

NATIONAL HURRICANE CENTER
TROPICAL CYCLONE FORECAST VERIFICATION 1976

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HOMOGENEOUS SAMPLE

FORECAST TYPE	INITIAL POSITION ERROR	FORECAST DISPLACEMENT ERROR (n. mi.)			
		12HR	24HR	48HR	72HR
(number of cases in parentheses)					
OFFICIAL	17 (25)	39 (25)	86 (23)	250 (18)	479 (12)
NHC-67		48	112	307	401
NHC-72		40	106	272	425
.RAN		51	136	351	536
CLIPER		44	106	284	455
NHC-73		43	112	235	436
SANBAR		43	95	195	313

HOMOGENEOUS SAMPLE OF OFFICIAL FORECASTS AND ALL OPERATIONAL NHC OBJECTIVE TECHNIQUES

NATIONAL HURRICANE CENTER

TROPICAL CYCLONE FORECAST VERIFICATION 1976

ALL FORECASTS

FORECAST TYPE	INITIAL POSITION ERROR	FORECAST DISPLACEMENT ERROR (n. mi.)			
		12HR	24HR	48HR	72HR
(number of cases in parentheses)					
OFFICIAL	21 (159)	58 (159)	127 (144)	285 (113)	430 (85)
MEAN 1970-1975			105 (557)	246 (389)	404 (275)
HURRAN	19 (54)	57 (54)	145 (50)	385 (41)	554 (31)
MEAN 1970-1975			131 (311)	280 (210)	394 (150)
NHC-67	17 (138)	63 (138)	136 (130)	325 (120)	531 (89)
MEAN 1970-1975			113 (513)	301 (368)	504 (264)
SANBAR	19 (72)	60 (72)	136 (68)	277 (56)	399 (44)
MEAN 1970-1975			119 (254)	252 (184)	379 (132)
CLIPER	20 (163)	61 (163)	141 (147)	323 (118)	457 (94)
MEAN 1972-1975			124 (349)	267 (250)	377 (171)
NHC-72	20 (162)	61 (162)	150 (146)	309 (117)	427 (93)
MEAN 1972-1975			115 (344)	208 (245)	422 (166)
NHC-73	18 (70)	56 (70)	131 (66)	265 (55)	369 (45)
MEAN 1972-1975			114 (181)	267 (129)	438 (87)

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FORECAST TYPE	INITIAL POSITION ERROR	FORECAST DISPLACEMENT ERROR (n. mi.)			
		12HR	24HR	48HR	72HR
(number of cases in parentheses)					
OFFICIAL	17 (65)	52 (65)	123 (63)	286 (51)	428 (38)
NHC-67		62	133	313	498
NHC-72		55	140	282	407
CLIPER		55	137	306	445
NHC-73		53	128	247	378
SANBAR		57	131	259	388

HOMOGENEOUS SAMPLE OF NHC TECHNIQUES WITH HURRAN OMITTED TO INCREASE SIZE OF SAMPLE

NATIONAL HURRICANE CENTER

TROPICAL CYCLONE FORECAST VERIFICATION 1976

HOMOGENEOUS SAMPLE

FORECAST TYPE	INITIAL POSITION ERROR	FORECAST DISPLACEMENT ERROR (n. mi.)			
		12HR	24HR	48HR	72HR

(number of cases in parentheses)

OFFICIAL	11 (10)	52 (10)	113 (8)	249 (5)
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M.F.M. Model	22	72	121	215
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M.F.M. MODEL: The NMC Moving Fine Mesh Model developed by Hovermale

NATIONAL HURRICANE CENTER
TROPICAL CYCLONE FORECAST VERIFICATION 1976
OFFICIAL MAXIMUM WIND FORECASTS
(all errors expressed in knots)


	INITIAL	12HR	24HR	48HR	72HR
MEAN ERROR	+1.4	+1.9	+1.5	-1.1	-1.1
MEAN ABSOLUTE ERROR	6.8	9.2	11.9	14.7	13.1
NUMBER OF CASES	159	159	144	113	85



LANDFALL FORECAST ERRORS

Listed below are the errors in predicting the points of landfall of the two storms which crossed the coastline of the United States in 1976. The errors are for the Official forecasts issued twenty-four hours prior to landfall time.

Storm	Landfall Day	Landfall Location	Landfall Forecast Error
Belle	August 10	Jones Beach, Long Island, N.Y.	30 miles
Dottie	August 20	Folly Beach, S.C.	5 miles



National Hurricane Center

Official and L.F.M. Forecasts

Homogeneous Sample


	Initial Position Error	12HR (number of cases in parentheses)	24HR	48HR	72HR
Official	13 (18)	44 (18)	102 (16)	232 (7)	
L.F.M.	20	77	122	286	
Official	13 (9)	51 (9)	108 (7)	144 (1)	
L.F.M.	24	70	109	187	
M.F.M.	21	69	97	147	
Official	18 (17)	66 (17)	156 (13)	387 (10)	493 (5)
NHC Preliminary	19	71	163	384	498
NMC Preliminary	18	65	137	348	541



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TROPICAL CYCLONE FORECAST VERIFICATION 1976







The following tables contain verification statistics for the 1976 tropical cyclone forecasts. The track forecast errors, expressed in nautical miles are computed in the following way. The magnitude of the vector difference (measured along a great circle) between the forecast displacement for a given time period and the actual displacement taken from

'Best Track' is computed for each forecast. All forecasts for which a given cyclone maintains at least tropical storm intensity are verified. These results are then averaged and tabulated.

The errors in the initial positioning of storms are also computed. For a given forecast, this is simply the magnitude of the great circle distance between the operational initial position and the corresponding

Track' initial position.



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HOMOGENEOUS SAMPLE OF NHC TECHNIQUES WITH HURRAN OMITTED TO INCREASE SIZE OF SAMPLE

NA TIONAL HURRICANE CENTER

TROPICAL CYCLONE FORECAST VERIFICATION

HOMOGENEOUS SAMPLE

FORECAST TYPE	INITIAL POSITION ERROR	FORECAST DISPLACEMENT ERROR (mi)		
		4HR	48HR	2HR
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NATIONAL HURRICANE CENTER
TROPICAL CYCLONE FORECAST VERIFICATION 1976

OFFICIAL MAXIMUM WIND FORECASTS

(all errors expressed in knots)


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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
National Meteorological Center
Washington, D. C. 20233

March 7,

W335/HEB

TO: Director, NMC

Thru: Chief, Forecast Division

ORIGINAL SIGNED BY
E. B. Fawcett

FROM: *H. E. Brown*
Harry E. Brown, Chief, Basic Weather Branch, FD/NMC

SUBJECT: Revision to "Report on the 1976 NOAA/NWS Hurricane
Conference," December 20, 1976

Section C of the table attached to the original report showed the forecast displacement errors in nautical miles for NMC, NHC and the official forecasts. The original homogeneous sample was incomplete, but Dr. J. Pellissier has since provided the complete sample in the table attached to this note.

The complete verification shows a comparison between NMC and NHC more as had been anticipated; i.e., NHC is the better at 12 hours and NMC is the better at the longer ranges. Furthermore, the average errors are somewhat smaller.

Attachment

cc: Dr. Frank, NHC ←
W33
W323
W336
W112x3/BF

MAR 10 1977

Tropical Cyclone Forecast Verification 1976

Homogeneous Sample

	Forecast Displacement Error (n.mi.)			
	<u>12 HR</u>	<u>24 HR</u>	<u>48 HR</u>	<u>72 HR</u>
Official (No of cases)	58.9 (26)	134.4 (22)	324.9 (16)	404.5 (8)
NMC Preliminary	65.8	130.6	300.7	391.8
NHC Preliminary	60.9	140.0	324.9	407.4