



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

June 2, 1982

*To
 In this
 correct N/A*

MEMORANDUM FOR THE RECORD

FROM:

SUBJECT: 1981 Hurricane Season

NHC vs NMC
 Mean vector error in nautical miles

Official NHC forecast, NHC Prelim (NHCPR1) forecast, NMC Prelim (NMCPR1) forecast--MFM not used because no of cases too small.

*Weil:
 + have figures
 are correct
 They are
 taken directly
 from the
 Verification
 print-out
 chart I
 sent to
 W. Owen Smith
 Joe*

	Dennis			
	12hr	24hr	48hr	72hr
Official	48	95	197	331
NHCPR1	48	95	196	331
NMCPR1	52	116	280	481
#of cases	22	20	14	9
	Emily			
Official	62	121	201	286
NHCPR1	62	121	194	277
NMCPR1	63	109	155	252
#of cases	15	15	14	11
	Floyd			
Official	33	77	227	434
NHCPR1	33	77	227	434
NMCPR1	49	106	190	329
#of cases	16	16	16	14
	Gert			
Official	50	114		447
NHCPR1	50	114		447
NMCPR1	58	108		334
#of cases	19	19		14
Official	35	87	253	549
NHCPR1	35	87	253	549
NMCPR1	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. (9/11 or 82%).

Excellent work!!!

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

Forecasters

JClarke
WJunker
CPope
GLey(Resigned)
GGrossman

NATIONAL HURRICANE CENTER
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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AVERAGE ERRORS IN NAUTICAL MILES

NATIONAL HURRICANE CENTER
TROPICAL CYCLONE FORECAST VERIFICATION -
HOMOGENEOUS SAMPLE

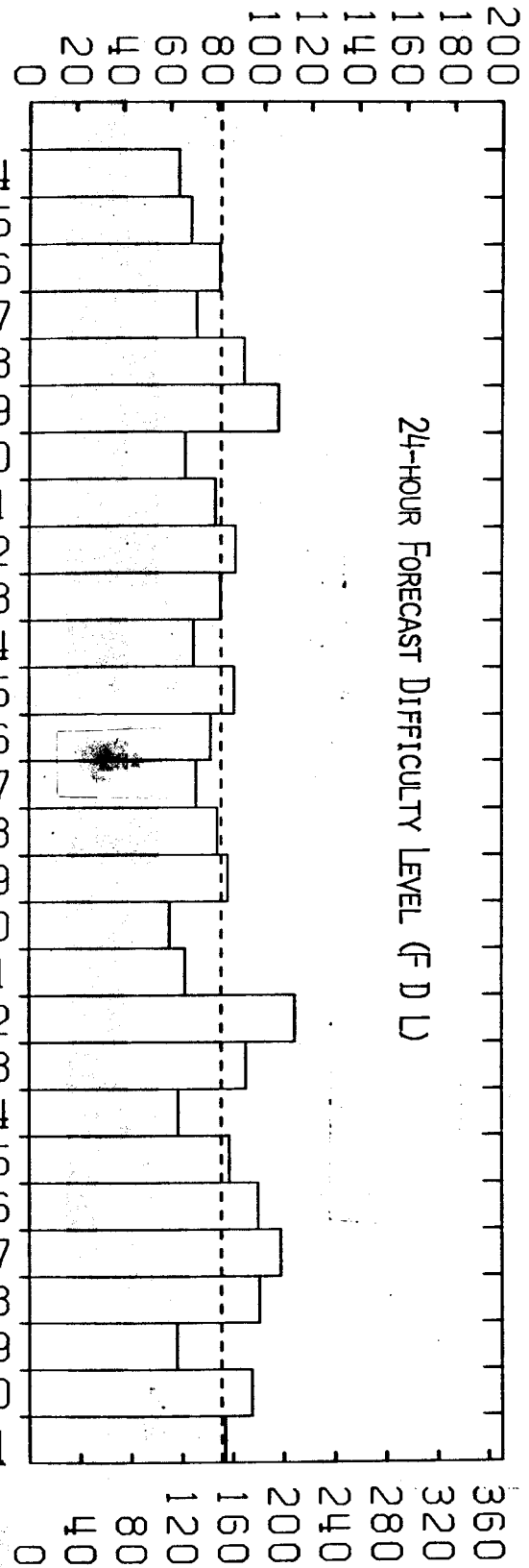
STORMS D E F G I K

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

NATIONAL HURRICANE CENTER
TROPICAL CYCLONE FORECAST VERIFICATION - 1981
HOMOGENEOUS SAMPLE

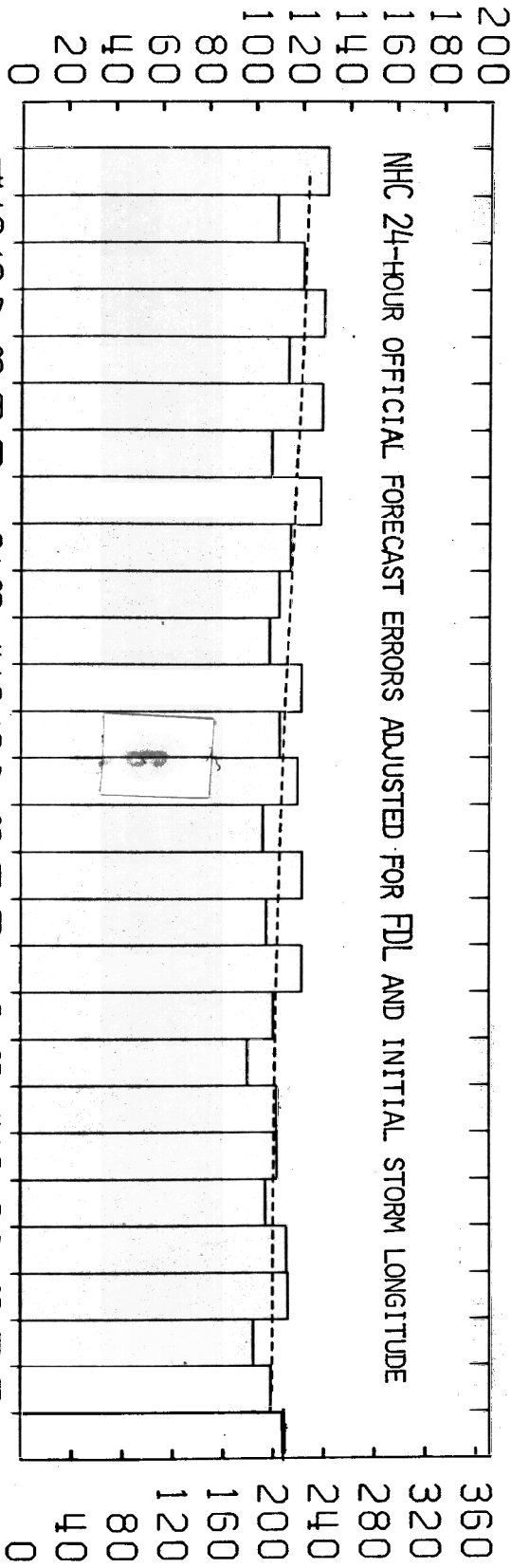
FORECAST TYPE	INITIAL POSITION	12HR	24HR	48HR	72HR
OFFICIAL (NO. OF CASES)	17 (20)	54 <u>(20)</u>	118 <u>(20)</u>	254 (18)	
M F M	19		131	<u>191</u>	
OFFICIAL	19 (85)	53 (85)	117 (78)	254 (68)	441 (51)
NHC73	19	53	<u>113</u>	<u>218</u>	<u>414</u>
OFFICIAL	19 (91)	54 (91)	118 (81)	253 (63)	423 (47)
SANBAR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

FORECAST ERROR (N MI)



FORECAST ERROR (KM)

FORECAST ERROR (N MI)



FORECAST ERROR (KM)

DETERMINATION OF SECULAR TREND IN NHC 24-HOUR FORECAST ERRORS, 1954-1980. TOTAL REDUCTION

OF VARIANCE = $(S_A^2 - S_C^2) / S_A^2 = 82\%$