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

June 2, 1982

MEMORANDUM FOR THE RECORD

FROM:

SUBJECT: 1981 Hurricane Season

NHC vs NMC
Mean vector error in nautical miles

Official NHC forecast, NHC Prelim (NHCPRL) forecast, NMC Prelim (NMCPRL) forecast--MFM not used because no of cases too small.

	12hr	24hr	48hr	72hr
Dennis				
Official	48	95	197	331
NHCPRL	48	95	196	331
NMCPRL	52	116	280	481
#of cases	22	20	14	9
Emily				
Official	62	121	201	286
NHCPRL	62	121	194	277
NMCPRL	63	109	155	252
#of cases	15	15	14	11
Floyd				
Official	33	77	227	434
NHCPRL	33	77	227	434
NMCPRL	49	106	190	329
#of cases	16	16	16	14
Gert				
Official	50	114		447
NHCPR1	50	114		447
NMCPRL	58	108		334
#of cases	19	19		14
Official	35	87	253	549
NHCPRL	35	87	253	549
NMCPRL	49	103	250	494
#of cases	13	13	13	13

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Katrina

	12hr	24hr	48hr	72hr
Official	55	159	427	405
NHCPRL	55	159	427	405
NMCPRL	116	205	406	461
#of cases	10	8	4	1

Summary for 1981 Season

NHC did better than 1-2 day (NMCPRL) on the first hurricane of the season (Dennis) in August 16-21, 1981, in all forecast categories. Hurricane "Emily" Sept. 1-10, 1981, the 1-2 day forecasters did better than NHC in all forecast categories save one--the 12-hr. forecast. Hurricane "Floyd" Sept. 5-11, 1981, NHC did better on the 12hr and 24hr and 1-2 day (NMCPRL) did better at 48- and 72-hrs. At 72 hrs. the Vector error was improved by over 100 nautical miles. Hurricane "Gert" Sept. 8-14, 1981, NHC again did better at 12 hrs, NMCPRL at 24hrs, 48hrs and at 72 hrs NMCPRL was again improved by over 100 nautical miles. Hurricane "Irene" Sept. 24 - Oct. 1, 1981, NHC was better at 12- and 24-hrs and again the NMCPRL was better at 48- and 72-hrs. Hurricane "Katrina" Nov. 4-7, 1981, NHC again did better at 12- and 24- and also at 72-hrs. and 1-2 day did better at 48 hrs. This hurricane did not have a good sample of cases beyond 24 hrs.

Out of 24 separate forecast periods (six hurricanes - 12-, 24-, 48- and 72-hr. forecasts) the 1-2 day forecasters (NMCPRL) did better on 11 or 46%, and of those 11 periods where the mean vector error was less, nine of the periods were beyond 24 hrs. (9/12 or 75%).

Excellent work!!!

cc: OA/W3 (Bonner)
OA/W33 (Carlstead)
OA/W32x1 (Hovermale)
NHC (Frank)
OA/W335 (Saxton)

Forecasters

JClarke
WJunker
CPope
GLey(Resigned)
GGrossman

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TROPICAL CYCLONE FORECAST VERIFICATION - 1981

GENERAL SAMPLE - ALL STORMS - ALL FORECASTS

FORECAST TYPE	INITIAL POSITION	12HR	24HR	48HR	72HR
OFFICIAL (CASES)	20 (210)	58 (210)	120 (190)	246 (146)	426 (106)
NHC67	20 (176)	57 (176)	129 (164)	290 (139)	443 (110)
NHC72	21 (202)	58 (202)	134 (184)	276 (145)	406 (112)
HURRAN	18 (137)	53 (137)	120 (124)	297 (97)	481 (73)
CLIPER	20 (206)	59 (206)	126 (188)	263 (149)	436 (115)
NHC73	19 (85)	53 (85)	113 (78)	219 (70)	418 (56)
SANBAR	19 (91)	61 (91)	116 (81)	225 (65)	374 (52)
MFM	19 (20)	83 (20)	131 (20)	191 (18)	

AVERAGE ERRORS IN NAUTICAL MILES

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TROPICAL CYCLONE FORECAST VERIFICATION - 1981

GENERAL SAMPLE - ALL STORMS - ALL FORECASTS

FORECAST TYPE	INITIAL POSITION	12HR	24HR	48HR	72HR
OFFICIAL	20	58	120	246	426
(CASES)	(210)	(210)	(190)	(146)	(106)
NHC67	20	57	129	290	443
	(176)	(176)	(164)	(139)	(110)
NHC72	21	58	134	276	406
	(202)	(202)	(184)	(145)	(112)
HURRAN	18	53	120	297	481
	(137)	(137)	(124)	(97)	(73)
CLIPER	20	59	126	263	436
	(206)	(206)	(188)	(149)	(115)
NHC73	19	53	113	219	418
	(85)	(85)	(78)	(70)	(56)
SANBAR	19	61	116	225	374
	(91)	(91)	(81)	(65)	(52)
	19	83	131	191	
	(20)	(20)	(20)	(18)	

AVERAGE ERRORS IN NAUTICAL MILES

NATIONAL HURRICANE CENTER

TROPICAL CYCLONE FORECAST VERIFICATION -

HOMOGENEOUS SAMPLE

STORMS D E F G I K

FORECAST TYPE	INITIAL POSITION	12HR	24HR	48HR	72HR
OFFICIAL	18	47	105	234	419
(NO. OF CASES)	(95)	(95)	(91)	(80)	(62)
NHC PRELIM	18	47	105	232	418
NMC PRELIM	18	61	117	226	375

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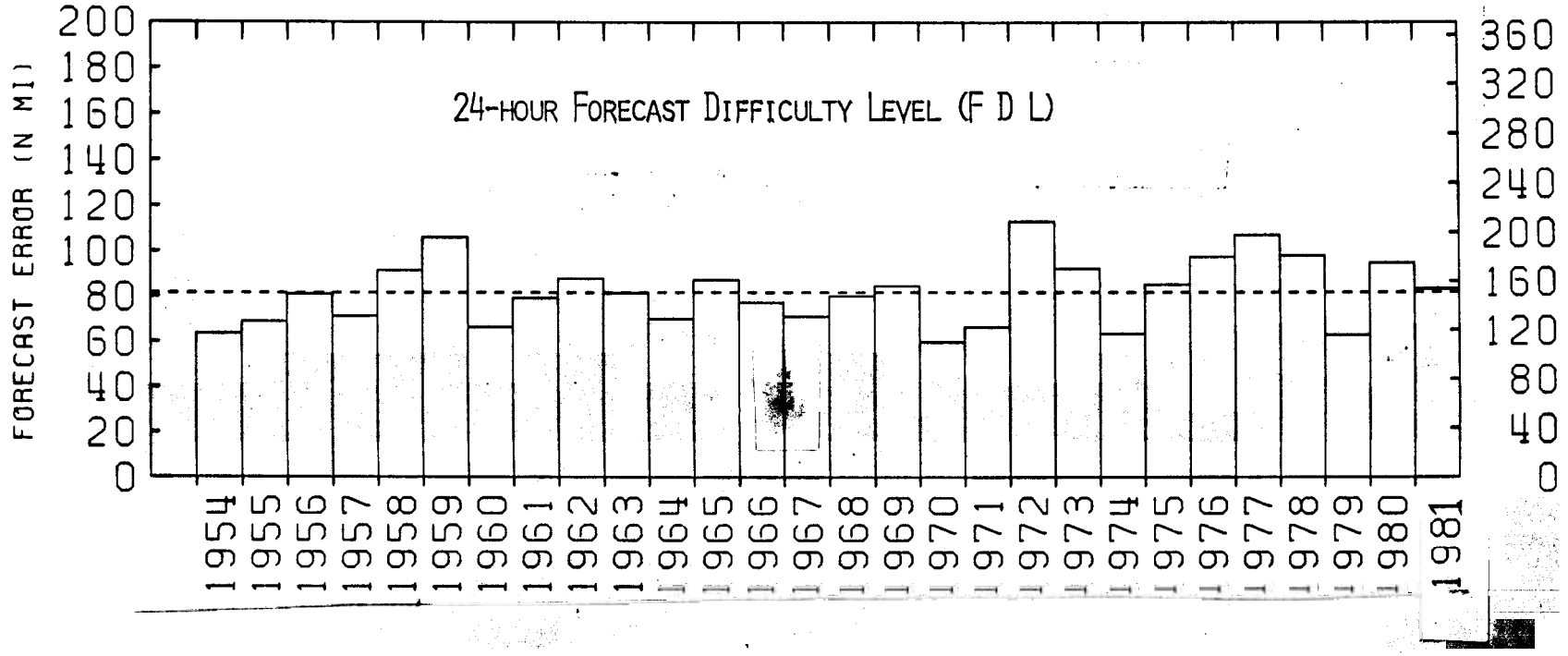
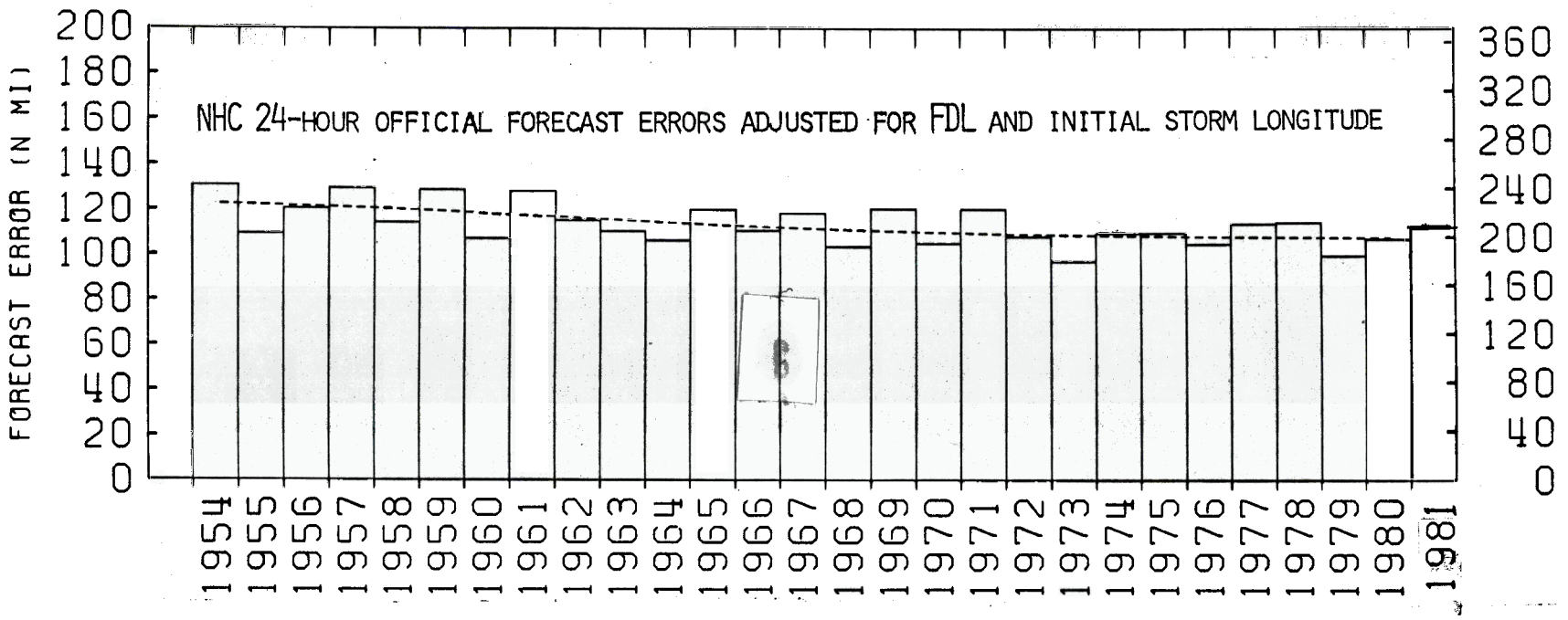
TROPICAL CYCLONE FORECAST VERIFICATION - 1981

HOMOGENEOUS SAMPLE

FORECAST TYPE	INITIAL POSITION	12HR	24HR	48HR	72HR
OFFICIAL	17	54	118	254	
(NO. OF CASES)	(20)	(20)	(20)	(18)	
M F M	19		131	191	
OFFICIAL	19	53	117	254	441
	(85)	(85)	(78)	(68)	(51)
NHC73	19	53	113	218	414
OFFICIAL	19	54	118	253	423
	(91)	(91)	(81)	(63)	(47)
SANBAR	19	61	116	227	385





DETERMINATION OF SECULAR TREND IN NHC 24-HOUR FORECAST ERRORS, 1954-1980. TOTAL REDUCTION OF VARIANCE = $(S_A^2 - S_C^2)/S_A^2$ = 82%