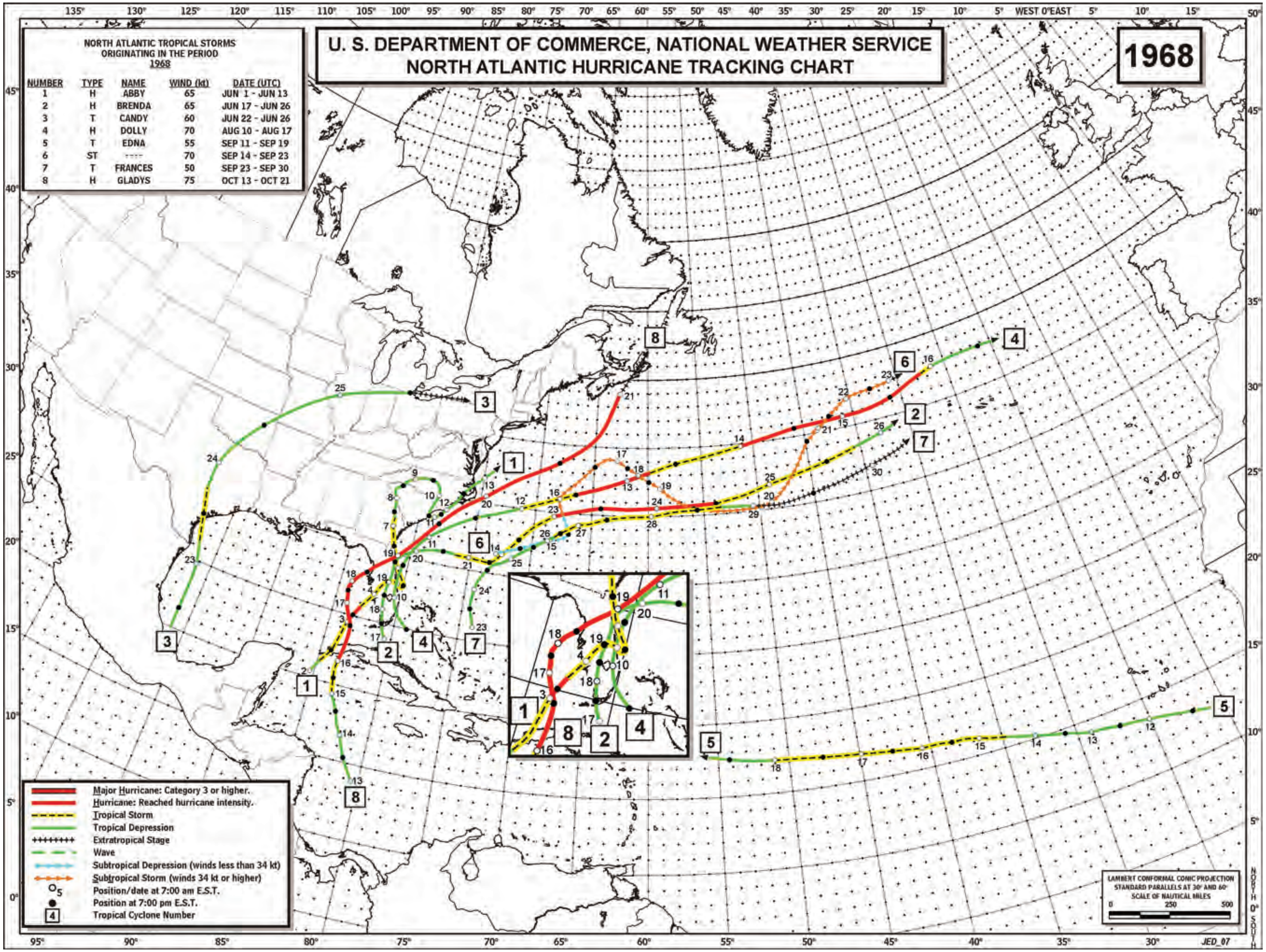
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1963
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1963
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ARLENE 90 JUL 31 - AUG 11
2 MH BEULAH 105 AUG 20 - AUG 28
3 T ---- 50 SEP 10 - SEP 15
4 H CINDY 70 SEP 16 - SEP 20
5 H DEBRA 65 SEP 19 - SEP 24
6 H EDITH 85 SEP 23 - SEP 29
7 MH FLORA 125 SEP 26 - OCT 13
8 H GINNY 95 OCT 16 - OCT 30
9 T HELENA 45 OCT 25 - OCT 29
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

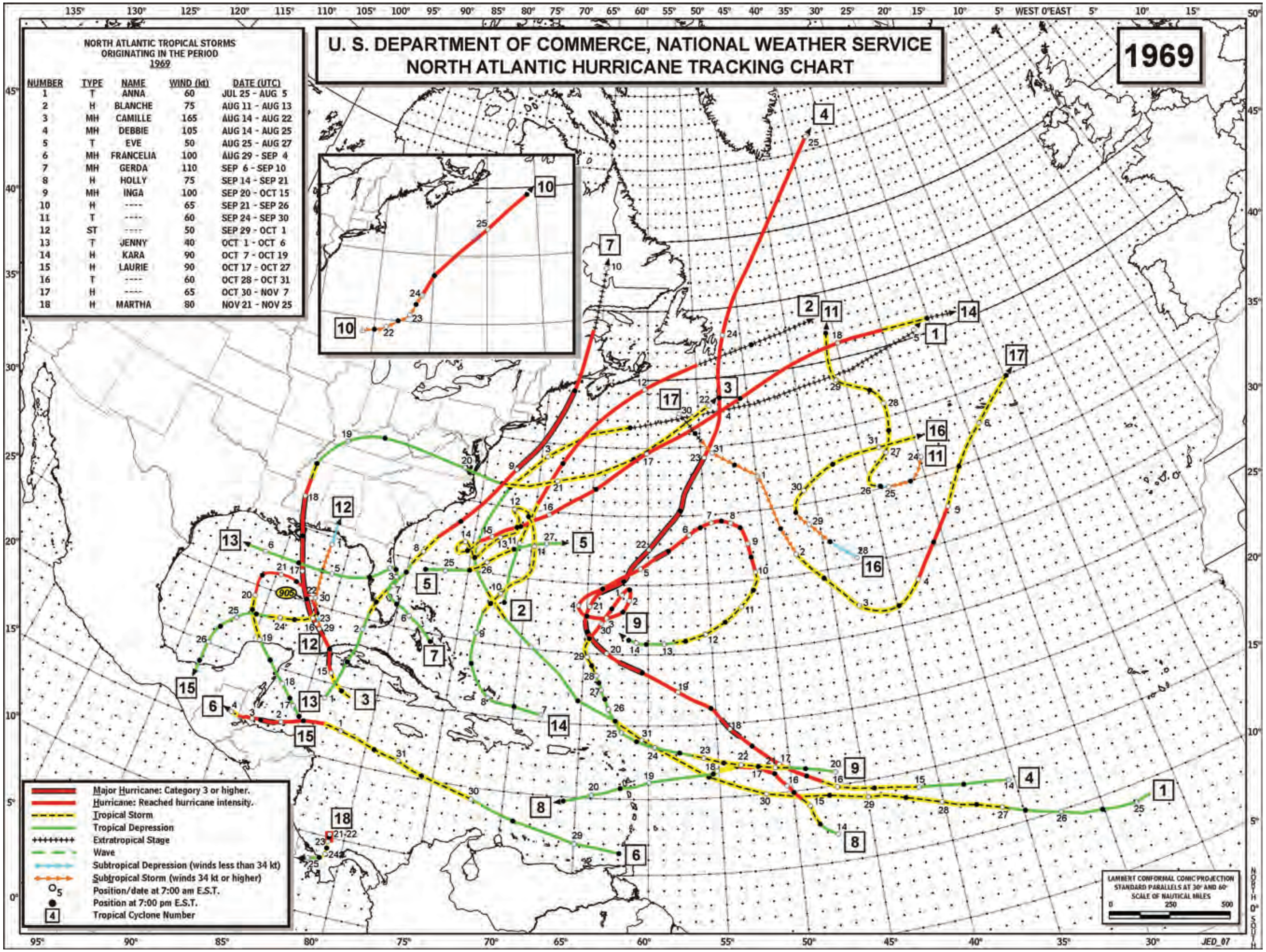

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1964
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1964
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 50 JUN 2 - JUN 11
2 T ---- 45 JUL 28 - AUG 3
3 T ABBY 55 AUG 5 - AUG 8
4 T BRENDA 45 AUG 7 - AUG 10
5 MH CLEO 135 AUG 20 - SEP 5
6 MH DORA 115 AUG 28 - SEP 16
7 MH ETHEL 100 SEP 4 - SEP 16
8 T FLORENCE 40 SEP 5 - SEP 10
9 MH GLADYS 125 SEP 13 - SEP 25
10 MH HILDA 130 SEP 28 - OCT 5
11 MH* ISBELL 110 OCT 8 - OCT 17
12 T ---- 35 NOV 5 - NOV 10
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
WEST 0° EAST
NORTH
SOUTH
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1965
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1965
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 45 JUN 11 - JUN 18
2 H ANNA 80 AUG 21 - AUG 26
3 MH BETSY 135 AUG 27 - SEP 13
4 H CAROL 85 SEP 16 - OCT 1
5 T DEBBIE 45 SEP 24 - SEP 30
6 H ELENA 70 OCT 12 - OCT 19
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
NORTH
SOUTH
WEST 0°EAST
JED_07

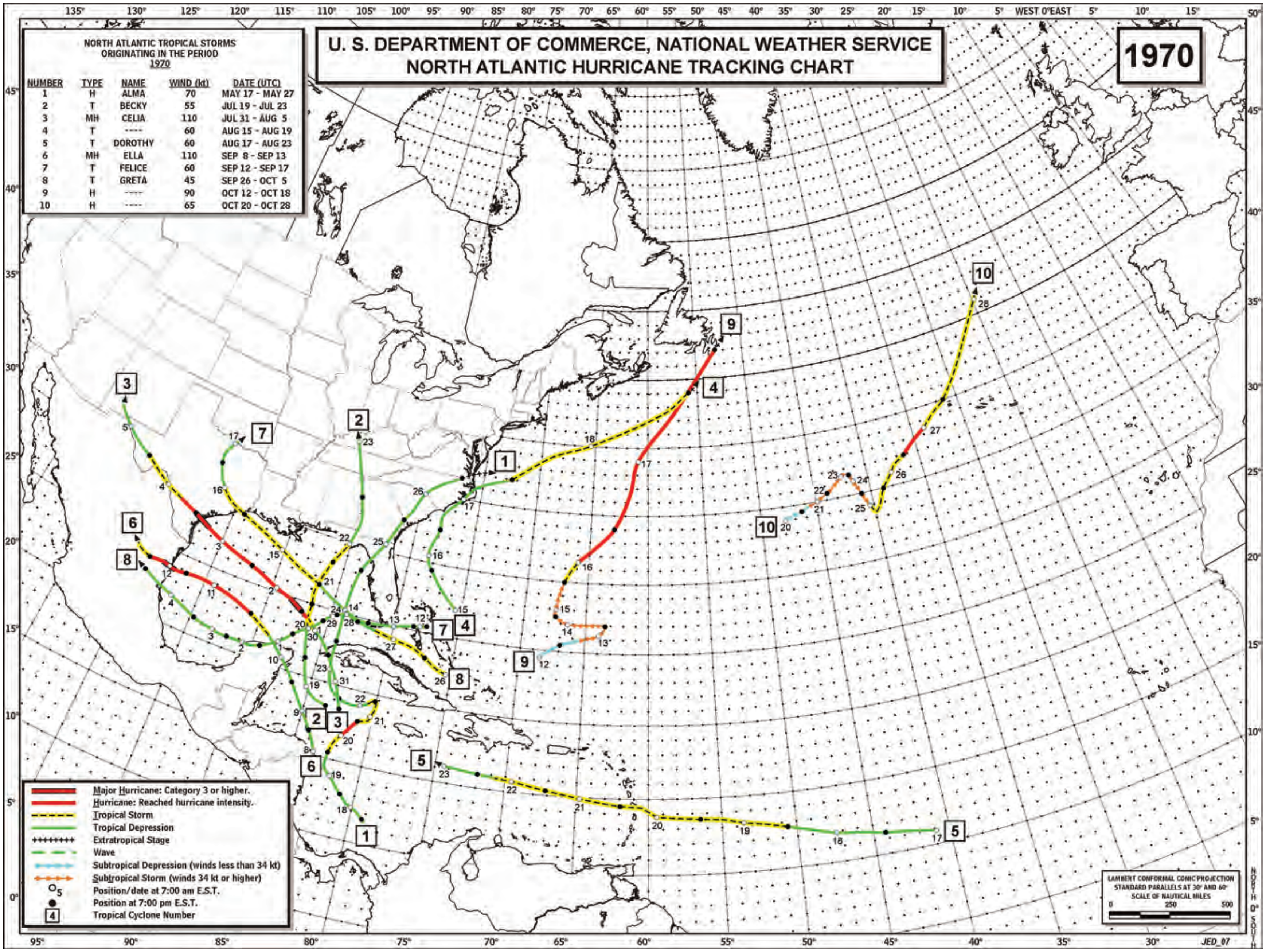

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1966
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1966
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ALMA 110 JUN 4 - JUN 14
2 H BECKY 65 JUL 1 - JUL 3
3 H CELIA 70 JUL 13 - JUL 22
4 H DOROTHY 75 JUL 22 - JUL 31
5 T ELLA 45 JUL 22 - JUL 28
6 MH FAITH 110 AUG 21 - SEP 7
7 T GRETA 50 SEP 1 - SEP 7
8 T HALLIE 45 SEP 20 - SEP 22
9 MH INEZ 130 SEP 21 - OCT 11
10 T JUDITH 45 SEP 27 - SEP 30
11 H LOIS 70 NOV 4 - NOV 14
Continuation of
H. Faith track
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

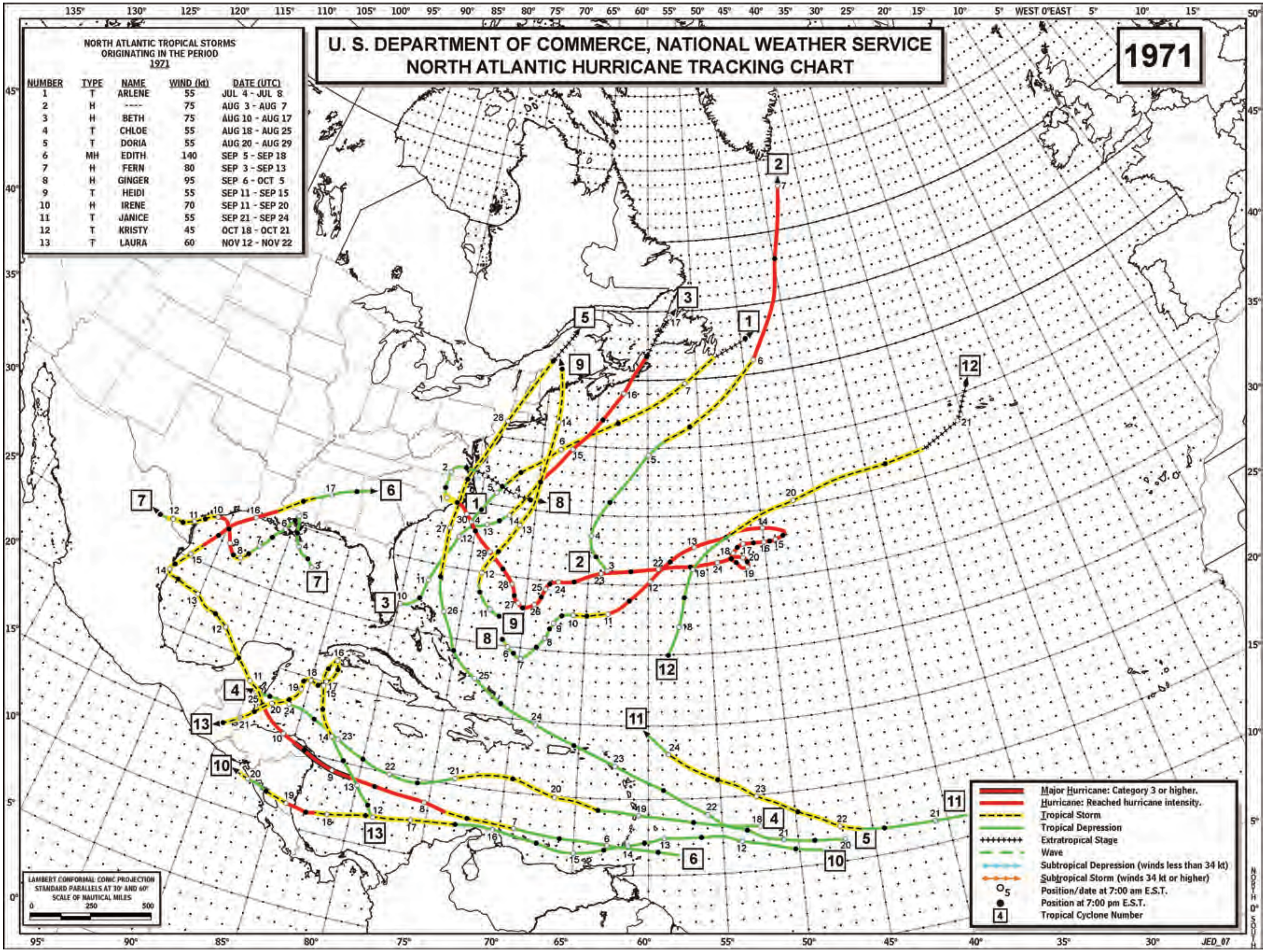

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1967
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1967
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ARLENE 75 AUG 28 - SEP 4
2 MH BEULAH 140 SEP 5 - SEP 22
3 H CHLOE 95 SEP 5 - SEP 21
4 H DORIA 75 SEP 8 - SEP 21
5 T EDITH 50 SEP 26 - OCT 1
6 H FERN 75 OCT 1 - OCT 4
7 T GINGER 45 OCT 5 - OCT 8
8 H HEIDI 80 OCT 19 - NOV 1
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

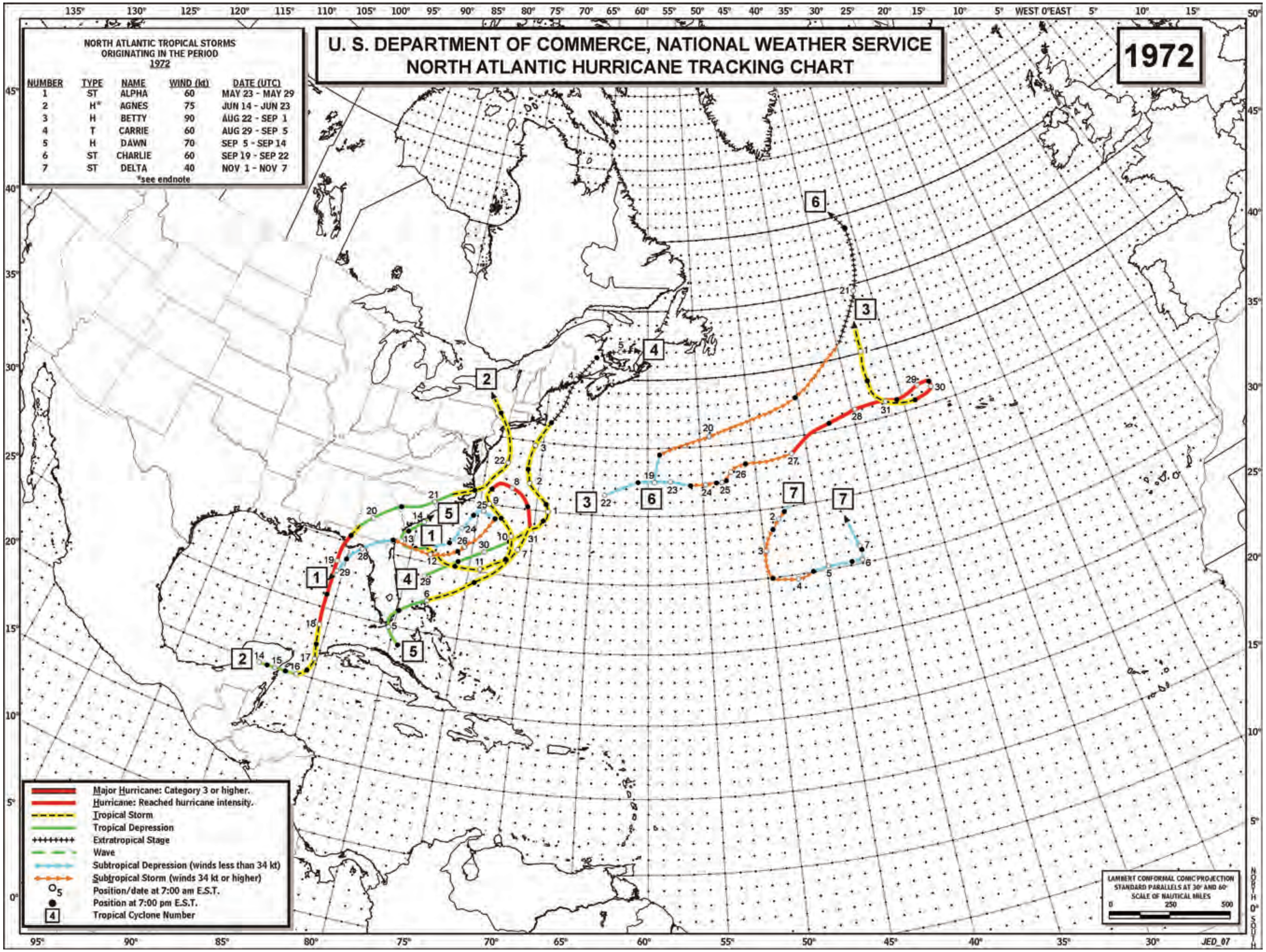

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1968
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1968
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ABBY 65 JUN 1 - JUN 13
2 H BRENDA 65 JUN 17 - JUN 26
3 T CANDY 60 JUN 22 - JUN 26
4 H DOLLY 70 AUG 10 - AUG 17
5 T EDNA 55 SEP 11 - SEP 19
6 ST ---- 70 SEP 14 - SEP 23
7 T FRANCES 50 SEP 23 - SEP 30
8 H GLADYS 75 OCT 13 - OCT 21
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

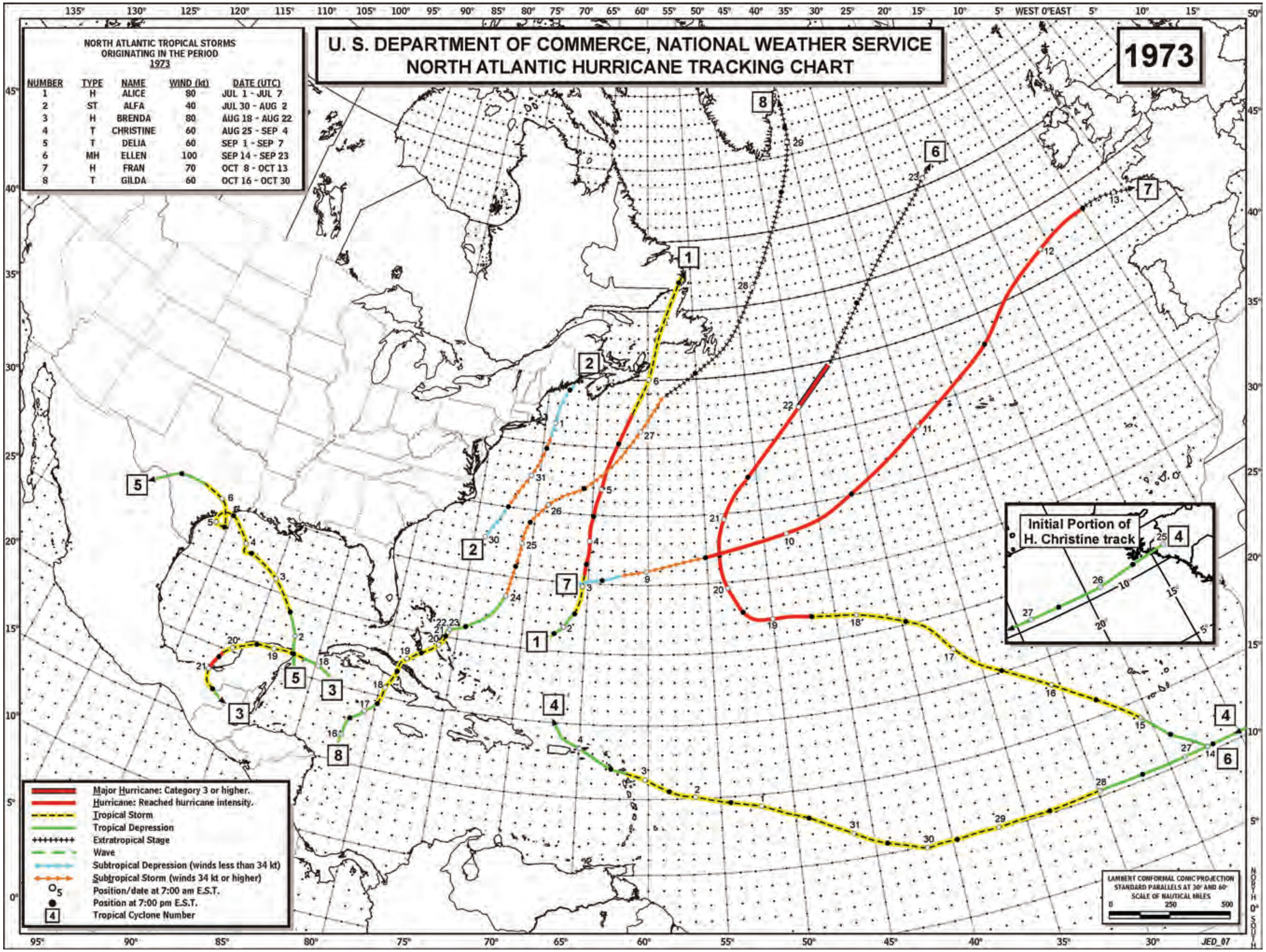


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1969
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1969
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ANNA 60 JUL 25 - AUG 5
2 H BLANCHE 75 AUG 11 - AUG 13
3 MH CAMILLE 165 AUG 14 - AUG 22
4 MH DEBBIE 105 AUG 14 - AUG 25
5 T EVE 50 AUG 25 - AUG 27
6 MH FRANCELIA 100 AUG 29 - SEP 4
7 MH GERDA 110 SEP 6 - SEP 10
8 H HOLLY 75 SEP 14 - SEP 21
9 MH INGA 100 SEP 20 - OCT 15
10 H ---- 65 SEP 21 - SEP 26
11 T ---- 60 SEP 24 - SEP 30
12 ST ---- 50 SEP 29 - OCT 1
13 T JENNY 40 OCT 1 - OCT 6
14 H KARA 90 OCT 7 - OCT 19
15 H LAURIE 90 OCT 17 - OCT 27
16 T ---- 60 OCT 28 - OCT 31
17 H ---- 65 OCT 30 - NOV 7
18 H MARTHA 80 NOV 21 - NOV 25
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1970
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1970
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ALMA 70 MAY 17 - MAY 27
2 T BECKY 55 JUL 19 - JUL 23
3 MH CELIA 110 JUL 31 - AUG 5
4 T ---- 60 AUG 15 - AUG 19
5 T DOROTHY 60 AUG 17 - AUG 23
6 MH ELLA 110 SEP 8 - SEP 13
7 T FELICE 60 SEP 12 - SEP 17
8 T GRETA 45 SEP 26 - OCT 5
9 H ---- 90 OCT 12 - OCT 18
10 H ---- 65 OCT 20 - OCT 28
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1971
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1971
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ARLENE 55 JUL 4 - JUL 8
2 H ---- 75 AUG 3 - AUG 7
3 H BETH 75 AUG 10 - AUG 17
4 T CHLOE 55 AUG 18 - AUG 25
5 T DORIA 55 AUG 20 - AUG 29
6 MH EDITH 140 SEP 5 - SEP 18
7 H FERN 80 SEP 3 - SEP 13
8 H GINGER 95 SEP 6 - OCT 5
9 T HEIDI 55 SEP 11 - SEP 15
10 H IRENE 70 SEP 11 - SEP 20
11 T JANICE 55 SEP 21 - SEP 24
12 T KRISTY 45 OCT 18 - OCT 21
13 T LAURA 60 NOV 12 - NOV 22
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1972
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1972
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 ST ALPHA 60 MAY 23 - MAY 29
2 H* AGNES 75 JUN 14 - JUN 23
3 H BETTY 90 AUG 22 - SEP 1
4 T CARRIE 60 AUG 29 - SEP 5
5 H DAWN 70 SEP 5 - SEP 14
6 ST CHARLIE 60 SEP 19 - SEP 22
7 ST DELTA 40 NOV 1 - NOV 7
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1973
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1973
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ALICE 80 JUL 1 - JUL 7
2 ST ALFA 40 JUL 30 - AUG 2
3 H BRENDA 80 AUG 18 - AUG 22
4 T CHRISTINE 60 AUG 25 - SEP 4
5 T DELIA 60 SEP 1 - SEP 7
6 MH ELLEN 100 SEP 14 - SEP 23
7 H FRAN 70 OCT 8 - OCT 13
8 T GILDA 60 OCT 16 - OCT 30
Initial Portion of
H. Christine track
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
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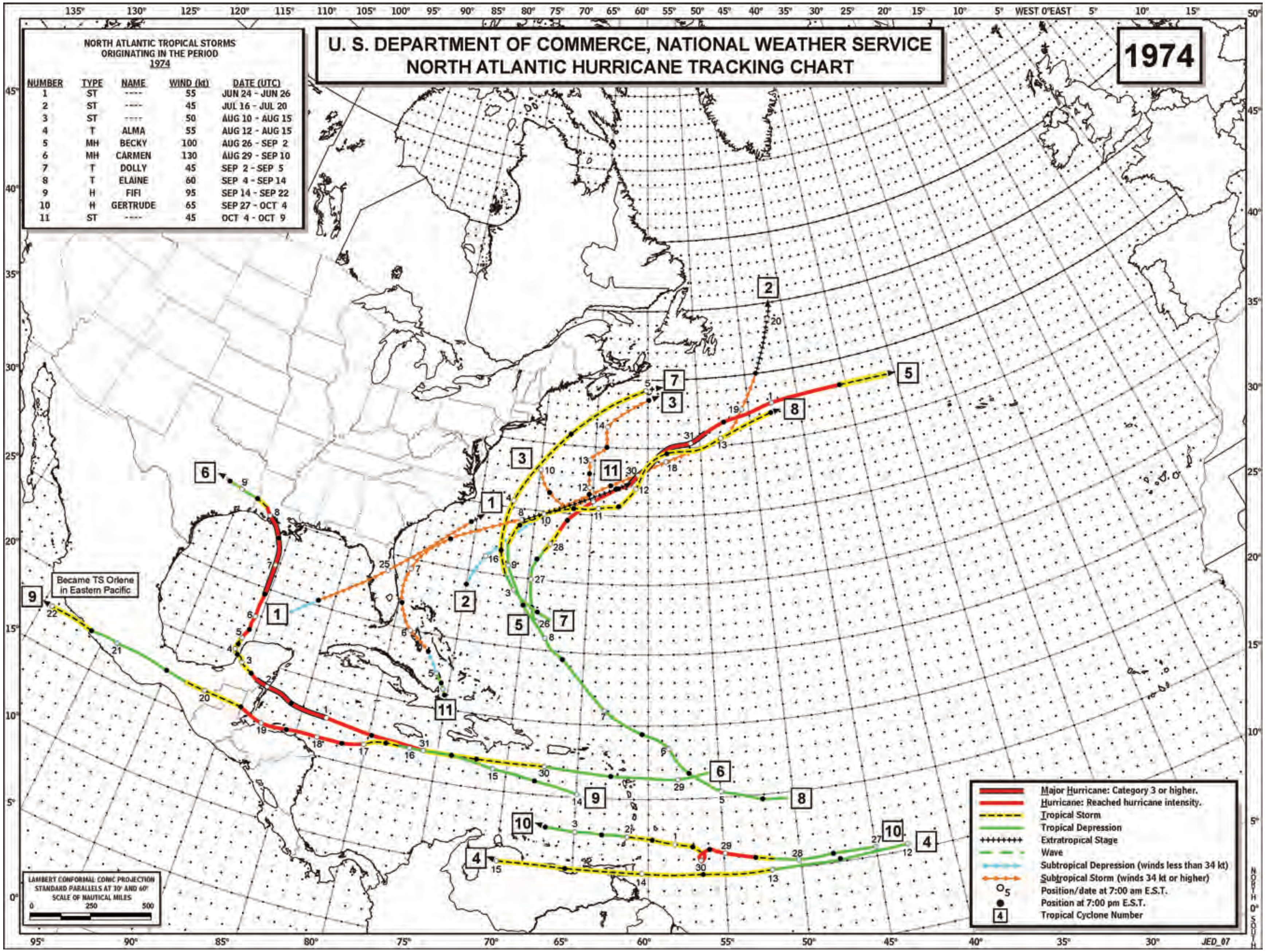
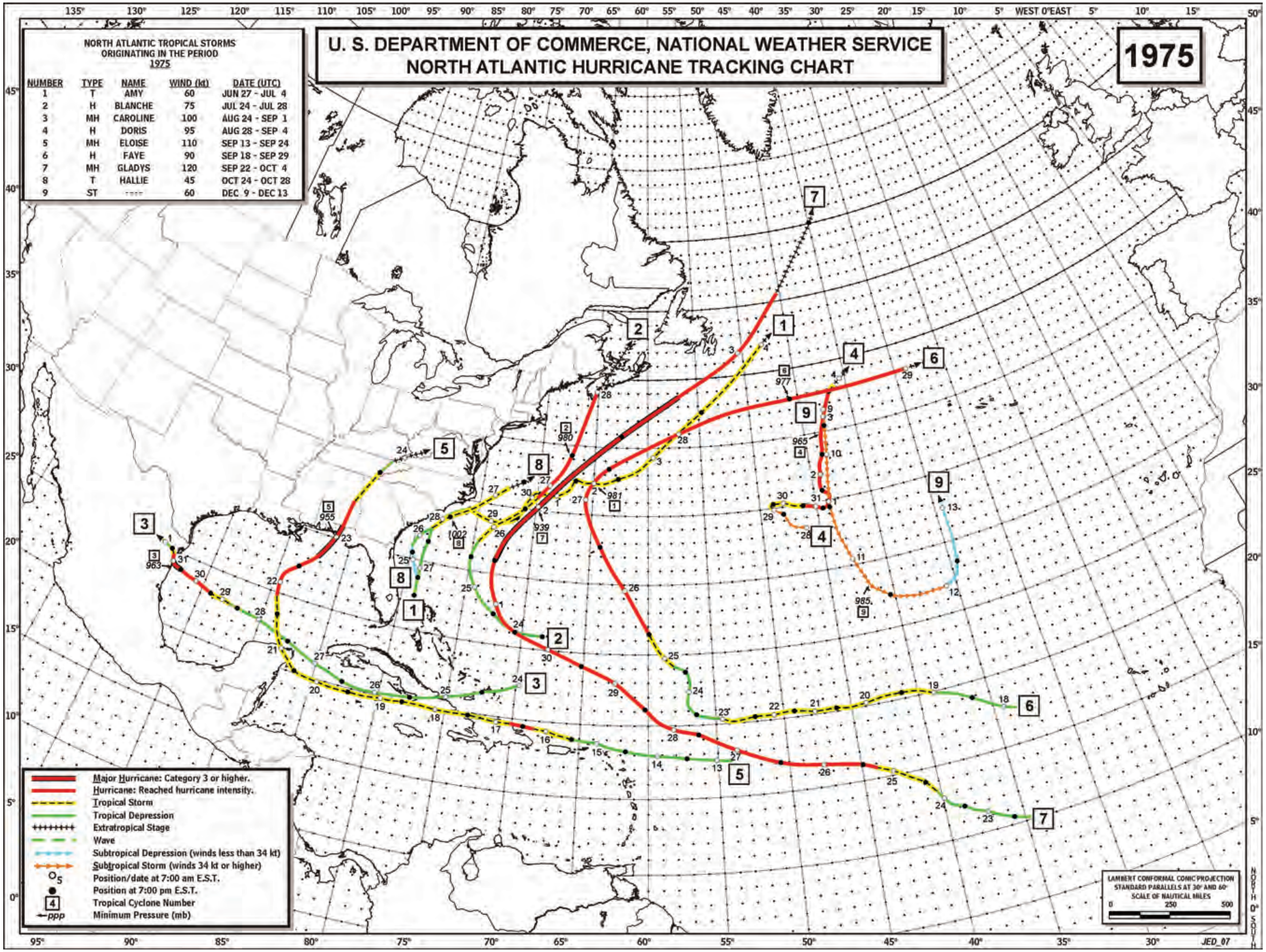
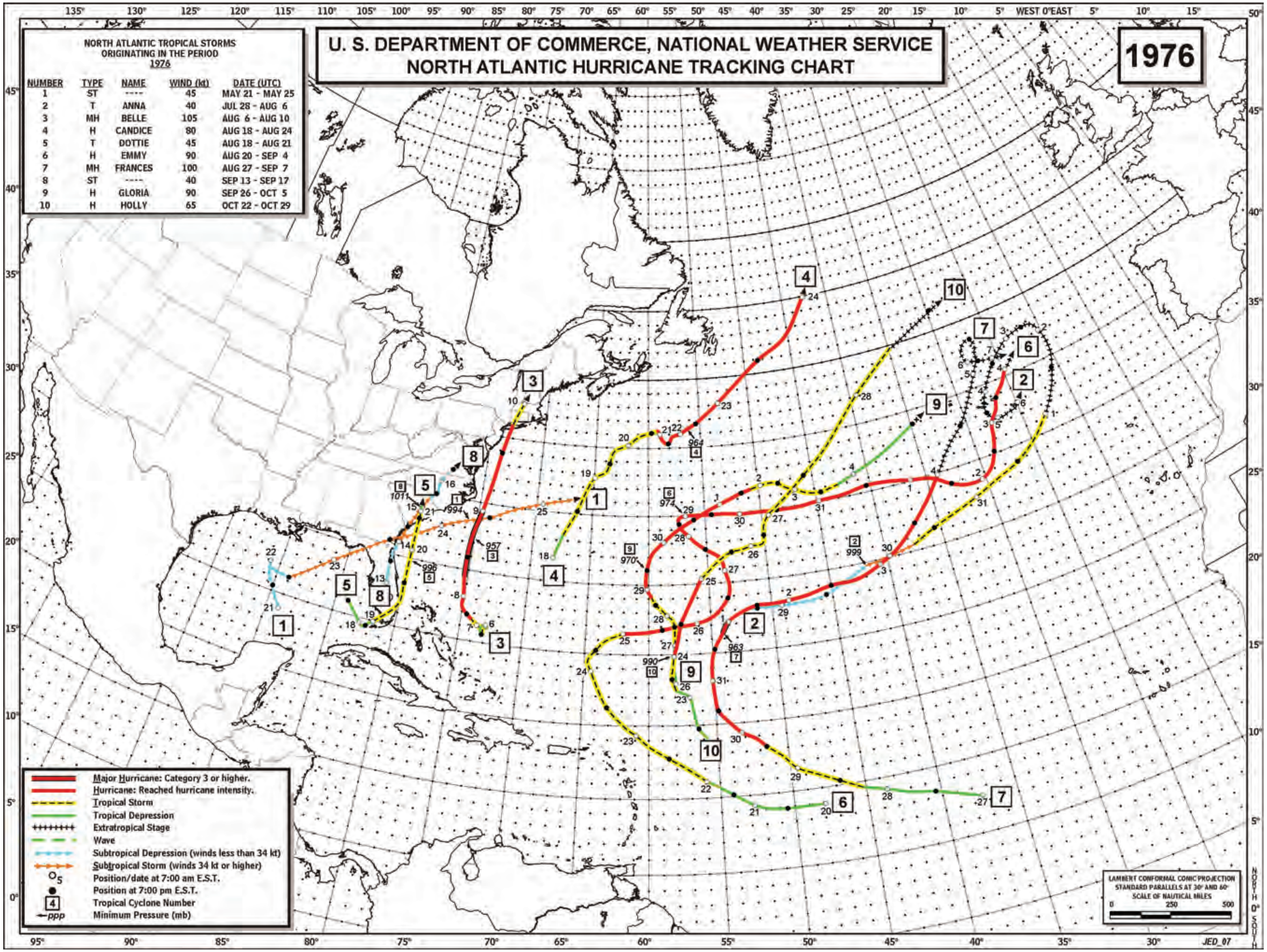

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1974
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1974
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 ST ---- 55 JUN 24 - JUN 26
2 ST ---- 45 JUL 16 - JUL 20
3 ST ---- 50 AUG 10 - AUG 15
4 T ALMA 55 AUG 12 - AUG 15
5 MH BECKY 100 AUG 26 - SEP 2
6 MH CARMEN 130 AUG 29 - SEP 10
7 T DOLLY 45 SEP 2 - SEP 5
8 T ELAINE 60 SEP 4 - SEP 14
9 H FIFI 95 SEP 14 - SEP 22
10 H GERTRUDE 65 SEP 27 - OCT 4
11 ST ---- 45 OCT 4 - OCT 9
Became TS Orlene
in Eastern Pacific
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1975
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1975
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T AMY 60 JUN 27 - JUL 4
2 H BLANCHE 75 JUL 24 - JUL 28
3 MH CAROLINE 100 AUG 24 - SEP 1
4 H DORIS 95 AUG 28 - SEP 4
5 MH ELOISE 110 SEP 13 - SEP 24
6 H FAYE 90 SEP 18 - SEP 29
7 MH GLADYS 120 SEP 22 - OCT 4
8 T HALLIE 45 OCT 24 - OCT 28
9 ST ---- 60 DEC 9 - DEC 13
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1976
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1976
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 ST ---- 45 MAY 21 - MAY 25
2 T ANNA 40 JUL 28 - AUG 6
3 MH BELLE 105 AUG 6 - AUG 10
4 H CANDICE 80 AUG 18 - AUG 24
5 T DOTTIE 45 AUG 18 - AUG 21
6 H EMMY 90 AUG 20 - SEP 4
7 MH FRANCES 100 AUG 27 - SEP 7
8 ST ---- 40 SEP 13 - SEP 17
9 H GLORIA 90 SEP 26 - OCT 5
10 H HOLLY 65 OCT 22 - OCT 29
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
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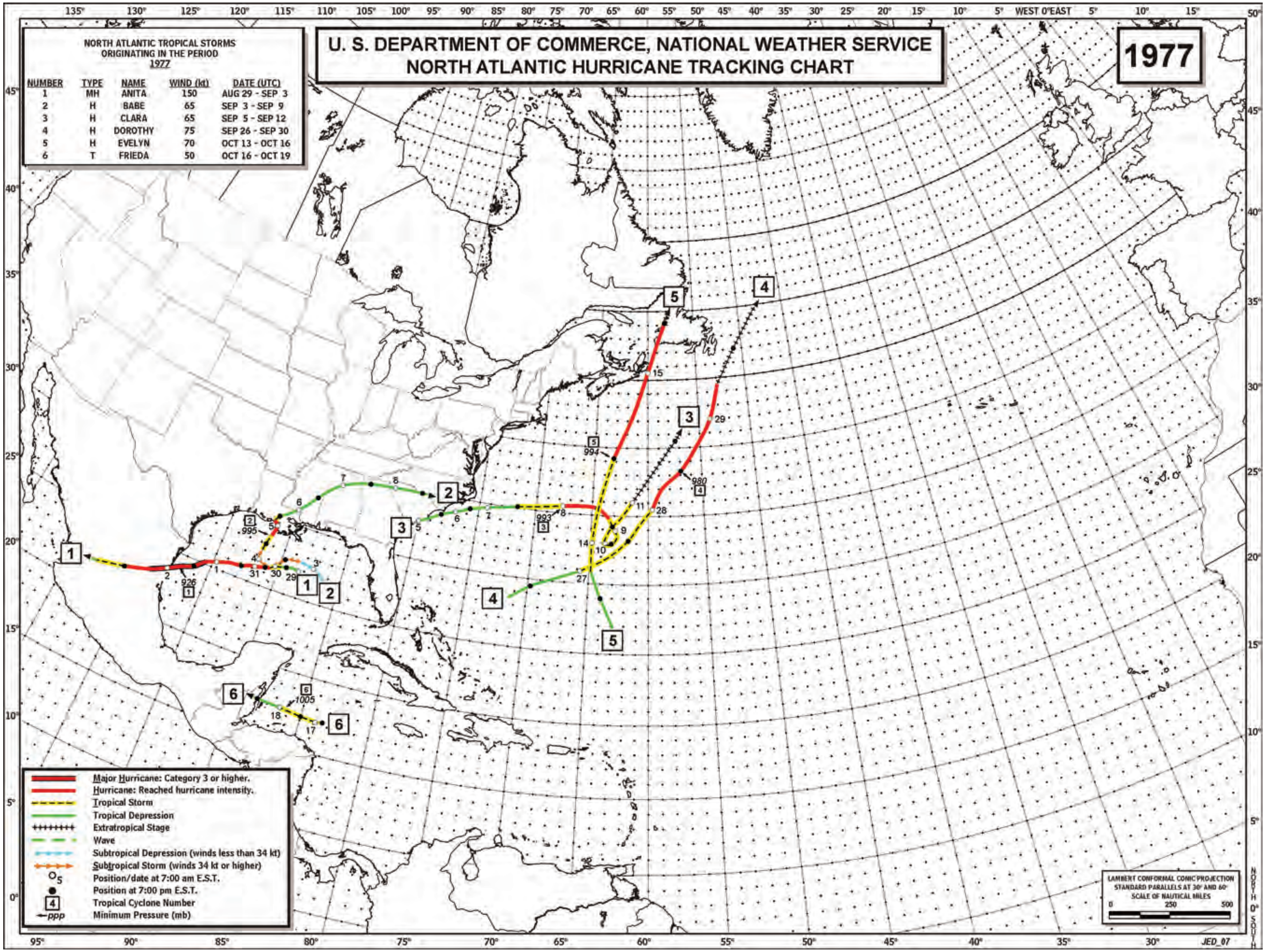
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1977
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1977
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ANITA 150 AUG 29 - SEP 3
2 H BABE 65 SEP 3 - SEP 9
3 H CLARA 65 SEP 5 - SEP 12
4 H DOROTHY 75 SEP 26 - SEP 30
5 H EVELYN 70 OCT 13 - OCT 16
6 T FRIEDA 50 OCT 16 - OCT 19
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
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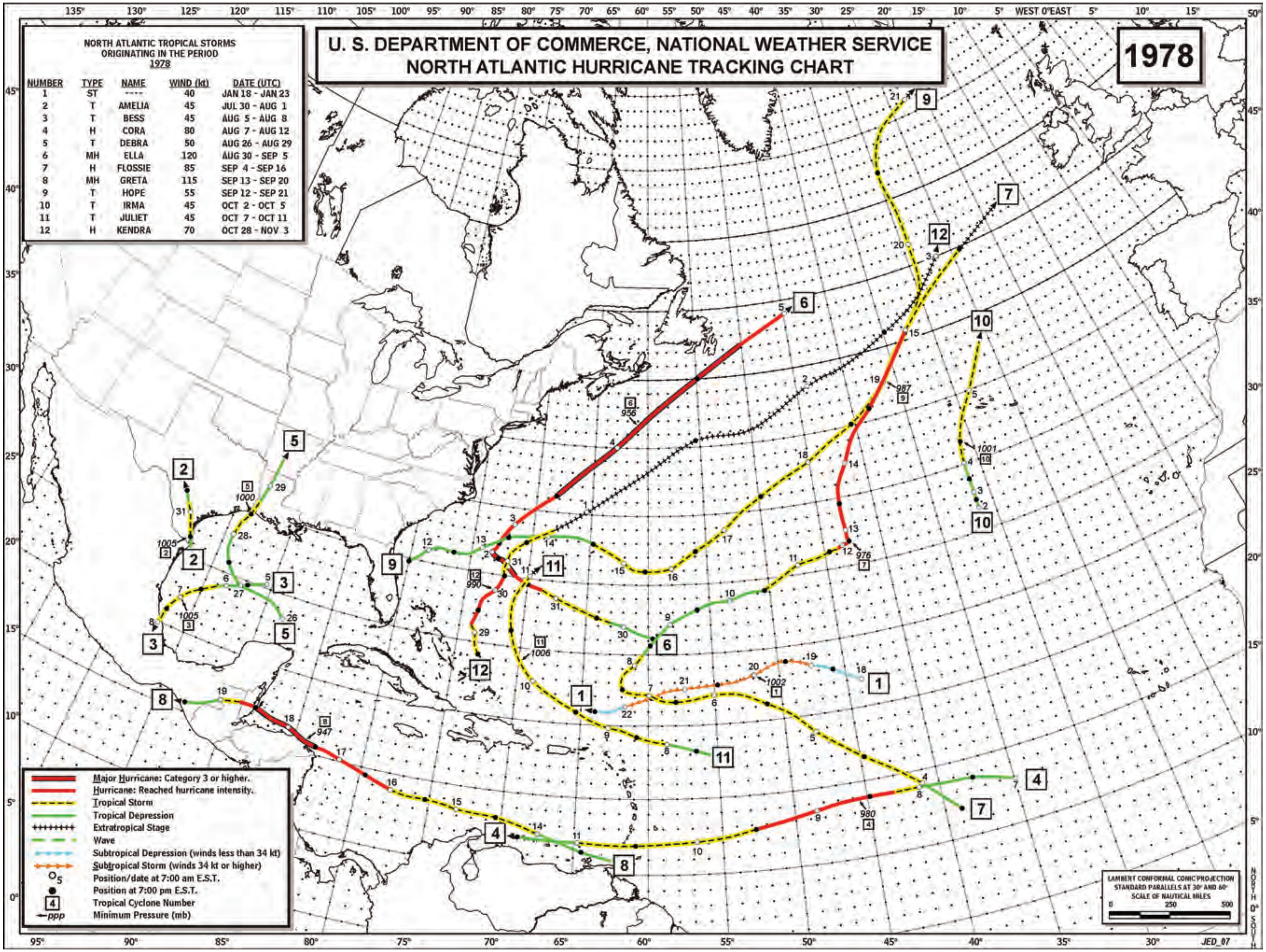
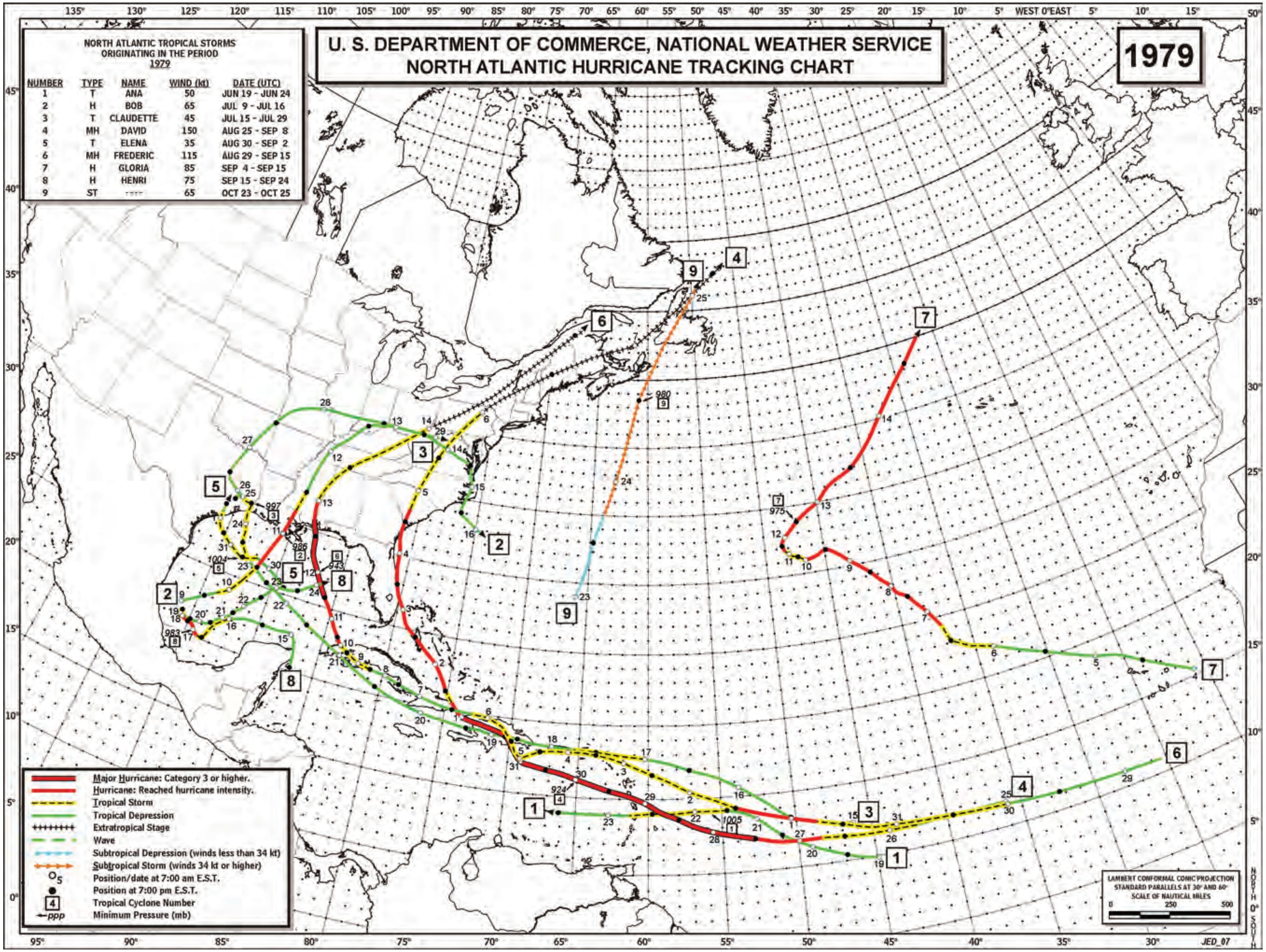
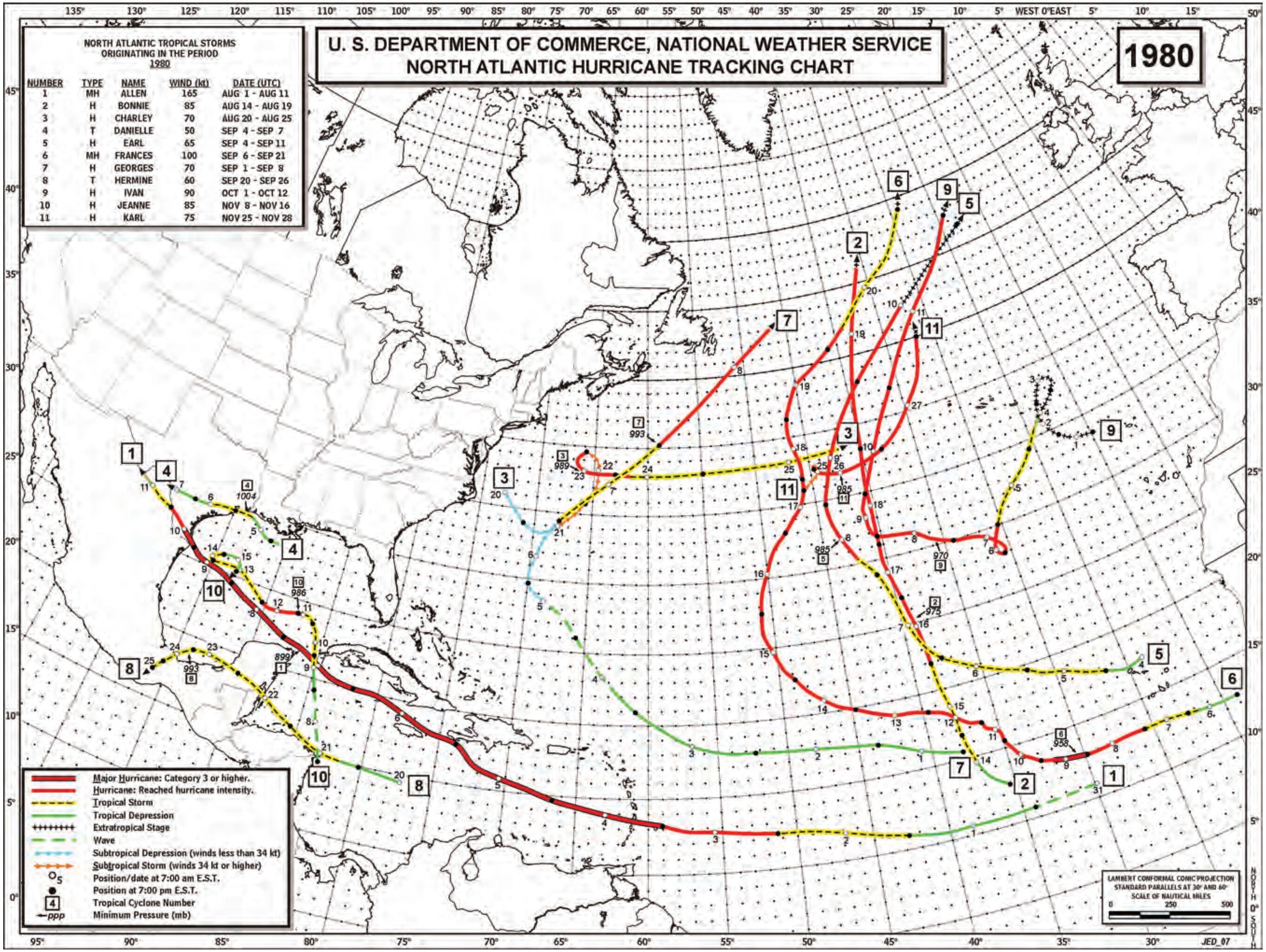
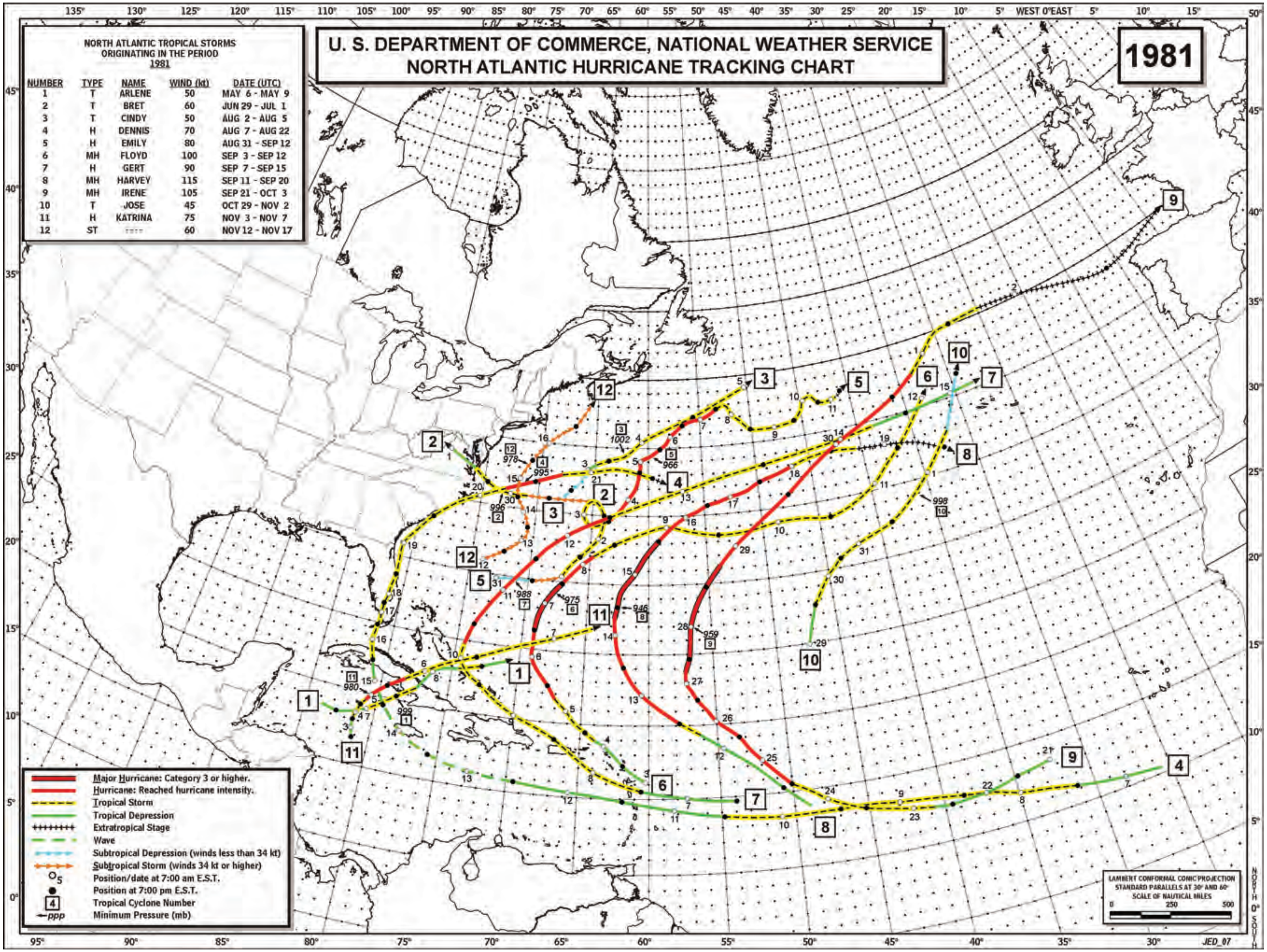
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1978
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1978
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 ST ---- 40 JAN 18 - JAN 23
2 T AMELIA 45 JUL 30 - AUG 1
3 T BESS 45 AUG 5 - AUG 8
4 H CORA 80 AUG 7 - AUG 12
5 T DEBRA 50 AUG 26 - AUG 29
6 MH ELLA 120 AUG 30 - SEP 5
7 H FLOSSIE 85 SEP 4 - SEP 16
8 MH GRETA 115 SEP 13 - SEP 20
9 T HOPE 55 SEP 12 - SEP 21
10 T IRMA 45 OCT 2 - OCT 5
11 T JULIET 45 OCT 7 - OCT 11
12 H KENDRA 70 OCT 28 - NOV 3
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1979
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1979
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ANA 50 JUN 19 - JUN 24
2 H BOB 65 JUL 9 - JUL 16
3 T CLAUDETTE 45 JUL 15 - JUL 29
4 MH DAVID 150 AUG 25 - SEP 8
5 T ELENA 35 AUG 30 - SEP 2
6 MH FREDERIC 115 AUG 29 - SEP 15
7 H GLORIA 85 SEP 4 - SEP 15
8 H HENRI 75 SEP 15 - SEP 24
9 ST ---- 65 OCT 23 - OCT 25
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07



U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1980
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1980
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ALLEN 165 AUG 1 - AUG 11
2 H BONNIE 85 AUG 14 - AUG 19
3 H CHARLEY 70 AUG 20 - AUG 25
4 T DANIELLE 50 SEP 4 - SEP 7
5 H EARL 65 SEP 4 - SEP 11
6 MH FRANCES 100 SEP 6 - SEP 21
7 H GEORGES 70 SEP 1 - SEP 8
8 T HERMINE 60 SEP 20 - SEP 26
9 H IVAN 90 OCT 1 - OCT 12
10 H JEANNE 85 NOV 8 - NOV 16
11 H KARL 75 NOV 25 - NOV 28
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1981
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1981
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ARLENE 50 MAY 6 - MAY 9
2 T BRET 60 JUN 29 - JUL 1
3 T CINDY 50 AUG 2 - AUG 5
4 H DENNIS 70 AUG 7 - AUG 22
5 H EMILY 80 AUG 31 - SEP 12
6 MH FLOYD 100 SEP 3 - SEP 12
7 H GERT 90 SEP 7 - SEP 15
8 MH HARVEY 115 SEP 11 - SEP 20
9 MH IRENE 105 SEP 21 - OCT 3
10 T JOSE 45 OCT 29 - NOV 2
11 H KATRINA 75 NOV 3 - NOV 7
12 ST ---- 60 NOV 12 - NOV 17
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
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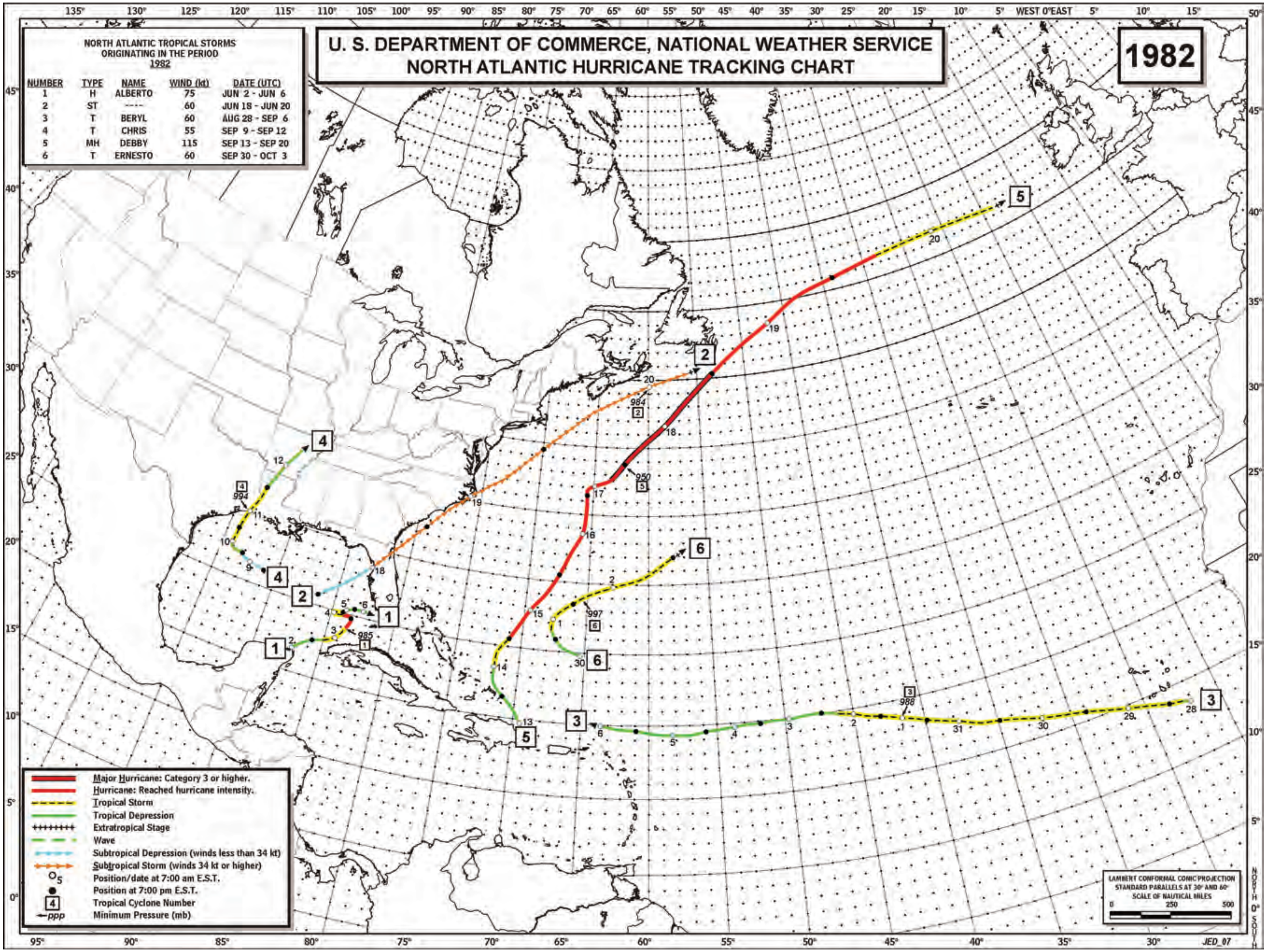
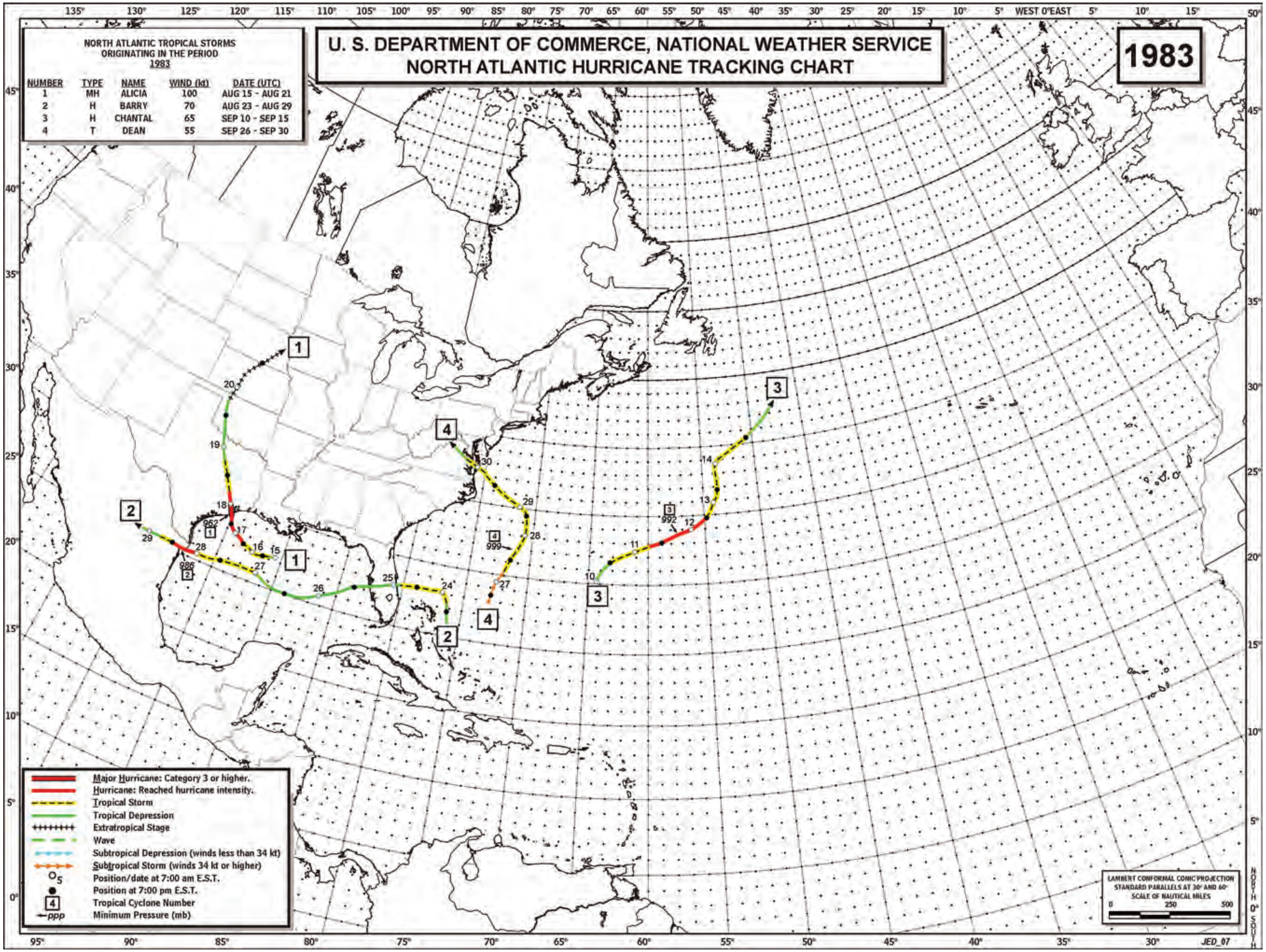

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1982
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1982
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ALBERTO 75 JUN 2 - JUN 6
2 ST ---- 60 JUN 18 - JUN 20
3 T BERYL 60 AUG 28 - SEP 6
4 T CHRIS 55 SEP 9 - SEP 12
5 MH DEBBY 115 SEP 13 - SEP 20
6 T ERNESTO 60 SEP 30 - OCT 3
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1983
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1983
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ALICIA 100 AUG 15 - AUG 21
2 H BARRY 70 AUG 23 - AUG 29
3 H CHANTAL 65 SEP 10 - SEP 15
4 T DEAN 55 SEP 26 - SEP 30
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
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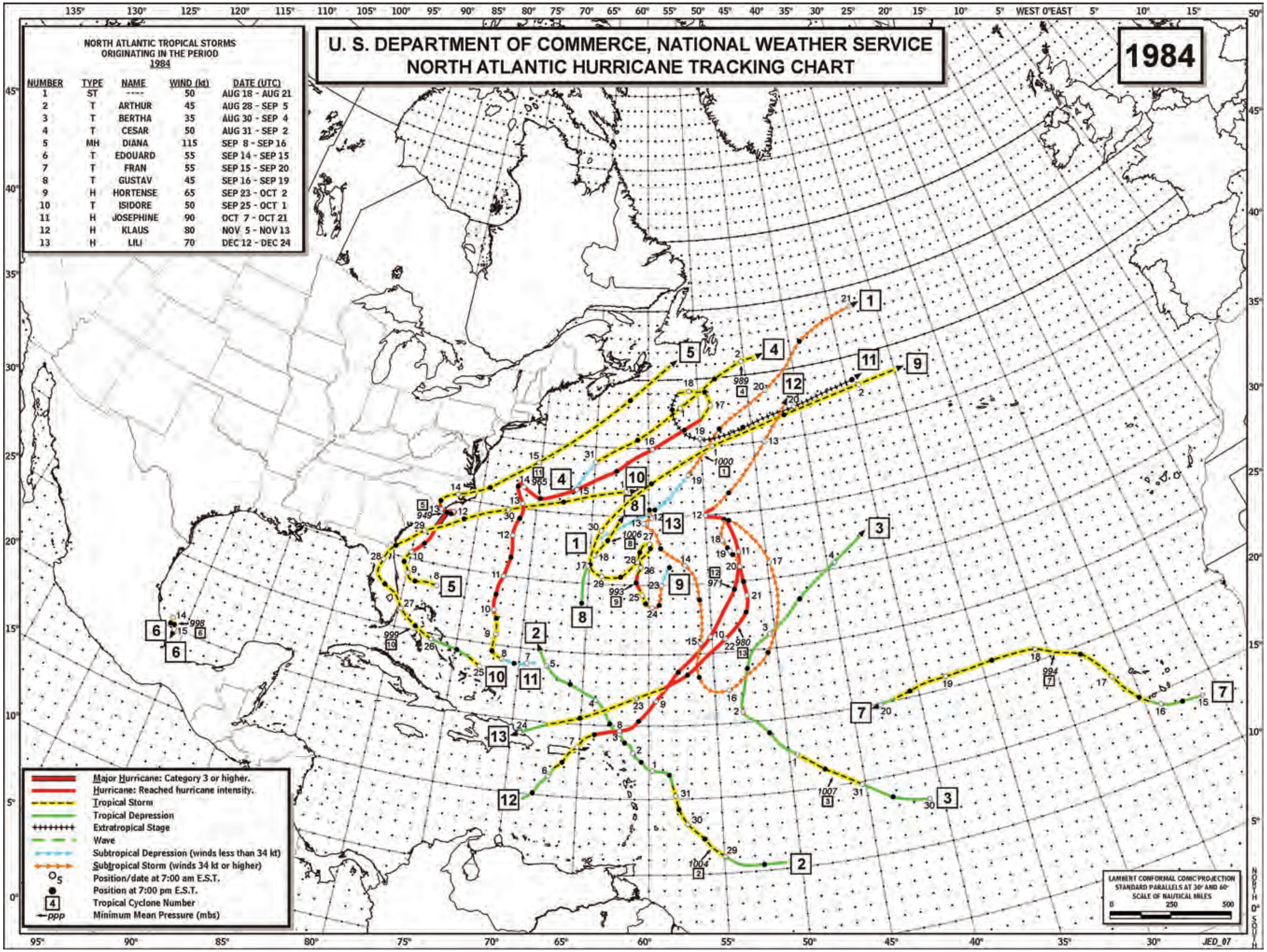
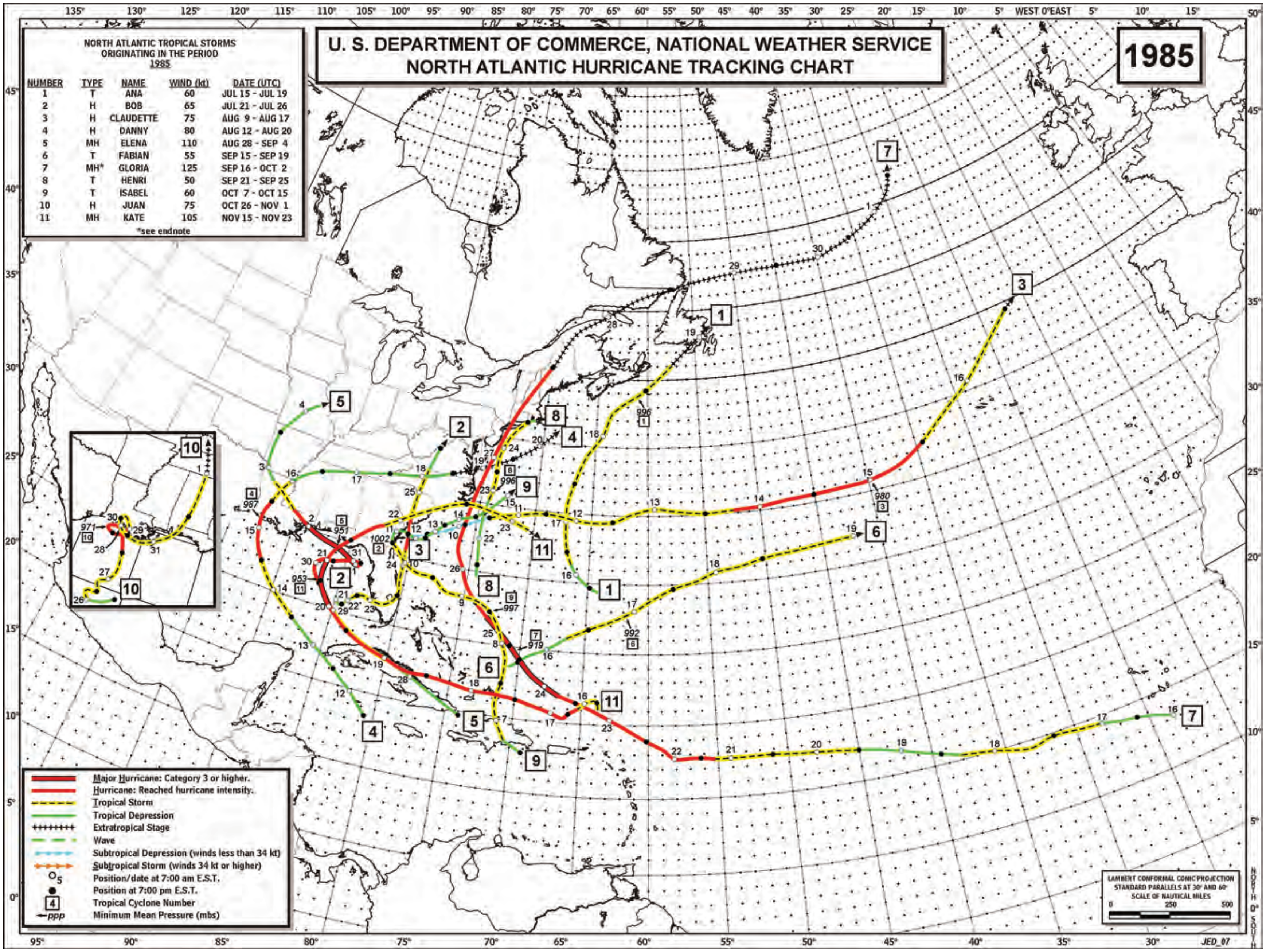
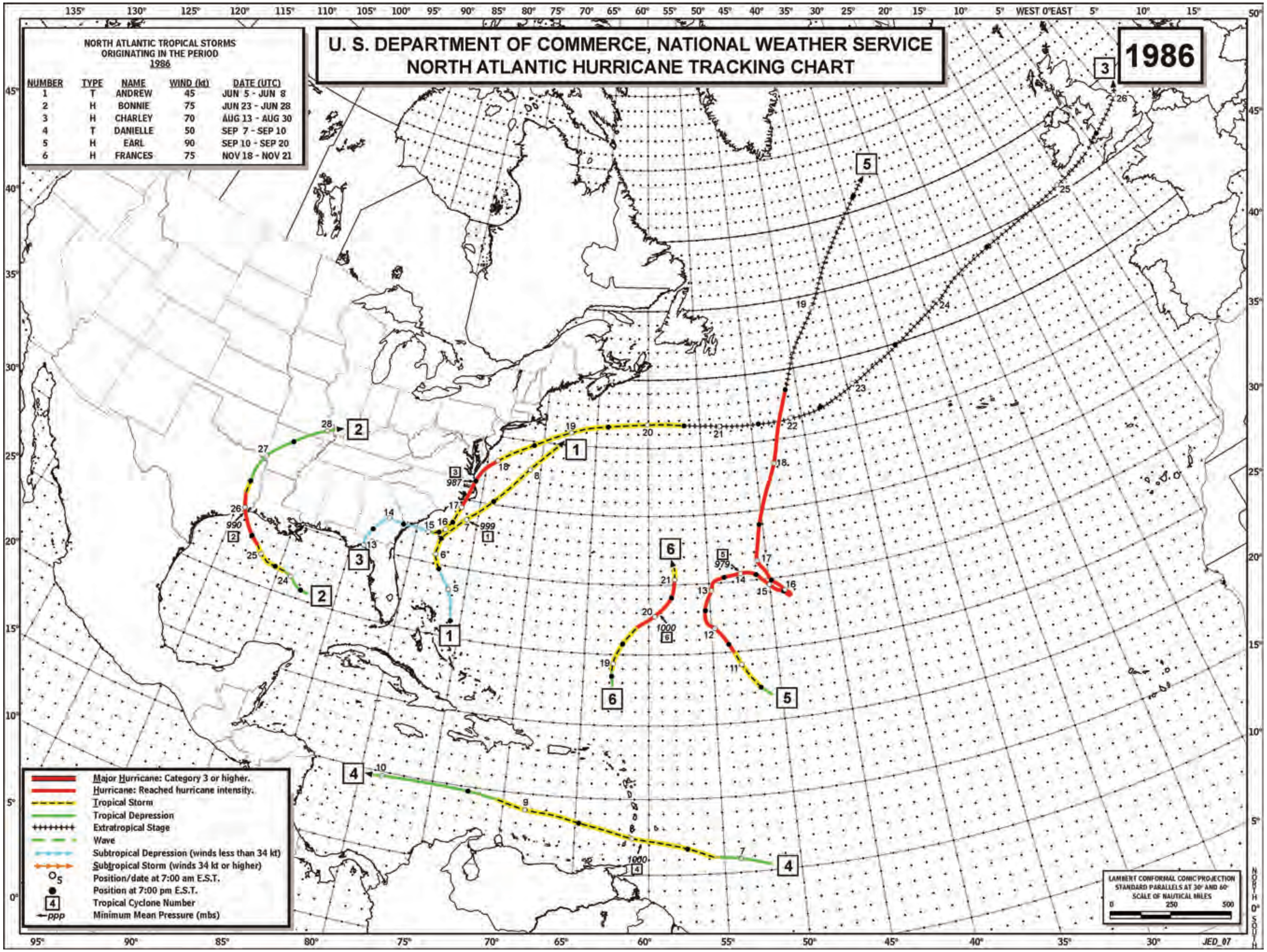
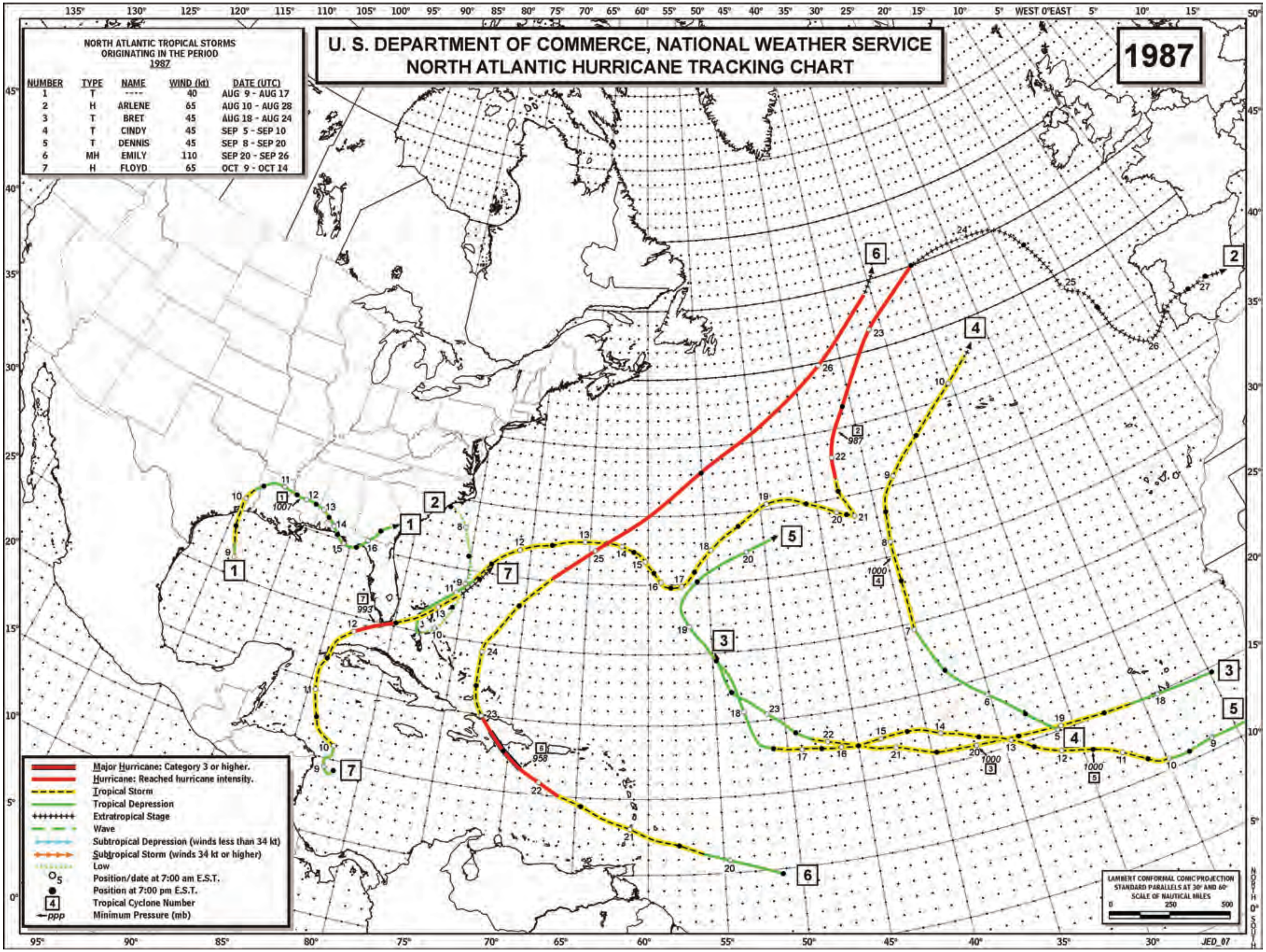
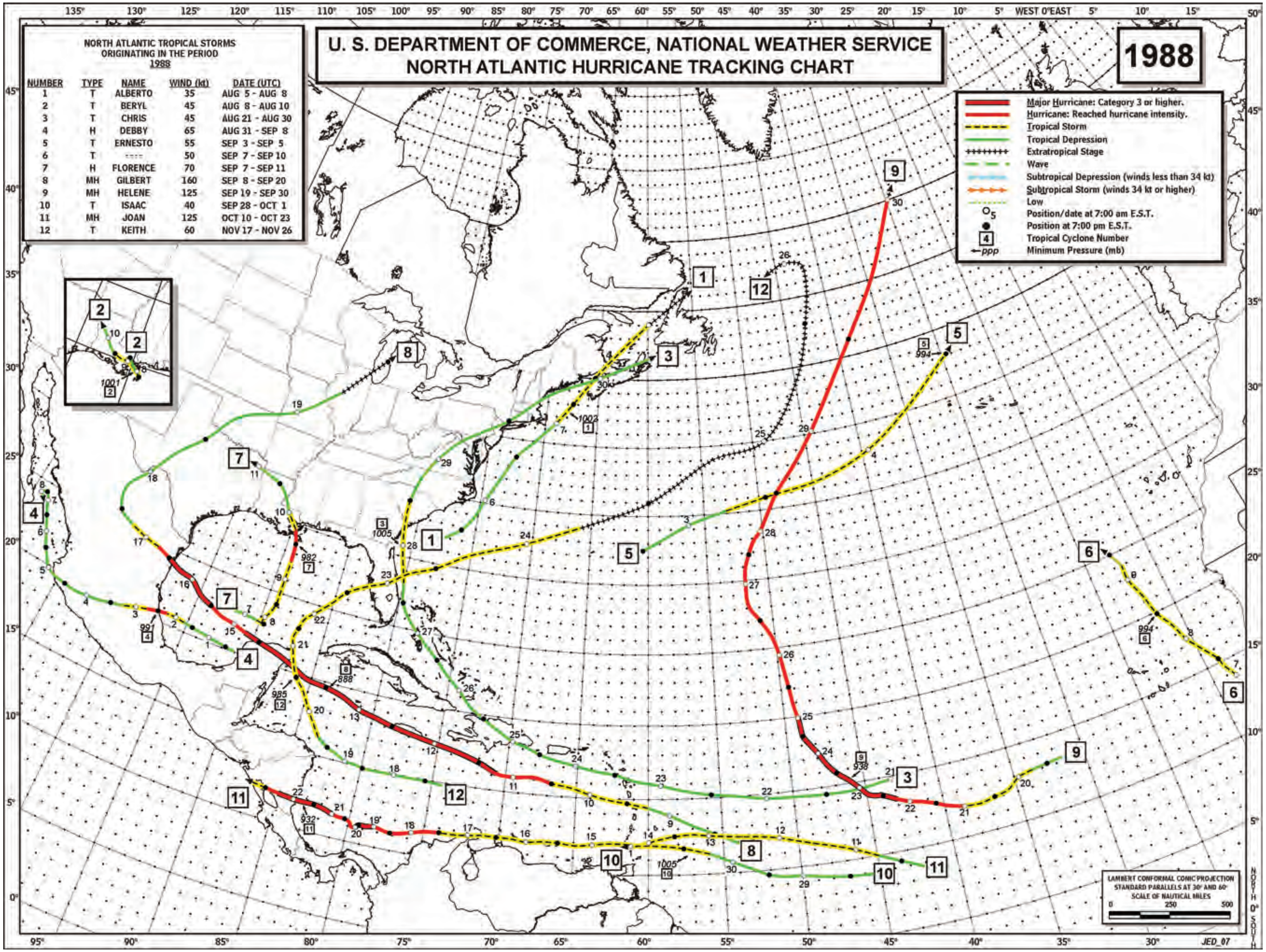
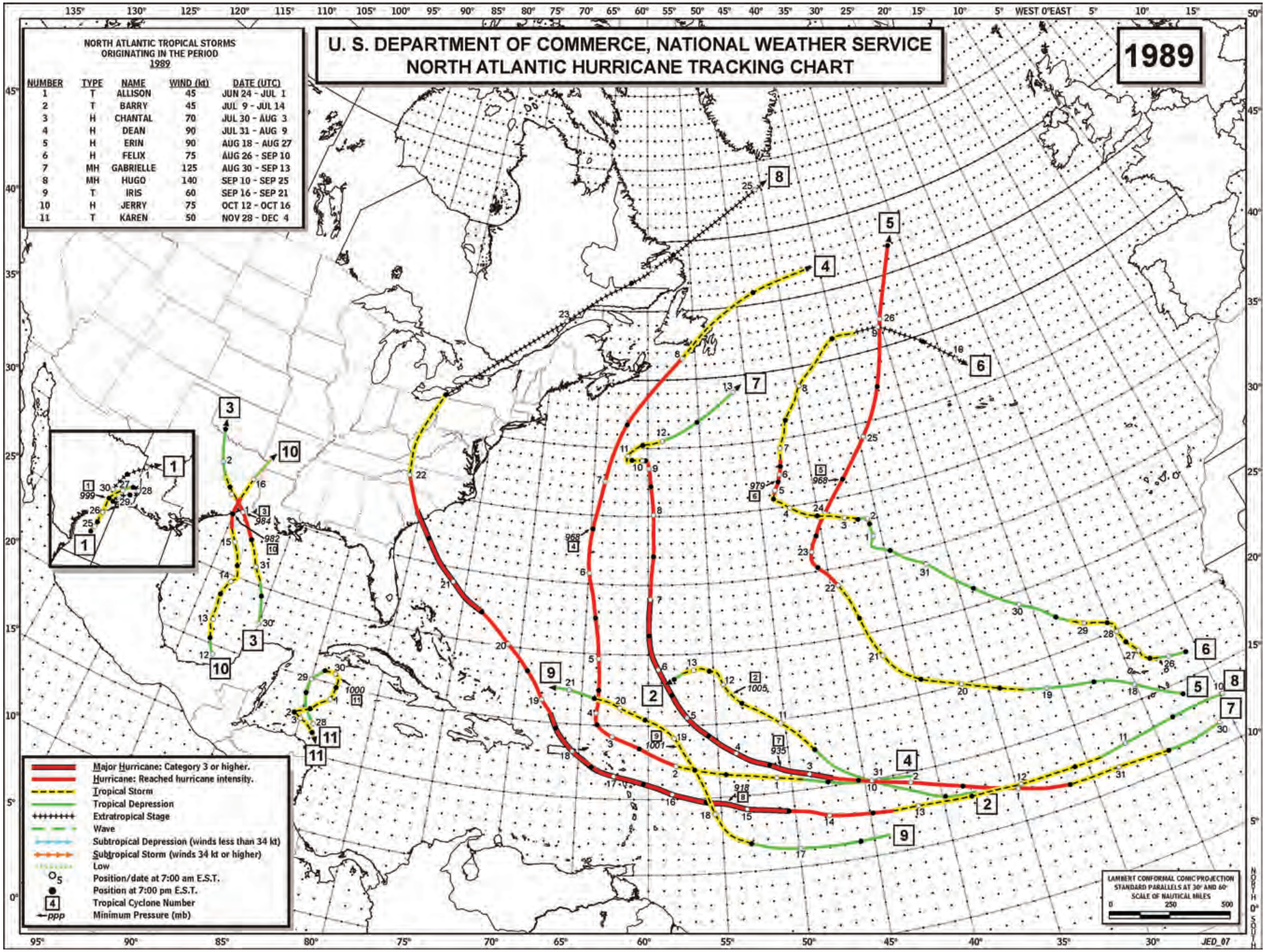

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1984
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1984
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 ST ---- 50 AUG 18 - AUG 21
2 T ARTHUR 45 AUG 28 - SEP 5
3 T BERTHA 35 AUG 30 - SEP 4
4 T CESAR 50 AUG 31 - SEP 2
5 MH DIANA 115 SEP 8 - SEP 16
6 T EDOUARD 55 SEP 14 - SEP 15
7 T FRAN 55 SEP 15 - SEP 20
8 T GUSTAV 45 SEP 16 - SEP 19
9 H HORTENSE 65 SEP 23 - OCT 2
10 T ISIDORE 50 SEP 25 - OCT 1
11 H JOSEPHINE 90 OCT 7 - OCT 21
12 H KLAUS 80 NOV 5 - NOV 13
13 H LILI 70 DEC 12 - DEC 24
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Mean Pressure (mbs)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

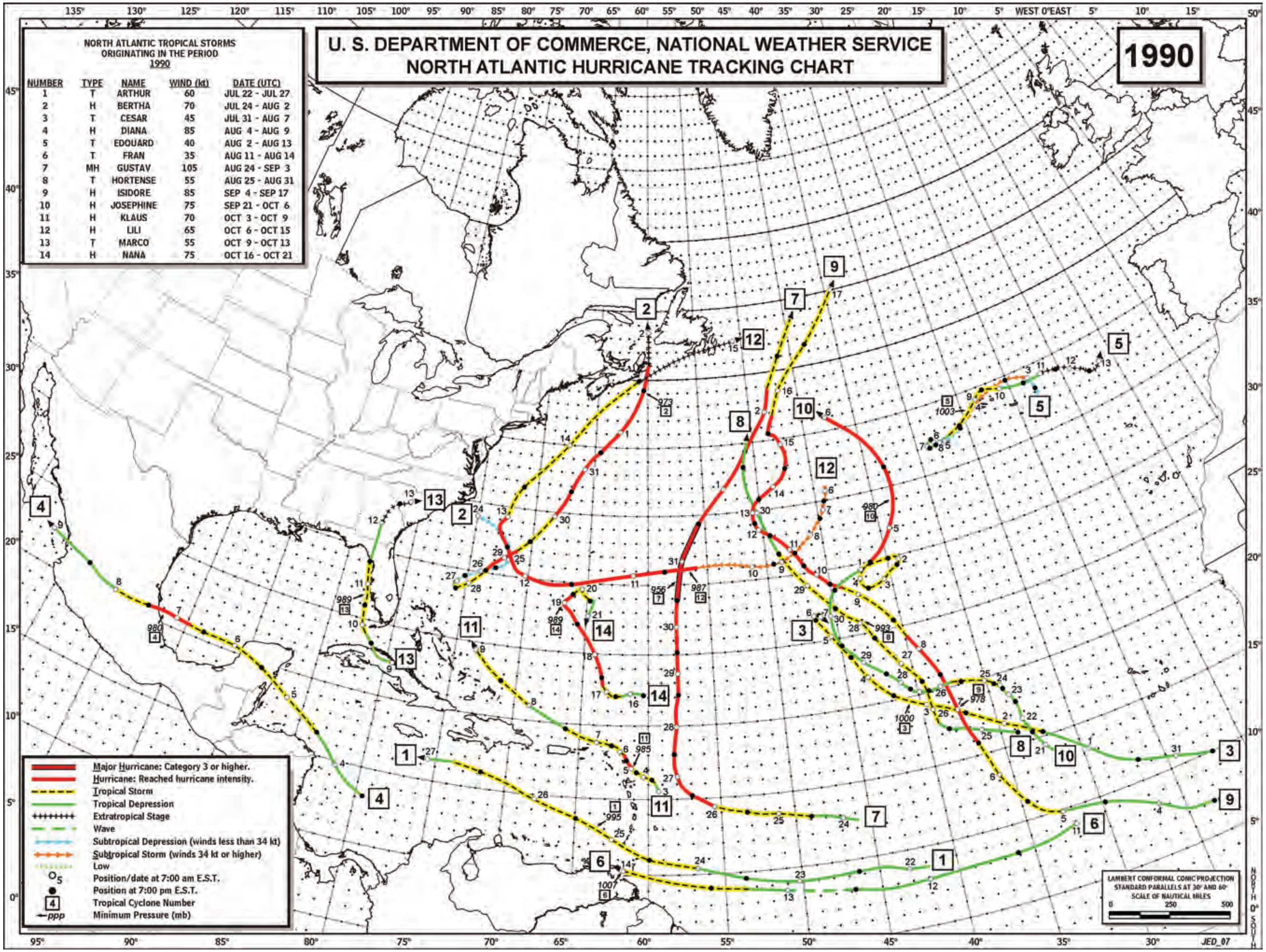

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1985
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1985
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ANA 60 JUL 15 - JUL 19
2 H BOB 65 JUL 21 - JUL 26
3 H CLAUDETTE 75 AUG 9 - AUG 17
4 H DANNY 80 AUG 12 - AUG 20
5 MH ELENA 110 AUG 28 - SEP 4
6 T FABIAN 55 SEP 15 - SEP 19
7 MH* GLORIA 125 SEP 16 - OCT 2
8 T HENRI 50 SEP 21 - SEP 25
9 T ISABEL 60 OCT 7 - OCT 15
10 H JUAN 75 OCT 26 - NOV 1
11 MH KATE 105 NOV 15 - NOV 23
*see endnote
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Mean Pressure (mbs)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

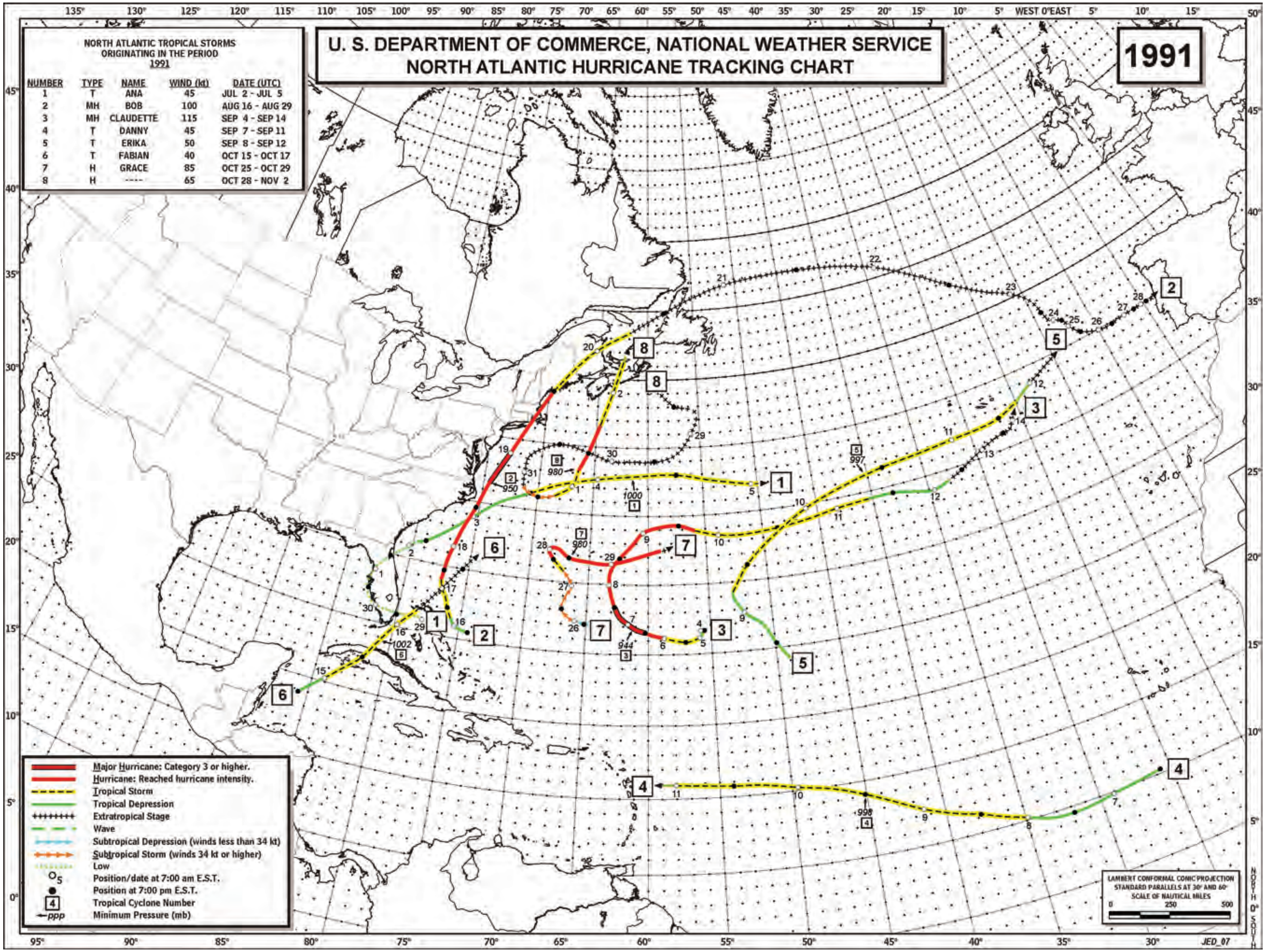

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1986
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1986
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ANDREW 45 JUN 5 - JUN 8
2 H BONNIE 75 JUN 23 - JUN 28
3 H CHARLEY 70 AUG 13 - AUG 30
4 T DANIELLE 50 SEP 7 - SEP 10
5 H EARL 90 SEP 10 - SEP 20
6 H FRANCES 75 NOV 18 - NOV 21
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Mean Pressure (mbs)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

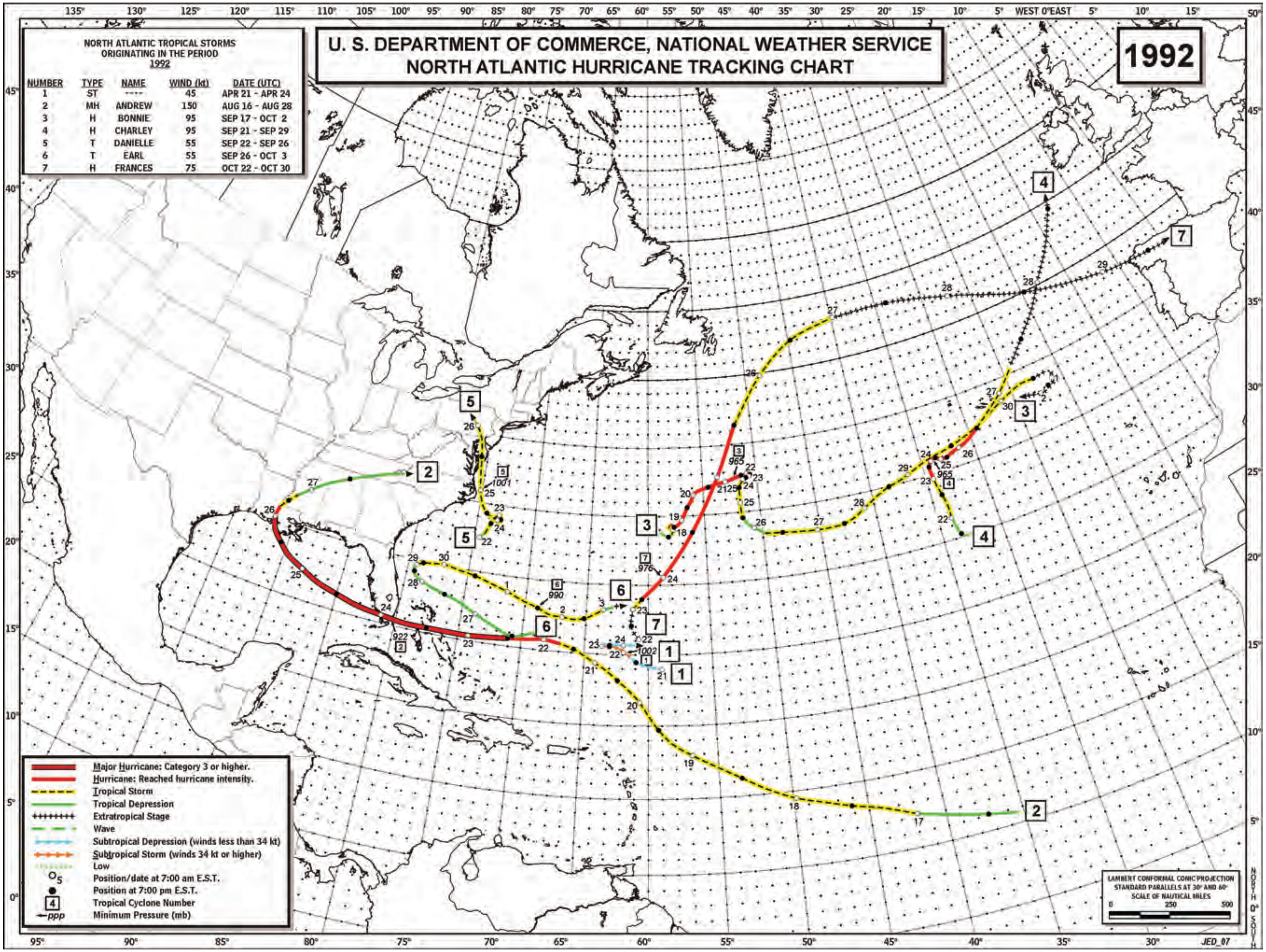

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1987
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1987
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ---- 40 AUG 9 - AUG 17
2 H ARLENE 65 AUG 10 - AUG 28
3 T BRET 45 AUG 18 - AUG 24
4 T CINDY 45 SEP 5 - SEP 10
5 T DENNIS 45 SEP 8 - SEP 20
6 MH EMILY 110 SEP 20 - SEP 26
7 H FLOYD 65 OCT 9 - OCT 14
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

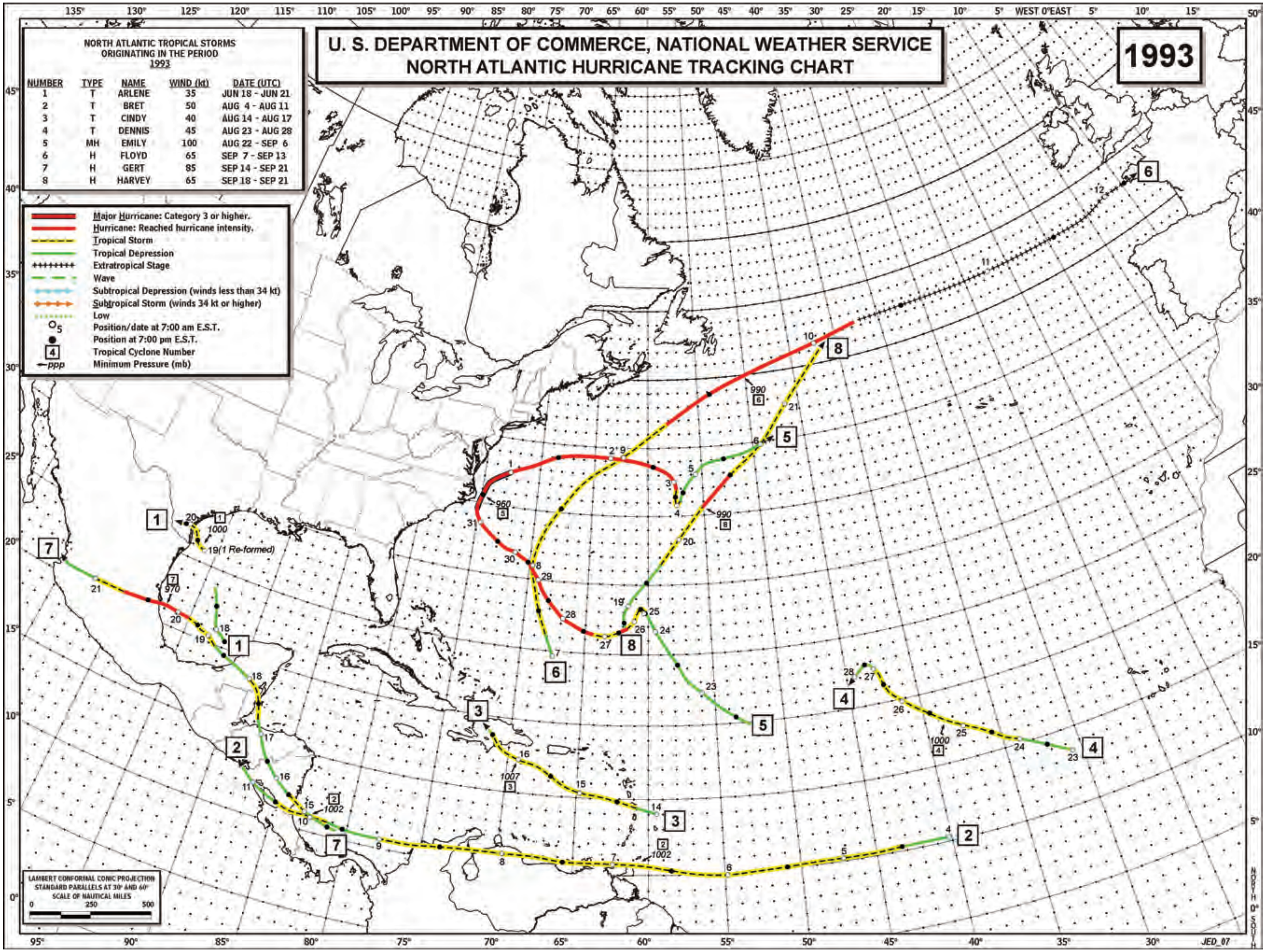

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1988
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1988
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ALBERTO 35 AUG 5 - AUG 8
2 T BERYL 45 AUG 8 - AUG 10
3 T CHRIS 45 AUG 21 - AUG 30
4 H DEBBY 65 AUG 31 - SEP 8
5 T ERNESTO 55 SEP 3 - SEP 5
6 T ---- 50 SEP 7 - SEP 10
7 H FLORENCE 70 SEP 7 - SEP 11
8 MH GILBERT 160 SEP 8 - SEP 20
9 MH HELENE 125 SEP 19 - SEP 30
10 T ISAAC 40 SEP 28 - OCT 1
11 MH JOAN 125 OCT 10 - OCT 23
12 T KEITH 60 NOV 17 - NOV 26
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

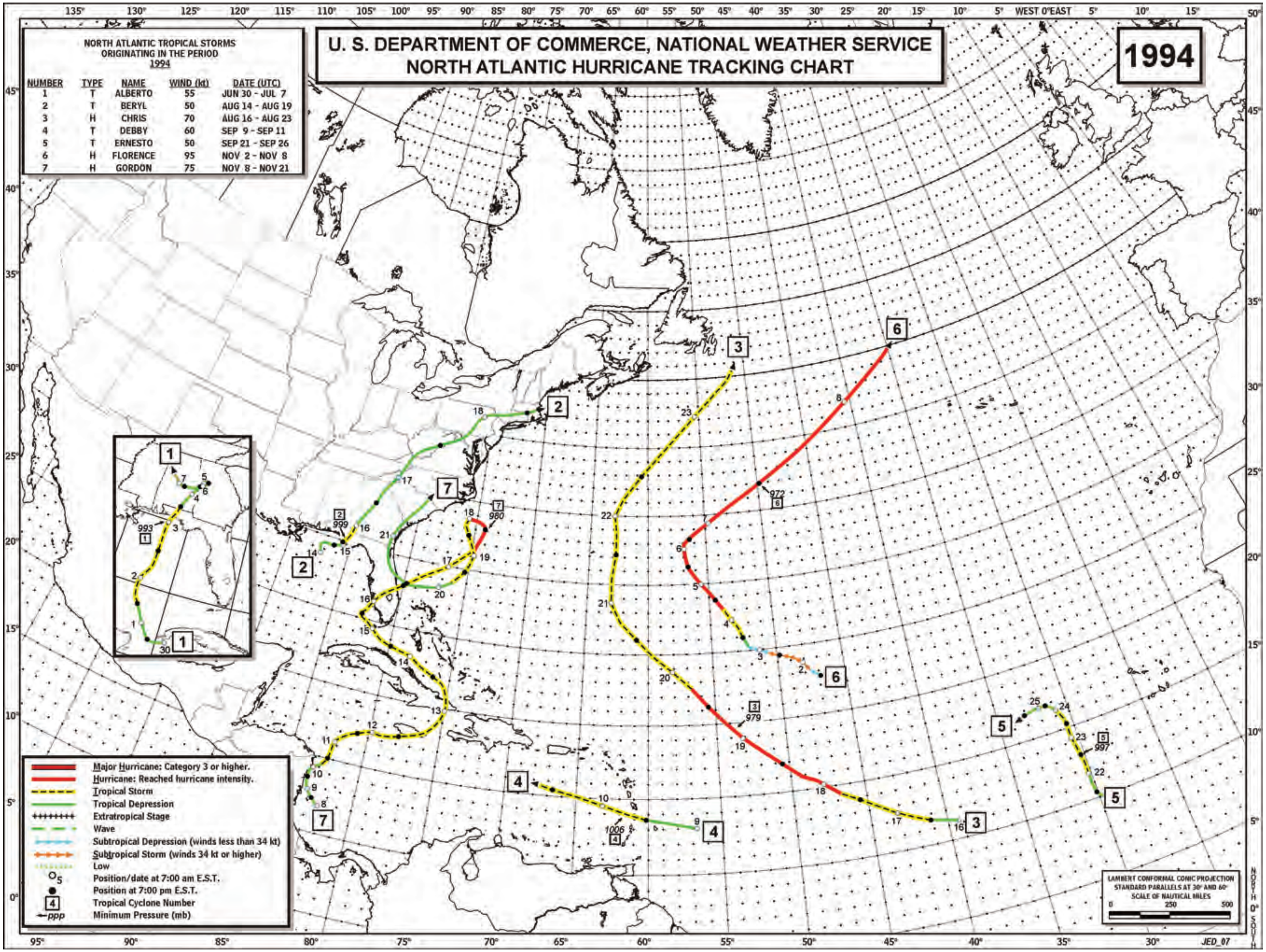

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1989
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1989
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ALLISON 45 JUN 24 - JUL 1
2 T BARRY 45 JUL 9 - JUL 14
3 H CHANTAL 70 JUL 30 - AUG 3
4 H DEAN 90 JUL 31 - AUG 9
5 H ERIN 90 AUG 18 - AUG 27
6 H FELIX 75 AUG 26 - SEP 10
7 MH GABRIELLE 125 AUG 30 - SEP 13
8 MH HUGO 140 SEP 10 - SEP 25
9 T IRIS 60 SEP 16 - SEP 21
10 H JERRY 75 OCT 12 - OCT 16
11 T KAREN 50 NOV 28 - DEC 4
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

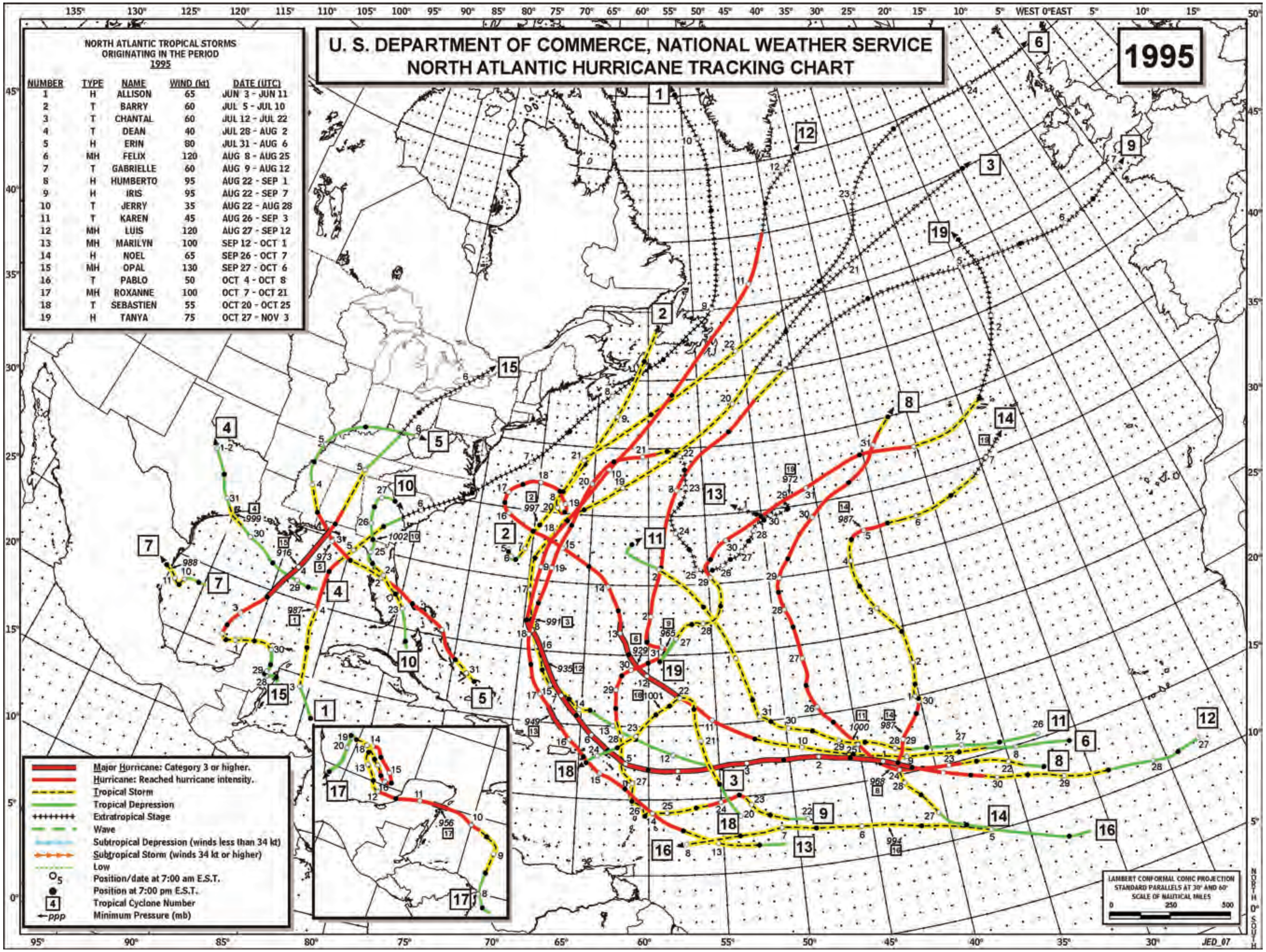

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1990
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1990
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ARTHUR 60 JUL 22 - JUL 27
2 H BERTHA 70 JUL 24 - AUG 2
3 T CESAR 45 JUL 31 - AUG 7
4 H DIANA 85 AUG 4 - AUG 9
5 T EDOUARD 40 AUG 2 - AUG 13
6 T FRAN 35 AUG 11 - AUG 14
7 MH GUSTAV 105 AUG 24 - SEP 3
8 T HORTENSE 55 AUG 25 - AUG 31
9 H ISIDORE 85 SEP 4 - SEP 17
10 H JOSEPHINE 75 SEP 21 - OCT 6
11 H KLAUS 70 OCT 3 - OCT 9
12 H LILI 65 OCT 6 - OCT 15
13 T MARCO 55 OCT 9 - OCT 13
14 H NANA 75 OCT 16 - OCT 21
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

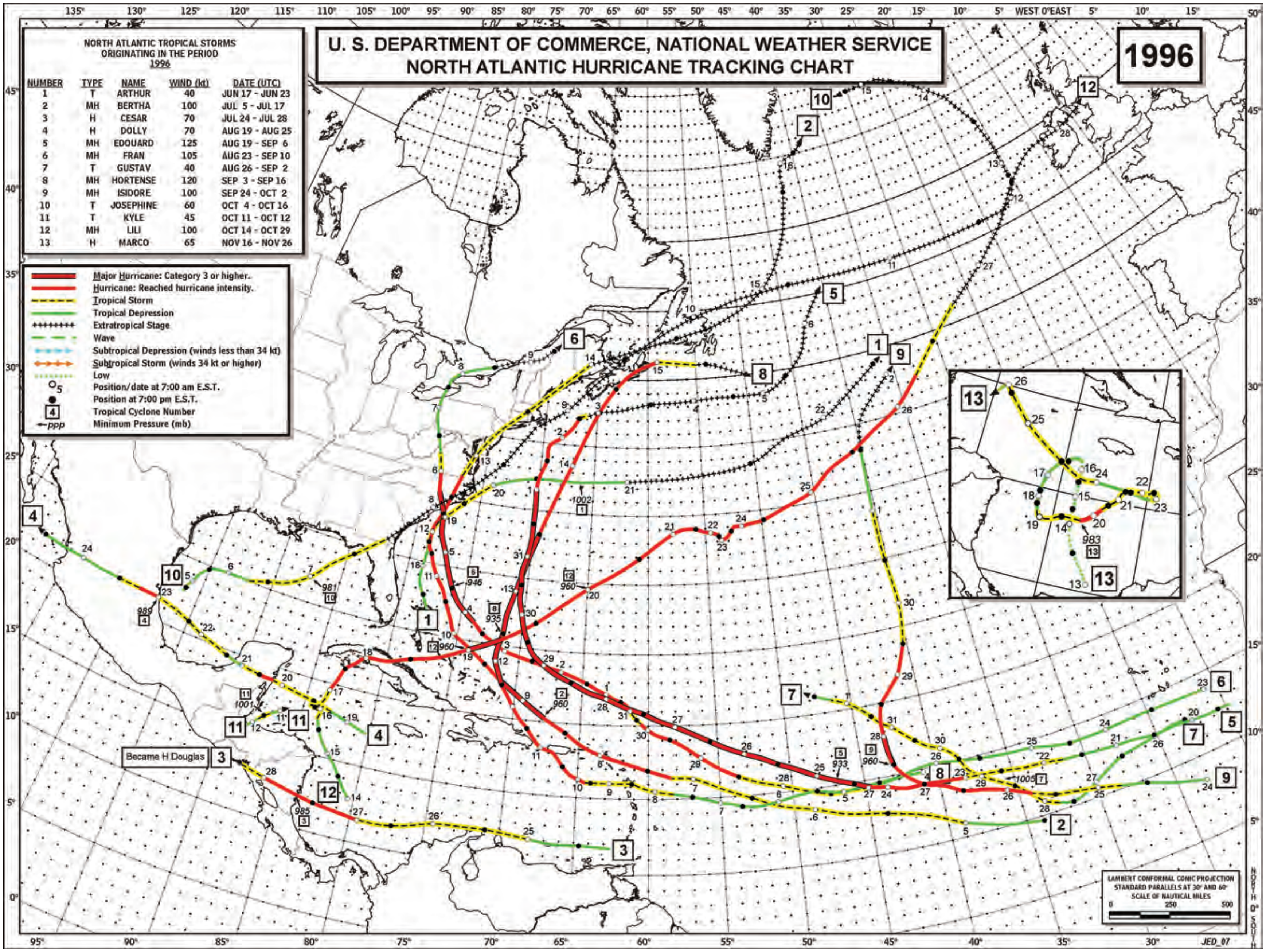

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1991
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1991
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ANA 45 JUL 2 - JUL 5
2 MH BOB 100 AUG 16 - AUG 29
3 MH CLAUDETTE 115 SEP 4 - SEP 14
4 T DANNY 45 SEP 7 - SEP 11
5 T ERIKA 50 SEP 8 - SEP 12
6 T FABIAN 40 OCT 15 - OCT 17
7 H GRACE 85 OCT 25 - OCT 29
8 H ---- 65 OCT 28 - NOV 2
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
WEST 0° EAST
NORTH 0° SOUTH
JED_07

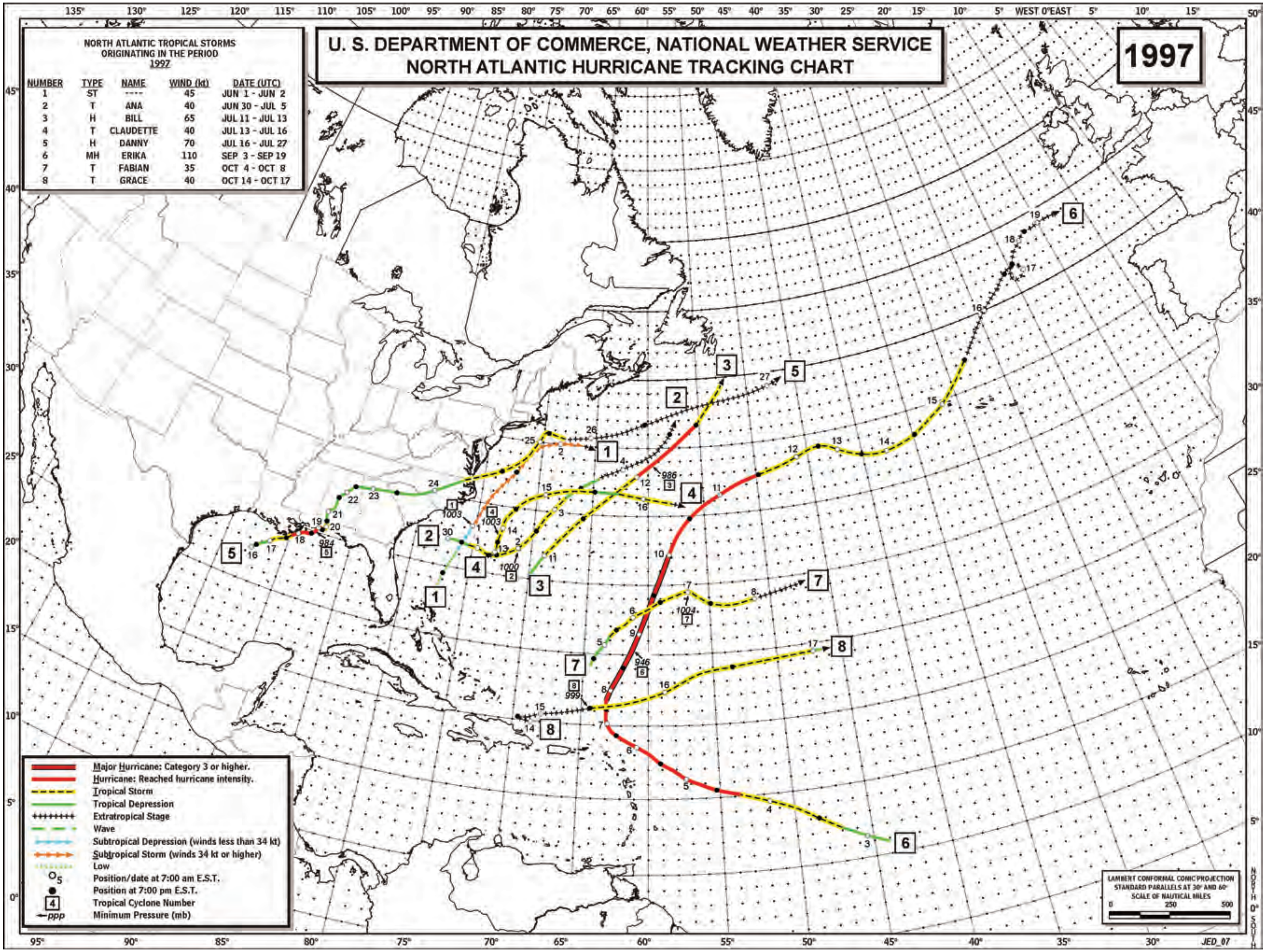

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1992
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1992
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 ST ---- 45 APR 21 - APR 24
2 MH ANDREW 150 AUG 16 - AUG 28
3 H BONNIE 95 SEP 17 - OCT 2
4 H CHARLEY 95 SEP 21 - SEP 29
5 T DANIELLE 55 SEP 22 - SEP 26
6 T EARL 55 SEP 26 - OCT 3
7 H FRANCES 75 OCT 22 - OCT 30
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1993
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1993
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ARLENE 35 JUN 18 - JUN 21
2 T BRET 50 AUG 4 - AUG 11
3 T CINDY 40 AUG 14 - AUG 17
4 T DENNIS 45 AUG 23 - AUG 28
5 MH EMILY 100 AUG 22 - SEP 6
6 H FLOYD 65 SEP 7 - SEP 13
7 H GERT 85 SEP 14 - SEP 21
8 H HARVEY 65 SEP 18 - SEP 21
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
19 (1 Re-formed)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

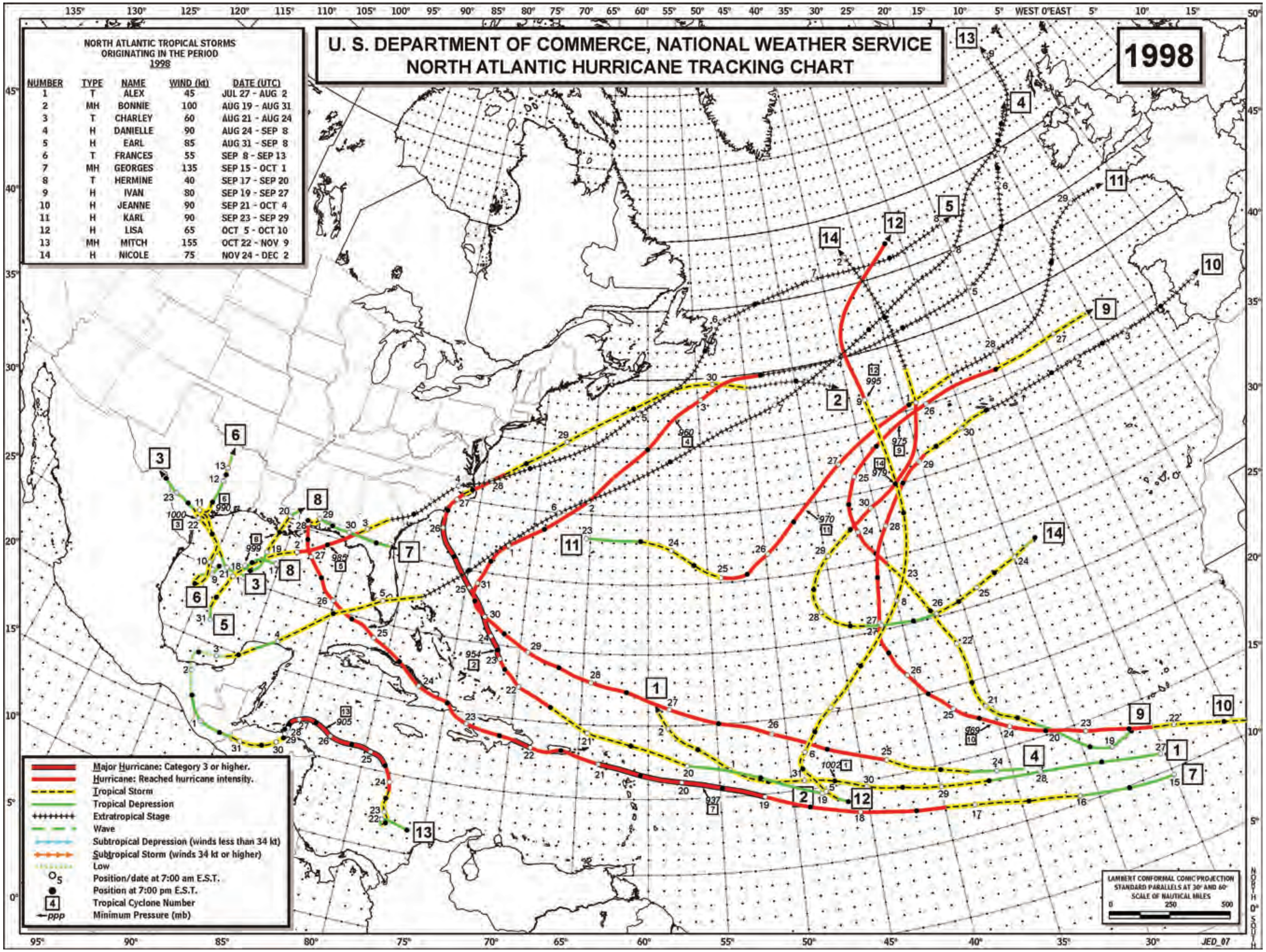

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1994
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1994
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ALBERTO 55 JUN 30 - JUL 7
2 T BERYL 50 AUG 14 - AUG 19
3 H CHRIS 70 AUG 16 - AUG 23
4 T DEBBY 60 SEP 9 - SEP 11
5 T ERNESTO 50 SEP 21 - SEP 26
6 H FLORENCE 95 NOV 2 - NOV 8
7 H GORDON 75 NOV 8 - NOV 21
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

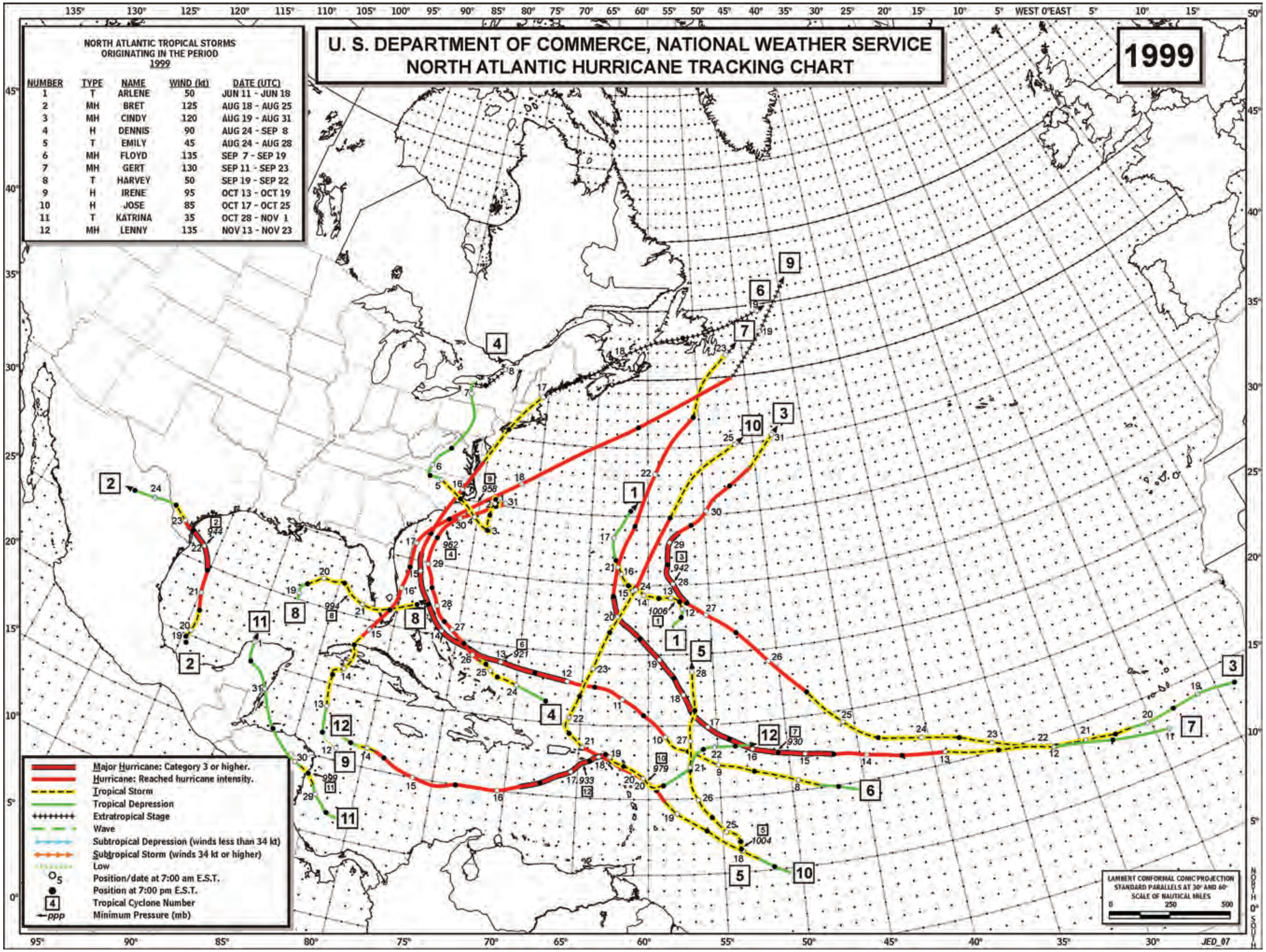

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1995
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1995
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 H ALLISON 65 JUN 3 - JUN 11
2 T BARRY 60 JUL 5 - JUL 10
3 T CHANTAL 60 JUL 12 - JUL 22
4 T DEAN 40 JUL 28 - AUG 2
5 H ERIN 80 JUL 31 - AUG 6
6 MH FELIX 120 AUG 8 - AUG 25
7 T GABRIELLE 60 AUG 9 - AUG 12
8 H HUMBERTO 95 AUG 22 - SEP 1
9 H IRIS 95 AUG 22 - SEP 7
10 T JERRY 35 AUG 22 - AUG 28
11 T KAREN 45 AUG 26 - SEP 3
12 MH LUIS 120 AUG 27 - SEP 12
13 MH MARILYN 100 SEP 12 - OCT 1
14 H NOEL 65 SEP 26 - OCT 7
15 MH OPAL 130 SEP 27 - OCT 6
16 T PABLO 50 OCT 4 - OCT 8
17 MH ROXANNE 100 OCT 7 - OCT 21
18 T SEBASTIEN 55 OCT 20 - OCT 25
19 H TANYA 75 OCT 27 - NOV 3
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

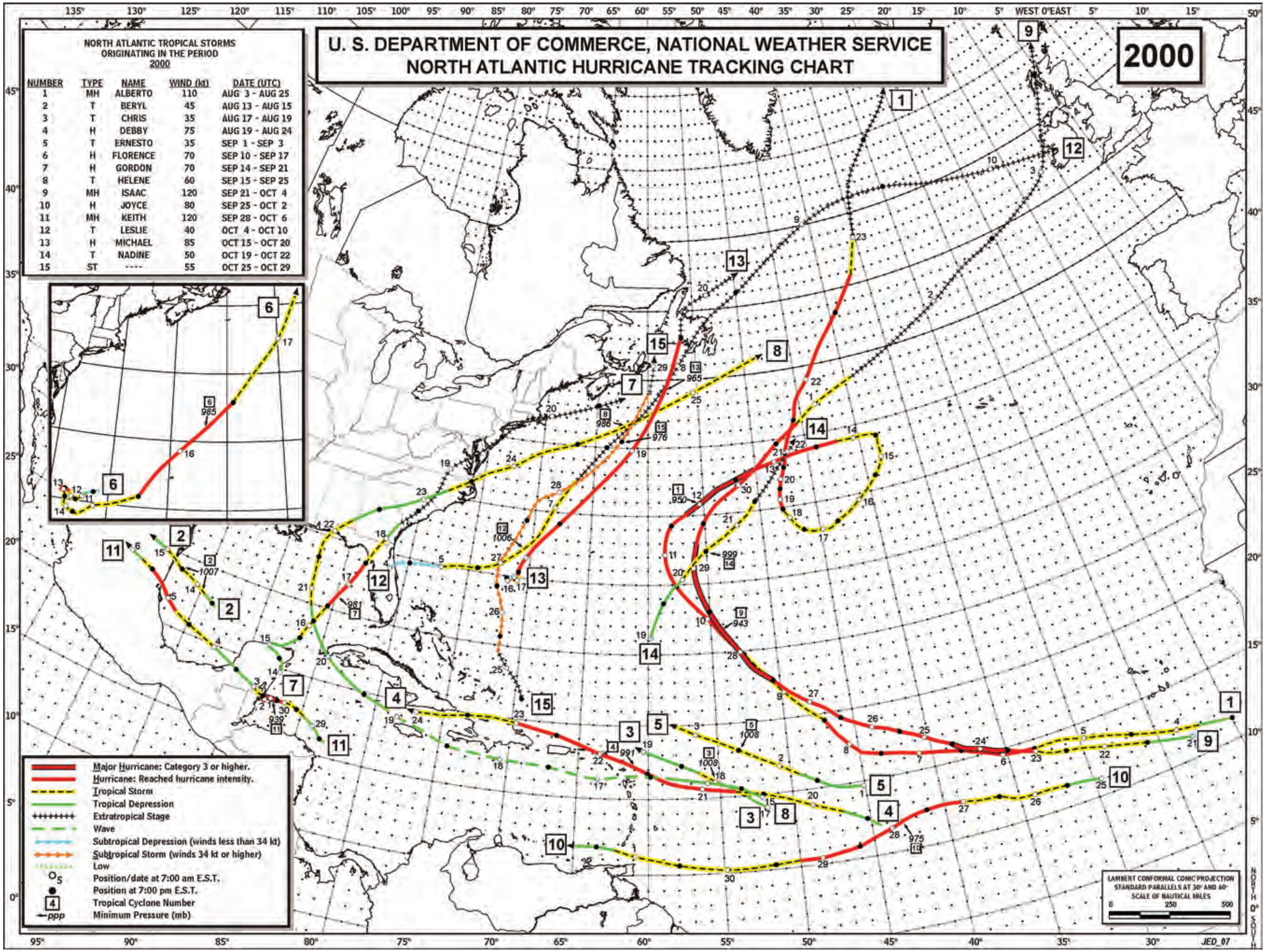

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1996
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1996
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ARTHUR 40 JUN 17 - JUN 23
2 MH BERTHA 100 JUL 5 - JUL 17
3 H CESAR 70 JUL 24 - JUL 28
4 H DOLLY 70 AUG 19 - AUG 25
5 MH EDOUARD 125 AUG 19 - SEP 6
6 MH FRAN 105 AUG 23 - SEP 10
7 T GUSTAV 40 AUG 26 - SEP 2
8 MH HORTENSE 120 SEP 3 - SEP 16
9 MH ISIDORE 100 SEP 24 - OCT 2
10 T JOSEPHINE 60 OCT 4 - OCT 16
11 T KYLE 45 OCT 11 - OCT 12
12 MH LILI 100 OCT 14 - OCT 29
13 H MARCO 65 NOV 16 - NOV 26
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
Became H Douglas
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

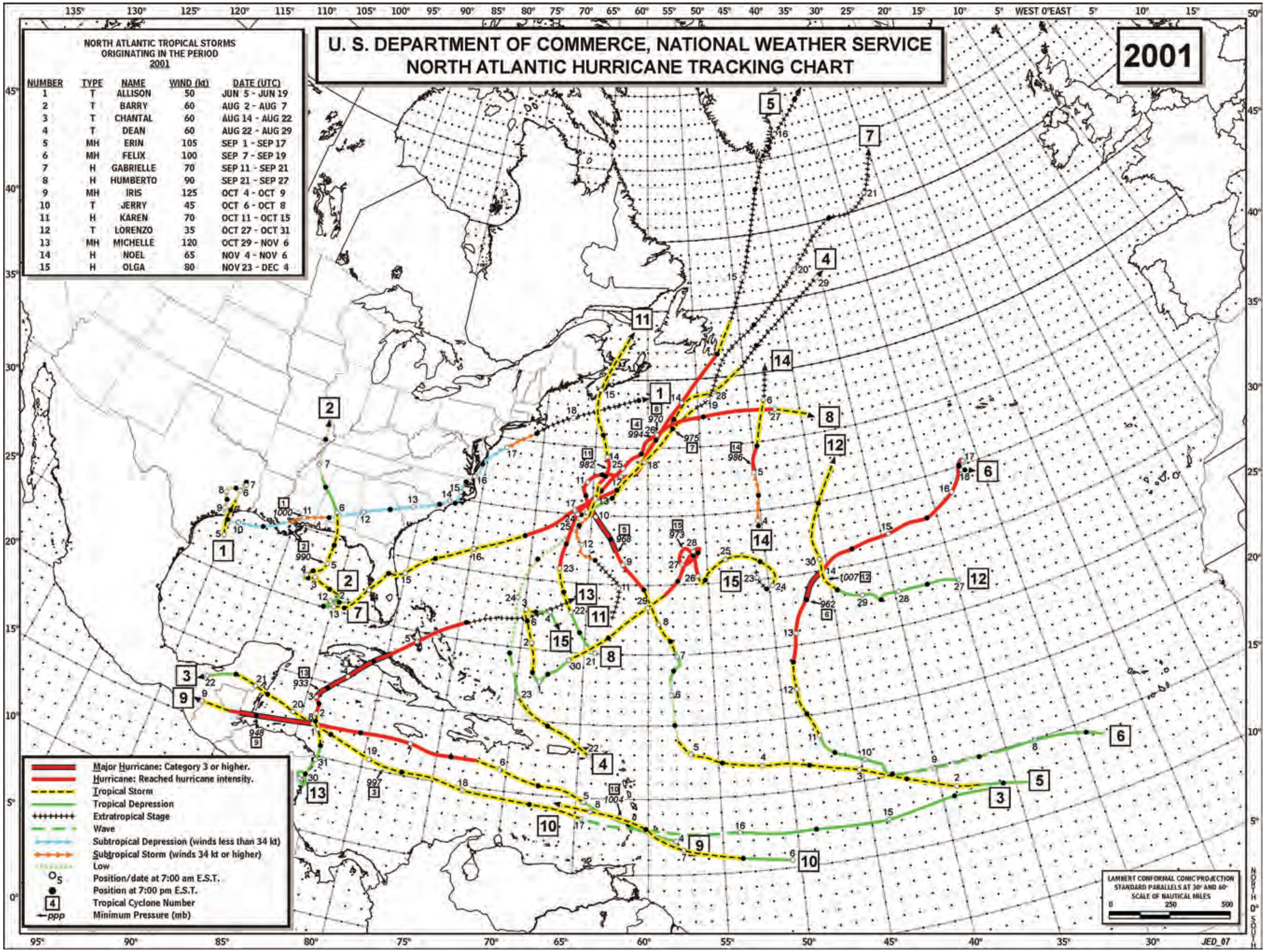


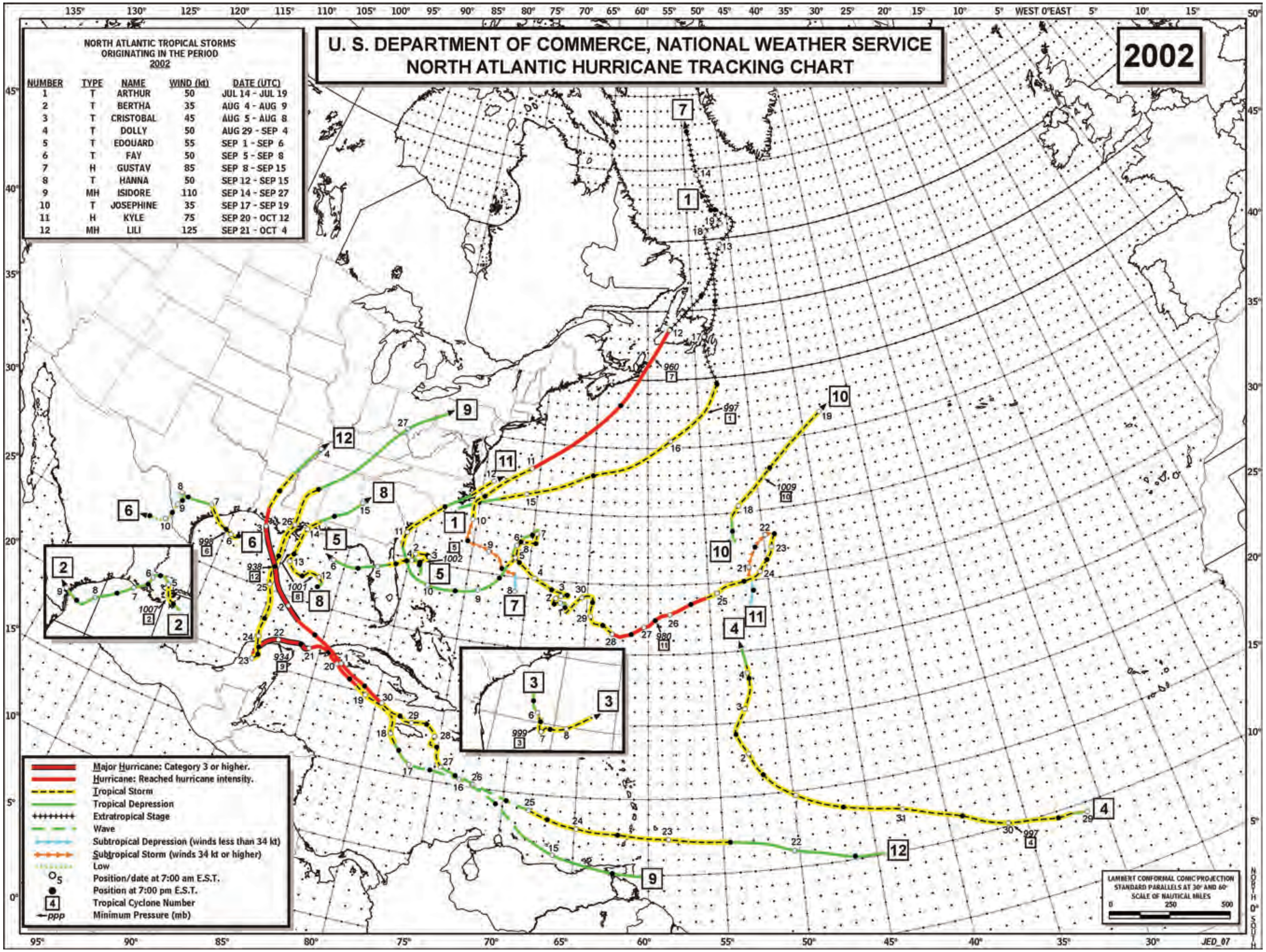
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1997
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1997
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 ST ---- 45 JUN 1 - JUN 2
2 T ANA 40 JUN 30 - JUL 5
3 H BILL 65 JUL 11 - JUL 13
4 T CLAUDETTE 40 JUL 13 - JUL 16
5 H DANNY 70 JUL 16 - JUL 27
6 MH ERIKA 110 SEP 3 - SEP 19
7 T FABIAN 35 OCT 4 - OCT 8
8 T GRACE 40 OCT 14 - OCT 17
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

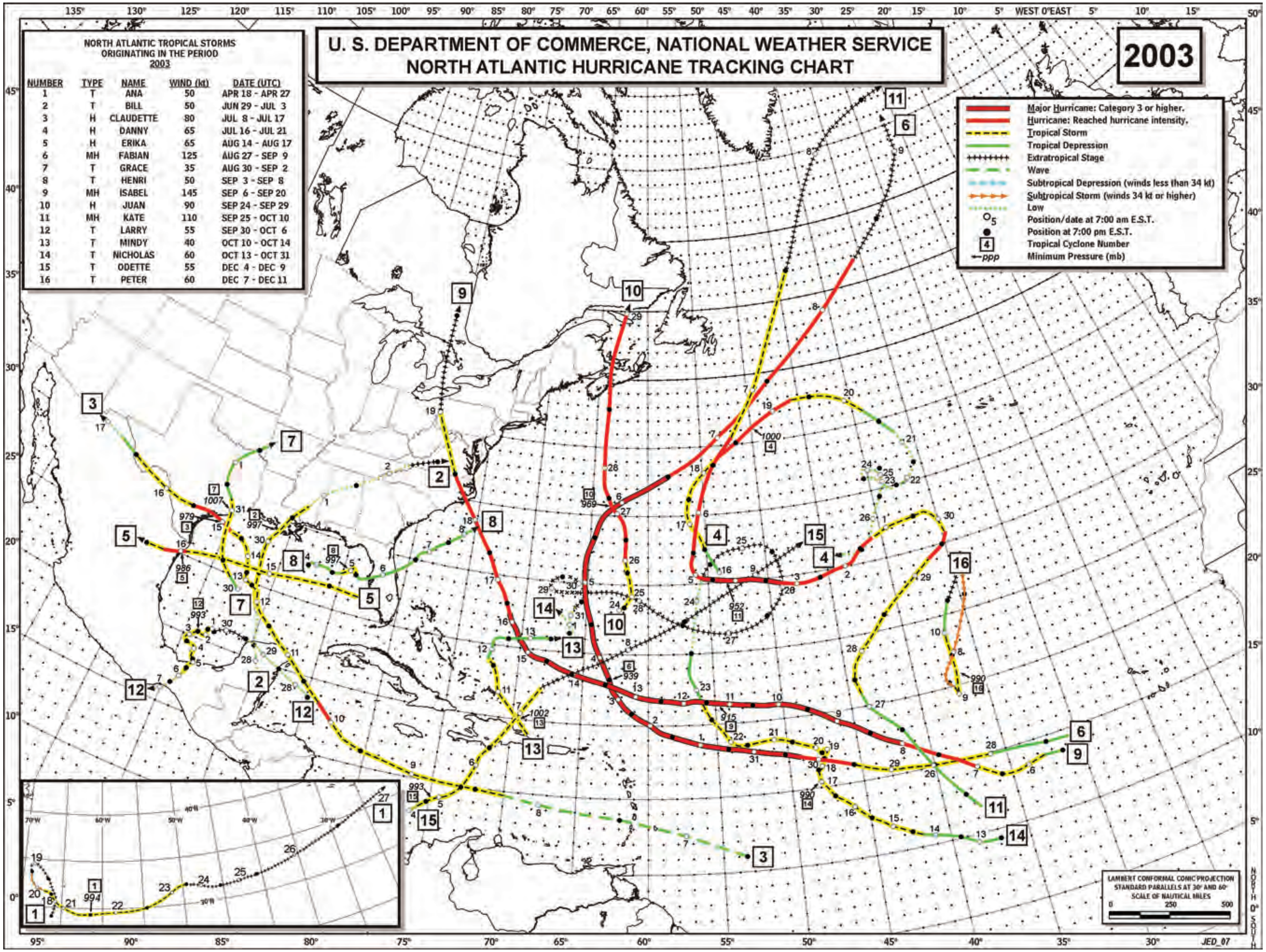

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1998
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 1998
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ALEX 45 JUL 27 - AUG 2
2 MH BONNIE 100 AUG 19 - AUG 31
3 T CHARLEY 60 AUG 21 - AUG 24
4 H DANIELLE 90 AUG 24 - SEP 8
5 H EARL 85 AUG 31 - SEP 8
6 T FRANCES 55 SEP 8 - SEP 13
7 MH GEORGES 135 SEP 15 - OCT 1
8 T HERMINE 40 SEP 17 - SEP 20
9 H IVAN 80 SEP 19 - SEP 27
10 H JEANNE 90 SEP 21 - OCT 4
11 H KARL 90 SEP 23 - SEP 29
12 H LISA 65 OCT 5 - OCT 10
13 MH MITCH 155 OCT 22 - NOV 9
14 H NICOLE 75 NOV 24 - DEC 2
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
1999
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1999
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ARLENE 50 JUN 11 - JUN 18
2 MH BRET 125 AUG 18 - AUG 25
3 MH CINDY 120 AUG 19 - AUG 31
4 H DENNIS 90 AUG 24 - SEP 8
5 T EMILY 45 AUG 24 - AUG 28
6 MH FLOYD 135 SEP 7 - SEP 19
7 MH GERT 130 SEP 11 - SEP 23
8 T HARVEY 50 SEP 19 - SEP 22
9 H IRENE 95 OCT 13 - OCT 19
10 H JOSE 85 OCT 17 - OCT 25
11 T KATRINA 35 OCT 28 - NOV 1
12 MH LENNY 135 NOV 13 - NOV 23
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
WEST 0° EAST
NORTH 0° SOUTH
JED_07

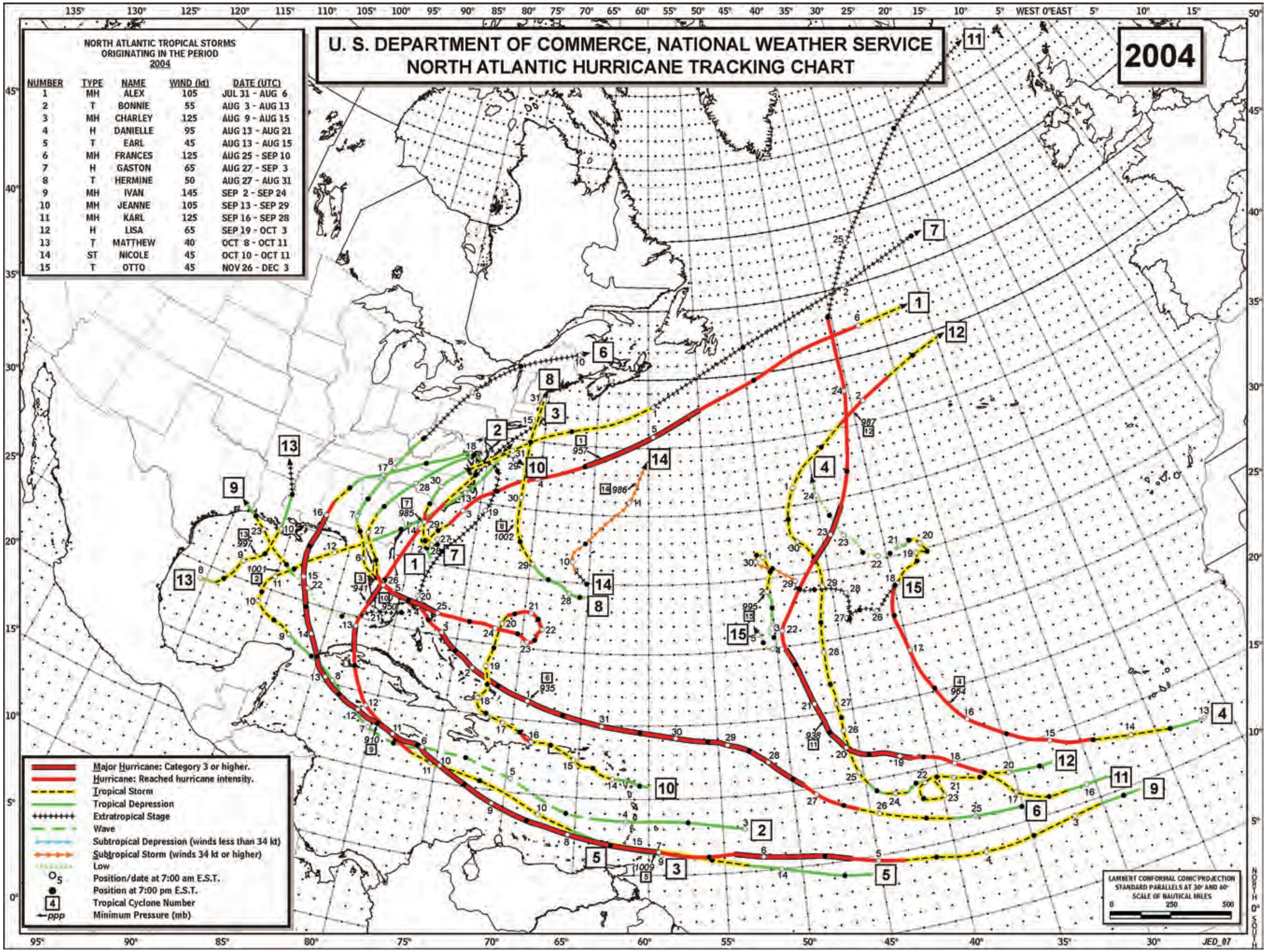

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
2000
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
2000
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ALBERTO 110 AUG 3 - AUG 25
2 T BERYL 45 AUG 13 - AUG 15
3 T CHRIS 35 AUG 17 - AUG 19
4 H DEBBY 75 AUG 19 - AUG 24
5 T ERNESTO 35 SEP 1 - SEP 3
6 H FLORENCE 70 SEP 10 - SEP 17
7 H GORDON 70 SEP 14 - SEP 21
8 T HELENE 60 SEP 15 - SEP 25
9 MH ISAAC 120 SEP 21 - OCT 4
10 H JOYCE 80 SEP 25 - OCT 2
11 MH KEITH 120 SEP 28 - OCT 6
12 T LESLIE 40 OCT 4 - OCT 10
13 H MICHAEL 85 OCT 15 - OCT 20
14 T NADINE 50 OCT 19 - OCT 22
15 ST ---- 55 OCT 25 - OCT 29
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
2001
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 2001
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ALLISON 50 JUN 5 - JUN 19
2 T BARRY 60 AUG 2 - AUG 7
3 T CHANTAL 60 AUG 14 - AUG 22
4 T DEAN 60 AUG 22 - AUG 29
5 MH ERIN 105 SEP 1 - SEP 17
6 MH FELIX 100 SEP 7 - SEP 19
7 H GABRIELLE 70 SEP 11 - SEP 21
8 H HUMBERTO 90 SEP 21 - SEP 27
9 MH IRIS 125 OCT 4 - OCT 9
10 T JERRY 45 OCT 6 - OCT 8
11 H KAREN 70 OCT 11 - OCT 15
12 T LORENZO 35 OCT 27 - OCT 31
13 MH MICHELLE 120 OCT 29 - NOV 6
14 H NOEL 65 NOV 4 - NOV 6
15 H OLGA 80 NOV 23 - DEC 4
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED_07

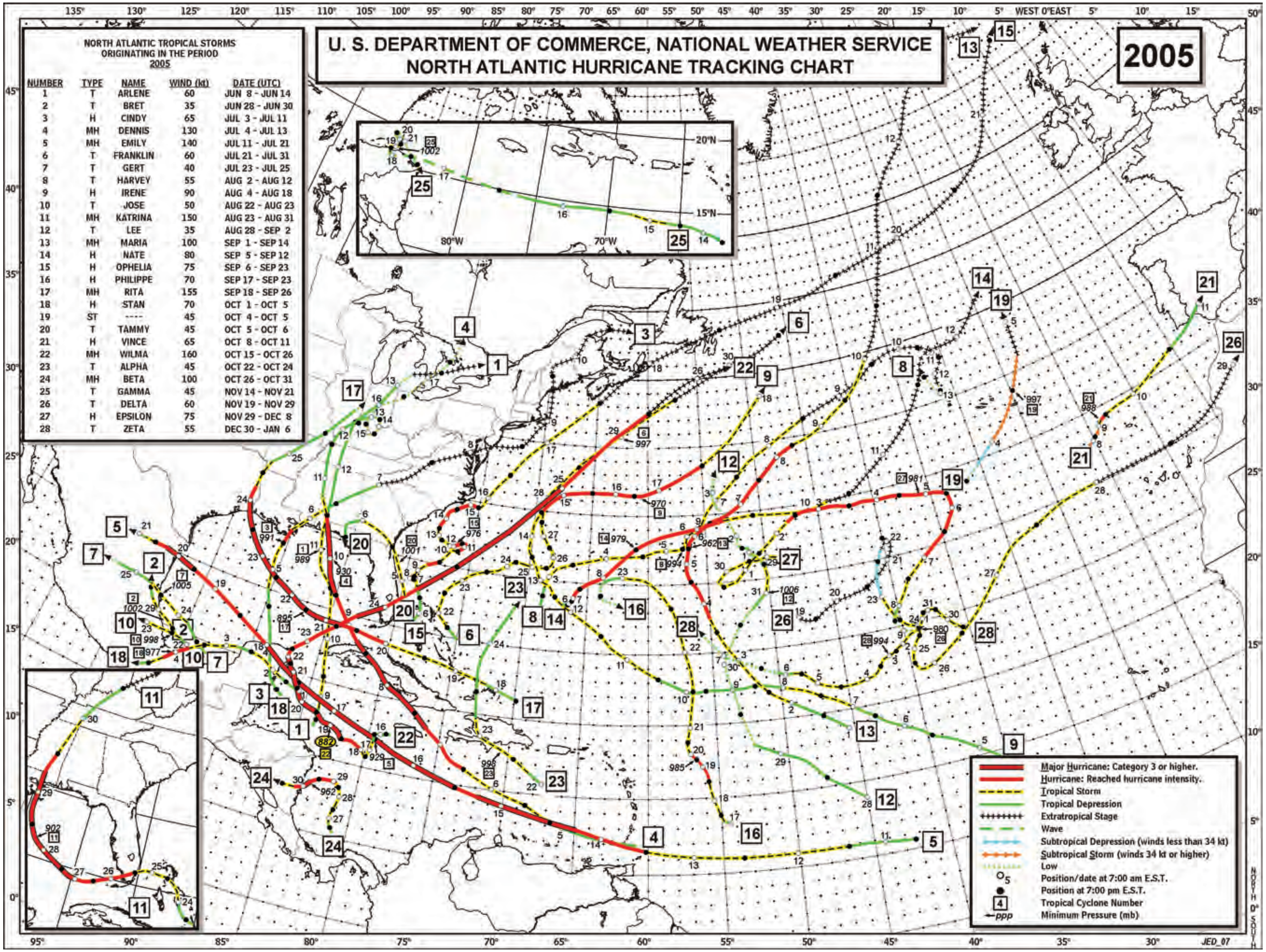

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
2002
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
2002
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ARTHUR 50 JUL 14 - JUL 19
2 T BERTHA 35 AUG 4 - AUG 9
3 T CRISTOBAL 45 AUG 5 - AUG 8
4 T DOLLY 50 AUG 29 - SEP 4
5 T EDOUARD 55 SEP 1 - SEP 6
6 T FAY 50 SEP 5 - SEP 8
7 H GUSTAV 85 SEP 8 - SEP 15
8 T HANNA 50 SEP 12 - SEP 15
9 MH ISIDORE 110 SEP 14 - SEP 27
10 T JOSEPHINE 35 SEP 17 - SEP 19
11 H KYLE 75 SEP 20 - OCT 12
12 MH LILI 125 SEP 21 - OCT 4
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

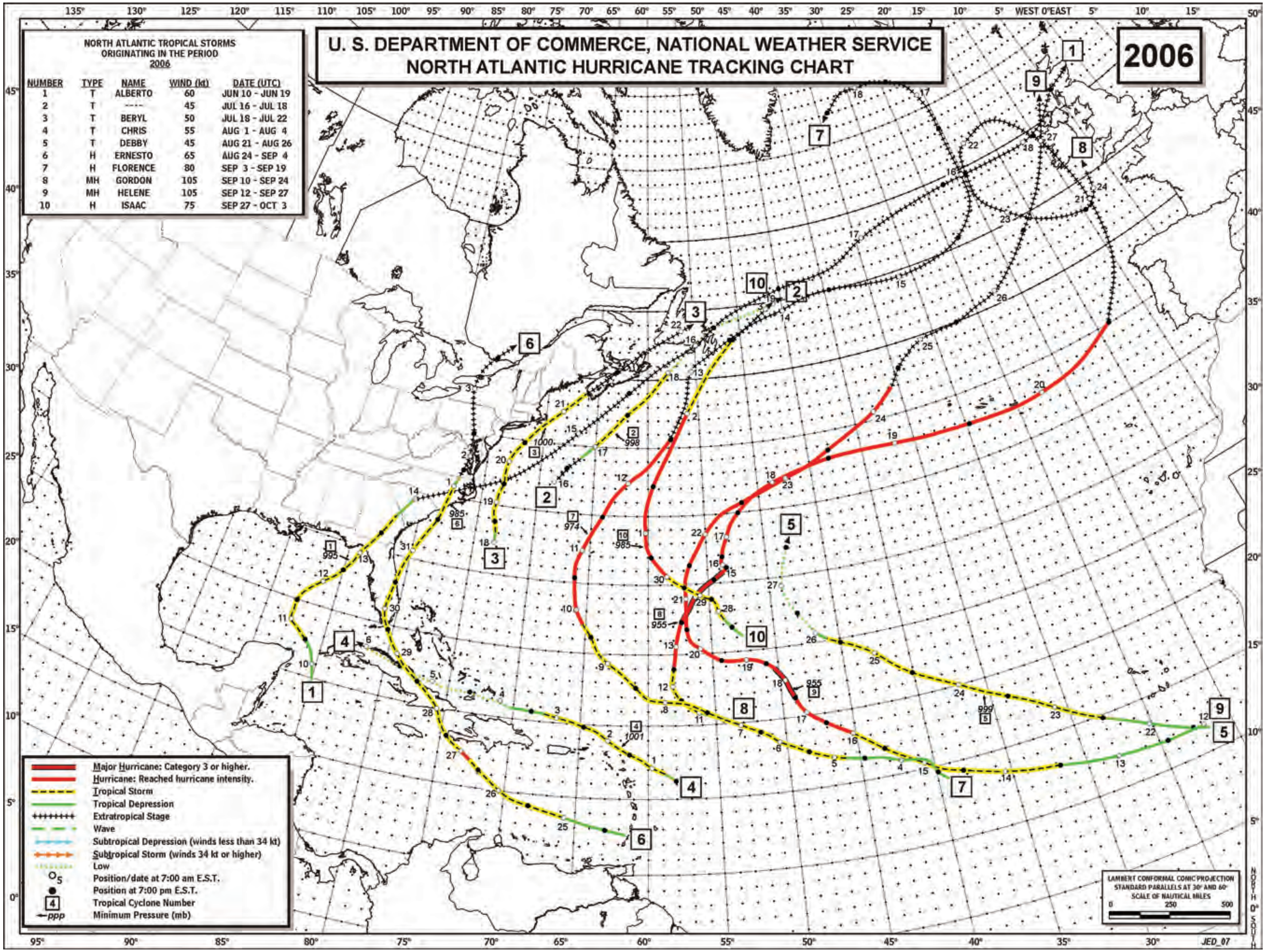


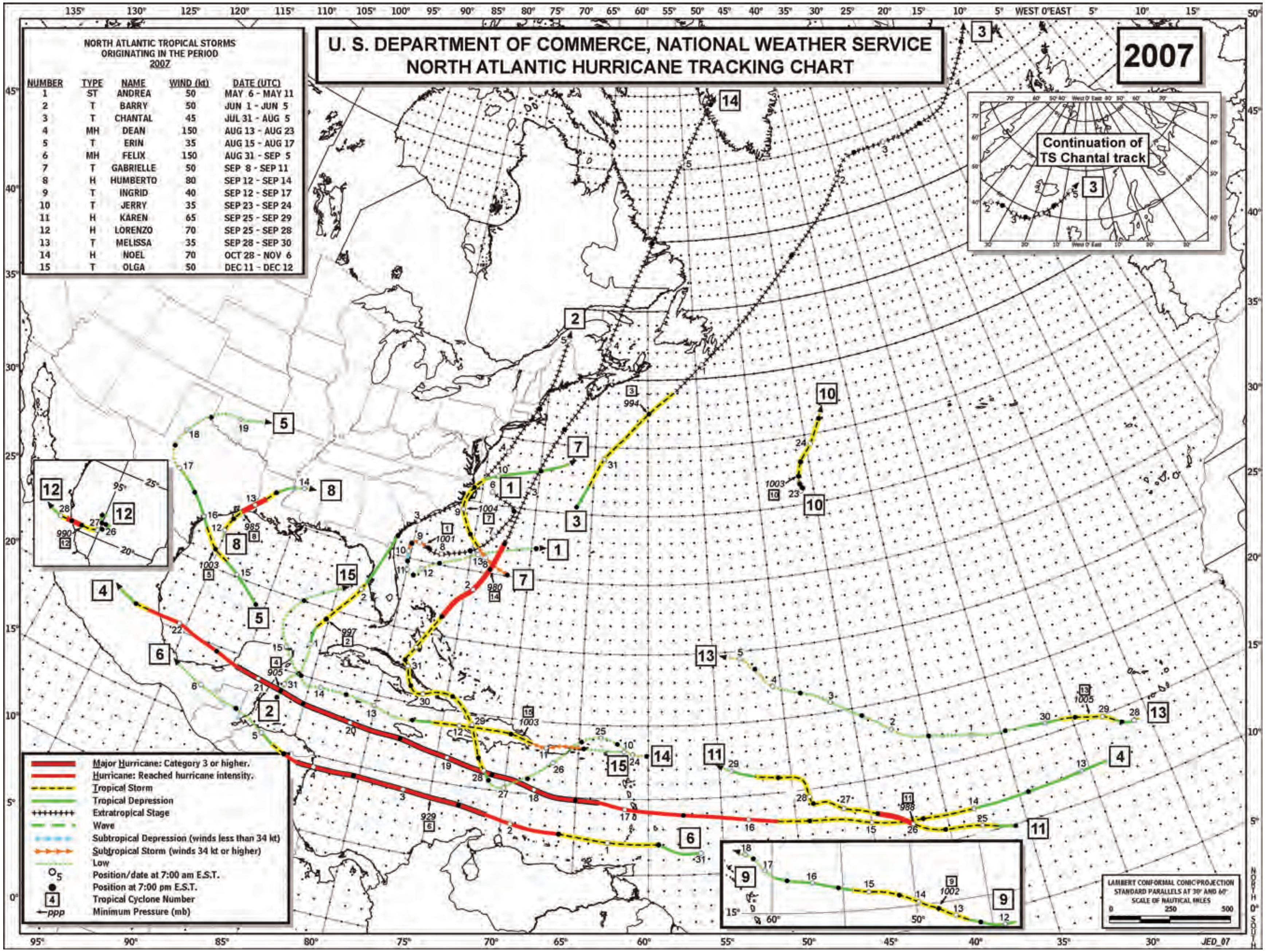
U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
2003
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
2003
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ANA 50 APR 18 - APR 27
2 T BILL 50 JUN 29 - JUL 3
3 H CLAUDETTE 80 JUL 8 - JUL 17
4 H DANNY 65 JUL 16 - JUL 21
5 H ERIKA 65 AUG 14 - AUG 17
6 MH FABIAN 125 AUG 27 - SEP 9
7 T GRACE 35 AUG 30 - SEP 2
8 T HENRI 50 SEP 3 - SEP 8
9 MH ISABEL 145 SEP 6 - SEP 20
10 H JUAN 90 SEP 24 - SEP 29
11 MH KATE 110 SEP 25 - OCT 10
12 T LARRY 55 SEP 30 - OCT 6
13 T MINDY 40 OCT 10 - OCT 14
14 T NICHOLAS 60 OCT 13 - OCT 31
15 T ODETTE 55 DEC 4 - DEC 9
16 T PETER 60 DEC 7 - DEC 11
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07

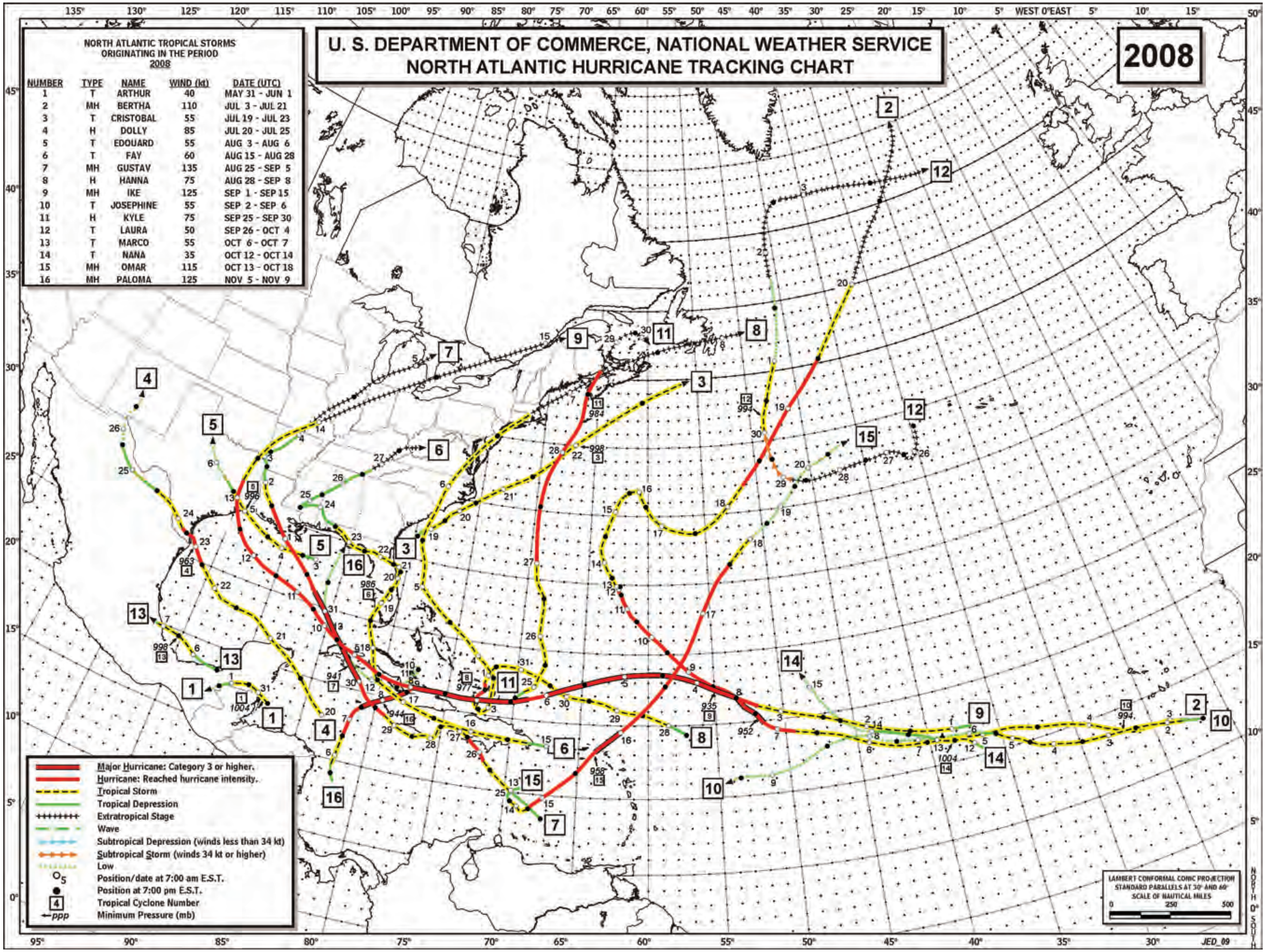


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
2004
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
2004
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 MH ALEX 105 JUL 31 - AUG 6
2 T BONNIE 55 AUG 3 - AUG 13
3 MH CHARLEY 125 AUG 9 - AUG 15
4 H DANIELLE 95 AUG 13 - AUG 21
5 T EARL 45 AUG 13 - AUG 15
6 MH FRANCES 125 AUG 25 - SEP 10
7 H GASTON 65 AUG 27 - SEP 3
8 T HERMINE 50 AUG 27 - AUG 31
9 MH IVAN 145 SEP 2 - SEP 24
10 MH JEANNE 105 SEP 13 - SEP 29
11 MH KARL 125 SEP 16 - SEP 28
12 H LISA 65 SEP 19 - OCT 3
13 T MATTHEW 40 OCT 8 - OCT 11
14 ST NICOLE 45 OCT 10 - OCT 11
15 T OTTO 45 NOV 26 - DEC 3
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
2005
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
2005
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ARLENE 60 JUN 8 - JUN 14
2 T BRET 35 JUN 28 - JUN 30
3 H CINDY 65 JUL 3 - JUL 11
4 MH DENNIS 130 JUL 4 - JUL 13
5 MH EMILY 140 JUL 11 - JUL 21
6 T FRANKLIN 60 JUL 21 - JUL 31
7 T GERT 40 JUL 23 - JUL 25
8 T HARVEY 55 AUG 2 - AUG 12
9 H IRENE 90 AUG 4 - AUG 18
10 T JOSE 50 AUG 22 - AUG 23
11 MH KATRINA 150 AUG 23 - AUG 31
12 T LEE 35 AUG 28 - SEP 2
13 MH MARIA 100 SEP 1 - SEP 14
14 H NATE 80 SEP 5 - SEP 12
15 H OPHELIA 75 SEP 6 - SEP 23
16 H PHILIPPE 70 SEP 17 - SEP 23
17 MH RITA 155 SEP 18 - SEP 26
18 H STAN 70 OCT 1 - OCT 5
19 ST ---- 45 OCT 4 - OCT 5
20 T TAMMY 45 OCT 5 - OCT 6
21 H VINCE 65 OCT 8 - OCT 11
22 MH WILMA 160 OCT 15 - OCT 26
23 T ALPHA 45 OCT 22 - OCT 24
24 MH BETA 100 OCT 26 - OCT 31
25 T GAMMA 45 NOV 14 - NOV 21
26 T DELTA 60 NOV 19 - NOV 29
27 H EPSILON 75 NOV 29 - DEC 8
28 T ZETA 55 DEC 30 - JAN 6
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
2006
NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD 2006
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ALBERTO 60 JUN 10 - JUN 19
2 T ---- 45 JUL 16 - JUL 18
3 T BERYL 50 JUL 18 - JUL 22
4 T CHRIS 55 AUG 1 - AUG 4
5 T DEBBY 45 AUG 21 - AUG 26
6 H ERNESTO 65 AUG 24 - SEP 4
7 H FLORENCE 80 SEP 3 - SEP 19
8 MH GORDON 105 SEP 10 - SEP 24
9 MH HELENE 105 SEP 12 - SEP 27
10 H ISAAC 75 SEP 27 - OCT 3
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
2007
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
2007
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 ST ANDREA 50 MAY 6 - MAY 11
2 T BARRY 50 JUN 1 - JUN 5
3 T CHANTAL 45 JUL 31 - AUG 5
4 MH DEAN 150 AUG 13 - AUG 23
5 T ERIN 35 AUG 15 - AUG 17
6 MH FELIX 150 AUG 31 - SEP 5
7 T GABRIELLE 50 SEP 8 - SEP 11
8 H HUMBERTO 80 SEP 12 - SEP 14
9 T INGRID 40 SEP 12 - SEP 17
10 T JERRY 35 SEP 23 - SEP 24
11 H KAREN 65 SEP 25 - SEP 29
12 H LORENZO 70 SEP 25 - SEP 28
13 T MELISSA 35 SEP 28 - SEP 30
14 H NOEL 70 OCT 28 - NOV 6
15 T OLGA 50 DEC 11 - DEC 12
Continuation of
TS Chantal track
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
WEST 0° EAST
JED_07


U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE
NORTH ATLANTIC HURRICANE TRACKING CHART
2008
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
2008
NUMBER TYPE NAME WIND (kt) DATE (UTC)
1 T ARTHUR 40 MAY 31 - JUN 1
2 MH BERTHA 110 JUL 3 - JUL 21
3 T CRISTOBAL 55 JUL 19 - JUL 23
4 H DOLLY 85 JUL 20 - JUL 25
5 T EDOUARD 55 AUG 3 - AUG 6
6 T FAY 60 AUG 15 - AUG 28
7 MH GUSTAV 135 AUG 25 - SEP 5
8 H HANNA 75 AUG 28 - SEP 8
9 MH IKE 125 SEP 1 - SEP 15
10 T JOSEPHINE 55 SEP 2 - SEP 6
11 H KYLE 75 SEP 25 - SEP 30
12 T LAURA 50 SEP 26 - OCT 4
13 T MARCO 55 OCT 6 - OCT 7
14 T NANA 35 OCT 12 - OCT 14
15 MH OMAR 115 OCT 13 - OCT 18
16 MH PALOMA 125 NOV 5 - NOV 9
Major Hurricane: Category 3 or higher.
Hurricane: Reached hurricane intensity.
Tropical Storm
Tropical Depression
Extratropical Stage
Wave
Subtropical Depression (winds less than 34 kt)
Subtropical Storm (winds 34 kt or higher)
Low
Position/date at 7:00 am E.S.T.
Position at 7:00 pm E.S.T.
Tropical Cyclone Number
Minimum Pressure (mb)
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
JED_09

ATTACH 2009 TRACK CHART

ATTACH 2010 TRACK CHART

ATTACH 2011 TRACK CHART

ATTACH 2012 TRACK CHART

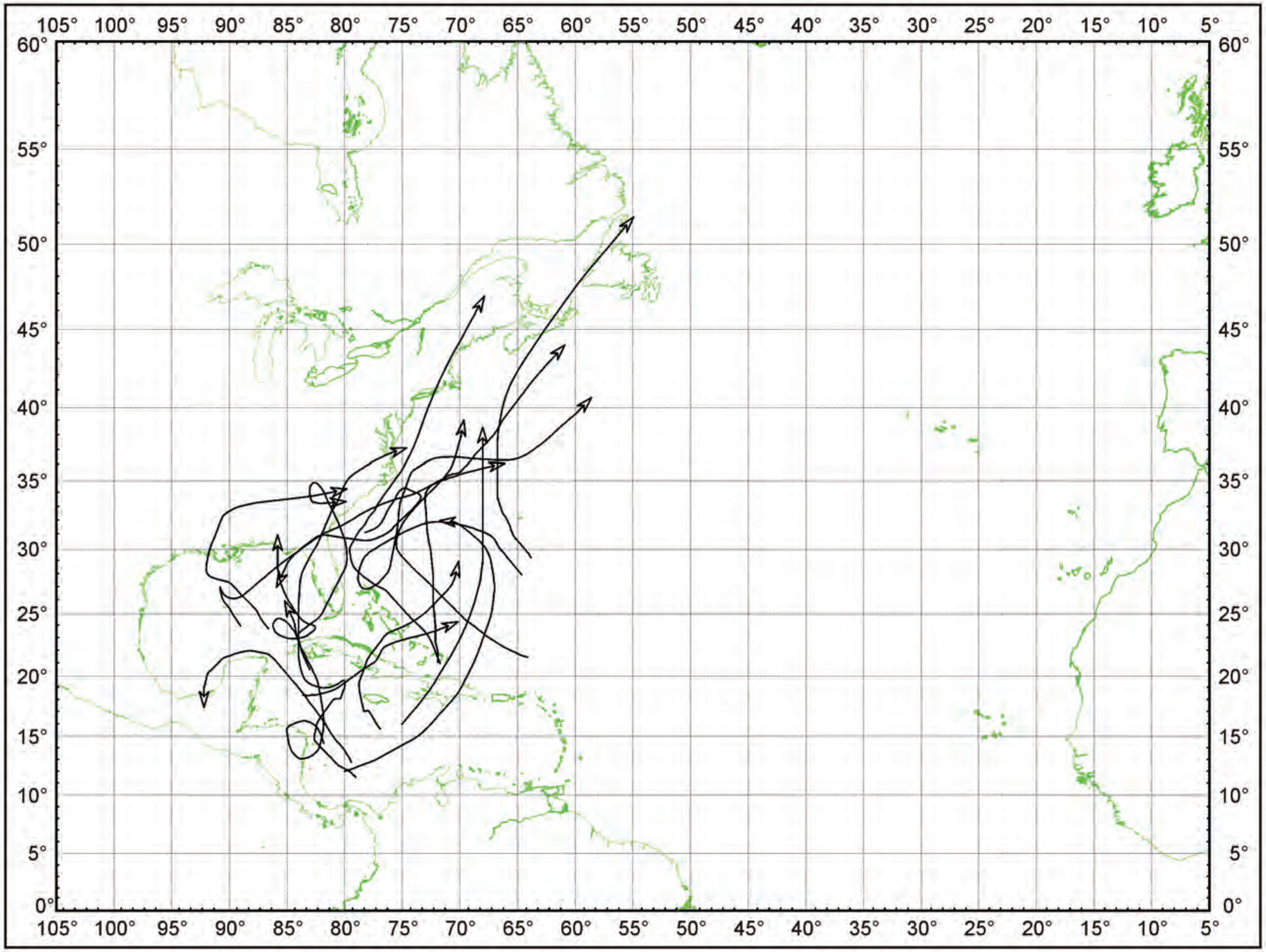
ATTACH 2013 TRACK CHART

ATTACH 2014 TRACK CHART

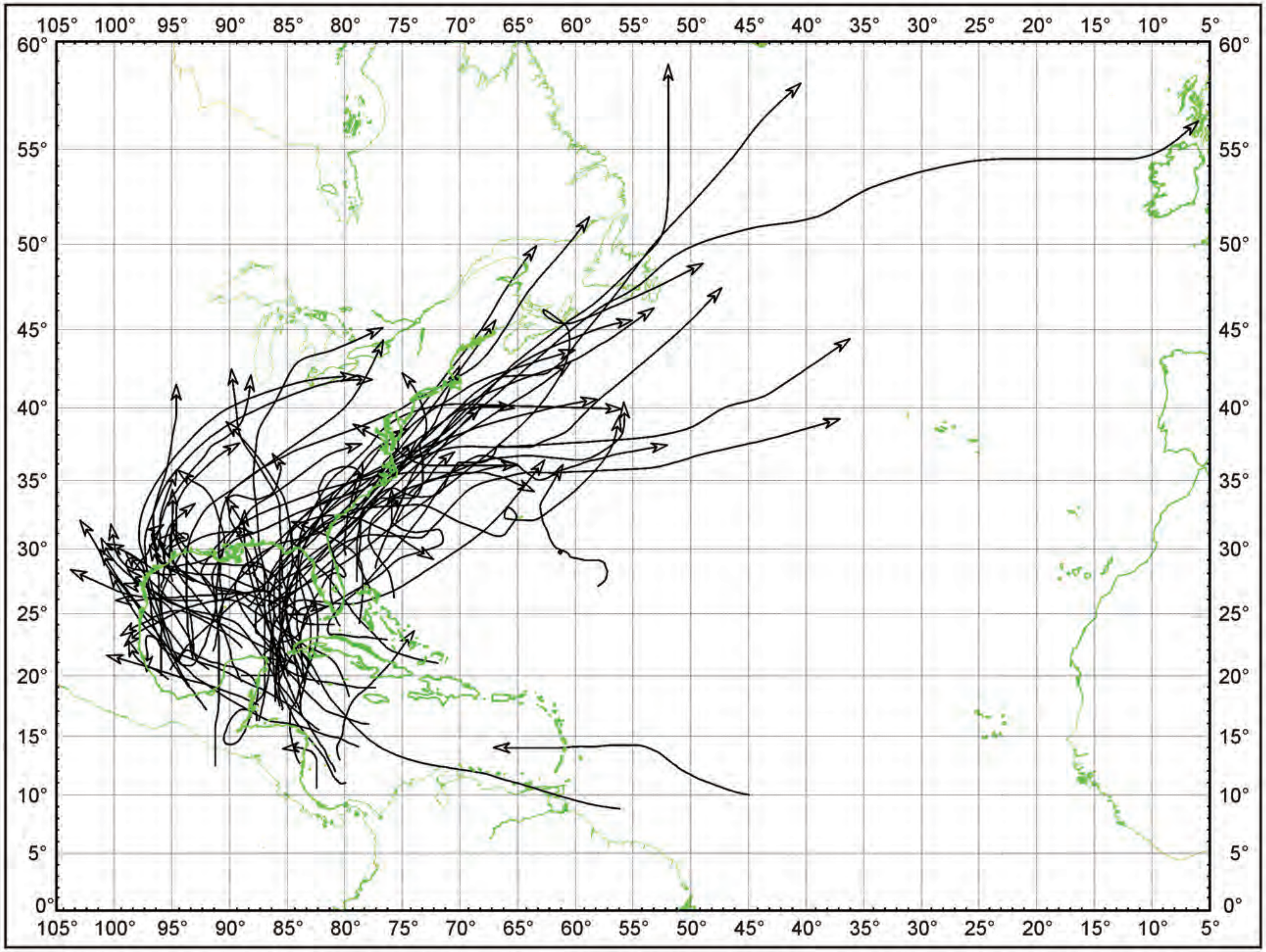
APPENDIX B

TRACKS OF NORTH ATLANTIC TROPICAL CYCLONES BY INTRA-SEASONAL PERIODS, 1851-2006 (CHART SERIES B)

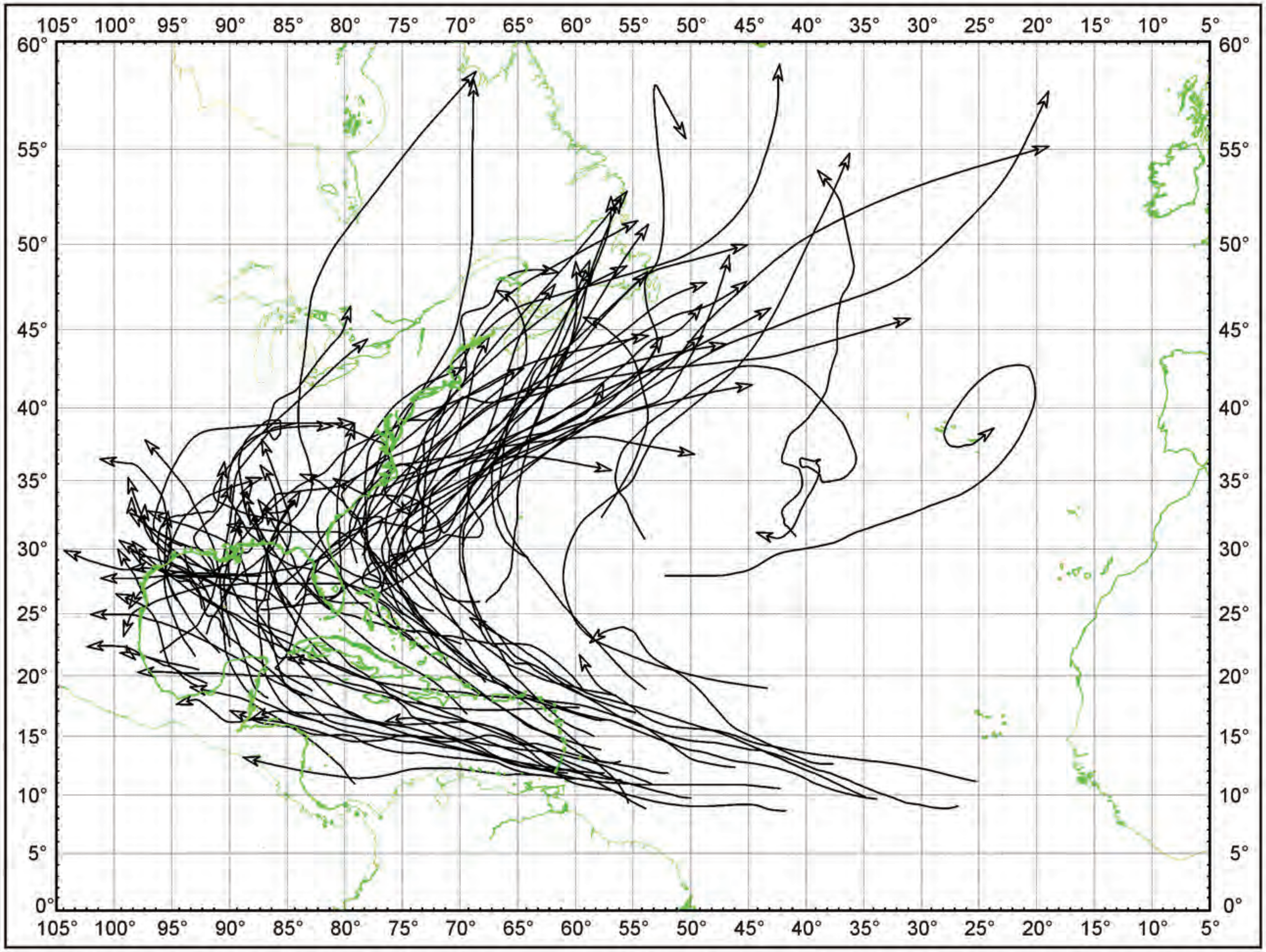
Tracks of North Atlantic tropical storms and hurricanes by months, May through December and by 10- (or 11-) day periods, June 1 through November 30.



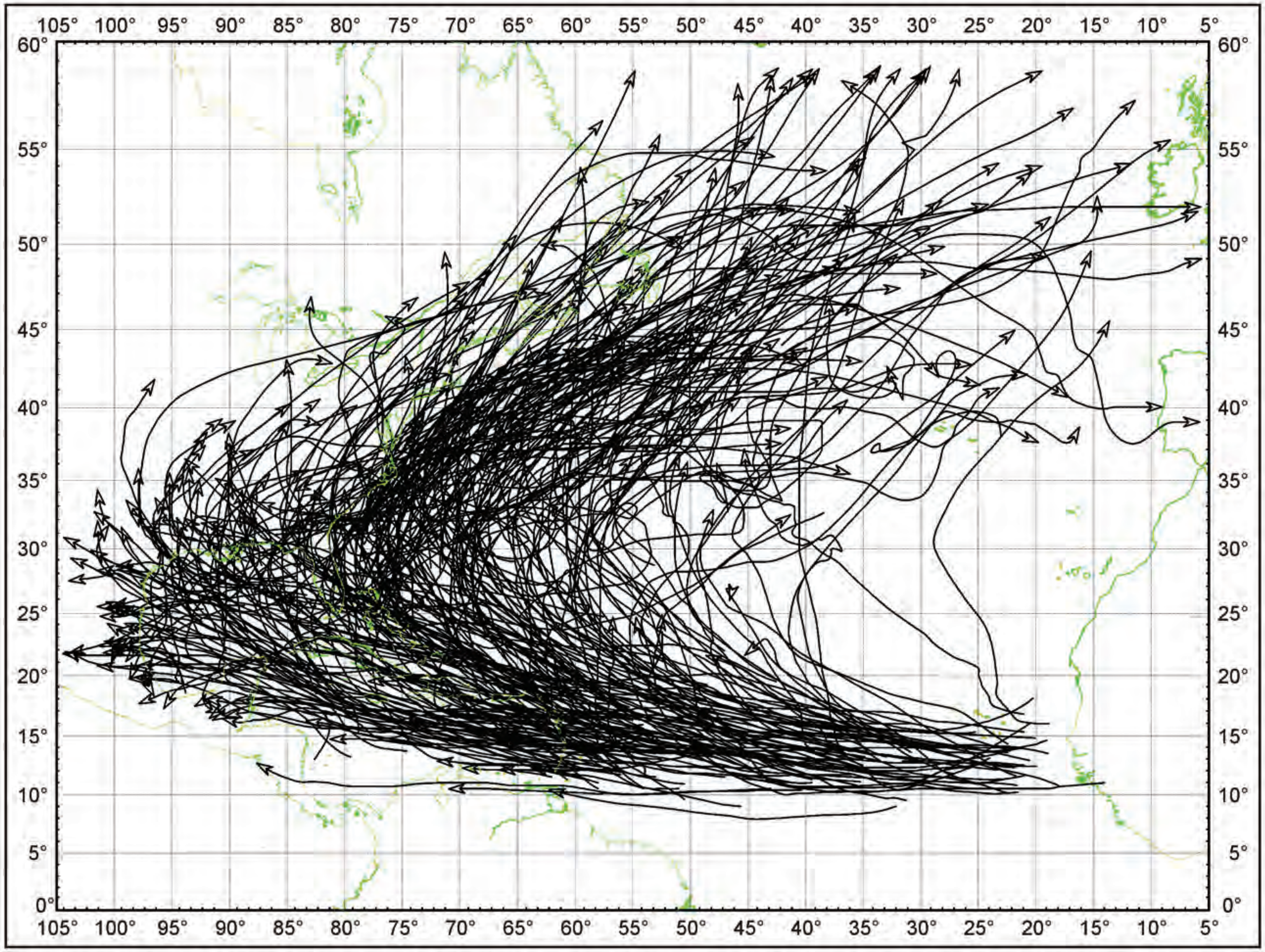
TROPICAL STORMS AND HURRICANES BEGINNING MAY, 1851-2006 (18 OCCURRENCES)



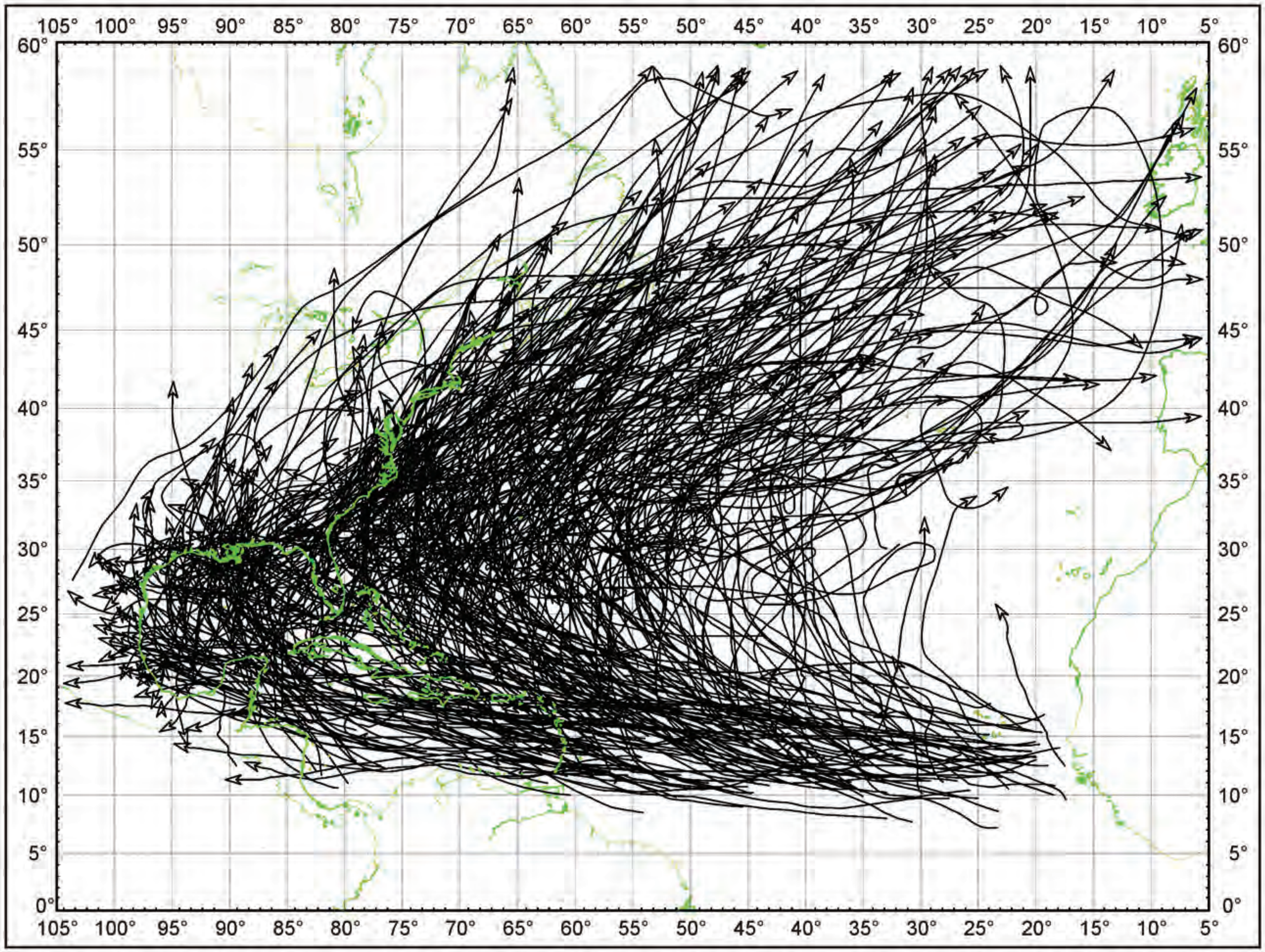
TROPICAL STORMS AND HURRICANES BEGINNING JUNE, 1851-2006 (81 OCCURRENCES)



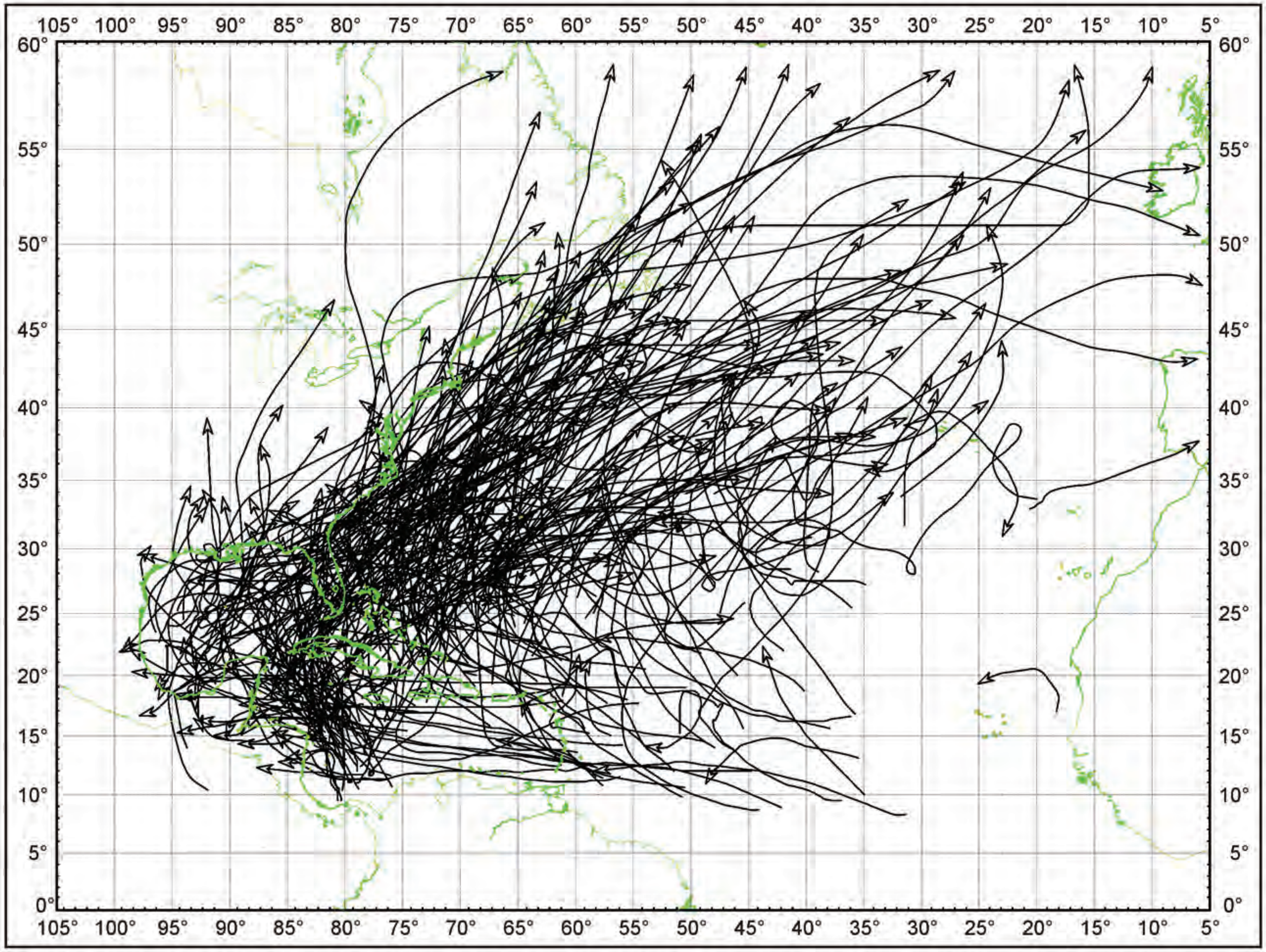
TROPICAL STORMS AND HURRICANES BEGINNING JULY, 1851-2006 (102 OCCURRENCES)



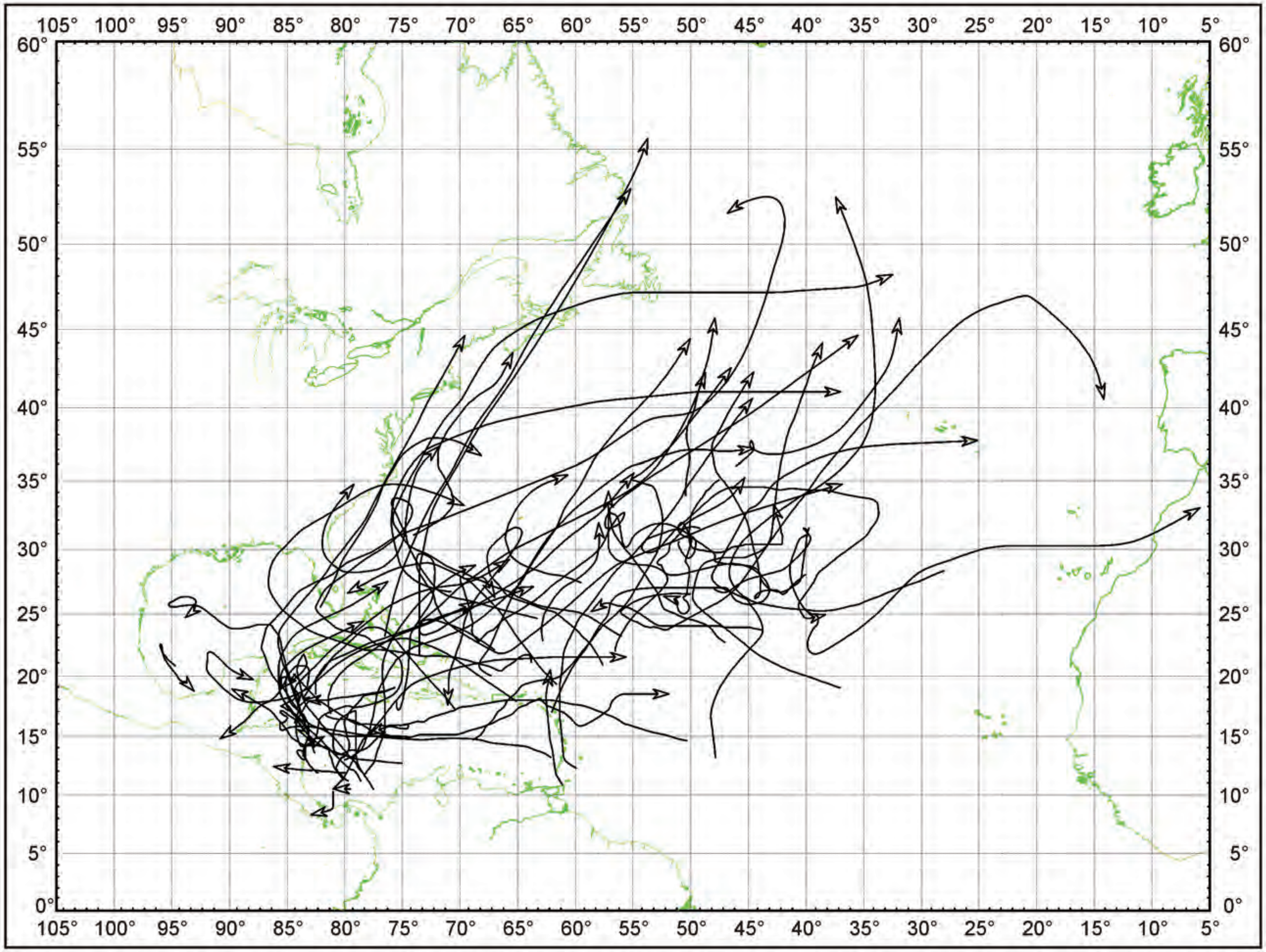
TROPICAL STORMS AND HURRICANES BEGINNING AUGUST, 1851-2006 (346 OCCURRENCES)



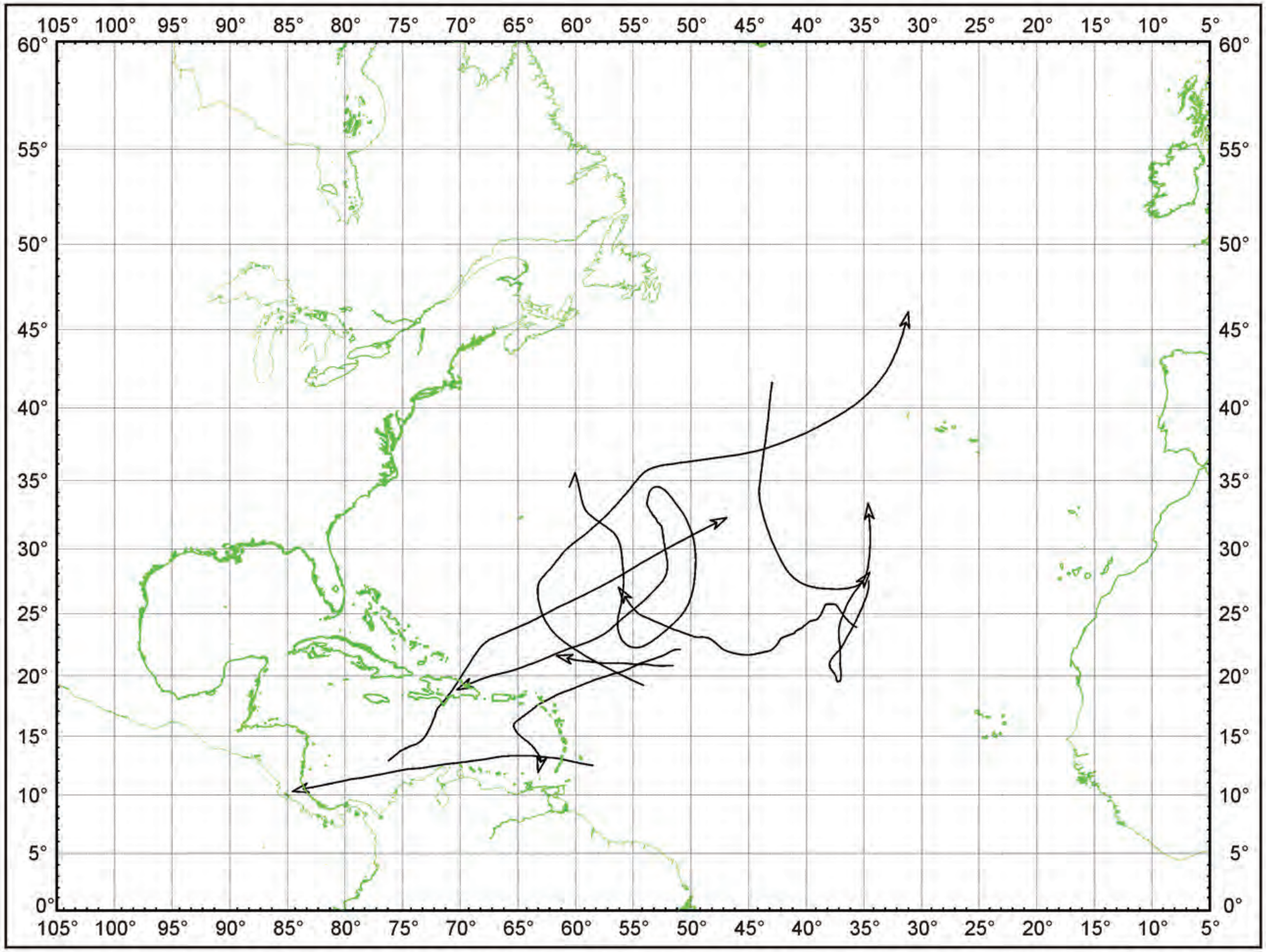
TROPICAL STORMS AND HURRICANES BEGINNING SEPTEMBER, 1851-2006 (461 OCCURRENCES)



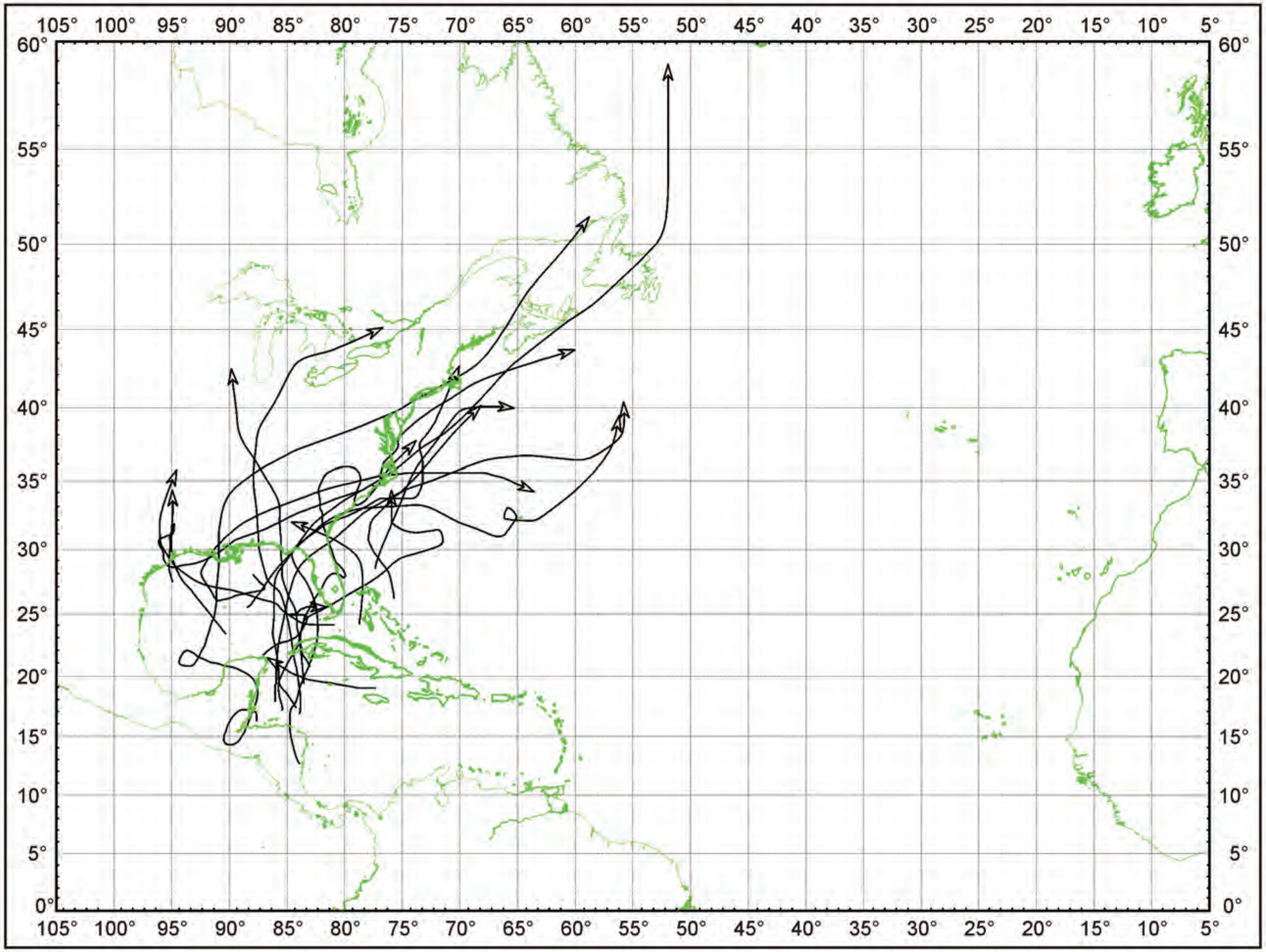
TROPICAL STORMS AND HURRICANES BEGINNING OCTOBER, 1851-2006 (279 OCCURRENCES)



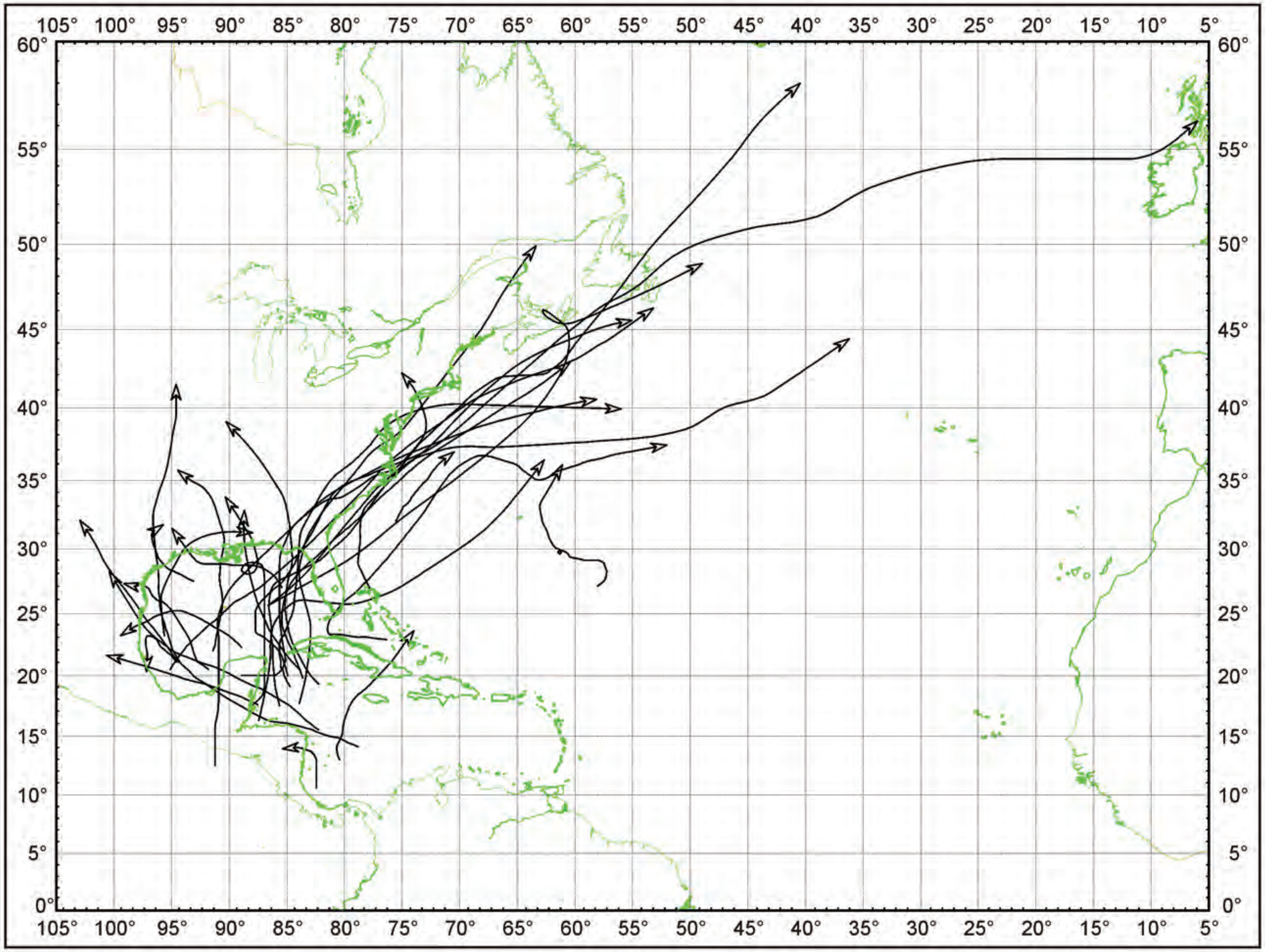
TROPICAL STORMS AND HURRICANES BEGINNING NOVEMBER, 1851-2006 (62 OCCURRENCES)



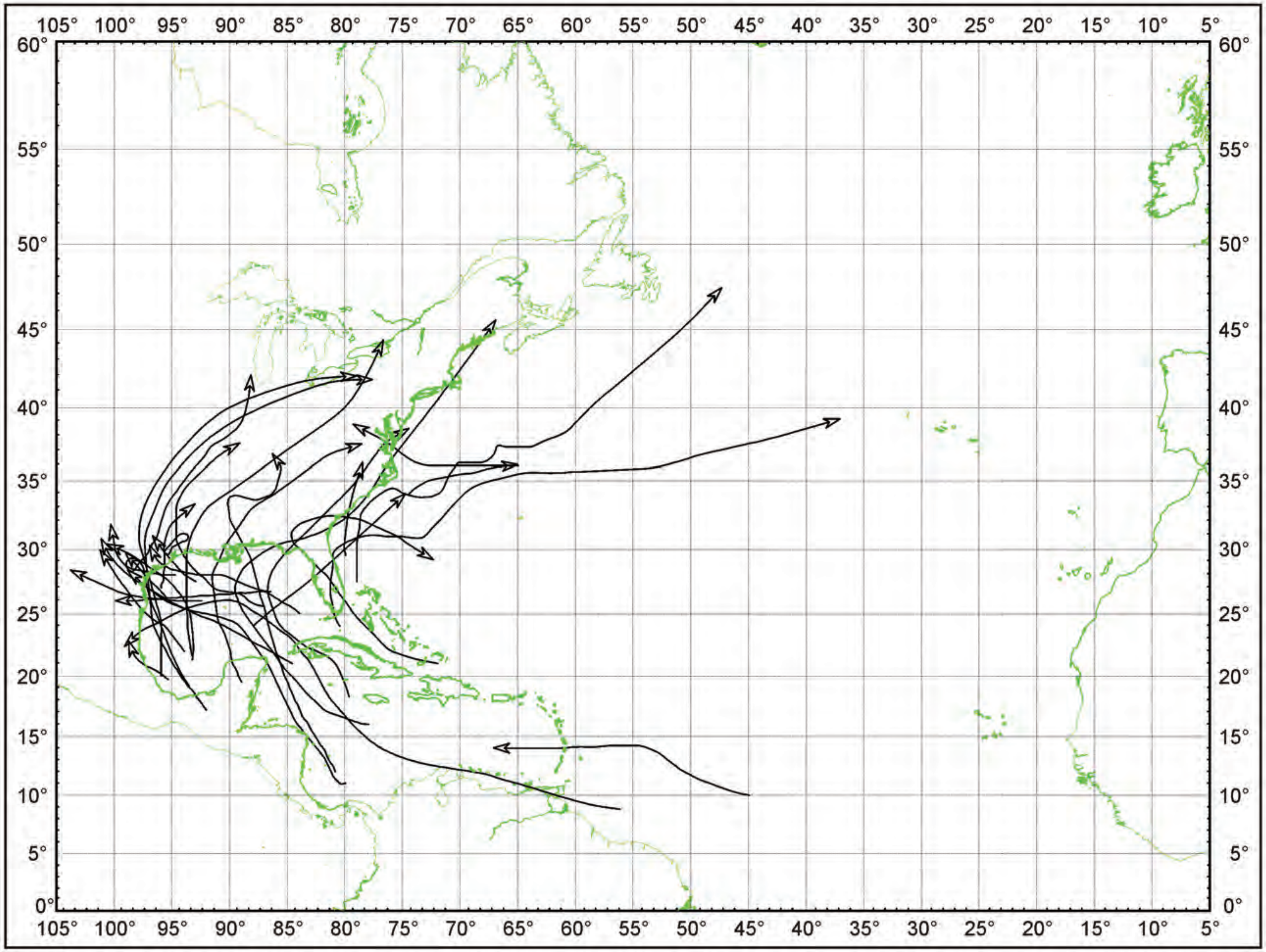
TROPICAL STORMS AND HURRICANES BEGINNING DECEMBER, 1851-2006 (9 OCCURRENCES)



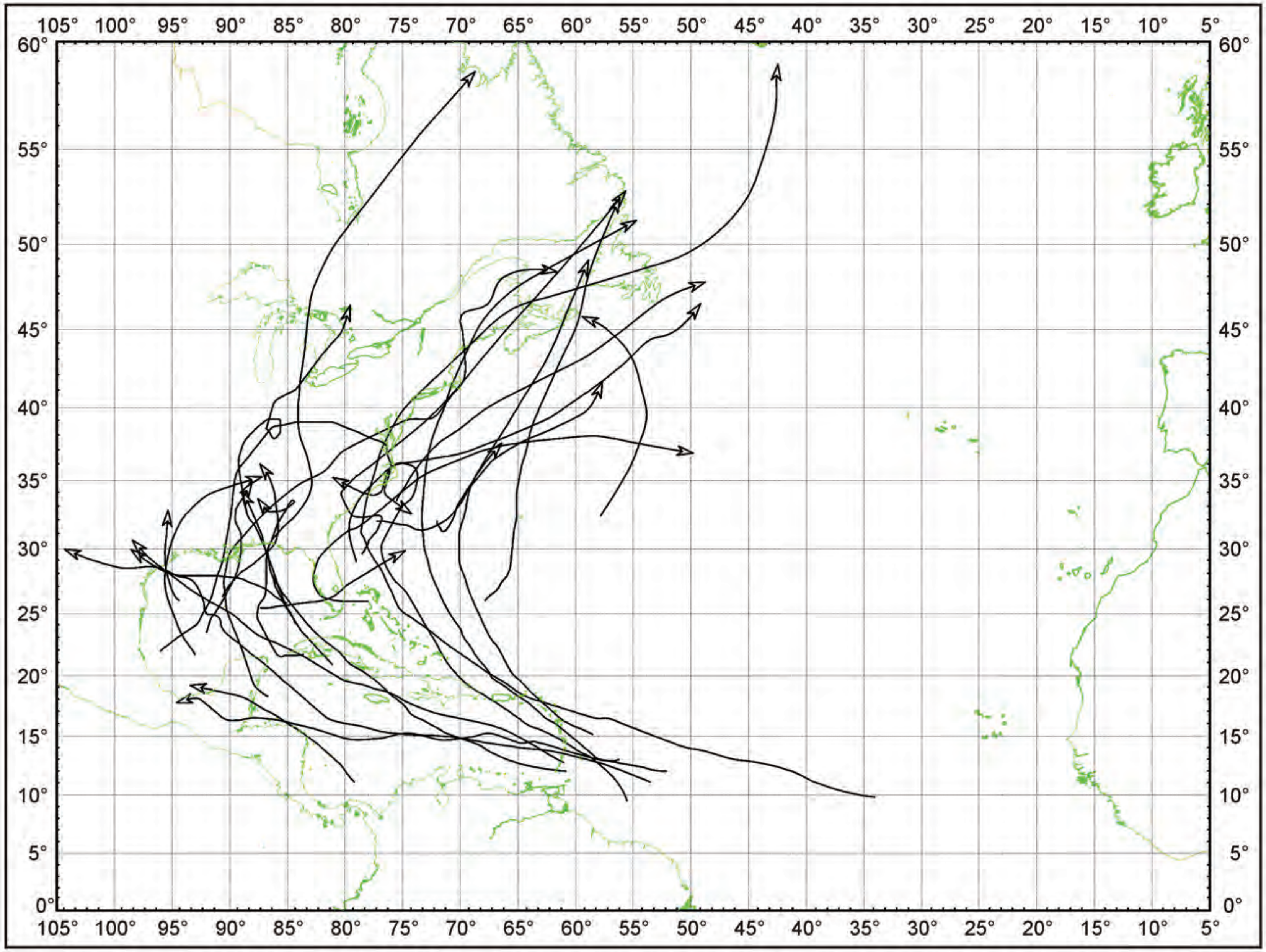
TROPICAL STORMS AND HURRICANES BEGINNING JUNE 1-10, 1851-2006 (18 OCCURRENCES)



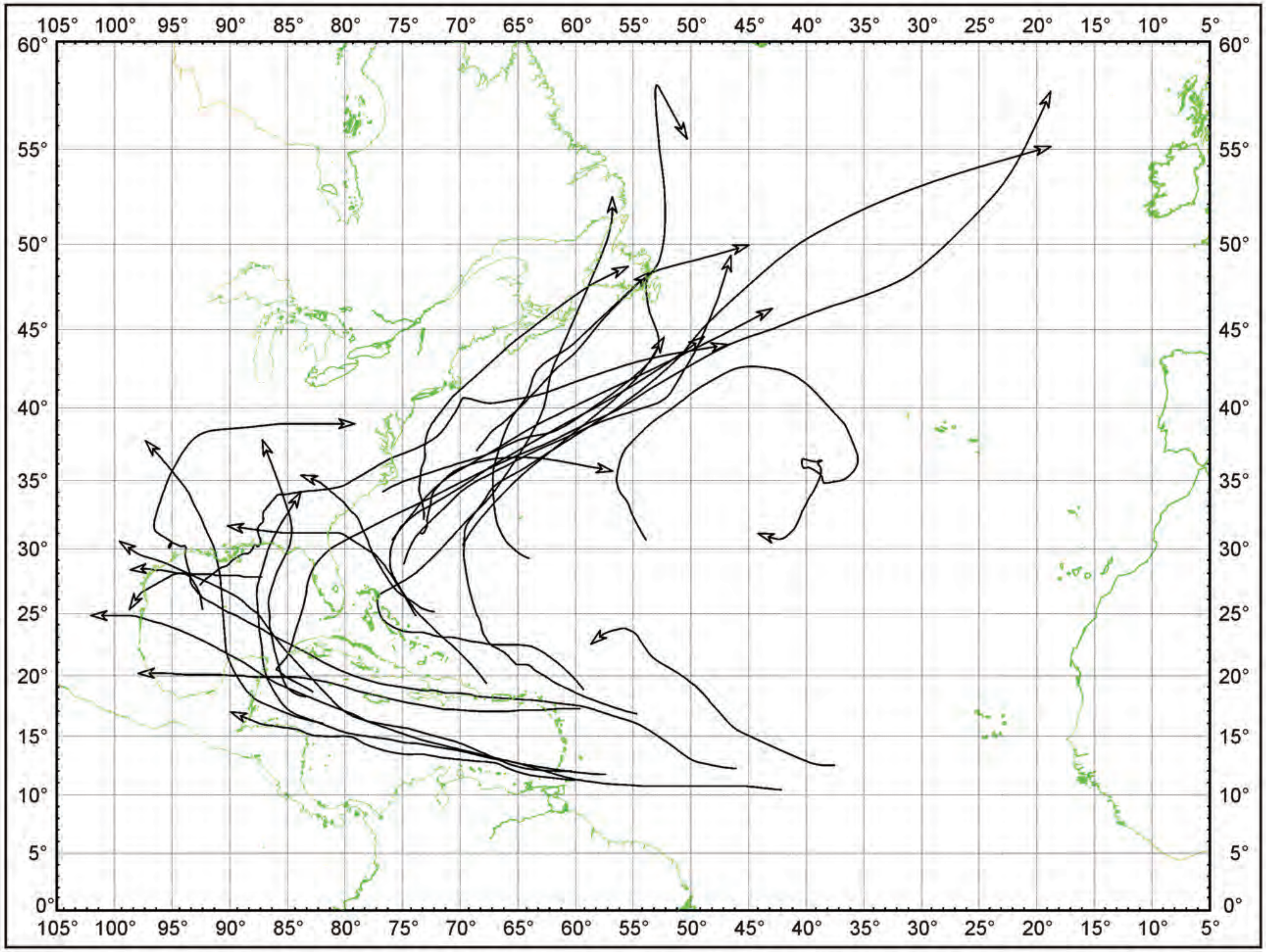
TROPICAL STORMS AND HURRICANES BEGINNING JUNE 11-20, 1851-2006 (32 OCCURRENCES)



TROPICAL STORMS AND HURRICANES BEGINNING JUNE 21-30, 1851-2006 (31 OCCURRENCES)



TROPICAL STORMS AND HURRICANES BEGINNING JULY 1-10, 1851-2006 (31 OCCURRENCES)



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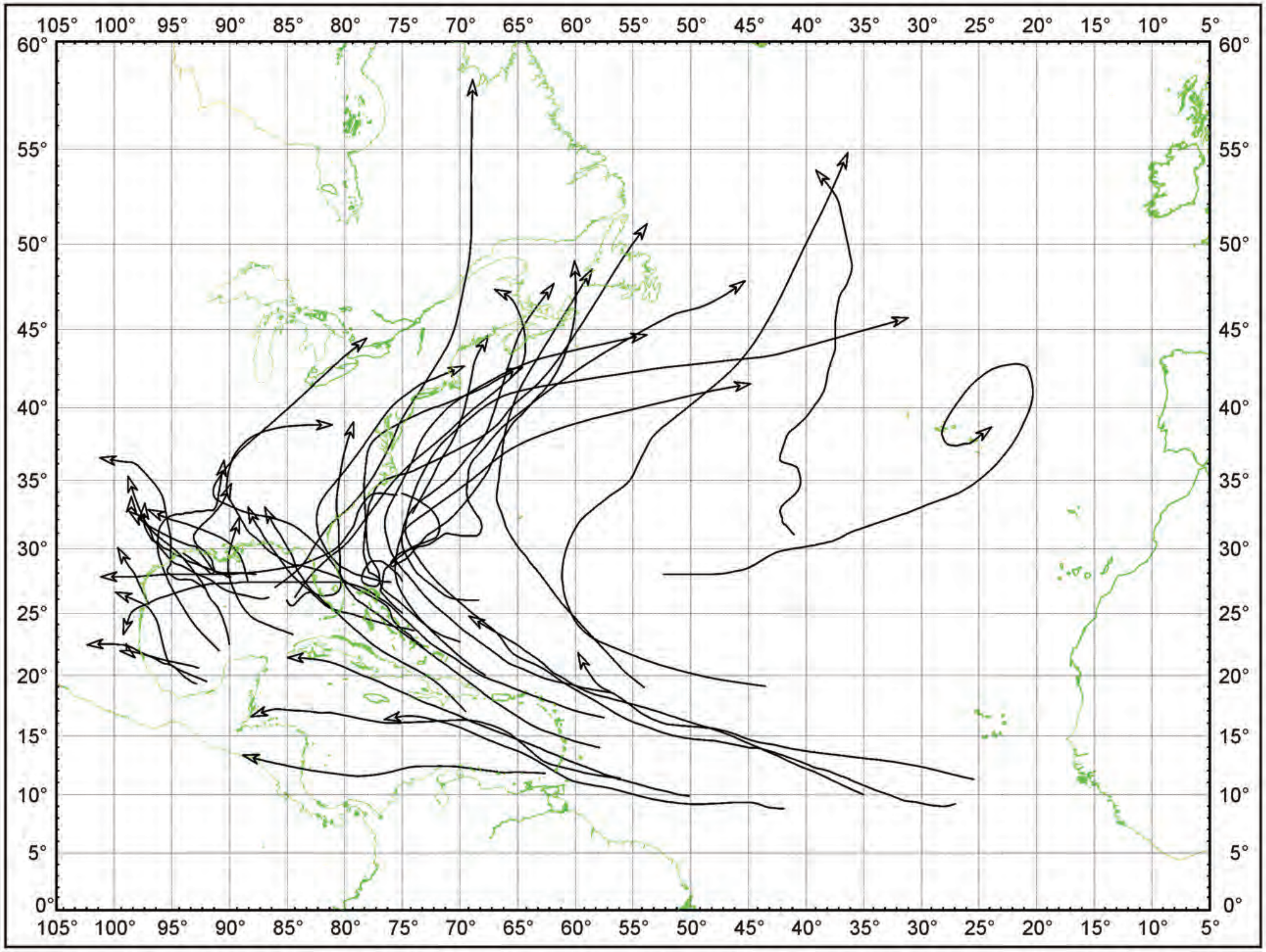

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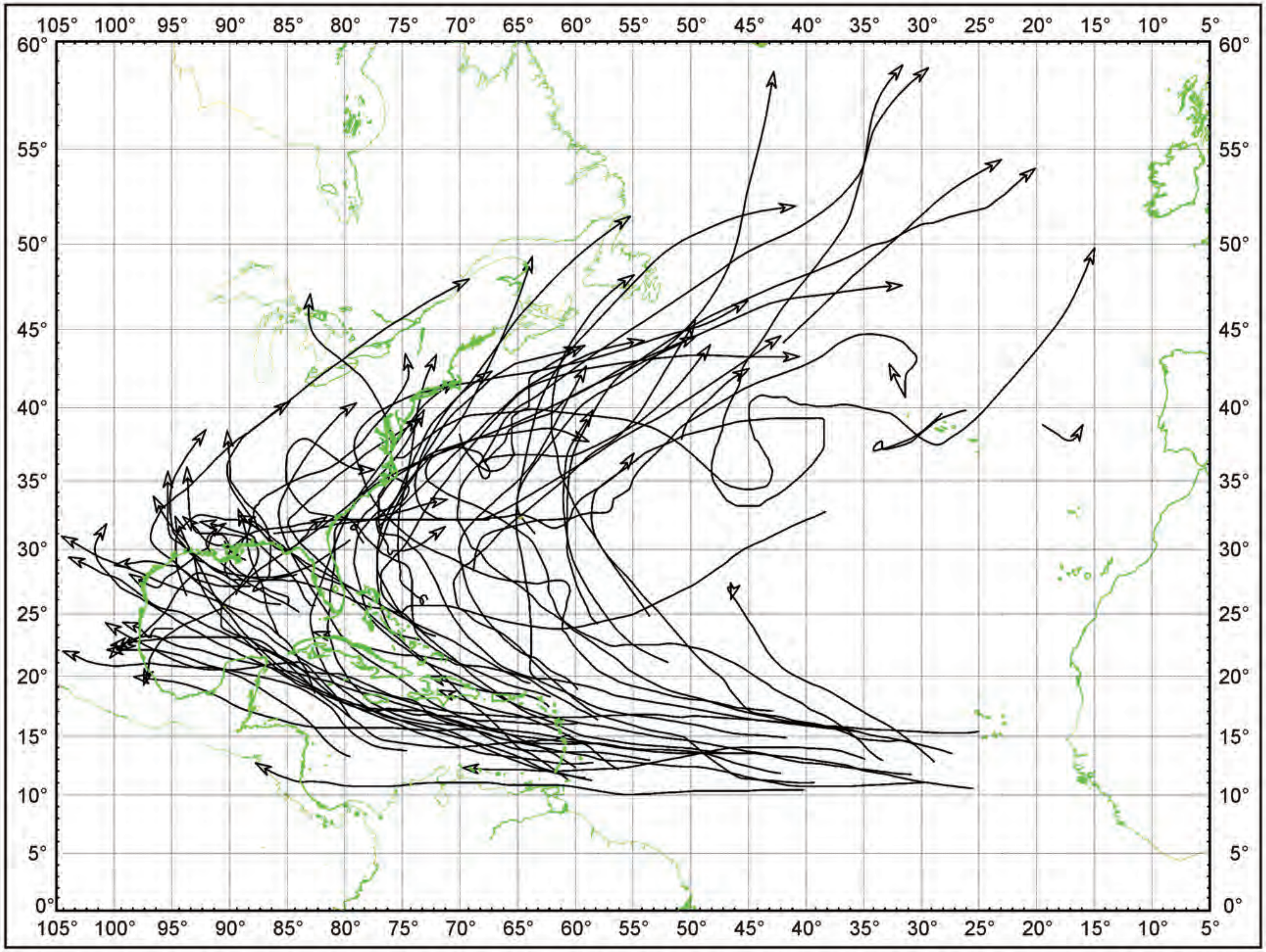
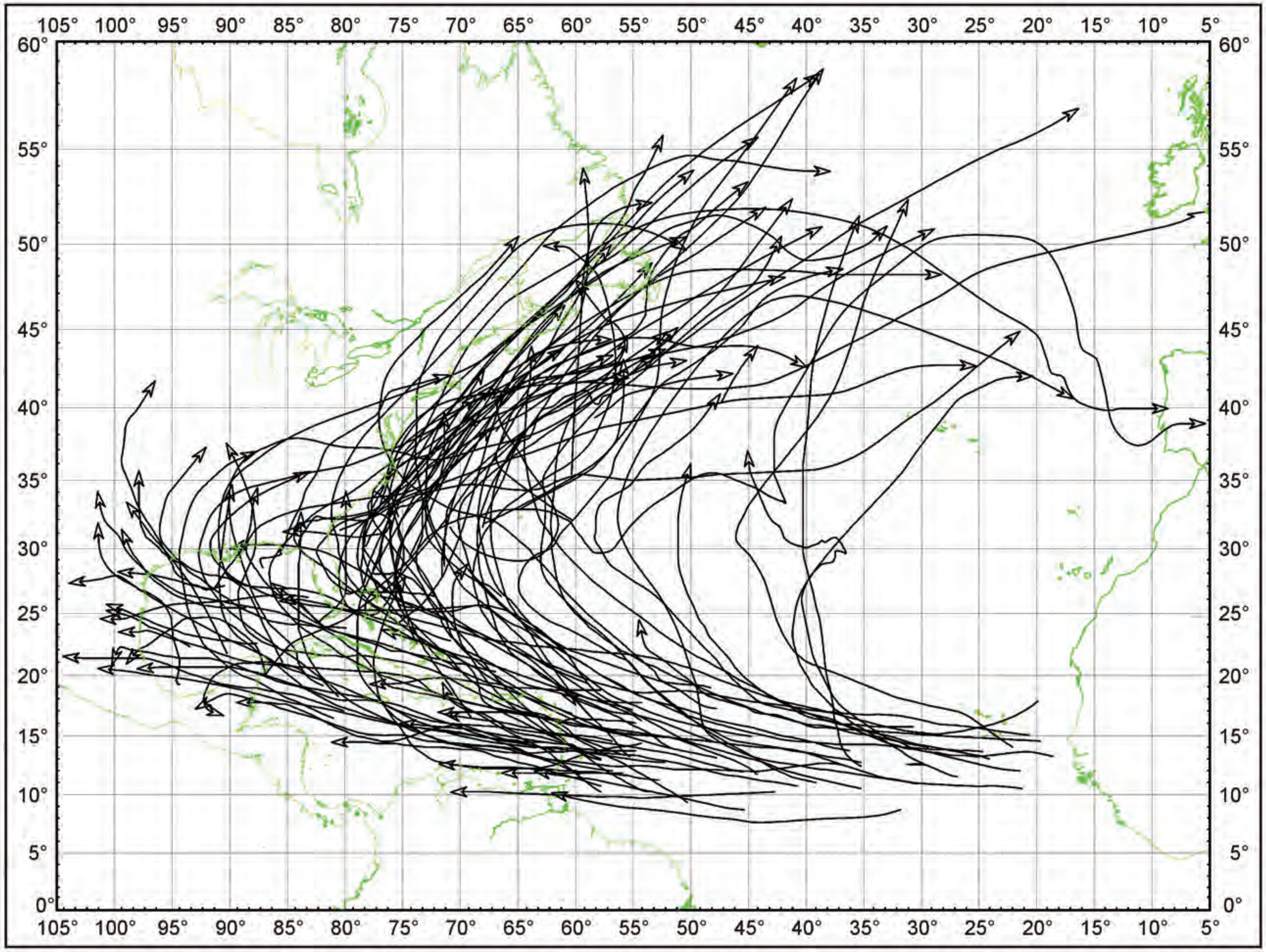
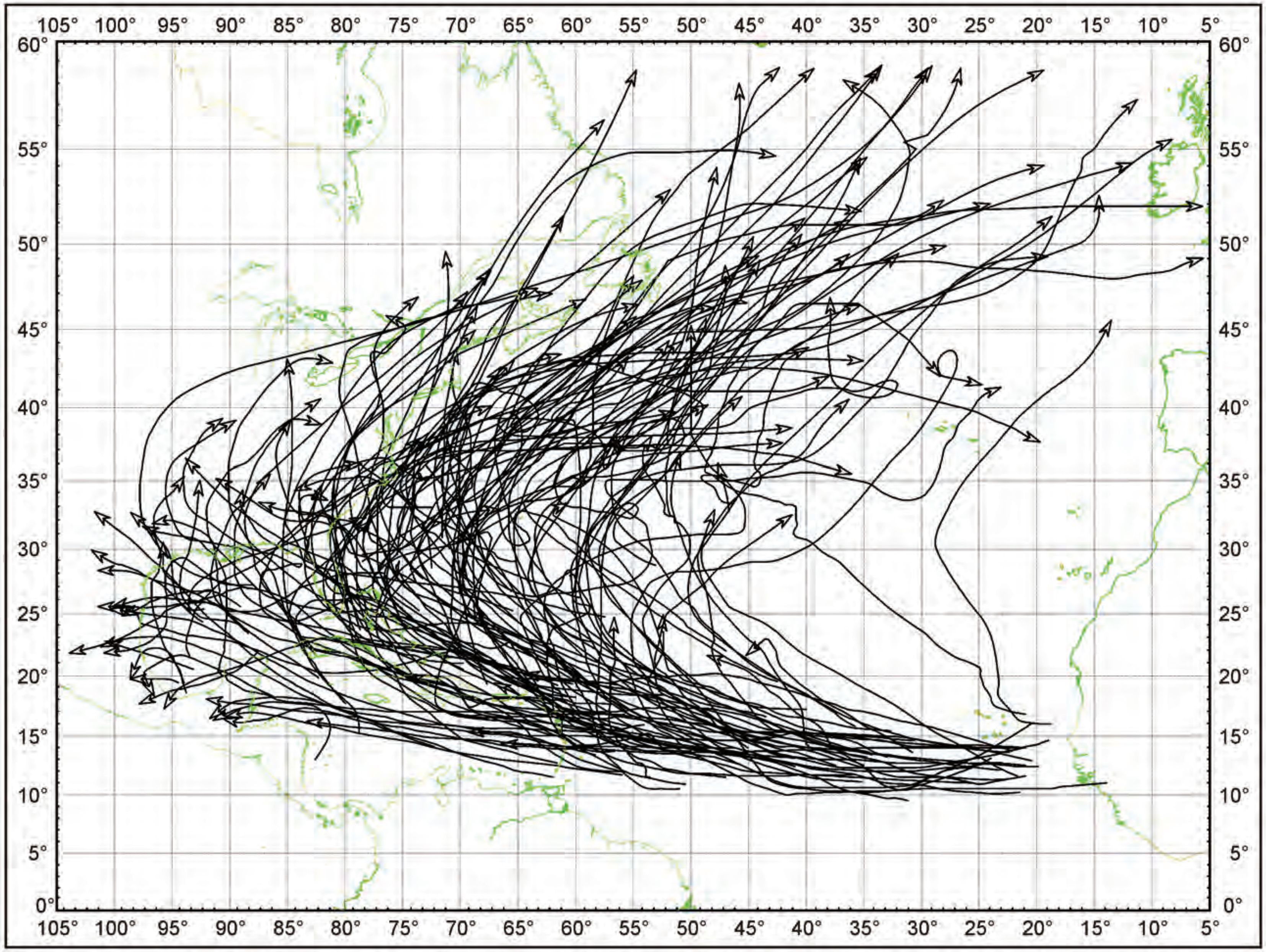


TROPICAL STORMS AND HURRICANES BEGINNING AUGUST 1-10, 1851-2006 (77 OCCURRENCES)



TROPICAL STORMS AND HURRICANES BEGINNING AUGUST 11-20, 1851-2006 (112 OCCURRENCES)



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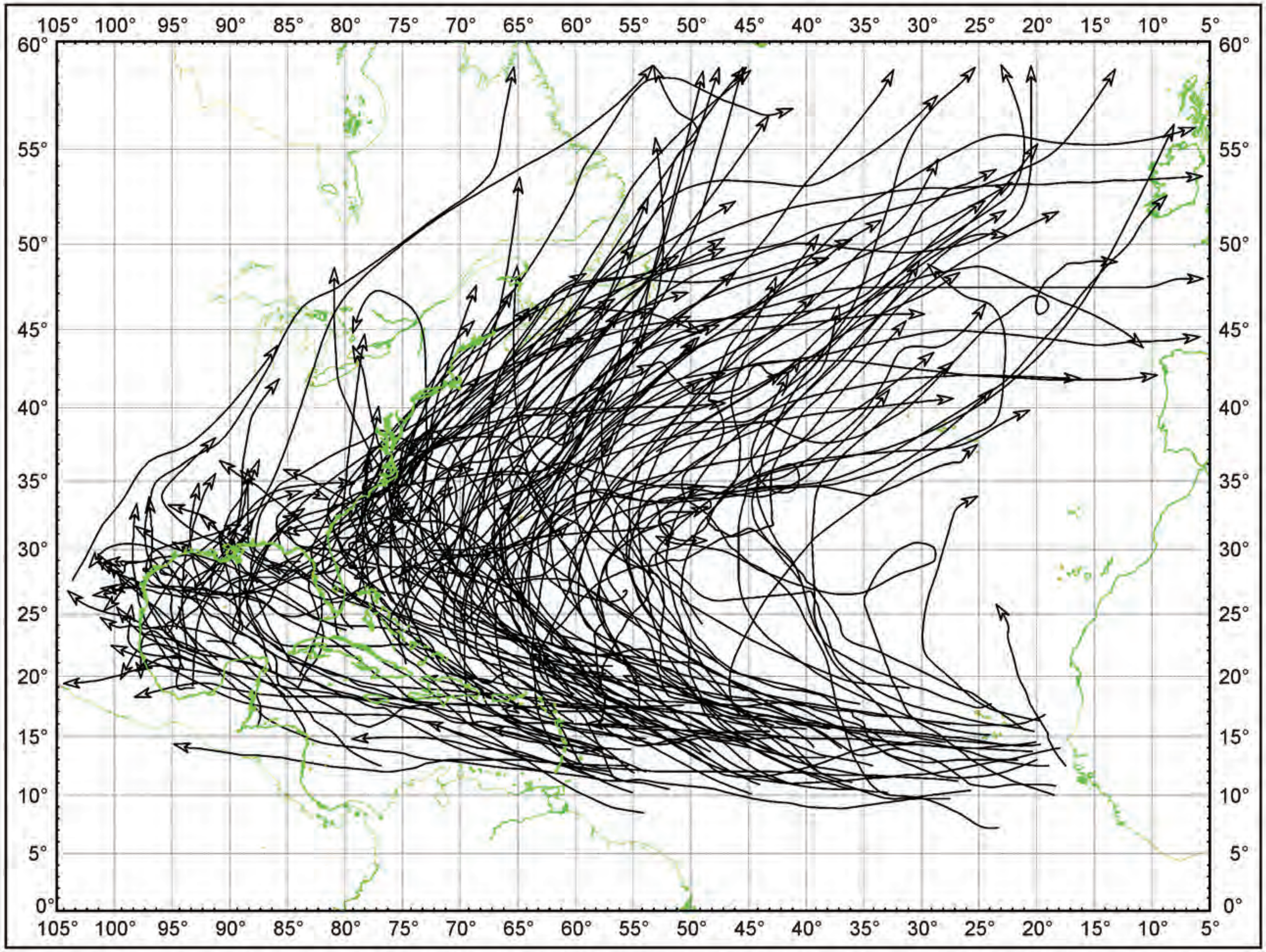
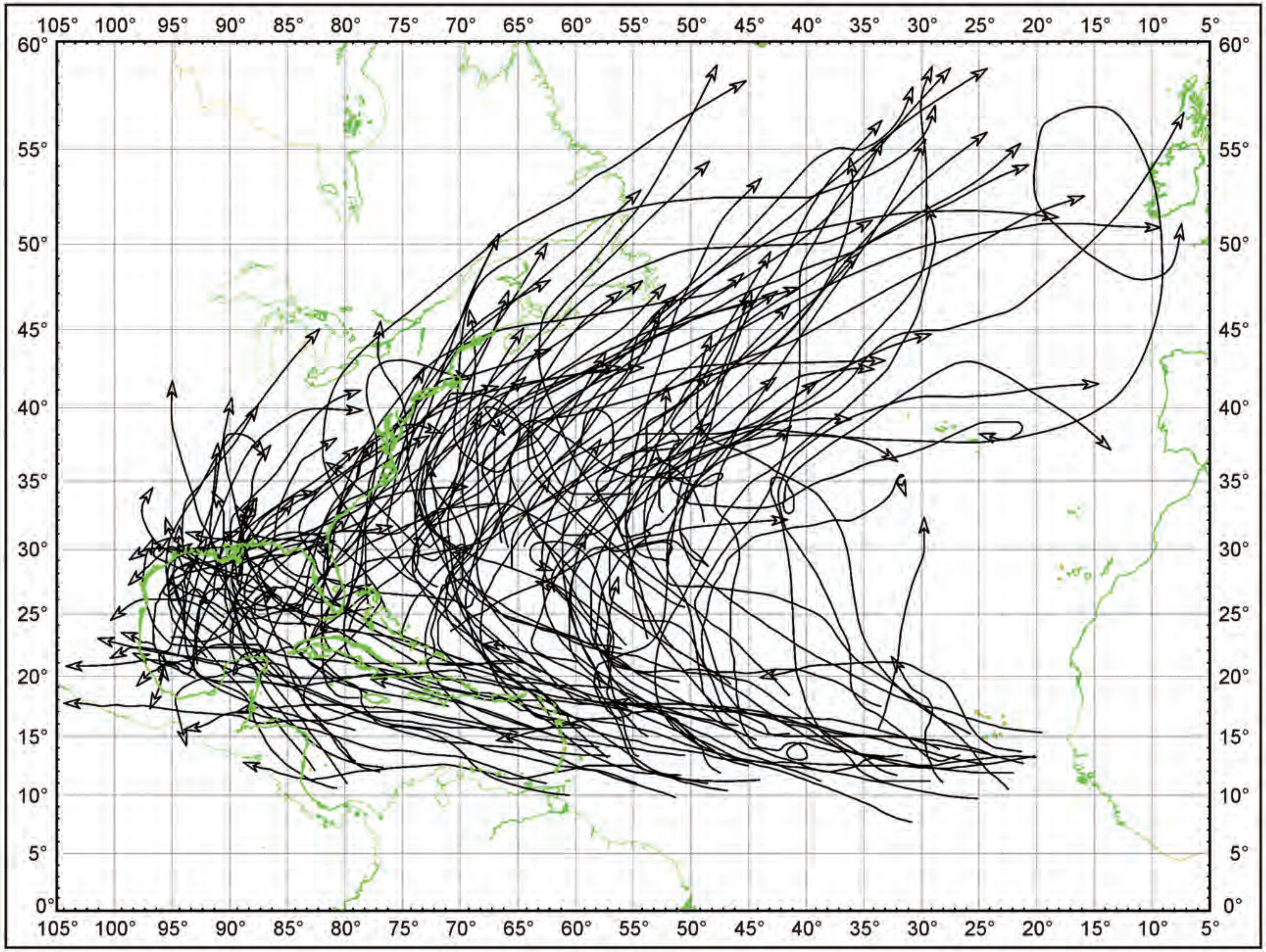
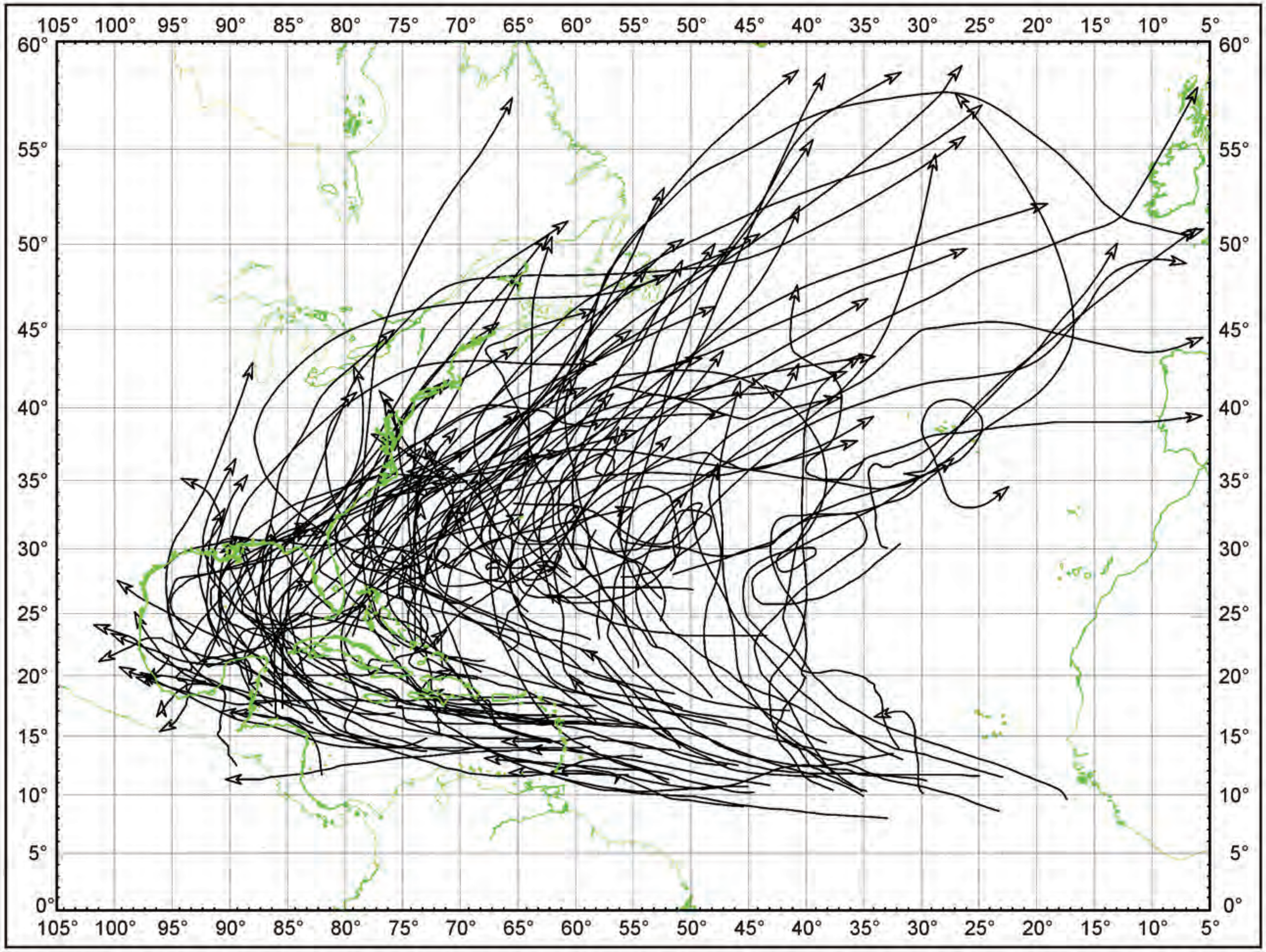


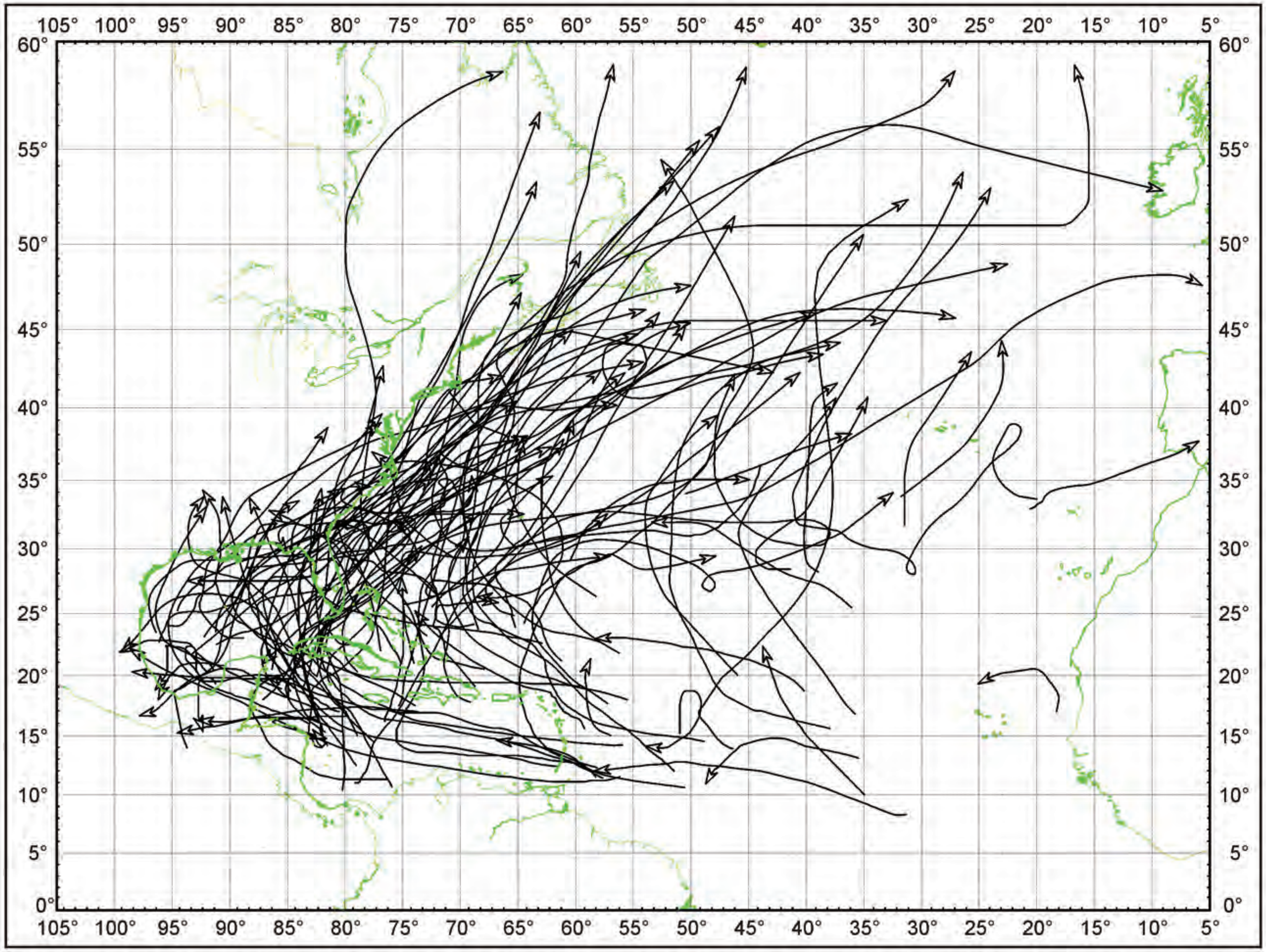
TROPICAL STORMS AND HURRICANES BEGINNING SEPTEMBER 1-10, 1851-2006 (175 OCCURRENCES)



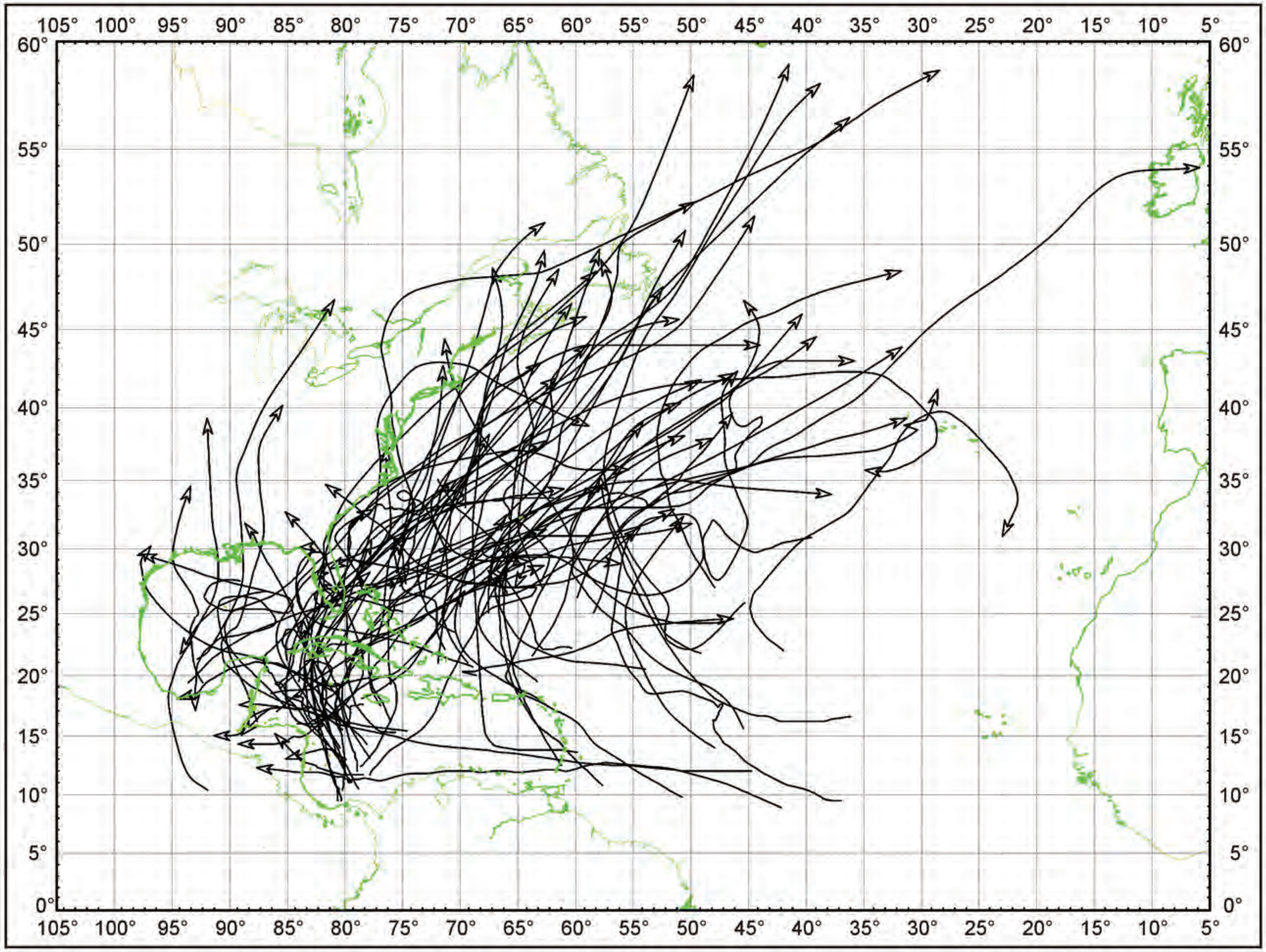
TROPICAL STORMS AND HURRICANES BEGINNING SEPTEMBER 11-20, 1851-2006 (150 OCCURRENCES)



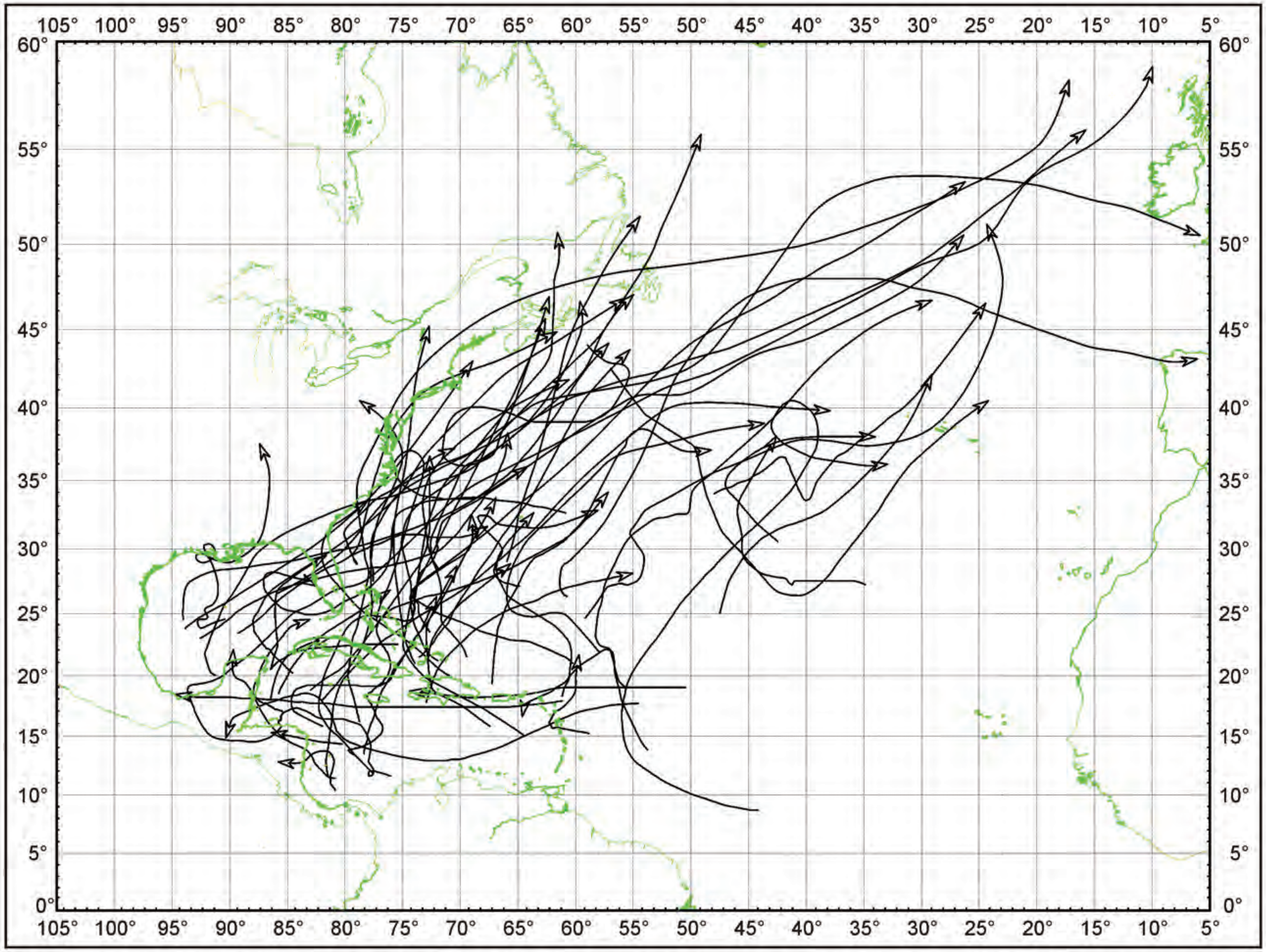
TROPICAL STORMS AND HURRICANES BEGINNING SEPTEMBER 21-30, 1851-2006 (136 OCCURRENCES)



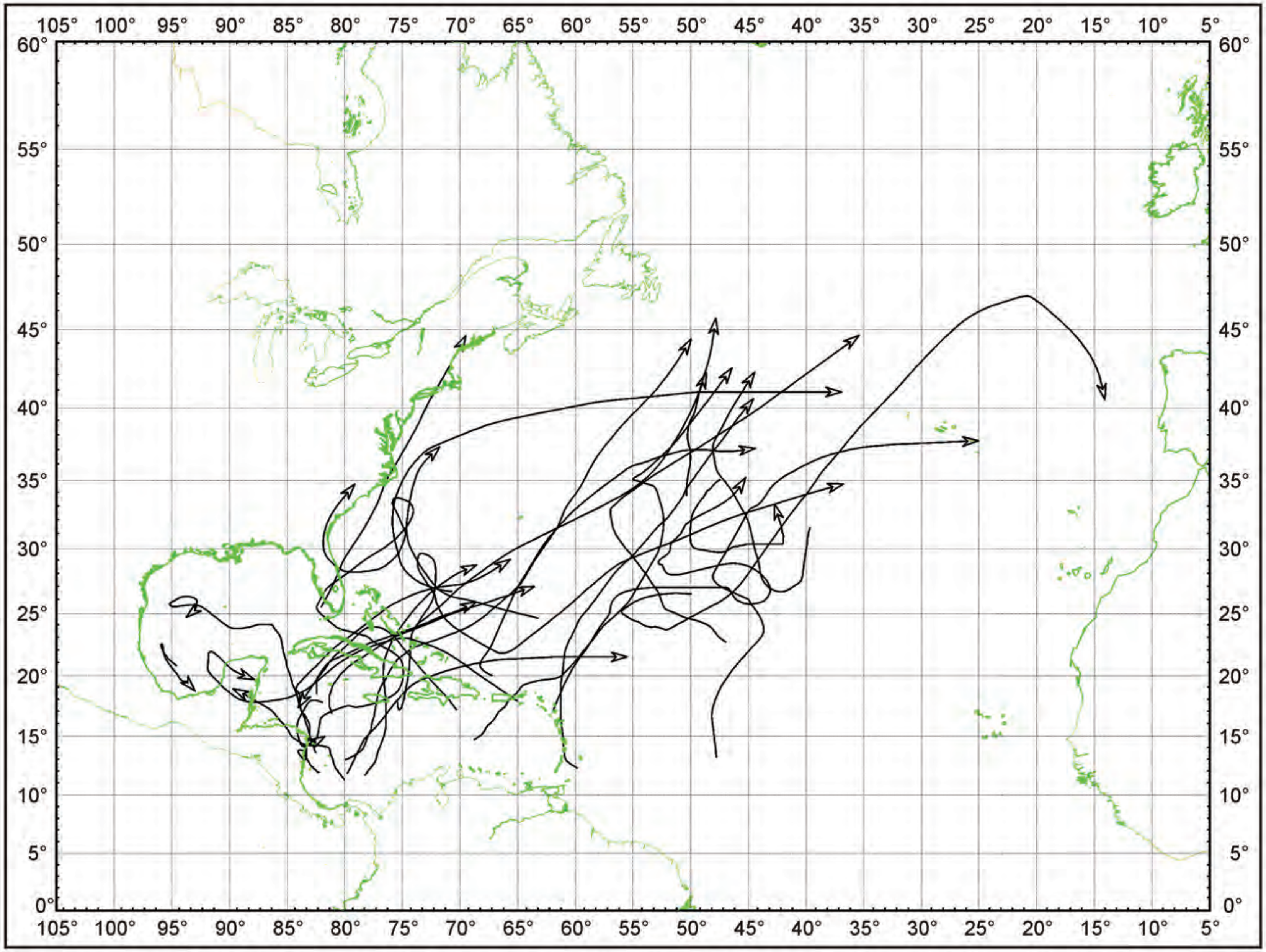
TROPICAL STORMS AND HURRICANES BEGINNING OCTOBER 1-10, 1851-2006 (120 OCCURRENCES)



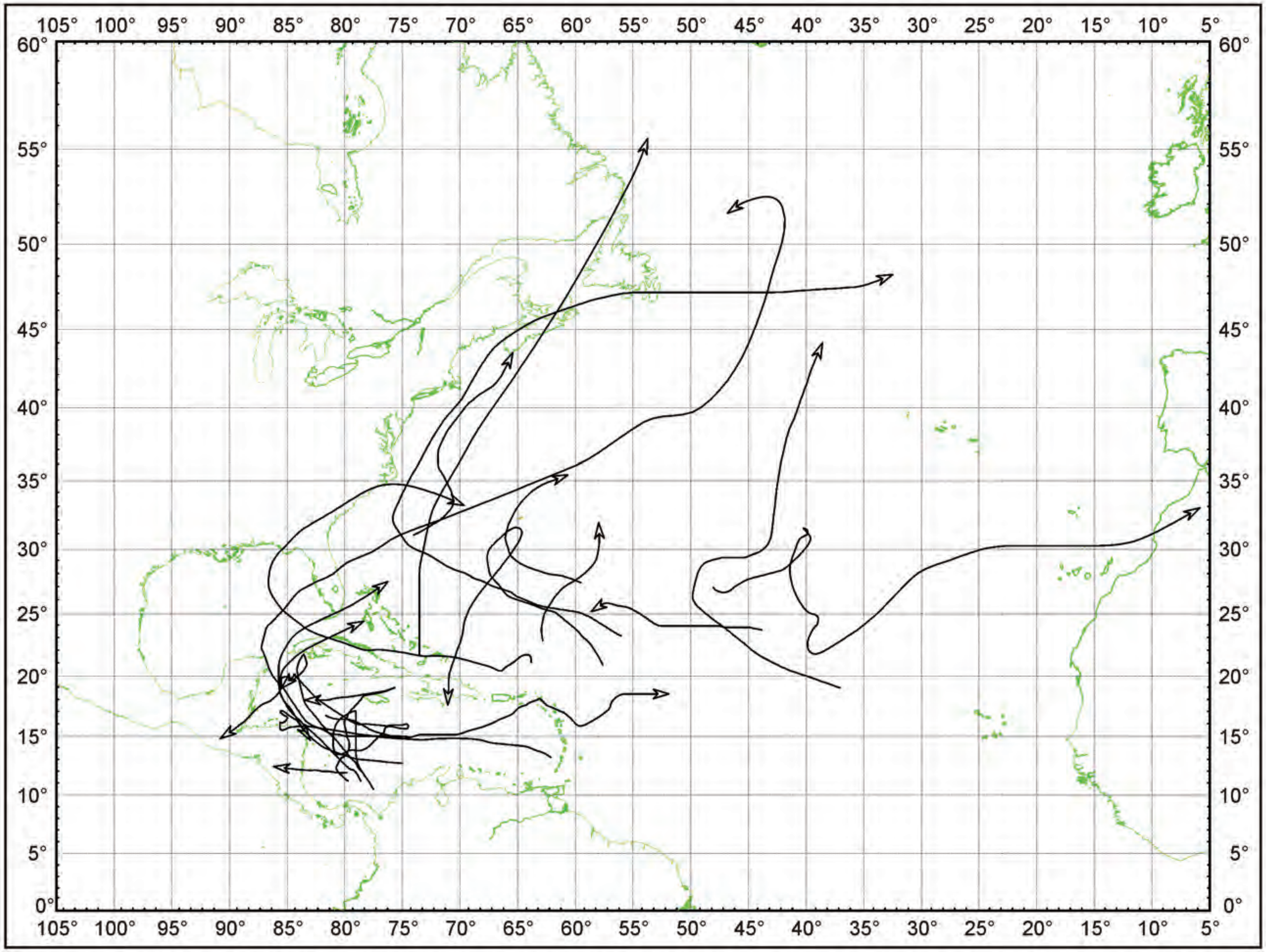
TROPICAL STORMS AND HURRICANES BEGINNING OCTOBER 11-20, 1851-2006 (96 OCCURRENCES)



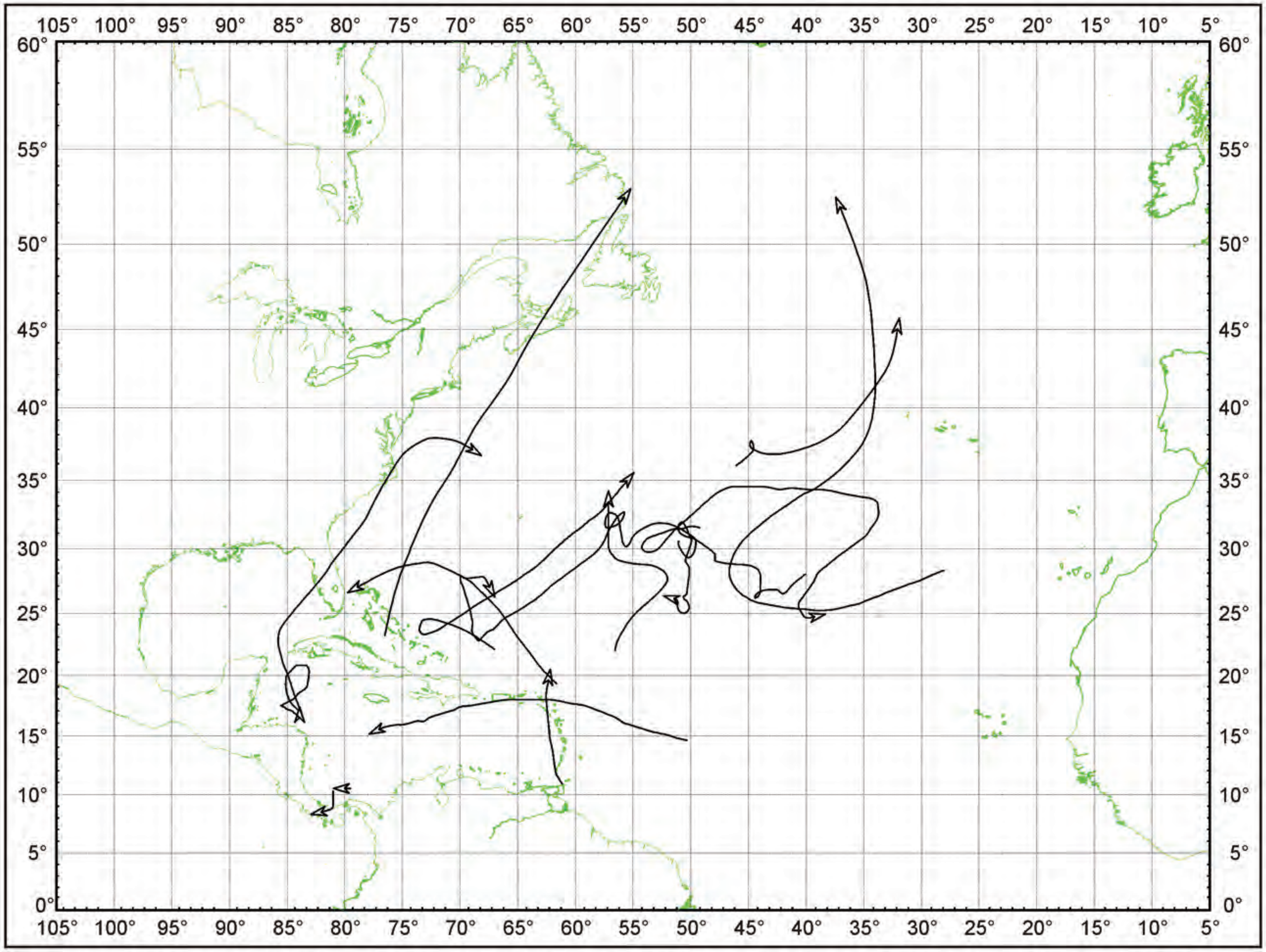
TROPICAL STORMS AND HURRICANES BEGINNING OCTOBER 21-31, 1851-2006 (63 OCCURRENCES)



TROPICAL STORMS AND HURRICANES BEGINNING NOV 1-10, 1851-2006 (28 OCCURRENCES)



TROPICAL STORMS AND HURRICANES BEGINNING NOVEMBER 11-20, 1851-2006 (19 OCCURRENCES)



TROPICAL STORMS AND HURRICANES BEGINNING NOVEMBER 21-30, 1851-2006 (15 OCCURRENCES)

Endnote

As noted in the text, the HURDAT data set upon which this publication is based is currently undergoing a reanalysis. There are a number of issues to be addressed, one of which is the Saffir-Simpson category at the time of hurricane landfall. While the current practice at NHC is to assign the category at landfall based on the wind alone, this has not always been the case. In plotting according to wind, as has been done here, past practice in assigning Saffir-Simpson category can result in some apparent discrepancies. It is expected that the next edition will reflect the completed reanalysis and that these issues will have been largely resolved.

1929 #2 Although currently shown in Table 6 as a category 3 at the time of landfall in south Florida, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1933 #8 Although currently shown in Table 6 as a category 2 at the time of landfall in North Carolina and Virginia, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1933 #13 Although currently shown in Table 6 as a category 3 at the time of landfall in North Carolina, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1934 #2 Although currently shown in Table 6 as a category 3 at the time of landfall in Louisiana, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1936 #5 Although currently shown in Table 6 as a category 3 at the time of landfall in Florida, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1938 #4 Although currently shown in Table 6 as a category 3 at the time of landfall in New York, Connecticut, Rhode Island, and Massachusetts, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1941 #2 Although currently shown as category 3 at the time of landfall in Table 6, and other publications, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1941 #5 Although the winds as they currently appear in HURDAT (as plotted) support a designation of category 3, effects of this hurricane were deemed to be category 2 in previous studies and pending reanalysis are still shown as such in Table 6.

1942 #2 Although currently shown as category 3 at the time of landfall in Table 6, and other publications, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1944 #7 Although currently shown as category 3 at the time of landfall in Table 6, and other publications, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1945 #5 Although the winds as they currently appear in HURDAT (as plotted) support a designation of category 3, effects of this hurricane were deemed to be category 2 in previous studies and pending reanalysis are still shown as such in Table 6.

1947 #4 Although currently shown in Table 6 as category 3 at the time of landfall in Louisiana and Mississippi, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1949 #10 Although the winds as they currently appear in HURDAT (as plotted) support a designation of category 3, effects of this hurricane were deemed to be category 2 in previous studies and pending reanalysis are still shown as such in Table 6.

1950 #11 Although currently shown as category 3 at the time of landfall in Table 6, and other publications, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1954 #3 H Carol Although currently shown in Table 6 as category 3 at the time of landfall in New York, Connecticut and Rhode Island, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1954 #5 MH Edna Although currently shown in Table 6 as category 3 at the time of landfall in Massachusetts, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1955 #2 MH Connie Although currently shown in Table 6 as category 3 at the time of landfall in North Carolina, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1955 #9 MH Ione Although currently shown in Table 6 as category 3 at the time of landfall in North Carolina, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1960 #5 MH Donna Although currently shown in Table 6 as category 3 at the time of landfall in North Carolina and New York, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1960 #6 MH Ethel Although currently shown in Table 6 as category 1 at the time of landfall in Mississippi, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1964 #11 MH Isbell Although the winds as they currently appear in HURDAT (as plotted) support a designation of category 3 at the time of landfall in Florida, effects of this hurricane were deemed to be category 2 in previous studies and pending reanalysis are still shown as such in Table 6.

1972 #2 H Agnes Although currently shown in Table 6 as category 1 at the time of landfall in New York and Connecticut, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

1985 #7 MH Gloria Although currently shown in Table 6 as category 3 at the time of landfall in New York, the winds alone at the time of landfall as they currently appear in HURDAT do not support this designation.

The following Table 6 update through 2008 is provided for the convenience of the reader. For current year information and future updates as they become available, please see: http://www.aoml.noaa.gov/hrd/hurdat/Data_Storm.html for data in tabular form, or http://www.nhc.noaa.gov/pastall.shtml and select 'HURDAT' data file.

Storm No	Year	Month	Day	Storm Name	Coastal States affected and Category
8	2007	Sep	13	Humberto	TX(N)1, LA1 [1]
4	2008	Jul	23	Dolly	TX(S)1 [1]
7	2008	Sep	1	Gustav	LA2 [2]
9	2008	Sep	13	Ike	TX(N)2, LA1 [2]