

(03/24/2023)

The Tail-Doppler Radar (TDR) dataset is comprised of raw Doppler radar data (as recorded on the aircraft) and products derived therefrom for a given flight. Radar data point of contact for Level 1 and 2 data sets: Dr. Paul Reasor (Paul.Reasor@noaa.gov) and Dr. John Gamache (John.Gamache@noaa.gov). Point of contact for Level 3 data set: Dr. Michael Fischer (Michael.Fischer@noaa.gov).

HRD's data use policy should be read before using any of the below TDR data sets:
https://www.aoml.noaa.gov/wp-content/uploads/2021/06/Guide-to-AOML_HRD-Data-Accessibility.pdf

References for the synthesis method (3D and vertical profile) and automated QC:

- (3D synthesis) Gamache, J. F., 1997: Evaluation of a fully three-dimensional variational Doppler analysis technique. Preprints, 28th Conf. on Radar Meteorology, Austin, TX, Amer. Meteor. Soc., 422–423.
- (3D synthesis) Reasor, P. D., M. Eastin, and J. F. Gamache, 2009: Rapidly intensifying Hurricane Guillermo (1997). Part I: Low-wavenumber structure and evolution. *Mon. Wea. Rev.*, 137, 603–631.
- (Profile synthesis) Zhang, J. A., Rogers, F., Reasor, P. D., and Gamache, J. (2022). The mean kinematic structure of the tropical cyclone boundary layer and its relationship to intensity change. *Mon. Wea. Rev.*, 151, 63–84.
- (Quality control) Gamache, J. F., 2005: Real-time dissemination of hurricane wind fields determined from airborne Doppler radar data. National Hurricane Center, 38 pp. [Available online at http://www.nhc.noaa.gov/jht/2003-2005reports/DOPLRgamache_JHTfinalreport.pdf.]

Filename convention: **YYYY** = 4-digit year; **YY** = 2-digit year; **MM** = 2-digit month; **DD** = 2-digit day; **A** = aircraft ID (N42/3/9=H/I/N); **I** = first (=1) or second (=2) flight of day for given aircraft starting 00 UTC; **HHMMSS** = UTC analysis time in hrs (HH), min (MM) and sec (SS); **HHMM** = UTC analysis time without sec; **HHMM_HHMM** = UTC analysis period (start_end)

Note: For flights crossing 00 UTC, times are reported on a 48-h clock

File format: *.w are legacy binary files. We encourage use of the netcdf-format files which contain additional metadata for analysis interpretation. **IMPORTANT** notes on the netcdf files:

- Gridding and Variable Name Changes: Beginning in 2021, the 3D analysis grids transitioned from regularly-spaced in latitude-longitude [1D position variable names: “**lats**” and “**lons**” (and sometimes “**lat**” and “**lon**” for older data sets)] to regularly-spaced Cartesian (consistent with the *.w files) [1D position variable names: “**x**” and “**y**”. New 2D variables “LATITUDE” and “LONGITUDE” contain the latitude and longitude position of each Cartesian grid point and are supplied as additional information.]
- Vertical Levels: Beginning with the 2021 Level 2 products, the lowest level (z=0) is flagged to avoid a prior misinterpretation of that level (fields there are *not* surface fields)
- Storm-relative Mapping and Storm-relative Winds: All analyses employ a system translation (e.g., storm motion), stated in the metadata, to map raw Doppler data to the common analysis time. Files with ‘_rel’ indicate that a constant system motion has been removed from the winds (i.e., “storm-relative” winds). Otherwise, winds should be interpreted as Earth-relative winds.

Level 1a – Raw TDR radials with standard real-time QC written to individual 360° SIGMET-format sweep files. P-3 and G-IV flight archives for fore- (*-MA-product_raw.tar.gz) and aft-pointing (*-SL-product_raw.tar.gz) antenna are located at

https://seb.oma.noaa.gov/pub/acdata/YYYY/RADAR_TDR/YYYYMMDDAI

Level 1b – Real-time TDR products generated on the aircraft using automated QC and synthesis methods, transmitted to a ground server, and archived *as is*. Users must adhere to data use policies for Level 1 products and are strongly advised to perform their own quality control of analyses. P-3 and G-IV flight archives are located at

<https://seb.oma.noaa.gov/pub/flight/radar/YYYYMMDDAI>

<Execution, O(1M)> Informational text output/error files produced during software execution

YYMMDDAI_HHMM_HHMM_analysis.tar

<Analysis, O(10M)> 3D wind/reflectivity, 2D vertical profile gridded analyses of QC'd TDR data

YYMMDDAI_HHMM_xy.(w)nc.gz

- 3D volume with 2-km (0.5-km) horizontal (vertical) grid spacing extending out 250 km from the grid origin (typically, the center of circulation at flight level)
- For N49, the spacing and domain can vary depending on the flight pattern

YYMMDDAI_HHMM_xy_rel.(w)nc.gz **Discontinued after 2021 season**

- Storm-relative wind

YYMMDDAI_HHMM_vert_in(out)bound.(w)nc.gz

- Along-track (1.5-km spacing) vertical profile with 150-m vertical grid spacing
- Wind derived from data *up to* 10-km from the flight track (see Zhang et al. 2022)
- The user is advised to reference the in(out)-bound flight track for context, as the profiles sometimes do not represent actual radials from the storm center

YYMMDDAI_HHMM_vert_in(out)bound_rel.(w)nc.gz

- Storm-relative wind

YYMMDDAI_HHMM_vert_in(out)bound_fall.(w)nc.gz

- Estimated fall speed (via dBZ-Vt relationship) removed from the Doppler velocity

<AWIPS, O(1M)> Wind and reflectivity products for AWIPS-2 ingest derived from analysis data

AWIPSMaxdb_YYMMDDAI_HHMMz.nc.gz

AWIPSWindComponents_YYMMDDAI_HHMMz.nc.gz

<Superob, O(1M)> QC'd TDR data averaged to regular azimuth/radius points about flight track

YYMMDDAI_HHMM_HHMM_radials.so.gz

Level 1b – Real-time TDR graphics generated during flights and archived at

<https://www.aoml.noaa.gov/ftp/pub/hrd/data/RTradar/YYYY/YYYYMMDDAI>

Level 2 – Post-processed TDR products generated on the ground after the end of hurricane season using automated QC and synthesis methods. Departures of QC, method and analysis parameters from those used in real time (Level 1b) are noted in a spreadsheet at the end of this document. Each analysis has been inspected and adheres to basic standards for research use. Strictly speaking, only analyses since 2020 are formally part of the Level 2 database. In the future, analyses from prior seasons will be added. Users must adhere to data use policies for Level 2 products and are strongly advised to perform their own quality control of analyses. P-3 and G-IV flight archives are located at

<https://www.aoml.noaa.gov/ftp/pub/hrd/data/radar/level2>

IMPORTANT: RED-highlighted analyses should not be used.

<Jobfile, 3K> Input parameters to the automated QC/synthesis software

YYYYMMDDAI_HHMMSS_jobfile.tar.gz

<Execution, O(1M)> Informational text output/error files produced during software execution

YYMMDDAI_HHMM_HHMM_analysis.tar

<Analysis, O(10M)> 3D wind/reflectivity, 2D vertical profile gridded analyses of QC'd TDR data

YYMMDDAI_HHMM_xy.(w)nc.gz

- 3D volume with 2-km (0.5-km) horizontal (vertical) grid spacing extending out 250 km from the grid origin (typically, the center of circulation at flight level)
- For N49, the spacing and domain can vary depending on the flight pattern

YYMMDDAI_HHMM_xy_rel.(w)nc.gz **Discontinued after 2020 season reprocessing**

- Storm-relative wind

YYMMDDAI_HHMM_vert_in(out)bound.(w)nc.gz

- Along-track (1.5-km spacing) vertical profile with 150-m vertical grid spacing
- Wind derived from data up to 10-km from the flight track (see Zhang et al. 2022)
- The user is advised to reference the in(out)-bound flight track for context, as the profiles sometimes do not represent actual radials from the storm center

YYMMDDAI_HHMM_vert_in(out)bound_rel.(w)nc.gz

- Storm-relative wind

YYMMDDAI_HHMM_vert_in(out)bound_fall.(w)nc.gz

- Estimated fall speed (via dBZ-Vt relationship) removed from the Doppler velocity

<AWIPS, O(1M)> Wind and reflectivity products for AWIPS-2 ingest derived from analysis data

AWIPSMaxdb_YYMMDDAI_HHMMz.nc.gz

AWIPSWindComponents_YYMMDDAI_HHMMz.nc.gz

<Superob, O(1M)> QC'd TDR data averaged to regular azimuth/radius points about flight track

YYMMDDAI_HHMM_HHMM_radials.so.gz

<O-A, O(1M)> Difference between (average) Doppler radial velocity and TDR analysis value projected onto the radial for each 3D grid cell

YYMMDDAI_HHMM_xy_O_minus_A_aft(fore).w.gz **Added in 2021 Level 2 products**

Level 3 – Tropical Cyclone Radar Archive of Doppler Analyses with Recentering (TC-RADAR) currently contains 914 swaths of TDR observations and 273 flight-merged analyses from the P-3 Level 2 database for storms occurring in the North Atlantic, eastern North Pacific, and central North Pacific basins. Observations span all points of the TC lifecycle, ranging from pre-genesis disturbances, to mature hurricanes, to storms nearing extratropical transition. Please note that TDR analyses prior to 2020 have not undergone the same rigorous examination and, thus, are only loosely regarded as “Level 2”. *Users must adhere to data use policies for Level 3 products and are strongly advised to perform their own quality control of analyses.* The swath and flight-merged netcdf archives and README are located at

<https://www.aoml.noaa.gov/ftp/pub/hrd/data/radar/level3>

2020 HFP TDR POST-PROCESSING (LEVEL 2) DOCUMENTATION

Storm Name	Flight ID	Tasking	Pattern	Peak Intensity During Flight	Tail #	Level 1b Analysis Time (UTC)	Reprocess Level 1b? (Y/N)	Level 2 Analysis Time (UTC)	Level 2 Upload Date (MM/DD/YY)	Reprocessing Notes
TS Cristobal	2020060511	EMC	Lawnmower	40 kt (TS)	NOAA43	2200	Y	2140	04/12/21	Issue: Upper-level noise along flight track; Original: 10/10 dB (aft/fore dBZ mask), 3-km dx, 0.9 SQI; Final: Reconfigured lawnmower analysis, weak w anomaly remains along flight track (associated with high-altitude flight level)
						2354	Y	2217	04/12/21	Issue: Upper-level noise along flight track; Original: 10/10 dB (aft/fore dBZ mask), 0.9 SQI; Final: Reconfigured lawnmower analysis, weak w anomaly remains along flight track (associated with high-altitude flight level)
						2510	Y	2455	04/12/21	Issue: Upper-level noise along flight track; Original: 10/10 dB (aft/fore dBZ mask), 0.9 SQI; Final: Reconfigured lawnmower analysis, weak w anomaly remains along flight track (associated with high-altitude flight level)
						2546	Y	2625	04/12/21	Issue: Upper-level noise along flight track; Original: 10/10 dB (aft/fore dBZ mask), 0.9 SQI; Final: Reconfigured lawnmower analysis, weak w anomaly remains along flight track (associated with high-altitude flight level)
TS Cristobal	2020060611	EMC	Butterfly	45 kt (TS)	NOAA43	2115	Y			Original: 15/20 dB (aft/fore dBZ mask), 0.9 SQI; Final: Removed and placed in first-pass analysis
						2206	Y	2206	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.9 SQI; Final: Absorbed old first analysis into this first pass
						2319	Y	2319	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.9 SQI
						2428	Y	2428	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.9 SQI; Final: Adjusted center southward
TD8	2020072311	NHC	Alpha	35 kt (TS)	NOAA43	2330	Y	2330	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Slightly adjust motion dir for all
						2502	Y	2502	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Shift center S and W
						2629	Y	2629	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Extend outbound leg substantially
TS Hanna	2020072411	NHC	Alpha	40 kt (TS)	NOAA43	1137	Y	1137	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Slightly adjust motion dir for all, extend inbound period
						1306	Y	1306	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Adjust profile end time
						1436	Y	1436	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI
TS Hanna	2020072412	NHC	Alpha	55 kt (TS)	NOAA43	2533	Y	2533	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Slightly adjust motion dir for all, extend inbound period
						2628	Y	2628	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Extend outbound leg and add ferry portion
HU Hanna	2020072511	NHC	Alpha	70 kt (Cat 1 HU)	NOAA43	1143	Y	1143	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Slightly adjust motion dir for all
						1243	Y	1243	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Truncate inbound profile
						1327	Y	1327	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Extend ferry portion
HU Isaias	2020073111	EMC	Butterfly	70 kt (Cat 1 HU)	NOAA43	1003	Y	1003	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI, TS setting; Final: Hurricane setting for all, truncate inbound profile
						1130	Y	1130	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Truncate outbound profile

						1210	Y	1210	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Truncate outbound profile and slightly extend ferry portion
HU Isaias	20200731N1	NHC	Synoptic	70 kt (Cat 1 HU)	NOAA49		N			MA only TDR, INE uncorrected
HU Isaias	20200731I2	EMC	Rotated Fig-4	70 kt (Cat 1 HU)	NOAA43	2146	Y	2146	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI, TS setting; Final: Hurricane setting for all
						2313	Y	2313	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI
						2418	Y	2418	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI
						2535	Y	2535	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Shift center S, slightly extend ferry portion
HU Isaias	20200801N1	NHC	Synoptic	75 kt (Cat 1 HU)	NOAA49		N			MA only TDR, INE uncorrected
HU Isaias	20200801I1	EMC	Rotated Fig-4	70 kt (Cat 1 HU)	NOAA43	1010	Y	1010	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI
						1142	Y	1142	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI
						1259	Y	1259	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Some noise remains near center below 5 km
						1421	Y	1421	04/12/21	Original: 15/20 dB (aft/fore dBZ mask), 0.75 SQI; Final: Slightly extend ferry portion , significant noise remains below 6.5 km near center
TS Isaias	20200801N2	NHC	Synoptic	60 kt (TS)	NOAA49		N			MA only TDR, INE uncorrected
TS Isaias	20200801I2	EMC	Rotated Fig-4	60 kt (TS)	NOAA43	2323	Y	2323	04/12/21	Original: 0.9 SQI, IN setting; Final: TS Setting for all. reconfigured alpha-like pattern, add downwind from 2nd pass, use NHC motion despite uncertain center
						2438	Y	2438	04/12/21	Original: 0.9 SQI, TS setting; Final: Add downwind from 3rd pass, remove profile
						2550	Y	2550	04/12/21	Original: 0.9 SQI, TS setting; Final: Expand ferry portion
TS Isaias	20200802I1	EMC	Butterfly	55 kt (TS)	NOAA43	0935	Y	0935	04/12/21	Original: 0.9 SQI
						1051	Y	1051	04/12/21	Original: 0.9 SQI
						1208	Y	1208	04/12/21	Original: 0.9 SQI; Final: Extend outbound leg further
TS Isaias	20200802I2	EMC	Butterfly	60 kt (TS)	NOAA43	2114	Y	2114	04/12/21	Original: 0.9 SQI; Final: Truncate outbound profile
						2236	Y	2236	04/12/21	Original: 0.9 SQI; Final: Remove inbound profile
						2345	Y	2345	04/12/21	Original: 0.9 SQI
TS Isaias	20200803I1	EMC	Butterfly	60 kt (TS)	NOAA43	0952	Y	0952	04/12/21	Original: 0.9 SQI; Final: Use 3-km center to anchor analysis (shift substantially N and E)
						1104	Y	1104	04/12/21	Original: 0.9 SQI
						1206	Y	1206	04/12/21	Original: 0.9 SQI
TD13 (Laura)	20200820I1	EMC	Butterfly	30 kt (TD)	NOAA43	2208	Y	2216	04/12/21	Original: 0.9 SQI, TS setting; Final: Invest setting for all, center on passes, continue using uncertain fast NHC motion (...a mess, meteorologically)
						2347	Y	2351	04/12/21	Original: 0.9 SQI
						2532	Y	2535	04/12/21	Original: 0.9 SQI
TS Laura	20200821H1	EMC	Rotated Fig-4	40 kt (TS)	NOAA42	1000	Y	1000	04/12/21	Original: 10/10 dB (aft/fore dBZ mask); Final: Continue using uncertain fast NHC motion (...a mess, meteorologically)

						1200	Y	1200	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
						1251	Y	1251	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
						1406	Y	1406	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
TS Laura	20200821N1	NHC	Synoptic	40 kt (TS)	NOAA49		N			MA only TDR, INE uncorrected
TS Laura	2020082111	EMC	Butterfly	40 kt (TS)	NOAA43	2203	Y	2203	04/12/21	Original: 0.9 SQI; Final: Continue using uncertain fast NHC motion (...a mess, meteorologically)
						2342	Y	2342	04/12/21	Original: 0.9 SQI
						2440	Y	2440	04/12/21	Original: 0.9 SQI
TS Laura	20200822N2	NHC	Synoptic	45 kt (TS)	NOAA49		N			MA only TDR, INE uncorrected
TS Laura	2020082211	EMC	Figure-4	45 kt (TS)	NOAA43	2425	Y	2425	04/12/21	Original: 0.9 SQI; Final: Remove profiles, extend inbound ferry , continue using uncertain fast NHC motion (...a mess, meteorologically)
						2536	Y	2536	04/12/21	Original: 0.9 SQI; Final: Remove profiles, extend outbound ferry
TS Laura	20200823H1	EMC	Modified Butterfly	45 kt (TS)	NOAA42	1100	Y	1100	04/12/21	Original: 10/10 dB (aft/fore dBZ mask); Final: Remove profile
						1200	Y	1200	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
TS Laura	20200824N1	NHC	Synoptic	55 kt (TS)	NOAA49		N			MA only TDR, INE uncorrected
TS Laura	2020082411	EMC	Modified Butterfly	50 kt (TS)	NOAA43	1047	Y	1044	04/12/21	Original: 0.9 SQI; Final: Shift center S, extend inbound a bit over Cuba , place end of outbound in 2nd analysis
						1219	Y	1221	04/12/21	Original: 0.9 SQI; Final: Shift center N and W (...southernmost part likely to fall outside analysis domain)
						1326	Y	1329	04/12/21	Original: 0.9 SQI; Final: Shift center N and W, remove inbound profile, extend outbound a bit over Cuba
TS Laura	20200824N2	NHC	Synoptic	55 kt (TS)	NOAA49		N			MA only TDR, INE uncorrected
TS Laura	2020082412	EMC	Butterfly	55 kt (TS)	NOAA43	2243	Y	2241	04/12/21	Original: 0.9 SQI; Final: Shift center N and W, remove profiles
						2355	Y	2355	04/12/21	Original: 0.9 SQI
						2501	Y	2501	04/12/21	Original: 0.9 SQI; Final: Shift center N
TS Laura	20200825N1	NHC	Synoptic	55 kt (TS)	NOAA49		N			MA only TDR, INE uncorrected
HU Laura	20200825H1	EMC	Rotated Fig-4	65 kt (Cat 1 HU)	NOAA42	1044	Y	1044	04/12/21	Original: 10/10 dB (aft/fore dBZ mask), TS setting; Final: Hurricane setting for all, add 2nd pass downwind here
						1151	Y	1151	04/12/21	Original: 10/10 dB (aft/fore dBZ mask); Final: Shift center N and E, remove profiles
						1307	Y	1307	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
						1429	Y	1430	04/12/21	Original: 10/10 dB (aft/fore dBZ mask); Final Shift center E
HU Laura	20200825N2	NHC	Synoptic	70 kt (Cat 1 HU)	NOAA49		N			MA only TDR, INE uncorrected
HU Laura	20200825H2	EMC	Rotated Fig-4	80 kt (Cat 1 HU)	NOAA42	2251	Y	2251	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
						2422	Y	2422	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
						2528	Y	2528	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)

								Y	2652	04/12/21	Original: FCU failure -> no Pass 4 TDR Level 1b data; Final: Pass 4 analyzed
HU Laura	20200826H1	EMC	Rotated Butterfly	110 kt (Cat 3 HU)	NOAA42	1057		Y	1057	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
						1201		Y	1201	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
						1307		Y	1307	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
						1426		Y	1426	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
						1512		Y	1512	04/12/21	Original: 10/10 dB (aft/fore dBZ mask); Final: Extend ferry portion
HU Laura	20200826H2	EMC	Rotated Fig-4	130 kt (Cat 4 HU)	NOAA42	2304		Y	2304	04/12/21	Original: 10/10 dB (aft/fore dBZ mask), no F/A data before 2237 UTC; Final: Slightly adjust motion dir for all
						2410		Y	2410	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
						2456		Y	2456	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
						2610		Y	2610	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
						2650		Y	2650	04/12/21	Original: 10/10 dB (aft/fore dBZ mask); Final : Extend ferry portion
TS Marco	20200822N1	NHC	Synoptic	40 kt (TS)	NOAA49			N			MA only TDR, INE uncorrected
TS Marco	20200823N1	NHC	Synoptic	60 kt (TS)	NOAA49			N			MA only TDR, INE uncorrected
TS Nana	20200902H1	NHC	Alpha	50 kt (TS)	NOAA42	1050		Y	1050	04/12/21	Original: 10/10 dB (aft/fore dBZ mask)
						1200		Y	1200	04/12/21	Original: 10/10 dB (aft/fore dBZ mask); Final: Extend ferry portion, perhaps minimal noise <= 2 km
HU Paulette	20200913H1	NHC	Alpha	75 kt (Cat 1 HU)	NOAA42	2334		Y	2334	04/12/21	Final: Extend ferry portion, move 2nd pass downwind leg here
						2442		Y	2442	04/12/21	Final: Extend ferry portion
TS Sally	20200913I1	EMC	Rotated Fig-4	50 kt (TS)	NOAA43	1532		Y	1532	04/12/21	Original: 0.9 SQI
						1657		Y	1657	04/12/21	Original: 0.9 SQI
						1804		Y	1804	04/12/21	Original: 0.9 SQI
						1938		Y	1938	04/12/21	Original: 0.9 SQI
TS Sally	20200913N1	NHC	Synoptic	50 kt (TS)	NOAA49			Y	1836	04/12/21	Original: No INE corrections until final pass; Final: Use 200913N1_ine_corrections_m.dat for all, 1st leg of Fig 4
								Y	1937	04/12/21	Final: 2nd leg of Fig 4
								Y	2040	04/12/21	Final: Inner circumnavigation
								Y	2304	04/12/21	Original: SL files mostly empty from 223123 to 225147 UTC; Final: Partial outer circumnavigation
								Y	2430	04/12/21	Final: Center pass
TS Sally	20200914N1	NHC	Synoptic	50 kt (TS)	NOAA49	0645		Y	0645	04/12/21	Final: Use 200914N1_ine_corrections_m.dat for all, 1st leg of Fig 4, extend inbound portion
						0745		Y	0746	04/12/21	Original: SL files mostly empty from 073352 to 075725 UTC; Final: Partial 2nd leg of Fig 4
						0849		Y	0840	04/12/21	Original: No SL files after 090713 UTC; Final: Partial inner circumnavigation
HU Sally	20200914I1	EMC	Rotated Fig-4	85 kt (Cat 2 HU)	NOAA43	1540		Y	1540	04/12/21	Original: 0.9 SQI, Final: extend ferry portion

						1713	Y	1713	04/12/21	Original: 0.9 SQI
						1816	Y	1816	04/12/21	Original: 0.9 SQI, Final: Remove profiles
						1935	Y	1935	04/12/21	Original: 0.9 SQI
HU Sally	20200914N2	NHC	Synoptic	85 kt (Cat 2 HU)	NOAA49					MA only TDR, No INE corrections file
HU Sally	20200914H1	EMC	Rotated Fig-4	85 kt (Cat 2 HU)	NOAA42	2205	Y	2205	04/12/21	Final: Extend ferry portion , shift center W
						2343	Y	2343	04/12/21	Final: Shift center S and W
						2444	Y	2444	04/12/21	Final: Truncate outbound profile
						2606	Y	2606	04/12/21	Final: Extend ferry portion
HU Sally	2020091511	NHC	Alpha	70 kt (Cat 1 HU)	NOAA43	1420	Y	1420	04/12/21	Original: 0.9 SQI; Final: Slightly adjust motion dir for all
						1516	Y	1516	04/12/21	Original: 0.9 SQI; Final: Shift center W
						1634	Y	1634	04/12/21	Original: 0.9 SQI
						1746	Y	1746	04/12/21	Original: 0.9 SQI
						1855	Y	1855	04/12/21	Original: 0.9 SQI
						1936	Y	1936	04/12/21	Original: 0.9 SQI; Final: Shift center S and W, remove outbound profile
TS Teddy	20200915N1	NHC	Synoptic	55 kt (TS)	NOAA49					MA only TDR, No INE corrections file
HU Teddy	20200916N1	NHC	Synoptic	85 kt (Cat 2 HU)	NOAA49					MA only TDR, No INE corrections file
HU Teddy	20200917H1	NESDIS	Figure-4 + OW	120 kt (Cat 4 HU)	NOAA42	1525	Y	1525	04/12/21	Final: Bit too much WS removed at 1 km in all passes
						1657	Y	1657	04/12/21	
						1738	Y	1738	04/12/21	OW
						1806	Y	1806	04/12/21	OW
						1827	Y	1827	04/12/21	OW ; Final: Extend ferry portion
HU Teddy	2020091711	OAR	Butterfly	120 kt (Cat 4 HU)	NOAA43	2245	Y	2245	04/12/21	Original: 0.9 SQI; Final: Extend ferry portion
						2434	Y	2434	04/12/21	Original: 0.9 SQI
						2545	Y	2545	04/12/21	Original: 0.9 SQI
HU Teddy	20200918H1	NESDIS	Figure-4 + OW	110 kt (Cat 3 HU)	NOAA42	1607	Y	1607	04/12/21	
						1704	Y	1704	04/12/21	
						1757	Y	1757	04/12/21	OW
						1825	Y	1825	04/12/21	OW

						1923	Y	1923	04/12/21	OW (4 legs)
						1943	Y	1943	04/12/21	OW
						2011	Y	2011	04/12/21	OW
						2051	Y	2051	04/12/21	OW; Final: Extend ferry portion
HU Teddy	20200918N1	NHC	Synoptic	110 kt (Cat 3 HU)	NOAA49	1800	Y	1800	04/12/21	Original: No r-t INE corrections before ~1720Z, 3-km spacing; Final: Use 200918N1_ine_corrections_m.dat for all, Include initial star pattern, 3-km spacing
						1830	N			Original: Mostly empty; Final: Remove analysis
						2047	N			Original: Mostly empty; Final: Remove analysis
HU Teddy	20200918I1	OAR	Pass + GW	115 kt (Cat 4 HU)	NOAA43	2254	Y	2254	04/12/21	Original: 0.9 SQI, Final: A bit more noise in low-level dbz along flight track
						2400	Y	2435	04/12/21	Original: 0.9 SQI, 3-km spacing; Final: 3-km spacing
						2517	Y	2517	04/12/21	Original: 0.9 SQI, 3-km spacing; Final: 3-km spacing
HU Teddy	20200922H1	NHC	Alpha	90 kt (Cat 2 HU)	NOAA42	1325	Y	1325	04/12/21	Original: Melting layer height 5 km; Final: Melting layer height 3 km (only this pass), substantially adjust motion speed
						1502	Y	1502	04/12/21	Final: Substantially adjust motion speed
						1602	Y	1602	04/12/21	
TS Gamma	20201003H1	EMC	Modified butterfly	60 kt (TS)	NOAA42	1130	Y	1130	04/12/21	
						1244	Y	1244	04/12/21	Final: Extend outbound leg over land
						1314	Y	1314	04/12/21	
HU Delta	20201005I1	NHC	Alpha	65 kt (Cat 1 HU)	NOAA43	1937	Y	1937	04/12/21	Original: 0.9 SQI
						2124	Y	2124	04/12/21	Original: 0.9 SQI
						2253	Y	2253	04/12/21	Original: 0.9 SQI, Final: Extend ferry portion
HU Delta	20201006H1	NHC	Alpha	120 kt (Cat 4 HU)	NOAA42	1147	Y	1147	04/12/21	Original: Hurricane setting; Final: Extend ferry portion, Major hurricane setting
						1303	Y	1303	04/12/21	Original: Hurricane setting; Final: Major hurricane setting
						1411	Y	1411	04/12/21	(Interesting: local windspeed max near 4-5 km)
						1458	Y	1458	04/12/21	(Interesting: local windspeed max near 4-5 km)
						1633	Y	1633	04/12/21	
HU Delta	20201006N1	NHC	Synoptic	125 kt (Cat 4 HU)	NOAA49	2000	Y	2000	04/12/21	Original: TS setting; Final: Use 201006N1_ine_corrections_m.dat for all, Invest setting (non-circumnavigation)
						2100	Y	2100	04/12/21	Original: Limited coverage, TS setting; Final: Invest setting (non-circumnavigation)
						2200	Y	2200	04/12/21	Original: 3-km spacing; Final: 3-km spacing (outer circumnavigation)
						2339	Y	2339	04/12/21	Final: Bit too much WS removed at 1 km, but DBZ cleaner (inner circumnavigation, coincident with 20201006I1 first pass)

HU Delta	2020100611	NHC	Alpha	115 kt (Cat 4 HU)	NOAA43	2339	Y	2339	04/12/21	Original: 0.9 SQI; Final: extend ferry portion
						2501	Y	2501	04/12/21	Original: 0.9 SQI; Final: Increase SQI from 0.8 to 0.9 to deal with substantial noise
						2618	Y	2618	04/12/21	Original: 0.9 SQI
						2724	Y	2724	04/12/21	Original: 0.9 SQI; Final: Shift center N and E
						2831	Y	2831	04/12/21	Original: 0.9 SQI; Final: Remove profile, bit more noise along flight track (DBZ < 4 km), extend ferry portion
HU Delta	20201007N1	NHC	Synoptic	100 kt (Cat 2 HU)	NOAA49	0630	Y	0630	04/12/21	Final: Use 201007N1_ine_corrections_m.dat for all (non-circumnavigation)
						0854	Y	0902	04/12/21	Original: 2.5-km spacing; Final: 2-km spacing, shift center S (non-circumnavigation)
						1000	Y	1000	04/12/21	(non-circumnavigation)
						1100	Y	1045	04/12/21	Original: Incomplete final analysis TDR Level 1b archive on seb (NetCDF); Final: Use NHC 1045Z updated position (inner circumnavigation)
HU Delta	20201007H1	EMC	Lawnmower	90 kt (Cat 2 HU)	NOAA42	1200	Y	1200	04/12/21	Final: Some noise along flight track (DBZ < 2.5 km)
						1228	Y	1228	04/12/21	Original: Hurricane setting; Final: TS setting
						1342	Y	1342	04/12/21	Original: Comms issues led to incomplete Level 1b archive on seb (NetCDF); Final: Use center extrapolated from NHC 15Z
HU Delta	20201007N2	NHC	Synoptic	75 kt (Cat 1 HU)	NOAA49	2240	Y	2240	04/12/21	Original: Invest setting; Final: Use 201007N2_ine_corrections_m.dat for all, TS setting, use center extrapolated from NHC 21Z (del MA 2217-2225 since SL down) (inner circumnavigation)
HU Delta	2020100711	EMC	Rotated Fig-4	85 kt (Cat 2 HU)	NOAA43	2408	Y	2408	04/12/21	Original: 0.9 SQI; Final: Shift center N and W
						2620	Y	2620	04/12/21	Original: 0.9 SQI, data system issues (2425-2602 UTC) so don't use downwind leg data, incomplete Level 1b archive on seb (NetCDF)
						2709	Y	2709	04/12/21	Original: 0.9 SQI, incomplete Level 1b archive on seb (NetCDF)
HU Delta	20201008N1	NHC	Synoptic	90 kt (Cat 2 HU)	NOAA49	0900	Y	0900	04/12/21	Original: TS setting, SL reported down 0953-1005 UTC ; Final: Use 201008N1_ine_corrections_m.dat for all, Hurricane setting (inner circumnavigation)
HU Delta	20201008H1	EMC	Rotated Fig-4	90 kt (Cat 2 HU)	NOAA42	1108	Y	1108	04/12/21	Final: Bit too much WS removed at 1 km in all passes
						1221	Y	1221	04/12/21	
						1319	Y	1319	04/12/21	
						1440	Y	1440	04/12/21	Original: Comms issues led to incomplete Level 1b archive on seb (rel.w, AL26*, NetCDF); Final: Significantly extend outbound leg and analysis end time
HU Delta	2020100811	EMC	Rotated Fig-4	105 kt (Cat 3 HU)	NOAA43	2335	Y	2335	04/12/21	Original: 0.9 SQI; Final: Adjust motion dir for all, include ferry portion (not 100% confident in strong updraft SW edge of eye ... possibly real)
						2455	Y	2455	04/12/21	Original: 0.9 SQI
						2634	Y	2634	04/12/21	Original: 0.9 SQI (not 100% confident in large DBZ anomaly E edge of eye at low levels)
						2758	Y	2758	04/12/21	Original: 0.9 SQI; Final: A bit more noise in DBZ <= 2km

HU Delta	20201009H1	EMC	Rotated Fig-4	100 kt (Cat 3 HU)	NOAA42	1130	Y	1130	04/12/21	Final: Slightly adjust motion dir for all (note: no IWG1 data found by app for this pass)
						1243	Y	1243	04/12/21	Original: Invest setting; Final: Major hurricane setting, shift center W
						1342	Y	1342	04/12/21	
						1459	Y	1459	04/12/21	Original: Comms/transmission issues led to incomplete Level 1b archive on seb (NetCDF); Final: Extend outbound leg and analysis end time (winds a bit complex near center at mid levels)
Invest / TD28	20201024I1	NHC	Invest	25 kt (TD)	NOAA43	1806	Y	1836	04/12/21	Original: 0.9 SQI; Final: Shift analysis (single) center S and W closer to where center is ultimately found 12-h later, reconfigure swaths accordingly
						1928	Y	1952	04/12/21	Original: 0.9 SQI
						2016	Y	2044	04/12/21	Original: 0.9 SQI
						2110	Y	2121	04/12/21	Original: 0.9 SQI
						2148	Y	2154	04/12/21	Original: 0.9 SQI
TD28 / TS Zeta	20201025H1	NHC	Alpha	35 kt (TS)	NOAA42	0611	Y	0611	04/12/21	Original: Invest setting, static center for all; Final: TS setting, move 2nd pass downwind leg here, remove profile, center all on best-guess center
						0731	Y	0731	04/12/21	Final: move 3rd pass downwind leg here, remove profile
						0903	Y	0903	04/12/21	Final: Remove profile
						1036	Y	1036	04/12/21	Final: Remove outbound profile
TS Zeta	20201025H2	NHC	Alpha	45 kt (TS)	NOAA42	1824	Y	1825	04/12/21	Original: Static center for all; Final: Center first pass on the center discovered during 2nd pass, remove profile
						1917	Y	1917	04/12/21	
						2042	Y	2042	04/12/21	Final: Remove profile
TS Zeta	20201025N1	NHC	Synoptic	45 kt (TS)	NOAA49	1950	Y	1950	04/12/21	Final: Use 201025N1_ine_corrections_m.dat for all
						2100	Y	2102	04/12/21	Final: Center on low-level circulation center (overpass of low-level center)
						2200	Y	2200	04/12/21	Final: Expand domain radius to 270 km (keeping 2-km spacing) to get a bit more of wind field
						2330	Y	2330	04/12/21	Original: TS setting, 3-km spacing with 375-km radius; Final: Invest setting, 2-km spacing with 280-km radius domain
TS Zeta	20201026H1	NHC	Alpha	60 kt (TS)	NOAA42	0555	Y	0555	04/12/21	Final: Adjust motion, move 2nd pass downwind leg here
						0732	Y	0732	04/12/21	Final: Adjust motion, move part of 3rd pass downwind leg here
						0915	Y	0915	04/12/21	Final: Move 4th pass downwind here
						1035	Y	1035	04/12/21	
TS Zeta	20201026N1	NHC	Synoptic	60 kt (TS)	NOAA49	1050	Y	1050	04/12/21	Final: Use 201026N1_ine_corrections_m.dat for all
						1200	Y	1140	04/12/21	Final: Use Neal Dorst's track file
HU Zeta	20201026N2	NHC	Synoptic	70 kt (Cat 1 HU)	NOAA49	2209	Y	2209	04/12/21	Final: Use 201026N2_ine_corrections_m.dat for all
						2328	Y	2328	04/12/21	Original: Use 4-km spacing; Final: Use 3-km spacing
HU Zeta	20201026H2	EMC	Butterfly	70 kt (Cat 1 HU)	NOAA42	2209	Y	2209	04/12/21	
						2328	Y	2328	04/12/21	

						2400	Y	2400	04/12/21	Final: Extend ferry portion
TS Zeta	20201027N1	NHC	Synoptic	60 kt (TS)	NOAA49	1005	Y	1005	04/12/21	Original: 3.5-km spacing; Final: Use 201027N1_ine_corrections_m.dat for all, use 3-km spacing , use Neal Dorst's track file
TS Zeta	20201027H1	EMC	Rotated Fig-4	55 kt (TS)	NOAA42	1033	Y	1033	04/12/21	Final: Center over land ... use Neal Dorst's track file, remove profile
						1136	Y	1136	04/12/21	Final: Remove profile
						1237	Y	1237	04/12/21	Final: Remove profile
						1323	Y	1323	04/12/21	
HU Zeta	20201028H1	EMC	Rotated Fig-4	80 kt (Cat 1 HU)	NOAA42	1011	Y	1011	04/12/21	Final: Add ferry portion
						1143	Y	1143	04/12/21	
						1252	Y	1252	04/12/21	
						1422	Y	1422	04/12/21	Final: Greatly extend outbound leg
TS Eta	20201101H1	NHC	Alpha	55 kt (TS)	NOAA42	1832	Y	1832	04/12/21	Final: Extend ferry portion, truncate inbound profile
						1945	Y	1945	04/12/21	Final: Extend ferry portion, truncate outbound profile
TD 29 (Eta)	20201106H1	EMC	Lawnmower+Fig-4	30 kt (TD)	NOAA42	2020	Y	2105	04/12/21	Final: Combine lawnmower legs into single analysis
						2100	Y			
						2140	Y			
						2220	Y	2220	04/12/21	
						2300	Y	2300	04/12/21	
TD 29 (Eta)	20201107N1	NHC	Synoptic	30 kt (TD)	NOAA49	0730	Y	0730	04/12/21	Final: Use 201107N1_ine_corrections_m.dat for all (non-circumnavigation)
						0930	Y	0852	04/12/21	Original: Large analysis of outer circumnavigation, 3.5-km spacing, TS setting; Final: Center on flight segment, 2-km spacing, invest setting (outer circumnavigation W)
							Y	0949	04/12/21	Original: Large analysis of outer circumnavigation, 3.5-km spacing, TS setting; Final: Center on flight segment, 2-km spacing, invest setting (outer circumnavigation E)
						1100	Y	1100	04/12/21	Original: 2.5-km spacing, invest setting; Final: Use Neal Dorst's track file, expand domain radius to 280 km, 2-km spacing, TS setting (inner circumnavigation)
						1225	Y	1225	04/12/21	(non-circumnavigation)
TS Eta	20201107H1	NHC	Alpha (Partial/Abort)	55 kt (TS)	NOAA42	2313	Y	2313	04/12/21	Final: Shift center N and W, reduce melting level from 5 to 4.5 km for remaining N42 flights
TS Eta	20201108N1	NHC	Synoptic	55 kt (TS)	NOAA49	0630	Y	0643	04/12/21	Final: Shift center and center time along track, reduce melting level from 5.5 to 5 km for remaining N49 flights (non-circumnavigation)
						0720	Y	0720	04/12/21	Final: Use Neal Dorst's track file, expand domain radius to 280 km (pattern N of center)
						0750	Y	0750	04/12/21	Final: Center on flight segment (pattern well E of center)
						0831	Y	0831	04/12/21	Original: 4-km spacing; Final: Center on flight segment, 2-km spacing (pattern well S and E of center)
TS Eta	20201108H1	NHC	Alpha	55 kt (TS)	NOAA42	1407	Y	1406	04/12/21	Final: Shift center W, remove profile, change motion dir for first two passes
						1452	Y	1452	04/12/21	Final: Remove profile (note: center of circ. difficult to pinpoint)
						1551	Y	1551	04/12/21	
TS Eta	20201108H2	NHC	Alpha	55 kt (TS)	NOAA42	2455	Y	2455	04/12/21	Original: Not confident in analysis around time of loop on inbound; Final: Start analysis after loop

						2609	Y	2609	04/12/21	
						2708	Y	2708	04/12/21	
						2801	Y	2801	04/12/21	
						2906	Y	2906	04/12/21	Final: Extend ferry portion
TS Eta	20201110N1	NHC	Synoptic	50 kt (TS)	NOAA49	1113	Y	1113	04/12/21	Final: Adjust motion, use Neal Dorst's track file (inner circumnavigation)
TS Eta	20201110H1	NHC/EMC	Rotated Fig-4	55 kt (TS)	NOAA42	2247	Y	2247	04/12/21	Final: Motion uncertain so keep as is (weak), remove inbound profile
						2335	Y	2335	04/12/21	Final: Data system issues before 2311 UTC so make no modifications
						2417	Y	2417	04/12/21	
						2519	Y	2519	04/12/21	Final: Possible reformation attempt to NE of original center ... use original center as in real time, truncate inbound profile
						2607	Y	2607	04/12/21	Final: Bit of a mess in terms of center finding ... use center determined in real time, remove profiles
HU Eta	20201111H1	NHC	Pass+Downwind	65 kt (Cat 1 HU)	NOAA42	1055	Y	1055	04/12/21	Final: Combine pass and downwind into single analysis (bit of a mis-match at end of downwind)
						1200	Y			

2021 HFP TDR POST-PROCESSING (LEVEL 2) DOCUMENTATION

Storm Name	Flight ID	Tasking	Pattern	Peak Intensity During Flight	Tail #	Level 1b Analysis Time (UTC)	Reprocess Level 1b? (Y/N)	Level 2 Analysis Time (UTC)	Level 2 Creation Date (MM/DD/YY)	Level 2 Upload Date (MM/DD/YY)	Reprocessing Notes: Before / After
<p>Global issue for all aircraft: Noise along the flight track is unavoidable if we want to maintain decent coverage</p> <p>Global issue for all aircraft: A filling in "pass 2" of QC (to expand coverage) was left on that shouldn't have been before 2021 season. Main consequence is anomalous low wind along inner edge of G-IV circumnavs. This was discovered after P-3 reprocessing, but the impact there is expected to be small. All G-IV data has been reprocessed for Level 2 without "pass 2" filling.</p> <p>Global issues for N42: Too much removed at upper levels / Apply mask only out N x aircraft altitude 4 -> 2.5 ... Also, to reduce noise, esp. < 2.5 km, near 4.5 km and near 8 km (at the expense of some coverage reduction from real-time): Mask thresh. 18 -> 20 dB, SQI thresh. 0.80 -> 0.83, Max. diff. from background 8 m/s -> 7 m/s, min % obs unflagged 1 -> 2.5</p> <p>Global issues for N43: Elevated w along flight track / Presently no change from real-time settings</p> <p>Global issues for N49: Inside edge winds of inner circumnavigation not well constrained; Most analyses have ascent anomaly along flight track above 4 km and windspeed asymmetry across flight track between 3 and 7 km / Filling for pass 2 turned off, as done in prior seasons -> resolves boundary wind issue; Narrow melting layer depth and adjust height (from ML: 2.0 and 5.0 km, respectively) in select cases to mitigate W/WS issue (basically it's a fallspeed issue at high incidence angle that propagates to WS)</p> <p>Note: (*) Did not transmit to EMC; (** generated by J. Gamache using special software</p>											
HU Elsa	20210702H1	EMC	Butterfly	75 kt	N42	1633	Y	1633	01/27/22	02/01/22	Storm-rel TDR profile data bad / -
						1755	Y	1755	01/27/22	02/01/22	Storm-rel TDR profile data bad; wind noise near turn inbound < 2 km & likely most levels near begin of DW / Wind noise mostly removed near turn inbound, but remains near begin of DW
						1910	Y	1910	01/27/22	02/01/22	Storm-rel TDR profile data bad / -
HU Elsa TS Elsa	20210702N1	NHC	SynSurv	75 kt	N49		N/A				Inadequate coverage for an analysis
	20210703H1	EMC	Rot Fig 4	60 kt	N42	1644	Y	1644	01/27/22	02/01/22	- / - (w artifact along flight track)
						1729	Y	1729	01/27/22	02/01/22	Dbz noise with some wind noise along flight track near 4.5 and 8 km / Wind noise mostly removed; Small amount of along-track dbz noise remains near 4.5 km
						1832	Y	1832	01/27/22	02/01/22	Dbz noise with some wind noise along flight track near 8 km / Added short inbound profile; Noise mostly removed near 8 km (maybe a bit of dbz noise remains)
						1955	Y	1955	01/27/22	02/01/22	Dbz noise along flight track < 5.5 km / Some dbz noise remains
TS Elsa	20210704H1	NHC/EMC	Rot Fig 4	50 kt	N42	1047	Y	1047	01/27/22	02/01/22	- / DW leg added
						1312	Y	1312	01/27/22	02/01/22	- / -
						1420	Y	1420	01/27/22	02/01/22	- / -
TS Elsa	20210705H1	NHC/EMC	Rot Fig 4	55 kt	N42	1040	Y	1040	01/27/22	02/01/22	Check winds S of center @ > 4km / Flow @ > 4 km looks weak but reasonable
						1200	Y	1150	01/27/22	02/01/22	Bad winds near end of coastal run / Truncate immediately after new "center" time (bad winds/dbz eliminated)

						1255	Y	1255	01/27/22	02/01/22	Wind perhaps a bit noisy in spotty dbz on W side / Spotty noise remains
						1348	Y	1348	01/27/22	02/01/22	Perhaps extend coverage over Cuba / Extended 4 min beyond coastline (winds seem good)
Invest (PTC6)	20210810I1	NHC	Invest	30 kt	N43	1258	Y				TDR synchro issue. Try a compensating azimuth correction. Need to implement revised angle corrections as well.
						1356	Y				"
						1505	Y				"
TS Fred	20210811I1	EMC	Butterfly	35 kt	N43	1028*	Y				TDR synchro issue. Try a compensating azimuth correction. Need to implement revised angle corrections as well.
						1143*	Y				"
						1221*	Y				"
TD Fred	20210811H1	EMC	Survey	30 kt	N42	2310	Y	2310	01/27/22	02/15/22	Around the island pattern; Uclear extent to which dbz/wind along flight track on E side is meteorological / Start 5 min earlier; along-track E side remains
						2357	Y	2357	01/27/22	02/15/22	" / No change to analysis period.
TD Fred	20210812H1	EMC	Butterfly	30 kt	N42	1028	Y	1022	01/27/22	02/15/22	- / Change center pos/time to reflect 2-km circ
						1106	Y	1113	01/28/22	02/15/22	- / Change center pos/time to reflect 2-km circ
						1236	Y	1236	01/28/22	02/15/22	- / -
TD Fred	20210812H2	EMC	Butterfly	30 kt	N42	2212	Y	2212	01/28/22	02/15/22	- / -
						2327	Y	2327	01/28/22	02/15/22	- / -
TD Fred	20210813H1	EMC	Butterfly	30 kt	N42	0950	Y	0941	01/28/22	02/15/22	- / Change center pos/time to reflect 2-km circ
						1058	Y	1106	01/28/22	02/15/22	- / "; Combine with subsequent analysis
						1120	N/A				- / Combine with previous analysis
TS Grace	20210814I1	NHC	Alpha	35 kt	N43	1734	Y	1725	01/29/22	02/17/22	- / Recenter on 2-km vorticity center & Remove profile (w artifact along flight track)
						1854	Y	1840	01/29/22	02/17/22	- / Recenter on 2-km vorticity center & Remove profile (w artifact along flight track)
TS Grace	20210814N1	HRD	Lawn + Fig 4	35 kt	N49		Y				INE issues. Must use unblended INE with INE-corrections.
							Y				"
TS Grace	20210815N1	HRD	Dbl Circ + Fig 4	35 kt	N49	1627	Y	1619	04/08/22	04/25/22	Need INE-corrections / Use 18Z Best Track (17N,66.7W) for all; ML: 1.0,4.5 km; 4-km spacing
						1707	Y	1648	04/08/22	04/25/22	" / ML: 1.0,4.5 km; 4-km spacing
						1820	Y	1810	04/08/22	04/25/22	" / ML: 1.0,4.5 km; 2-km spacing
						1910	Y	1910	04/08/22	04/25/22	" / ML: 1.0,4.5 km; 4-km spacing
						2030	Y	2028	04/08/22	04/25/22	" / ML: 1.0,4.5 km; 2-km spacing
TS Grace	20210815I1	NHC	Alpha	30 kt	N43	1725	Y	1810	01/29/22	02/17/22	- / Merge all into one analysis centered on pattern (w artifact along flight track)
						1835	N/A				- / Combine with previous analysis
						1925	N/A				- / Combine with previous analysis
TD Grace	20210816H1	EMC	Fig 4	30 kt	N42	1101	Y	1101	01/28/22	02/17/22	- / Changed from IN to TS; Shift C to N
						1215	Y	1215	01/28/22	02/17/22	- / Changed from IN to TS; Shift C to N&E

TS	Grace	20210817H1	EMC	Butterfly	45 kt	N42	1010	Y	1010	01/28/22	02/17/22	- / -
							1125	Y	1125	01/28/22	02/17/22	Outbound near coast. / -
							1253	Y	1253	01/28/22	02/17/22	Inbound near coast. / Added short profile
TS	Grace	20210817I1	EMC	Rot Fig 4	50 kt	N43	2201	Y	2204	01/29/22	02/17/22	Not a center pass / Extrapolate center using next two passes (w artifact along flight track)
							2319	Y	2319	01/29/22	02/17/22	- / - (w artifact along flight track)
							2428	Y	2428	01/29/22	02/17/22	- / - (w artifact along flight track)
							2532	Y	2532	01/29/22	02/17/22	- / - (w artifact along flight track)
HU	Grace	20210818I1	EMC	Butterfly	65 kt	N43	1102	Y	1102	01/29/22	02/17/22	- / - (w artifact along flight track)
							1218	Y	1218	01/29/22	02/17/22	Anomalous dbz along flight track (most evident near and above 5 km) / " Here and in below instances: It is possible anomalous dbz is related to flying close to a particularly intense melting band, and the farther the radar beam has to go through this high reflectivity (the farther from the flight track) the more attenuated the return above the melting band is. (w artifact along flight track)
							1330	Y	1330	01/30/22	02/17/22	- / - (w artifact along flight track)
HU	Grace	20210818N1	HRD	Dbl Circ + Lawn	65 kt	N49	2100	Y	2100	04/08/22	04/25/22	Need INE-corrections / ML: 1.0,4.5 km; 3-km spacing
							2152	Y	2152	04/08/22	04/25/22	Check for anomalously-low winds along inner-edge of circumnav. / Changed from TS to HU; ML: 1.0,4.5 km; 2-km spacing
HU	Grace	20210818H1	EMC	Butterfly	70 kt	N42	2152	Y	2152	01/28/22	02/17/22	Dbz noise with some wind noise along flight track below 4.5 km and near 8 km / Wind noise mostly removed ... some dbz noise remains
							2313	Y	2313	01/28/22	02/17/22	Dbz noise with some wind noise along flight track below 2.0 km / Wind noise mostly removed ... some dbz noise remains (some added near 3 km)
							2422	Y	2422	01/28/22	02/17/22	Dbz noise with some wind noise along flight track below 4.5 km / Start DW a bit later due to noise earlier; Wind noise removed ... dbz noise mostly removed
TS	Grace	20210819H1	EMC	Butterfly	55 kt	N42	2205	Y	2205	01/28/22	02/17/22	Possible land contamination near start. Below 5 km and between 7-10 km / Shorten inbound to avoid noise; Wind/dbz noise remains between 7-10 km (would lose too much low-level wind if inbound shortened more)
							2255	Y	2255	01/28/22	02/17/22	Artifacts NW of center along flight track. / Shorten outbound to avoid noise; more limited wind/dbz noise remains between 7-9 km (shortening a bit more would remove too many good low-level winds)
							2409	Y	2409	01/28/22	02/17/22	Perhaps extend end time. / Start DW a bit later due to noise earlier & Extend outbound a bit; Wind/dbz noise mostly removed
TS	Henri	20210819N1	NHC	SynSurvey	55 kt	N49	1923	Y	1923	04/08/22	04/25/22	- / ML: 1.0,4.0 km; 3-km spacing
							2430	Y	2430	04/08/22	04/25/22	Check for anomalously-low winds along inner-edge of circumnav. / ML: 1.0,4.0 km; 2-km spacing
TS	Henri	20210820N1	NHC	SynSurvey	55 kt	N49	0700	Y	0700	04/08/22	04/25/22	- / ML: 1.0,4.0 km; 3-km spacing
							1128	Y	1128	04/08/22	04/25/22	Check for anomalously-low winds along inner-edge of circumnav. / ML: 1.0,4.0 km; 2-km spacing
TS	Henri	20210820N2	NHC	SynSurvey	60 kt	N49	1900	Y	1900	04/08/22	04/25/22	- / ML: 1.0,4.0 km; 3-km spacing
							1956	Y	1956	04/08/22	04/25/22	Primarily an EMC file test / ML: 1.0,4.0 km; 3-km spacing
							2400	Y	2400	04/08/22	04/25/22	Check for anomalously-low winds along inner-edge of circumnav. / ML: 1.0,4.0 km; 2-km spacing
TS	Henri	20210820H1	EMC	Butterfly	60 kt	N42	2154	Y	2154	01/31/22	02/16/22	Dbz noise with some wind noise along flight track below 4.5 km / High-dbz noise removed, but low-dbz noise introduced near 3 km and below ... wind noise reduced, but not entirely eliminated
							2317	Y	2317	01/31/22	02/16/22	Dbz noise with some wind noise along flight track near 4 km and 8 km / Shift C to NE; dbz noise reduced somewhat ... wind noise is removed (difficult to tell whether low-level winds contain noise)

						2432	Y	2432	01/31/22	02/16/22	Dbz noise with some wind noise along flight track below 6 km and near 8 km / Shift C to NE; dbz noise is greatly reduced overall, but some low-dbz noise introduced below 2.5 km ... minimal wind noise remains between 1-1.5 km
TS Henri	20210821N1	NHC	SynSurvey	60 kt	N49		Y	0641	04/08/22	04/25/22	Perhaps analyze outer circ. / ML: 1.0,4.0 km; 4-km spacing
						1120	Y	1121	04/08/22	04/25/22	Check for anomalously-low winds along inner-edge of circumnav. / ML: 1.0,4.0 km; 2-km spacing
TS Henri	20210821H1	EMC	Butterfly	60 kt	N42	1006	Y	1006	01/31/22	02/16/22	Dbz noise with some wind noise along flight track below 4.5 km and near 8 km / Dbz noise greatly reduced ... wind noise mostly removed
						1121	Y	1121	01/31/22	02/16/22	Minimal dbz noise along DW flight track near 8 km / Dbz noise mostly removed
						1244	Y	1244	01/31/22	02/16/22	Dbz noise with some wind noise along flight track below 5 km and near 8 km / Dbz noise reduced somewhat near 8 km and more substantially below 5 km (but some low dbz noise added) ... some wind noise remains between 6.5-8 km
HU Henri	20210821H2	EMC	Butterfly	65 kt	N42	2235	Y	2235	01/31/22	02/16/22	Dbz noise with some wind noise along flight track below 2.5 km, near 4.5 km and near 8 km / Dbz noise mostly removed ...wind noise mostly removed
						2345	Y	2345	01/31/22	02/16/22	Minimal dbz noise along DW flight track near 8 km / Low-dbz noise added below 2 km
						2557	Y	2557	01/31/22	02/16/22	Dbz noise with some wind noise along flight track below 2.5 km, near 4.5 km and near 8 km / High-dbz noise removed < 2.5 km, dbz noise somewhat removed near 8km, and mostly eliminated near 4.5 km ... some wind noise remains near 8 km
TS Ida	20210827N1	NHC	SynSurvey	50 kt	N49	0933	Y	0933	04/08/22	04/25/22	- / ML: 1.0,4.5 km; 3-km spacing
						1109	Y	1109	04/08/22	04/25/22	(Radar log incomplete); Check for anomalously-low winds along inner-edge of circumnav. / ML: 1.0,4.5 km; 2-km spacing
TS Ida	20210827I1	EMC	Rot Fig 4	50 kt	N43	1007	Y	1007	02/14/22	02/17/22	Odd "capping" of DBZ @ 5.5km in profile likely associated with QC / " (w artifact along flight track)
						1126	Y	1126	02/14/22	02/17/22	Anomalous dbz along flight track (most evident near and above 5 km) / " (w artifact along flight track)
						1232	Y	1232	02/14/22	02/17/22	Anomalous dbz along flight track (most evident near and above 5 km) / " (w artifact along flight track)
						1400	Y	1400	02/14/22	02/17/22	Perhaps include >1420Z to coast / Extend after turn N ~ 10 min (w artifact along flight track)
HU Ida	20210827N2	NHC	SynSurvey	70 kt	N49	2000	Y	2000	04/09/22	04/25/22	- / ML: 1.0,4.5 km; 3-km spacing
						2400	Y	2400	04/09/22	04/25/22	Check for anomalously-low winds along inner-edge of circumnav. / ML: 1.0,4.5 km; 2-km spacing
HU Ida	20210827H1	HRD	Rot Fig 4	70 kt	N42	2132	Y	2132	02/15/22	02/17/22	Wind noise on outbound below 1.5 km / Wind noise removed
						2337	Y	2337	02/15/22	02/17/22	Dbz noise with much wind noise inbound centered near 8km (over land); Wind noise near center below 8 km (over land) / Noise near 8 km reduced only a bit (but increased somewhat above 9 km); Wind noise near center below 8 km only reduced somewhat (some may be meteorological in eye)
						2445	Y	2445	02/15/22	02/17/22	(CB module interrupts outbound) Dbz noise with some wind noise below 1.5 km along inbound over land / Wind noise removed
			CB pass 1/3			2455	Y	2455	02/15/22	02/17/22	Used storm motion / Use est. cell motion of 50 kt at 270 deg
			CB pass 2/3				N/A	2504	02/15/22	02/17/22	- / Added CB pass
			CB pass 3/3				N/A	2513	02/15/22	02/17/22	- / Added CB pass
							N/A	2644	02/15/22	02/17/22	- / Added 4th penetration
HU Ida	20210828N1	NHC	SynSurvey	75 kt	N49	0944	Y	0944	04/09/22	04/25/22	Check for anomalously-low winds along inner-edge of circumnav. / ML: 1.0,4.5 km; 2-km spacing
HU Ida	20210828I1	EMC	Rot Fig 4	75 kt	N43	0944	Y	0944	02/14/22	02/17/22	- / - (w artifact along flight track)
						1101	Y	1101	02/14/22	02/17/22	- / - (w artifact along flight track)
						1205	Y	1205	02/14/22	02/17/22	- / - (w artifact along flight track)

						1401	Y	1401	02/14/22	02/17/22	- / - (w artifact along flight track)
HU Ida	20210828H1	EMC	Butterfly	90 kt	N42	2113	Y	2113	02/15/22	02/17/22	SQI 0.75 & angle corrections different for some reason; Dbz and wind noise below 5.5 km / Wind noise removed; Some dbz noise below 2.5 km
						2232	Y	2232	02/15/22	02/17/22	- / Include DW leg (before spiral)
						2434	Y	2434	02/15/22	02/17/22	Dbz and wind noise below 3 km / Include DW leg (after spiral); Wind noise substantially reduced, but some dbz noise remains
HU Ida	20210829I1	NESDIS	Alpha	130 kt	N43	0916	Y	0916	02/14/22	02/17/22	- / - (w artifact along flight track)
						1018	Y	1018	02/14/22	02/17/22	- / - (w artifact along flight track)
						1118	Y	1118	02/14/22	02/17/22	- / - (w artifact along flight track)
						1144	Y	1144	02/14/22	02/17/22	- / -
						1203	Y	1203	02/14/22	02/17/22	Anomalous dbz along flight track (most evident near and above 5 km) / "
						1236	Y	1236	02/14/22	02/17/22	Anomalous dbz along flight track (most evident near and above 5 km) / "
						1319	Y	1319	02/14/22	02/17/22	Doublecheck for land artifacts / Extend all the way W along coast
						1401	Y	1401	02/14/22	02/17/22	Doublecheck for land artifacts / Start all the way W along coast
						1423	Y	1423	02/14/22	02/17/22	Anomalous dbz along flight track (most evident near and above 5 km) / " (w artifact along flight track)
HU Ida	20210829H1	HRD	Mod Butterfly	130 kt	N42	1900	Y	1900	02/15/22	02/17/22	- / -
						2016	Y	2016	02/15/22	02/17/22	- / -
			MPS+G W			2120	Y	2120	02/15/22	02/17/22	Use est. cell motion of 35 kt at 20 deg; Dbz and some wind noise below 5.5 km / Dbz noise reduced somewhat; wind noise minimal
HU Larry	20210905N1	HRD	Survey + Circ	105 kt	N49	1046	Y	1046	04/09/22	04/25/22	Anomalous low winds due W of center / Changed from TS to HU; ML: 1.0,4.5 km; 2-km spacing
						1300	Y	1300	04/09/22	04/25/22	Anomalous low winds due E of center / Changed from TS to HU; ML: 1.0,4.5 km; 2-km spacing
						1345	Y	1345	04/09/22	04/25/22	- / ML: 1.0,4.5 km; 2-km spacing
HU Larry	20210906I1	HRD	Butterfly	110 kt	N43	1726	Y	1726	02/16/22	02/17/22	Anomalous dbz along N flight track (most evident near and above 5 km) / " (w artifact along flight track)
						1918	Y	1918	02/16/22	02/17/22	Anomalous dbz along N flight track (most evident near and above 5 km); Dbz noise along flight track below 6 km / " (w artifact along flight track)
						2036	Y	2036	02/16/22	02/17/22	Anomalous dbz along N flight track (most evident near and above 5 km) / " (w artifact along flight track)
HU Larry	20210906N1	HRD	Eyewall Mix. Survey + Circ	110 kt	N49	1718	Y	1718	04/09/22	04/25/22	- / Just the eyewall mixing module
						1938	Y	1938	04/20/22**	04/25/22	Anomalous low winds due NW of center / Changed from TS to HU; ML: 1.0,4.5 km; 2-km spacing
						2036	Y	2036	04/09/22	04/25/22	Anomalous low winds due E of center; Bad unfolds on first pass / Changed from TS to HU; Used 1.0 instead of 0.1 for top/bottom weight; ML: 1.0,4.0 km; 2-km spacing
HU Larry	20210907N1	HRD	Star + Circ	100 kt	N49	1638	Y	1638	04/09/22	04/25/22	Anomalous low winds due SW of center / Changed from TS to HU; ML: 1.0,4.5 km; 2-km spacing
						1800	Y	1800	04/09/22	04/25/22	Anomalous low winds due N of center / Changed from TS to HU; ML: 1.0,4.0 km; 3.5-km spacing (upper star)
						1922	Y	1922	04/09/22	04/25/22	Just lower star; Anomalous low winds due SE of center / Full star; ML: 1.0,4.0 km; 2-km spacing
HU Larry	20210907I1	NESDIS	Alpha	100 kt	N43	1922	Y	1922	02/16/22	02/17/22	Anomalous low winds along inner edge of circumnav. / ML: 1.0,4.5 km; 2-km spacing
						2037	Y	2037	02/16/22	02/17/22	Anomalous dbz along N flight track (most evident near and above 5 km); Dbz noise along flight track below 9 km / " (w artifact along flight track)
						2153	Y	2153	02/16/22	02/17/22	- / - (w artifact along flight track)
							Y		02/16/22	02/17/22	- / - (w artifact along flight track)

						2243	Y	2243	02/16/22	02/17/22	Anomalous dbz along N flight track (most evident near and above 5 km); Dbz noise along flight track below 7 km / " (w artifact along flight track)
HU Sam	20210925N1	HRD	Dbl Circ	125 kt	N49	2116	Y	2116	04/11/22	04/25/22	Need INE-corrections / ML: 1.0,4.0 km; 2-km spacing
						2259	Y	2259	04/11/22	04/25/22	"; Anomalous low winds due N of center / ML: 1.0,4.0 km; Introduced some anomalous negative W along flight track; 2-km spacing
HU Sam	20210925H1	HRD/ONR	Butterfly	125 kt	N42	2207	Y	2207	02/16/22	02/17/22	- / -
						2259	Y	2259	02/16/22	02/17/22	- / -
						2357	Y	2357	02/16/22	02/17/22	- / -
HU Sam	20210926N1	NHC	SynSurvey	130 kt	N49	2100	Y	2100	04/11/22	04/25/22	Need INE-corrections; Check for anomalously-low winds along inner-edge of circumnav. / ML: 1.0,4.0 km; Introduced some anomalous negative W along flight track; 3-km spacing
						2237	Y	2237	04/11/22	04/25/22	Anomalous low winds due N of center / ML: 1.0,4.5 km; 2-km spacing
HU Sam	20210926H1	EMC	Butterfly	135 kt	N42	2237	Y	2237	02/16/22	02/17/22	- / -
						2350	Y	2350	02/16/22	02/17/22	- / -
						2457	Y	2457	02/16/22	02/17/22	Dbz noise near 4.5 km; Dbz and wind noise near 8km / Dbz and wind noise removed
HU Sam	20210927I1	EMC	Figure-4	110 kt	N43	1425	Y	1425	02/16/22	02/17/22	Anomalous dbz along N flight track (most evident near and above 5 km) / " (w artifact along flight track)
						1541	Y	1541	02/16/22	02/17/22	Anomalous dbz along N flight track (most evident near and above 5 km) / "; Add sampling beyond outbound end (w artifact along flight track)
HU Sam	20210927N1	NHC	SynSurvey	105 kt	N49	2000	Y	2000	04/11/22	04/25/22	Need INE-corrections / ML: 1.0,4.0 km; 3-km spacing
						2320	Y	2320	04/11/22	04/25/22	Anomalous low winds along inner edge of circumnav. / Changed from TS to HU; ML: 1.0,4.0 km; Introduced some anomalous negative W along flight track; 2-km spacing
HU Sam	20210927H1	EMC	Butterfly	105 kt	N42	2205	Y	2205	02/16/22	02/17/22	SQI 0.75 & angle corrections different for some reason; Dbz and wind noise below 2 km / Noise reduced but not eliminated
						2320	Y	2320	02/16/22	02/17/22	SQI 0.75 & angle corrections different for some reason / -
						2433	Y	2433	02/17/22	02/17/22	SQI 0.75 & angle corrections different for some reason; Dbz noise near 4.5 km / Extend outbound leg a bit; Dbz noise mostly removed
HU Sam	20210929H1	EMC	Butterfly	115 kt	N42	0956	Y	0956	02/17/22	02/17/22	Dbz and wind noise near 8km / Dbz and wind noise removed
						1147	Y	1147	02/17/22	02/17/22	- / -
						1249	Y	1249	02/17/22	02/17/22	- / -
			GW+MPS				N/A	1330	02/17/22	02/17/22	- / Analyze GW + MPS modules
HU Sam	20210929H2	EMC	Rot Fig 4	125 kt	N42	2137	Y	2137	02/17/22	02/17/22	Dbz and wind noise near 4.5 km and near 8km / Noise removed near 4.5 km, but only reduced near 8 km
						2249	Y	2249	02/17/22	02/17/22	Dbz and wind noise below 5.5 km / Some dbz noise retained near 4.5 km, but wind noise removed
						2402	Y	2402	02/17/22	02/17/22	Dbz and wind noise below 5.5 km / Dbz and wind noise greatly reduced, but some wind noise retained below 2.5 km
						2544	Y	2544	02/17/22	02/17/22	- / Add short DW at end
Total P-3						111+3*		110+?			
Total G-IV						35		36+?			

Total	149*	146+?
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2022 HFP TDR POST-PROCESSING (LEVEL 2) DOCUMENTATION

Storm Name	Flight ID	Tasking	Pattern	Peak Intensity During Flight	Event Type	Tail #	Level 1b Analysis Time (UTC)	Reprocess Level 1b? (Y/N)	Level 2 Analysis Time (UTC)	Level 2 Creation Date (MM/DD/YY)	Level 2 Upload Date (MM/DD/YY)	Reprocessing Notes: Before / After
												Global issue for all aircraft: Noise along the flight track is unavoidable if we want to maintain decent coverage N42 TS changes (2021->2022): Corrections aft/fore (azi 0.66->0.69, tilt -0.01/0.01->-0.07/0.07, range -0.02->-0.04, pitch 0.54->0.55, drift -0.36->-0.35); Max radius mask if gt above 0.1->8.0; 2nd pass filtering 0.1->0.3 N43 TS changes (2021->2022): Corrections aft/fore (azi 0.43->0.48, tilt -0.13/0.13->-0.18/0.18, range -0.03->-0.04, pitch 0.07->0.16, drift 0.22->0.26); Mask applied N times FL altitude 4.0->2.0; 2nd pass filtering 0.1->0.3 N49 TS changes (2021->2022): Corrections aft/fore (azi -0.71->-0.6, tilt 1.07/-1.07->0.96/-0.96, range -0.12->-0.10, pitch 0.0->-0.04, drift -0.27->-1.04); factor times weight bottom/top BC constraint 0.1->1.0 Global issues for N42: Wind noise along flight track in weak echo, centered near 8-km altitude / Mitigated by increasing SQI from 0.83 -> 0.87, and in select cases >= 0.92 Global issues for N43: Elevated w along flight track / Mitigated some by reducing dB added from 9 to 5 and within 5.6 km (vs 76 bins ~ 5.7 km) for the short-long pulse discontinuity adjustment (also improves along-track reflectivity in heavy stratiform), Change SQI from 0.8 -> 0.83 across the board to improve noise removal Global issues for N49: Need INE corrections for all flights Note: (*) Did not transmit to EMC; (**) generated by J. Gamache using special software
									Latest Version	Latest Version		
AL94	20220627H1	NHC	Invest	< 35 kt		N42	1745 1900	Y Y				Wind noise NW and E < 5 km / N42 apply mask out N x aircraft altitude 0.1 -> 8.0, max rms variation around mean Vr 12.0 -> 5.0, percentage of weighted data 1E-5 -> 2.5, max diff Vr and 1st guess projection 25.0 -> 7.0
					IN		1957	Y	1830	02/01/2023	03/23/2023	Wind noise Center and E < 5 km / N42 "
AL94 / PTC02	20220628H1	NHC	Invest	35 kt		N42	1550 1730	Y Y				Cross-track discontinuity in WS 3-5.5 km likely associated w/ sampling ML far below it ... will require mods to ML params / (42 mask application finalized) radial gap allowed on 1st pass for BB 10.0 -> 5.0, max rms variation around mean Vr 12.0 -> 5.0, percentage of weighted data 1E-5 -> 2.5, max diff Vr and 1st guess projection 25.0 -> 7.0, ML: 0.5, 4.25
					IN		1645	Y	02/01/2023	03/23/2023		" / N42 ", Combine both analysis into 1 (10.3,58.7), ML: 0.5, 4.25
AL94 / PTC02	20220629H1	EMC	Lawnmower	35 kt		N42	1658 1818	Y Y				- / N42 "
					IN		1925	Y	1817	02/01/2023	03/23/2023	- / N42 ", Combine all 3 analyses into 1 (13.25,68.5)
AL94 / PTC02	20220630H1	EMC	Butterfly	35 kt	IN	N42	1550	Y	1550	02/01/2023	03/23/2023	Wind noise Center and SW 10.5-12.5 km, Lots of along-track DBZ noise > 8 km / N42 "

							IN	1646	Y	1649	02/01/2023	03/23/2023	Lots of along-track DBZ noise > 8 km, WS noise 10.5-11.5 km / N42 ", Center on leg (12.68,74.48)
							IN	1741	Y	1737	02/01/2023	03/23/2023	Lots of along-track DBZ noise > 8 km / N42 ", Center on leg (12.48,75.07)
AL97	20220809N1	HRD	Survey/Lawnmower	< 35 kt		N49	1624		N				- / N49 max rms variation around mean Vr 12.0 -> 5.0, percentage of weighted data 1E-5 -> 1.0, max diff Vr and 1st guess projection 25.0 -> 8.0, No winds in analysis -> REMOVE
							TS	1702	Y	1702	02/21/2023	03/23/2023	- / N49 "
AL97	20220810N1	HRD	Survey/Lawnmower	< 35 kt		N49	1620		Y	1620	02/21/2023	03/23/2023	Fore antenna restarted multiple times / N49 "
							TS	1737	Y	1737	02/21/2023	03/23/2023	- / N49 "
							TS	1819	Y	1819	02/21/2023	03/23/2023	- / N49 "
AL97	20220811N1	HRD	Survey	< 35 kt		N49			Y	1416	02/21/2023	03/23/2023	- / N49 ", Center on leg (14.55,38.43)
AL91	20220828N1	HRD	Survey/Lawnmower	< 35 kt		N49	1747		Y	1747	02/21/2023	03/23/2023	- / N49 "
							TS	1835	Y	1835	02/21/2023	03/23/2023	- / N49 "
							TS	1945	Y	1945	03/23/2023	03/23/2023	Wind noise N swath 3.5-5.5 km / N49 ", Use SQL 0.94, use (6, 4, 2.5) for zxypercent
								2058	N				Not enough data to keep / N49 "
AL91	20220829I1	HRD	Survey/Lawnmower	< 35 kt		N43	2043		Y	2043	03/09/2023	03/23/2023	DBZ seems anomalously high along track < 3 km, WS noise near Center 10-11.5 km, DBZ noise along flight track 8-12.5 km / N43 apply mask out N x aircraft altitude 4.0 -> 2.0, max rms variation around mean Vr 12.0 -> 5.0, percentage of weighted data 1E-5 -> 1.0, max diff Vr and 1st guess projection 25.0 -> 8.0
AL91	20220830H1	HRD	Survey/Lawnmower	< 35 kt		N42	1053		Y	1053	02/01/2023	03/23/2023	Low DBZ along flight track near 6 km / N42 "
													Lots of along-track DBZ noise (and likely WS noise) > 5 km / N42 ", Combine last 2 analyses up to MP spiral into 1 (15.3,48.7), <Anomalous 25-kft (8-km) flight altitude ... Odd DBZ/WS along flight track ... Attempts to adjust QC params unfruitful ... likely a mask issue>
							IN	1218	Y	1256	03/23/2023	03/23/2023	Wind noise near 14.5 km, Lots of along-track DBZ noise > 8 km / N42 ", Separate out post MP-spiral portion (15.3,48.7)
							IN	1335	Y	1438	02/02/2023	03/23/2023	Anomalous deep-layer descent E edge / (43 mask application finalized) max rms variation around mean Vr 12.0 -> 5.0, percentage of weighted data 1E-5 -> 1.0, max diff Vr and 1st guess projection 25.0 -> 8.0
AL91	20220830I1	HRD	Survey/Lawnmower	< 35 kt		N43	2216		Y				- / N43 ", Combine first 2 analyses (13.5,50)
							IN	2246	Y	2213	03/09/2023	03/23/2023	- / N43 "
							IN	2425	Y	2425	03/09/2023	03/23/2023	- / (42 max rms variation, percentage weighted, max diff projection finalized)
AL91	20220831H1	HRD	Butterfly	< 35 kt		N42	0959		Y	0956	02/02/2023	03/23/2023	Use RT obj center (15.42,49.62)
							IN	1109	Y	1111	02/02/2023	03/23/2023	- / N42 ", Use RT obj center (15.34,49.71)
							IN	1240	Y	1240	02/02/2023	03/23/2023	- / N42 ", Use RT obj center (15.59,49.88)
							IN	1344	Y	1344	02/02/2023	03/23/2023	- / N42 ", Use RT obj center (15.73,49.8)
AL91	20220831N1	HRD	Survey/Lawnmower	< 35 kt		N49	2004		Y	2027	02/21/2023	03/23/2023	- / (N49 ALL QC SETTINGS FINALIZED), Combine first 2 analyses (15.0,50.0)
								2045	Y				WS discontinuity along flight track 4-5.5 km / N49 ", ML: 1.0,4.5
							TS	2115	Y	2156	02/21/2023	03/23/2023	- / N49 ", Combine final 3 analyses (17.0,53.5)
								2233	Y				- / N49 "
								2302	Y				- / N49 "
AL91	20220901H1	HRD	Butterfly	< 35 kt		N42	0916		Y	0920	02/02/2023	03/23/2023	- / N42 ", Move 1st downwind leg here, Use RT obj center (16.94,52.28)
							IN	1031	Y	1029	02/02/2023	03/23/2023	- / N42 ", Move 2nd downwind leg here, Use RT obj center (17.02,52.39)
							IN	1231	Y	1228	02/02/2023	03/23/2023	- / N42 ", Move 3rd "downwind" leg here, Use prior center est (17.02,52.39)
							IN	1332	Y	1324	02/02/2023	03/23/2023	- / N42 ", Use prior center est (17.02,52.39)
AL91	20220901N1	HRD	Lawnmower	< 35 kt		N49	1927		Y	1927	02/22/2023	03/23/2023	Loose cable: INE not properly correcting in turns / Entire-flight INE corrections bad ... Must use real-time INE corrections file

					TS		2050	Y	2050	02/22/2023	03/23/2023	- / -
AL91	2022090111	EMC	Butterfly	< 35 kt	IN	N43	2145	Y	2150	03/09/2023	03/23/2023	Wind noise SW from 4.5-5 km / (43 max rms variation, percentage weighted, max diff projection finalized) Move 1st downwind here, Use RT obj center (17.44,55.10)
					IN		2304	Y	2257	03/09/2023	03/23/2023	Anomalous elevated DBZ along flight track in strat, esp above flight level / N43 ", Move 2nd downwind here, Use RT obj center (17.47,55.25)
					IN		2506	Y	2506	03/09/2023	03/23/2023	- / N43 ", Use RT obj center (17.39,55.16)
							2532	Y				- / N43 ", Move "downwind" leg to 3rd analysis
AL91	2022090211	EMC	Butterfly/VAM	< 35 kt	IN	N43	2113	Y	2113	03/09/2023	03/23/2023	- / Use RT obj center (18.23,58.97)
					IN		2227	Y	2230	03/09/2023	03/23/2023	Anomalous elevated DBZ along flight track in strat, esp above flight level / N43 ", Use RT obj center (18.23,59.09)
					IN		2349	Y	2402	03/09/2023	03/23/2023	" / N43 ", Use prior center est (18.23,59.09)
					IN		2426	Y	2429	03/09/2023	03/23/2023	" / N43 "
					IN		2536	Y	2533	03/09/2023	03/23/2023	- / N43 ", Use RT obj center (18.38,59.68)
AL06 / Earl	20220903H1	EMC	Butterfly/VAM	35 kt	TS	N42	0925	Y	0925	02/02/2023	03/23/2023	DBZ/WS noise along flight track 7.5-8 km / (N42 ALL QC SETTINGS FINALIZED), Use RT obj center (18.68,61.25)
					TS		1016	Y	1016	02/02/2023	03/23/2023	DBZ/WS noise along flight track 8-8.5 km / N42 ", Use RT obj center (18.79,61.44)
					TS		1126	Y	1126	02/02/2023	03/23/2023	DBZ noise along flight track 7.5-8.5 km / N42 ", Use RT obj center (18.81,61.75)
					TS		1144	Y	1144	03/07/2023	03/23/2023	DBZ/WS noise along flight track 7-8.5 km / N42 ", Use RT obj center (18.83,61.82), Use SQI 0.92
					TS		1326	Y	1326	02/02/2023	03/23/2023	DBZ/WS noise along flight track 7.5-8.5 km / N42 ", Use RT obj center (18.86,62.17), Exclude MP spiral portion
AL06 / Earl	20220904H1	EMC	Butterfly/FLAIMS	45 kt	TS	N42		Y	0935	03/07/2023	03/23/2023	- / Use flight-level center est (19.19,64.81), Use SQI 0.92
					TS		1211	Y	1212	02/02/2023	03/23/2023	DBZ/WS noise along flight track 7-8.5 km / Use RT obj center (19.49,64.21)
					TS			Y	1311	02/02/2023	03/23/2023	- / Use flight-level center est (19.62,64.2)
AL06 / Earl	20220905H1	EMC	Butterfly/FLAIMS/VAM	55 kt	TS	N42	1012	Y	1012	03/07/2023	03/23/2023	WS structure seems odd N of Center from 3-5 km, DBZ/WS noise along flight track 7-9 km / Noise removed throughout ... WS structure seems robust, Use SQI 0.92
					TS		1053	Y	1053	03/07/2023	03/23/2023	WS structure seems odd N of Center from 3-5 km, DBZ/WS noise along flight track 7.5-9 km / Noise removed throughout ... WS structure seems robust, Use SQI 0.92
					TS		1206	Y	1206	02/02/2023	03/23/2023	- / -
					TS		1207	Y	1207	02/02/2023	03/23/2023	- / -
					TS		1305	Y	1305	02/19/2023	03/23/2023	WS noise Center < 2 km / Truncate outbound from 1312 to 1308Z
AL06 / Earl	2022090511	EMC	Rotated Fig-4	60 kt	TS	N43	2225	Y	2225	03/09/2023	03/23/2023	DBZ noise along flight track 2-3.5 km / (N43 ALL QC SETTINGS FINALIZED), reduced DBZ noise remains
					TS		2338	Y	2338	03/09/2023	03/23/2023	- / N43 "
					TS		2444	Y	2444	03/09/2023	03/23/2023	- / N43 "
					TS		2613	Y	2613	03/22/2023	03/23/2023	Isolated WS noise SW of center near 5 km / N43 ", Use SQI 0.86, raise fore/aft mask threshold to 27, use (7, 4, 2.5) for zxypercent
AL06 / Earl	20220906H1	EMC	Butterfly/FLAIMS/VAM	55 kt	TS	N42	0943	Y	0943	02/02/2023	03/23/2023	DBZ/WS noise along flight track 7.5-8.5 km / -
					TS		1118	Y	1118	02/02/2023	03/23/2023	DBZ/WS noise along flight track 7.5-9.5 km / -
					TS		1223	Y	1223	02/02/2023	03/23/2023	- / -
					TS		1224	Y	1224	02/02/2023	03/23/2023	- / -
					TS		1329	Y	1329	02/13/2023	03/23/2023	- / -

AL06 / Earl	2022090611	EMC	Butterfly/FLAIMS	70 kt	TS	N43	2155	Y	2155	03/09/2023	03/23/2023	Some residual along-track DBZ noise < 2.5 km / Reduced noise, but still present
					HH		2312	Y	2312	03/09/2023	03/23/2023	" / Noise removed
					HH		2428	Y	2428	03/09/2023	03/23/2023	- / -
							2429	Y				- / Combine short outbound to NW with 3rd analysis
					HH		2456	Y	2456	03/09/2023	03/23/2023	- / -
					HH		2503	Y	2503	03/09/2023	03/23/2023	- / -
							2539	Y				- / Combine final short outbound to NW with final analysis
					HH		2540	Y	2540	03/09/2023	03/23/2023	- / -
AL06 / Earl	20220907H1	EMC	Butterfly/FLAIMS	75 kt	HH	N42	0958	Y	0958	02/02/2023	03/23/2023	DBZ noise along flight track 5-5.5 km, WS noise NW near 9.5 km / -
					HH		1119	Y	1119	02/02/2023	03/23/2023	W noise outbound profile 11-12 km (not in 3D analysis) / Still present - is it noise?
					HH		1237	Y	1237	02/02/2023	03/23/2023	- / -
					HH		1238	Y	1238	02/02/2023	03/23/2023	- / -
					HH		1307	Y	1307	02/02/2023	03/23/2023	Some residual along-track DBZ < 2.5 km, DBZ/WS noise along track 7-9 km / -
AL06 / Earl	2022090711	EMC	Butterfly/FLAIMS	85 kt	HH	N43	2223	Y	2223	03/09/2023	03/23/2023	- / -
					HH		2340	Y	2340	03/20/2023	03/23/2023	Incorrect in-out-track, (Possible) WS noise Center 10.5-13.5 / Correct in-out track, Use SQI 0.87
					HH		2452	Y	2452	03/09/2023	03/23/2023	- / -
							2453	Y				- / Combine short outbound to SW with 3rd analysis
					HH		2513	Y	2513	03/09/2023	03/23/2023	- / -
					HH		2514	Y	2514	03/09/2023	03/23/2023	- / -
							2544	Y				- / Combine short inbound with final outbound analysis
					HH		2603	Y	2603	03/09/2023	03/23/2023	- / -
AL06 / Earl	20220908H1	EMC	Butterfly	90 kt	HH	N42	1036	Y	1036	03/07/2023	03/23/2023	W noise N eye 7-8.5 km / Use SQI 0.92
					HH		1150	Y	1150	03/07/2023	03/23/2023	W noise E eye 5-8.5 km / Use SQI 0.92
					HH		1306	Y	1306	03/22/2023	03/23/2023	W noise S eye 6.5-8.5 km (note: bad second pass W in eye) / Use SQI 0.94
					HH			Y	1356	02/02/2023	03/23/2023	- / Add GW module analysis (Centered at return pt: 26.033,67.233)
AL06 / Earl	2022090811	EMC	Butterfly/OW	80 kt	HH	N43	2222	Y	2222	03/09/2023	03/23/2023	- / -
					HH		2321	Y	2321	03/09/2023	03/23/2023	- / -
					HH		2416	Y	2416	03/09/2023	03/23/2023	- / -
					HH		2507	Y	2507	03/09/2023	03/23/2023	- / -
					HH		2552	Y	2552	03/09/2023	03/23/2023	- / -
					HH		2554	Y	2554	03/09/2023	03/23/2023	- / -
					HH		2625	Y	2625	03/09/2023	03/23/2023	- / -
					HH		2626	Y	2626	03/09/2023	03/23/2023	- / -
							2640	Y				- / Combine downwind with prior outbound analysis
AL07 / Fiona	20220916H1	EMC	Butterfly	50 kt	TS	N42	1024	Y	1024	02/02/2023	03/23/2023	DBZ noise along track 7-9 km / -
					TS		1143	Y	1143	03/22/2023	03/23/2023	DBZ noise along flight track 0.5-1.5 km (note: sensitive to mask threshold), DBZ/WS noise along track 7-9 km / Use SQI 0.92, raise fore/aft mask threshold to 27 dB

					TS		1304	Y	1304	02/02/2023	03/23/2023	Center ~35 km W of origin ... but shifting would eliminate downwind leg from analysis / Remove profile analysis
AL07 / Fiona	20220917H1	EMC	Butterfly/VAM-intent	50 kt	TS	N42	0936	Y	0932	02/02/2023	03/23/2023	- / Use RT objective center from last analysis (16.43,63.01), add downwind out to 1020Z from 2nd analysis
					TS		1057	Y	1106	02/02/2023	03/23/2023	- / Use RT objective center from last analysis (16.43,63.01)
					TS		1203	Y	1205	02/02/2023	03/23/2023	- / Use RT objective center from last analysis (16.43,63.01)
					TS		1224	Y	1308	02/02/2023	03/23/2023	- / Use RT objective center from last analysis (16.43,63.01), extend leg to 1338Z
AL07 / Fiona	20220917N1	NHC	Synoptic Surveillance	50 kt		N49	2043	Y				Not enough data to keep / -
					TS		2140	Y	2140	02/22/2023	03/23/2023	- / -
					TS		2230	Y	2230	02/22/2023	03/23/2023	- / -
					TS		2305	Y	2305	02/22/2023	03/23/2023	WS discontinuity along flight track 4-7 km / ML: 1.0,4.5
					TS		2325	Y	2325	02/22/2023	03/23/2023	- / -
					TS		2355	Y	2355	02/22/2023	03/23/2023	- / -
					TS		2425	Y	2425	02/22/2023	03/23/2023	- / -
AL07 / Fiona	20220918H1	EMC	Butterfly/VAM	70 kt	TS	N42	0959	Y	0959	02/02/2023	03/23/2023	- / -
					TS		1112	Y	1112	02/02/2023	03/23/2023	- / -
					TS		1222	Y	1222	02/02/2023	03/23/2023	- / -
					TS			Y	1223	03/22/2023	03/23/2023	WS anomalously strong on west side (note: bad second pass WS in eyewall) / Add outbound radial, Use SQI 0.92 <Seems insensitive to SQI up to 0.96>
					TS		1321	Y	1321	02/02/2023	03/23/2023	- / Remove inbound profile, use RT objective center (17.19,66.32)
					TS		1419	Y	1419	03/07/2023	03/23/2023	W noise E eye 6.5-7.5 km / Use SQI 0.92
AL07 / Fiona	20220918N1	NHC	Synoptic Surveillance	75 kt	TS	N49	2156	Y	2156	02/22/2023	03/23/2023	Time server issue ... but fixed / -
					TS		2240	Y	2240	02/22/2023	03/23/2023	Time server issue ... but fixed / -
AL07 / Fiona	20220919I1	EMC	Butterfly	95 kt	HH	N43	2253	Y	2253	03/10/2023	03/23/2023	- / -
					HH		2412	Y	2412	03/10/2023	03/23/2023	- / -
					HH		2523	Y	2523	03/20/2023	03/23/2023	WS noise near downwind spiral in weak DBZ gap 0.5-1.5 km / Remove downwind (start with inbound)
AL07 / Fiona	20220920H1	EMC	Butterfly/FLAIMS	100 kt	MH	N42	1027	Y	1027	02/02/2023	03/23/2023	- / -
					MH		1126	Y	1126	03/22/2023	03/23/2023	WS seems wrong near center (note: bad second pass WS in eyewall) > 5 km / Use SQI 0.92 <WS near center different but still seems wrong>
					MH		1127	Y	1127	02/02/2023	03/23/2023	- / -
					MH		1247	Y	1247	03/07/2023	03/23/2023	W noise NW eye 5-7.5 km / Use SQI 0.92
					MH		1359	Y	1359	03/07/2023	03/23/2023	DBZ/WS noise W side 4.0-8.0 km / Use SQI 0.92
AL07 / Fiona	20220920N1	NHC	Synoptic Surveillance	110 kt	TS	N49	2042	Y	2042	02/22/2023	03/23/2023	WS discontinuity along flight track 4-5.5 km / Extend start time, ML: 1.0, 4.5
					TS		2143	Y	2124	02/22/2023	03/23/2023	WS discontinuity along flight track 4-6 km / Recenter and end at turn, ML: 1.0, 4.5
					TS			Y	2200	02/22/2023	03/23/2023	- / Add analysis of E side, ML: 1.0, 4.5
					HH		2350	Y	2350	02/22/2023	03/23/2023	WS discontinuity along flight track 4.5-5.5 km / Extend end time, , ML: 1.0, 4.5
AL07 / Fiona	20220920I1	EMC	Butterfly/OW	110 kt	MH	N43	2221	Y	2221	03/10/2023	03/23/2023	- / -
					MH		2315	Y	2315	03/10/2023	03/23/2023	- / -

					MH		2316	Y	2316	03/10/2023	03/23/2023	- / -
					MH		2349	Y	2349	03/10/2023	03/23/2023	- / Move 4th analysis here + add downwind leg from beginning of 5th analysis
							2350	Y				- / -
					MH		2519	Y	2519	03/10/2023	03/23/2023	- / Add short outbound to NE
					MH			Y	2539	03/10/2023	03/23/2023	- / Add short NE-Center-N
					MH			Y	2604	03/10/2023	03/23/2023	- / Add short N-Center-NE
					MH			Y	2632	03/10/2023	03/23/2023	- / Add short NE-Center-N
					MH		2652	Y	2652	03/10/2023	03/23/2023	- / Add short inbound from N
AL07 / Fiona	20220921I1	NHC	Alpha	115 kt	MH	N43	2303	Y	2303	03/10/2023	03/23/2023	- / -
					MH		2426	Y	2426	03/10/2023	03/23/2023	Used incorrect start time / Corrected start time
AL09 / Ian	20220924H1	EMC/NHC	Butterfly/VAM	40 kt	TS	N42	0955	Y	1030	02/03/2023	03/23/2023	DBZ noise along flight track 7.5-8.5 km / Reconfigure downwind-inbound, Use avg RT objective center (13.79,74.8)
					TS		1042	Y	1046	02/03/2023	03/23/2023	- / Reconfigure outbound-downwind, Use avg RT objective center (13.79,74.8)
					TS		1212	Y	1208	02/03/2023	03/23/2023	DBZ noise along flight track 7.5-8.5 km / Reconfigure inbound-outbound, Use avg RT objective center (13.79,74.8)
					TS		1301	Y	1303	02/03/2023	03/23/2023	- / Reconfigure inbound-outbound, Use avg RT objective center (13.79,74.8)
AL09 / Ian	20220924N1	NHC	Synoptic Surveillance	45 kt	TS	N49	2219	Y	2158	02/22/2023	03/23/2023	Timing off < 2149Z (no analysis), No fore > 221716Z / Truncate at 2217Z, Recenter on pattern (13.95,75.92)
AL09 / Ian	20220925N1	NHC	Synoptic Surveillance	45 kt	TS	N49	0735	Y	0735	02/22/2023	03/23/2023	- / -
					TS			Y	0826	02/22/2023	03/23/2023	- / Add analysis of S side
					TS		1000	Y	1000	02/22/2023	03/23/2023	- / Use N42 1047Z center fix (14.86,79.38)
AL09 / Ian	20220925H1	EMC	Butterfly	45 kt	TS	N42	1047	Y	1048	02/03/2023	03/23/2023	- / Use objective RT center (14.89,79.26)
					TS		1202	Y	1200	02/03/2023	03/23/2023	- / Use objective RT center (15.05,79.36), Remove profile
					TS		1311	Y	1309	02/03/2023	03/23/2023	DBZ/W noise E of center 7.5-8.5 km / Use objective RT center (15.11,79.55)
AL09 / Ian	20220925N2	NHC	Synoptic Surveillance	40 kt	TS	N49	1900	Y	1900	02/22/2023	03/23/2023	WS discontinuity along flight track 4-5.5 km / ML: 1.0, 4.5, Some remanant discontinuity, but small
					TS		1935	Y	1935	02/22/2023	03/23/2023	WS discontinuity along flight track 4.5-5 km / ML: 1.0, 4.5
					TS		2008	Y	2008	02/22/2023	03/23/2023	WS discontinuity along flight track 4-5.5 km / ML: 1.0, 4.5
					TS		2130	Y	2130	02/22/2023	03/23/2023	- / Use objective RT center (16.39,80.47)
AL09 / Ian	20220925I1	EMC	Butterfly	55 kt	TS	N43	2232	Y	2232	03/10/2023	03/23/2023	- / Use objective RT center (16.71,80.51)
					TS		2351	Y	2350	03/10/2023	03/23/2023	Not centered on reformed center / Use objective RT center (16.94,80.8), Remove profile
					TS		2451	Y	2452	03/10/2023	03/23/2023	Wrong profile azimuth / Use objective RT center (17.11,81.07), Fixed profile azimuth
AL09 / Ian	20220926N1	NHC	Synoptic Surveillance	65 kt	TS	N49	0654	Y	0654	02/22/2023	03/23/2023	- / -
					TS			Y	0724	02/22/2023	03/23/2023	- / -
					HH		0858	Y	0858	02/22/2023	03/23/2023	WS discontinuity along flight track 4-5.5 km / Use objective RT center (18.25,82.03), ML: 1.0, 4.5 (Note: near-center overflight)
					TS			Y	1000	02/22/2023	03/23/2023	- / ML:1.0, 4.5
AL09 / Ian	20220926H1	EMC	Butterfly	70 kt	HH	N42	1011	Y	1011	02/03/2023	03/23/2023	- / -
					HH		1139	Y	1139	02/03/2023	03/23/2023	Inbound profile involves loop, DBZ/WS noise along flight track 6.5-7.5 km / -

					HH		1244	Y	1244	02/03/2023	03/23/2023	- / -
AL09 / Ian	20220926N2	NHC	Synoptic Surveillance	85 kt	TS	N49	1848	Y	1848	02/22/2023	03/23/2023	- / -
					TS		1919	Y	1919	02/22/2023	03/23/2023	- / -
					HH		2035	Y	2044	02/22/2023	03/23/2023	WS discontinuity along flight track 4.5-5 km / Use center translated back from N43 2203Z fix (20.13,83.15), ML: 1.0, 4.5
							2110	Y				- / Move end of circumnav to prior analysis
					TS		2141	Y	2141	02/22/2023	03/23/2023	- / -
AL09 / Ian	20220926I1	EMC	Butterfly	90 kt	HH	N43	2203	Y	2203	03/10/2023	03/23/2023	Little DBZ noise over Cuba (NW) / -
					HH		2322	Y	2322	03/10/2023	03/23/2023	- / Add downwind up to Cuba
AL09 / Ian	20220927N1	NHC	Synoptic Surveillance	110 kt	TS	N49	0703	Y	0703	02/22/2023	03/23/2023	WS discontinuity along flight track 4.5-5 km / ML: 1.0, 4.5
					HH		0900	Y	0900	02/22/2023	03/23/2023	WS discontinuity along flight track 4.5-5 km / Use center translated back from N42 1024Z fix (22.17,83.65), ML: 1.0, 4.5
AL09 / Ian	20220927H1	EMC	Butterfly/FLAIMS	100 kt	MH	N42	1024	Y	1024	03/22/2023	03/23/2023	W noise inside eye 4-9.5 km (note: bad second pass W in eye) / Use SQI 0.96
					MH		1142	Y	1142	03/08/2023	03/23/2023	W noise inside eye 7.5-10.5 km / Use SQI 0.92
					MH		1234	Y	1234	03/08/2023	03/23/2023	W noise inside eye 7.5-9.5 km / Add MP spiral and rest of outbound, Use SQI 0.92
AL09 / Ian	20220927N2	NHC	Synoptic Surveillance	105 kt	TS	N49	1811	Y	1811	02/22/2023	03/23/2023	WS discontinuity along flight track 4.5-5 km / ML: 1.0, 4.5
					TS		1848	Y	1848	02/22/2023	03/23/2023	- / -
AL09 / Ian	20220927I1	EMC	Butterfly	105 kt	MH	N43	2201	Y	2201	03/10/2023	03/23/2023	- / -
							2228	Y				- / Move downwind to first analysis
AL09 / Ian	20220928H1	EMC	Butterfly (one pass)	135 kt	MH	N42	1023	Y	1023	02/03/2023	03/23/2023	DBZ/WS noise W side 4.5-7.5 km (DBZ only to 8 km) / -
							1054	Y				- / Move downwind to first analysis
							1213	Y				- / Move downwind to first analysis
AL13 / Julia	20221007H1	EMC	Butterfly	40 kt	TS	N42	2230	Y	2230	03/08/2023	03/23/2023	DBZ/WS noise N side 7.5-8.5 km / Use objective RT center (12.76,74.89), Remove profile, Use SQI 0.92
					TS		2333	Y	2333	02/03/2023	03/23/2023	- / Use objective RT center (12.76,75.19), Remove profile
					TS		2437	Y	2439	02/03/2023	03/23/2023	- / Use objective RT center (12.84,75.49), Remove profile and extend outbound leg a bit
AL13 / Julia	20221008H1	EMC	Butterfly/FLAIMS	65 kt	TS	N42	2214	Y	2214	02/03/2023	03/23/2023	- / Use objective RT center (12.54,81.57)
					TS		2312	Y	2312	02/03/2023	03/23/2023	- / Use objective RT center (12.55,81.77)
					TS		2423	Y	2423	02/03/2023	03/23/2023	- / Use objective RT center (12.58,82.01)
					TS		2424	Y	2424	02/03/2023	03/23/2023	- / Use objective RT center (12.58,82.01)
					TS		2455	Y	2455	02/03/2023	03/23/2023	- / Use objective RT center (12.61,82.17)
AL95	20221030I1	EMC	Lawnmower	< 35 kt	IN	N43	1005	Y	1004	03/10/2023	03/23/2023	- / Recenter on leg
					IN		1108	Y	1123	03/10/2023	03/23/2023	- / Center close to AF fix region (15.45,72.5)
					IN		1144	Y	1210	03/10/2023	03/23/2023	- / Center on E part of pattern
					IN		1237	Y	1259	03/10/2023	03/23/2023	- / Center close to AF fix region (15.45,72.5)
					IN		1308	Y	1333	03/10/2023	03/23/2023	- / Center on S part of pattern
					IN		1426	Y	1425	03/10/2023	03/23/2023	- / Center close to AF fix region (15.45,72.5)

AL95 / PTC15	20221030I2	EMC	Lawnmower	35 kt	IN	N43	2302	Y	2257	03/10/2023	03/23/2023	- / Eastern portion N side
					IN		2352	Y	2346	03/10/2023	03/23/2023	- / Western portion N half
					IN		2450	Y	2444	03/10/2023	03/23/2023	- / Eastern portion middle
					IN		2545	Y	2543	03/10/2023	03/23/2023	- / Western portion S half
					IN		2635	Y	2634	03/10/2023	03/23/2023	- / Eastern portion S side
AL15 / Lisa	20221031I1	EMC	Butterfly	35 kt	TS	N43	1058	Y	1058	03/10/2023	03/23/2023	- / Translate from 1545Z AF fix (15.17,76.33), remove profile
					TS		1152	Y	1158	03/10/2023	03/23/2023	Very minor WS noise S 1.5-3 km, DBZ noise NW 2.5-3.5 km / Translate from 1545Z AF fix (15.17,76.50)
					TS		1307	Y	1257	03/10/2023	03/23/2023	- / Translate from 1545Z AF fix (15.17,76.72)
AL15 / Lisa	20221101I1	EMC	Butterfly	60 kt	TS	N43	2332	Y	2332	03/10/2023	03/23/2023	- / Use RT objective center (16.75,83.99), Move downwind to this first analysis
					TS		2426	Y	2426	03/10/2023	03/23/2023	Very minor WS noise S 0.5-4.5 km / Use RT objective center (16.76,84.17)
					TS		2538	Y	2538	03/10/2023	03/23/2023	- / Use RT objective center (16.82,84.42)
AL15 / Lisa	20221102I1	EMC	Butterfly	70 kt	HH	N43	1154	Y	1154	03/20/2023	03/23/2023	WS noise NE side 9-14.5 km / Remove initial downwind, downwind after outbound placed here
					HH		1235	Y	1235	03/20/2023	03/23/2023	WS noise beginning of inbound 0.5-3.5 km (track over land), WS noise SW 13-14 km / Add downwind to 1st analysis, start inbound after land
					HH		1329	Y	1329	03/20/2023	03/23/2023	WS noise W 0.5-7 km and 12.5-14 km (land both sides of track), Start Xsect set incorrectly / Fixed inbound Xsect, remove downwind and start inbound after land
AL17 / STS Nicole	20221107I1	EMC	Fix+Lawnmower	40 kt	TS	N43	1139	Y	1141	03/10/2023	03/23/2023	- / Use RT objective center (25.97,69.05), Extend initial downwind a bit, Extend outbound and add profile
					TS		1423	Y	1425	03/10/2023	03/23/2023	- / Use RT objective center (26.47,69.65), Extend initial and final downwind a bit
AL17 / STS Nicole	20221107I2	EMC	Flx+Lawnmower	40 kt	TS	N43	2215	Y	2215	03/01/2023	03/23/2023	- / Use RT objective center (26.70,70.71)
					TS		2410	Y	2435	03/02/2023	03/23/2023	- / Use RT objective center (26.66,70.55)
							2524	Y				- / Move to prior analysis
AL17 / STS Nicole	20221108N1	NHC	Synoptic Surveillance	45 kt	TS	N49		Y	1228	02/22/2023	03/23/2023	- / Center on NW outer circ
AL17 / STS Nicole	20221108I1	EMC	Butterfly	45 kt	TS	N43	1045	Y	1045	03/02/2023	03/23/2023	WS/DBZ noise E 1-2 km / Use RT objective center (27.68,71.88)
					TS		1159	Y	1159	03/02/2023	03/23/2023	WS/DBZ noise all along flight track 1-2 km / Use RT objective center (27.70,72.00)
					TS		1317	Y	1317	03/20/2023	03/23/2023	WS/DBZ noise NW (and a bit SE) 0.5-2 km / Use RT objective center (27.73,72.44), remove profile, end before turn downwind
AL17 / STS Nicole	20221108N2	NHC	Synoptic Surveillance	55 kt	TS	N49	1849	Y	1849	02/22/2023	03/23/2023	WS discontinuity along flight track 4-4.5 km / ML: 1.0, 4.0
					TS		2015	Y	2015	02/22/2023	03/23/2023	WS discontinuity along flight track 4-5 km / Use NHC 21Z estimated position (27.5,73.7), ML: 1.0, 4.0
AL17 / STS Nicole	20221108I2	EMC	Butterfly	55 kt	TS	N43	2210	Y	2210	03/02/2023	03/23/2023	- / -
					TS		2326	Y	2326	03/02/2023	03/23/2023	W noise near inbound begin 1-2.5 km / -
					TS		2433	Y	2433	03/02/2023	03/23/2023	- / -

AL17 / STS Nicole	20221109N1	NHC	Synoptic Surveillance	60 kt	TS	N49	0831	Y	0845	02/22/2023	03/23/2023	WS discontinuity along flight track 4-4.5 km / Use center extrapolation from AF and P3 (26.82,75.58), ML: 1.0, 4.0
AL17 / STS Nicole	20221109I1	EMC	Butterfly	60 kt	TS	N43	1041	Y	1041	03/02/2023	03/23/2023	
					TS		1157	Y	1157	03/02/2023	03/23/2023	
					TS		1308	Y	1308	03/02/2023	03/23/2023	- / Extend outbound leg a bit
AL17 / STS Nicole	20221109I2	EMC	Butterfly	65 kt	HH	N43	2218	Y	2218	03/22/2023	03/23/2023	WS/DBZ noise in eye 0.5-11.5 km (land just N of track) / Use SQI 0.86, raise fore/aft mask threshold to 27, use (7, 4, 2.5) for zxypercent, Some limited WS noise remains confined < 2.5 km
					HH		2322	Y	2322	03/02/2023	03/23/2023	WS/DBZ noise in eye 0.5-9.5 km (land along track) / -
					HH		2442	Y	2442	03/22/2023	03/23/2023	WS/DBZ noise in eye 0.5-8.5 km (land along track) and downwind 0.5-13.5 km (land along track) / Use SQI 0.86, raise fore/aft mask threshold to 27, use (7, 4, 2.5) for zxypercent
Total P-3						49	185		175			
Total G-IV						19	49		48			
Total						68	234		223			
							Reprocess: Low		Vortex Align			
							Reprocess: High					
							Reprocess: Land					
							Reprocess: N49 ML					