SUMMARY OF PROBABILITY OF PRECIPITATION FORECASTS IN THE SOUTHERN REGION FOR THE PERIOD JANUARY THROUGH MARCH 1966

Woodrow W. Dickey
Scientific Services Division
Southern Regional Headquarters, Fort Worth, Texas

1. INTRODUCTION

The attaching of a probability of precipitation statement to the local weather forecast has at long last gotten a toe in the door - in fact it is clear through the door in the Southern Region, for better or for worse - and, until the science of meteorology can develop methods of making perfect categorical forecasts, it is undoubtedly here to stay. Despite the reservations that many forecasters still have about attaching a probability statement to the forecast, it is the most informative way of stating a forecast; so there is a greater than 95 percent probability that in a year or two both the forecaster and the public would not have it any other way.

This report summarizes a portion of the first three months of probability forecasts in the Weather Bureau's Southern Region issued in the local public forecasts. The forecasts verified were those issued early in the morning between about 0900Z and 1100Z for the periods "Today" (1200-0000Z); "Tonight" (0000-1200Z); and "Tomorrow" (1200-0000Z). In January, 1966 there were 51 local stations involved with 1569 forecasts for each of the periods; in February 51 stations with 1416 forecasts for each period; in March 50 stations with 1541 forecasts for each period.

For the purposes of the summaries in this report the forecasts for all stations were combined for each forecast period. These local forecasts have been compared with the FP-3 guidance forecasts made for the same local stations in Table 1 and Figures 1 through 12. In Table 2 are listed verification scores for the individual stations, including the Forecast Centers. These statistics, therefore, give an overall picture of how the probability forecasts are going, but say nothing of the reliability of individual stations, nor the performance of individual forecasters. The desirability of each forecaster accumulating his own forecasts, computing his own Brier scores and percent improvement over climatology, and constructing his own reliability table or graph cannot be stressed too strongly. Only by doing these things will he discover his own biases which are detrimental to good probability forecasts, and only through the efforts of each forecaster to improve his own forecasts will the performance of the station and the region be improved.

2. VERIFICATION RESULTS

Summary of Scores

In Table 1 are listed the average Abbreviated Brier Scores and percent improvement over Climatology for all local forecasts combined, and for all FP-3 guidance forecasts combined. (Note: the term Abbreviated

Brier Score is used since these scores are based only on the forecast probability of precipitation, and are, therefore, equal to only one-half of the full Brier Score. See SR Technical Memorandum No. 6). Also included in Table 1 is the percent improvement of the local forecasts over the corresponding FP-3 guidance forecasts.

Inspection of Table 1 reveals the expected increase in Brier Scores with increased lead time to the forecast period, and a corresponding decrease in the improvement over the climatological forecast. The average percent improvement over climatology ranges from 53% in the first forecast period (Today) to 13% in the third forecast period (Tomorrow). The local stations show a definite improvement of 13% over their guidance forecasts in the first period, but show no improvement (on the average) over the guidance forecasts for the "Tonight" and "Tomorrow" periods.

Reliability Graphs

"Today" Forecasts. In figures 1 through 4 are shown the Reliability graphs and distributions of forecasts for the three months combined (figure 1) and for the individual months (figures 2, 3, and 4). Figure 1 shows rather excellent reliability with a slight tendency to underforecast precipitation in the lowest categories and to overforecast precipitation in the higher categories. Inspection of figures 2, 3, and 4, however, reveals that this excellent reliability in almost all categories results from a marked underforecasting of precipitation, especially in the lower categories in January which was a relatively "wet" month (observed average percent occurrence of rains 25% compared to the average climatological value of 16%), and a marked overforecasting of precipitation in all categories in March which was a relatively dry month (observed percent occurrence of rains 10% compared to the climatological value of 17%). The February local forecasts show no consistent tendency to over or underforecast. (The observed percent of rains 23%, climatology 18%). These results stress the importance of a long period over which to evaluate probability forecasts which samples a number of "wet" and "dry" regimes. On the other hand it behooves the forecaster to recognize the effect of above and below normal regimes on his reliability, and to use whatever means he has (which are, admittedly, extremely limited) to recognize these regimes, and make appropriate adjustments in his probability forecasting. The obvious, and only source for such information is the 30-day outlook.

The distributions of the number of forecasts in each probability category show the desired peaks at the extremes, 0% and 100% (>95%), in the local forecasts, but not in the FP-3 forecasts. It is this improvement in resolution that primarily accounts for the improvement of the local forecasts over the FP-3 forecasts in this first period. A secondary peak in the frequency distribution for all three months occurs in the 50% category, which is undesirable. This value gives the poorest Brier Score of any reliably used value as it is farthest from the perfection of zero and 100%, and thus should be avoided if possible. Unless the areal coverage forces selection of this value of 50%, an effort should be made to resolve the synoptic situation a bit better and shift some of these 50% forecasts up or down a bit. The Brier Score will decrease ~~10%~~ 4% of its value for 50% forecasts shifted reliably only as far as 40% and 60%.

"Tonight" Forecasts. Figures 5 through 8 show the reliability graphs and frequency distributions of the forecasts for the "Tonight" period. Here, again, the relatively good reliability up to the 70% level results from the balancing off of rather poor reliability and underforecasting of precipitation in the relatively "wet" month of January, and poor reliability but overforecasting of precipitation in the relatively "dry" month of March.

The leveling off of the observed percentages in the 80, 90, and 100% categories of the local forecasts suggests rather strongly that the probable average upper limit of skill for this forecast period is about 70%. The observed percentage of rains in the 70, 80, 90, and 100 percent categories combined is 70%. This figure represents the average upper limit of skill for all stations (all forecasters) combined. Obviously, each station (each forecaster) should attempt to determine its own average upper limit of skill. Once determined, the average upper limit should be exceeded only when the synoptic situation is unusually favorable for a very high probability.

While the zero percent category shows no worse reliability than other low forecast categories, the psychological effect of this over-confidence of "no-rain" on users, to whom the errors in such forecasts are obvious, could affect their confidence in and acceptance of the probability concept. The significance of this over use of the zero category in the longer period forecasts is brought out by the fact that the zero percent category accounts for 67% of all forecasts in this period and the 6% occurrence of rain with this category accounts for 22% of all rains observed in this period. A large part of this over-confidence of "no-rain" undoubtedly stems from the policy laid down that a probability statement will not be made unless precipitation is specifically mentioned in the body of the forecast. This policy will have to be re-examined.

Again, in this period there is a pronounced peak in the distribution of the forecasts at 50% where it is desirable to have a minimum in the distribution, if possible.

"Tomorrow" Forecasts. All of the remarks made above about the "Tonight" period apply, even more strongly, to the "Tomorrow" period. (Figures 9 through 12) Extreme underforecasting of precipitation occurred in the "wet" month of January below the 50% level (Figure 10) which is only partially counteracted by the overforecasting in the "dry" month of March (Figure 12). A portion of the underforecasting of rain in the lower probability categories in January and February in all three periods resulted from the practice of many forecasters of making a categorical forecast of rain (a forecast of rain was punched on the local verification punchcard), but attaching only a 10, 20, 30, or 40% probability to the forecast. If a forecaster is confident enough to categorically forecast rain, he should state a probability of rain greater than 50%.

Again, in this 24-36 hour forecast the zero percent category is very much over-used. In January and February 10% of the zero percent forecasts resulted in rain, and these rains make up 31% of the total rain periods observed.

The average upper limit of skill (all stations combined) would appear to be about 60% in this period for the local forecasts (70% for the FP-3 forecasts).

Scores for Individual Stations

In Table 2 are shown the verification scores for individual stations for the three months of forecasts combined. Figure 13 shows the cumulative percent frequency distributions of the individual Brier Scores. These curves are convenient for determining the decile or quartile into which a particular score falls. For example:

	Range of Abbreviated Brier Scores		
Quartile	Today	Tonight	Tomorrow
1st	.02 - .04	.02 - .08	.02 - .10
2nd	.05 - .06	.09 - .11	.11 - .13
3rd	.07 - .09	.12 - .13	.14 - .15
4th	.10 - .14	.14 - .20	.16 - .23
Median	.065	.110	.113

Figure 14 shows the cumulative percent frequency curves for the I-scores (percent improvement over climatology). The following types of statistics can be taken from these curves:

Statistic	Today	Tonight	Tomorrow
Percent of stations worse than climatology.	0%	11%	25%
50% of stations showed improvement over climatology equal to or greater than:	54%	24%	12%
10% of stations showed improvement over climatology equal to or greater than:	72%	46%	34%

	Range of I-scores (%)		
Quartile	Today	Tonight	Tomorrow
1st	64 - 90	36 - 70	24 - 60
2nd	54 - 63	24 - 35	12 - 23
3rd	34 - 53	15 - 23	0 - 11
	≤ 33	≤ 14	< 0

3. CONCLUSIONS

1. The results of the first three months of probability of precipitation forecasts released to the public are good, especially for the first 12-hour forecast period.

2. The local forecasts show definite improvement over the FP-3 guidance forecasts in the first 12-hour period, but do not show improvement, on the average, in the second and third 12-hour periods.

3. Definite steps need to be taken to improve the reliability of the forecasts in the 12-24 hour (Tonight) and the 24-36 hour (Tomorrow) forecasts, and to decrease the overconfidence in the forecasting of both rain and no-rain.

(a) More cautious use of the very high probability values (greater than 70% on the average) and the zero percent category.

(b) Remember that a forecast probability of less than 50% will be counted as a categorical forecast of no-rain.

(c) Each station should accumulate its own forecasts and prepare its own reliability graphs for different seasons (where there is a pronounced seasonal trend in climatological expectancy of rain), and establish its own average upper limit of probability to attach to the forecast. This will be easily done in the future for the 0900Z forecasts as the number of forecasts and the observed number of rains in each forecast category will be part of the computer printout. Preferably, this should be done for all forecasts issued.

(d) The Regional Headquarters will re-appraise the policy of including a probability statement in the forecast only when rain is mentioned. This policy appears to contribute materially to the very undesirable situation of having 30% of the rain occurrences having an implied zero percent chance of occurring.

TABLE 1
SUMMARY OF PROBABILITY FORECAST SCORES
ESSA - WEATHER BUREAU - SOUTHERN REGION

Month	No. of Stns.	C	Sc	S_f FP-3	S_f Lcl	I_c(%) FP-3	I_c(%) Lcl	I_f(%)
			TODAY					
Jan., 1966	51	.16	.19	.09	.08	53	58	11
Feb., 1966	51	.18	.17	.09	.08	47	53	11
Mar., 1966	50	.17	.10	.06	.06	40	40	0
All mos.		.17	.15	.08	.07	42	53	13
			TONIGHT					
Jan., 1966	51	.16	.18	.13	.13	28	28	0
Feb., 1966	51	.18	.17	.12	.12	29	29	0
Mar., 1966	50	.16	.10	.09	.09	10	10	0
All mos.		.17	.15	.11	.11	27	27	0
			TOMORROW					
Jan.,1966	51	.16	.19	.16	.16	16	16	0
Feb.,1966	51	.18	.17	.15	.15	12	12	0
Mar.,1966	50	.16	.10	.08	.08	20	20	0
All mos.		.17	.15	.13	.13	13	13	0

C= Average Climatological Frequency of precipitation for all stations.

Sc= Climatological Abbreviated Brier Score.

S_f= Abbreviated Brier Score for Forecasts.

FP-3= Guidance Forecasts from Forecast Centers.

Lcl= Forecasts made by Local Stations.

I_c= Percent Improvement over Climatology ($I_c = \frac{Sc - S_f}{Sc}$)

I_f= Percent Improvement of Lcl forecasts over FP-3 Forecasts. ($I_f = \frac{S_{FP-3} - S_{Lcl})}{S_{FP-3}}$)

TABLE 2
PROBABILITY OF PRECIPITATION FORECAST SCORES
FOR INDIVIDUAL STATIONS FOR JANUARY THROUGH MARCH 1966
(Listed by Forecast Centers)

Station	TODAY				TONIGHT				TOMORROW			
	C	Sc	Sf	Ic%	C	Sc	Sf	Ic%	C	Sc	Sf	Ic%
Albuquerque	.07	.06	.05	17	.07	.03	.04	-33	.12	.11	.08	27
Roswell	.06	.06	.03	50	.06	.04	.03	25	.09	.04	.03	25
Atlanta	.21	.20	.09	55	.26	.19	.12	37	.18	.15	.15	00
Augusta	.22	.26	.07	73	.22	.19	.14	26	.22	.26	.13	50
Birmingham	.25	.20	.13	35	.26	.17	.10	41	.25	.18	.13	28
Columbus	.22	.20	.04	80	.23	.19	.11	42	.22	.20	.15	25
Huntsville	.27	.19	.07	63	.27	.17	.11	35	.27	.19	.16	16
Macon	.22	.23	.05	78	.22	.23	.17	26	.22	.22	.13	41
Montgomery	.23	.21	.12	43	.24	.21	.15	29	.23	.20	.15	25
Savannah	.20	.20	.06	70	.20	.19	.14	26	.21	.20	.14	30
Fort Worth	.15	.13	.04	69	.12	.13	.14	-8	.15	.12	.12	00
Abilene	.12	.10	.10	00	.10	.11	.09	18	.12	.09	.12	-33
Amarillo	.08	.06	.04	33	.08	.05	.06	-20	.08	.04	.04	00
Lubbock	.07	.06	.03	50	.08	.05	.03	40	.07	.04	.05	-25
Oklahoma City	.14	.09	.04	56	.13	.11	.11	00	.13	.08	.09	-13
Tulsa	.15	.13	.08	38	.15	.11	.04	64	.15	.12	.11	8
Waco	.18	.13	.04	69	.14	.15	.16	-7	.18	.12	.13	-8
Wichita Falls	.13	.09	.04	56	.11	.12	.10	17	.13	.07	.06	14
Memphis	.24	.16	.09	44	.26	.18	.13	28	.24	.15	.09	40
Bristol	.30	.19	.12	37	.26	.20	.11	45	.30	.19	.15	21
Ft. Smith	.17	.15	.11	27	.17	.13	.09	31	.17	.15	.13	13
Knoxville	.32	.20	.09	55	.26	.19	.16	16	.32	.20	.17	15
Little Rock	.23	.14	.09	36	.23	.16	.11	31	.23	.13	.10	23
Nashville	.26	.19	.10	47	.29	.18	.14	22	.26	.18	.14	22
Miami	.13	.14	.13	7	.12	.14	.12	14	.18	.12	.11	8
Daytona Beach	.17	.18	.08	56	.16	.16	.12	25	.17	.17	.16	6
Ft. Myers	.17	.12	.04	67	.12	.10	.09	10	.14	.12	.11	8
Jacksonville	.18	.22	.09	59	.17	.13	.11	15	.18	.19	.15	21
Key West	.12	.12	.09	25	.11	.17	.14	18	.12	.12	.14	-17
Lakeland	.16	.16	.06	63	.13	.17	.08	53	.16	.16	.13	19
Orlando	.16	.15	.06	60	.15	.18	.11	39	.16	.15	.12	20
Tallahassee	.19	.15	.06	60	.19	.20	.12	40	.19	.17	.15	12
Tampa	.15	.15	.07	53	.13	.15	.11	27	.15	.15	.13	13
Palm Beach	.12	.16	.14	13	.15	.16	.18	-13	.14	.16	.18	-13
New Orleans	.20	.21	.11	48	.19	.21	.10	52	.20	.20	.14	30
Alexandria	.20	.20	.07	65	.20	.18	.11	39	.20	.17	.16	6
Apalachicola	.17	.17	.05	71	.17	.21	.13	38	.17	.17	.14	18
Baton Rouge	.21	.21	.13	38	.21	.19	.14	26	.21	.21	.21	00
Jackson	.23	.20	.07	65	.24	.19	.11	42	.23	.20	.15	25
Lake Charles	.22	.17	.05	71	.20	.17	.13	24	.22	.17	.17	00
Meridian	.24	.21	.05	76	.24	.19	.12	37	.24	.16	.11	31
Mobile	.21	.21	.10	52	.23	.21	.16	24	.21	.21	.16	24
Pensacola	.13	.17	.09	47	.23	.21	.11	48	.21	.19	.11	42
Shreveport	.22	.17	.11	35	.22	.17	.12	29	.22	.17	.18	-6

TABLE 2 (continued)
PROBABILITY OF PRECIPITATION FORECAST SCORES
FOR INDIVIDUAL STATIONS FOR JANUARY THROUGH MARCH 1966
(Listed by Forecast Centers)

Station	TODAY				TONIGHT				TOMORROW			
	C	Sc	Sf	Ic%	C	Sc	Sf	Ic%	C	Sc	Sf	Ic%
San Antonio	.19	.14	.06	57	.12	.17	.13	24	.16	.13	.14	-8
Austin	.17	.15	.07	53	.12	.17	.18	-6	.17	.15	.14	7
Brownsville	.12	.14	.12	14	.13	.14	.13	7	.12	.15	.16	-7
Corpus Christi	.16	.13	.07	46	.14	.14	.13	7	.16	.13	.14	-8
Del Rio	.07	.06	.06	00	.07	.11	.08	27	.07	.07	.09	-29
El Paso	.05	.03	.03	00	.05	.04	.04	00	.05	.03	.04	-33
Houston	.20	.18	.07	61	.18	.17	.13	24	.20	.17	.18	-6
Laredo	.11	.13	.05	62	.10	.18	.16	11	.11	.11	.09	18
Midland	.05	.05	.05	00	.05	.07	.05	29	.06	.07	.06	14
Port Arthur	.21	.21	.07	67	.20	.19	.10	47	.21	.19	.16	16
San Angelo	.09	.12	.08	33	.10	.07	.06	14	.09	.10	.09	10
Victoria	.19	.15	.06	60	.15	.17	.15	12	.19	.15	.15	00

ESSA - WEATHER BUREAU - SOUTHERN REGION

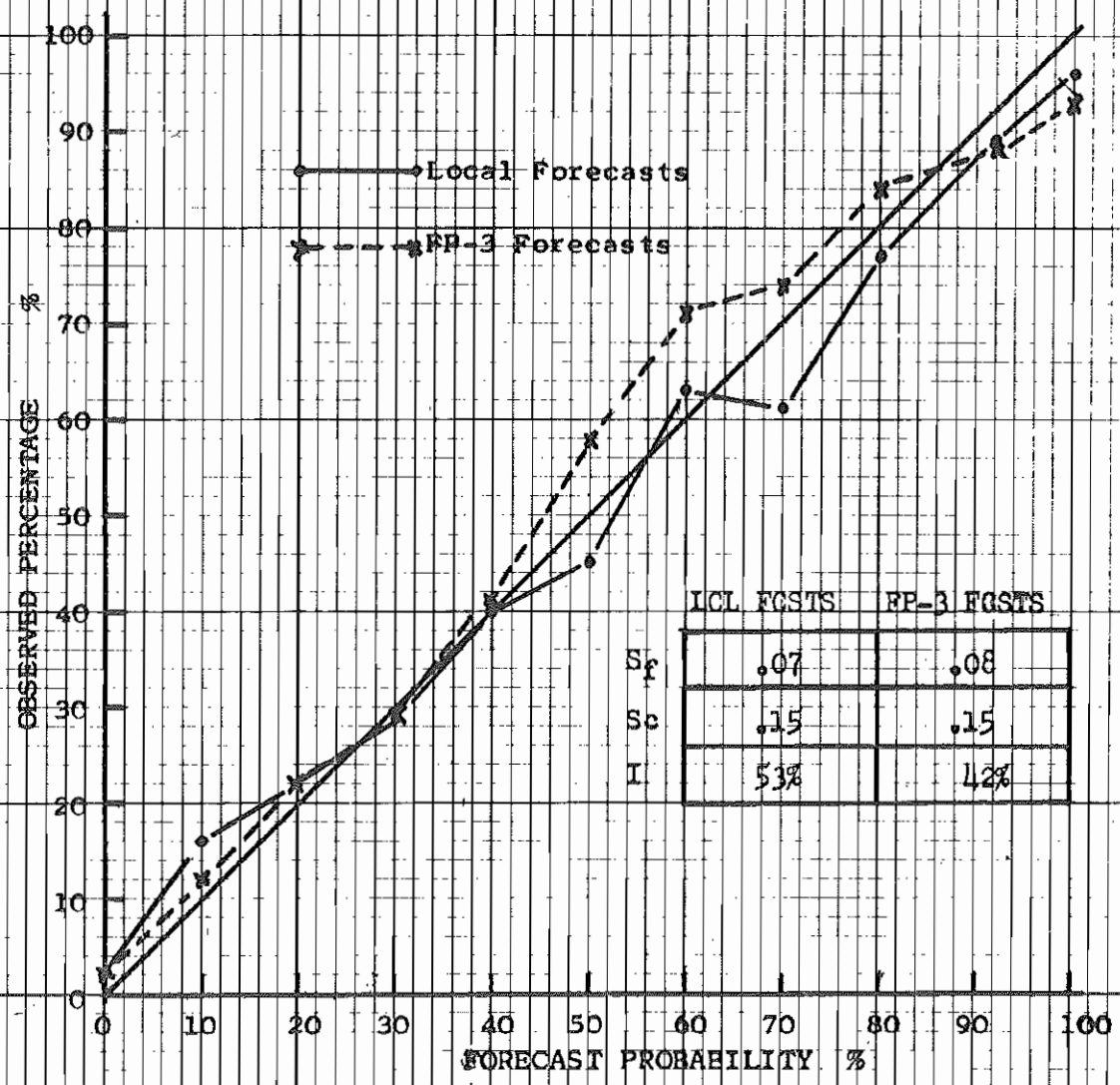
PROBABILITY FORECASTS FOR

"TODAY"

Jan., 1966 - 51 Stations - 1569 forecasts
Feb., 1966 - 51 Stations - 1416 forecasts
Mar., 1966 - 50 Stations - 1541 forecasts
Total - 4526 forecasts

NUMBER OF FORECASTS IN EACH CATEGORY

Local:	3047	145	211	149	110	155	118	90	134	91	276
FP-3 :	2709	408	275	184	132	255	153	73	152	90	95



	LCL FCSTS	FP-3 FCSTS
S_f	.07	.08
Sc	.15	.15
I	53%	42%

Figure 1

ESSA - WEATHER BUREAU - SOUTHERN REGION

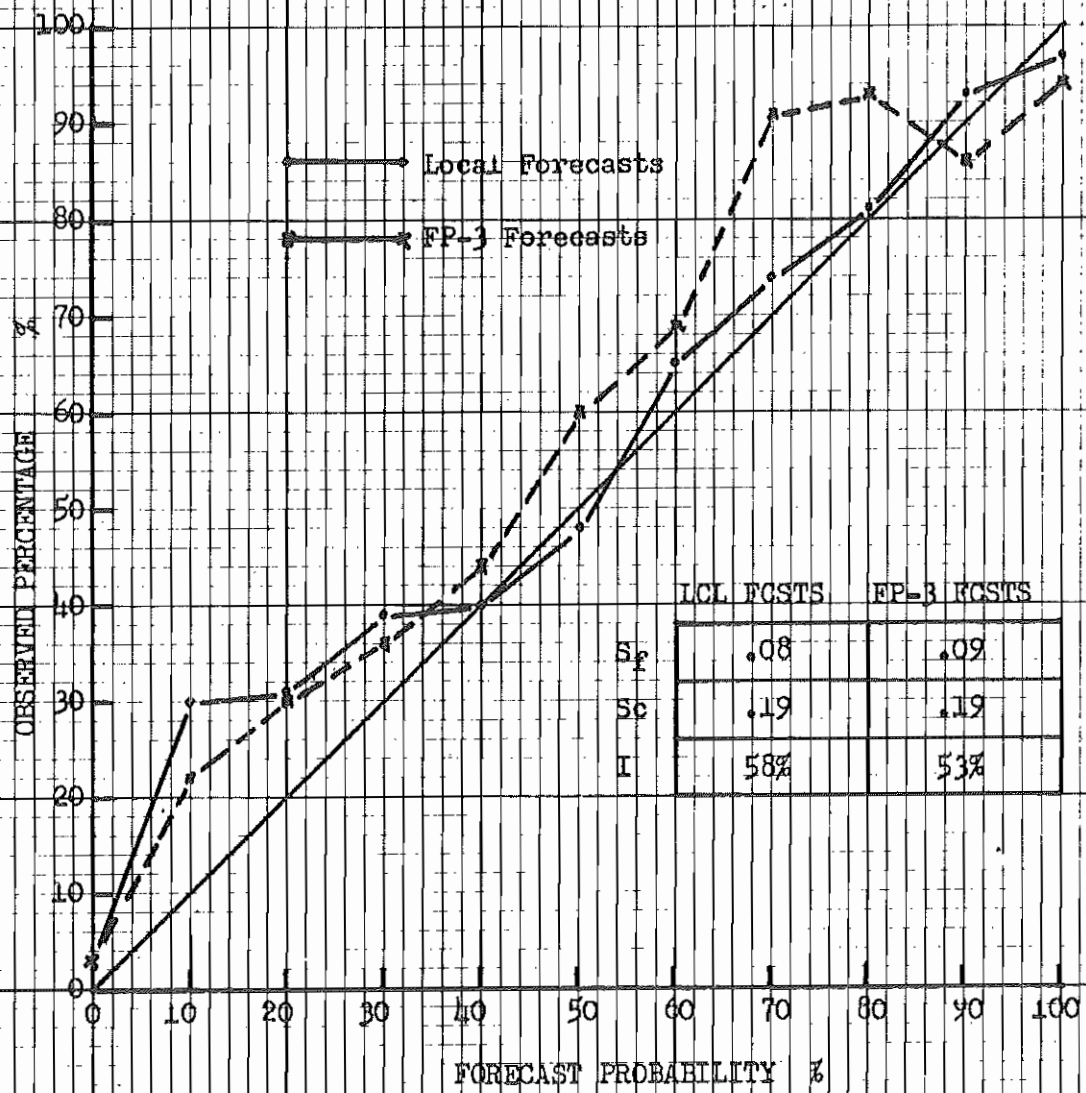
PROBABILITY FORECASTS FOR

"TODAY"

Jan., 1966 - 51 Stations - 1569 forecasts

NUMBER OF FORECASTS IN EACH CATEGORY

Local:	989	54	75	51	42	46	48	35	57	43	129
FP-3 :	912	115	92	47	41	94	70	33	67	51	47



	LCL FCSTS	FP-3 FCSTS
S_f	.08	.09
Sc	.19	.19
I	58%	53%

Figure 2

ESSA - WEATHER BUREAU - SOUTHERN REGION

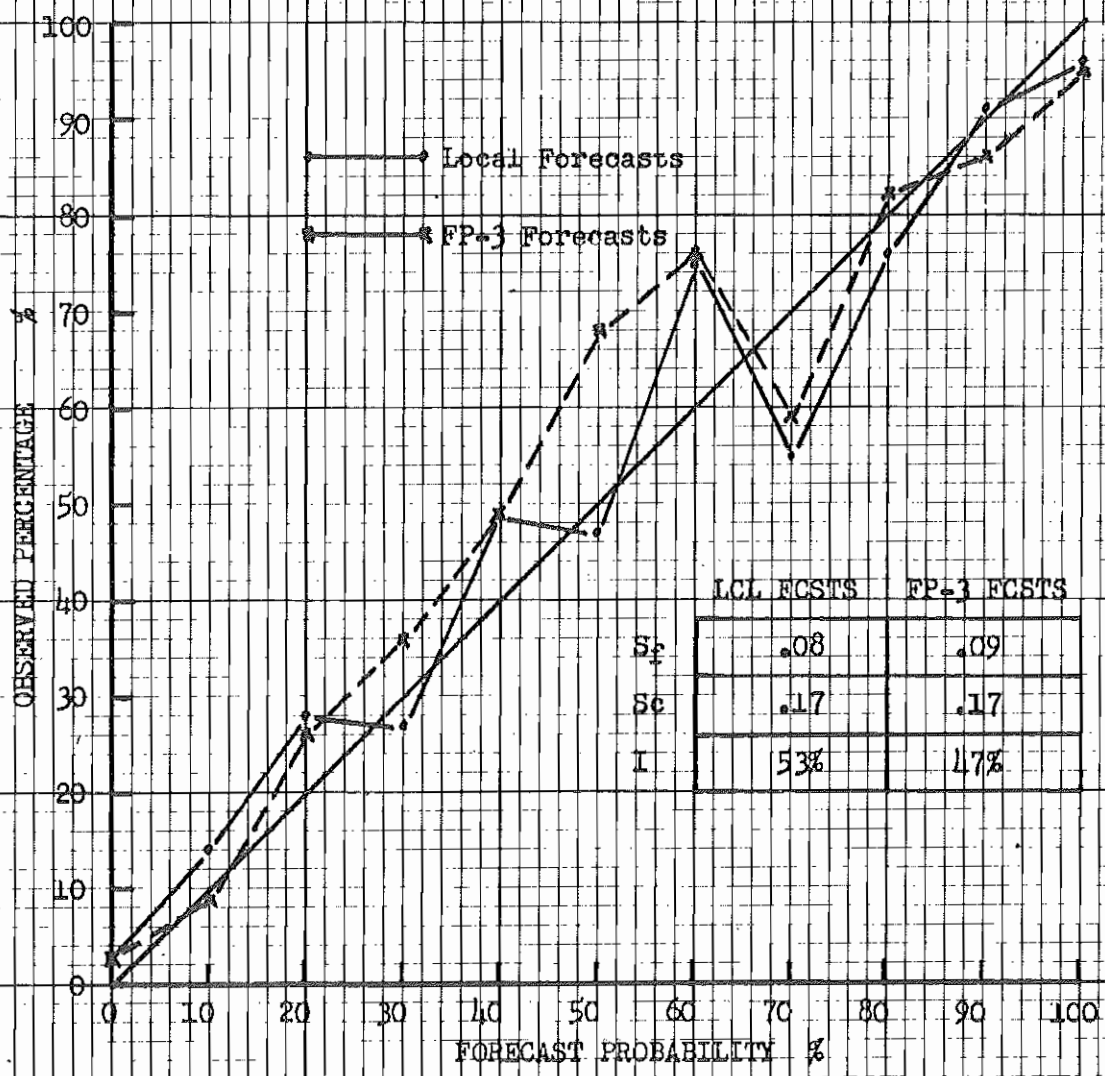
PROBABILITY FORECASTS FOR

"TODAY"

Feb., 1966 - 51 Stations - 1416 forecasts

NUMBER OF FORECASTS IN EACH CATEGORY

Local:	905	53	58	51	39	49	32	29	49	35	116
FP-3 :	793	131	85	76	43	71	46	32	62	35	42



	LCL FCSTS	FP-3 FCSTS
S_f	.08	.09
Sc	.17	.17
I	53%	47%

Figure 3

ESSA - WEATHER BUREAU - SOUTHERN REGION

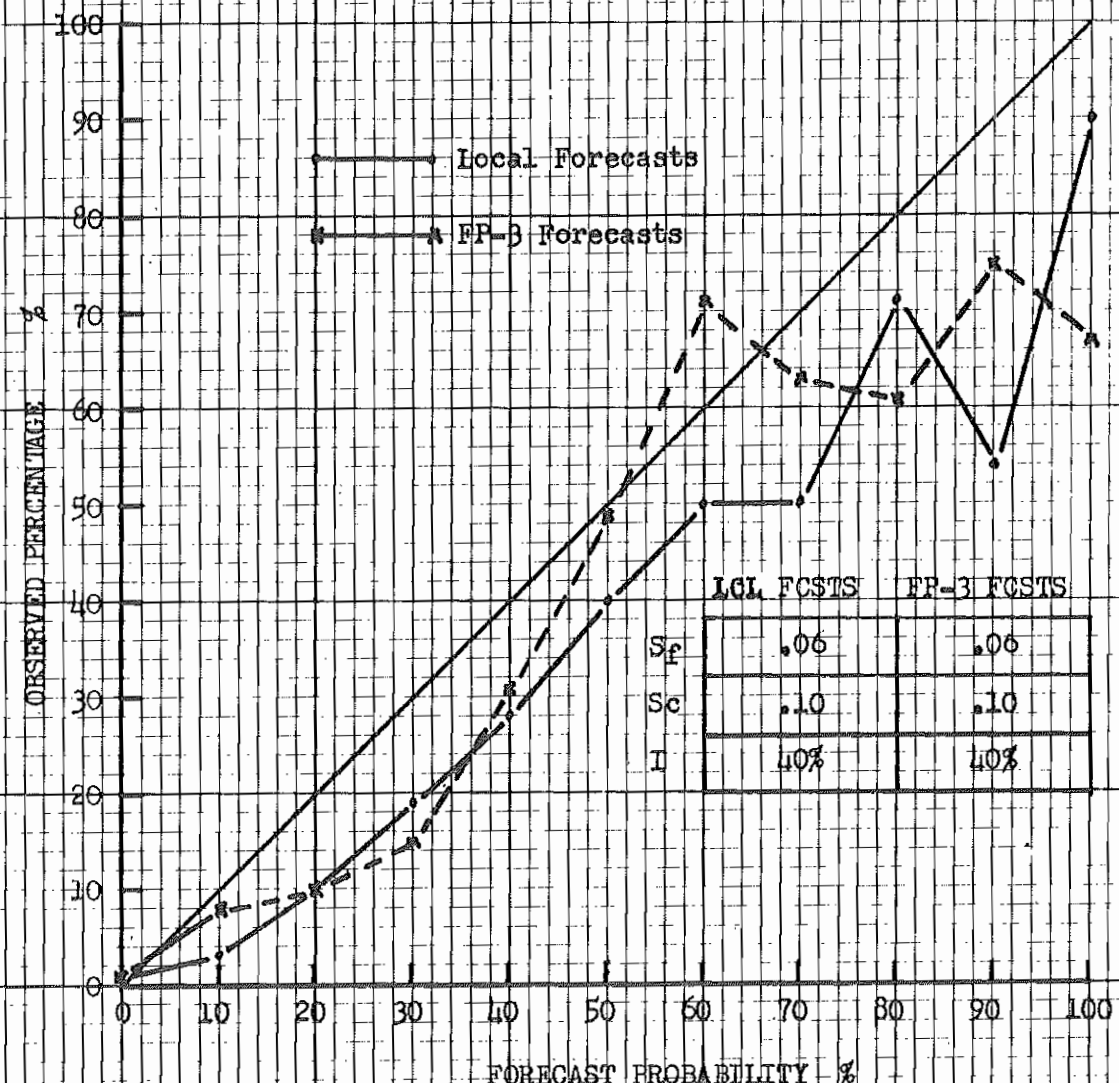
PROBABILITY FORECASTS FOR

"TODAY"

Mar., 1966 - 50 Stations - 1541 forecasts

NUMBER OF FORECASTS IN EACH CATEGORY

Local:	1153	38	78	47	29	60	38	26	28	13	31
FP-3 :	1008	160	98	61	48	90	35	8	23	4	6



	LCL FCSTS	FP-3 FCSTS
Sf	.06	.06
Sc	.10	.10
I	40%	40%

Figure 4

ESSA - WEATHER BUREAU - SOUTHERN REGION

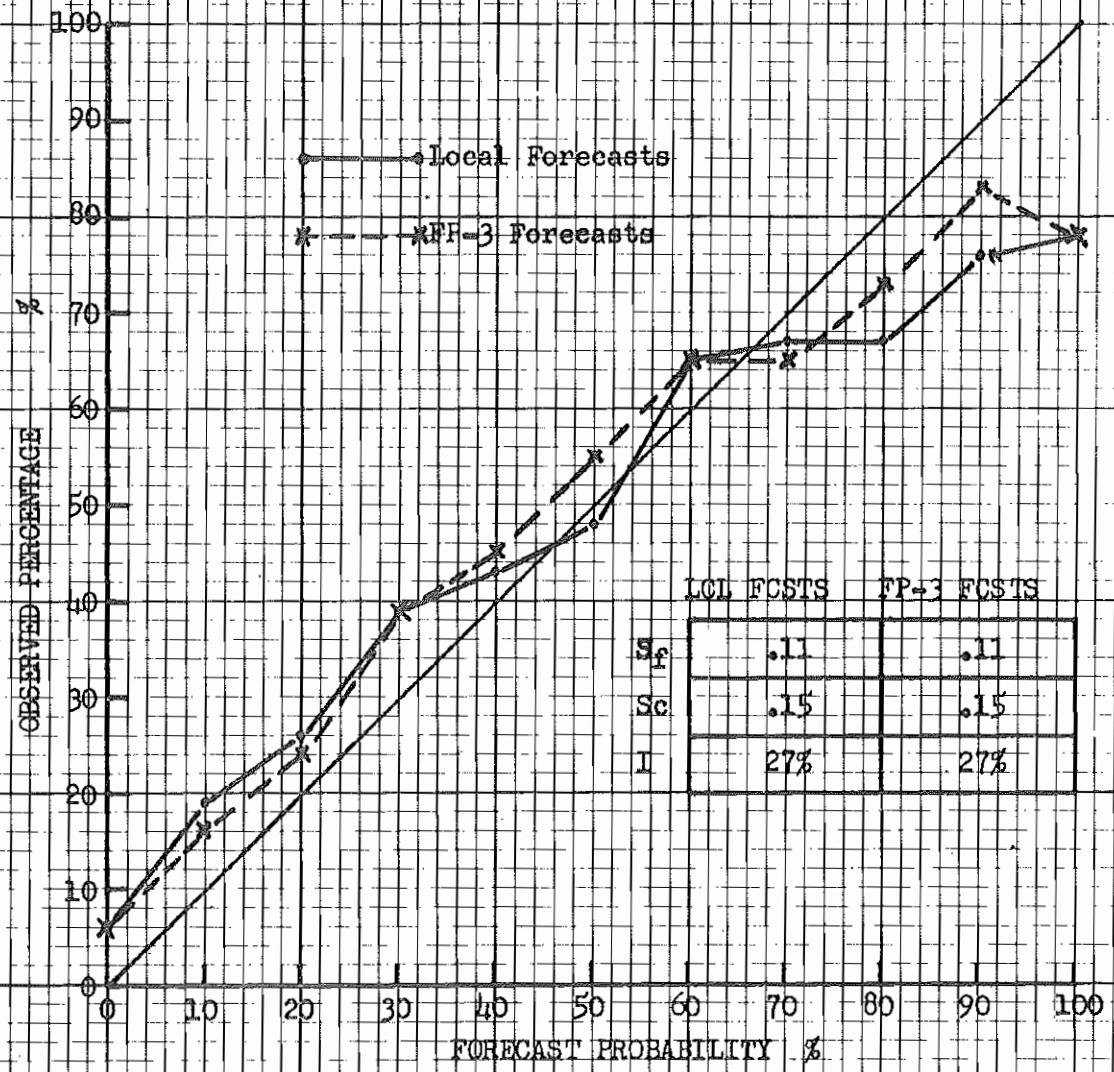
PROBABILITY FORECASTS FOR

"TONIGHT"

Jan., 1966 - 51 Stations - 1569 forecasts
Feb., 1966 - 51 Stations - 1416 forecasts
Mar., 1966 - 50 Stations - 1541 forecasts
Total - 4526 forecasts

NUMBER OF FORECASTS IN EACH CATEGORY

Local:	3044	204	269	167	139	204	146	94	132	55	72
FP-3 :	2708	451	357	202	196	248	138	74	107	36	9



	LCL FCSTS	FP-3 FCSTS
S_f	.11	.11
Sc	.15	.15
I	27%	27%

Figure 5

ESSA - WEATHER BUREAU - SOUTHERN REGION

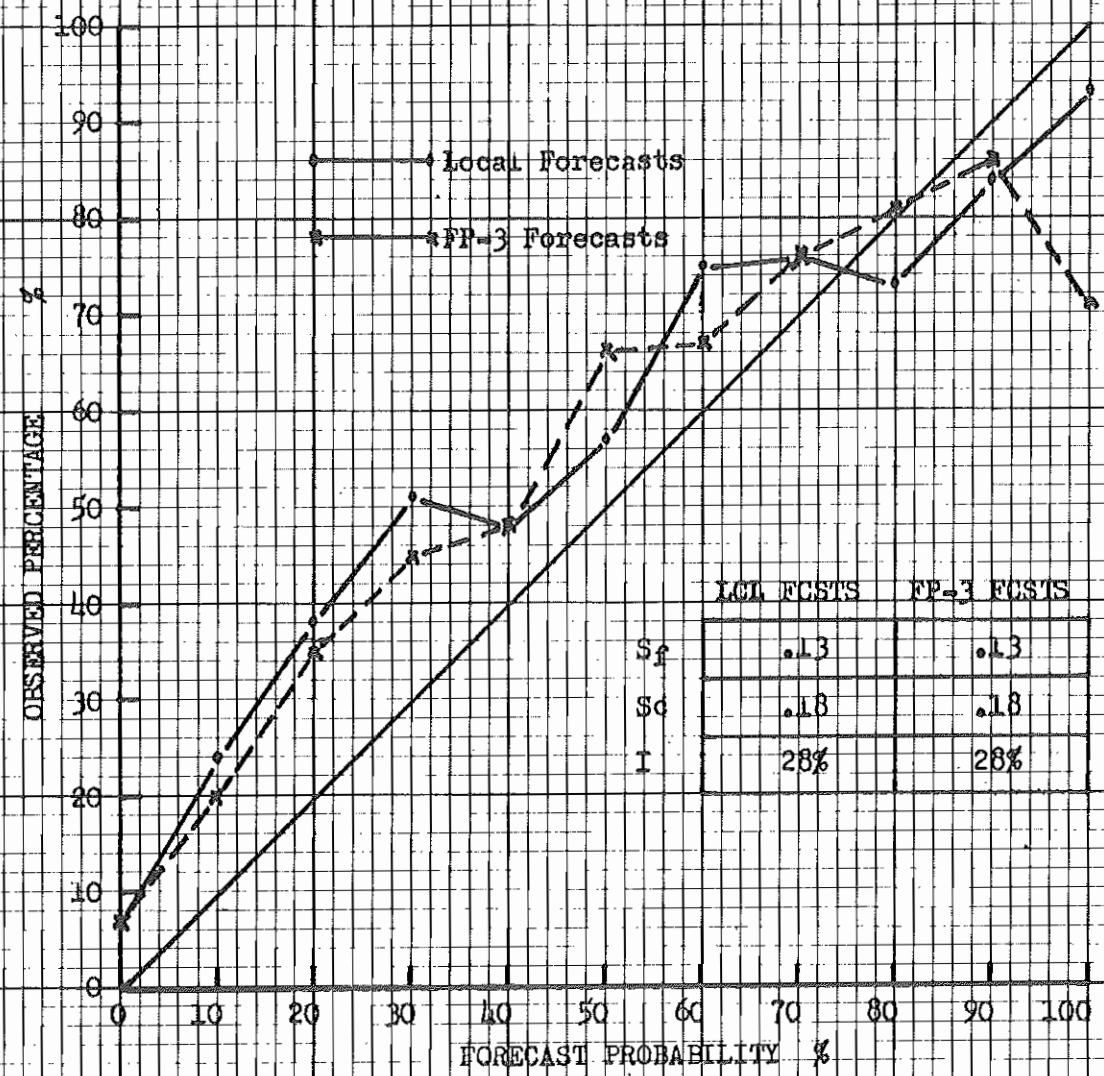
PROBABILITY FORECASTS FOR

"TONIGHT"

Jan., 1966 - 51 Stations - 1569 forecasts

NUMBER OF FORECASTS IN EACH CATEGORY

Local:	1002	72	103	59	46	83	61	33	55	25	30
FP-3 :	924	122	124	69	65	116	61	25	42	14	7



	LCL FCSTS	FP-3 FCSTS
S_f	.13	.13
S_c	.18	.18
I	28%	28%

Figure 5

ESSA - WEATHER BUREAU - SOUTHERN REGION

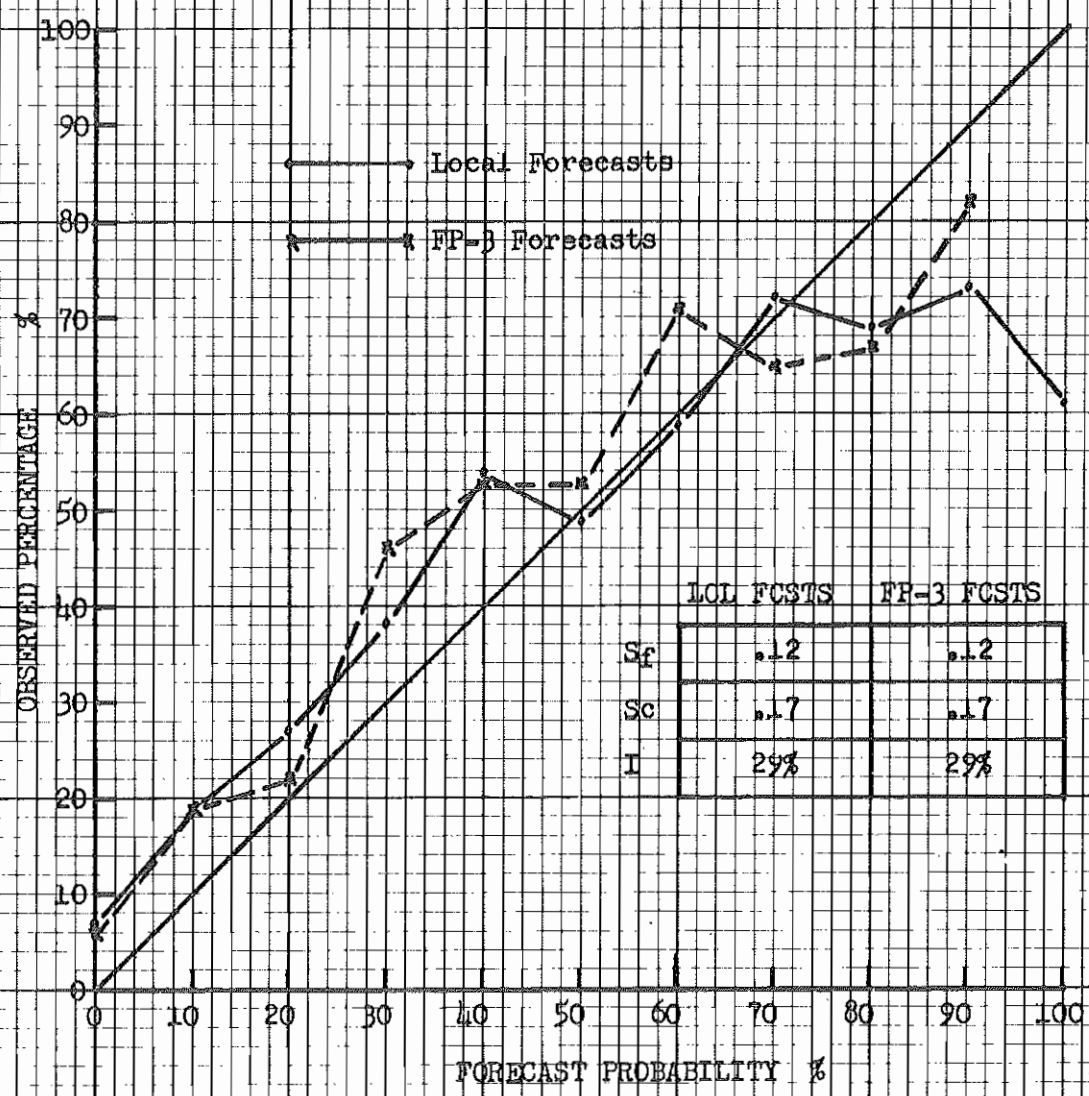
PROBABILITY FORECASTS FOR

"TONIGHT"

Feb., 1966 - 51 Stations - 1416 forecasts

NUMBER OF FORECASTS IN EACH CATEGORY

Local:	912	63	79	53	46	67	46	39	49	29	33
FP-3 :	795	141	129	56	72	74	42	34	51	22	0



	LCL FCSTS	FP-3 FCSTS
S_f	.12	.12
Sc	.17	.17
I	29%	29%

Figure 7

ESSA - WEATHER BUREAU - SOUTHERN REGION

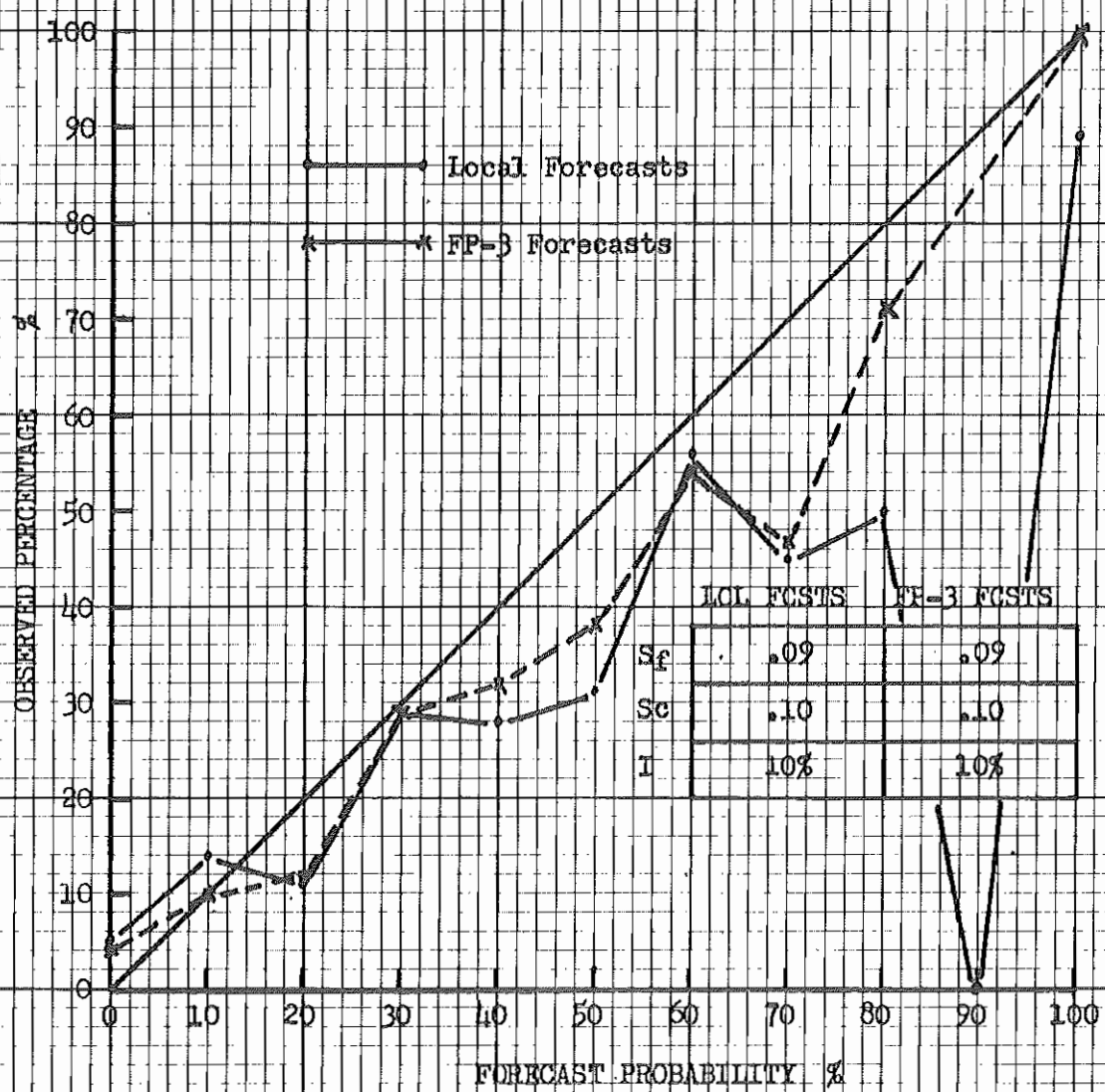
PROBABILITY FORECASTS FOR

"TONIGHT"

Mar., 1966 - 50 Stations - 1544 forecasts

NUMBER OF FORECASTS IN EACH CATEGORY

Local:	1130	69	87	55	47	54	39	22	28	1	9
FP-3 :	989	188	104	77	59	58	35	15	14	0	2



	LOL FCSTS	FP-3 FCSTS
Sf	.09	.09
Sc	.10	.10
I	10%	10%

Figure 8

ESSA - WEATHER BUREAU - SOUTHERN REGION

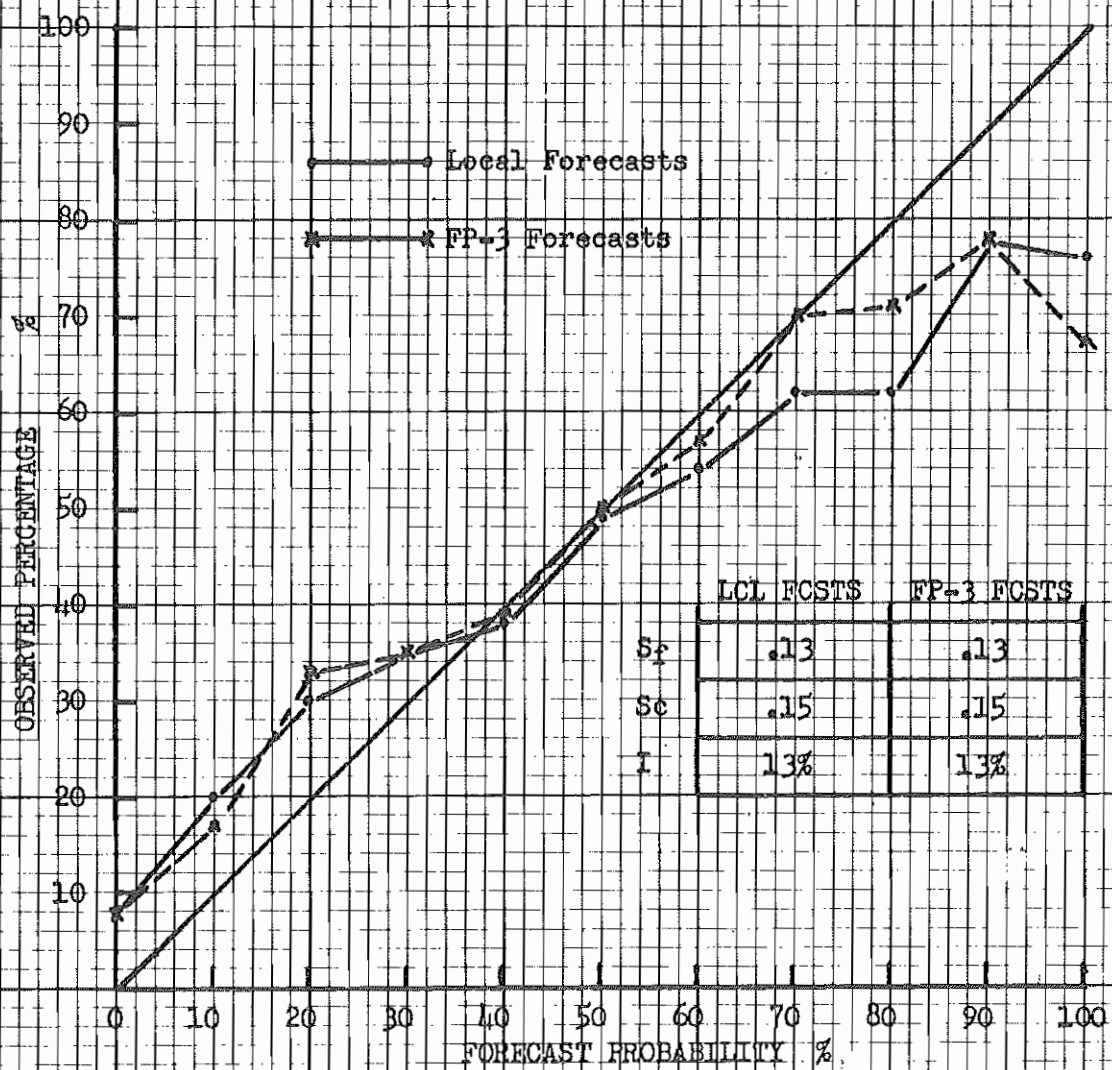
PROBABILITY FORECASTS FOR

"TOMORROW"

Jan., 1966 - 51 Stations - 1569 forecasts
Feb., 1966 - 51 Stations - 1416 forecasts
Mar., 1966 - 50 Stations - 1541 forecasts
Total - 4526 forecasts

NUMBER OF FORECASTS IN EACH CATEGORY

Local:	3079	208	278	198	116	191	155	102	112	23	34
FP-3 :	2711	539	355	234	170	224	156	69	56	9	3



	LCL FCSTS	FP-3 FCSTS
S_f	.13	.13
S_c	.15	.15
I	13%	13%

Figure 9

ESSA - WEATHER BUREAU - SOUTHERN REGION

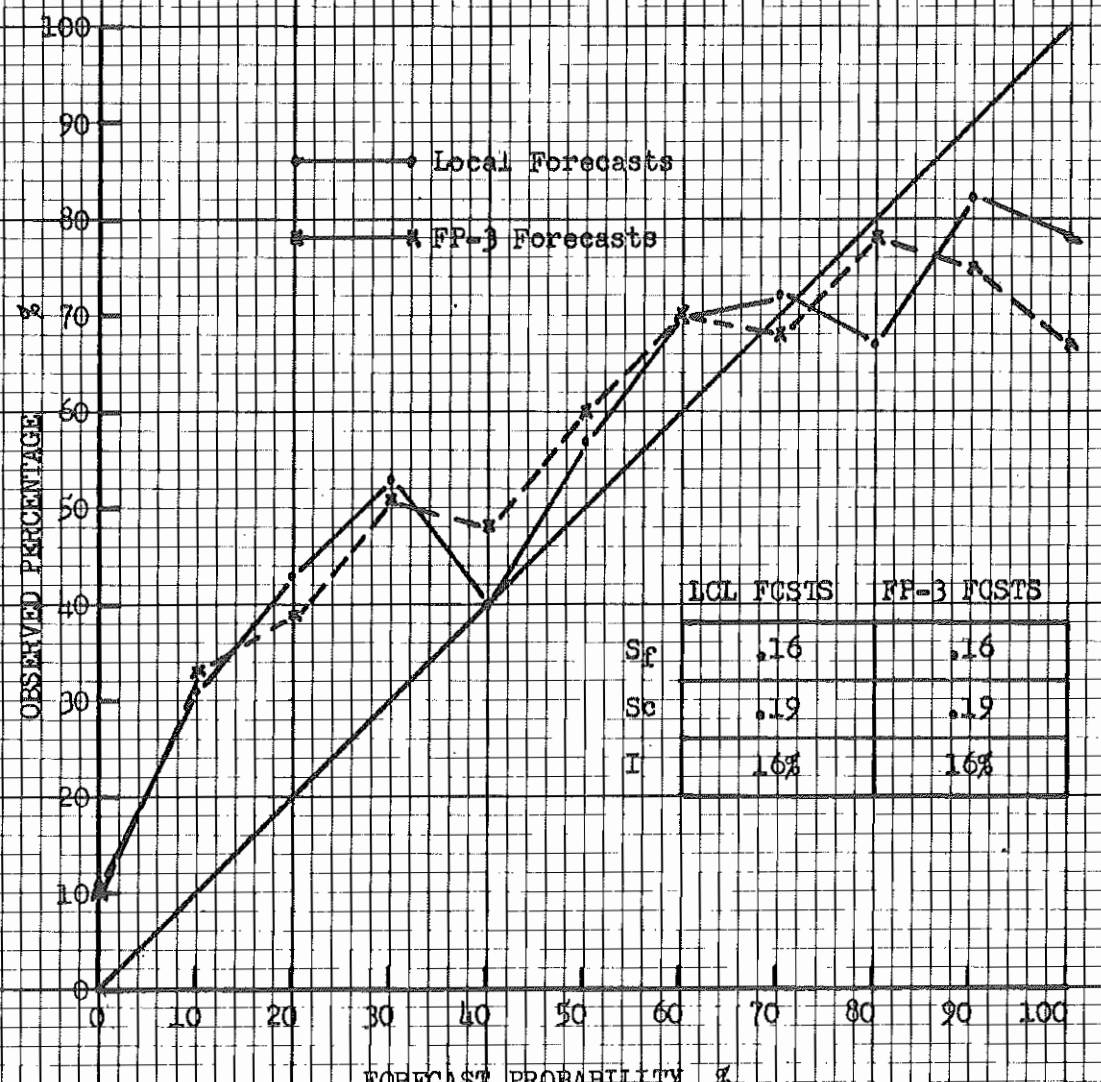
PROBABILITY FORECASTS FOR

"TOMORROW"

Jan., 1966 - 51 Stations - 1569 forecasts

NUMBER OF FORECASTS IN EACH CATEGORY

Local:	1061	67	90	64	50	69	57	36	46	11	18
FP-3 :	952	154	118	85	64	89	54	28	18	4	3



	LCL FCSTS	FP-3 FCSTS
S_f	.16	.16
S_c	.19	.19
I	16%	16%

Figure 10

ESSA - WEATHER BUREAU - SOUTHERN REGION

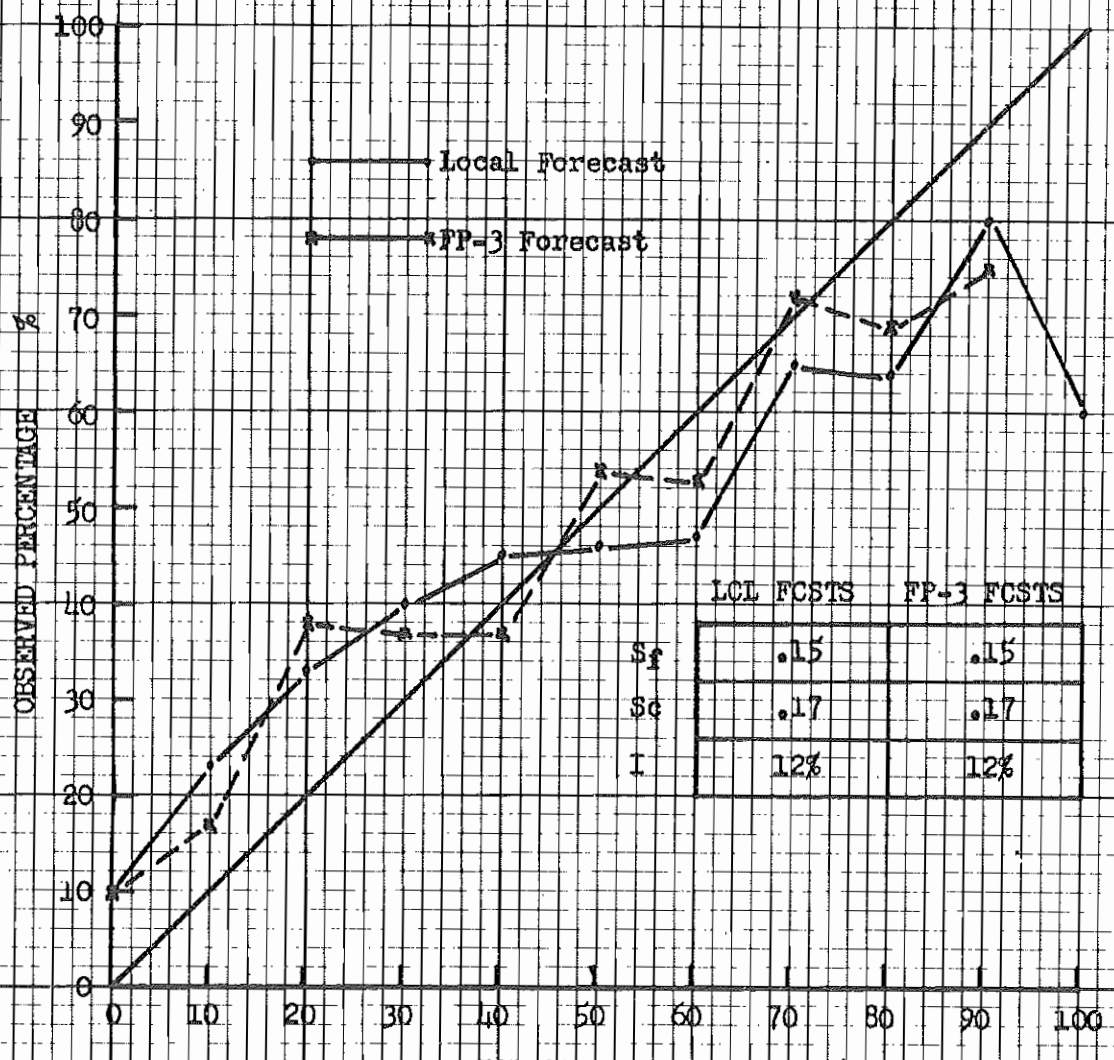
PROBABILITY FORECASTS FOR

"TOMORROW"

Feb., 1966 - 51 Stations - 1416 forecasts

NUMBER OF FORECASTS IN EACH CATEGORY

Local:	914	70	83	60	53	61	60	48	47	10	10
FP-3 :	829	144	123	65	54	69	60	36	32	4	0



	LCL FCSTS	FP-3 FCSTS
S_f	.15	.15
S_c	.17	.17
I	12%	12%

Figure 11

ESSA - WEATHER BUREAU - SOUTHERN REGION

PROBABILITY FORECASTS FOR

"TOMORROW"

Mar., 1966 - 50 Stations - 1541 forecasts

NUMBER OF FORECASTS IN EACH CATEGORY

Local:	1105	70	105	74	43	61	38	18	19	2	6
FP-3 :	930	241	114	84	52	66	42	5	6	1	0

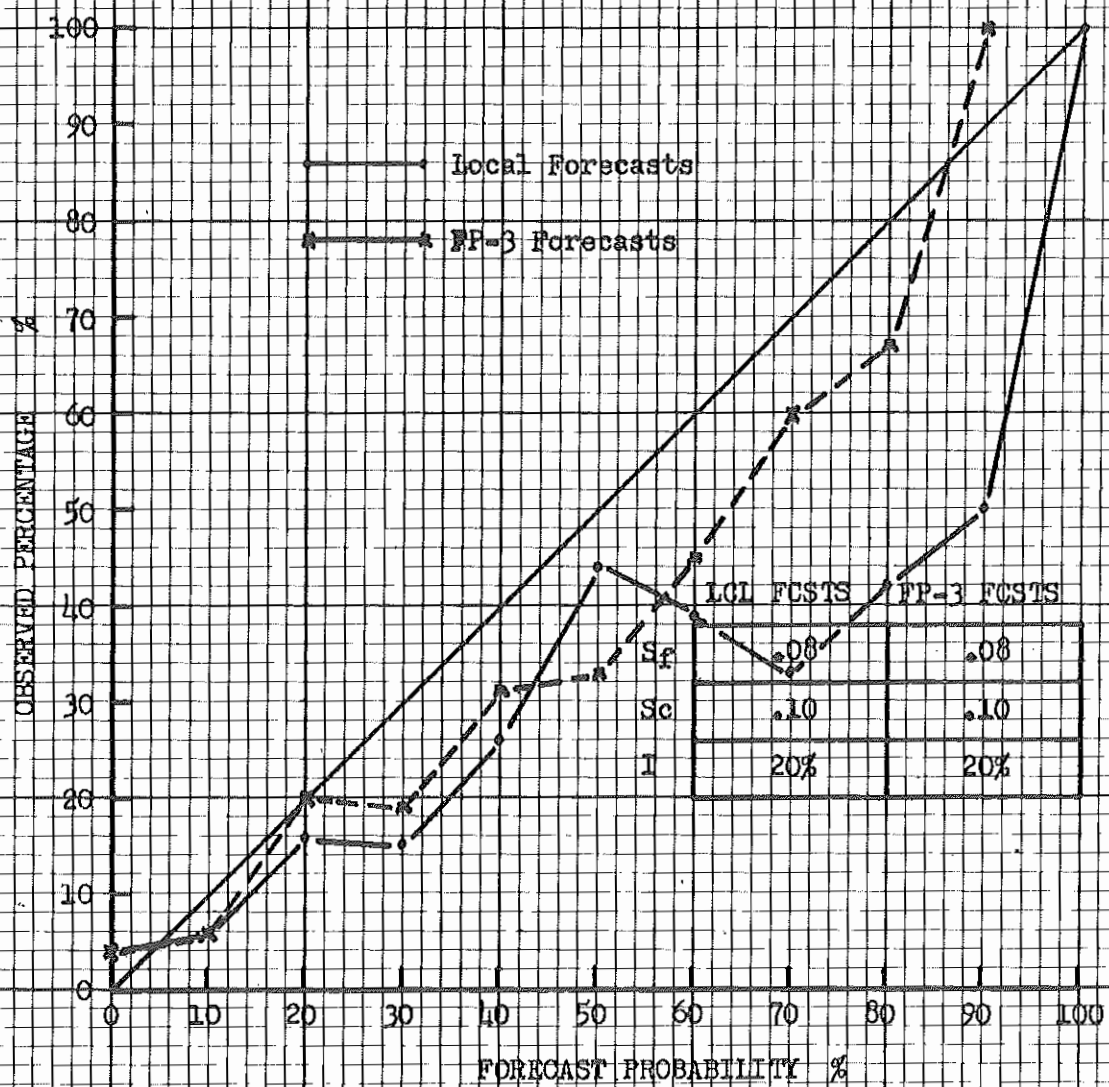


Figure 12

FREQUENCY DISTRIBUTIONS OF ABBREVIATED BRIER SCORES
JAN - FEB - MAR, 1966 56 Stations

Brier Score	Today	Tonight	Tomorrow
.00 - .02	00	0	0
.03 - .05	17	6	4
.06 - .08	19	4	3
.09 - .11	13	18	11
.12 - .14	7	19	18
.15 - .17	0	7	16
.18 - .20	0	2	3
.21 - .23	0	0	1

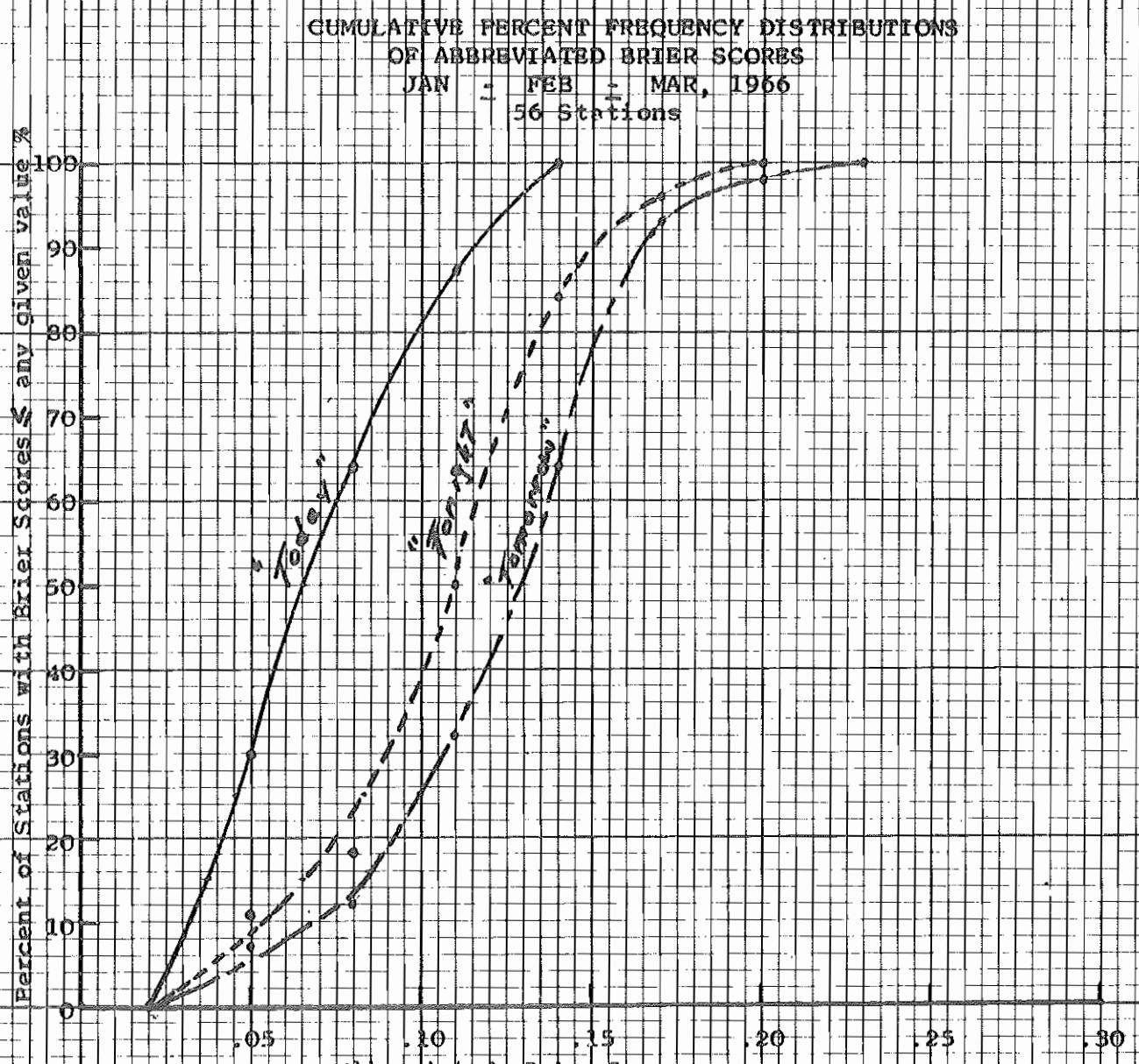


Figure 13

FREQUENCY DISTRIBUTION OF I-Scores
(% Improvement over Climatology)
JAN - FEB - MAR, 1966

56 Stations

I-Score(%)	Today	Tonight	Tomorrow
≤ 0	0	6	14
0 - 9	5	4	11
10 - 19	3	10	12
20 - 29	2	17	12
30 - 39	8	8	3
40 - 49	6	8	3
50 - 59	12	2	1
60 - 69	13	1	0
70 - 79	6	0	0
80 - 89	1	0	0
90 - 99	0	0	0

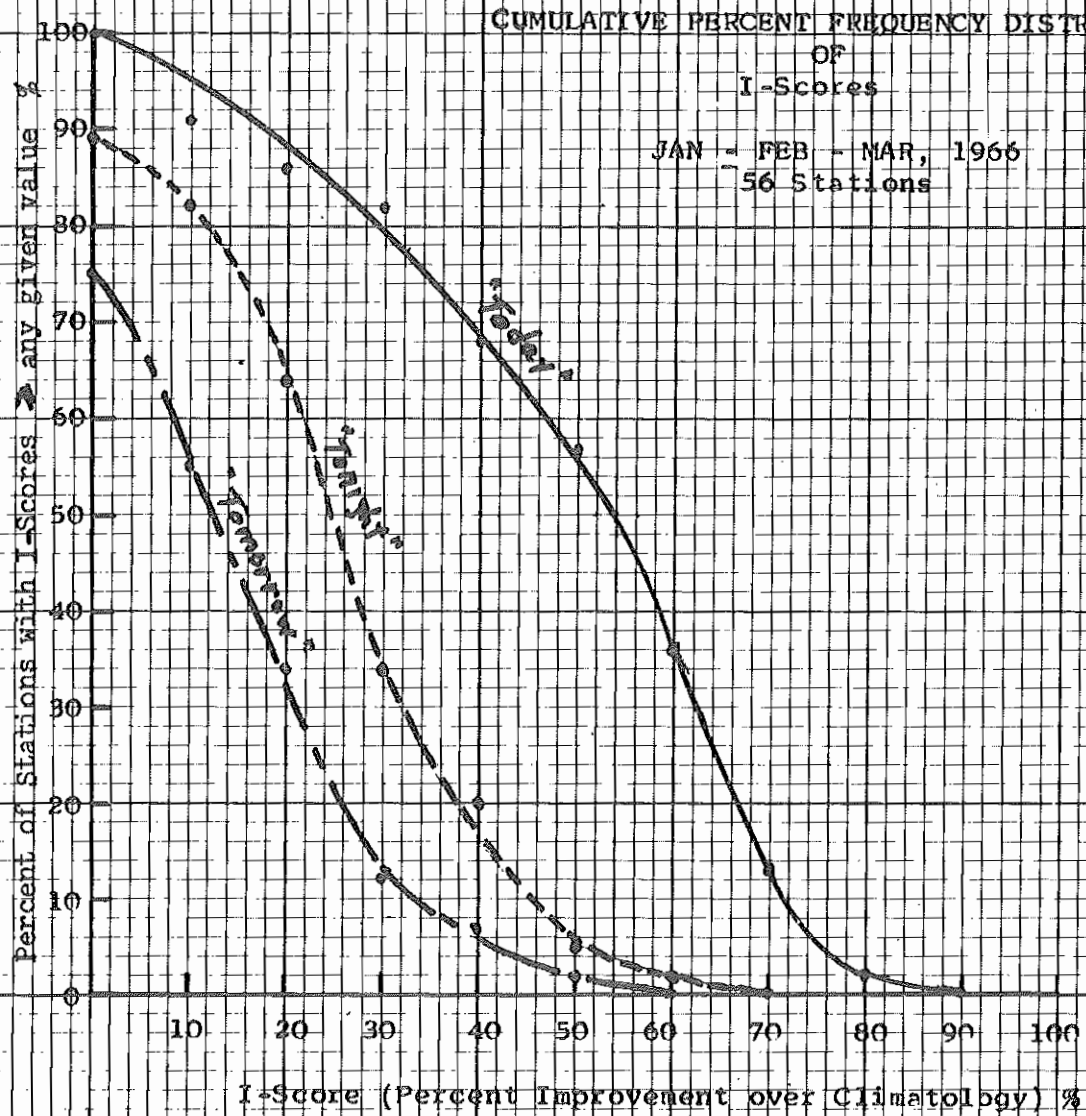


Figure 14