VERIFICATION STATISTICS FOR THE 1982 ATLANTIC HURRICANE SEASON

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Tropical storm and hurricane center positions are routinely forecast for periods out to 72 hours and verification of these forecasts is a continuing project at the National Hurricane Center. Neumann and Pelissier (1981) have summarized Atlantic tropical cyclone forecast errors for the decade of the 1970's and were unable to detect any significant trend over this time period.

Table 1 and Fig. 1 give the official NHC error statictics for 1982 as well as for the previous 10 years. It is seen that 1982 forecast errors through the first 48 hours were relatively close to the averages of the previous ten years, while the 72-hour errors were 46% smaller than the previous 10-year average. However, the 1982 72-hour statistics are based on only 18 cases compared to 58 cases per year for the preceding 10-year average. This small number of cases precludes the reaching of any conclusions concerning this statistic.

There was one landfalling tropical storm (Chris) in 1982 and the 24-hour landfall error for this storm is 55 n. mi. compared to the 10-year average of 39 n. mi. Fig. 2 illustrates the landfall error calculation for Tropical Storm Chris and Fig. 3 shows how the 24-hour forecast error is calculated... both with and without a correction for the initial position error. This particular forecast had an initial position error of 30 n. mi., which can be compared to the previous 10-year average of 19 n. mi. (see Table 1)

Finally, error statistics for the various objective forecast models are shown in tabular form and graphically in Table 2 and Fig. 4. A homogeneous sample of the various models (those times for which forecasts were made by al models) is shown in Fig. 5.

Reference

Neumann, C. J. and J. M. Pelissier, 1981: An Analysis of Atlantic Tropical Cyclone Forecast Errors, 1970-1979. Mon. Wea. Rev., V. 109, p. 1248-1266.

TABLE 1

OFFICIAL DISPLACEMENT ERRORS (n. mi.)

	initial position	forecast period (hours) 12	24	48	72
1982 (no. of cases)	17 (52)	54 (52)	119 (42)	230 (26)	211 (18)
1972-81 average (no. of cases)	19 (130)	54 (127)	116 (114)	254 (81)	393 (58)
per cent improvement	+11	0	-3	+9	+46

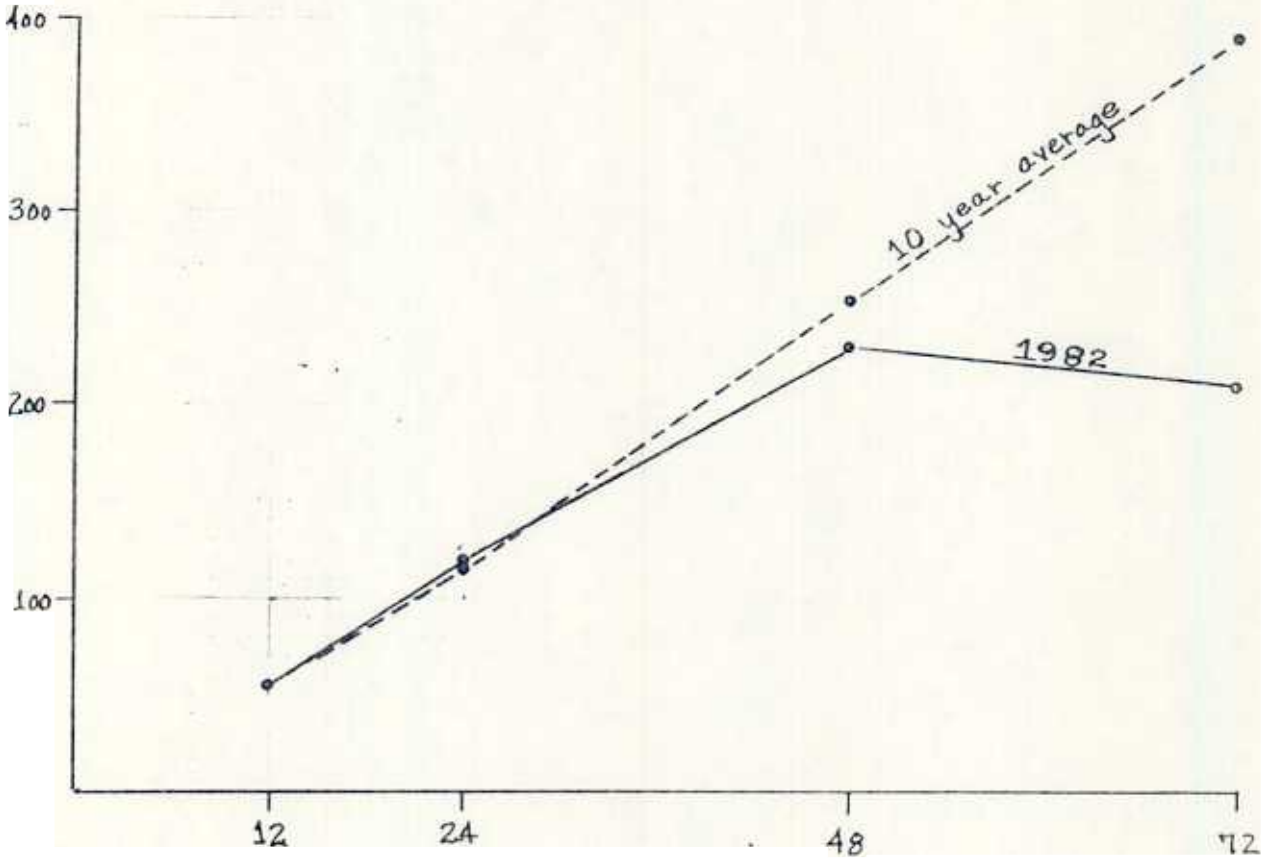
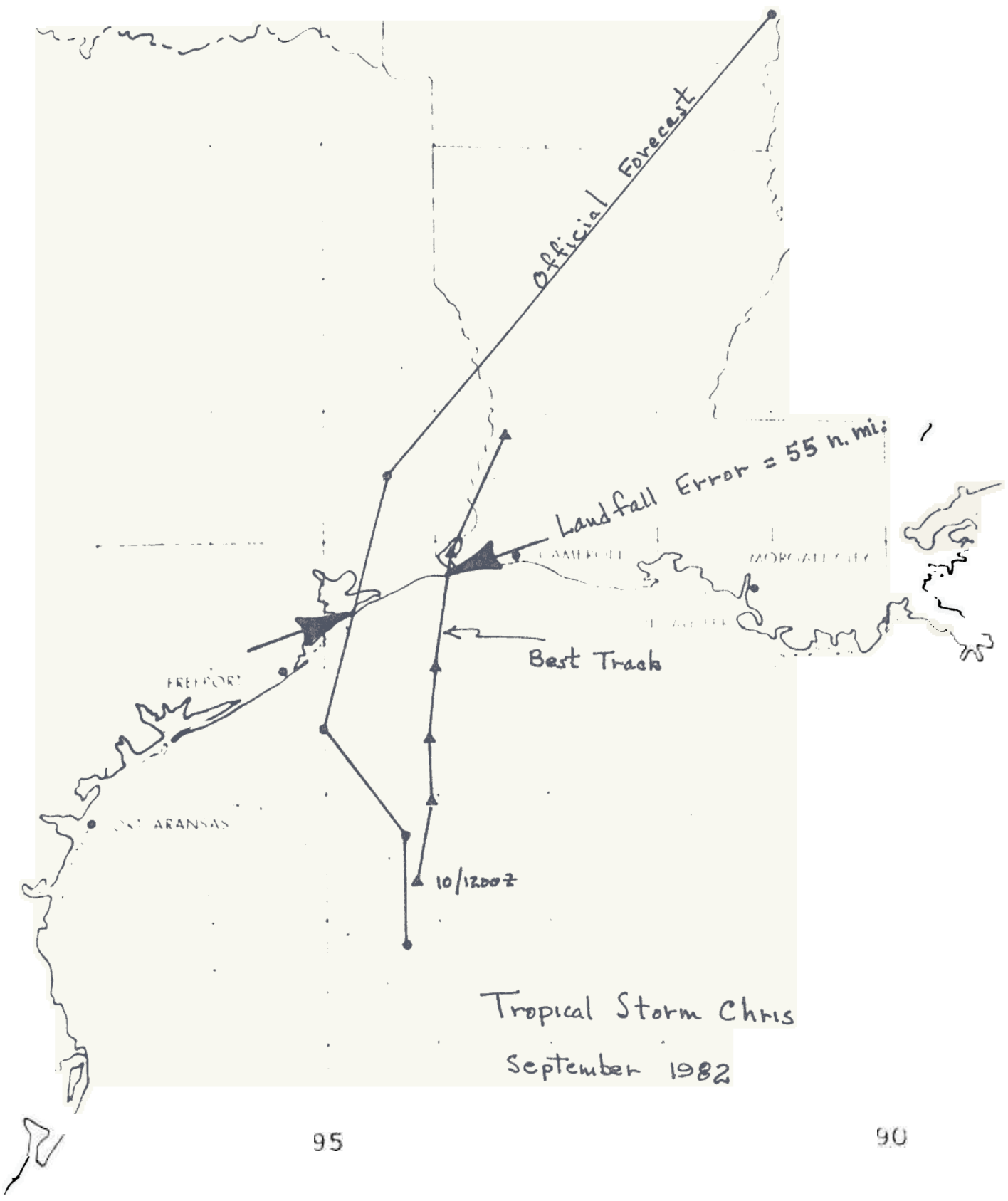
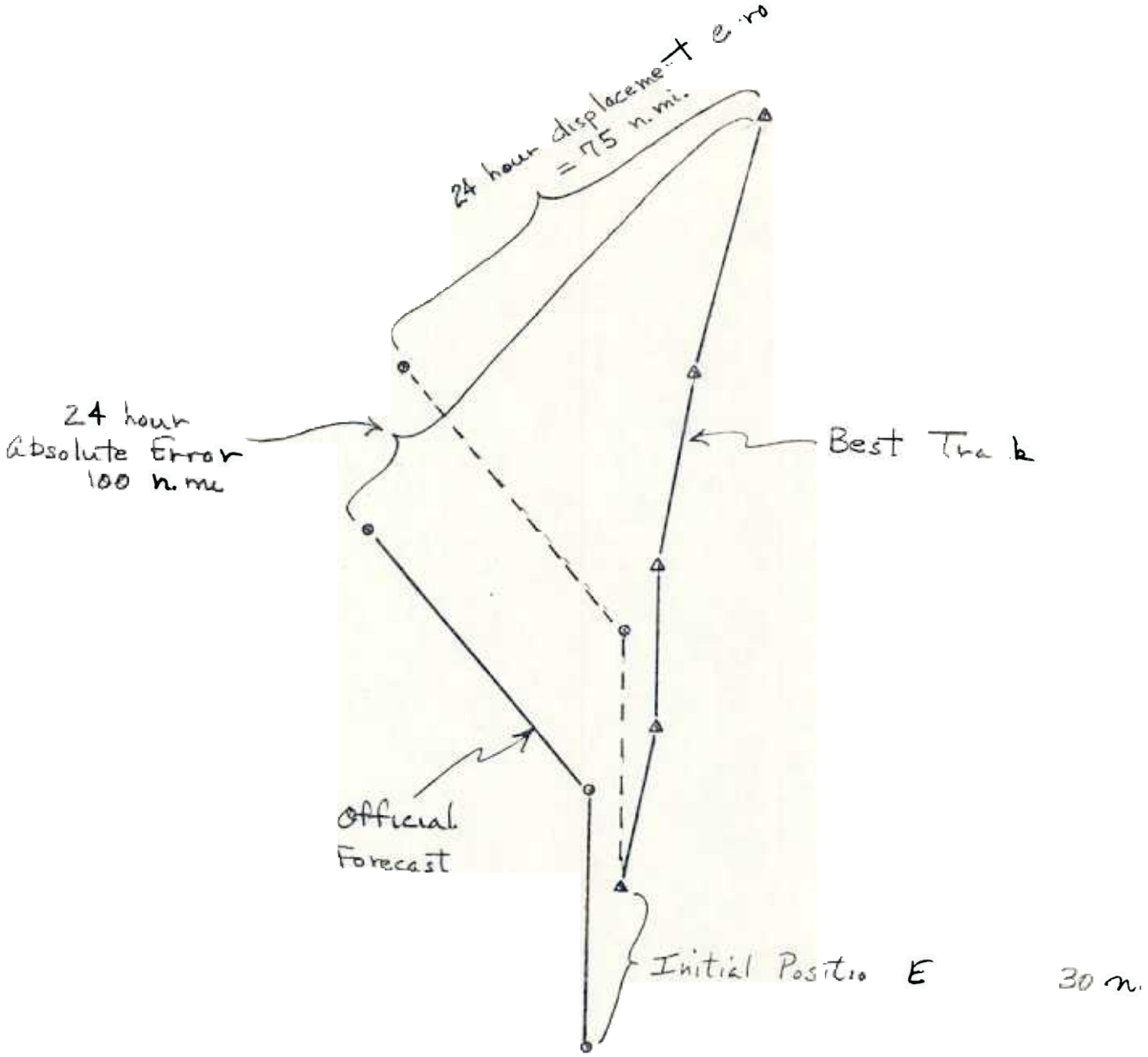


Fig. 1



Tropical Storm Chris
September 1982

Fig 2



Tropical Storm Chris

September 19 2

Fig 3

TABLE 2

1982 Average Displacement Errors (n mi)

General sample - all cases

Method	Initial position	Forecast period 12	24	48	72
Official	17 (52)	54 (52)	119 (42)	230 (26)	211 (18)
NHC67	(32)	(32)	131 (24)	274 (12)	202 (9)
NHC72	17 (49)	54 (49)	103 (39)	183 (23)	370 (16)
HURRAN	16 (39)	60 (39)	146 (35)	260 (21)	207 (14)
CLIPER	17 (50)	62 (50)	141 (40)	254 (24)	222 (16)
NHC73	14 (16)	66 (16)	142 (12)	231 (7)	504 (5)
SANBAR	15 (19)	75 (19)	176 (14)	403 (7)	637 (5)
MFM	19 (6)	56 (6)	87 (5)	190 (4)	- (0)

Fig 4

1982 DISPLACEMENT ERRORS
Gener Sample A1 Cases

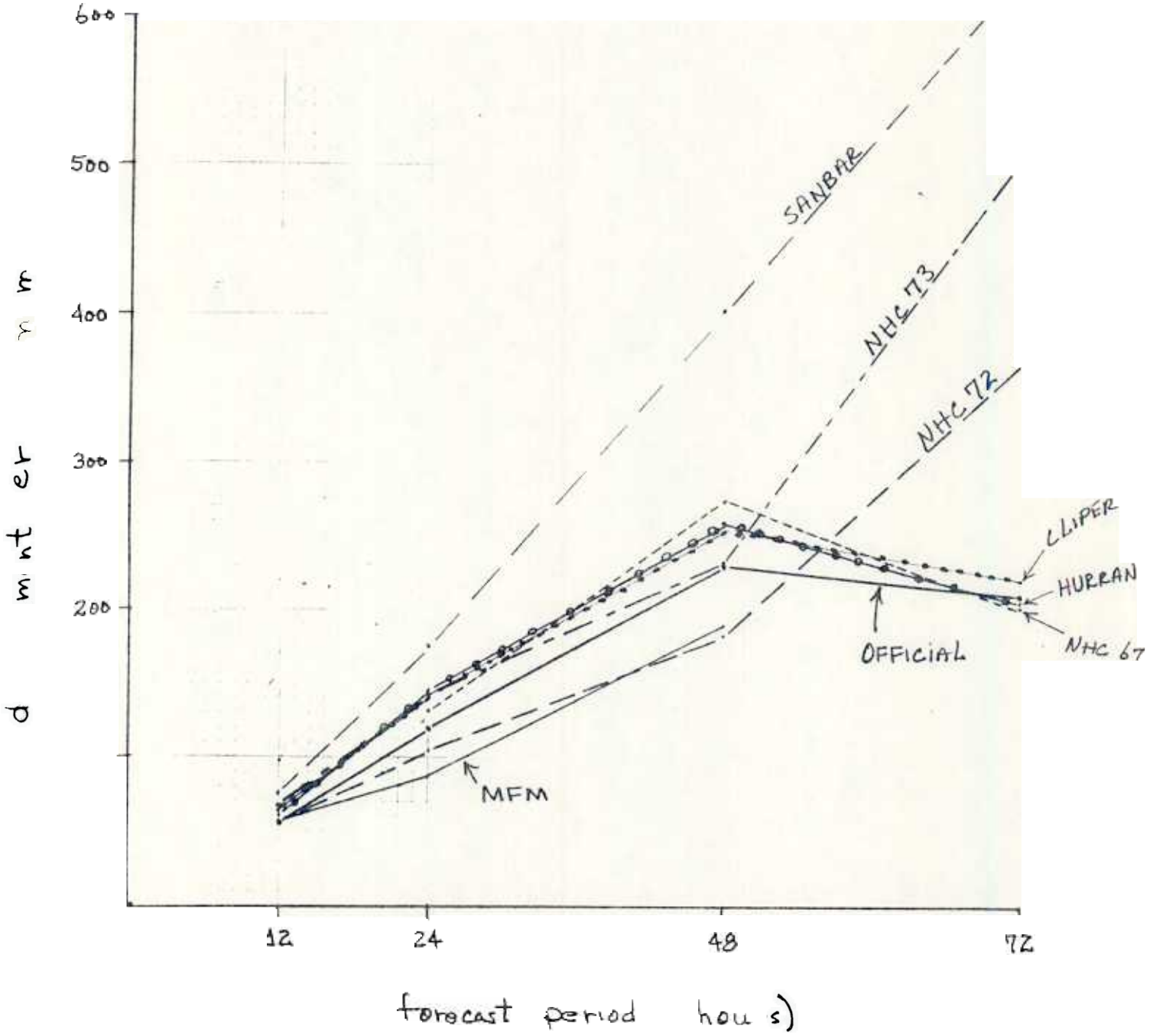


Fig 5

982 D PLACEMENT ERRORS

Homogeneous Sample