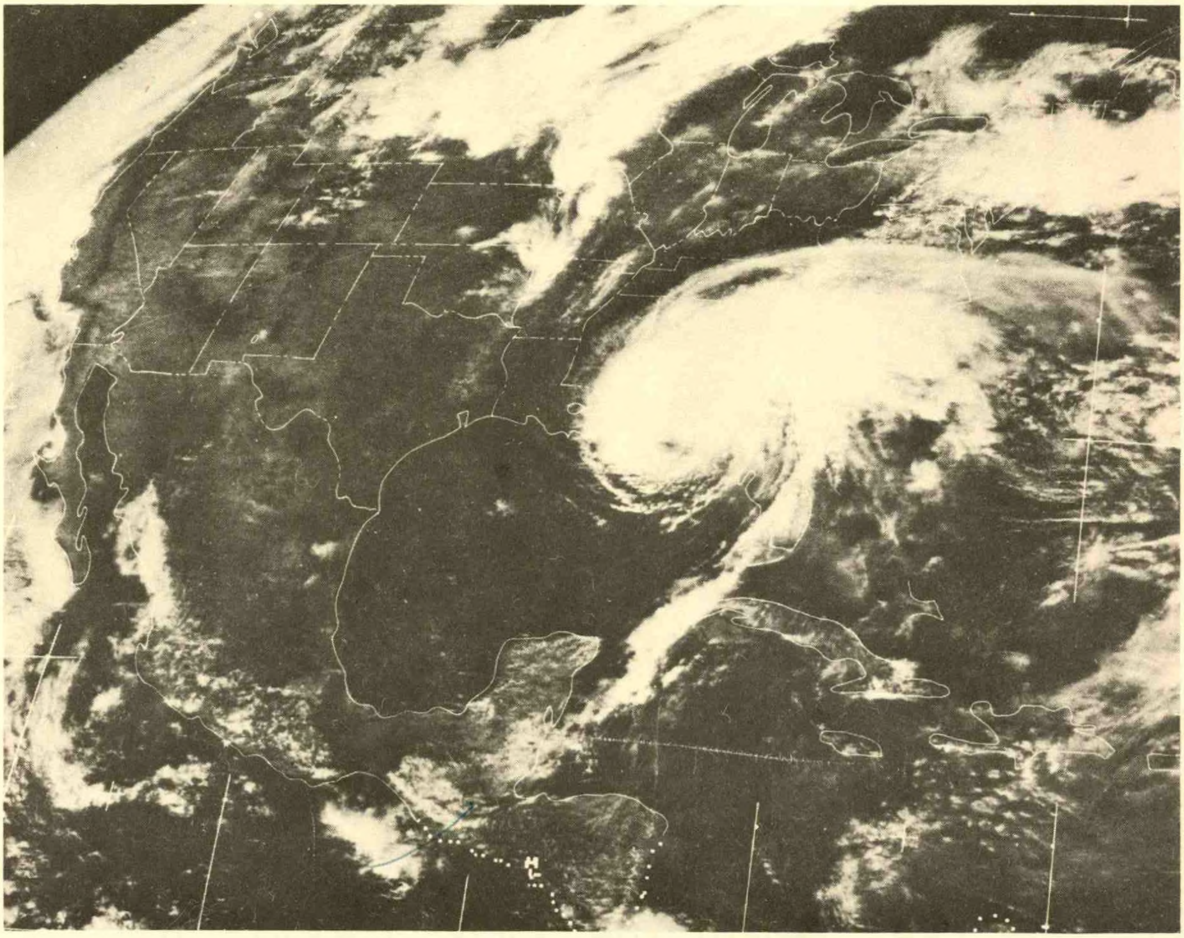
NOAA TM EDS NCC—1

NOAA Technical Memorandum EDS NCC-1

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Environmental Data Service

PRELIMINARY CLIMATIC DATA REPORT HURRICANE AGNES JUNE 14—23, 1972

RICHARD M. DeANGELIS
WILLIAM T. HODGE



National
Climatic
Center
Asheville, N.C.
August 1972

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U.S. DEPARTMENT OF COMMERCE
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Preliminary Climatic Data Report
Hurricane Agnes June 14-23, 1972

RICHARD M. DeANGELIS
WILLIAM T. HODGE

ASHEVILLE, N.C.
AUGUST 1972

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(74/75)	Middle and South Atlantic States (USA)
"1972.06.14/23"	June 14-23, 1972
Agnes	Hurricane Agnes

FOREWORD

As rebuilding and repair continue in the wake of Hurricane Agnes, there is a need for data about the extent, intensity, and characteristics of the storm. This report gives a preliminary description of the hurricane and its disastrous consequences.

Richard M. DeAngelis
Assistant for Marine Services
Environmental Data Service
Silver Spring, Maryland

William T. Hodge
Chief, Climatic Information Branch
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PREFACE

Hurricane Agnes was responsible for one of the worst natural disasters in United States history. Her record-breaking rains caused devastating floods from North Carolina to New York. Hardest hit were Pennsylvania, New York, Virginia, and Maryland. Florida was ravaged by storm tides and tornadoes. Total United States storm damage is currently estimated at just under $3.5 billion. The death toll in the U.S. is 122. In Cuba there were seven deaths. All figures in this report are preliminary and subject to change. Data in the Death-Damage and Impact tables combines best estimates from the State Climatologists, Red Cross, and the Office of Emergency Preparedness.

This report was made possible by the excellent summaries provided by State Climatologists and River District Office personnel of the National Weather Service from the states involved. The National Hurricane Center furnished an excellent technical summary. The National Red Cross and Office of Emergency Preparedness were very helpful in compiling death and damage figures. The precipitation maps are based on charts furnished by the Hydrometeorological Branch of the National Weather Service.

CONTENTS

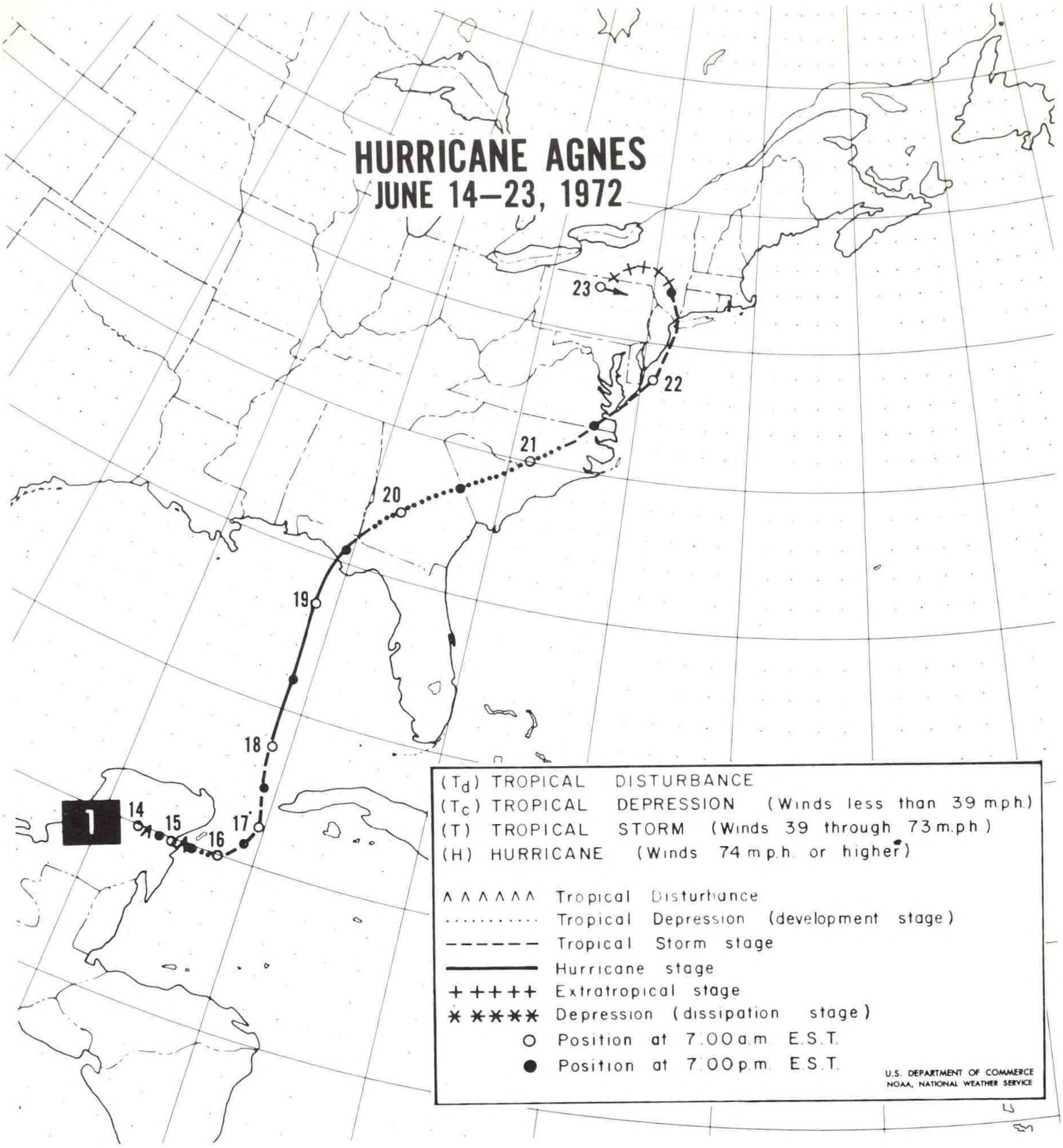


Figure 1. Track of the center of Hurricane Agnes. Rains and winds extended out from the storm over long distances.

CHAPTER 1

Storm History

On June 15th, a depression developed near Cozumel, off the Yucatan coast. During the next 24 hours, the system intensified and became tropical storm Agnes. Agnes was revealed by satellite to have an unusually large circulation. However, reconnaissance reports indicated a poorly defined eye. On Saturday, the 17th, Agnes began moving northward at about 10 m.p.h. That afternoon, central pressure fell to 986 mb. See Figure 1. The following morning hurricane force winds were found near her center which was some 250 miles west of the Keys. Agnes lumbered northward. By Sunday, winds were gusting from 40 to 50 m.p.h., strengthening first in the Keys and by evening as far north as Orlando. Agnes' center was now about 200 miles west of Fort Myers. Maximum sustained winds over land were running 25 to 45 m.p.h. Agnes' large circulation was bringing an easterly-southeasterly flow over Florida. The result was winds along the east coast were often as strong or stronger than those along the closer west coast. Jacksonville, for example, had the highest gust in Florida at 56 m.p.h. early on the 19th, when Agnes was heading for the panhandle. Agnes was a minimum hurricane at best. Over the open Gulf maximum sustained surface winds reached 85 m.p.h. on the 18th. Minimum surface pressure (in the Gulf of Mexico) fell to 978 mb on the 19th. Neither the eye, nor the wall cloud ever became fully developed. By the afternoon of the 18th, two things were obvious. Agnes would cross the coast along the Florida Panhandle, and her most destructive blow would be storm tides along the west coast.

On Monday morning, these destructive tides hit the west coast. At Fort Myers, tides rose 3 feet above normal. A short time later they were 4 to 5 feet above normal in the Tampa-St. Petersburg area. In the afternoon, Cedar Key recorded a tide 7 feet above normal. As Agnes neared the coast, Apalachicola recorded a 6.4-foot tide.

Agnes moved ashore as a tropical storm near Panama City late Monday afternoon (19th). She was accompanied by 40 to 45-m.p.h. sustained winds and 45 to 55-m.p.h. gusts close to her center. Once into Georgia, Agnes weakened to depression stage. During the 20th, the large, weak depression moved northeastward across Georgia and into South Carolina. Cities like Augusta and Macon, close to the storm path, had recorded their strongest winds earlier, while Agnes was still at sea. Now the principal effect was rain. In Georgia, it was heaviest in the south. In the Carolinas mountain areas were drenched while in the central and coastal areas rain was light. The system moved northeastward across the Carolinas at 12-15 m.p.h. on Wednesday (21st). The storm intensified as it moved closer to the Atlantic Ocean. Cape Hatteras reported a 37-m.p.h. wind with gusts to 62 m.p.h. Agnes reached Norfolk as a rejuvenated tropical storm Wednesday night. It was, however, an unusual system. At one time on the 22nd, surface pressures were below 1000 mb over an area from upstate New York to the North Carolina Capes, while the lowest pressure hovered near 990 mb. This was due in part to a quasi-stationary trough in the Ohio Valley. The moisture-laden Gulf air in Agnes was replenished by the Atlantic. This moist air encountered the Appalachians and triggered torrential rains over river basins from South Carolina to New York. Many of these basins were already soaked by heavy June rains.

Agnes moved off the Virginia Capes and back out to sea late Wednesday. During the 22nd the broad system moved up the east coast, across western Long Island and inland near New York City. While at sea, her lowest recorded central pressure was observed--977 mb. Winds along the coast from Norfolk to Providence ranged from 25 to 45 m.p.h. with gusts up to 55 m.p.h. Further inland, heavy rain continued. On Friday, the 23rd, Agnes swung southwestward and was absorbed by a broad, deep extratropical low pressure system in central Pennsylvania. This large system continued to dominate the weather over the northeast for the next several days.

The extratropical storm moved toward the Buffalo area and looped over southern Ontario on the 25th. It then sped east-northeastward across Lake Ontario, northern New York, southern Quebec, Maine, New Brunswick and Nova Scotia. Once out to sea, the storm reintensified and affected shipping until the 7th of July.

Tornadoes

Agnes spawned 15 confirmed tornadoes in Florida. They all occurred on the 18th and 19th and were confined to the peninsula south of Daytona Beach. No deaths were tornado related. Total tornado damage was estimated at just over $4.5 million. Three tornadoes touched down in the Keys. The first ripped through Geiger and Big Coppitt Keys in the early morning hours of the 18th. It injured 40 people, destroyed 23 house trailers, and damaged 60 others along with five houses. Damage was estimated at $342,000. Before daylight, another tornado hit Key West ($400,000 damage) and a third tore through Key Colony Beach, Grass Key, Conch Key and Key Largo. During Saturday afternoon and early evening, nine more tornadoes were reported. Four occurred in the vicinity of Fort Myers. The worst one hit Pine Island, where four trailers were demolished and several stores were damaged. Another tornado hit 17 miles north of Okeechobee and destroyed two trailers. At Haines City, west of Lakeland, six mobile homes were badly damaged. Tornadoes also touched down west of Lakeland, in southeastern Highlands County

Waters of the Susquehanna River crashed through sandbags in Wilkes-Barre, Pennsylvania, June 23, after thousands of workers labored feverishly to contain the swollen river with tens of thousands of sandbags. The area was evacuated. (AP Wirephoto)

and in Palm Beach County. Early on the 19th, three tornadoes hit the Cape Kennedy area. On Merritt Island, aircraft and hangars were damaged to the tune of $2 million. Another $1 million damage was estimated in nearby sub-divisions. A tornado at Cape Canaveral destroyed two homes and damaged the Port Canaveral Coast Guard Station. Total damage was estimated at $500,000.

In Georgia, tornadoes were reported near Douglas, in Coffee County, and near Blackshear, in Pierre County, during the afternoon of the 19th. The Douglas tornado hit a mobile home park and a factory causing $100,000 damage. Neither tornado resulted in any deaths.

Rains and Floods

During the week preceding Agnes, frontal activity brought soaking rains to the mid-Atlantic region. From New England to Virginia, showers and thunderstorms dumped 1- to 3-inch rains with local amounts up to 6 inches. In central Pennsylvania, 2- to 3-inch falls were common. Throughout the rest of the state and over central New York, averages were 1 to 3 inches. In coastal Connecticut, flooding rains fell on the 18th and 19th; Bridgeport had weekend rains totaling 6 inches. Rains in New Jersey averaged 2 to 3 inches. Over Maryland, Delaware and eastern Virginia, totals ranged from .5 to 2 inches. Local amounts were reported in excess of 4 inches in Virginia and 6 inches in Maryland. Meanwhile, dry weather continued to plague the southeast and was becoming critical in some sections of Georgia, Alabama and central Florida. The stage was set for Agnes.

Rainfall over Cuba was a harbinger of things to come. Heavy rains drenched the western part of the island for 4 days. Cape San Antonio was deluged with more than 16 inches. In one 6-hour period, they received a 9-inch downpour. The Isle of Pines recorded more than 17 inches of rain during the same 4-day span, which ended on the 18th.

Most sections of Florida received 2 to 3 days of soaking rains from Agnes. In the south, it rained from the 17th through the 19th, while in the north most rain fell from the 18th through the 20th. In the Florida Keys a cloud mass which was to become part of Agnes' circulation started dumping rain late on the 11th. Key West recorded 8.53 inches over a 7-day period. Big Pine Key had 12.69 inches. Five to seven inches of rain fell over most areas east of Tallahassee. Among the highest totals were 7.87 inches at Naples and 7.17 inches at Tallahassee. Light amounts of less than 2 inches were confined to the east coast, south of Vero Beach.

Alabama, Georgia and the Carolinas were in the throes of a critical dry spell when Agnes arrived. Rains were mostly beneficial. However, excessive rains in northwestern South Carolina and western North Carolina triggered damaging floods.

Heaviest rains occurred along the eastern slopes of the Blue Ridge Mountains from about Greenville, S.C., to Lake Lure, N.C. northeastward to the Danbury-Reidsville area. Totals ranged from 4 to 10 inches. Much of this fell in less than 48 hours from the 19th through the 21st. Mt. Mitchell, N.C., had a storm total of 10.6 inches. Major river flooding followed flash flooding of Mountain and Piedmont streams. Severe flooding occurred on the Yadkin-Pee Dee River system and the Dan River. Lesser flooding occurred along the Catawba, Saluda, Rock, Congaree, Lumber and Broad Rivers.

The headwaters of Yadkin River received six to more than 10 inches of rain in less than 48 hours. During the night of the 20th and early morning hours of the 21st a rapid 10-foot rise occurred at Elkin, N.C. Then a few hours after sunrise, the Yadkin crested at 22.6 feet--6.6 feet above flood stage. The crest reached Yadkin College on the afternoon of the 22nd. It measured 14.8 feet above flood stage. Near the North Carolina-South Carolina border, three- to four-inch rains added to the overflowing river--now called the Pee Dee. The Pee Dee caused severe flooding from Blewett Lake, N.C. to below Cheraw, S.C. Flooding began on the 22nd and continued for 4 days. The Pee Dee crested at 40.65 feet at Cheraw on the 24th. This is the fourth time since 1952 that the 40-foot mark has been reached there. Downstream at Pee Dee, S.C., the 19-foot flood stage was reached on the 24th, and a 23.89-foot crest was measured on the 29th.

Five to 10 inches of rain fell along the Dan River and its tributaries. Many records were set on the Dan. Flooding was worst near Madison, Mayodan and Eden. Kerr Reservoir rose to a new record height. While this caused flooding of recreational lowlands around the lake, it prevented major flooding downstream on the Roanoke River. Rainfall over the headwaters of the Saluda and Broad Rivers was 5 to more than 7 inches in a 48-hour period ending on the morning of the 21st. Along the Broad River a crest 3 feet above flood stage occurred at Gaffney, S.C., on the 21st. Farther downstream, at Blair, S.C., flooding began on the 21st and crested at 25.5 feet on the 23rd. The Saluda crested 1.3 feet above flood stage at West Pelzer, S.C. on the 21st. These waters filled Lake Greenwood by the 22nd. That evening, a crest 7.4 feet above flood stage was recorded at Chappells, S.C. Waters from the Saluda and Broad Rivers added to the already full Congaree River which flooded Columbia, S.C., during the evening of the 23rd. Extensive flooding of lowlands occurred from below Columbia to St. Matthews. Lesser flooding occurred along the Catawba, Rocky, and Lumber Rivers.

Throughout the eastern Carolinas rain was relatively light. East of Charleston-Columbia-Raleigh, totals were generally less than four inches while east of Wilmington-Norfolk, Va., totals less than 2 inches were common. Cape Hatteras, recorded a .04-inch total. In the mountains west of Asheville, N.C., totals of 2-5 inches were common.

Eastern Alabama received 2 to more than 7 inches most of which was welcomed and absorbed. Headland reported a total of 7.67 inches. Throughout most of Georgia, 4 to 6 inch totals were common. Most occurred in a 48- to 60-hour period from the 18th to the 21st. East coast amounts ranged from 6 to 9 inches. At Brunswick Airport on St. Simons Island a total of 9 inches was reported. Eight fell in a 24-hour period.

Heavy rains in Virginia produced severe flooding over the James and Appomattox River basins, and along the Potomac and many smaller rivers in the north. In the eastern half of the James River Basin and western half of the Appomattox Basin, flooding was the worst in history. Crest stages exceeded those of Camille '69 by several feet and topped high water records dating back 200 years.

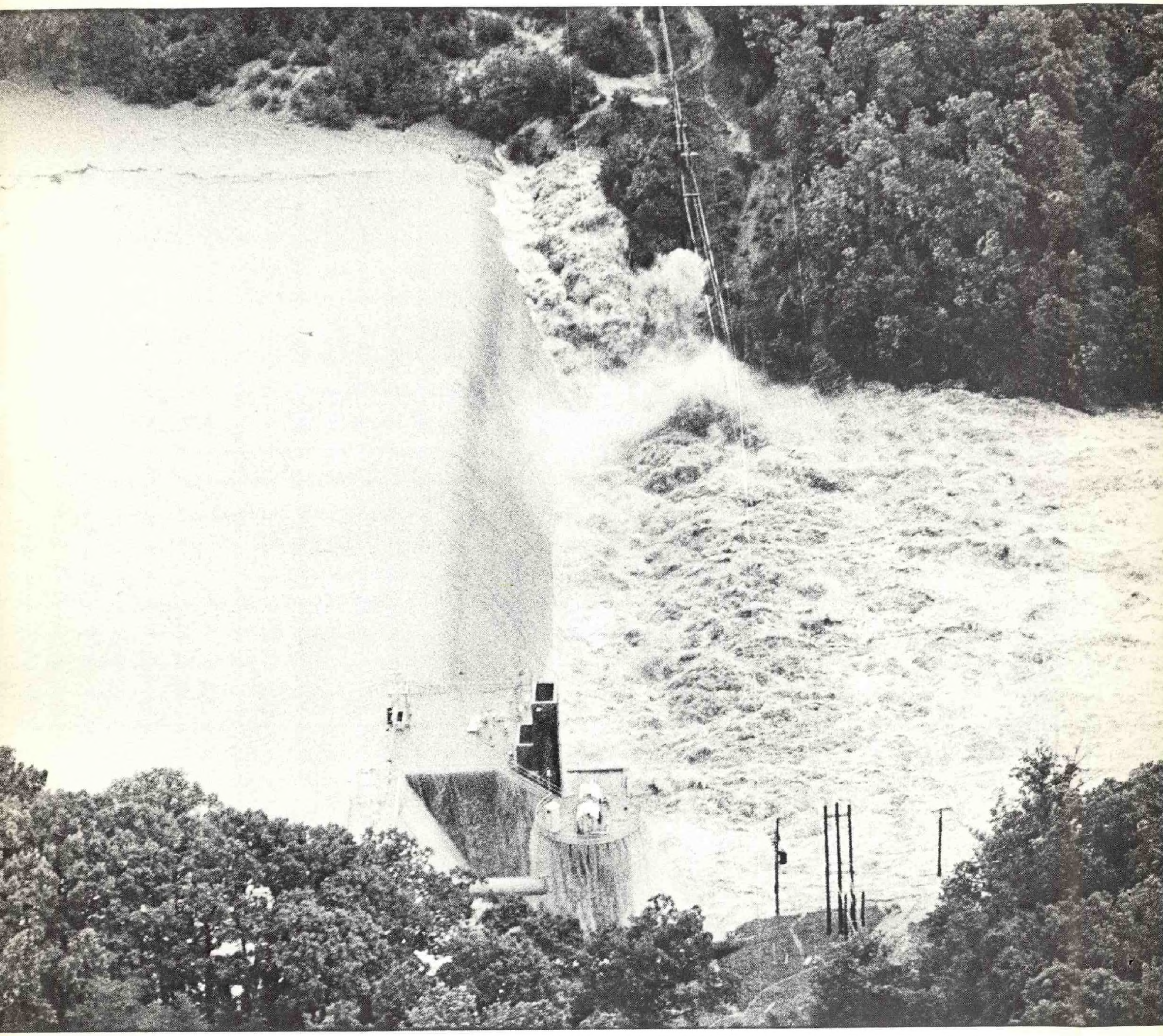
Pre-Agnes rainfall that aided in the flooding occurred on the afternoon and evenings of the 17th and 18th. Heavy showers dumped up to 3 inches of rain over the upper and central James sub-basins. The rainshield of Agnes reached southern Virginia by the 20th. Heaviest precipitation fell on Wednesday the 21st and into early Thursday. Rains totaling 4 to 10 inches quickly flooded the small streams and tributaries in the upper James Basin and in the central Virginia counties along and east of the Blue Ridge Mountains. Big Meadows, had a total of 13.60 inches. The average for the whole James Basin was 6.12 inches from the 19th to the 23rd. The heavy rainfall concentrated in the upper portion of the Appomattox basin above Farmville, averaged 8 inches for the same 4 days.

In the upper James Basin, flooding was severe at Covington where the crest was second only to the record set in March 1913. Moderate flooding occurred at Buena Vista. In the Lick Run reach and at Buchanan, the high water marks were exceeded only by those in 1877 and 1913. At Lynchburg-Holcombs Rock reach crests were somewhat below hurricane Camille, 1969. At Lynchburg, flooding occurred on the 21st and 22nd. The crest was 8 feet above flood stage. In the lower James Basin, new crest stage records were set at Bent Creek, Scottsville, Bremo Bluff, Columbia, Cartersville, Richmond, Westham, and Richmond City Locks. The river swamped a 200 block area of downtown Richmond, in what appears to be the worst flood in the city's history. A crest of 36.5 feet occurred at the City Locks on the 23rd. This topped the old mark of 30.0 feet set back in 1771. Palmyra on the Rivanna recorded a crest just 2.5 feet below the one in hurricane Camille.

In the Appomattox Basin, Farmville suffered the most destructive flood in its history. The crest that occurred on the 22nd was 6.5 feet above the record crest set in 1940. Downstream at Mattaox, the crest was one foot below the 1940 record. At Petersburg, near the confluence with the James, flooding was comparable to that in 1940. The 16-foot crest at M.S. No. 1 bridge matched the 1940 record.

Heaviest rain in all Virginia fell in the north. Ten inches or more fell over the counties of Madison, Rappahannock, Culpeper, Fauquier, Prince William, Fairfax and Loudoun. The highest total was about 16 inches near Chantilly. Nearby Dulles Airport recorded 13.65 inches total and a maximum 24-hour amount of 11.88 inches. Torrential downpours from Wednesday afternoon through Thursday morning were responsible for flash flooding throughout northern Virginia. Near Alexandria, Four Mile Run flooded the heavily populated section known as Arlandria. The Run began rising at 7:15 p.m. EST. Less than one hour later, it reached flood stage. Shortly before midnight, flood stage was exceeded by 9.5 feet. Heaviest precipitation flooded Bull and Broad Runs and threatened the Occoquan Dam. Most northern Virginia streams and creeks overflowed their banks during the night, washing out roads and, in some cases, destroying homes. On the Rapidan River, a record 26.0-foot crest occurred at Rapidan.

In Maryland and the District of Columbia, heavy rains in less than 24 hours, on the 21st and 22nd, resulted in severe flooding. Delaware had local flash flooding from the 4 to 6 inches of rain that fell in the northern part of that state. Maryland's heaviest rains occurred in the north-central part of the state where totals set all-time records. Highest total rainfall was 14.68 inches at Westminster and 13.85 inches at Woodstock. Totals of 8 inches or more fell in an area west of Chesapeake Bay and east of Hagerstown. The District of Columbia reported more than 7 inches. In Delaware, the maximum reported total was 6.76 inches at Middletown. Flooding was abetted by the short period in which much of this rain fell. The 11.55 inches at Westminster and 11.35 inches at Woodstock on the 21st, are among the greatest one-day falls in Maryland history. One day record falls for Maryland include 14.75 inches at Jewell in July, 1897 and 12.61 inches at White Marsh in August, 1971. The previous one-day June record was 6.05 inches at Elk-



Flood waters caused by the rain from Tropical Storm Agnes boil around both ends of the 125 foot high dam at Occoquan, Virginia, southwest of Washington, D. C. At the time of the picture, water was topping the dam by 10 feet. (Wide World Photos) ton on June 27, 1938. A 24-hour (not limited to one day) total of 7.19 inches at Washington National Airport on June 21-22 was second only to the 7.31-inch total of August 11-12, 1928.

The heavy rains caused disastrous flash flooding of creeks and streams in Maryland, the District of Columbia, and Newcastle County, Delaware. Major flooding followed. The Potomac fed by heavy rains over its entire basin began flooding on the 22nd. At Little Falls, just outside of Washington, the river crested at 22.0 feet in the early hours of the 24th. Flood stage here is 10.0 feet. Meanwhile at Wisconsin Avenue, downtown Washington, a 16.8-foot crest had occurred and persisted for about 8 hours.

Along the Monocacy River, a crest of 33.7 feet occurred at Frederick, Md. The previous record was 30.0 feet set back in 1889. Flooding also occurred along the Anacostia and Patuxent Rivers and along Seneca and Rock Creeks. Flooding along the Patapsco River, broke all existing records. Near the Pennsylvania border the Susquehanna, which had devastated much of the Keystone State threatened the Conowingo Dam. Flood waters covered small towns below the dam and a wide swath of land on both sides of the river from the dam to the river's mouth at Chesapeake Bay, some 12 miles away. Flood gates were opened for more than 48 hours and the dam held.

In Delaware, the Brandywine Creek flooded northeast Wilmington. It crested there at a record level of 15.4 feet.

In New Jersey, heavy rains caused extensive flooding. Rains of 1 to 2 inches, falling in a 24-hour period on wet ground, caused the Saddle, Ramapo and Passaic Rivers to overflow their banks on the 22nd. Total rainfall in northern New Jersey was 2 to nearly 5 inches. Greatest amounts fell in the northwest; Sussex recorded a total of 4.61 inches and Long Valley reported 4.90 inches. Crests were generally 1 to 2 feet above flood stage and flooding continued into the 24th. Along the Passaic, water remained high for 5 to 6 days as additional rain fell on the 24th and 25th. Flooding also occurred along the Pequannock, Pompton, Wanaque, Rockaway and Millstone Rivers from the 22nd to the 24th. Crests were 1 to 3 feet above flood stage. Heaviest rains occurred in southwestern New Jersey, south of Philadelphia, Pa. Twenty-four-hour rainfall averaged 3 to 5 inches over Camden, Gloucester, Salem, and Cumberland Counties. Total storm rainfall ranged up to 6.24 inches at Camden. Flash flooding in these counties caused extensive agricultural damage. The Delaware River was the beneficiary of rains from New York and New Jersey. However, it remained below flood stage.

Connecticut rains were spread out over a 5- to 6-day period and were heaviest mainly in the western half of the state. Heaviest amounts fell on the 22nd, 23rd, and 24th and ranged from .5 to 2 inches. Total storm amounts generally ranged from 2 to 4 inches. Saugatuck Reservoir, for example, reported 4.04 inches of rain from the 21st through the 26th.

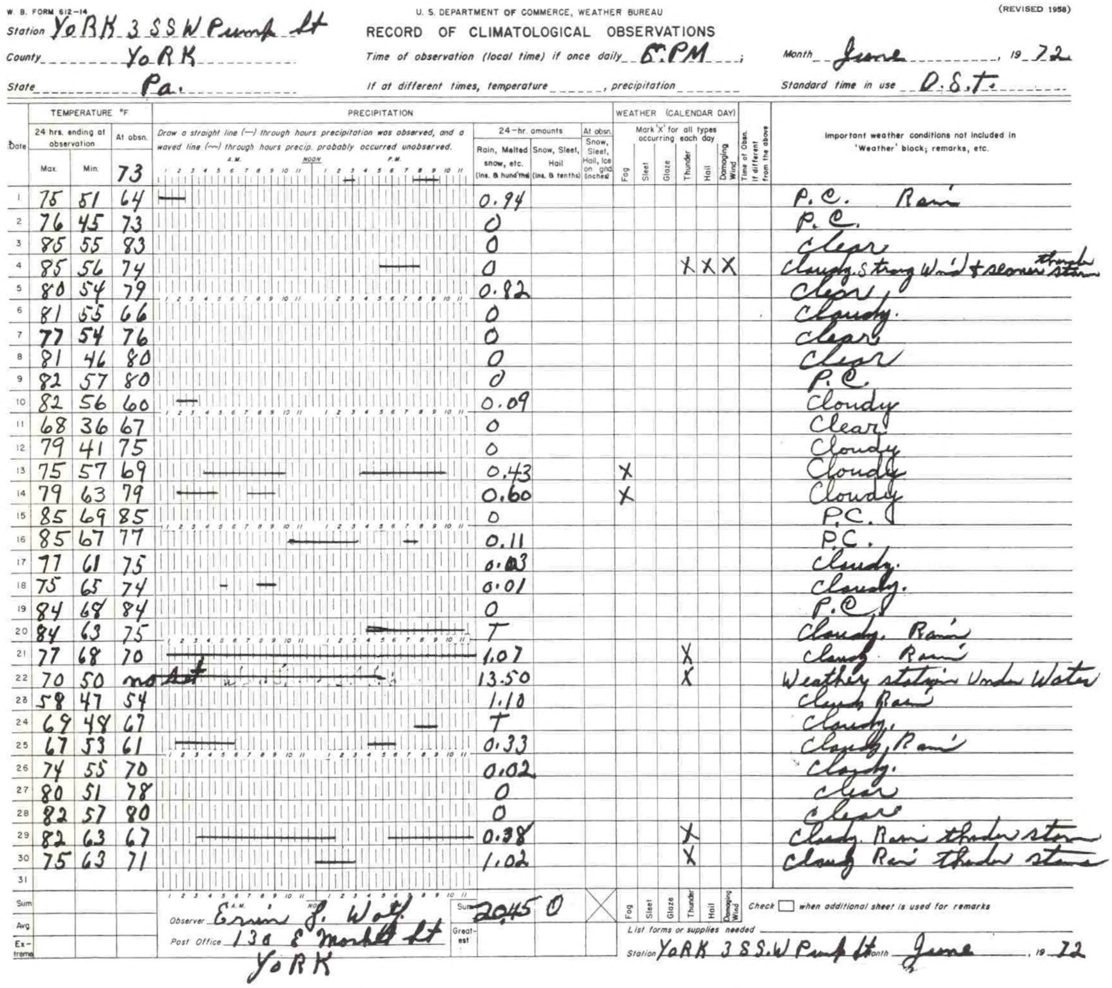
The Governor's Mansion in Harrisburg, Pennsylvania, was completely inundated by high flood waters June 23. The flooding caused partial evacuation of many families in the city. (AP Wirephoto)

In Pennsylvania, Agnes' heavy rains fell on wet ground. Runoff was heavy, flooding disastrous. Torrential rains began Wednesday (21st) and continued through Thursday. Maximum 24-hour totals exceeded 7 inches in a band from north of Williamsport, southward through Sunbury, Harrisburg and York to the Maryland border. Harrisburg had a maximum 24-hour amount of 12.55 inches. In extreme western Schuylkill County, a gauge at a watershed research site measured 14.5 inches in a 24-hour period. Total storm rainfall averaged 8 to 12 inches throughout the entire central section of the state with several areas where precipitation went above 12 inches. In western Schuylkill County up to 18.8 inches fell.

Small streams began flooding Wednesday night. Major river flooding followed on Thursday and Friday. Along the main stem of the Susquehanna River, flood levels exceeded previous marks set in March 1936, by 3 to 6 feet. Crests were generally 12 to 18 feet above flood stage. At Wilkes-Barre water crept over the levees early Friday morning. By Saturday evening, the powerful river crested more than 18 feet above flood stage. Along the West Branch of the Susquehanna, most of the flooding occurred downstream of Karthaus. Crests ranged 6 to 16 feet above flood stage. In Williamsport, Milton and Lewisburg crests topped previous 1936 marks. Records were also set at Loch Haven and Jersey Shore. On the Juniata River, crests were generally a little less than the 1936 levels. On the 23rd, at Lewiston, the Juniata crested at 42.1 feet, 19 feet above flood stage and just below the record 42.3-foot crest of 1936.

In southeastern Pennsylvania, the Schuylkill River, beneficiary of some of Agnes' heaviest rain, reached record or near-record levels. At Berne, Pa. a 19-foot crest topped a 1955 previous high by more than 3 feet. All time record crests quickly followed downstream at Reading, Pottstown, and Norristown. At Pottstown, flooding occurred from the 22nd to the 24th. The Schuylkill crested almost 17 feet above flood stage and more than 8 feet above the previous record set in 1902. Sections of Philadelphia were also flooded. Four to ten inches of rain swelled the Lehigh River to overflowing at Lehighton, Walnutport, Bethlehem and Allentown.

Flooding occurred along most of the navigable streams in western Pennsylvania. At Pittsburgh the Ohio River reached its highest crest since 1942. Crests on the Ohio River ranged from 9.3 feet above flood stage at Dam 14, Clarington, Ohio to 12.1 feet above flood stage at Wellsburg, W. Va. Along the Allegheny River record flooding occurred from Salamanca, N.Y. to above Eldred, Pa. At Olean, N.Y., where flood stage is 10 feet, the river crested at 24.2 feet on the 23rd.



W. B. FORM 612-14

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU

(REVISED 1958)

RECORD OF CLIMATOLOGICAL OBSERVATIONS

Station YoRK 3 SSW Pump St

County YoRK

State Pa.

Time of observation (local time) if once daily 5 PM ;

If at different times, temperature ______, precipitation ______

Month June, 19 72

Standard time in use D.S.T.

Date	TEMPERATURE °F 24 hrs. ending at observation Max.	Min.	At obsn. 73	PRECIPITATION Draw a straight line (—) through hours precipitation was observed, and a waved line (~~) through hours precip. probably occurred unobserved. A.M. NOON P.M.	24-hr. amounts Rain, Melted snow, etc. (Ins. & hund'ths)	Snow, Sleet, Hail (Ins. & tenths)	At obsn. Snow, Sleet, Hail, Ice on gnd (Inches)	WEATHER (CALENDAR DAY) Mark 'X' for all types occurring each day Fog	Sleet	Glaze	Thunder	Hail	Damaging Wind	Time of Obsn. If different from the above	Important weather conditions not included in 'Weather' block; remarks, etc.
1	75	51	64		0.94										P.C. Rain
2	76	45	73		0										P.C.
3	85	55	83		0										clear
4	85	56	74		0						X	X	X		cloudy. Strong Wind + showers thunder storm
5	80	54	79		0.82										clear,
6	81	55	66		0										Cloudy.
7	77	54	76		0										clear
8	81	46	80		0										Clear
9	82	57	80		0										P.C.
10	82	56	60		0.09										Cloudy
11	68	36	67		0										Clear
12	79	41	75		0										Cloudy
13	75	57	69		0.43			X							Cloudy
14	79	63	79		0.60			X							Cloudy
15	85	69	85		0										P.C.
16	85	67	77		0.11										P.C.
17	77	61	75		0.03										cloudy.
18	75	65	74		0.01										cloudy.
19	84	68	84		0										P.C.
20	84	63	75		T										Cloudy. Rain
21	77	68	70		1.07						X				cloudy. Rain
22	70	50	no tst		13.50						X				Weather station Under Water
23	58	47	54		1.10										Cloudy Rain
24	69	48	67		T										Cloudy.
25	67	53	61		0.33										Cloudy, Rain
26	74	55	70		0.02										Cloudy.
27	80	51	78		0										clear
28	82	57	80		0										clear
29	82	63	67		0.38						X				Cloudy. Rain thunder storm
30	75	63	71		1.02						X				Cloudy Rain thunder storm
31															
Sum					Sum 2045 0										
Avg															
Ex-treme					Great-est										

Observer Ervin S. Wolf

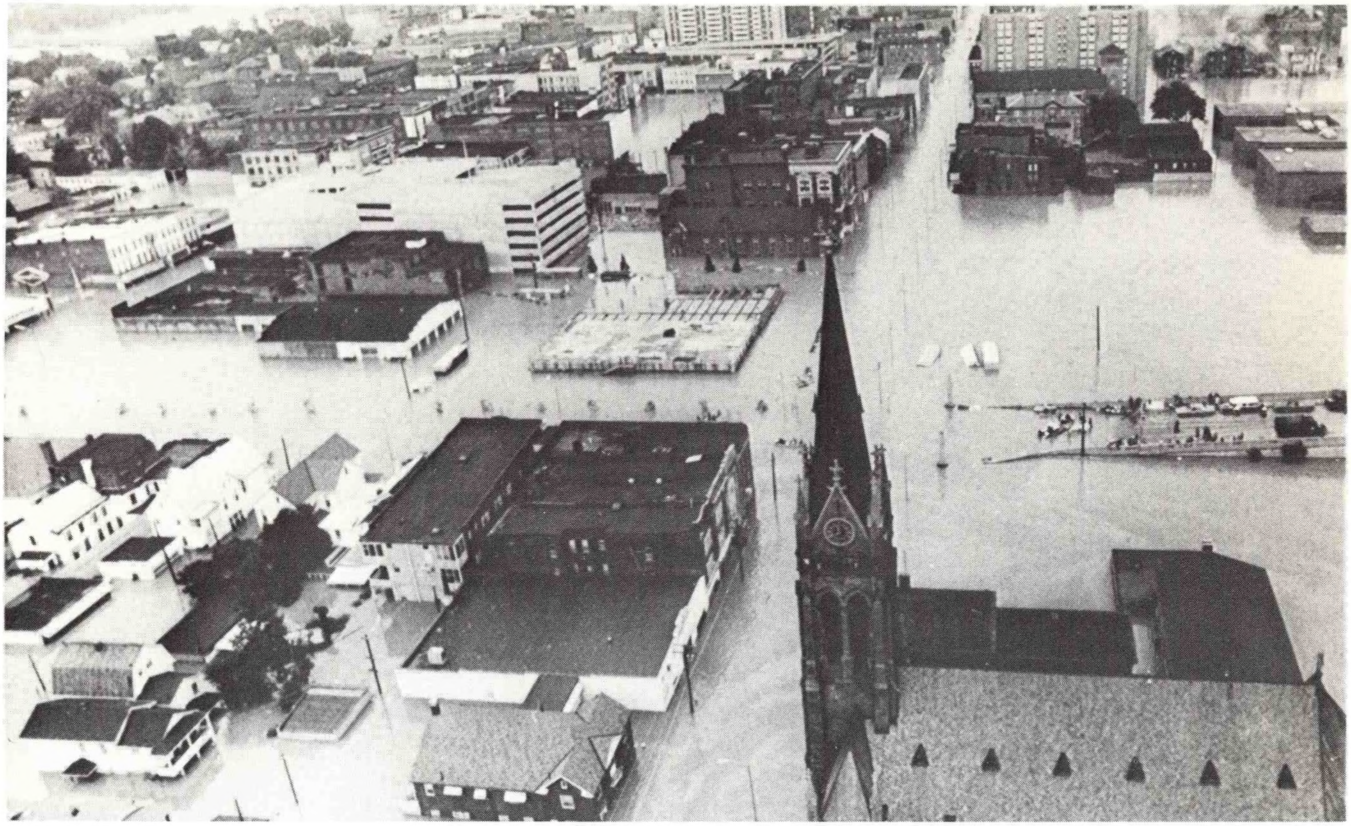
Post Office 130 E Market St
YoRK

Check ☐ when additional sheet is used for remarks

List forms or supplies needed

Station YoRK 3 S S.W Pump St Month June, 19 72

Cooperative Observer's record showing 13.50" of rain in a single day.
The Remarks column states "Weather Station Under Water" on June 22.
The station is York 3SSW Pump Station in southeastern Pennsylvania.



Wilkes-Barre, Pennsylvania central business district as it appeared June 24. (United Press International Photo)

At Eldred, Pa. the crest was 1.5 feet above the previous record set in 1942. Major flooding also occurred on the Clarion River. At Cooksburg and Johnsonburg crests were just below previous records. At Ridgway the crest, which came early on the 23rd, was more than 8 feet above flood stage.

The Monongahela River flooded from Point Marion, Pa. down to its mouth at Pittsburgh; major flooding was continued between Charleroi and Pittsburgh. The Youghiogheny River was in flood through most of its length; greatest flooding occurred from Jacobs Creek on down to its mouth at McKeesport. Serious flash flooding occurred all over Westmoreland County where up to 13.50 inches of rain was measured in a bucket survey (near Mt. Pleasant).

Shortly before midnight on Tuesday (20th), rains turned heavy in New York's southwestern highlands. Morning reports showed falls of 4 inches, 5 inches, and 6 inches over the upper reaches of the Chemung River Basin. Runoff caused local flash flooding in Allegany and Steuben Counties. A few hours later, most of New York State was under the Agnes rainshield. Over the Chemung watershed an average of 3 more inches fell during Wednesday. Runoff from the 2-day rains brought the main rivers to above bankful stages. By the morning of the 23rd, another 3 to 5 inches was added to the river basin.

Before it was over 10 to 13 inches fell in Allegany and western Steuben Counties. Wellsville had an unofficial total of more than 13 inches. At Alfred, 12.9 inches was measured. The 4-day average along the basin was near 9 inches. This resulted in highest stages of record all along the Chemung River. At Chemung, N.Y. where flood stage is 12 feet, the river flooded from the 22nd to the 25th and crested at 32.14 feet early on the 24th. At Elmira, the river crested about 9 feet above flood stage. During the height of the flood, a lake four miles wide was created by the Chemung River between Corning and Elmira. The Allegheny, Genesee, Canesteo and lower Susquehanna Rivers were also in this heavy rain area. Total rainfall was greater than 6 inches, west of Binghamton and south of Rochester. The Allegheny crested nearly 3 feet higher than the all-time record in the Olean-Salamanca area. At Addison, the Canesteo crested about 3 feet above flood stage on the 23rd. Flood stage is 17 feet.

In the Finger Lakes region, from Wyoming County, eastward to Cortland County, totals of 6 to 9 inches were common. Ten inches of rain was measured in the hilly terrain just west of Canandaigua Lake in Ontario County. The inflow of streams into the Finger Lakes produced record high lake levels and severe flooding of shore areas. Cayuga Lake, near Ithaca, reached a peak level of 387.75 feet on June 25. This exceeded the previous record of 386.4 feet in April 1916. Record water levels also occurred in Seneca and Canandaigua Lakes. Between June 20th and the 25th, the Keuka Lake level rose 5 feet. Severe flooding also occurred along the south shore of Oneida Lake from Bridgeport, west to Brewerton.

Three to five inches of rain fell over the Chenango River watershed, in south-central New York. Flooding occurred along the river from the 22nd to the 24th. Crests were generally 1 to 2 feet above flood stage. Farther south in the Catskills, 4 to 6 inch rainfall totals were common.

Deaths and Damages

Agnes is the costliest hurricane in United States history. Total storm damage is presently estimated at $3.47 billion. For flooding of this consequence the storm death toll of 122 is very light. Pennsylvania is responsible for more than two-thirds of the damage and 50 of the deaths. Table 1 shows the deaths and damages by States. The impact of the hurricane on property is summarized in Table 2.

Outside the United States, Cuba suffered heavily. On the western part of the island, torrential rains caused severe flooding. In Pinar Del Rio some 97 homes were destroyed and another 300 damaged. There were seven deaths.

Florida suffered nine deaths, 170 injuries and $41 million damage. Damage from tides, winds, and tornadoes was estimated at $36 million to private property and $5 million to public property. All Gulf coast counties from Monroe to Bay were declared disaster areas. Panama City, some 18 feet above sea level, suffered little damage but low lying coastal villages between Carabelle and Apalachicola suffered great damage. Damage for Franklin County alone runs well over $1 million due to storm tides. These tides, highest in many years, destroyed homes and businesses, washed out roads and cut off access to many offshore islands. Pinellas County was also hard hit particularly in the St. Petersburg area. Inland, winds and tornadoes were responsible for the damage and for most of the deaths. Inland disaster counties include Brevard, Hardee, Hendry and Okeechobee. At Okeechobee City, a series of windstorms cut a path 100 yards wide through Treasure Island Park, a fishing lodge and several other mobile home parks. Six people were killed and 40 injured. Damage including destruction of 50 mobile homes, was estimated at $500,000. A wind storm near Ft. Denaud, in Hendry County destroyed a trailer, killing a woman and injuring her daughter. It then tore up some citrus groves and several other trailer parks near La Belle. Damage was estimated at $200,000 to property and $10,000 to crops. As mentioned before, 15 tornadoes were responsible for more than $4.5 million damage. Other deaths included a child drowning in a rain-swollen stream and a heart attack attributed to Agnes.

The Yadkin River in North Carolina flooded more than 86,000 acres. Total losses in the Basin were estimated at $4.22 million. Of the losses, more than $3.5 million were agricultural and mainly to growing crops. Street flooding in Elkin, Yadkin College and other river towns accounted for the remainder. Two deaths occurred in North Carolina. One in Surry County when a canoe overturned and the other in Iredell County, when a man driving a tractor was swept away in flood waters. Estimates of flooding in the Catawba, Congaree and Reedy River Basins total $32,000; mostly minor home and trailer damage and some crop losses. Total North Carolina damage is estimated at $4.276 million.

Total storm damage in Georgia was estimated at $205,000. The tornado near Douglas was responsible for $100,000 damage. The Blackshear tornado destroyed a mobile home and damage was estimated at $5,000. Over the rest of the state, property damage was estimated at $80,000 and crop damage at $20,000. South Carolina damage was also minimal and restricted to flooding. In the Pee Dee Basin, floods caused an estimated $25,000 in crop losses. Total storm damage for South Carolina was about $50,000.

Flood damage in Virginia has been estimated at $222 million. The death toll stands at 13. Destruction was widespread throughout central Virginia. It ranged from agricultural damage on small streams, to inundated towns and cities on the larger rivers. Richmond was hit hard. Water supply and sewage treatment plants were inundated. Electrical and gas plants were flooded and partially closed. Only one of the five bridges crossing the James was usable. Downtown Richmond was closed for several days. Industry and business suffered immense damage. Many residents were evacuated from their homes. Other hard hit towns and cities included Manassas, Occoquan, Fredericksburg, Scottsville, Glascow, Buchanan, Farmville, Roanoke, Salem, Danville, Alexandria, Charlottesville, Lynchburg, Lexington, and Waynesboro. Highways were also devastated. At the height of the flood, 600 miles of road were under water. Some 103 state highway bridges were destroyed or damaged. Most

Table 1

U.S. DEATHS AND DAMAGE ATTRIBUTED TO AGNES
(Preliminary)

	Damage	Deaths
Pennsylvania	$2,311,700,000	50
New York	743,000,000	25
New Jersey	15,000,000	1
Maryland-D.C.	110,000,000	21
Ohio	5,000,000	0
Delaware	Light	1
West Virginia	18,000,000	0
Virginia	222,000,000	13
North Carolina	4,276,000	2
South Carolina	50,000	0
Georgia	205,000	0
Florida	41,000,000	9
Total	$3,470,231,000	122

Table 2

IMPACT OF HURRICANE AGNES ON PROPERTY

(Preliminary)

	Virginia	Maryland	West Virginia	D.C.	New York	Pennsylvania-New Jersey	Total
Total Families suffering loss	6,438	3,477	856	506	39,553	71,144	121,974
Dwellings Destroyed	95	103	107	0	628	2,219	3,152
Dwellings, major damage	1,336	866	259	0	4,912	33,480	40,853
Dwellings, minor damage	3,008	1,564	216	350	27,560	30,700	63,398
Mobile Homes Destroyed	125	49	118	0	132	1,266	1,690
Mobile Homes, major damage	435	44	86	0	313	2,010	2,888
Farm Buildings Destroyed	11	17	0	0	93	433	554
Farm Buildings, major damage	27	44	50	0	355	1,240	1,671
Small Businesses, Destroyed or major damage	177	82	17	0	1,336	2,946	4,558

of these were small bridges on secondary highways.

The real tragedies occurred along the smaller tributaries. Every creek and stream worthy of the name, overflowed its banks and wiped clean the adjacent land. Uninsured homes and a lifetime accumulation of household goods were quickly swept away. Northern Virginia was particularly hard hit. Fairfax County reported an estimated $25 million damage, by far the largest in the state. This tragedy was lessened somewhat by timely warnings that saved an untold number of lives.

Total storm damage in Maryland and District of Columbia has been estimated at $110 million. There were 21 storm deaths in Maryland, one in Delaware and none in the District of Columbia. The following Maryland counties, including Baltimore City, were declared disaster areas: Anne Arundel, Baltimore, Carroll, Cecil, Charles, Frederick, Harford, Howard, Montgomery, Prince Georges, and Washington. Along the Chesapeake Bay, the counties named were Calvert, Dorchester, Kent, Queen Anne's, St. Mary's, Somerset, Talbot, and Wicomico. Damage in Delaware was mostly minor.

Disaster to the Chesapeake Bay counties was primarily in the form of losses to the shellfish and oyster industry with resultant unemployment. Heavy rains cause excessive freshwater runoff into the Bay. This greatly reduces the salinity. The freshwater forms a layer on the surface of the Bay, which moves downstream mixing with and diluting the bottom layer of salty water. Oysters cannot survive prolonged exposure to low salinities. In addition, there is a lack of dissolved oxygen which occurs when fresh water flows over top of heavier salt water with little mixing. It appears now that the damage to the industry will be greater than that attributed to the floods of hurricane Camille in 1969.

An indication of the severity of damage in Pennsylvania, is that the whole state has been declared a disaster area. Total storm damage is currently estimated at $2.31 billion. The enormity of this figure can be realized when compared to the total storm damages of hurricanes Camille and Betsy. In each storm, the total was about $1.4 billion. The floods resulting from Agnes have caused the worst natural disaster to ever hit Pennsylvania. In addition to the damage, there were 50 deaths. Altogether, some 250,000 people were forced to evacuate their homes. Many returned to find their homes gone. Public water and sewage facilities flooded out in many areas. Some towns had to ration water. Fires broke out in many communities where firemen, unable to reach the blaze because of flooding, stood helplessly by.

Crop losses were initially estimated at $120 million. Full effects on some crops will not be known until later this season. Roads and bridges suffered some $300 million damage. There were 569 bridges either washed out or closed by flood waters. Industry suffered heavily with preliminary estimates of around $1 billion damage.

Damage in Ohio was mainly confined to the southern shore of Lake Erie. Northeasterly winds generated 15-foot waves and caused a 3.5-foot rise in the lake level along the south shore. Damage to houses, cars, boats, buildings, docks, and ships was estimated at $4 million.

There was some flooding along the Ohio River from Hannibal to East Liverpool. Powhatan Point was especially hard hit. Total damage in this area is estimated at $1 million.

Total damage in West Virginia was estimated at $18 million. Almost all of this occurred along the Ohio River from New Martinsville, W. Va. to Chester. Wheeling was particularly hard hit. Some 3,000 homes and 1,500 businesses were inundated and damage was estimated at $13.55 million. In Greenbrier County, Dry and Howard Creeks overflowed their banks damaging some 22 businesses and 56 homes. Five houses were completely destroyed. Total damage was estimated at $323,000.

Total damage in New York has been estimated at

$743 million. The death toll stands at 25. Some 100,000 people had to evacuate their houses. In Corning, almost the entire population was forced to flee the flood waters. In Elmira about one-half the city evacuated. Pressure on dams forced many people below the dams to flee. Lake shore residents also moved to higher ground. These counties were declared disaster areas: Allegany, Cattaraugus, Cayuga, Chemung, Livingston, Ontario, Schuyler, Seneca, Steuben, Tompkins, Wyoming and Yates. About 5,000 homes were destroyed or badly damaged. The greatest loss of homes was in the Elmira-Corning area. Other hard hit cities include Salamanca, Olean, Wellsville, and Hornell. The overflow of several Finger Lakes caused damage to boats, docks, marinas and surrounding properties. Rains and floods caused severe crop damage throughout the southwestern tier and Finger Lake counties. Hardest hit were potatoes, corn and hay. Dairy farmers also suffered serious losses. Grape vineyards in the Naples area were inundated and heavy rains occurred at the critical bloom stage. Floods also caused the collapse of a hospital wing at Wellsville. Another tragic loss was the famous Glass Museum at Corning Glassworks. Water rose almost to the ceiling of the museum rooms. Losses included many priceless, ancient glass objects.

Total storm damage in New Jersey was estimated at $15 million with one storm fatality. Crop damage contributed $10 million to the total. In New England damage from wind and rain was considered minor.

Richmond, Virginia's 14th Street Bridge after the floodwaters of the James had receded June 25. The downtown Richmond skyline is in the background. Water during the flood came halfway up the lamppost. The stripped tree trunks washed up with the water. (Wide World Photos)

CHAPTER 2

Climatology

North Atlantic tropical storms occur in June on the average of once every 2 years. About one-half of them reach hurricane strength. Most form in the Gulf of Mexico or western Caribbean Sea. They generally move on a northerly track and come ashore somewhere between Brownsville, Texas and Key West, Florida. Heavy rains have been triggered by these early season storms. In June 1964, a tropical storm dumped 10.38 inches of rain on Conway, S.C. in less than 24 hours. In June 1968, Candy caused extensive flooding in Texas when she spread 3 to 10 inches of rain, in a 1- to 2-day period, over an already saturated southern Texas. A 1960 June tropical storm deluged Port Lavaca with 29.76 inches of rain in 3 days. A feature that sets Agnes apart from these other storms is the broad area of her heavy rains.

Non-seasonal comparisons will be made with Camille, 1969 and Connie and Diane in the 1955 season. After heavily damaging the Mississippi coast, Camille moved eastward over the Appalachians through southwestern Virginia. The mountain crossing triggered rains up to 30 inches in a 6- to 12-hour period. While rains and floods were more localized than those of Agnes, the effect was as severe. Some Virginia crest records set in Camille, were broken during Agnes. Many were not.

Connie and Diane, the hurricane twins of 1955, combined to dump heavy rains throughout the mid-Atlantic and northeast states within a one-week period during mid-August. First Connie soaked the Atlantic Seaboard from North Carolina to New England with 4 to 6 inches of rain. She was quickly followed by Diane. Diane dumped up to 10 inches in a 24-hour period along the southern and eastern slopes of the Blue Ridge Mountains in Virginia and up to 12 inches over Connecticut and southern New England in a similar period. This one-two combination, similar in many respects to the Agnes situation, produced devastating floods in the valleys of eastern Pennsylvania, northern New Jersey, southeastern New York and southern New England. This was a little east of where Agnes was most destructive.

Historical References

There are many books containing information about past hurricanes that will be found useful in comparing Hurricane Agnes with previous storms. The list below gives some of the basic references.

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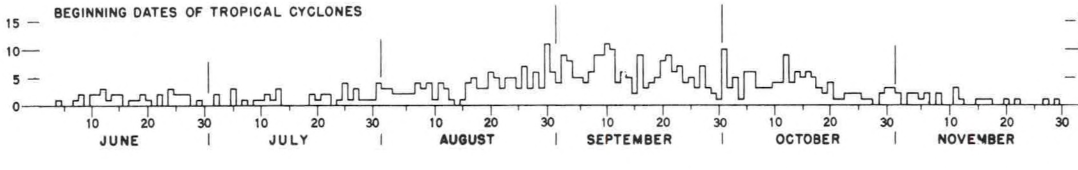

Total daily frequency of dates of beginning of tropical cyclones, 1901-1963, from ESSA Technical Memorandum WB-6, Climatology of Atlantic Tropical Storms and Hurricanes, 1968.

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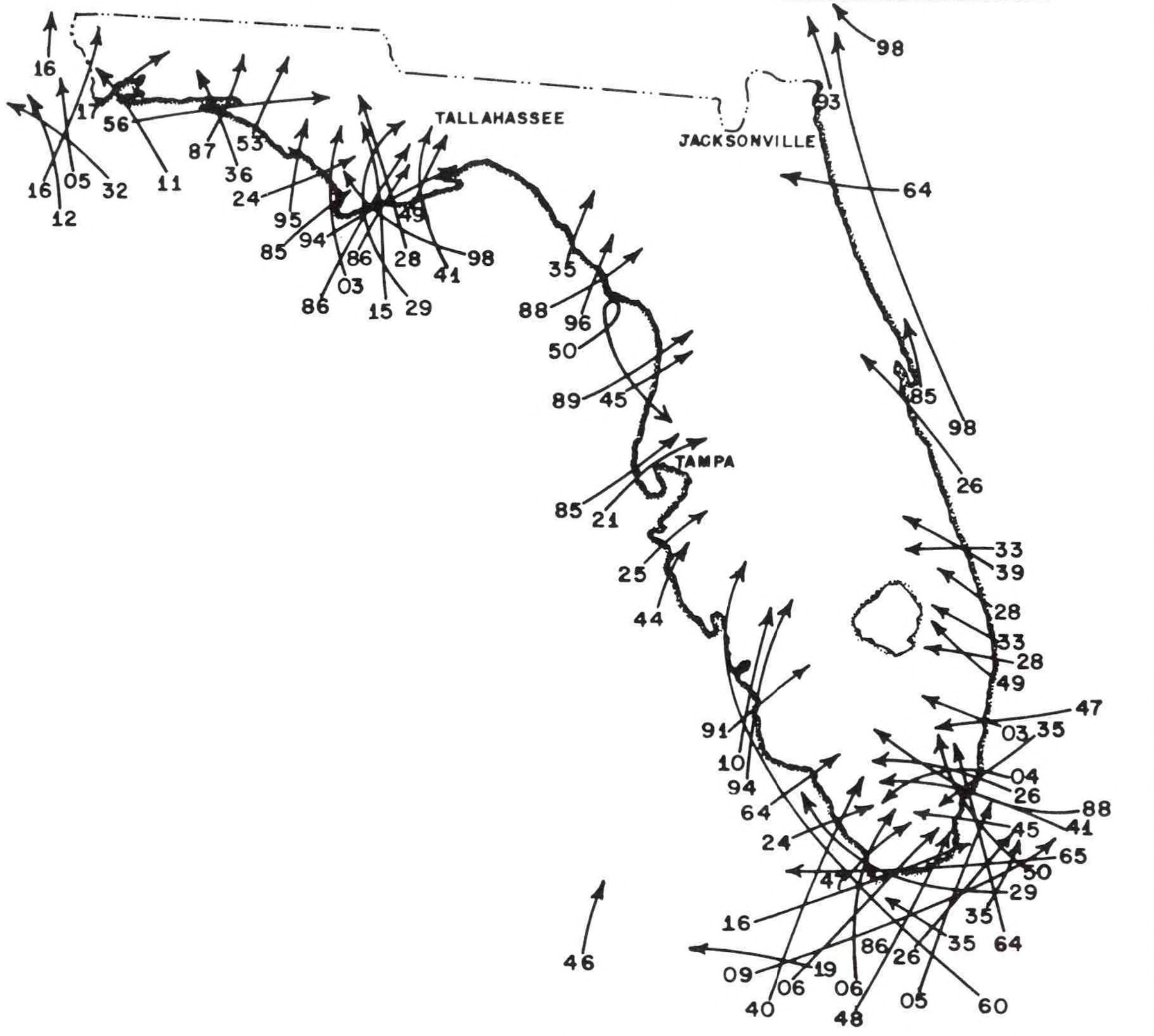
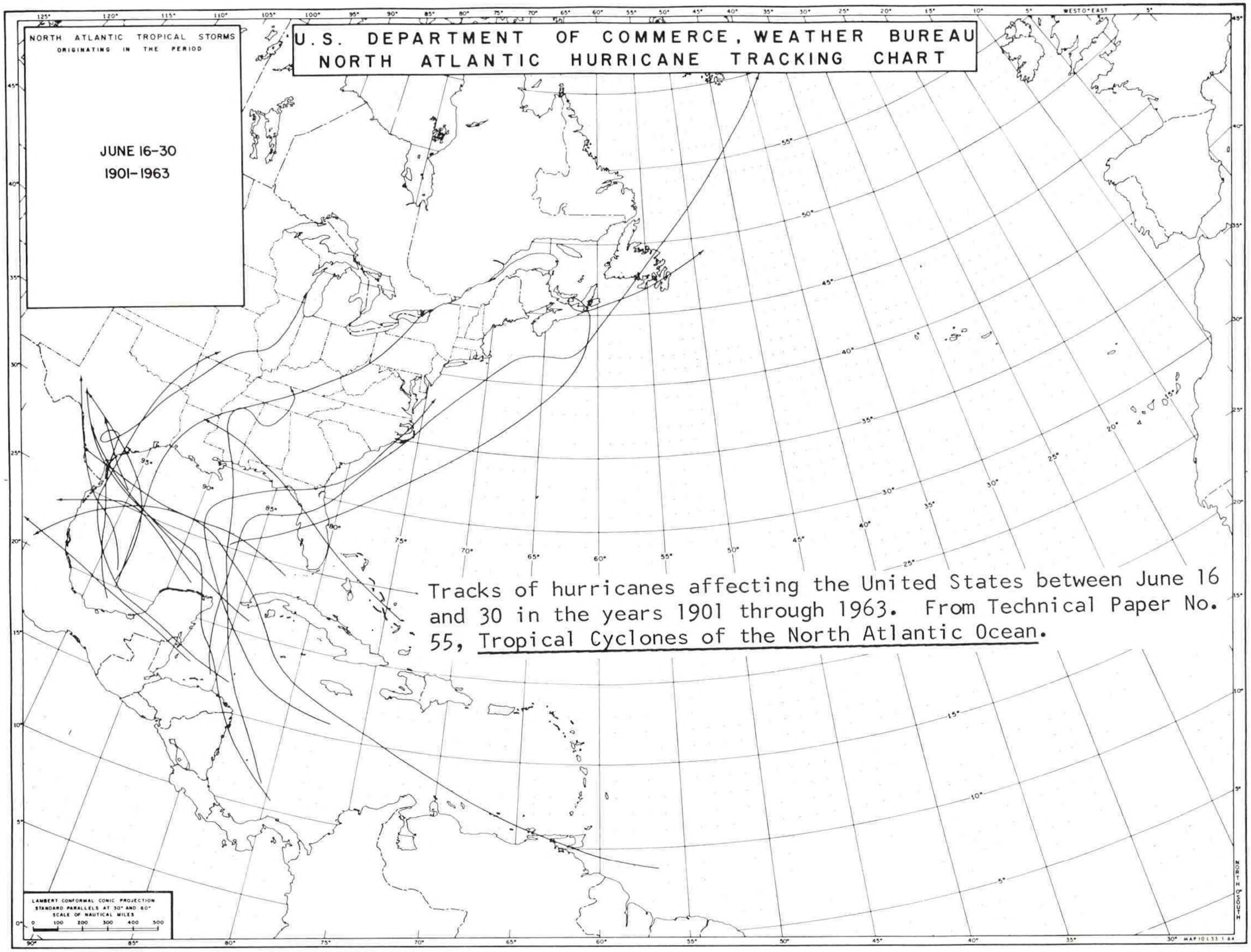
1885 TO 1965

From Weather Bureau Technical Memorandum SR 38, Florida Hurricanes.





Tracks of hurricanes affecting the United States between June 16 and 30 in the years 1901 through 1963. From Technical Paper No. 55, Tropical Cyclones of the North Atlantic Ocean.

Chart of 1-hour rainfall (inches) to be expected in a return period of 50 years. From Technical Paper No. 40, Rainfall Frequency Atlas of the United States.

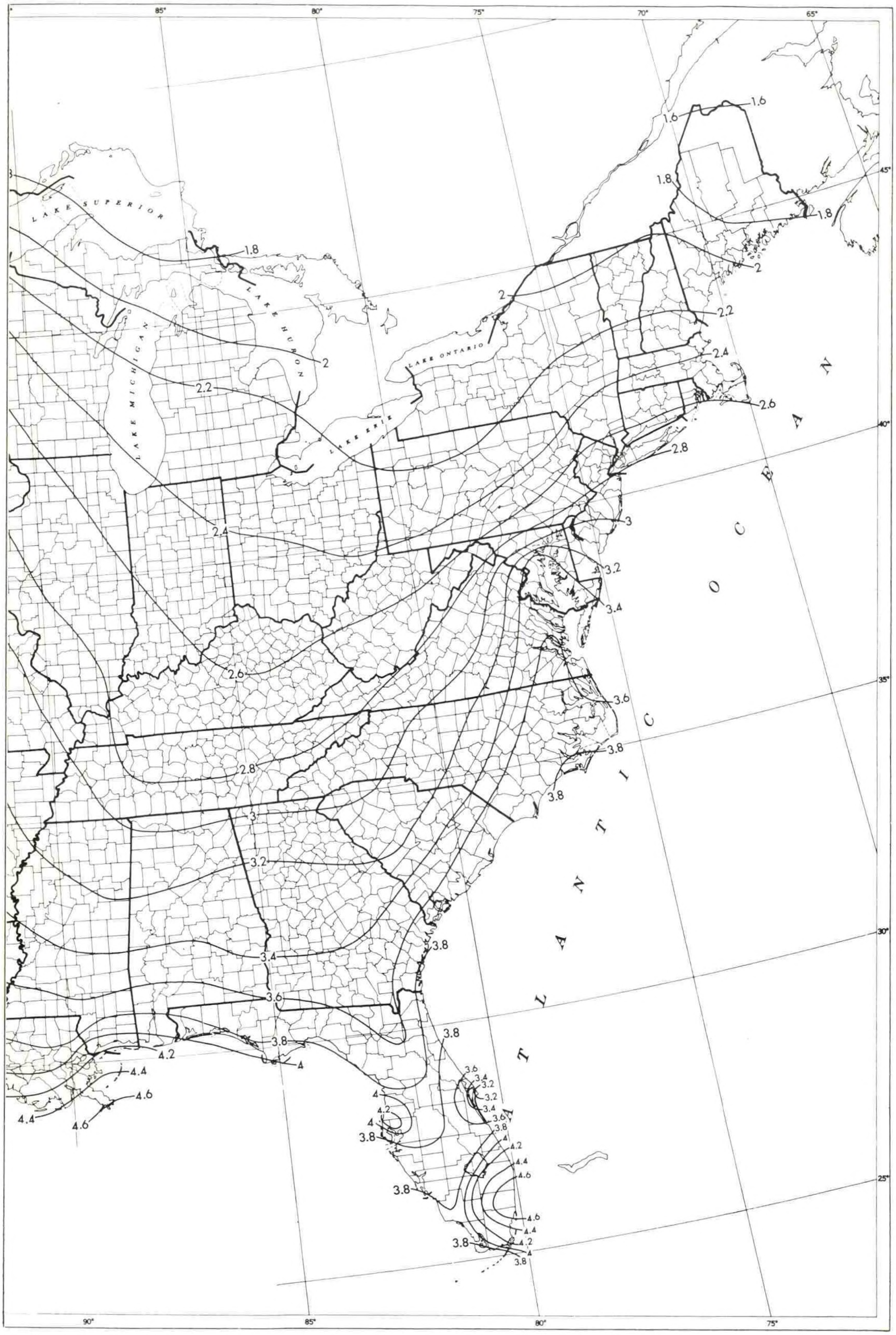


Chart of 6-hour rainfall (inches) to be expected in a return period of 50 years. From Technical Paper No. 40, Rainfall Frequency Atlas of the United States.

Chart of 24-hour rainfall (inches) to be expected in a return period of 100 years. From Technical Paper No. 40, *Rainfall Frequency Atlas of the United States*.

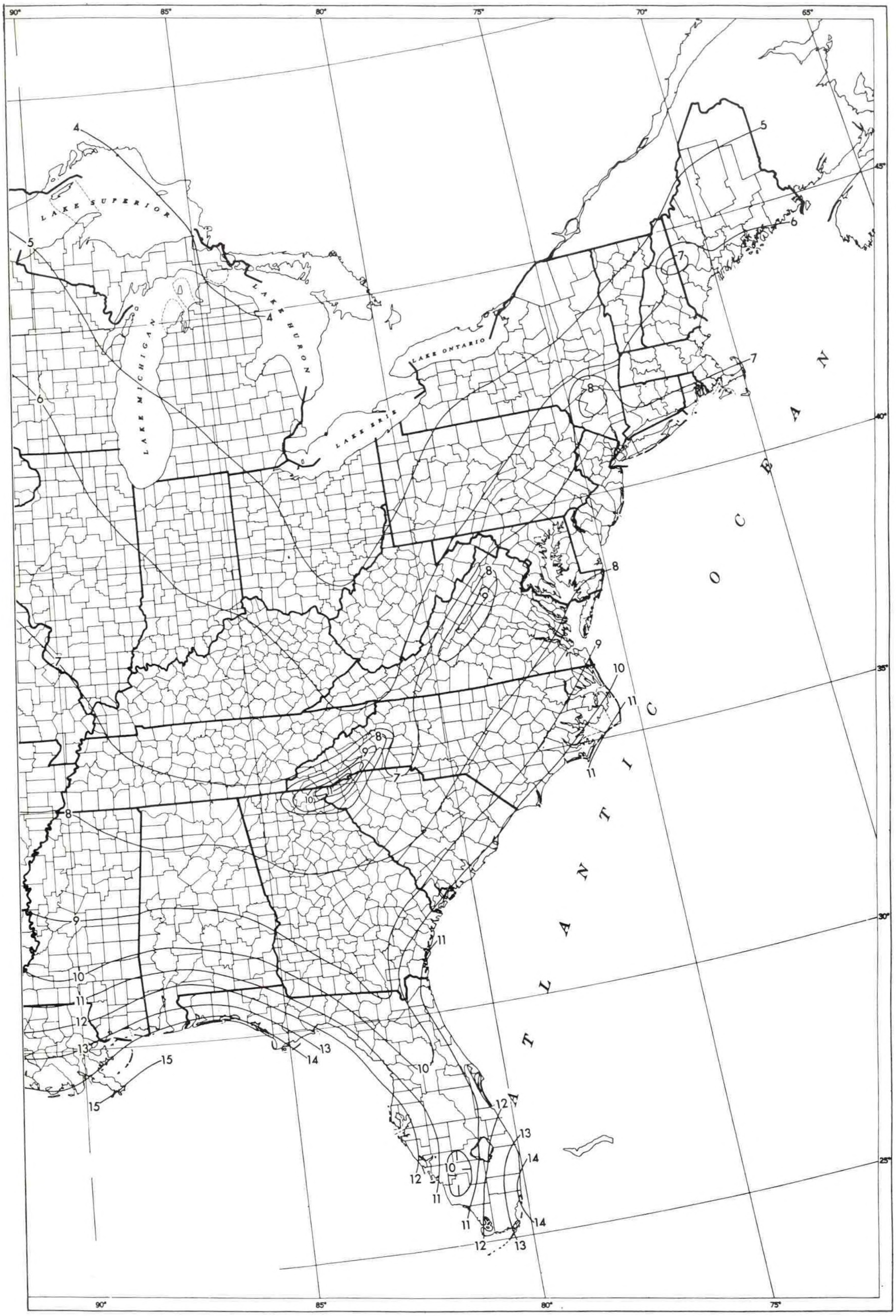
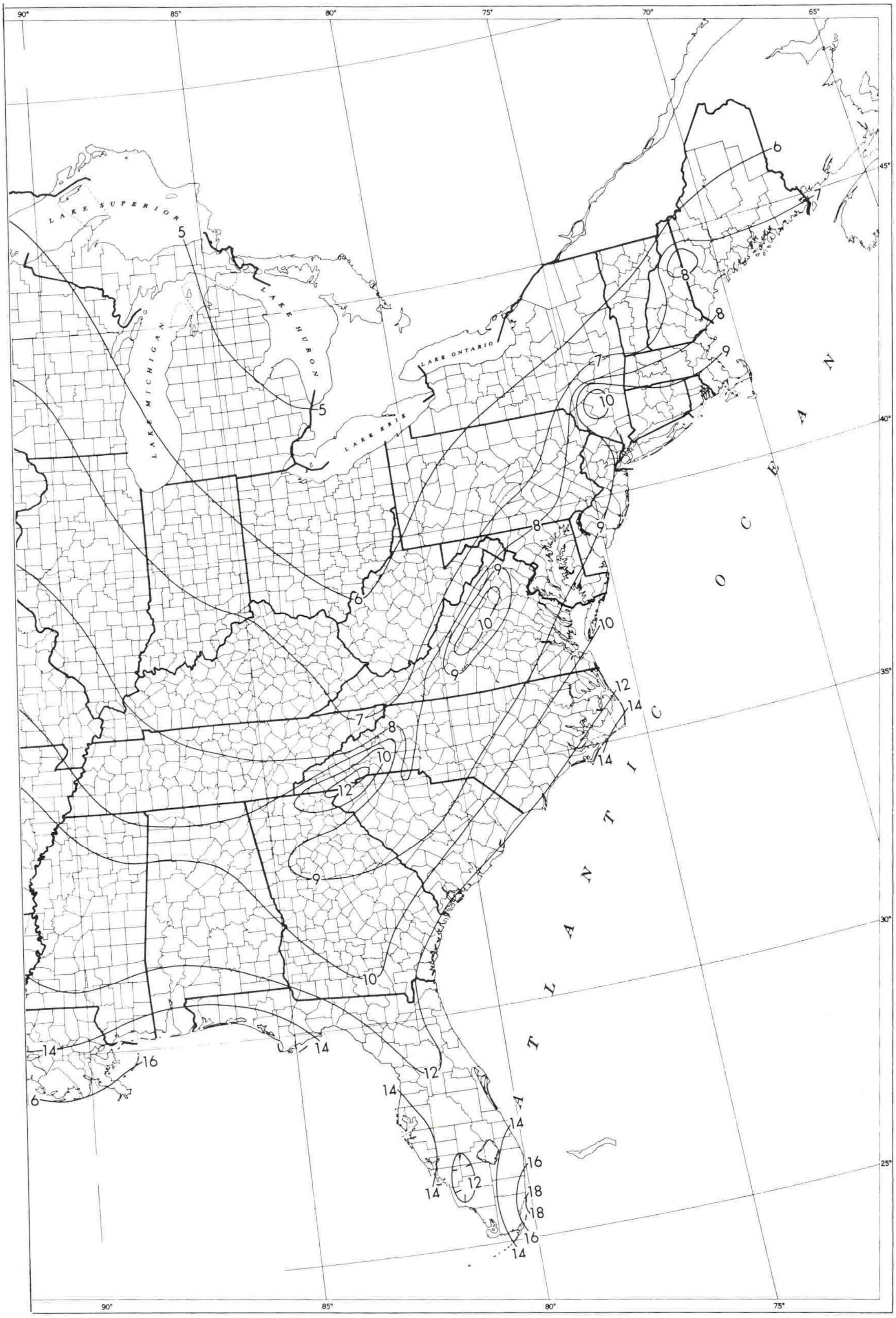


Chart of 2-day precipitation (inches) having a 100-year return period. From Technical Paper No. 49, Two- to Ten-Day Precipitation for Return Periods of 2 to 100 Years.



CHAPTER 3

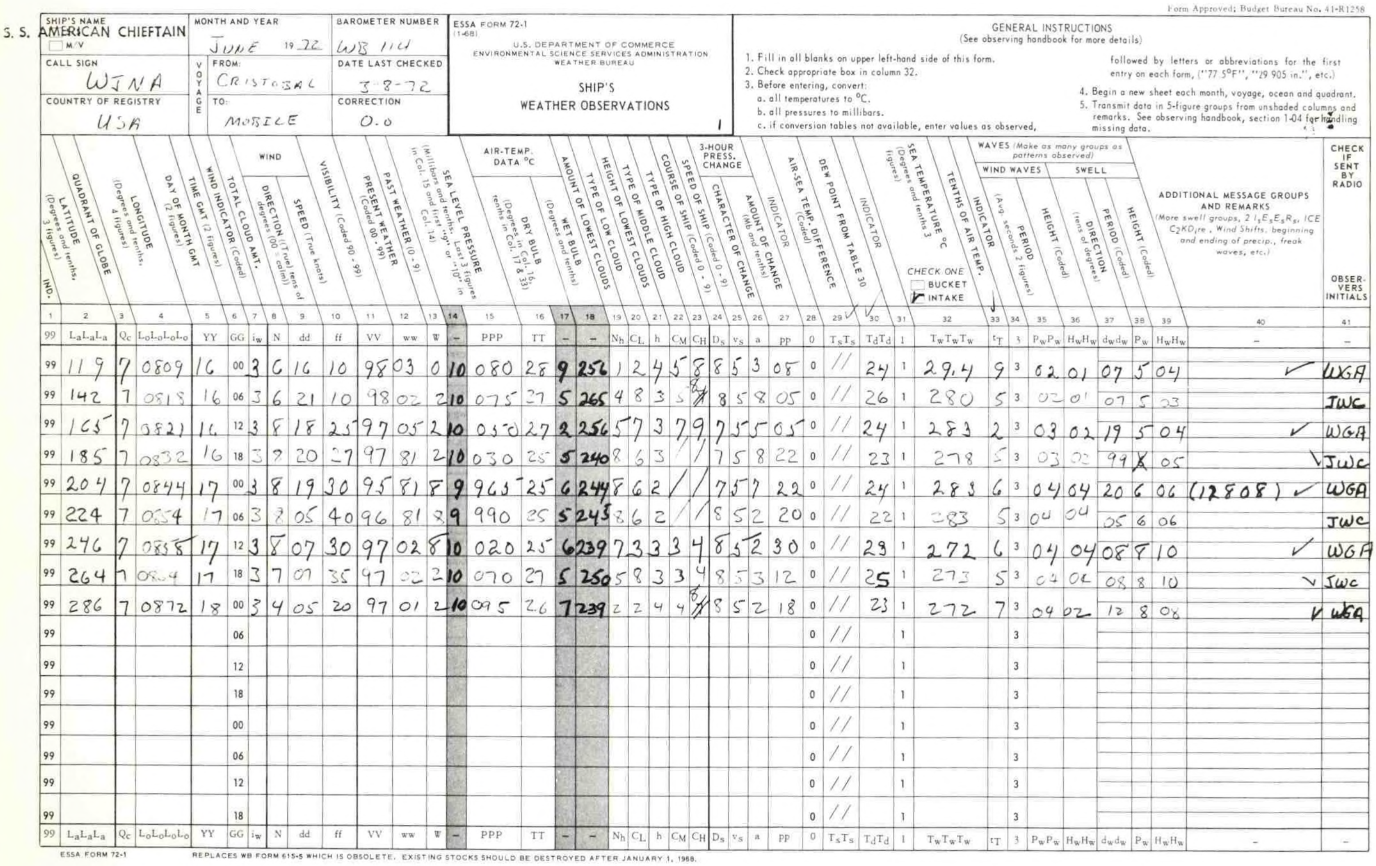
Weather Records

The most detailed information about the weather during the storm will be found in the original records from the meteorological networks. Those shown on the following pages were chosen to illustrate conditions at various points along the hurricane track. They are arranged by type of record (ship, land, aircraft), then in time sequence from earliest to latest. For information about locations not shown here, see Chapter 6, Sources of Additional Data.

Many of the entries on the forms are self-explanatory; others will be understood only by persons having special training. Users needing technical assistance should consider obtaining the services of a consulting meteorologist, rather than contacting Government weather observers.

Explanations of a few of the weather codes are given with the records. Additional information will be found in observing manuals which may be purchased from Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402. Examples are: Federal Meteorological Handbook No. 1, Surface Observations; Weather Bureau Observing Handbook No. 2, Substation Observations; Weather Bureau Observing Handbook No. 1, Marine Surface Observations; and Weather Radar Manual.

Ship Observations



Form Approved; Budget Bureau No. 41-R1258

SHIP'S NAME: S. S. AMERICAN CHIEFTAIN ☐ M/V
MONTH AND YEAR: JUNE 19 72
BAROMETER NUMBER: WB 114
CALL SIGN: WJNA
VOYAGE FROM: CRISTOBAL
DATE LAST CHECKED: 3-8-72
COUNTRY OF REGISTRY: USA
VOYAGE TO: MOBILE
CORRECTION: 0.0

ESSA FORM 72-1
(1-68)
U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
WEATHER BUREAU
SHIP'S
WEATHER OBSERVATIONS
1

GENERAL INSTRUCTIONS
(See observing handbook for more details)

1. Fill in all blanks on upper left-hand side of this form.
2. Check appropriate box in column 32.
3. Before entering, convert:
   a. all temperatures to °C.
   b. all pressures to millibars.
   c. if conversion tables not available, enter values as observed, followed by letters or abbreviations for the first entry on each form, ("77.5°F", "29.905 in.", etc.)
4. Begin a new sheet each month, voyage, ocean and quadrant.
5. Transmit data in 5-figure groups from unshaded columns and remarks. See observing handbook, section 1-04 for handling missing data.

								WIND							AIR-TEMP. DATA °C										3-HOUR PRESS. CHANGE									WAVES (Make as many groups as patterns observed) WIND WAVES		SWELL				CHECK IF SENT BY RADIO
IND.	LATITUDE (Degrees and tenths, 3 figures)	QUADRANT OF GLOBE	LONGITUDE (Degrees and tenths, 4 figures)	DAY OF MONTH GMT (2 figures)	TIME GMT (2 figures)	WIND INDICATOR (Coded)	TOTAL CLOUD AMT.	DIRECTION ((True) tens of degrees (00 = calm))	SPEED (True knots)	VISIBILITY (Coded 90 - 99)	PRESENT WEATHER (Coded 00 - 99)	PAST WEATHER (0 - 9)	SEA LEVEL PRESSURE (Millibars and tenths. Last 3 figures in Col. 15 and first "9" or "10" in Col. 14)		DRY BULB (Degrees in Col. 16, tenths in Col. 17 & 33)		WET BULB (Degrees and tenths)	AMOUNT OF LOWEST CLOUDS	TYPE OF LOW CLOUD	HEIGHT OF LOWEST CLOUDS	TYPE OF MIDDLE CLOUD	TYPE OF HIGH CLOUD	COURSE OF SHIP (Coded 0 - 9)	SPEED OF SHIP (Coded 0 - 9)	CHARACTER OF CHANGE	AMOUNT OF CHANGE (Mb and tenths)	INDICATOR	AIR-SEA TEMP. DIFFERENCE (Coded)	DEW POINT FROM TABLE 30	INDICATOR	SEA TEMPERATURE °C (Degrees and tenths 3 figures) CHECK ONE ☐ BUCKET ☑ INTAKE	TENTHS OF AIR TEMP.	INDICATOR	PERIOD (Avg. seconds 2 figures)	HEIGHT (Coded)	DIRECTION (tens of degrees)	PERIOD (Coded)	HEIGHT (Coded)	ADDITIONAL MESSAGE GROUPS AND REMARKS (More swell groups, 2 $I_sE_sE_sR_s$, ICE C_2KD_ire, Wind Shifts, beginning and ending of precip., freak waves, etc.)	OBSERVERS INITIALS
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
99	$L_aL_aL_a$	Q_c	$L_oL_oL_oL_o$	YY	GG	i_w	N	dd	ff	VV	ww	W	–	PPP	TT	–	–	N_h	C_L	h	C_M	C_H	D_s	v_s	a	pp	0	T_sT_s	T_dT_d	1	$T_wT_wT_w$	t_T	3	P_wP_w	H_wH_w	d_wd_w	P_w	H_wH_w	–	–
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99	286	7	0872	18	00	3	4	05	20	97	01	2	10	095	26	7	239	2	2	4	4	~~4~~ 8	8	5	2	18	0	//	23	1	272	7	3	04	02	12	8	08	✓	WGA
99					06																						0	//		1			3							
99					12																						0	//		1			3							
99					18																						0	//		1			3							
99					00																						0	//		1			3							
99					06																						0	//		1			3							
99					12																						0	//		1			3							
99					18																						0	//		1			3							
99	$L_aL_aL_a$	Q_c	$L_oL_oL_oL_o$	YY	GG	i_w	N	dd	ff	VV	ww	W	–	PPP	TT	–	–	N_h	C_L	h	C_M	C_H	D_s	v_s	a	pp	0	T_sT_s	T_dT_d	1	$T_wT_wT_w$	t_T	3	P_wP_w	H_wH_w	d_wd_w	P_w	H_wH_w	–	–

ESSA FORM 72-1

REPLACES WB FORM 615-5 WHICH IS OBSOLETE. EXISTING STOCKS SHOULD BE DESTROYED AFTER JANUARY 1, 1969.

Form Approved; Budget Bureau No. 41-R1258

SHIP'S NAME ☑ S/S ☐ M/V Eclipse

MONTH AND YEAR June 1972

BAROMETER NUMBER 42-661

ESSA FORM 72-1 (7-68)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
WEATHER BUREAU

SHIP'S WEATHER OBSERVATIONS

CALL SIGN KJFA

VOYAGE FROM: Providence

VOYAGE TO: Brownsville

DATE LAST CHECKED 5-24-72

CORRECTION 0

COUNTRY OF REGISTRY USA

GENERAL INSTRUCTIONS
(See observing handbook for more details)

1. Fill in all blanks on upper left-hand side of this form.
2. Check appropriate box in column 32.
3. Before entering, convert:
   a. all temperatures to °C.
   b. all pressures to millibars.
   c. if conversion tables not available, enter values as observed, followed by letters or abbreviations for the first entry on each form, ("77.5°F", "29.905 in.", etc.)
4. Begin a new sheet each month, voyage, ocean and quadrant.
5. Transmit data in 5-figure groups from unshaded columns and remarks. See observing handbook, section 1-04 for handling missing data.

1 IND.; 2 LATITUDE (Degrees and tenths, 3 figures); 3 QUADRANT OF GLOBE; 4 LONGITUDE (Degrees and tenths, 4 figures); 5 DAY OF MONTH GMT (2 figures); 6 TIME GMT (2 figures); 7 WIND INDICATOR (Coded); 8 TOTAL CLOUD AMT.; WIND: 9 DIRECTION ((True) tens of degrees (00 = calm)), 10 SPEED (True knots); 11 VISIBILITY (Coded 90 - 99); 12 PRESENT WEATHER (Coded 00 - 99); 13 PAST WEATHER (0 - 9); 14–15 SEA LEVEL PRESSURE (Millibars and tenths. Last 3 figures in Col. 15 and first "9" or "10" in Col. 14); AIR-TEMP. DATA °C: 16 DRY BULB (Degrees in Col. 16, tenths in Col. 17 & 33), 18 WET BULB (Degrees and tenths); 19 AMOUNT OF LOWEST CLOUD; 20 TYPE OF LOW CLOUD; 21 HEIGHT OF LOWEST CLOUDS; 22 TYPE OF MIDDLE CLOUD; 23 TYPE OF HIGH CLOUD; 24 COURSE OF SHIP (Coded 0 - 9); 25 SPEED OF SHIP (Coded 0 - 9); 3-HOUR PRESS. CHANGE: 26 CHARACTER OF CHANGE, 27 AMOUNT OF CHANGE (Mb and tenths); 28 INDICATOR; 29 AIR-SEA TEMP. DIFFERENCE (Coded); 30 DEW POINT FROM TABLE 30; 31 INDICATOR; 32 SEA TEMPERATURE °C (Degrees and tenths 3 figures) CHECK ONE ☐ BUCKET ☑ INTAKE; 33 TENTHS OF AIR TEMP.; 34 INDICATOR; WAVES (Make as many groups as patterns observed): WIND WAVES: 35 PERIOD (Avg. seconds 2 figures), 36 HEIGHT (Coded); SWELL: 37 DIRECTION (tens of degrees), 38 PERIOD (Coded), 39 HEIGHT (Coded); 40 ADDITIONAL MESSAGE GROUPS AND REMARKS (More swell groups, 2 $I_sE_sE_sR_s$, ICE $C_2KD_ir_e$, Wind Shifts, beginning and ending of precip., freak waves, etc.); CHECK IF SENT BY RADIO; 41 OBSERVERS INITIALS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
99	$L_aL_aL_a$	Q_c	$L_oL_oL_oL_o$	YY	GG	i_w	N	dd	ff	VV	ww	W	–	PPP	TT	–	–	N_h	C_L	h	C_M	C_H	D_s	v_s	a	pp	0	T_sT_s	T_dT_d	1	$T_wT_wT_w$	t_T	3	P_wP_w	H_wH_w	d_wd_w	P_w	H_wH_w	–	–
99					00																						0	//		1			3							
99					06																						0	//		1			3							
99	390	7	0720	15	12	3	8	18	25	98	02	0	10	220	20	0	180	6	5	4	5	4	4	4	2	09	0	//	17	1	157	0	3	04	03	18	5	03		HAD
99	372	7	0728	15	18	3	2	18	12	98	02	0	10	227	23	8	206	2	4	4	0	0	4	3	2	07	0	//	20	1	188	8	3	05	02					FJM
99	360	7	0732	16	00	5	k	13	20	98	02	0	10	210	23	5	206	2	4	4	5	4	4	3	7	05	0	//	20	1	200	5	3	03	02	—				~~HAD~~
99	345	7	0745	16	06	3	5	14	18	98	02	0	10	200	23	3	200	5	4	4	/	/	4	3	7	10	0	//	18	1	26.8	3	3	05	02					FJM
99	330	7	0756	16	12	3	5	14	20	98	02	0	10	186	23	5	210	4	4	4	4	4	4	3	7	07	0	//	19	1	268	5	3	03	02	—				~~HAD~~
99	316	7	0765	16	18	3	6	14	18	98	02	1	10	186	26	2	233	6	3	4	0	0	4	3	4	00	0	//	22	1	250	2	3	05	02					FJM
99	300	7	0775	17	00	3	6	12	20	98	03	2	10	159	25	5	240	6	3	4	/	4	4	3	7	14	0	//	23	1	250	5	3	05	03	12	5	02		HAD
99	286	7	0786	17	06	3	7	14	20	98	02	2	10	132	25	6	228	7	3	4	/	/	4	3	7	27	0	//	22	1	256	6	3	05	03	12	1	03		FJM
99	273	7	0792	17	12	3	6	14	20	98	03	7	10	103	26	5	245	3	3	4	7	4	4	3	7	12	0	//	23	1	260	5	3	05	04	14	7	04		HAD
99	259	7	0800	17	18	3	8	09	20	97	25	8	10	102	26	7	244	8	7	3	/	/	4	3	7	06	0	//	23	1	278	7	3	05	03	09	1	05		FJM
99					00													Florida					Keys				0	//		1			3							
99	244	7	0826	18	06	3	8	14	25	96	63	6	10	030	25	6	244	8	7	3	/	/	6	3	7	51	0	//	24	1	278	6	3	07	03	14	1	06		FJM
99	247	7	0843	18	12	3	8	14	40	96	63	6	9	962	25	0	240	8	6	2	/	/	6	3	7	51	0	//	23	1	270	0	3	07	03	10	1	08		HAD
99	257	7	0857	18	18	3	8	07	35	96	65	6	9	905	24	3	233	8	6	2	/	/	6	3	7	5.1	0	//	23	1	268	3	3	07	03	09	2	09		FJM
99	$L_aL_aL_a$	Q_c	$L_oL_oL_oL_o$	YY	GG	i_w	N	dd	ff	VV	ww	W	–	PPP	TT	–	–	N_h	C_L	h	C_M	C_H	D_s	v_s	a	pp	0	T_sT_s	T_dT_d	1	$T_wT_wT_w$	t_T	3	P_wP_w	H_wH_w	d_wd_w	P_w	H_wH_w	–	–

Form Approved; Budget Bureau No. 41-R1258

SHIP'S NAME ☑ S/S ☐ M/V ATLANTIC PRESTIGE

MONTH AND YEAR June 1972

BAROMETER NUMBER N/A

ESSA FORM 72-1 (1-68)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
WEATHER BUREAU

SHIP'S WEATHER OBSERVATIONS

CALL SIGN WLDU

VOYAGE FROM: Houston Texas

VOYAGE TO: Philadelphia PA

DATE LAST CHECKED 5-31-72

CORRECTION 00

COUNTRY OF REGISTRY USA

GENERAL INSTRUCTIONS
(See observing handbook for more details)

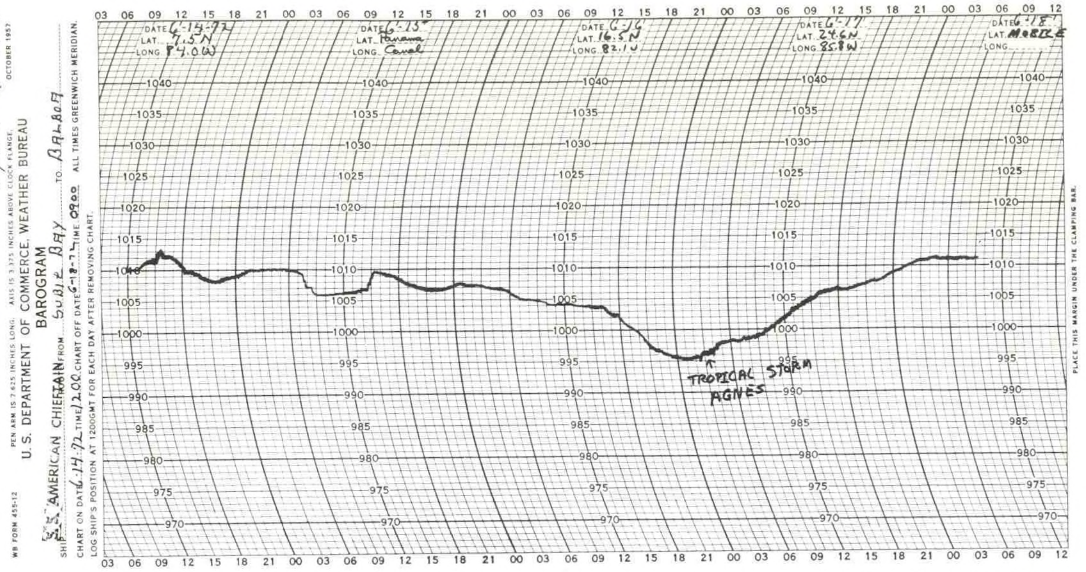
1. Fill in all blanks on upper left-hand side of this form.
2. Check appropriate box in column 32.
3. Before entering, convert:
   a. all temperatures to °C.
   b. all pressures to millibars.
   c. if conversion tables not available, enter values as observed, followed by letters or abbreviations for the first entry on each form, ("77.5°F", "29.905 in.", etc.)
4. Begin a new sheet each month, voyage, ocean and quadrant.
5. Transmit data in 5-figure groups from unshaded columns and remarks. See observing handbook, section 1-04 for handling missing data.

1 IND.; 2 LATITUDE (Degrees and tenths, 3 figures); 3 QUADRANT OF GLOBE; 4 LONGITUDE (Degrees and tenths, 4 figures); 5 DAY OF MONTH GMT (2 figures); 6 TIME GMT (2 figures); 7 WIND INDICATOR (Coded); 8 TOTAL CLOUD AMT.; WIND: 9 DIRECTION ((True) tens of degrees (00 = calm)), 10 SPEED (True knots); 11 VISIBILITY (Coded 90 - 99); 12 PRESENT WEATHER (Coded 00 - 99); 13 PAST WEATHER (0 - 9); 14–15 SEA LEVEL PRESSURE (Millibars and tenths. Last 3 figures in Col. 15 and first "9" or "10" in Col. 14); AIR-TEMP. DATA °C: 16 DRY BULB (Degrees in Col. 16, tenths in Col. 17 & 33), 18 WET BULB (Degrees and tenths); 19 AMOUNT OF LOWEST CLOUD; 20 TYPE OF LOW CLOUD; 21 HEIGHT OF LOWEST CLOUDS; 22 TYPE OF MIDDLE CLOUD; 23 TYPE OF HIGH CLOUD; 24 COURSE OF SHIP (Coded 0 - 9); 25 SPEED OF SHIP (Coded 0 - 9); 3-HOUR PRESS. CHANGE: 26 CHARACTER OF CHANGE, 27 AMOUNT OF CHANGE (Mb and tenths); 28 INDICATOR; 29 AIR-SEA TEMP. DIFFERENCE (Coded) ✓; 30 DEW POINT FROM TABLE 30 ✓; 31 INDICATOR; 32 SEA TEMPERATURE °C (Degrees and tenths 3 figures) CHECK ONE ☐ BUCKET ☑ INTAKE; 33 TENTHS OF AIR TEMP. ✓; 34 INDICATOR; WAVES (Make as many groups as patterns observed): WIND WAVES: 35 PERIOD (Avg. seconds 2 figures), 36 HEIGHT (Coded); SWELL: 37 DIRECTION (tens of degrees), 38 PERIOD (Coded), 39 HEIGHT (Coded); 40 ADDITIONAL MESSAGE GROUPS AND REMARKS (More swell groups, 2 $I_sE_sE_sR_s$, ICE $C_2KD_ir_e$, Wind Shifts, beginning and ending of precip., freak waves, etc.); CHECK IF SENT BY RADIO; 41 OBSERVERS INITIALS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
99	$L_aL_aL_a$	Q_c	$L_oL_oL_oL_o$	YY	GG	i_w	N	dd	ff	VV	ww	W	–	PPP	TT	–	–	N_h	C_L	h	C_M	C_H	D_s	v_s	a	pp	0	T_sT_s	T_dT_d	1	$T_wT_wT_w$	t_T	3	P_wP_w	H_wH_w	d_wd_w	P_w	H_wH_w	–	–
99	[illegible]	7	07	21	00	3	8	23	25	97	03	3	10	024	270	0	240	5	5	3	/	/	8	4	7	20	0	//	26	1	278	0	3	05	05					[illegible]
99	316	7	0790	21	06	3	8	25	28	97	15	2	9 ~~10~~	986 ~~[illegible]~~	25	5	230	8	7	3	/	/	1	4	~~4~~	31 ~~22~~	0	//	22	1	278	5	3	05	06					RSR
99	328	7	0773	21	12	3	8	25	25	96	60	2	9	953	23	0	230	8	7	3	/	/	1	4	~~4~~	~~1.7~~	0	//	23	1	278	0	3	05	04	~~25~~	~~9~~	~~05~~		[illegible]
99	341	7	0760	21	18	3	8	22	25	97	15	2	9	909	25	5	225	6	7	3	9	/	1	4	7	20	0	//	21	1	268	0	3	05	04					RSR
99	306	7	0752	22	00	3	8	18	10	97	01	3	9	881	24	0	230	1	3	3	9	/	1	4	7	20	0	//	23	1	244	0	3	05	02	16	6	05		[illegible]
99	367	7	0748	22	06	3	8	25	28	97	02	5	9	851	20	0	195	8	5	3	/	/	1	2	7	1.4	0	//	19	1	223		3	04	04	27	7	07		RLR
99	[illegible]	7	[illegible]	22	12	3	8	32	60	95	07	2	9	841	18	0	180	8	7	3	/	/	1	2	5	10	0	//	15	1	194	0	3	04	06					[illegible]
99					18																						0	//		1			3							
99					00																						0	//		1			3							
99					06																						0	//		1			3							
99					12																						0	//		1			3							
99					18																						0	//		1			3							
99					00																						0	//		1			3							
99					06																						0	//		1			3							
99					12																						0	//		1			3							
99					18																						0	//		1			3							
99	$L_aL_aL_a$	Q_c	$L_oL_oL_oL_o$	YY	GG	i_w	N	dd	ff	VV	ww	W	–	PPP	TT	–	–	N_h	C_L	h	C_M	C_H	D_s	v_s	a	pp	0	T_sT_s	T_dT_d	1	$T_wT_wT_w$	t_T	3	P_wP_w	H_wH_w	d_wd_w	P_w	H_wH_w	–	–

ESSA FORM 72-1 REPLACES WB FORM 615-5 WHICH IS OBSOLETE. EXISTING STOCKS SHOULD BE DESTROYED AFTER JANUARY 1, 1968.

5/3 → 6/18/72



WB FORM 455-12 PEN ARM IS 7.625 INCHES LONG. AXIS IS 3.375 INCHES ABOVE CLOCK FLANGE. OCTOBER 1957

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU

BAROGRAM

SHIP S.S. AMERICAN CHIEFTAIN FROM SUBIC BAY TO BALBOA

CHART ON DATE 6-14-72 TIME 1200 CHART OFF DATE 6-18-72 TIME 0900 ALL TIMES GREENWICH MERIDIAN.

LOG SHIP'S POSITION AT 1200GMT FOR EACH DAY AFTER REMOVING CHART.

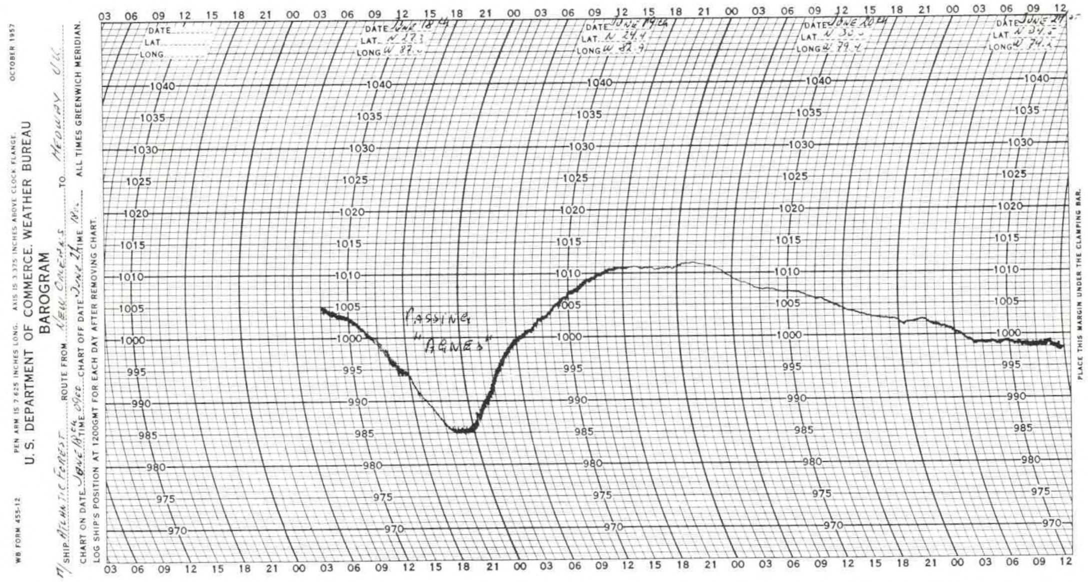
DATE 6-14-72 LAT. 7.5 N LONG. 84.0 W

DATE 6-15" LAT. Panama LONG. Canal

DATE 6-16 LAT. 16.5 N LONG. 82.1 W

DATE 6-17 LAT. 24.6 N LONG. 85.8 W

DATE 6-18 LAT. MOBILE LONG.



WB FORM 455-12 PEN ARM IS 7.625 INCHES LONG. AXIS IS 3.375 INCHES ABOVE CLOCK FLANGE. OCTOBER 1957

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU

BAROGRAM

M/SHIP ATLANTIC FOREST ROUTE FROM NEW ORLEANS TO MEDWAY U.K.

CHART ON DATE JUNE 18 TIME 0900 CHART OFF DATE JUNE 21 TIME 1800 ALL TIMES GREENWICH MERIDIAN.

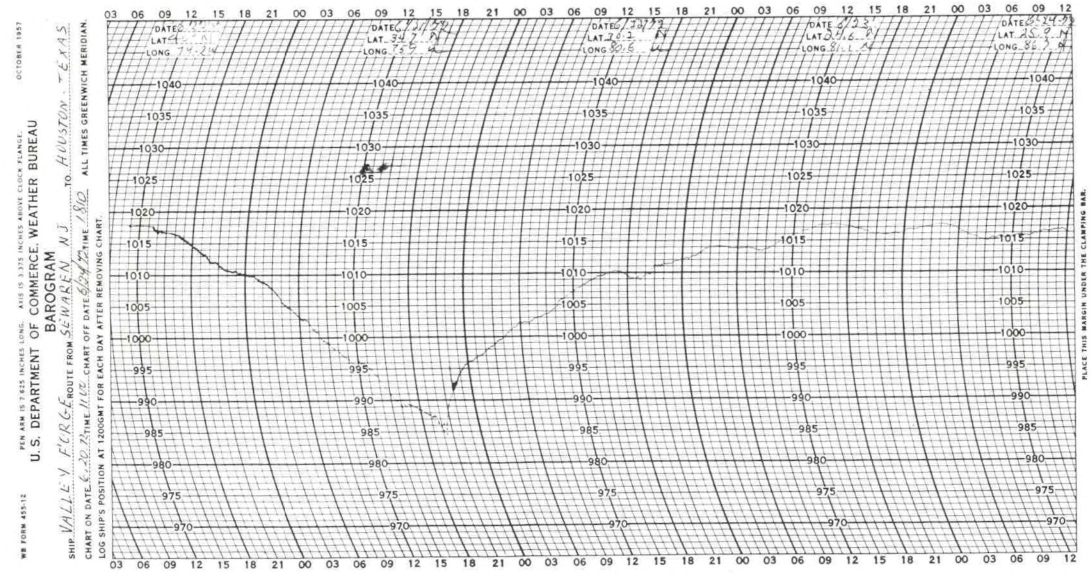
LOG SHIP'S POSITION AT 1200GMT FOR EACH DAY AFTER REMOVING CHART.

DATE JUNE 18 LAT. N 27.3 LONG. W 87.

DATE JUNE 19 LAT. N 24.4 LONG. W 82.9

DATE JUNE 20 LAT. N 30. LONG. W 79.4

DATE JUNE 21 LAT. N 34.5 LONG. W 74.2



WB FORM 455-12 PEN ARM IS 7.625 INCHES LONG. AXIS IS 3.375 INCHES ABOVE CLOCK FLANGE. OCTOBER 1957

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU

BAROGRAM

SHIP VALLEY FORGE ROUTE FROM SEWAREN NJ TO HOUSTON - TEXAS

CHART ON DATE 6.20.72 TIME 1102 CHART OFF DATE 6/24/72 TIME 1810 ALL TIMES GREENWICH MERIDIAN.

LOG SHIP'S POSITION AT 1200GMT FOR EACH DAY AFTER REMOVING CHART.

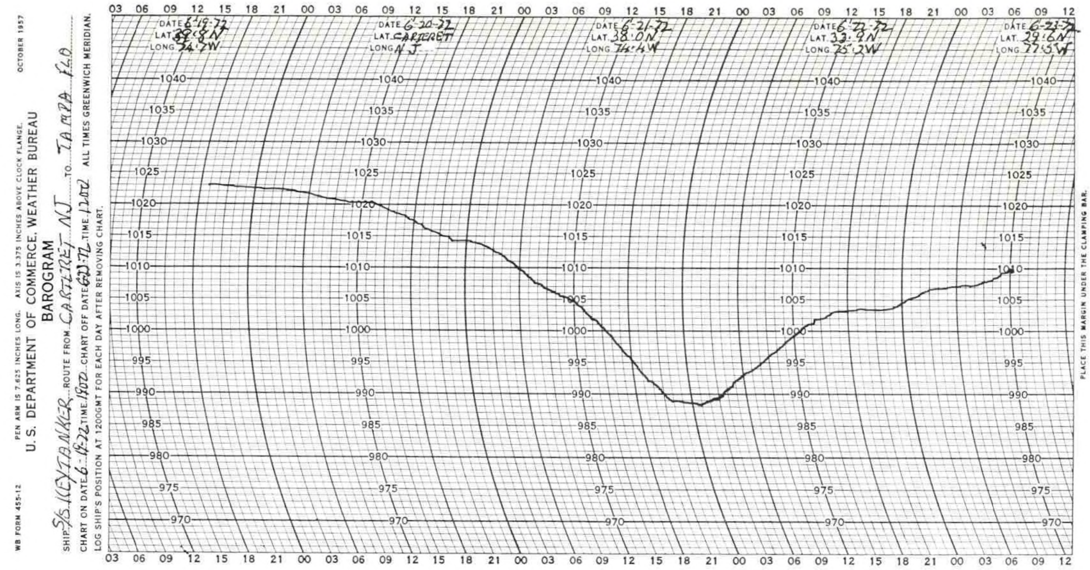
DATE 6/20 LAT. 40.2 N LONG. 74.2 W

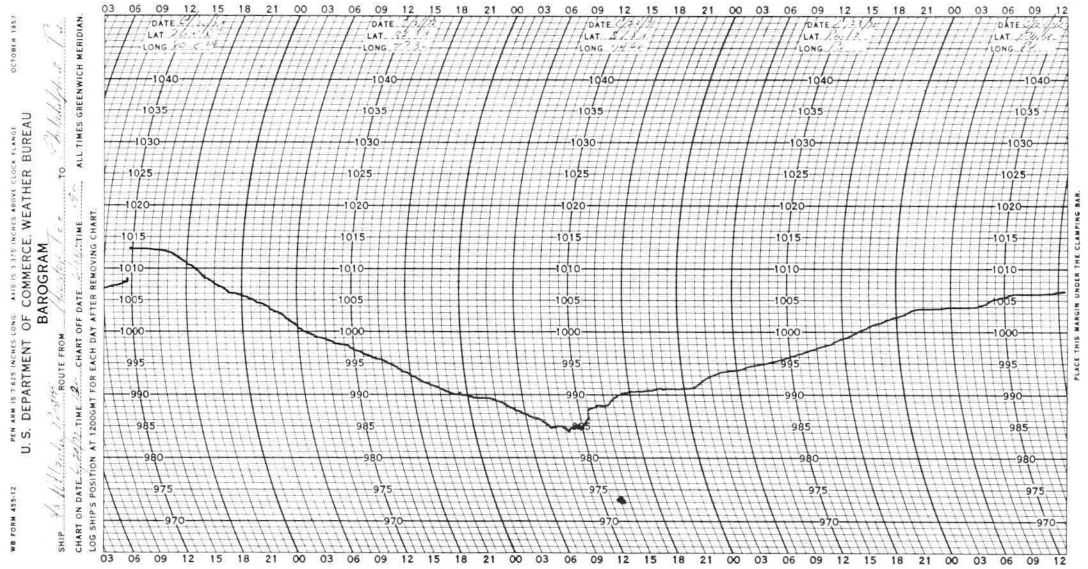
DATE 6/21/72 LAT. 34.7 N LONG. 75.9 W

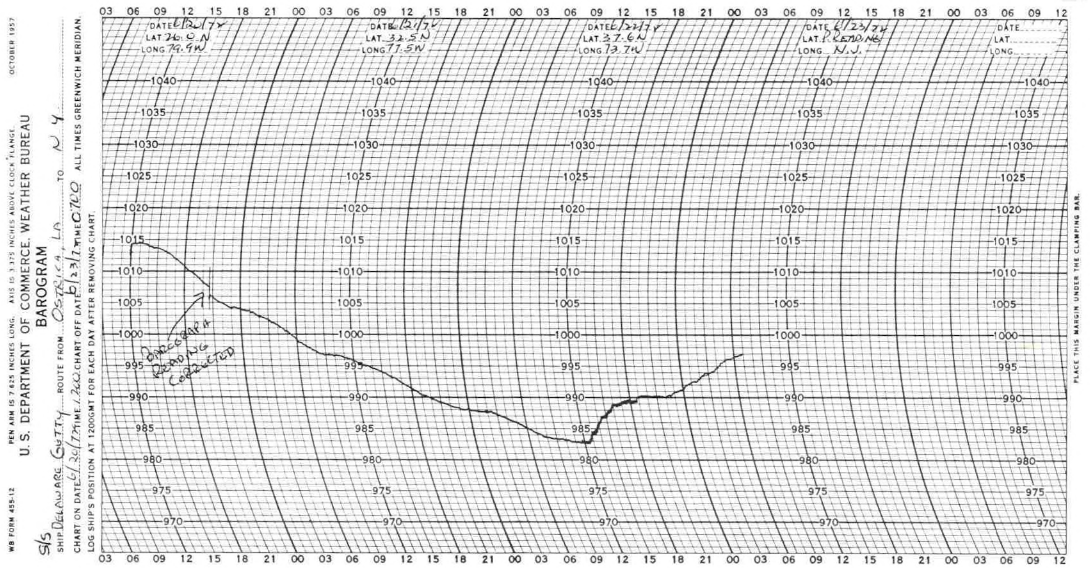
DATE 6/22/72 LAT. 30.2 N LONG. 80.6 W

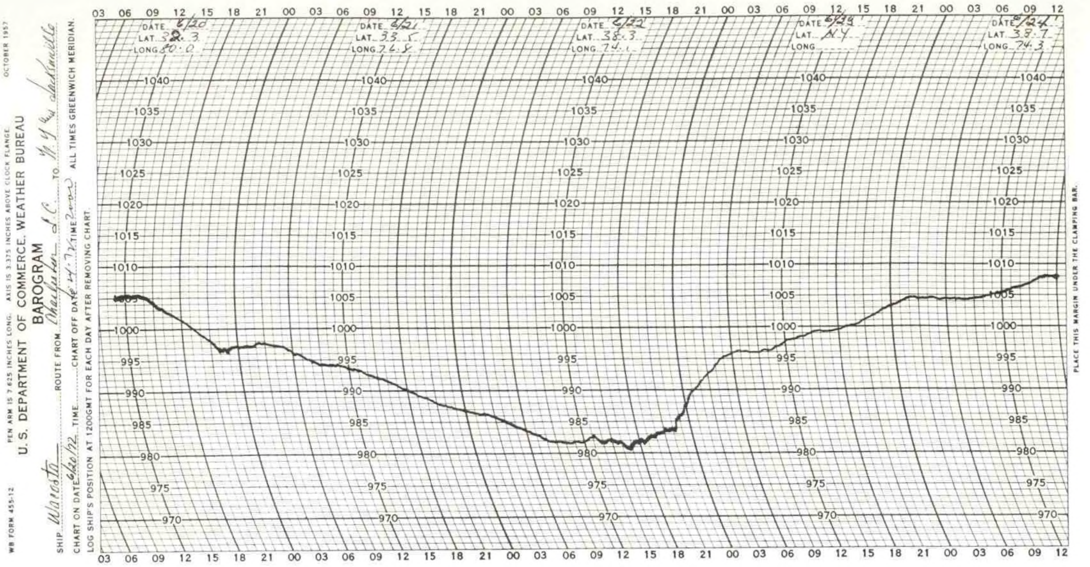
DATE 6/23 LAT. 24.6 N LONG. 81.1 W

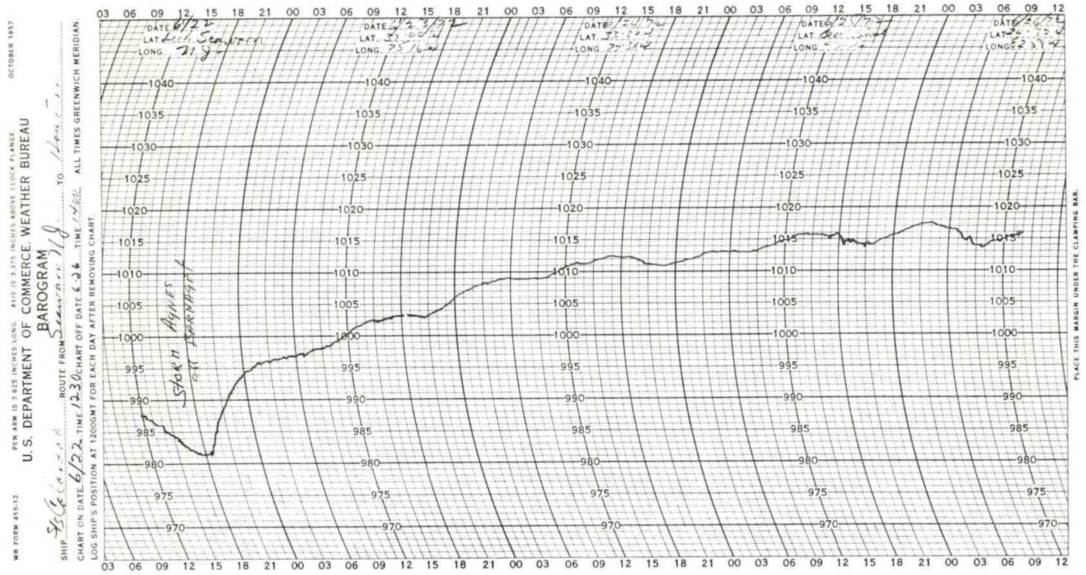
DATE 6-24-72 LAT. 25.9 N LONG. 86.3 W

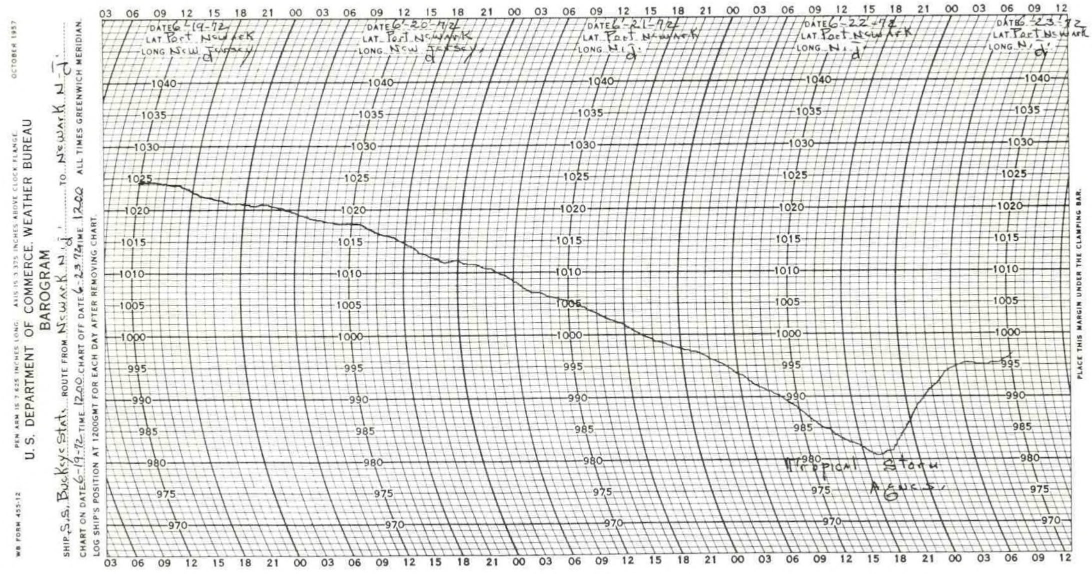

WB FORM 455-12
PEN ARM IS 7.625 INCHES LONG. AXIS IS 3.375 INCHES ABOVE CLOCK FLANGE.
OCTOBER 1957
U.S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
BAROGRAM
SHIP S/S KEYTANKER ROUTE FROM CARTERET NJ TO TAMPA FLA
CHART ON DATE 6-19-72 TIME 1900 CHART OFF DATE 6-23-72 TIME 1200 ALL TIMES GREENWICH MERIDIAN.
LOG SHIP'S POSITION AT 1200GMT FOR EACH DAY AFTER REMOVING CHART.
DATE 6-19-72 LAT 39.8N LONG 74.2W
DATE 6-20-72 LAT CARTERET LONG N.J.
DATE 6-21-72 LAT 38.0N LONG 74.4W
DATE 6-22-72 LAT 33.9N LONG 75.2W
DATE 6-23-72 LAT 29.6N LONG 77.5W
1040 1035 1030 1025 1020 1015 1010 1005 1000 995 990 985 980 975 970
03 06 09 12 15 18 21 00
PLACE THIS MARGIN UNDER THE CLAMPING BAR.


WB FORM 455-12
PEN ARM IS 7.625 INCHES LONG. AXIS IS 3.375 INCHES ABOVE CLOCK FLANGE.
OCTOBER 1957
U.S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
BAROGRAM
SHIP ROUTE FROM TO
CHART ON DATE TIME CHART OFF DATE TIME ALL TIMES GREENWICH MERIDIAN.
LOG SHIP'S POSITION AT 1200GMT FOR EACH DAY AFTER REMOVING CHART.
DATE LAT LONG
1040 1035 1030 1025 1020 1015 1010 1005 1000 995 990 985 980 975 970
03 06 09 12 15 18 21 00
PLACE THIS MARGIN UNDER THE CLAMPING BAR.

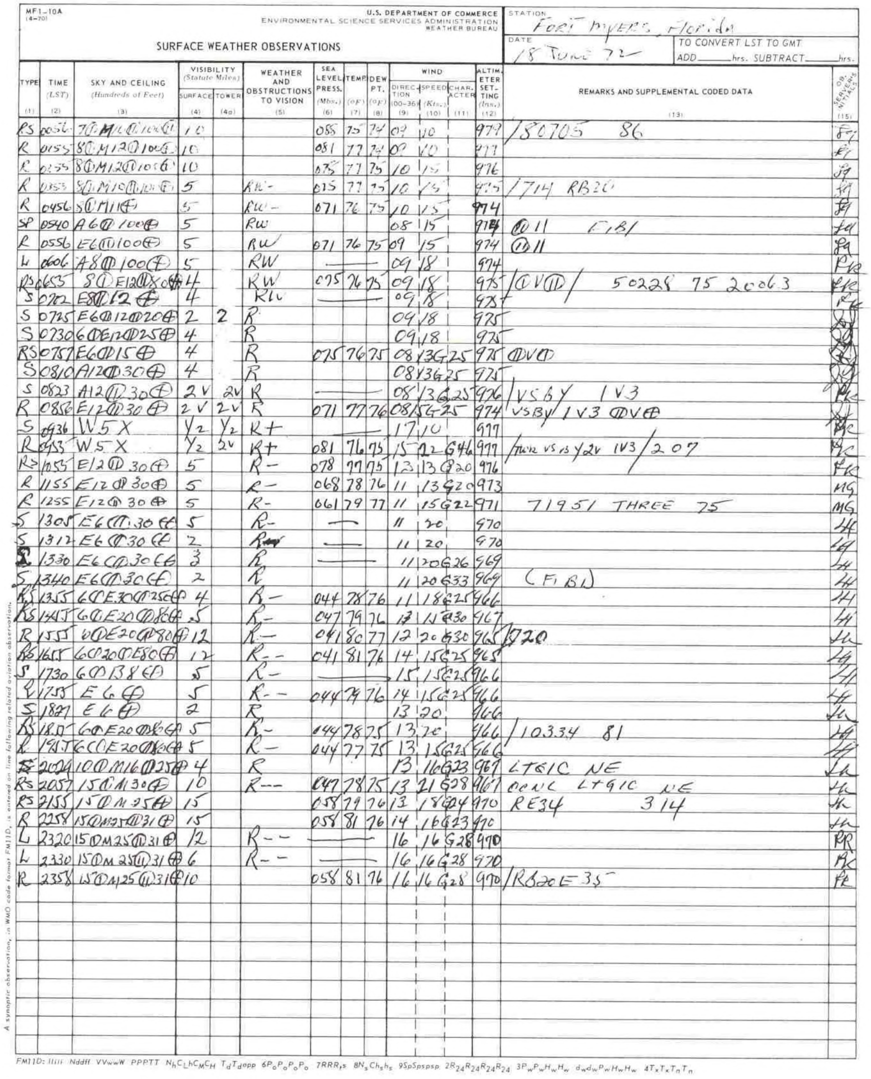

WB FORM 455-12
PEN ARM IS 7.625 INCHES LONG. AXIS IS 3.375 INCHES ABOVE CLOCK FLANGE.
OCTOBER 1957
U.S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
BAROGRAM
S/S SHIP DELAWARE GETTY ROUTE FROM OSTRICA, LA TO N.Y.
CHART ON DATE 6/20/72 TIME 1200 CHART OFF DATE 6/23/72 TIME 0700 ALL TIMES GREENWICH MERIDIAN.
LOG SHIP'S POSITION AT 1200GMT FOR EACH DAY AFTER REMOVING CHART.
DATE 6/20/72 LAT 26.0N LONG 79.9W
DATE 6/21/72 LAT 32.5N LONG 77.5W
DATE 6/22/72 LAT 37.6N LONG 73.7W
DATE 6/23/72 LAT READING LONG N.J.
DATE LAT LONG
BAROGRAPH READING CORRECTED
1040 1035 1030 1025 1020 1015 1010 1005 1000 995 990 985 980 975 970
03 06 09 12 15 18 21 00
PLACE THIS MARGIN UNDER THE CLAMPING BAR.


WB FORM 455-12
PEN ARM IS 7.625 INCHES LONG. AXIS IS 3.375 INCHES ABOVE CLOCK FLANGE.
OCTOBER 1957
U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
BAROGRAM
SHIP Worcester ROUTE FROM Charleston S.C. TO N.Y. via Jacksonville
CHART ON DATE 6/20/72 TIME CHART OFF DATE 6/24/72 TIME 2000
LOG SHIP'S POSITION AT 1200GMT FOR EACH DAY AFTER REMOVING CHART. ALL TIMES GREENWICH MERIDIAN.
DATE 6/20 LAT 32.3 LONG 80.0
DATE 6/21 LAT 33.5 LONG 76.8
DATE 6/22 LAT 38.3 LONG 74.1
DATE 6/23 LAT N.Y. LONG
DATE 6/24 LAT 38.7 LONG 74.3
1040 1035 1030 1025 1020 1015 1010 1005 1000 995 990 985 980 975 970
03 06 09 12 15 18 21 00
PLACE THIS MARGIN UNDER THE CLAMPING BAR.


WB FORM 455-12
PEN ARM IS 7.625 INCHES LONG. AXIS IS 3.375 INCHES ABOVE CLOCK FLANGE.
OCTOBER 1957
U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
BAROGRAM
SHIP ROUTE FROM Seawarren N.J. TO
CHART ON DATE 6/22 TIME 1230 CHART OFF DATE 6.26 TIME 1400
LOG SHIP'S POSITION AT 1200GMT FOR EACH DAY AFTER REMOVING CHART. ALL TIMES GREENWICH MERIDIAN.
DATE 6/22 LAT Off Seawarren LONG N.J.
DATE 6/23/72
DATE 6/24/72
DATE 6/25/72
DATE 6/26/72
Storm Agnes off Barnegat
1040 1035 1030 1025 1020 1015 1010 1005 1000 995 990 985 980 975 970
03 06 09 12 15 18 21 00
PLACE THIS MARGIN UNDER THE CLAMPING BAR.


WB FORM 455-12
PEN ARM IS 7.625 INCHES LONG. AXIS IS 3.375 INCHES ABOVE CLOCK FLANGE.
OCTOBER 1957
U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
BAROGRAM
SHIP S.S. Buckeye State ROUTE FROM Newark N.J. TO Newark N.J.
CHART ON DATE 6-19-72 TIME 1200 CHART OFF DATE 6-23-72 TIME 1200
LOG SHIP'S POSITION AT 1200GMT FOR EACH DAY AFTER REMOVING CHART. ALL TIMES GREENWICH MERIDIAN.
DATE 6-19-72 LAT Port Newark LONG New Jersey
DATE 6-20-72 LAT Port Newark LONG New Jersey
DATE 6-21-72 LAT Port Newark LONG N.J.
DATE 6-22-72 LAT Port Newark LONG N.J.
DATE 6-23-72 LAT Port Newark LONG N.J.
Tropical Storm Agnes
1040 1035 1030 1025 1020 1015 1010 1005 1000 995 990 985 980 975 970
03 06 09 12 15 18 21 00
PLACE THIS MARGIN UNDER THE CLAMPING BAR.

Land Observations



MF1-10A (4-70)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
WEATHER BUREAU

SURFACE WEATHER OBSERVATIONS

STATION Fort Myers, Florida

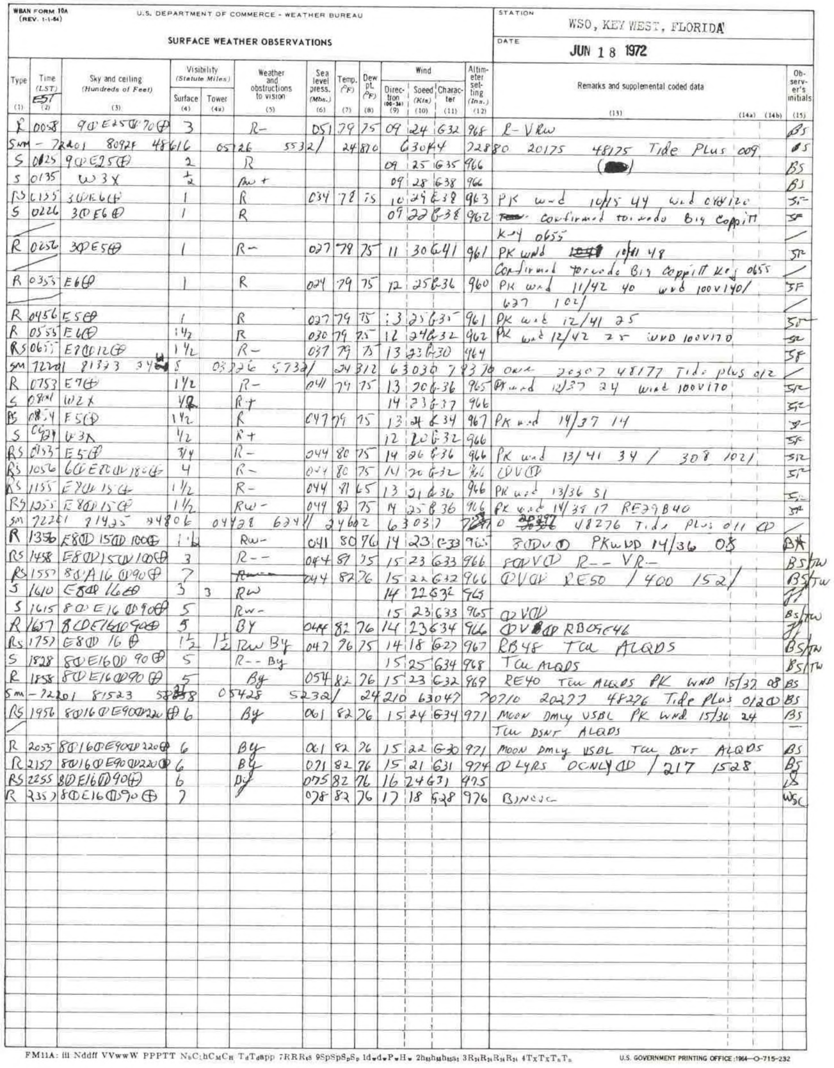
DATE 18 June 72

TO CONVERT LST TO GMT ADD ____ hrs. SUBTRACT ____ hrs.

TYPE (1)	TIME (LST) (2)	SKY AND CEILING (Hundreds of Feet) (3)	VISIBILITY (Statute Miles) SURFACE (4)	TOWER (4a)	WEATHER AND OBSTRUCTIONS TO VISION (5)	SEA LEVEL PRESS. (Mbs.) (6)	TEMP (°F) (7)	DEW PT. (°F) (8)	WIND DIRECTION (00-36) (9)	SPEED (Kts.) (10)	CHARACTER (11)	ALTIMETER SETTING (Ins.) (12)	REMARKS AND SUPPLEMENTAL CODED DATA (13)	OBSERVER'S INITIALS (15)
RS	0056	7⦶M12⦷100⊕	10			085	75	74	09	10		979	/80705 86	Fj
R	0155	8⦶M12⦷100⊕	10			081	77	74	09	10		977		Fj
R	0255	8⦶M12⦷100⊕	10			075	77	75	10	15		976		Jq
R	0355	8⦶M10⦷100⊕	5		RW-	075	77	75	10	15		975	/714 RB20	Jq
R	0456	8⦶M11⊕	5		RW-	071	76	75	10	15		974		Jq
SP	0540	A6⦷100⊕	5		RW				08	15		974	⦶11 F1B1	Ja
R	0556	E6⦷100⊕	5		RW	071	76	75	09	15		974	⦶11	Jq
L	0606	A8⦷100⊕	5		RW	—	—	—	09	18		974		PR
RS	0653	8⦶E12⦷X⊕	4		RW	075	76	75	09	18		975	/⦶V⦷/ 50228 75 20063	PR
S	0702	E8⦷12⊕	4		RW	—	—	—	09	18		975		PR
S	0725	E6⦷12⦷20⊕	2	2	R				09	18		975		[illegible]
S	0730	6⦶E12⦷25⊕	4		R				09	18		975		[illegible]
RS	0757	E6⦷15⊕	4		R	075	76	75	08	13	G25	975	⦶V⦷	[illegible]
S	0810	A12⦷30⊕	4		R				08	13	G25	975		[illegible]
S	0823	A12⦷30⊕	2V	2V	R	—	—	—	08	13	G25	976	/VSBY 1V3	PK
R	0856	E12⦷30⊕	2V	2V	R	071	77	76	08	15	G25	974	VSBY 1V3 ⦶V⦷	[illegible]
S	0936	W5X	½	½	R+	—	—	—	17	10		977		PK
R	0953	W5X	½	2V	R+	081	76	75	15	22	G46	977	/TWR VSBY ½2V 1V3/207	PK
RS	1055	E12⦷30⊕	5		R-	078	77	75	13	13	G20	976		PK
R	1155	E12⦷30⊕	5		R-	068	78	76	11	13	G20	973		MG
R	1255	E12⦷30⊕	5		R-	061	79	77	11	15	G22	971	71951 THREE 75	MG
S	1305	E6⦷30⊕	5		R-	—			11	20		970		JH
S	1312	E6⦷30⊕	2		R	—	—	—	11	20		970		JH
S	1330	E6⦷30⊕	3		R	—	—	—	11	20	G26	969		JH
S	1340	E6⦷30⊕	2		R				11	20	G33	969	(F1B1)	JH
RS	1355	6⦶E30⦷250⊕	4		R-	044	78	76	11	18	G25	966		JH
RS	1455	6⦶E20⦷80⊕	5		R-	047	79	76	13	11	G30	967		JH
R	1555	6⦶E20⦷80⊕	12		R-	041	80	77	12	20	G30	965	/720	JH
RS	1655	6⦶20⦷E80⊕	12		R--	041	81	76	14	15	G25	965		JH
S	1730	6⦶B8⊕	5		R-	—	—	—	15	15	G25	966		JH
L	1755	E6⊕	5		R--	044	79	76	14	15	G25	966		JH
S	1827	E6⊕	2		R				13	20		966		JH
RS	1855	6⦶E20⦷80⊕	5		R-	044	78	75	13	20		966	/10334 81	JH
R	1955	6⦶E20⦷80⊕	5		R-	044	77	75	13	15	G25	966		JH
S	2024	10⦶M16⦷25⊕	4		R				13	16	G23	967	LTGIC NE	JH
RS	2057	15⦶M30⊕	10		R---	047	78	75	13	21	G28	967	OCNL LTGIC NE	JH
RS	2155	15⦶M25⊕	15			058	79	76	13	18	G24	970	RE34 314	JH
R	2258	15⦶M25⦷31⊕	15			058	81	76	14	16	G23	970		JH
L	2320	15⦶M25⦷31⊕	12		R--	—	—	—	16	16	G28	970		RR
L	2330	15⦶M25⦷31⊕	6		R--	—	—	—	16	16	G28	970		RK
R	2358	15⦶M25⦷31⊕	10			058	81	76	16	16	G28	970	/RB20E35	PR

A synoptic observation, in WMO code format FM11D, is entered on line following related aviation observations.

FM11D: IIiii Nddff VVwwW PPPTT $N_hC_Lh C_M C_H$ $T_dT_d app$ $6P_oP_oP_oP_o$ $7RRR_s$ $8N_sCh_sh_s$ $9S_pS_ps_ps_p$ $2R_{24}R_{24}R_{24}R_{24}$ $3P_wP_wH_wH_w$ $d_wd_wP_wH_wH_w$ $4T_xT_xT_nT_n$



WBAN FORM 10A (REV. 1-1-64)

U.S. DEPARTMENT OF COMMERCE - WEATHER BUREAU

SURFACE WEATHER OBSERVATIONS

STATION WSO, KEY WEST, FLORIDA

DATE JUN 18 1972

Type (1)	Time (LST) EST (2)	Sky and ceiling (Hundreds of Feet) (3)	Visibility (Statute Miles) Surface (4)	Tower (4a)	Weather and obstructions to vision (5)	Sea level press. (Mbs.) (6)	Temp. (°F) (7)	Dew pt. (°F) (8)	Wind Direction (00-36) (9)	Speed (Kts) (10)	Character (11)	Altimeter setting (Ins.) (12)	Remarks and supplemental coded data (13) (14a) (14b)	Observer's initials (15)
R	0058	9⦶E25⦷70⊕	3		R-	051	79	75	09	24	G32	968	R-VRW	BS
SM	-72201	80928 48616			05126	55321/	24810		63044			72880	20175 48175 Tide Plus 009	BS
S	0125	9⦶E25⊕	2		R				09	25	G35	966	([illegible])	BS
S	0135	W3X	½		RW+				09	28	G38	966		BS
RS	0155	3⦶E6⊕	1		R	034	78	75	10	29	G38	963	PK wnd 10/15 44 wnd 080V120	SF
S	0226	3⦶E6⊕	1		R				09	22	G38	962	~~[illegible]~~ Confirmed tornado Big Coppitt	SF
													Key 0655	
R	0256	3⦶E5⊕	1		R-	027	78	75	11	30	G41	961	PK wnd ~~[illegible]~~ 10/41 48	SF
													Confirmed tornado Big Coppitt Key 0655	
R	0355	E6⊕	1		R	024	79	75	12	25	G36	960	PK wnd 11/42 40 wnd 100V140/	SF
													637 102/	
R	0456	E5⊕	1		R	027	79	75	13	25	G35	961	PK wnd 12/41 25	SF
R	0555	E6⊕	1½		R	030	79	75	12	24	G32	962	PK wnd 12/42 25 WND 100V170	SF
RS	0655	E7⦷12⊕	1½		R-	037	79	75	13	23	G30	964		SF
SM	72201	81323 34[illegible]5			03226	57321/	24312		63030			78370	ONE 20307 48177 Tide plus 012	
R	0753	E7⊕	1½		R-	041	79	75	13	20	G36	965	PK wnd 12/37 24 wind 100V170	SF
S	0824	W2X	½		R+				14	23	G37	966		SF
RS	0854	E5⊕	1½		R	047	79	75	13	24	G34	967	PK wnd 14/37 14	SF
S	0934	W3X	½		R+				12	20	G32	966		SF
RS	0953	E5⊕	¾		R-	044	80	75	14	26	G36	966	PK wnd 13/41 34 / 308 1021	SF
RS	1056	6⦶E12⦷18⊕	4		R-	044	80	75	11	20	G32	966	⦶V⦷	SF
RS	1155	E7⦷15⊕	1½		R-	044	81	65	13	21	G36	966	PK wnd 13/36 51	SF
RS	1255	E8⦷15⊕	1½		RW-	044	82	75	14	25	G36	966	PK wnd 14/35 17 RE29B40	SF
SM	72201	81425 44806			04428	6341/	24602		63037			7[illegible]	0 ~~20297~~ 20306 48276 Tide Plus 011 ⦶	
R	1356	E8⦷15⦷100⊕	1½		RW-	041	80	76	14	23	G33	965	3⦶V⦷ PKWND 14/36 08	BK
RS	1458	E8⦷15⦷100⊕	3		R--	044	81	75	15	23	G33	966	8⦶V⦷ R--VR-	BS/TW
RS	1557	8⦶A16⦷90⊕	7		~~R--~~	044	82	76	15	22	G32	966	⦶V⦷ RE50 / 400 152/	BS/TW
S	1610	E8⦷16⊕	3	3	RW				14	22	G32	965		JJ
S	1615	8⦶E16⦷90⊕	5		RW-				15	23	G33	965	⦶V⦷	BS/TW
R	1657	8⦶E16⦷90⊕	5		BY	044	82	76	14	23	G34	966	⦶V⦷ RB05E46	JJ
RS	1757	E8⦷16⊕	1½	1½	RW BY	047	76	75	14	18	G27	967	RB48 TCU ALQDS	BS/TW
S	1828	8⦶E16⦷90⊕	5		R-- BY				15	25	G34	968	TCU ALQDS	BS/TW
R	1858	8⦶E16⦷90⊕	5		BY	054	82	76	15	23	G32	969	RE40 TCU ALQDS PK WND 15/37 08	BS
SM	-72201	81523 58[illegible]8			05428	52321/	24210		63047			70710	20277 48276 Tide Plus 012⦶	BS
RS	1956	8⦶16⦷E90⦷220⊕	6		BY	061	82	76	15	24	G34	971	MOON DMLY VSBL PK WND 15/36 24	BS
													TCU DSNT ALQDS	
R	2055	8⦶16⦶E90⦷220⊕	6		BY	061	82	76	15	22	G30	971	MOON DMLY VSBL TCU DSNT ALQDS	BS
R	2157	8⦶16⦶E90⦷220⊕	6		BY	071	82	76	15	21	G31	974	⦶ LYRS OCNLY ⦷ / 217 1528	BS
RS	2255	8⦶E16⦷90⊕	6		BY	075	82	76	16	24	G31	975		DS
R	2357	8⦶E16⦷90⊕	7			078	82	76	17	18	G28	976	BINOVC	WSC

FM11A: III Nddff VVwwW PPPTT $N_hC_Lh C_M C_H$ $T_dT_d app$ $7RRR_s$ $9S_pS_pS_pS_p$ $1d_wd_wP_wH_w$ $2h_wh_wh_wh_w$ $3R_nR_nR_nR_n$ $4T_xT_xT_nT_n$

U.S. GOVERNMENT PRINTING OFFICE:1964—O-715-232

WS FORM B-16
(10-70)

SURFACE WEATHER OBSERVATIONS
DAILY RECORD

U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL WEATHER SERVICE

Station: Weather Bureau Office, Apalachicola, Fla.

To convert LST to GMT ADD 5 hrs. SUBTRACT ____ hrs.

Date: JUN 18 1972

Time (EST) (1)	Temperature (°F) (2)	Precipitation (Inches) (3)	Wind Direction (4)	Wind Speed (M.P.H.) (5)	Sunshine (Minutes) (6)	Sky Cover (Scale 0-10) (7)	Lowest Visibility (Miles) (8)	Weather and Obstructions to Vision (9)	PEAK GUST (10)	FST TIDE (11)	OB TIDE (12)	D/F (13)	Beginnings and endings of meteorological phenomena. Remarks, notes, etc. (14)	Time (S.T.)
00-01	80		E	17		3	7		25	-1	12	+13		00-01
01-02	80		E	17		3	7		26		11			01-02
02-03	79		E	17		2	7		23		11			02-03
03-04	78		E	14		4	7		23		10			03-04
04-05	78		E	13		8	7		20		10			04-05
05-06	79		E	13		10	7		17		11			05-06
06-07	78		NE	12		10	7		20	1	13	+12		06-07
07-08	79		NE	13		10	7		21		14			07-08
08-09	79		NE	13		10	7		22		17			08-09
09-10	80		NE	15		10	7		23		17			09-10
10-11	79	T	NE	16		10	7	R	22		18		R1050 – CONT'D	10-11
11-12	81	T	E	15		10	7	R	23		17			11-12
12-13	81	T	E	16		10	7	R	28	3	17	+14		12-13
13-14	79	T	E	17		10	7	R	31		16			13-14
14-15	78	T	E	16		10	7	R	23		16			14-15
15-16	77	0.04	E	17		10	4	R	27		14			15-16
16-17	76	0.03	E	17		10	4	R	25		16			16-17
17-18	75	0.03	NE	17		10	4	R	25		15			17-18
18-19	75	0.07	NE	17		10	4	R	28	-3	14	+17		18-19
19-20	75	0.01	NE	17		10	4	R	25		16			19-20
20-21	74	0.10	NE	18		10	4	R	27		16			20-21
21-22	72	0.23	NE	21		10	4	R	33		17			21-22
22-23	72	0.25	NE	28		10	4	R	34		16			22-23
23-24	72	0.28	NE	30		10	4	R	38		17			23-24
Sum	—	1.04	—	406	550	210	—	—						
Aver	—	—	Prevailing	16.9	Poss 843	9	—	—						
Misc	—	—	NE	—	65%	—	—	—						

SYMBOLS USED IN COLUMN 9

A - Hail; BS - Blowing snow; D - Dust; IP - Ice pellets; F - Fog; H - Haze; K - Smoke; L - Drizzle; N - Sand; R - Rain; S - Snow; T - Thunderstorm; DL - Distant Lightning; ZL - Freezing drizzle; ZR - Freezing rain

SCHEDULED OBSERVATIONS

Time (LST) (15)	Station Pressure (16)	Dry Bulb (17)	Wet Bulb (18)	Dew-point (19)	Rel. Humid. (20)	Temperature Max. (21)	Temperature Min. (22)	Precipitation (23)	Snowfall (24)	Snow Depth (25)
0048	29.845	80.1	74.4	72	77	86	80	0	0	0
0648	29.818	78.1	73.9	72	82	80	78	0	0	0
1250	29.791	80.8	74.4	72	74	81	78	T	0	0
1850	29.703	74.8	72.6	72	90	80	75	0.16	0	0

SUMMARY OF DAY (Midnight to Midnight)

Temp. 24-Hour Max. (°F) (26)	Temp. 24-Hour Min. (°F) (27)	24-Hour Precip. Water Equiv. (28)	24-Hour Snowfall Unmltd. (Ins.) (29)	Snow Depth (Ins.) (30)	Avg. Sky Cover Sunrise to Sunset (31)	Sunshine Total (Hours and tenths) (32)	Sunshine Percent of Possible (33)	Sunshine Character of Sunrise (34)	Sunshine Character of Sunset (35)	Wind Fastest Mile and Dir. (36)	Wind Time (LST) (37)	River Stage (38)
81	72	1.04	0.0	0	10	9.2	65	0 CLDY	0 CLDY	NE 33	2353E	

EXCESSIVE PRECIPITATION

The maximum amounts for all 12 periods are entered whenever the amount for one or more periods equals or exceeds the rate of .01 inch per minute plus .20 inch.

Minutes	5 (39)	10 (40)	15 (41)	20 (42)	30 (43)	45 (44)	60 (45)	80 (46)	100 (47)	120 (48)	150 (49)	180 (50)

Water Equiv. of Snow on GND. (Inches and tenths) (51)	(52)	(53)	(54)

STATION PRESSURE COMPUTATIONS

Time (LST) (55)	0051	0651	1254	1852
Attached thermometer (56)				
Observed barometer (57)	1010.6	1009.7	1008.8	1005.8
Total correction (58)				
Station pressure (59)	29.845	29.820	29.790	29.705
Barograph reading (60)	29.840	29.820	29.790	29.710
Barograph correction (61)	+.005	0	0	-.005

(62) Additional remarks and notes

SCW AQQC-EAST- ~~[illegible]~~ -DAY BREAK - CONT'D
SCW AQQC-WEST- 0600 - CONT'D
HURRICANE WARNINGS 1700E PENSACOLA TO ST. MARKS

WS FORM B-16 SUPERSEDES WB FORM 610-10 WHICH MAY BE USED UNTIL STOCK IS EXHAUSTED.

WS FORM B-16
(10-70)

SURFACE WEATHER OBSERVATIONS
DAILY RECORD

U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL WEATHER SERVICE

Station: Weather Bureau Office, Apalachicola, Fla.

To convert LST to GMT ADD 5 hrs. SUBTRACT ____ hrs.

Date: JUN 19 1972

Time (EST) (1)	Temperature (°F) (2)	Precipitation (Inches) (3)	Wind Direction (4)	Wind Speed (M.P.H.) (5)	Sunshine (Minutes) (6)	Sky Cover (Scale 0-10) (7)	Lowest Visibility (Miles) (8)	Weather and Obstructions to Vision (9)	PEAK GUST (10)	FST TIDE (11)	OB TIDE (12)	D/F (13)	Beginnings and endings of meteorological phenomena. Remarks, notes, etc. (14)	Time (S.T.)
00-01	73	0.25	NE	28		10	2	R	42	-0	17	+17	R – CONT'D – 1450	00-01
01-02	73	0.29	NE	30		10	2	R	47		19			01-02
02-03	73	0.14	NE	26		10	2	R	38		20			02-03
03-04	76	0.27	NE	23		10	1	R	43		22			03-04
04-05	77	0.15	E	26		10	4	R	39		M			04-05
05-06	77	0.18	E	39		10	4	R	48		M			05-06
06-07	77	0.28	E	39		10	1	R	48	2	M			06-07
07-08	77	0.06	E	34		10	2	R	48		M			07-08
08-09	77	0.01	E	30		10	5	R	35		M			08-09
09-10	77	0.09	SE	29		10	5	R	36		M			09-10
10-11	78	0.10	SE	25		10	4	R	36		M			10-11
11-12	77	0.06	SE	24		10	4	R	31		M			11-12
12-13	78	0.04	SE	25		10	4	R	32	3	M			12-13
13-14	78	0.01	SE	27		10	5	R	40		M			13-14
14-15	78	0.02	SE	34		10	2	RH	48		M		H-1430 - 2120	14-15
15-16	79		S	31		10	2	H	48		M			15-16
16-17	78		SW	21		10	2	H	39		M			16-17
17-18	78	0.01	SW	15		10	2	RH	34		M		R- 1752 - CONT'D	17-18
18-19	76	0.06	SW	15		10	2	RH	24	-5	M			18-19
19-20	75	0.03	SW	16		10	2	RH	24		M			19-20
20-21	74	0.05	SW	13		10	2	RH	19		M			20-21
21-22	73	0.07	SW	15		10	2	RHF	20		M		F 2120 - CONT'D	21-22
22-23	73	0.02	SW	14		10	1	RF	20		M			22-23
23-24	72	0.03	W	16		10	1	RF	25		M			23-24
Sum	—	2.22	—	595	487	10	—	—						
Aver	—	—	Prevailing	24.7	Poss 844	10	—	—						
Misc	—	—	SW	—	58%	—	—	—						

SYMBOLS USED IN COLUMN 9

A - Hail; BS - Blowing snow; D - Dust; IP - Ice pellets; F - Fog; H - Haze; K - Smoke; L - Drizzle; N - Sand; R - Rain; S - Snow; T - Thunderstorm; DL - Distant Lightning; ZL - Freezing drizzle; ZR - Freezing rain

SCHEDULED OBSERVATIONS

Time (LST) (15)	Station Pressure (16)	Dry Bulb (17)	Wet Bulb (18)	Dew-point (19)	Rel. Humid. (20)	Temperature Max. (21)	Temperature Min. (22)	Precipitation (23)	Snowfall (24)	Snow Depth (25)
0053	29.537	72.8	71.6	71	95	75	72	1.09	0.0	0
0648	29.322	77.0	75.7	75	94	77	72	1.22	0.0	0
1247	29.2[illegible]	77.6	76.3	76	94	79	77	0.44	0.0	0
1850	29.289	76.1	75.2	75	96	79	76	0.14	0.0	0

SUMMARY OF DAY (Midnight to Midnight)

Temp. 24-Hour Max. (°F) (26)	Temp. 24-Hour Min. (°F) (27)	24-Hour Precip. Water Equiv. (28)	24-Hour Snowfall Unmltd. (Ins.) (29)	Snow Depth (Ins.) (30)	Avg. Sky Cover Sunrise to Sunset (31)	Sunshine Total (Hours and tenths) (32)	Sunshine Percent of Possible (33)	Sunshine Character of Sunrise (34)	Sunshine Character of Sunset (35)	Wind Fastest Mile and Dir. (36)	Wind Time (LST) (37)	River Stage (38)
79	72	2.22	0	0	10	8.1	58	0 CLDY	0 CLDY	~~E~~ ~~65 MPH~~ M*	~~0609E~~	

EXCESSIVE PRECIPITATION

The maximum amounts for all 12 periods are entered whenever the amount for one or more periods equals or exceeds the rate of .01 inch per minute plus .20 inch.

Minutes	5 (39)	10 (40)	15 (41)	20 (42)	30 (43)	45 (44)	60 (45)	80 (46)	100 (47)	120 (48)	150 (49)	180 (50)

Water Equiv. of Snow on GND. (Inches and tenths) (51)	(52)	(53)	(54)

STATION PRESSURE COMPUTATIONS

Time (LST) (55)	0055	0651	1249	1851
Attached thermometer (56)				
Observed barometer (57)	1000.2	992.9	989.5	991.8
Total correction (58)				
Station pressure (59)	29.535	29.320	29.2[illegible]	29.290
Barograph reading (60)	29.540	29.330	29.220	29.300
Barograph correction (61)	-.005	-.010	0	-.010

(62) Additional remarks and notes

HURRICANE WARNING PENSACOLA TO ST. MARKS CONT'D – CONT'D
TIDE GAUGE inoperative Due To Power Failure 6/19/72

HURRICANE WARNING END 1700EST
GALE WARNING 1700EST - 1900
SCW 1900 -
M* FASTEST MILE + DIRECTION MISSING DUE
POWER FLUCTUATIONS

WS FORM B-16 SUPERSEDES WB FORM 610-10 WHICH MAY BE USED UNTIL STOCK IS EXHAUSTED.

FEDERAL METEOROLOGICAL FORM 1-10 SURFACE WEATHER OBSERVATIONS
(ABRIDGED FORM FOR USE AT AWS STATIONS)

LATITUDE	LONGITUDE	STATION ELEVATION (H_p)	TIME CONVERSION (LST to GMT)	MAG TO TRUE	DAY	MONTH	YEAR	STATION AND STATE OR COUNTRY
30°04N	85°35W	28 Feet (MSL)	+ 6 Hrs - 0 Hrs	+ 0 Deg - 0 Deg	19	JUN	1972	TYNDALL AFB FL

TYPE (1)	TIME (LST) (2)	SKY CONDITION (3)	PVLG VSBY (miles) (4)	WEATHER AND OBSTRUCTIONS TO VISION (5)	SEA LEVEL PRES (mb) (6)	TEMP (°F) (7)	DEW-POINT (°F) (8)	WIND TRUE DRCTN (9)	WIND SPEED (knots) (10)	WIND CHARACTER (11)	ALSTG (inches) (12)	REMARKS AND SUPPLEMENTARY CODED DATA (All times GMT. DESIRED ORDER OF ENTRY: RVR or RVV, SFC based obsc phenomena, wind shifts, pilot and radar reports of bases and tops, remarks elaborating on preceding coded data, 3— and 6—hourly additive data, radiosonde data, runway conditions, weather modification.) (13)	STATION PRESSURE (inches) (17)	TOTAL SKY COVER (21)	OBS INIT (15)
S	0007	8⦶10⦶M16⦶100⊕	4	R-				05	17	G28	959	R- OCNLY R			RB
S	0037	8⦶11⦶M16⦶100⊕	2½	R				04	19	G29	957	CIG RGD R OCNLY R- 90002			RB
R	0058	8⦶12⦶M16⦶100⊕	2½V	R		72	70	04	19	G33	956	VSBY 2V3 WET RWY 90001		10	RB
S	0120	9⦶M15⦶100⊕	5	R-				04	16	G29	954	R- OCNLY R 90020			RB
S	0138	9⦶M15⦶90⊕	2½	R				04	16	G28	952	R OCNLY R- 90022			RB
R	0158	-X9⦶M12⦶90⊕	2	R		72	70	04	15	G29	951	R1 ⦶V⊕ WET RWY 90022		10	RB
S	0208	9⦶M12⊕	5	R-				05	13	G28	951	CIG RGD 90023			RB
S	0229	9⦶M12⊕	2½	R				04	18	G28	948	R OCNLY R- WND 010V070 90022			RB
S	0243	9⦶M12⊕	3	R				04	17	G27	947	90022			RB
R	0258	8⦶M12⦶80⊕	3	R	973	72	70	04	18	G28	945	WND 010V070/ 751 182/ WET RWY 90022	29.420	10	RB
S	0314	8⦶M12⦶80⊕	2½V	R				04	17	G30	947	VSBY 2V3 90022			RB
R	0358	9⦶M12⊕	2½	R		72	71	E04	20	G30	944	WET RWY 90022		10	RB
S	0429	9⦶M12⊕	4	R-				E04	25	G30	942	R- OCNLY R 90020			RB
R	0458	9⦶M12⊕	3	R		72	71	E04	30	G40	943	WET RWY 90023		10	RB
S	0518	9⦶E12⊕	2	R				E04	30	G40	942	CIG RGD 90022			RB
R	0555	9⦶E12⊕	2	R	959	72	71	E04	35	G45	941	51484 172/ 20168 WET RWY 90022	29.380	10	MS
R	0656	9⦶E12⊕	2	R		72	71	03	22	G32	937	WET RWY 90022		10	MS
S	0713	E10⊕	2	R				04	28	G32	933	90022			MS
S	0725	M8⊕	1¼	R+				05	17	G27	934	90022			MS
R	0757	M8⊕	1	R+		74	73	04	16	G22	935	1MR13LVR60/R13LVR60+ WET RWY 90022		10	MS
S	0831	5⦶M8⊕	1½V	R+				04	18	G20	932	VSBY 1V2 R+ OCNLY R 90022			MS
R	0857	3⦶M8⊕	1½V	R	926	76	76	05	13	G22	931	VSBY 1V2 /732 172/ WET RWY 90022	29.285	10	MS
S	0924	3⦶M8⊕	4	R-				05	15		931	90020			MS
R	0956	3⦶M8⊕	3	R-		78	77	05	16	G22	931	WET RWY 90023		10	MS
R	1057	3⦶M8⊕	3	R		79	78	05	16	G22	927	WET RWY 90022		10	MM
R	1158	5⦶M8⦶10⊕	3	R	902	79	78	06	17	G24	924	82456 172/ WET RWY 90022	29.215	10	MM
S	1233	5⦶M9⦶12⊕	2½	R				05	12	G28	919	VSBY E-S1 90023			MM
S	1237	5⦶M9⊕	1½	R+				05	14	G28	919	VSBY E-S½ R+ OCNLY R 90023			MM
S	1245	5⦶M8⊕	1	R+				04	14	G19	919	1MR13LVRNO/R13LVRNO VSBY E-S½ 90023			MM
R	1257	5⦶M8⊕	1	R+		77	77	04	14	G21	917	1MR13LVRNO/R13LVRNO VSBY E-S½ WET RWY 90023		10	MM
S	1303	M5⦶8⊕	½	R+				04	20	G29	915	1MR13LVR22/R13LVR26 WND 010V070 90023			MM
S	1312	-XM4⊕	¼	R+				04	22	G32	914	1MR13LVR14/R13LVR20 R7 90033			MM
S	1324	-XM5⊕	½	R+				04	18	G28	913	1MR13LVR22/R13LVR15 R8 90033			MM
S	1330	W4X	¼	R+				03	24	G30	912	1MR13LVR18/R13LVR20 90033			MM
S	1345	W4X	½	R+				02	26	G32	909	1MR13LVR16/R13LVR16 90022			MM
R	1356	W4X	½	R+		77	77	02	20	G33	910	1MR13LVR20/R13LVR18 WET RWY 90022		10	MM
S	1412	-XM5⊕	¾	R+				05	18	G29	911	1MR13LVR45/R13LVR34 R7 90022			EW
S	1422	-XM6⊕	1	R+				01	20	G29	911	1MR13LVR60+/R13LVR50 R6 R+ OCNLY R 90022			EW
S	1428	M6⊕	2	R+				01	18	G26	911	R+ OCNLY R 90022			EW
S	1437	2⦶M9⊕	4	R				01	18	G22	911	9002~~2~~0			EW
RS	1458	9⦶M12⊕	4	R	857	76	76	35	17	G23	911	646 172/ ~~90020~~ WET RWY 90020	29.080	10	EW
S	1518	9⦶M11⊕	3	R				32	20	G27	913	CIG RGD 90032			EW
S	1524	7⦶M11⊕	1	R				32	20	G28	921	1MR13LVRNO/R13LVRNO CIG RGD PRESRR 90032 COR 2131			EW
S	1544	2⦶M9⊕	1¼	R-				31	20	G29	915	CIG RGD VSBY LWR E-SE 90022			EW
R	1558	M7⦶11⊕	1¼	R-		77	76	30	16	G29	921	CIG RGD WET RWY 90022		10	EW

SYNOPTIC DATA

TIME (LST) (42)	NO. (43)	PRECIP (inches) (44)	SNOW FALL (45)	SNOW DEPTH (46)
Mid to	☒			
0550	(1)	.84	0	0
1153	(2)	.56	0	0
1746	(3)	3.36	0	0
2354	(4)	.06	0	0
Mid	☒			

STATION PRESSURE COMPUTATION

TIME (LST) (59)	0545
ATT THERM (60)	73.0
OBSRVD BAR (61)	29.530
TOTAL CORR (62)	-.152
STA PRESS (63)	29.378
BAROGRAPH (64)	29.378
BAR CORR (65)	0

SUMMARY OF THE DAY

PRECIP (68)	SNOW FALL (69)	SNOW DEPTH (inches) (70)
4.82	0	0

PEAK WIND

SPEED (knots) (71)	DRCTN (true) (72)	TIME (LST) (73)
M	M M	M M

ACTIVE RWY AND EQUIP CHANGE

TIME (LST)	RWY NO.	TIME (LST)	RWY NO.
18/0545	13L&R		
2241	31L&L		

REMARKS, NOTES, AND MISCELLANEOUS PHENOMENA (90)

0345L GMQ-11 INOP ESTIMATING WIND RWY 13L
0345L GMQ-10B INOP 31R.
0518L ROS EVACUATED DUE TO UNSAFE CONDITIONS (HURRICANE AGNES)
0518, 1628 No Clds OVR GMQ-13 ,0713
0710 ROS RE-ENTERED

AWS FORM SEP 70 10 PREVIOUS EDITION WILL BE USED.

GPO: 1971 769-230/23 MAC 72-80002 23

FEDERAL METEOROLOGICAL FORM 1-10 SURFACE WEATHER OBSERVATIONS
(ABRIDGED FORM FOR USE AT AWS STATIONS)

LATITUDE 30°04'N
LONGITUDE 85°35'N
STATION ELEVATION (H_p) 28 Feet (MSL)
TIME CONVERSION (LST to GMT) + 6 Hrs - 0 Hrs
MAG TO TRUE + 0 Deg - 0 Deg
DAY 19
MONTH JUN
YEAR 19 73
STATION AND STATE OR COUNTRY TYNDALL AFB, FA

TYPE (1)	TIME (LST) (2)	SKY CONDITION (3)	PVLG VSBY (miles) (4)	WEATHER AND OBSTRUCTIONS TO VISION (5)	SEA LEVEL PRES (mb) (6)	TEMP (°F) (7)	DEW-POINT (°F) (8)	WIND TRUE DRCTN (9)	WIND SPEED (knots) (10)	WIND CHARACTER (11)	ALSTG (inches) (12)	REMARKS AND SUPPLEMENTARY CODED DATA (All times GMT. DESIRED ORDER OF ENTRY: RVR or RVV, SFC based obsc phenomena, wind shifts, pilot and radar reports of bases and tops, remarks elaborating on preceding coded data, 3- and 6-hourly additive data, radiosonde data, runway conditions, weather modification.) (13)	STATION PRESSURE (inches) (17)	TOTAL SKY COVER (21)	OBS INIT (15)
S	1613	M6⦷11⊕	2	R--				30	17	G24	921	CIG RGD 90020			JW
S	1620	M7⦷11⊕	3	R--				29	17	G20	923	CIG RGD 90021			SW
S	1628	8⦶E16⊕	4	R--				30	17	G24	924	BRKS [illegible] CIG RGD			EW
R	1658	10⦶M17⊕	7			77	75	29	12		927	THN SPTS [illegible] H ALQDS WET RWY COR 2303		10	EW
S	1715	M9⦷12⊕	8					29	15		930	[illegible] 90020			EW
S	1739	M11⦷17⊕	8					29	12		931	CIG RGD HALQDS 90020			JW
R	1756	M11⦷17⊕	8	R--	919	76	74	29	10		929	CIG RGD H ALQDS / 26136 THREE 1721 WET RWY 90020	29.260	10	EW
S	1829	7⦶M11⊕	8	L-RW--				29	11		931	CIG RGD VSBY LWR NW-NE H ALQDS 90020			RE
S	1849	8⦶M12⊕	8	L--				29	10	G17	932	CIG RGD VSBY LWR NW-NE OCNL RW-- 90020			RE
R	1858	8⦶M12⊕	8	L--		74	72	29	11		933	CIG RGD VSBY LWR NW-NE PRESRR WET RWY 90020		10	RE
R	1956	8⦶M12⊕	10	L--		74	71	29	07		937	CIG RGD WET RWY 90020		10	RE
R	2058	8⦶M12⊕	15		963	73	70	29	07		942	CIG RGD PRESRR/ 244 1611 WET RWY 90020	29.390	10	RE
R	2158	8⦶M12⦷15⊕	8	R--		74	71	28	10		945	CIG RGD OCNL L-- WET RWY 90020		10	RE
S	2218	8⦶M12⊕	3	R-L--				29	12		945	90021			DL
S	2242	8⦶M12⊕	7	R--				29	11		946	90020			DL
R	2257	8⦶M12⊕	8			73	71	29	12	G20	947	WET RWY 90020 / COR 0520		10	DL
R	2338	8⦶M12⊕	8	R--	929	74	71	28	14	G23	947	11706 1721 WET RWY 90020	29.440	10	DL

The following table explains some of the symbols and entries that appear on the Surface Weather Observations forms:

KEY TO AVIATION WEATHER REPORTS......

LOCATION IDENTIFIER AND TYPE OF REPORT*	SKY AND CEILING	VISIBILITY, WEATHER, AND OBSTRUCTION TO VISION	SEA-LEVEL PRESSURE	TEMPERATURE AND DEW POINT	WIND	ALTIMETER SETTING	RUNWAY VISUAL RANGE	CODED PIREPS
MKC	**150M25⊕**	**1R-K**	**132**	**/58/56**	**/1807**	**/993/**	**R04LVR20V40**	**/⊕55**

SKY
Sky cover symbols are in ascending order. Figures preceding symbols are heights in hundreds of feet above station.

Sky cover symbols are:
- ○ Clear: Less than 0.1 sky cover
- ⦶ Scattered: 0.1 to less than 0.6 sky cover
- ⦷ Broken: 0.6 to 0.9 sky cover
- ⊕ Overcast: More than 0.9 cover
- — Thin (When prefixed to the above symbols)
- -X Partly obscured: 0.1 to less than 1.0 sky hidden by precipitation or obstruction to vision (bases at surface)
- X Obscured: 1.0 sky hidden by precipitation or obstruction to vision (bases at surface)

CEILING
Letter preceding height of layer identifies ceiling layer and indicates how ceiling height was obtained. Thus:

A	Aircraft	R	Radar
B	Balloon (ceiling, pilot, or raob)	W	Indefinite
E	Estimated	"V"	Immediately following numerical value indicates a variable ceiling height
M	Measured		

VISIBILITY
Reported in statute miles and fractions (V-Variable). The symbol + indicates visibility greater than that being reported.

WEATHER AND OBSTRUCTION TO VISION SYMBOLS

A	Hail	IC	Ice Crystals	RW	Rain Showers
BD	Blowing Dust	IF	Ice Fog	S	Snow
BN	Blowing Sand	IP	Ice Pellets	SG	Snow Grains
BS	Blowing Snow	IPW	Ice Pellet Showers	SP	Snow Pellets
D	Dust			SW	Snow Showers
				T	Thunderstorm
F	Fog	K	Smoke	T+	Severe Thunderstorm
GF	Ground Fog	L	Drizzle	ZL	Freezing Drizzle
H	Haze	R	Rain	ZR	Freezing Rain

Precipitation intensities are indicated thus:
-- Very Light; -Light; (no sign) Moderate; + Heavy

WIND
Direction in tens of degrees from true north, speed in knots. 0000 indicates calm. G indicates gusty. Peak speed follows G or Q when gusts or squalls are reported. The contraction WSHFT followed by GMT time group in remarks indicates windshift and its time of occurrence. (Knots X 1.15 = statute mi/hr.)

EXAMPLES: 3627 360 degrees, 27 knots;
3627G40 360 degrees, 27 knots; peak speed in gusts 40 knots.

ALTIMETER SETTING
The first figure of the actual altimeter setting is always omitted from the report.

RUNWAY VISUAL RANGE (RVR)
RVR is reported from some stations. Extreme values for 10 minutes prior to observation are given in hundreds of feet. Runway identification precedes RVR report.

CODED PIREPS
Pilot reports of clouds not visible from ground are coded with MSL height data preceding and/or following sky cover symbol to indicate cloud bases and/or tops, respectively.

DECODED REPORT
Kansas City: Record observation, 1500 feet scattered, measured ceiling 2500 feet overcast, visibility 1 mile, light rain, smoke, sea level pressure 1013.2 millibars, temperature 58°F, dewpoint 56°F, wind 180°, 7 knots, altimeter setting 29.93 inches, runway 04 left, visual range 2000 feet variable to 4000. Pilot reports top of overcast 5500 feet (MSL).

*TYPE OF REPORT
The omission of type-of-report data identifies a scheduled record observation for the hour specified in the sequence heading; the time of an out-of-sequence, special observation is given as "SP" followed by a time group (24-hour clock GMT) e.g., PIT SP 0715 -XM1⊕... A special indicates a significant change in one or more elements. Local reports are identified by "LCL" and a time group. Locals are transmitted on local teletypewriter circuits only.

SYNOPTIC DATA

TIME (LST) (42)	NO. (43)	PRECIP (inches) (44)	SNOW FALL (45)	SNOW DEPTH (46)
Mid to	☒			
	(1)			
	(2)			
	(3)			
	(4)			
Mid	☒			

STATION PRESSURE COMPUTATION

TIME (LST) (59)				
ATT THERM (60)				
OBSRVD BAR (61)				
TOTAL CORR (62)				
STA PRESS (63)				
BAROGRAPH (64)				
BAR CORR (65)				

SUMMARY OF THE DAY

PRECIP (68)	SNOW FALL (69)	SNOW DEPTH (inches) (70)

PEAK WIND

SPEED (knots) (71)	DRCTN (true) (72)	TIME (LST) (73)

ACTIVE RWY AND EQUIP CHANGE

TIME (LST)	RWY NO.	TIME (LST)	RWY NO.

REMARKS, NOTES, AND MISCELLANEOUS PHENOMENA (90)

AWS FORM SEP 70 10 PREVIOUS EDITION WILL BE USED.

GPO: 1971 789-230 /23 MAC 72-80002 23

MF1-10A
(5-71)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

SURFACE WEATHER OBSERVATIONS

STATION TALLAHASSEE, FLORIDA

DATE 19 JUN 1972

TO CONVERT LST TO GMT ADD +5 hrs. SUBTRACT ____ hrs.

TYPE (1)	TIME (LST) (2)	SKY AND CEILING (Hundreds of Feet) (3)	VISIBILITY (Miles) SURFACE (4)	VISIBILITY (Miles) TOWER (4a)	WEATHER AND OBSTRUCTIONS TO VISION (5)	SEA LEVEL PRESS. (Mbs.) (6)	TEMP (°F) (7)	DEW PT. (°F) (8)	WIND DIRECTION (00-36) (9)	WIND SPEED (Kts.) (10)	WIND CHARACTER (11)	ALTIMETER SETTING (Ins.) (12)	REMARKS AND SUPPLEMENTAL CODED DATA (13)	OBSERVER'S INITIALS (15)
R	0056	M10⊕	2	2	R	064	73	71	07	19	G30	972	ST ENE	RF
72214		80719	32636		06423	864//			22727				63040 73470 ONE 20160 48673	
R	0157	M10⊕	2	2	R	050	73	71	06	18	G30	968	ST UNK	RL
S	0221	M8⊕	2	2	R				07	19	G32	965	ST UNK	RL
R	0257	M8⊕	2	2	R	037	73	71	06	11	G30	964	ST UNK	RL
R	0357	M8⊕	2	2	R	030	73	71	07	16	G26	962	ST UNK 734 16//	RL
S	0426	M7① 22⊕	4		R−				05	20	G26	958	ST ENE	RL
RS	0458	M7① 22⊕	2	2	R	016	73	71	06	13	G30	958	ST ENE	RL
RS	0556	W5X	1	1	R+	009	73	71	06	17	G27	956	ST UNK	RL
RS	0657	M8⊕	2	2	R	999	74	72	07	18	G30	953	ST ENE	RL
72214		80718 32636	99923		863//	22730			65975				20770 TWO 92007 92130	
		91699 20367			48672	81053								RL
R	0755	M8⊕	2	2	R-F	993	75	74	07	17	G25	951	ST E CIG RGD	
S	0817	M9⊕	1 1/2	1 1/2	R-F	990			08	21	G28	950	ST E CIG RGD R- OCNLY R	
S	0835	M9⊕	1	1	R+F	986			08	20	G31	949	ST E CIG RGD	
R	0854	M8⊕	1	1	R F	982	76	75	09	19	G30	948	ST E CIG RGD	
R	0956	M7⊕	1	1	R F	982	77	75	09	19	G26	948	ST E CIG RGD/ 617 16//	
L	1024	M7⊕	1	1	R F	975			10	16	G23	946	ST E CIG RGD R OCNLY R+	
S	1042	M6⊕	1	1	RF	972			10	17	G25	945	ST E CIG RGD	
R	1055	M6⊕	1	1	RF	969	77	76	09	18	G22	944	ST E CIG RGD R OCNLY R+	
L	1140	M6⊕	1	1	RF	965			11	18	G22	943	ST SE CIG RGD	
R	1157	M6⊕	1	1	RF	965	78	77	12	17	G25	943	ST SE CIGRGD R OCNLY R+	
RS	1256	6⊕M11⊕	1	1	R-F	959	78	76	13	18	G26	941	ST SE	
SM		72214 81318	16616		95926	863//			24724				69935 79180 ONE 92234 20553 47872	
S	1324	M7⊕12⊕	1	1	R-F	952			14	21	G30	939	ST SE CIG RGD	
R	1357	M8⊕	1	1	RF	949	77	76	13	24	G34	938	ST SE CIG RGD PRESFR	
L	1435	M8⊕	1	1	RF	938			14	25	G32	935	ST SE R OCNLY R+	
R	1456	M8⊕	1	1	RF	935	77	75	14	23	G36	934	ST SE R OCNLY R+	
S	1531	M8⊕	1	1	RF	929			14	21	G30	932	ST SE R OCNLY R-	
R	1556	M8⊕	1	1	RF	925	77	75	14	22	G31	931	ST SE OCNL R/ 732 16//	
S	1635	M7⊕	1	1	RF	915			15	25	G40	928	R36VV1 ST SE OCNL R+	
R	1656	M7⊕	1	1	RF	912	77	76	15	23	G39	927	R36VV3/4 ST SE OCNL R+	
													PK WND 15/40 33	
S	1730	M9⊕	1	1	RF	915			17	26	G35	928	R36VV1 ST SE OCNL R+	
R	1757	M7⊕	1	1	RF	918	77	76	17	27	G37	929	R36VV3/4 ST S OCNL R+	
							LWST	PRES	912	2220			PK WND 16/40 06	
S	1838	M7⊕	2	2	RF	922			17	23	G31	930	R36VV1 1/4 ST S	
R	1856	M7⊕	2	2	RF	922	77	75	18	23	G32	930	ST S PK WND 16/40 17	
SM		72214 81823	32616		92225	863//			24503				69897 71380 ONE 91612 91722 92240	
													20645 47872	
S	1925	M6⊕	2	2	R-F	929			18	20	G29	932	ST S R- OCNLY R	
S	1935	M8⊕	1	1	R-F	929			18	20	G30	932	R36VV1 1/2 ST S	
R	1957	M8⊕	5		R-F	932	77	75	19	22	G30	933	CIG RGD ST S	
S	2039	M10⊕	7						18	18	G28	934	CIG RGD RE35	
R	2055	M10⊕	5		R-	938	77	74	18	15	G24	935	CIG RGD RE35 B50 R- OCNLY R	
RS	2157	M8⊕	5		R-	945	76	74	20	15	G24	937	CIG RGD /224 16//	
RS	2255	M6⊕	4		R-F	949	75	74	19	14	G22	938	CIG RGD	
RS	2356	M6⊕	2	2	R-F	952	74	72	23	13	G21	939		RL

A synoptic observation, in WMO code format FM11D, is entered on line following related aviation observation.

FM11D: IIiii Nddff VVwwW PPPTT $N_hC_LhC_MC_H$ T_dT_dapp $6P_oP_oP_oP_o$ $7RRR_{rs}$ $8N_sCh_sh_s$ $9S_pS_ps_ps_p$ $2R_{24}R_{24}R_{24}R_{24}$ $3P_wP_wH_wH_w$ $d_wd_wP_wH_wH_w$ $4T_xT_xT_nT_n$

Macon, GA (Lewis B. Wilson Apt)

MF1-10A
(5-71)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

SURFACE WEATHER OBSERVATIONS

STATION ~~Macon, Ga. (Lewis B. Wilson Airport)~~

DATE JUN 20 1972

TO CONVERT LST TO GMT ADD 5 hrs. SUBTRACT ____ hrs.

TYPE (1)	TIME (LST) (2)	SKY AND CEILING (Hundreds of Feet) (3)	VISIBILITY (Miles) SURFACE (4)	VISIBILITY (Miles) TOWER (4a)	WEATHER AND OBSTRUCTIONS TO VISION (5)	SEA LEVEL PRESS. (Mbs.) (6)	TEMP (°F) (7)	DEW PT. (°F) (8)	WIND DIRECTION (00-36) (9)	WIND SPEED (Kts.) (10)	WIND CHARACTER (11)	ALTIMETER SETTING (Ins.) (12)	REMARKS AND SUPPLEMENTAL CODED DATA (13)	OBSERVER'S INITIALS (15)
R	0055	M3V⊕	3		R-F	987	74	73	11	18	G25	950	CIG 2V4	
SM	0058	72217 81118	48616		98723	87211			23727	69861		7	7010 20222 47669①	
R	0155	M3V⊕	3		R-F	974	74	73	10	16		947	CIG 2V4	
R	0255	M3V⊕	3		R-F	967	74	72	09	15	G20	945	CIG 2V4	
RS	0355	M8V⊕	2 1/2		R-F	962	73	72	10	12	G20	943	CIG 7V9 / 724 17//	HAD
R	0455	M8V⊕	2 1/2		R-F	953	73	72	09	09	G18	941	CIG 7V9	HHD
S	0526	M4V⊕	2		R-F				09	10	G18	940	CIG 3V5	HHD
RS	0555	M6①12⊕	3		R-F	953	73	72	10	11	G19	940		HHD
S	0621	M5①17⊕	8		R--				10	10		940		HHD
S	0645	M6①14⊕	3	3	R-F				10	12		940	VSBY SW 2 1/2	HHD
RS	0655	M4①8⊕	2	2	R-F	953	73	72	10	09		940	69827	HHD
SM	0700	72217 81009		32616		95323			6722/			22	608 ↑ 71780 20200 47669①	HHD
S	0718	M4①20⊕	3/4	3/4	RF				12	12		941	R05VR60V60+	HHD
S	0736	M4①25⊕	2	2	R-F				14	09		941		HHD
S	0748	M4①17⊕	10						14	08		941		HHD
R	0757	E4①12⊕	10			956	72	71	13	08		941	RE46	HHD
S	0832	M6⊕	3	3	R-F				10	06		941		HHD
RS	0855	M5①9⊕	3	3	R-F	956	72	71	10	08		941	RB25	HHD
RS	0956	M5V⊕	2 1/2	2 1/2	R-F	954	72	71	02	08		941	002 17// CIG 4V6	HHD
RS	1055	M6①14⊕	3	3	RF	956	72	71	36	07		941	CIG RGD	HHD
R	1155	M6①14⊕	3	3	RF	956	72	71	34	08		941	R OCNLY R+	HHD
R	1255	M7①40⊕	6		R--F	956	73	72	31	10		941		HHD
SM	1300	72217 83110		59616	95623		6732/			22102			69831 74150 20208 47469①	HHD
S	1340	M8①12①25⊕	2 1/2	2 1/2	R-F				31	09		941		HHD
R	1357	M6①10⊕	2	2	R-F	956	73	72	31	11		941		HHD
R	1455	M6①10⊕	2	2	R-F	956	73	72	29	11		941		
S	1542	M12⊕	3	3	R-F				31	14	G21	942	CIG 8V12	
S	1551	M10V⊕	2	2V	R-F				31	16	G21		1VSBY 1V3 PIREPS 2044 1/2 MI	
													SMCN 9⊕	
R	1557	M12V⊕	2	2V	R-F	958	72	71	30	13	G21	942	CIG 8V14 VSBY 1V3 302 17//	
S	1607	M14⊕	5		R-F				30	15	G21	942	PIREPS 2107 1 MI SW MCN 10⊕ BASES	
R	1656	M11⊕	6		R-	962	73	71	30	11		943		
R	1755	M13⊕	8		R-	968	72	70	31	14		945		
R	1855	M14①20⊕	7		R-	975	71	69	30	15		947		
SM	1900	72217 83015	63616		97522		6742/			21317			69850 73680 20164 47470①	
RS	1956	15①E45⊕	10		R-	982	71	69	30	11		949		
R	2057	E45①120⊕	10			992	72	69	30	12		952	RE30	
R	2155	E45⊕	12+			003	72	69	31	10		955	227 15//	
R	2255	45①E120⊕	12+			002	72	69	26	13		955		
R	2355	45①E120⊕	12+			002	73	68	30	12		955		RH

FM11D: IIiii Nddff VVwwW PPPTT $N_hC_LhC_MC_H$ T_dT_dapp $6P_oP_oP_oP_o$ $7RRR_{rs}$ $8N_sCh_sh_s$ $9S_pS_ps_ps_p$ $2R_{24}R_{24}R_{24}R_{24}$ $3P_wP_wH_wH_w$ $d_wd_wP_wH_wH_w$ $4T_xT_xT_nT_n$

93729 ⓪

MF1-10A
(5-71)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

STATION WSO., Cape Hatteras., N. C.

SURFACE WEATHER OBSERVATIONS

DATE JUN 21 1972

TO CONVERT LST TO GMT ADD 5 hrs. SUBTRACT ____ hrs.

TYPE (1)	TIME (LST) (2)	SKY AND CEILING (Hundreds of Feet) (3)	VISIBILITY (Miles) SURFACE (4)	TOWER (4a)	WEATHER AND OBSTRUCTIONS TO VISION (5)	SEA LEVEL PRESS. (Mbs.) (6)	TEMP (°F) (7)	DEW PT. (°F) (8)	WIND DIRECTION (00-36) (9)	SPEED (Kts.) (10)	CHARACTER (11)	ALTIMETER SETTING (Ins.) (12)	REMARKS AND SUPPLEMENTAL CODED DATA (13)	OBSERVER'S INITIALS (15)
R	0056	M12⊕	7			025	76	74	16	18	G23	960		JN
SM	0100	72304 81618		61022		02524	874//			23727		63021	20013 47775⊕	JN
R	0159	M14⊕	7			012	76	73	16	18	G25	956		JN
R	0257	E15⦶	7			001	76	73	16	20	G28	953		JN
R	0355	M14⊕	7			992	77	74	16	22	G27	951	632 17//	JN
R	0455	M14⊕	7			981	77	74	15	20	G29	947		JN
R	0555	E14⊕	7		RW-	972	77	74	16	22	G30	945	RB35	JN
RS	0655	14⦶E90⊕	6		R--	965	79	75	17	21	G30	943	/RADAT 26178	CC
SM	0700	72304 81721	59606		96526	2747/				24727		69961	70020 20013 47776⊕	CC
RS	0755	E14⦶90⊕	7		R--	960	79	73	17	20	G30	941	BINOVC	RF
R	0855	E14⦶90⊕	5		R-	948	77	74	16	21	G27	938		CC
R	0955	E14⦶90⊕	7		R--	938	78	74	16	18	G33	935	727 157/	RF
RS	1056	14⦶E90⦶	7			927	79	74	16	18	G27	931	/RE40	EG
RS	1155	E14⦶90⊕	7			912	80	73	17	17	G30	927	RB20E35	RF
RS	1255	E10⦶90⊕	3		RW--	902	79	74	17	21	G33	924	RB40	RF
SM	1300	72304 81721	15806		90226	6247/				23736		69858	70610 20006 48075⊕	RF
R	1355	E10⦶90⊕	7		RW-	888	76	75	18	13	G22	920		RF
R	1455	E10⊕	6		RW-	882	74	73	19	12		918		LFM
RS	1555	10⦶E80⊕	7			875	76	74	21	10		916	/RE15 727 177/	LFM
R	1656	10⦶E80⦶	7			868	76	72	22	11		914		LFM
R	1755	10⦶E80⊕	7			865	76	72	24	12		913		LFM
RS	1858	E10⊕	7		RW-	875	72	70	29	24	G37	916	/RB07 RADAT 93151 PKWND 29/[illegible]	LFM
SM	1900	72304 82924	61808		87522	874//				21500		69871	72210 20028 48072⊕	LFM
R	1958	M11⊕	7		RW-	885	70	67	29	26	G42	919	/ PKWND 29/46 20	LFM
R	2058	M11⊕	7			896	71	66	29	30	G49	922	/RE35 PKWND 29/49 48	LFM
R	2158	M17⊕	7			905	72	66	29	32	G54	925	/230 17// PKWND 29/54 55	DMG
R	2256	M17⊕	7			919	72	65	29	25	G36	929	PK WND 29/46 01	JN
RS	2355	20⦶E80⦶	7			928	73	64	29	24	G38	932	PK WND 29/44 37	JN
										475				
									160	478				

A synoptic observation, in WMO code format FM11D, is entered on line following related aviation observation.

FM11D: IIiii Nddff VVwwW PPPTT $N_hC_LhC_MC_H$ T_dT_dapp $6P_oP_oP_oP_o$ $7RRRt_s$ $8N_sCh_sh_s$ $9S_pS_ps_ps_p$ $2R_{24}R_{24}R_{24}R_{24}$ $3P_wP_wH_wH_w$ $d_wd_wP_wH_wH_w$ $4T_xT_xT_nT_n$

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③ 13740

MF1-10A
(4-70)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
WEATHER BUREAU

STATION WSO, RICHMOND, VA.

SURFACE WEATHER OBSERVATIONS

DATE JUN 21 1972

TO CONVERT LST TO GMT ADD 5 hrs. SUBTRACT ____ hrs.

TYPE (1)	TIME (LST) (2)	SKY AND CEILING (Hundreds of Feet) (3)	VISIBILITY (Statute Miles) SURFACE (4)	TOWER (4a)	WEATHER AND OBSTRUCTIONS TO VISION (5)	SEA LEVEL PRESS. (Mbs.) (6)	TEMP (°F) (7)	DEW PT. (°F) (8)	WIND DIRECTION (00-36) (9)	SPEED (Kts.) (10)	CHARACTER (11)	ALTIMETER SETTING (Ins.) (12)	REMARKS AND SUPPLEMENTAL CODED DATA (13)	OBSERVER'S INITIALS (15)
R	0056	M6V⊕	2	2	F	022	72	72	12	10		960	CIG 5V7 RE05	AS
		72401 81210			32458	02222				8731/		22824	69959 71110 20048 47769⊕	AS
S	0117	M5⊕	3	3	F				11	09		958		AS
RS	0157	M4⊕	3	3	F	008	72	71	10	09		956		AS
R	0257	M4⊕	3	3	F	001	72	72	10	07		954		AS
RS	0357	40⦶M7⊕	3	3	R-F	990	72	72	08	07		951	RB45 730 17//	AS
R	0457	M6V⊕	3	3	F	987	72	72	10	10		950	RE15 CIG 5V7	AS
R	0557	M6V⊕	3	3	F	977	73	72	09	08		947	CIG 5V7	AS
R	0656	M5⦶18⊕	3	3	R-F	974	73	72	08	09		946	RB10	DK
		72401 80809			48616	97423			872//			22717	69912 70210 20050 47771⊕	DK
R	0756	M7⦶12⊕	3	3	R-F	964	73	72	08	13		943		DK
R	0856	M7⦶12⊕	3	3	R--F	950	73	72	09	10		939		DK
L	0927	M7⦶12⊕	3	3	F				08	09		938		DK
R	0959	M8⦶12⊕	3	3	R--F	940	74	72	09	14		936	RE18B45 734 17//	DK
RS	1058	M10⦶20⊕	2	2	R-F	927	75	72	09	12		932		LH
RS	1158	M11⦶16⊕	5		F	917	75	73	10	11		929	RE40	LH
R	1255	M14⦶20⊕	4		RW-F	907	75	73	11	12		926	RB46	LH
		72401 81112			56816	90724			814//	23734		69844	70810 20058 475[illegible]71⊕	LH
S	1301	M14⦶20⊕	2	2	RW-F				09	11		926		LH
S	1340	M14⦶20⊕	4		F				11	10		924		LH
R	1355	E14⦶20⊕	4		F	896	75	72	11	12		923	RE26	LH
S	1434	E14⦶20⊕	2	2	L-F				09	11		921	LB33	LH
S	1445	M12⊕	3/4	3/4	LF				09	12		920	R06VV1	LH
R	1458	M12⦶15⊕	1 1/4	1 1/4	R-F	886	75	72	10	10		920	R06VV 2 1/4 RB33	LH
S	1510	M12⦶18⊕	2	2	F				10	07		919		JB
R	1558	M10⊕	2	2	R--F	875	75	74	09	12		917	RE06B46 730 16//	JB
R	1658	M10⦶14⊕	2	2	R-F	868	74	74	11	11		915		JB
S	1745	M10⊕	1	1	R+F				12	07		915	R06VV 3/4	JB
S	1747	M10⊕	1/2	1/2	R+F				12	09		916	R06VV 1/2	JB
RS	1758	M5⦶10⊕	1/2	1/2	R+F	868	73	73	13	05		915	R06VV 3/4 PCPN 64	JB
S	1820	M6V⊕	2	2	R-F				22	04		917	CIG 5V7	JB
S	1841	M10⊕	1 1/2	1 1/2	R+F				32	15	G25	918	R06VV1	JB
RS	1858	M12⊕	1	1	R+F	882	67	64	32	17	G28	919	R06VV 1 3/8	JB
		72401 83217			16658	88219			864//			18307	69821 73340 0H2 20154	-
		47567⊕												JB
S	1933	E12⊕	3	3	R-F				34	18	G25	923		JB
R	1958	M12⊕	3	3	R+F	890	66	66	33	18	G28	924		JB
R	2058	M14⊕	3	3	R F	902	66	66	32	18	G25	925		JB
R	2158	M14⊕	3	3	RF	910	66	64	32	17	G24	927	227 16//	JB
R	2258	M14⊕	3	3	R-F	913	66	63	34	18		928		JB
R	2358	M12⊕	3	3	R-F	913	65	63	33	14		928		AS

FM11D: IIiii Nddff VVwwW PPPTT $N_hC_LhC_MC_H$ T_dT_dapp $6P_oP_oP_oP_o$ $7RRRt_s$ $8N_sCh_sh_s$ $9S_pS_ps_ps_p$ $2R_{24}R_{24}R_{24}R_{24}$ $3P_wP_wH_wH_w$ $d_wd_wP_wH_wH_w$ $4T_xT_xT_nT_n$

MF1-10A (5-71)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

SURFACE WEATHER OBSERVATIONS

STATION: Washington, D. C. (Washington National Airport)

DATE: JUN 21 1972

TO CONVERT LST TO GMT ADD ____ hrs. SUBTRACT ____ hrs.

TYPE (1)	TIME (LST) (2)	SKY AND CEILING (Hundreds of Feet) (3)	VISIBILITY (Miles) SURFACE (4)	VISIBILITY (Miles) TOWER (4a)	WEATHER AND OBSTRUCTIONS TO VISION (5)	SEA LEVEL PRESS. (Mbs.) (6)	TEMP (°F) (7)	DEW PT. (°F) (8)	WIND DIRECTION (00-36) (9)	WIND SPEED (Kts.) (10)	WIND CHARACTER (11)	ALTIMETER SETTING (Ins.) (12)	REMARKS AND SUPPLEMENTAL CODED DATA (13)	OBSERVER'S INITIALS (15)
R	0054	M20⦶ 40⊕	7			041	73	69	13	07		965		JC
/	72405	81307 61018	04	23	5752/	2	18	24	63	017		71130	20025 47969 Φ	JC
R	0157	10Φ M20⊕	7			034	72	69	12	06		963	RB04E42	JC
S	0219	M8⦶ 12⊕	7		RW-				12	06		961		JC
RS	0254	8Φ M20⊕	7		RW-	024	73	69	10	08		960	RB10 WND 080V120	JC
R	0355	8Φ M20⊕	7		RW-	017	73	69	10	05		958	ΦV⦶ 724 172/	JC
R	0453	8Φ M14⊕	5		F	010	73	69	10	09		956		JC
S	0537	4Φ M8⊕	2½	2½	RWF				09	09		956	(FIBI)	JC
S	0540	4Φ M8⊕	4		RW-F				10	09		956	(FIBI)	JC
R	0552	M6⦶ 12⊕	~~4~~	4	RW-F	007	72	69	09	09		955	SFC VSBY 2½ RB06	JC
S	0626	6Φ M12⊕	4		F				09	08		955		JC
S	0641	A7⊕	4		RW-F				10	09		955	CIG RGD (FIBI)	[illegible]
R	0652	M8⊕	4		RW-F	007	72	69	12	09		955	CIG RGD	ERS
/	72405	81209 56808			00722	8032/			21	612		69985	70210 20027 47972 Φ	ERS
L	0730	M9V⊕ 18⊕	5		RW--F				09	10		953	CIG8V11	ERS
R	0752	M8⦶ 20⊕	5		RW--F	007	73	69	10	08		953		ERS
L	0832	M8⦶ 15⊕	4		RW--F				09	11		952		ERS
R	0853	M7⊕	3	3	RW-L-F	993	73	70	09	09		951	LB40	ERS
L	0930	M8⊕	3	3	RW-L-F				09	09		950	CIG RGD	ERS
R	0956	M9⊕	6		L--F	986	73	70	09	10		949	CIG 8V10 719 16// RE45	ERS
L	1033	M9⦶ 25⊕	8		RW--L-F				09	10		948	VSBY LWR W-NE	ERS
RS	1055	M16V⊕	10			980	74	70	09	08		947	CIG14V18 RE35LE45	ERS
L	1132	M18V⊕	12						10	10		945	CIG16V20	ERS
R	1155	M18V⊕	10			966	77	72	08	11		943	CIG15V21	ERS
L	1227	M17⦶ 30⊕	10						08	12		941		[illegible]
R	1251	E17⦶ 33⊕	10			956	77	71	08	11		940		ERS
/	72405	80811 66028	95		625	884//			22	730		69932	70430 20031 47872 Φ	ERS
L	1322	E15⦶ 40⊕	3	3	RW[illegible]				05	12		937	PRESFR	ERS
R	1353	M12V⊕	5		RW	939	75	70	06	14		935	RW OCNL RW+ CIG10V14	ERS
S	1404	4Φ W10X	2½	2½	RW+				04	12		934		ERS
RS	1455	4Φ M9⦶ 12⊕	1½	1½	RF	929	74	71	07	16		932	R OCNLY R+	WN
L	1525	M9⦶ 13⊕	1½	1½	R+F				04	13		929	R+ OCNLY R PRESFR	WN
R	1555	M9⊕	1½	1½	R+F	915	74	71	09	13		928	741 102/	WN
S	1605	9Φ M15⊕	4		R-F				14	05		929		WN
L	1625	9Φ M14⦶ 40⊕	5		R-F				09	11		928		WN
R	1655	9Φ M12⊕	6		R-F	912	75	71	08	11		927		WN
L	1726	7Φ M10⊕	6		F				06	12		926	DRK SW-NW	WN
R	1755	7Φ M10⊕	6		R-F	905	75	71	07	11	Q18	925	RE15B30	WN
L	1827	6Φ M10⊕	3	3	RF				07	10		925		WN
RS	1855	M9⊕	2	2	R+F	905	74	71	06	10		925		WN
/.	72405	80610 32658			90523	8032/			22	610		69888	71620 ONE 20133 47872 Φ	WN
L	1926	M7⦶ 11⊕	2	2	RF				04	11		924		WN
RS	1955	M6⦶ 10⊕	3	3	R+F	898	74	71	02	10		923	PCPN 50	WN
S	2027	M6⊕	2	2	R+F				01	12		923		WN
RS	2055	W6X	1½	1½	R+F	902	68	65	34	15	G26	924	PCPN 107	WN
S	2130	E9⊕	3	3	R+F				35	14	G22	928	PRESRR	WN
RS	2155	W8X	2½	2½	R+F	909	68	64	34	20	G28	926	PK WND 33/43 03 PCPN 117	WN
/													MDT-SVR TURB 15-90 Many Acft	/
/													503 ~~[illegible]~~	/
R	2255	W8X	2V	2V	R+F	905	67	63	33	24	G36	925	PK WND 34/42 13 PCP 100 VSBY 1V3	[illegible]

FM11D: IIiii Nddff VVwwW PPPTT $N_hC_LhC_MC_H$ T_dT_dapp $6P_oP_oP_oP_o$ $7RRR_ts$ $8N_sCh_sh_s$ $9S_pS_ps_ps_p$ $2R_{24}R_{24}R_{24}R_{24}$ $3P_wP_wH_wH_w$ $d_wd_wP_wH_wH_w$ $4T_xT_xT_nT_n$

A synoptic observation, in WMO code format FM11D, is entered on line following related aviation observation.

MF1-10A (5-71)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

SURFACE WEATHER OBSERVATIONS

STATION: WSO, ATLANTIC CITY, NEW JERSEY

DATE: JUN 22 1972

TO CONVERT LST TO GMT ADD 5 hrs. SUBTRACT ____ hrs.

TYPE (1)	TIME (LST) (2)	SKY AND CEILING (Hundreds of Feet) (3)	VISIBILITY (Miles) SURFACE (4)	VISIBILITY (Miles) TOWER (4a)	WEATHER AND OBSTRUCTIONS TO VISION (5)	SEA LEVEL PRESS. (Mbs.) (6)	TEMP (°F) (7)	DEW PT. (°F) (8)	WIND DIRECTION (00-36) (9)	WIND SPEED (Kts.) (10)	WIND CHARACTER (11)	ALTIMETER SETTING (Ins.) (12)	REMARKS AND SUPPLEMENTAL CODED DATA (13)	OBSERVER'S INITIALS (15)
R	0055	M4⊕	4		F	910	70	68	10	18		926		EZS
	72407	81018 56102	91021		862//	20720		6	9889	700	40	90967	47569 TIDE PLUS 023 Φ	EZS
RS	0155	M3⊕	4		F	893	70	68	07	19	G24	921		EZS
RS	0255	M3⊕	2½	2½	F	879	69	68	07	19	G28	917	CIG RGD	EZS
S	0355	M3⊕	2½	2½	F	872	69	68	06	18	G25	915	CIG RGD/737 16//	EZS
RS	0455	M2⊕	2	2	R-F	861	69	67	07	19	G27	912	CIG RGD RB35	EZS
RS	0555	M2⊕	1	1	R-F	849	69	67	07	20	G29	908	CIG RGD	EZS
RS	0655	M6⊕	1½	1½	R-F	842	69	66	06	17	G22	906	CIG RGD	EZS
	72407	80617 24616	84221		873//	19730		6	9821	702	30	90964	20002 47569	EZS
/			CITY	68	6666	0003							TIDE PLUS 026 Φ	EZS
RS	0755	M5⊕	1½	1½	R-F	835	68	66	06	19G	27	904		GG
R	0855	M5⊕	1½	1½	R+F	825	68	65	06	17G	26	901		GG
RS	0956	M6⊕	1½	1½	R-F	828	68	65	05	12		902	514 17//	GG
S	1030	M6⊕	1	1	RF				04	07		903		GG
R	1055	M6⦶ 10⊕	1	1	RF	830	68	66	23	07		903	"PCPN 084	GG
S	1119	M7⊕	2	2	R-F				30	19G	32	903	WSHFT 1556	GG
S	1145	M9⊕	3	3	R-F				29	23G	33	904	WSHFT 1556 (FIBI)	GG
RS	1155	M10⊕	2½	2½	RF	838	63	59	29	25G	32	905	WSHFT 1556	GG
S	1200	M9⊕	1½	1½	R+F				29	24G	32	905		GG
S	1225	M9⦶ 12⊕	4		R-F				29	27G	37	906		GG
RS	1256	M12⦶ 45⊕	6		R-F	850	63	59	29	26G	37	909		GG
	72407	72926 59616 83017			674//	15322		6	9826	724	80	ONE	90968 20176 ~~Tide~~ 47063 Tide Plus 019 Φ	GG
R	1355	M12⦶ 22⊕	10			866	63	59	25	22G	28	913	RE15	GG
S	1440	M17⊕	10						25	26G	35	916	(FIBI)	GG
R	1455	M18⊕	10			874	62	55	26	23	G32	917	53 PK WND 26/37 28	HH
R	1554	M23⊕	10			859	63	53	26	24	G36	920	PK WND 24/36 239 15//	HH
R	1654	M23⊕	10			896	63	52	27	22	G32	922		HH
R	1754	23⦶ 80⦶	10			907	63	52	26	24	G30	925	PK WND 26/38 20	HH
R	1854	25⦶ 80⦶	10			919	63	52	24	20	G27	929		HH
	72407	42420 66026			91917		35	5	30	11	2	30	69895 70060 90964	HH
		20176 46962			CITY		66	61	62				0141 TIDE PLUS 011 Φ	HH
RS	1954	M28⦶ 50⊕	10			927	62	51	23	18		931	BINOVC	HH
RS	2055	30Φ E45⊕	10			937	62	50	23	18		934		HH
RS	2155	M21⦶ 50⦶	10		R--	943	61	50	24	20	G26	936	RB45 224 1500	HH
RS	2255	50⦶ E200⦶	10			943	59	51	24	11		936	RE10	CJS
R	2357	E40⦶ 140⊕	10			947	60	52	17	06		937		EZS

FM11D: IIiii Nddff VVwwW PPPTT $N_hC_LhC_MC_H$ T_dT_dapp $6P_oP_oP_oP_o$ $7RRR_ts$ $8N_sCh_sh_s$ $9S_pS_ps_ps_p$ $2R_{24}R_{24}R_{24}R_{24}$ $3P_wP_wH_wH_w$ $d_wd_wP_wH_wH_w$ $4T_xT_xT_nT_n$

MF1-10C
(2-71)

To convert LST to GMT
ADD 5 hrs. SUBTRACT ______ hrs.

SURFACE WEATHER OBSERVATIONS
(Abridged for use at designated Civil Stations)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

STATION HARRISBURG PA
DATE JUNE 22, 1972

TYPE (1)	TIME (L.S.T.) (2)	SKY AND CEILING (Hundreds of feet) (3)	VISIBILITY SURFACE (4)	VISIBILITY TOWER (4a)	WEATHER AND OBSTRUCTIONS TO VISION (5)	SEA LEVEL PRESS. (mb.) (6)	TEMP (°F) (7)	DEW PT. (°F) (8)	WIND DIRECTION (00-36) (9)	WIND SPEED (Kts.) (10)	WIND CHARACTER (11)	ALTIM. SETTING (Ins.) (12)	REMARKS AND SUPPLEMENTAL CODED DATA (13)	STATION PRESSURE (Ins.) (17)	DRY BULB (°F) (18)	WET BULB (°F) (19)	TOTAL SKY COVER (21)	TOTAL OPAQUE SKY COVER (38)	OBSERVER'S INITIALS (15)
RS	0050	M5⊕	2½	2½	TRW	925	68	62	34	15	G25	931	TB28 TOVHD OCNL LTGIC ~~76~~	28.945			10	10	
		~~M5⊕ 15⊕~~	~~2½~~	~~2½~~									PK WND 34/25 45 R OCNL R+						
													72010 FOUR 76						
RS	0150	M5⊕ 15⊕	2½	2½	RF	925	68	62	34	13		931	TE30 OCNL DSNT LTG	28945			10	10	
S	0234	M5⊕ 15⊕	2	2	TRW+				33	15	G20	930	TB34 TOVHD LTGIC						
RS	0250	M6⊕ 15⊕	2	2	R+F	925	67	62	33	12		930	TE30 DSPTD	28.935			10	10	
S	0330	6⊕ M25⊕	4		R-H				30	12		929	OCNL DSNT LTG FIBI						
RS	0350	6⊕ M25⊕	4		TRW	920	67	61	31	10	G25	929	TB35 TOVHD FQT LTGIC 705	28.930			10	10	
RS	0450	M6⊕ 15⊕	4		RH	915	66	60	31	15	G20	928	TE15 R OCNL R+	28.915			10	10	
R	0550	M6⊕ 15⊕	4		RH	925	65	60	30	10	G19	931	R OCNL R+	28.945			10	10	
R	0650	M6⊕	4		RH	925	64	59	30	15	G22	931	30531 TWO 64	28945			10	10	
S	0733	E15⊕	4		RH	—	—	—	31	15	G22	929	20836	—	—	—	—		
RS	0755	6⊕ E15⊕	3	3	RH	922	64	58	28	16	G25	930		28935			10	10	
RS	0854	E10⊕	3½	3½	RH	919	63	57	30	15	G21	929		28925			10	10	
S	0913	E10⊕	3	3	RH	—	—	—	30	15	G24	927		—	—	—	—		
S	0937	6⊕ E10⊕	2	2	RH	—	—	—	31	15	G22	926	(FIBI)	—	—	—	—		
RS	0951	6⊕ E10⊕	~~2½~~	~~2½~~	RH	912	62	56	31	16	G24	927	814	28 905			10	10	
R	1048	6⊕ E10⊕	2½	2½	RH	903	62	55	32	22	G30	924		28875			10	10	
R	1150	6⊕ W10X	2½	2½	RH	902	62	56	29	20	G30	924		28875			10	10	
R	1255	6⊕ W10X	2½	2½	RH	902	62	56	27	20	G27	924	61002 TWO 62	28.875			10	10	LG
R	1355	E10⊕ 20⊕	2½	2½	RH	905	60	55	27	15	G22	925		28.885			10	10	LG
SP	1420	E10⊕ 20⊕	3	3	RH	—	—	—	27	16	G24	924		—			10	10	TM
R	1453	E10⊕ 20⊕	3	3	RH	896	60	[illegible]	26	[illegible]5	G26	922		28.855			10	10	TM
RS	1550	M13⊕ 24⊕	3	3	RH	893	59	53	27	15	G22	921	810	28845			10	10	LG
R	1650	M13⊕ 24⊕	3	3	RH	886	59	53	27	16	G23	919		28825			10	10	LG
R	1750	M14⊕ 30⊕	3	3	R-H	878	58	53	25	15	G23	917	OCNL R	28805			10	10	LG
R	1855	E14⊕ 30⊕	4	4	R-H	878	58	53	25	15	G25	917	OCNL R 6452 ONE 64	28805			10	10	LG
RS	1950	20 M5⊕ 30⊕	3	3	R-H	875	57	51	25	15	G24	916	OCNL R	28.795			10	10	TM
R	2052	M5⊕ 30⊕	3	3	R-H	875	56	50	25	15	G22	916	OCNL R	28795			10	10	LG
RS	2155	5⊕ M17⊕ 30⊕	4	[illegible]	R-H	878	55	49	22	15	G20	917	500	28.805			10	10	LG
R	2245	5⊕ M30⊕	4	[illegible]	R-H	886	54	47	21	13	G20	919		28.825			10	10	TM

TIME (L.S.T.) (42)	NO. (43)	PRECIP. (Ins.) (44)	SNOW FALL (Ins.) (45)	SNOW DEPTH (Ins.) (46)	MAX. TEMP. (°F) (47)	MIN. TEMP. (°F) (48)
MID. TO	☒	.71	0	0	68	68
0050	1	4.10	0	0	71	68
0650	2	2.31	0	0	68	64
1255	3	2.02	0	0	64	62
1855	4	1.52	0	0	62	58
MID.	☒	.60	0	0	58	54

STATION PRESSURE COMPUTATIONS

TIME (L.S.T.) (59)	0050	0650	1255	1855
ATT. THERM. (60)				
OBSRVD. BAR. (61)				
TOTAL CORR. (62)				
STA. PRESS. (63)	28.945	28.145	28.885	28.805
BAROGRAPH (64)	28.950	28.940	28.880	28.810
BAR. CORR. (65)	-.005	+.005	+.005	-.005

SUMMARY OF DAY
(Midnight to Midnight)

24-HR. MAX. TEMP. (°F) (66)	24-HR. MIN. TEMP. (°F) (67)	24-HR. PRECIP. WATER EQUIV. (Ins.) (68)	24-HR SNOW FALL UNMLTD. (Ins.) (69)	1200 GMT SNOW (Ins.) (70)
68	54	9.13	0	0

REMARKS, NOTES AND MISCELLANEOUS PHENOMENA
(90)

BARO ~~CR~~ ~~0050~~ ~~KC~~

EXCESSIVE PRECIPITATION

5	10	15	20	30	45	60	80	100	120	150	180
.18	.31	.42	.46	.57	.78	1.02	1.34	1.75	1.91	M	M

150 & 180 MIN PRPS MISG DUE TO EQUIPMENT FAILURE

WS FORM B-16 NY
(3-71)

SURFACE WEATHER OBSERVATIONS
DAILY RECORD

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

STATION NEW YORK, N.Y. Central Park

TO CONVERT LST TO GMT
ADD 5 hrs. SUBTRACT 0 hrs.

DATE Thursday, June 22, 1972

TIME (E.S.T.) (1)	TEMPERATURE (°F) (2)	PRECIPITATION (Inches) (3)	WIND DIRECTION (4)	WIND SPEED (M.P.H.) (5)	SUNSHINE (Minutes) (6)	SKY COVER (Scale 0-10) (7)	HEMISPHERIC SOLAR RADIATION (Langleys) (8)	WEATHER (9)	PEAK GUST 20 MPH OR MORE (10)	RELATIVE HUMIDITY (%) (11)	DEW POINT (12)	T H I (13)	BEGINNINGS AND ENDINGS OF METEOROLOGICAL PHENOMENA; REMARKS, NOTES, ETC. (14)	SEA LEVEL PRESSURE (Inches) (14a)	TIME (E.S.T.)
00-01	70	T	E	12				R	25	90	67	70	R CONTINUED	29.39	00-01
01-02	70	T	E	11					22	90	67	70	MOONSET 0108 RE05	29.37	01-02
02-03	68	.05	NE	12				R		93	66	67	RB15	29.35	02-03
03-04	67	T	NE	12				R	22	90	64	66		29.32	03-04
04-05	65	.01	NE	13	0		0.0	R	24	93	63	65	SUNRISE 0425	29.29	04-05
05-06	64	.02	NE	16	0		0.0	R	30	93	62	64		29.27	05-06
06-07	64	.01	NE	17	0		0.4		33	93	62	64	RE30	29.23	06-07
07-08	63	T	NE	22	0		0.5	R	39	97	62	63	RB30	29.19	07-08
08-09	64	.01	NE	26	0		0.7	R	55	97	63	63		29.15	08-09
09-10	64	.20	NE	24	0		1.0	R	45	100	64	64		29.12	09-10
10-11	65	.04	NE	22	0		1.3	R	39	97	64	65		29.10	10-11
11-12	65	.12	NE	24	0		2.0	R	45	97	64	65		29.05	11-12
12-13	65	.07	NE	24	0		1.7	R	39	97	64	65		29.04	12-13
13-14	65	.21	NE	18	0		1.2	R	49	97	64	65		29.01	13-14
14-15	65	.12	NE	16	0		1.0	R	30	97	64	65		*28.99	14-15
15-16	65	.25	NE	18	0		0.9	R	38	93	63	65		*28.99	15-16
16-17	64	.07	NE	10	0		0.9	R	36	97	63	63	MOONRISE 1610	29.00	16-17
17-18	59	.01	SW	19	0		0.4		41	96	58	59	RE30	29.06	17-18
18-19	58		SW	20	0		0.0		53	93	56	58		29.13	18-19
19-20	58		SW	17	0		0.0		39	87	54	58	SUNSET 1931	29.20	19-20
20-21	60		SW	13					32	81	54	60		29.25	20-21
21-22	60		SW	12					28	81	54	60		29.30	21-22
22-23	60		SW	11					29	81	54	60		29.34	22-23
23-24	60		S	11					26	81	54	60		29.38	23-24
SUM	—	1.19	—	400	0		~~12.0~~	—							
AVER.	—	—	PREVAILING	16.7906			—	—							
MISC.	—	—	NE	—	0 %	—	—	—							

SYMBOLS USED IN COLUMN 9

A-HAIL	IP-ICE PELLETS	DL-DISTANT LIGHTNING
R-RAIN	L-DRIZZLE	ZL-FREEZING DRIZZLE
S-SNOW	T-THUNDERSTORM	ZR-FREEZING RAIN

SCHEDULED OBSERVATIONS

TIME (LST) (15)	TEMPERATURE MAX. (21)	TEMPERATURE MIN. (22)	PRECIPITATION (23)	SNOW-FALL (24)	SNOW DEPTH (25)
01	71	70	.01	0	0
07	70	64	.09	0	0
13	65	63	.44	0	0
19	65	58	.66	0	0

Additional remarks and notes *RECORD BAROMETRIC PRESSURE OF 28.99 WAS SET FOR THE MONTH OF JUNE. THE OLD RECORD FOR JUNE WAS 29.34 INCHES SET IN 1923. ABSOLUTE LOWEST PRESSURE FOR NYC WAS 28.34 INCHES SET IN MARCH 1914.

SUMMARY OF DAY (Midnight to Midnight)

TEMPERATURE 24-HOUR MAX. (27)	TEMPERATURE 24-HOUR MIN. (28)	AVERAGE TEMPERATURE (29)	NORMAL TEMPERATURE (30)	24-HOUR PRECIP (Water Equiv.) (31)	24-HOUR SNOW-FALL UNMLTD. (32)	AS OF SNOW DEPTH 6:50 AM (33)	WIND (M.P.H.) FASTEST MILE AND DIRECTION (34)	WIND (M.P.H.) TIME (L.S.T.) (35)	HEATING DEGREE DAYS (36)
71	58	65	73	1.19	0	0	36NE	0843	0
0001	1825								

The maximum amounts for all 12 periods are entered whenever the amounts for one or more periods equals or exceeds the rate of .01 inch per minute plus .20 inch.

MINUTES 5 (39)	10 (40)	15 (41)	20 (42)	30 (43)	45 (44)	60 (45)	80 (46)	100 (47)	120 (48)	150 (49)	180 (50)

WATER EQUIVALENT OF SNOW ON GROUND (Inches and tenths) (51)	(52)	(53)	COOLING DEGREE DAYS (54)
0			0

STATION PRESSURE COMPUTATIONS

TIME (LST) (55)	01	07	13	19
ATTACHED THERMOMETER (56)				
OBSERVED BAROMETER (57)	992.5	987.4	981.0	983.9
TOTAL CORRECTION (58)	-0.7	-0.7	-0.7	-0.7
STATION PRESSURE (59)	991.8	986.7	980.3	983.2
BAROGRAPH READING (60)	29.270	29.125	28.945	29.035
BAROGRAPH CORRECTION (61)	+.020	+.015	+.005	+.0

(62) Additional remarks and notes

WS FORM B-16 NY SUPERSEDES WB FORM 610-10 NY

14778 ⑤

MF1-10A
(4-70)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
WEATHER BUREAU

SURFACE WEATHER OBSERVATIONS

STATION WILLIAMSPORT, PA.

DATE JUN 21 1972

TO CONVERT LST TO GMT ADD 5 hrs. SUBTRACT ___ hrs.

TYPE (1)	TIME (LST) (2)	SKY AND CEILING (Hundreds of Feet) (3)	VISIBILITY (Statute Miles) SURFACE (4)	TOWER (4a)	WEATHER AND OBSTRUCTIONS TO VISION (5)	SEA LEVEL PRESS. (Mbs.) (6)	TEMP (°F) (7)	DEW PT. (°F) (8)	WIND 12 DIRECTION (00-36) (9)	SPEED (Kts.) (10)	CHARACTER (11)	ALTIMETER SETTING (Ins.) (12)	REMARKS AND SUPPLEMENTAL CODED DATA (13)	OBSERVER'S INITIALS (15)
RS	0055	17⦶M45⊕	6		F	054	69	66	06	14		970	RDG S PTLY OBSCD 720// 78	
R	0155	17⦶M55⦶90⊕	6		F	042	70	66	09	12		967		
RS	0255	M28⊕	5		R-F	040	70	66	12	14		966	RB30	
RS	0355	M5⦶25⊕	2	2	RF	032	70	66	10	08		964	720	
RS	0455	15⦶M25⊕	2	2	R-F	028	70	66	12	10		963	RDGS PTLY OBSCD	
RS	0555	11⦶M23⦶75⊕	~~4~~		R-F	025	[illegible]	66	12	11		962	RDG TOPS PTLY OBSCD ~~VSBY 4 2½~~	
—			2½	2½	—			—					—	
RS	0656	5⦶M11⦶23⦶55⊕	2½	2½	RF	026	69	66	10	08		963	RDG TOPS OBSCD 56524 15// 65 20027	
R	0756	5⦶M12⦶23⦶55⊕	2½	2½	R-F	024	70	67	04	06		962	RDG TOP S PTLY OBSCD	
R	0855	5⦶M11⦶23⊕	2½	2½	RF	018	70	68	05	11		960	RDGS PTLY OBSCD	
RS	0955	5⦶M10⦶25⊕	1½	1½	R+F	016	70	68	03	07		959	⦶V⦶ 712 17//	
RS	1056	5⦶M8⦶19⊕	1½	1½	RF	014	69	66	28	11		959		
RS	1155	6⦶12⦶M19⊕	3	3	R-F	011	67	65	27	08		958	VSBY N1 E1.5 RDG TOP N OBSCD	
S	1235	5⦶M15⦶25⊕	2½	2½	R+F				26	09		956		
RS	1257	4⦶M10⦶23⊕	1½	1½	TRW+F	008	67	65	25	09		956	⦶V⦶ TB50 OCNL THDR ALQDS/	
—			—			—		7	103	3	ONE		19// 67	
RS	1355	6⦶12⦶E25⦶75⊕	3	3	TRW-F	997	67	64	29	08		953	OCNL THDR ALQDS PK WND 31/15 41	
—			—			—							VSBY SE 4	
RS	1455	5⦶12⦶E25⦶75⊕	3	3	RF	997	67	65	00	00		953	TE38 MOVD NE PK WND 32/12 23	
RS	1558	2⦶14⦶E30⦶38⊕	3	3	R-F	990	67	66	27	05		951	715 172/	
RS	1655	2⦶5⦶M11⦶16⊕	2	2	R-F	989	67	66	00	00		950	RDG S OBSCD	
RS	1755	3⦶11⦶E60⦶100⊕	3	3	R-F	988	67	66	27	04		950		
R	1856	2⦶11⦶E55⊕	3	3	R-F	985	67	66	23	07		949	80741 ONE 172/ 71	
R	1955	11⦶23⦶E60⊕	5		R-F	985	68	67	36	03		949	FEW STFRA 2HND NE	
R	2055	5⦶11⦶E60⊕	6		F	978	67	65	27	05		947	RE43 MTN S PTLY OBSCD	
RS	2155	3⦶11⦶M25⊕	5		R-F	978	67	66	32	07		947	RB24 707 172/	
RS	2255	3⦶11⦶E55⊕	5		R-F	975	66	62	32	05		946	/RE17 B46	
S	2321	4⦶M21⦶55⊕	1½	1½	RF				24	05		945		
R	2354	4⦶M21⦶50⊕	1½	1½	RF	969	65	62	26	06		944		

FM11D: IIiii NddH VVwwW PPPTT $N_hC_LhC_MC_H$ T_dT_dapp $6P_oP_oP_oP_o$ $7RRR_t$ $8N_sCh_sh_s$ $9S_pS_pspsp$ $2R_{24}R_{24}R_{24}R_{24}$ $3P_wP_wH_wH_w$ $d_wd_wP_wH_wH_w$ $4T_xT_xT_nT_n$

A synoptic observation, in WMO code format FM11D, is entered on line following related aviation observation.

MF1-10A
(4-70)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
WEATHER BUREAU

SURFACE WEATHER OBSERVATIONS

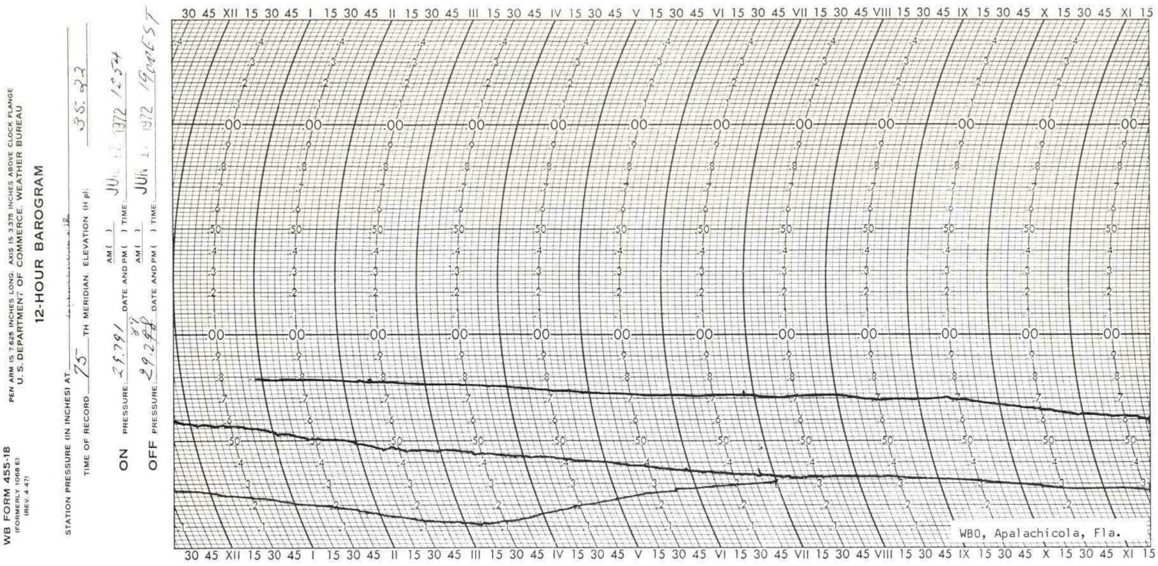
STATION WILLIAMSPORT, PA.

DATE JUN 22 1972

TO CONVERT LST TO GMT ADD 5 hrs. SUBTRACT ___ hrs.

TYPE (1)	TIME (LST) (2)	SKY AND CEILING (Hundreds of Feet) (3)	VISIBILITY (Statute Miles) SURFACE (4)	TOWER (4a)	WEATHER AND OBSTRUCTIONS TO VISION (5)	SEA LEVEL PRESS. (Mbs.) (6)	TEMP (°F) (7)	DEW PT. (°F) (8)	WIND DIRECTION (00-36) (9)	SPEED (Kts.) (10)	CHARACTER (11)	ALTIMETER SETTING (Ins.) (12)	REMARKS AND SUPPLEMENTAL CODED DATA (13)	OBSERVER'S INITIALS (15)
R	0055	4⦶M20⦶50⊕	1½	1½	R+F	957	65	61	28	07		941	82056 15// 71	
R	0155	4⦶12⦶M20⊕	1½	1½	R+F	957	65	62	27	08		941		
R	0258	4⦶12⦶M20⊕	1½	1½	R+F	947	65	62	27	12		938	4⦶V⦶	
RS	0358	M4⦶16⊕	1½	1½	R+F	941	64	62	27	11		936	817 17//	
RS	0455	5⦶M19⊕	1½	1½	R+F	937	63	61	27	13		935	4⦶V⦶	
R	0555	5⦶E15⊕	1½	1½	R+F	936	63	62	26	10		935	⦶V⦶	
RS	0656	M15⦶23⊕	1½	1½	R+F	930	63	61	26	16		933	⦶V⦶ 71200 FOUR 15// 63 ~~20E~~ 20730	
R	0755	M5⦶16⊕	1½	1½	R+F	922	63	62	27	18		931	PCPN .08	
S	0825	5⦶M16⊕	2½	2½	R+F				27	18		933		
RS	0855	5⦶23⦶M35⊕	5		RF	922	63	62	28	12		931	RDG S PTLY OBSCD	
R	0955	12⦶E30⊕	7		R-	919	62	60	27	16		930	708 15//	
RS	1055	4⦶12⦶E16⊕	2½	2½	R-F	920	61	58	26	15		930	OCNLYR RDGS OBSCD	
R	1155	8⦶E18⊕	2½	2½	R-F	913	60	57	28	14		928	RDG S OBSCD OCNLYR VSBY N 4	
R	1256	8⦶E18⊕	2½	2½	RF	899	57	56	27	15	G21	923	RDG S OBSCD OCNLYR-PRESFR/822/2 TWO 17//57	
RS	1355	3⦶8⦶E18⊕	2½	2½	RF	886	59	56	27	17	G21	920	RDGS OBSCD	
R	1455	3⦶8⦶E18⊕	2½	2½	RF	881	58	56	27	15	G20	918	8⦶V⦶ RDGS OBSCD OCNLYR-	
R	1555	3⦶8⦶M17⊕	2½	2½	RF	874	58	56	26	15	G20	916	RDGS OBSCD/[illegible] 724 17//	
S	1620	4⦶8⦶M23⊕	3	3	RF				26	18	G25	915	RDG S PTLY OBSCD	
R	1656	3⦶8⦶M19⊕	3	3	R-F	864	57	55	28	18	G22	913	RDGS PTLY OBSD	
R	1754	3⦶8⦶M19⊕	3	3	RF	856	56	54	27	16	G21	911	SXNS RDGS OBSCD OCNLYR-	
RS	1855	5⦶M23⦶45⊕	2½	2½	RF	845	56	53	27	19		908	72958 ONE 15// 63	
R	1955	5⦶E25⦶45⊕	2½	2½	RF	832	56	53	27	20		904	VSBY 2V3	
R	2054	12⦶E25⦶45⊕	2½	2½	RF	822	55	52	27	15		901		
RS	2156	M16⦶45⊕	2½	2½	RF	822	55	53	28	10		901	524 15//	
RS	2254	16⦶45⦶E70⊕	7		R-	832	55	53	12	12		904		
R	2354	16⦶E45⦶70⊕	7		R-	852	54	50	16	18		910		

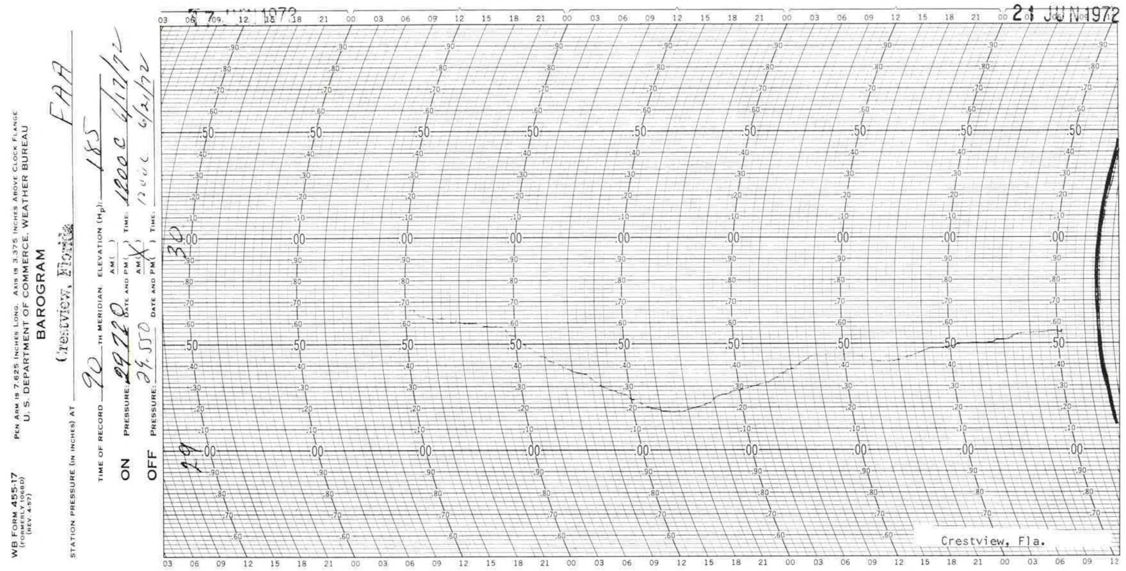
FM11D: IIiii NddH VVwwW PPPTT $N_hC_LhC_MC_H$ T_dT_dapp $6P_oP_oP_oP_o$ $7RRR_t$ $8N_sCh_sh_s$ $9S_pS_pspsp$ $2R_{24}R_{24}R_{24}R_{24}$ $3P_wP_wH_wH_w$ $d_wd_wP_wH_wH_w$ $4T_xT_xT_nT_n$



WB FORM 455-18
(FORMERLY 1068 E)
(REV. 4-47)

PEN ARM IS 7.625 INCHES LONG. AXIS IS 3.375 INCHES ABOVE CLOCK FLANGE
U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
12-HOUR BAROGRAM

STATION PRESSURE (IN INCHES) AT
TIME OF RECORD 75 TH MERIDIAN. ELEVATION (H p) 35.23
ON PRESSURE 29.791 DATE AND AM( ) PM( ) TIME JUN [illegible] 1972 1254
OFF PRESSURE 29.298 87 DATE AND AM( ) PM( ) TIME JUN [illegible] 1972 1900EST



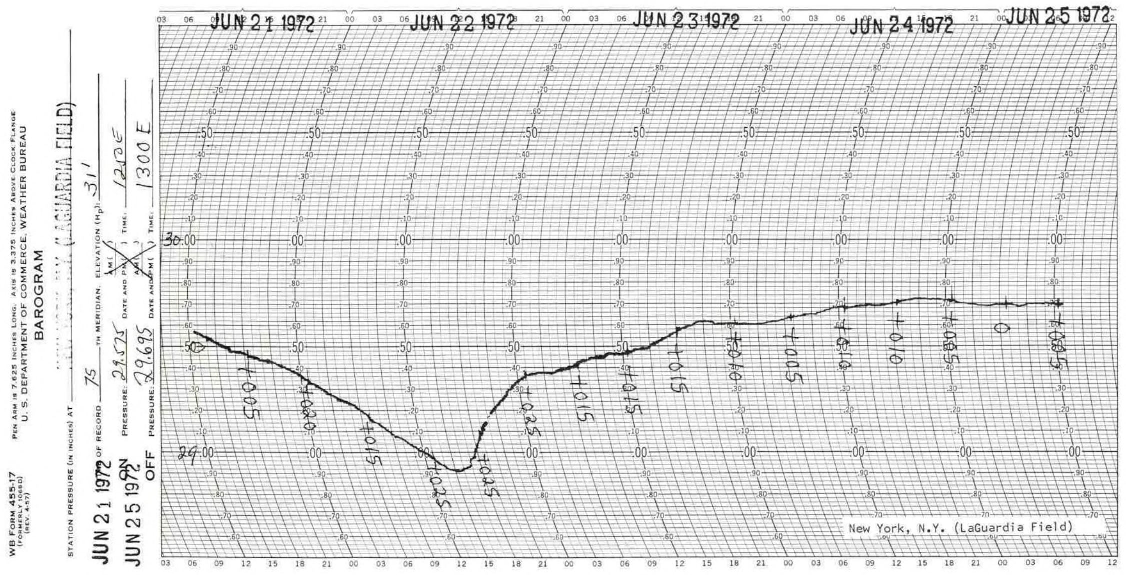
WB FORM 455-17
(FORMERLY 1068D)
(REV. 4-57)

PEN ARM IS 7.625 INCHES LONG. AXIS IS 3.375 INCHES ABOVE CLOCK FLANGE
U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
BAROGRAM

STATION PRESSURE (IN INCHES) AT Crestview, Florida FAA
TIME OF RECORD 90 TH MERIDIAN. ELEVATION (H_p): 185
ON PRESSURE: 29.720 DATE AND AM( ) PM( ) TIME: 1200C 6/17/72
OFF PRESSURE: 29.550 DATE AND AM( ) PM( ) TIME: 1200C 6/21/72

17 JUN 1972

21 JUN 1972



WB FORM 455-17
(FORMERLY 1068D)
(REV. 4-57)

PEN ARM IS 7.625 INCHES LONG. AXIS IS 3.375 INCHES ABOVE CLOCK FLANGE
U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
BAROGRAM

STATION PRESSURE (IN INCHES) AT New York, N.Y. (LAGUARDIA FIELD)
TIME OF RECORD 75 TH MERIDIAN. ELEVATION (H_p): 31'
ON PRESSURE: 29.575 DATE AND AM( ) PM( ) TIME: 1210E
OFF PRESSURE: 29.695 DATE AND AM( ) PM( ) TIME: 1300E

JUN 21 1972
JUN 25 1972

JUN 21 1972 JUN 22 1972 JUN 23 1972 JUN 24 1972 JUN 25 1972

WB FORM 1028C U.S. DEPARTMENT OF COMMERCE, WEATHER BUREAU

12 INCH DUAL OR 6 INCH SINGLE TRAVERSE – 24 HOUR

RECORD OF PRECIPITATION

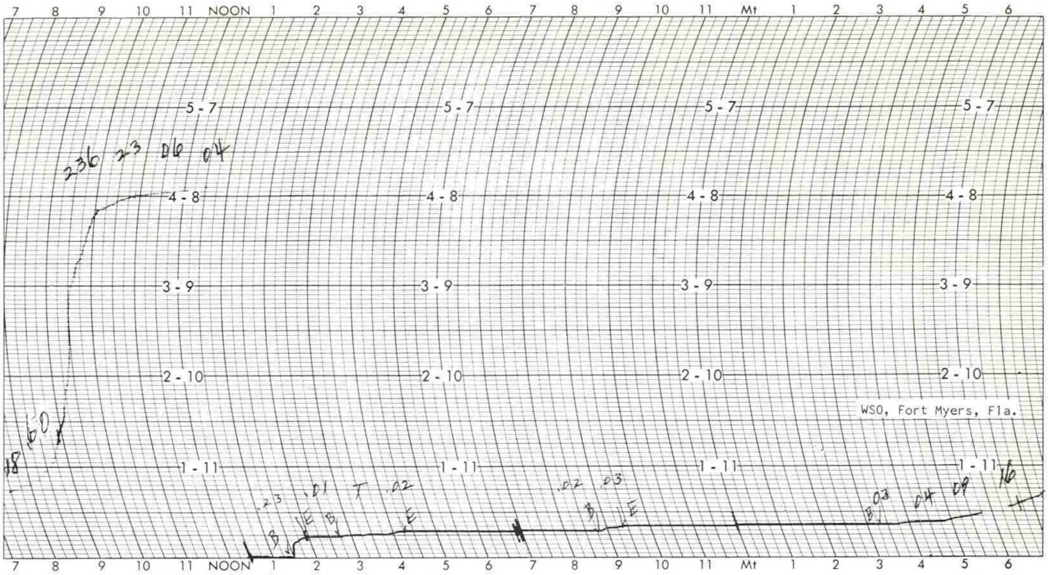
TIME Standard (✓) Daylight ( )

OBSERVER

STATION WSO, FORT MYERS, FLA.

CHART ON 12:30 ~~AM~~ PM JUN 1 7 1972

CHART OFF 12:45 ~~AM~~ PM JUN 1 8 1972



08-2998-

WB Form 1028C U. S. Department of Commerce, Weather Bureau

12 Inch Dual or 6 Inch Single Traverse 24 Hour

RECORD OF PRECIPITATION

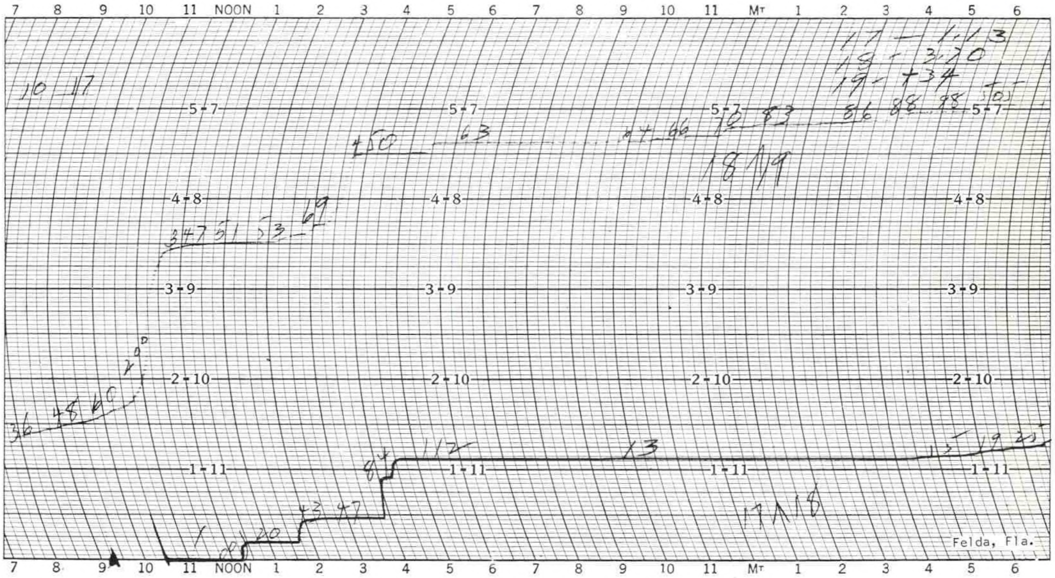
TIME Standard ( ) Daylight ( )

OBSERVER

STATION Felda Fla

CHART ON 10:30 AM PM 6 17 72

CHART OFF 9:30 AM PM 6 19 72



09 1340 1

WB Form 1028C U. S. Department of Commerce, Weather Bureau

12 Inch Dual or 6 Inch Single Traverse 24 Hour

RECORD OF PRECIPITATION

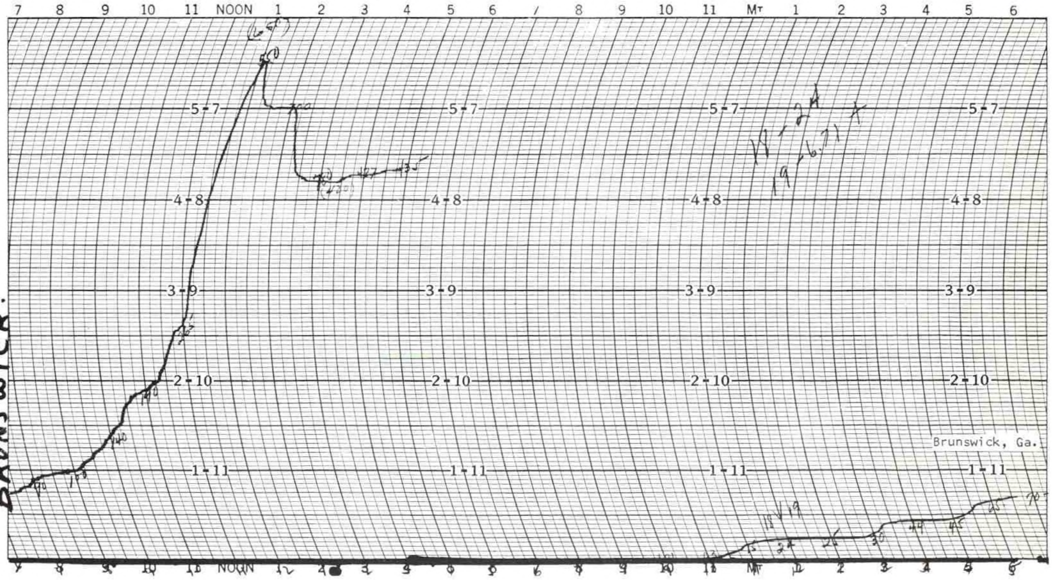
TIME Standard Daylight E.T.

OBSERVER City of Brunswick

STATION BRUNSWICK.

CHART ON 4:30 ~~AM~~ PM 6 17 72

CHART OFF 4:30 ~~AM~~ PM 6 19 72



– 33 –

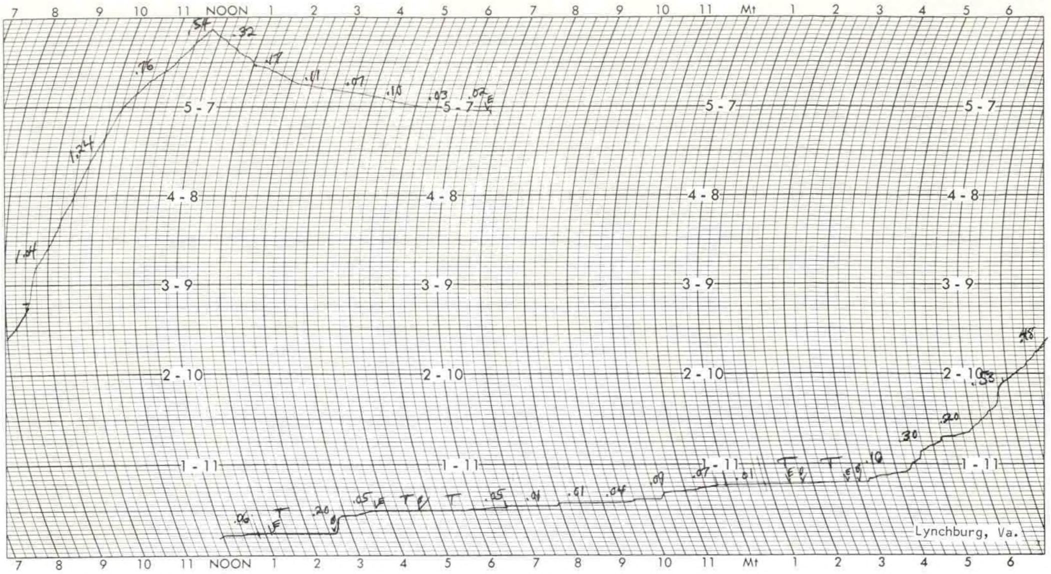
WB FORM 1028C U.S. DEPARTMENT OF COMMERCE, WEATHER BUREAU

12 INCH DUAL OR 6 INCH SINGLE TRAVERSE – 24 HOUR

RECORD OF PRECIPITATION

	TIME	MONTH	DAY	YEAR
OBSERVER ______ CHART ON	1155E ~~PM~~	JUNE	20	1972
STATION Lynchburg, Va. CHART OFF	1837E ~~AM~~ PM	JUNE	21	1972

TIME Standard (✓) Daylight ( )



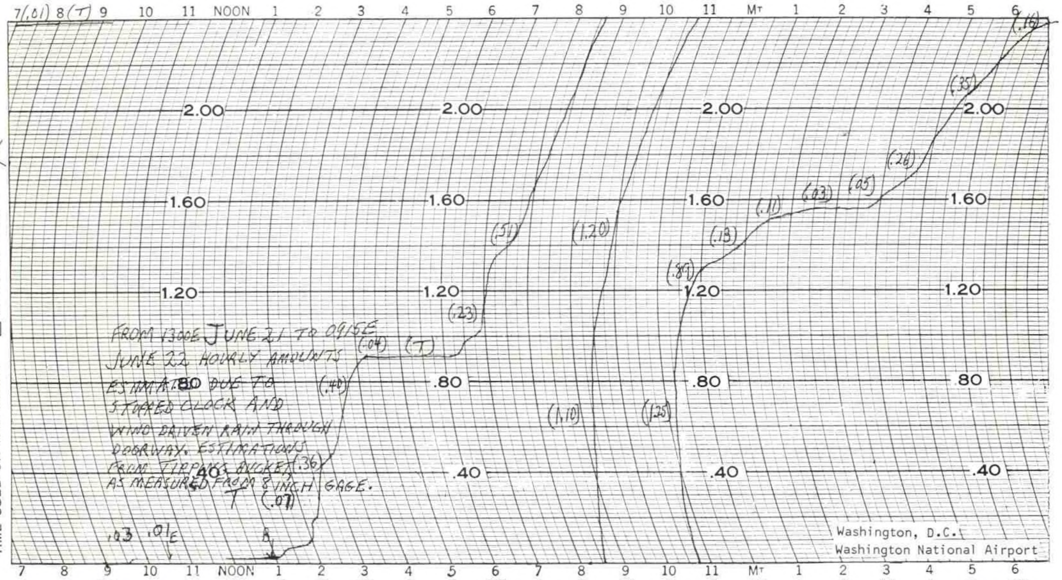
WB FORM 452-2 U.S. DEPARTMENT OF COMMERCE, WEATHER BUREAU

2.40 INCH SINGLE TRAVERSE-24 HOUR

RECORD OF PRECIPITATION

	TIME	MONTH DAY YEAR
OBSERVER Washington, D. C. CHART ON	0903 [✓ AM] PM	JUN 21 1972
STATION Washington National Airport CHART OFF	0915E AM PM	6/22/72

TIME USED ON THIS FORM: ☐ DAYLIGHT SAVING ☒ STANDARD



FROM 1300E JUNE 21 TO 0915E JUNE 22 HOURLY AMOUNTS ESTIMATED DUE TO STOPPED CLOCK AND WIND DRIVEN RAIN THROUGH DOORWAY. ESTIMATIONS FROM TIPPING BUCKET AS MEASURED FROM 8 INCH GAGE.

WB FORM 1028G U. S. DEPARTMENT OF COMMERCE ESSA WEATHER BUREAU

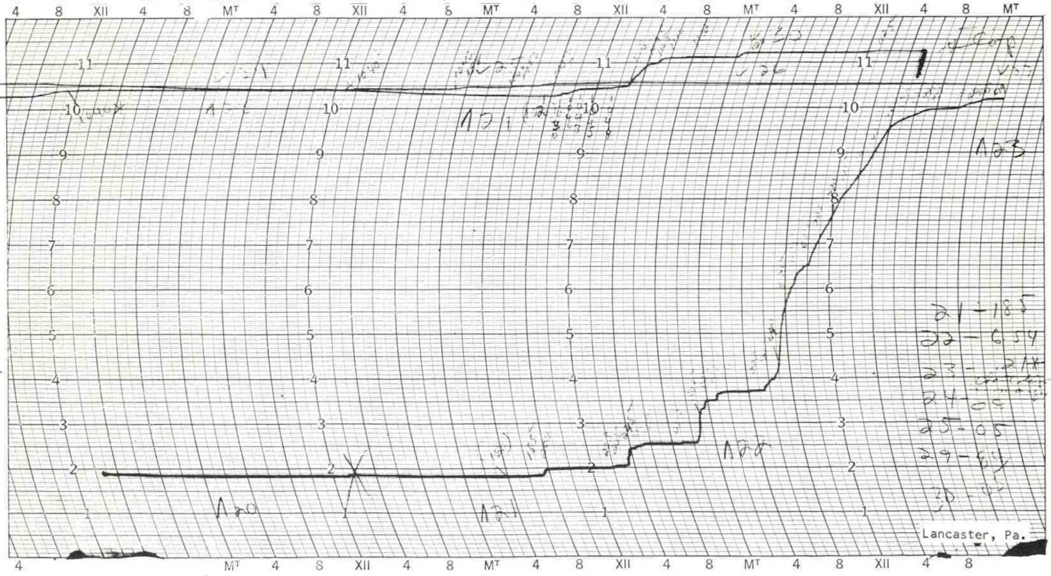
12 INCH SINGLE TRAVERSE — 96 HOUR

RECORD OF PRECIPITATION

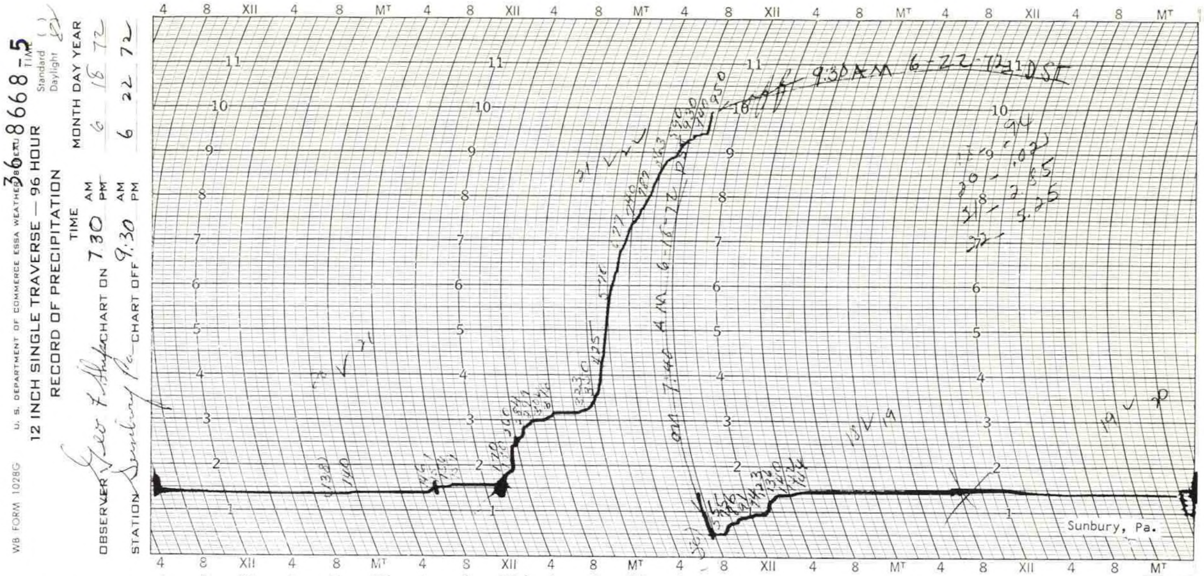
36-4763

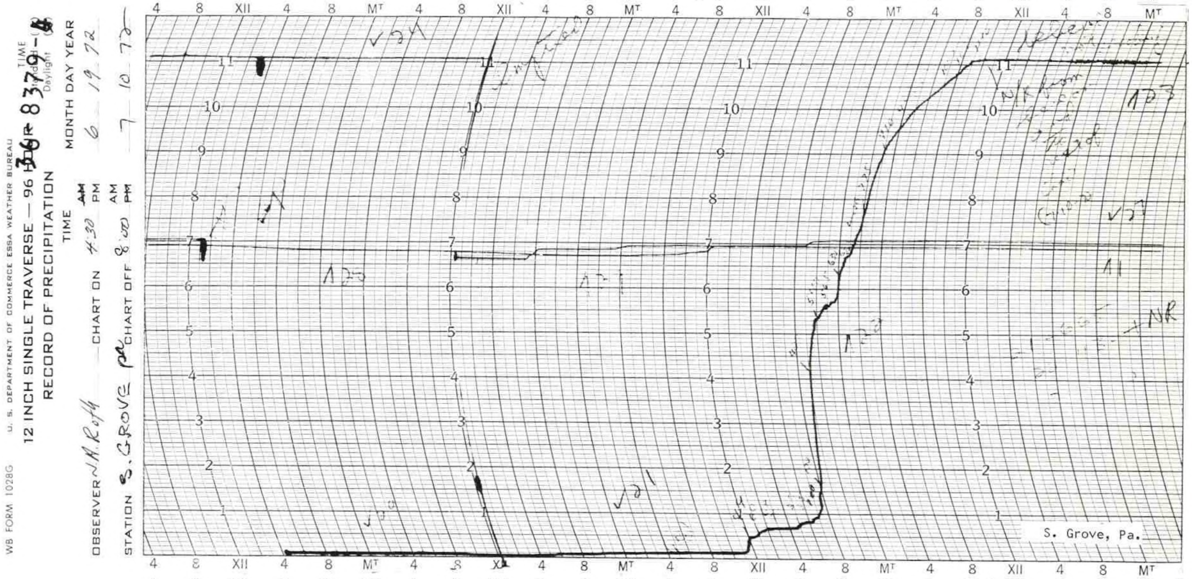
	TIME	MONTH	DAY	YEAR
OBSERVER FILTER PLANT CHART ON	1:30 PM AM PM	6	19	72
STATION LANCASTER, PA. CHART OFF	9 AM AM PM	7	6	72

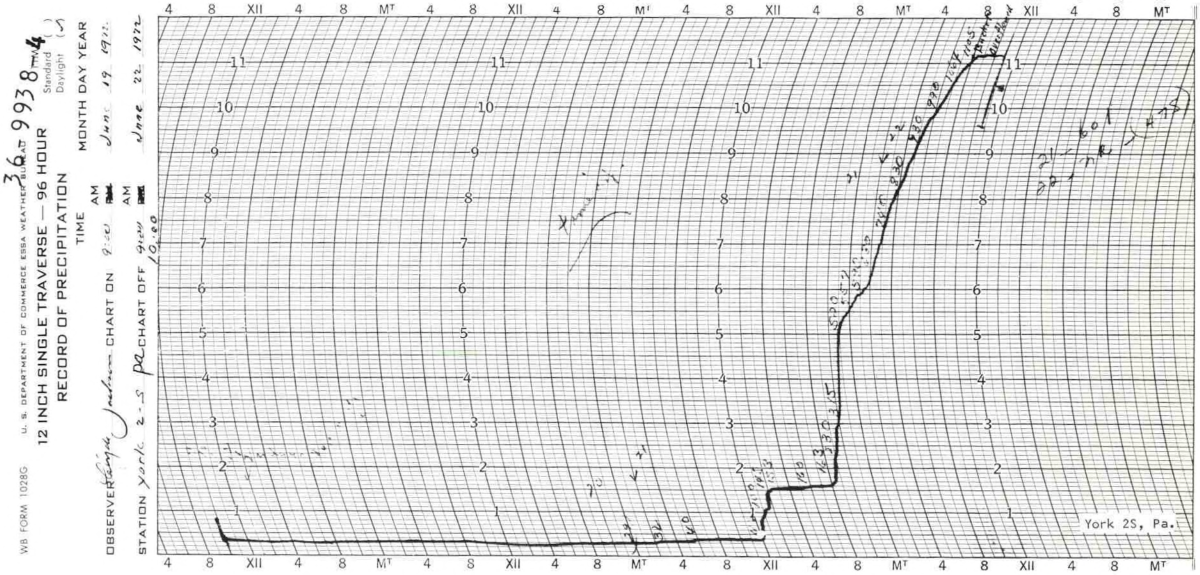
TIME Standard ( ) Daylight ( )



21 – 1.85
22 – 6.54
23 – .21*
24 – .04
25 – .05
29 – .64
30 – .03

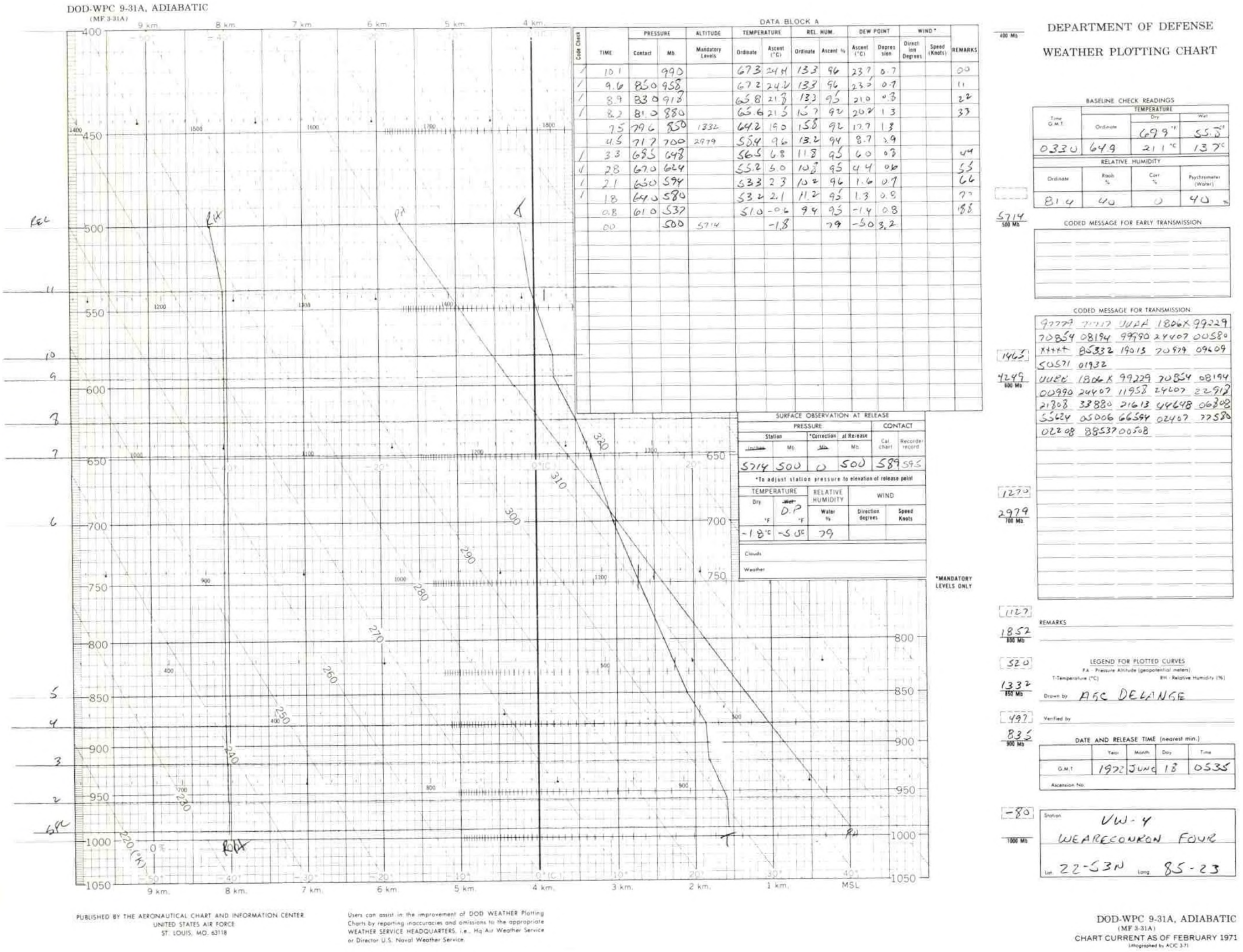

WB FORM 1028G
U. S. DEPARTMENT OF COMMERCE ESSA WEATHER BUREAU
12 INCH SINGLE TRAVERSE — 96 HOUR
RECORD OF PRECIPITATION
36-8668-5
OBSERVER Geo F. Shupe
STATION Sunbury Pa.
TIME CHART ON 7 30 AM
CHART OFF 9.30 AM
MONTH DAY YEAR
6 18 72
6 22 72
Standard
Daylight
9.30 AM 6-22-72 DST
on 7:40 AM 6-18-72 DST
Sunbury, Pa.
4 8 XII 4 8 Mᵀ
1 2 3 4 5 6 7 8 9 10 11


WB FORM 1028G
U. S. DEPARTMENT OF COMMERCE ESSA WEATHER BUREAU
12 INCH SINGLE TRAVERSE — 96 HOUR
RECORD OF PRECIPITATION
36-8379-8
OBSERVER J.A. Roth
STATION S. GROVE pa.
TIME CHART ON 4:30 PM
CHART OFF 8:00 AM
MONTH DAY YEAR
6 19 72
7 10 72
Standard
Daylight
S. Grove, Pa.
4 8 XII 4 8 Mᵀ
1 2 3 4 5 6 7 8 9 10 11


WB FORM 1028G
U. S. DEPARTMENT OF COMMERCE ESSA WEATHER BUREAU
12 INCH SINGLE TRAVERSE — 96 HOUR
RECORD OF PRECIPITATION
36-9938-4
OBSERVER
STATION York 2-S pa.
TIME CHART ON 9:00 AM
CHART OFF 10:00 AM
MONTH DAY YEAR
June 19 1972
June 22 1972
Standard
Daylight
York 2S, Pa.
4 8 XII 4 8 Mᵀ
1 2 3 4 5 6 7 8 9 10 11

Aircraft Reconnaissance Reports

The following aircraft reconnaissance forms were prepared by members of the flight crew from the U. S. Navy Weather Reconnaissance Squadron 4 flying out of Jacksonville, Florida. The forms shown give reports for the flight that departed June 18 at 0332 GCT and released a dropsonde in the vortex at 0535 GCT.



DOD-WPC 9-31A, ADIABATIC

DATA BLOCK A

Code Check	TIME	PRESSURE Contact	PRESSURE Mb.	ALTITUDE Mandatory Levels	TEMPERATURE Ordinate	TEMPERATURE Ascent (°C)	REL. HUM. Ordinate	REL. HUM. Ascent %	DEW POINT Ascent (°C)	DEW POINT Depression	WIND* Direction Degrees	WIND* Speed (Knots)	REMARKS
/	10.1		990		673	24.4	133	96	23.7	0.7			00
/	9.6	850	958		67.2	24.2	133	96	23.5	0.7			11
/	8.9	830	918		65.8	21.8	133	95	21.0	0.8			22
/	8.2	81.0	880		65.6	21.5	15.7	92	20.2	1.3			33
	7.5	79.6	850	1332	64.2	19.0	15.8	92	17.7	1.3			
	4.5	71.7	700	2979	55.4	9.6	13.2	94	8.7	0.9			
/	3.3	68.5	648		56.5	6.8	11.8	95	6.0	0.8			44
/	2.8	67.0	624		55.2	5.0	10.8	95	4.4	0.6			55
/	2.1	65.0	594		53.3	2.3	10.2	96	1.6	0.7			66
/	1.8	64.0	580		53.2	2.1	11.2	95	1.3	0.8			77
	0.8	61.0	537		51.0	-0.6	9.4	95	-1.4	0.8			88
	00		500	5714		-1.8		79	-5.0	3.2			

*MANDATORY LEVELS ONLY

SURFACE OBSERVATION AT RELEASE

PRESSURE Station ~~Inches~~	PRESSURE Station Mb.	*Correction ~~Mb.~~	at Release Mb.	CONTACT Cal. chart	CONTACT Recorder record
5714	500	0	500	589	595

*To adjust station pressure to elevation of release point

TEMPERATURE Dry °F	TEMPERATURE ~~Wet~~ D.P °F	RELATIVE HUMIDITY Water %	WIND Direction degrees	WIND Speed Knots
-1.8°C	-5.5°C	79		

Clouds

Weather

DEPARTMENT OF DEFENSE

WEATHER PLOTTING CHART

BASELINE CHECK READINGS

Time G.M.T.	Ordinate	TEMPERATURE Dry	TEMPERATURE Wet
		69.9°F	55.5°F
0330	64.9	21.1°C	13.7°C

RELATIVE HUMIDITY

Ordinate	Raob %	Corr %	Psychrometer (Water)
81.4	40	0	40 %

CODED MESSAGE FOR EARLY TRANSMISSION

CODED MESSAGE FOR TRANSMISSION

```
97779 77717 UUAA 1806X 99229
70854 08194 99990 24407 00580
XXXXX 85332 19013 70979 09609
50571 01932
UUBB 1806X 99229 70854 08194
00990 24407 11958 24607 22918
21808 33880 21613 44648 06808
55624 05006 66594 02407 77580
02208 88537 00508
```

1465

5714 / 500 Mb

4249 / 600 Mb

1270

2979 / 700 Mb

1127

1852 / 800 Mb

520

1332 / 850 Mb

497

835 / 900 Mb

-80

1000 Mb

REMARKS

LEGEND FOR PLOTTED CURVES

PA - Pressure Altitude (geopotential meters)

T-Temperature (°C)

RH - Relative Humidity (%)

Drawn by AGC DELANGE

Verified by

DATE AND RELEASE TIME (nearest min.)

	Year	Month	Day	Time
G.M.T.	1972	JUNE	18	0535

Ascension No.

Station VW-4 WEARECONRON FOUR

Lat. 22-53N Long. 85-23

PUBLISHED BY THE AERONAUTICAL CHART AND INFORMATION CENTER
UNITED STATES AIR FORCE
ST. LOUIS, MO. 63118

Users can assist in the improvement of DOD WEATHER Plotting Charts by reporting inaccuracies and omissions to the appropriate WEATHER SERVICE HEADQUARTERS, i.e., Hq Air Weather Service or Director U.S. Naval Weather Service.

DOD-WPC 9-31A, ADIABATIC
(MF 3-31A)
CHART CURRENT AS OF FEBRUARY 1971
Lithographed by ACIC 3-71

OPNAV FORM 3140-2 (Rev. 1-64)
(Effective January 1, 1964)

RECCO CODE

(Aerial Meteorological Reconnaissance Reporting Code)

DATE 18 JUNE 72
ORGANIZATION VW-4
TYPE A/C WP-3A
OBSERVER DELANGE/WAGE

Section 1 – MANDATORY

	9	xxx	9	GGgg	i_v	Y	Q	$L_aL_aL_a$	$L_oL_oL_o$	B	f_c	hhh	d_t	d_a	dd	fff	TT	T_dT_d	w	m	j	HHH
SEE TABLE		1			2	3	4			5	6		7	8					9	10	11	
1				0332				LCDR	BARTDLET					OUT		NAVY			J	A	X	
2	9	777	9	0430	4	1	0	272	847	0	/	599	0	1	10	032	55	57	/	9	4	582
3	9	777	9	0515	4	1	0	240	853	0	/	579	0	1	09	030	00	52	/	9	4	579
4	INITIAL EYE REPORT																					
5	RADAR REPORT																					
6	9	777	9	0558	4	1	0	216	861	0	/	580	0	1	30	038	51	55	/	9	4	580
7	DROPSONDE									0	/											
8	9	777	9	0630	4	1	0	239	859	0	/	302	0	1	11	035	11	11	/	9	3	042
9	EYE MESSAGE INITAL																					
c12	9	777	9	0702	4	1	0	237	869	0	/	305	0	1	04	018	11	09	/	9	3	054
10		DETAILED EYE																				
11		"		"				0534 Z														
14	9	777	9	0730	4	1	0	233	855	1	/	297	0	1	31	020	14	08	/	9	3	972
13				INITAL EYE																		
D15	9	777	9	0754	4	1	0	235	891	1	/	042	0	1	18	050	10	09	/	9	3	048
16		VORTEX																				
SEE NOTE		8		9		9		10	10	11	12	13	14	15	15		16	17	18	19		

Section 2 – OPTIONAL

OPNAV FORM 3140-2 (Rev. 1-64)
(Effective January 1, 1964)

RECCO CODE

(Aerial Meteorological Reconnaissance Reporting Code)

DATE 18 JUNE 72
ORGANIZATION VW-4
TYPE A/C WP-3A
OBSERVER DELANGE
WAGI

Section 1 – MANDATORY

	9	xxx	9	GGgg	i_v	Y	Q	$L_aL_aL_a$	$L_oL_oL_o$	B	f_c	hhh	d_t	d_a	dd	fff	TT	T_dT_d	w	m	j	HHH
SEE TABLE		1			2	3	4			5	6		7	8					9	10	11	
17	9	777	9	0830	4	1	0	235	857	0	/	030	0	1	99	005	24	22	/	9	0	985
19	9	777	9	0900	4	1	0	235	856	1	/	020	0	1	99	005	25	22	/	9	0	985
20					INITAC EYE (IT'S RUF)																	
18						PLAIN LANGUAGE																
21				0858				EYE MSS DETAILED														
22	9	777	9	0938	4	1	0	226	861	1	/	303	0	1	27	045	12	08	/	9	3	027
24								PLAIN LANGUAGE														
23	9	777	9	0957	4	1	0	236	857	1	/	298	0	1	23	035	15	10	/	9	3	984
25	9	777	9	1022	4	1	0	245	851	1	/	302	0	1	13	050	10	10	/	9	3	030
26	9	777	9	1046	4	1	0	242	867	1	/	303	0	1	03	030	12	08	/	9	3	039
28	9	777	9	1121	4	1	0	237	849	1	/	302	0	1	20	050	12	08	5	9	3	018
27												PLAIN LANGUAGE										
30	9	777	9	1206	4	1	0	249	856	5	6	246	0	1	07	055	23	23	6	3	0	996
29						PLAIN LANGUAGE																
31	9	777	9	1230	4	1	0	265	857	0	4	702	0	1	11	025	53	57	5	9	4	585
32								BT Collective														
SEE NOTE		8		9		9		10	10	11	12	13	14	15	15		16	17	18	19		

Section 2 – OPTIONAL

	I	k_n	N_1	N_2	N_3	C	hh	HH	C	hh	HH	C	hh	HH	4	dd	ff	Plain Language Remarks
SEE TABLE			12			13	14		13	14		13	14					
30	1	/	9	9	9										4	04	55	
31	1	3	3	8	7	9	//	//	4	//	66	2	//	//				DRoPSonde
SEE NOTE	20	21	22			23 – 25			23 – 25			23 – 25			26	27	28	54 – 55

The following forms describe an Air Force flight on June 19 into the hurricane. The flight was manned by personnel from the 53rd Weather Reconnaissance Squadron, Ramey AFB, Puerto Rico.

DETAILED VORTEX/CENTER DATA MESSAGE

ADDRESSEE(S)

MISSION NUMBER: AFGULL 04 AGNES

DATE: 19 JUN 72

SCHEDULE FIX TIME: 0600Z Z

AIRCRAFT COMMANDER: Capt. Sanderson

AIRCRAFT NUMBER: 0741

ARWO: Lt Rodden/Capt Henry

SIMULTANEOUS FIX WITH OTHER AIRCRAFT ☐ YES ☒ NO

TRANSMISSION TIME: 19/0832 Z

GROUND STATION RECEIPT TIME: Z

PRECEDENCE: **IMMEDIATE**

MESSAGE HEADING

A	SQUADRON CALL SIGN GULL 20	MISSION NUMBER 04	CYCLONE/STORM NAME AGNES	OBS NUMBER 13

B	19/0730 Z	B. DATE AND TIME OF FIX *(Zulu)*.
C	27 DEG 58 Min [✓ N] S	C. LATITUDE CENTER FIX *(Degrees/Minutes) (Circle* N *or* S) Checksum*
D	85 DEG 46 Min E [✓ W]	D. LONGITUDE CENTER FIX *(Degrees/Minutes) (Circle* E *or* W) Checksum*
E	1,3,4,5/N/A	E. CENTER DETERMINED BY / FIX LEVEL* CENTER DETERMINED BY: (Enter appropriate number) 1 – Penetration; 2 – Radar *(Indicate aircraft position and wall cloud data in Sec S, REMARKS)*; 3 – Wind; 4 – Pressure; 5 – Temp. FIX LEVEL*: (Enter appropriate number) 0 – Surface; 1 – 1500 feet; 5 – 500 MB: 7 – 700 MB; 9 – Other.
F	5 / 5 NM	F. NAVIGATION FIX ACCURACY/METEOROLOGICAL ACCURACY *(in NM)*
G	978 MB	G. MINIMUM SEA LEVEL PRESSURE *(in millibars). (Computed, unless otherwise stated).*
H	700 MB 2893 M	H. MINIMUM HEIGHT AT STANDARD LEVEL *(millibars/meters)*.
I	N/A K	I. ESTIMATE OF MAXIMUM SURFACE WIND OBSERVED *(in knots)*.
J	N/A ° / NM	J. BEARING AND RANGE FROM CENTER OF MAXIMUM SURFACE WINDS *(Degrees nautical miles)*.
K	160 DEG 55 K	K. MAXIMUM FLIGHT LEVEL WINDS NEAR CENTER *(degrees and knots)*.
L	060 ° / 52 NM	L. BEARING AND RANGE OF MAXIMUM OBSERVED FLIGHT LEVEL WINDS FROM CENTER *(Degrees and Nautical Miles)*.
M	+15 °	M. MAXIMUM FLIGHT LEVEL TEMP INSIDE THE EYE *(degrees Centigrade)*.
N	+12 °	N. MAXIMUM FLIGHT LEVEL TEMP OUTSIDE THE EYE *(degrees Centigrade)*.
O	2972 M / 2896 M	O. ABSOLUTE ALTITUDE OUTSIDE/INSIDE EYE *(meters)*.
P	27 ° / 58 Min [✓ N] S 19/ 85 ° / 46 Min E [✓ W] 0730 Z	P. CONFIRMATION OF FIX. Position *(Degrees/Minutes)*; Date and Time *(Zulu)*.
Q	C 30	Q. EYE SHAPE/ORIENTATION/DIAMETER. Code eye shape as: C – Circular; CO – Concentric; E – Elliptical. Transmit orientation of major axis in tens of degrees, i.e., 01–010 to 190; 17–170 to 350. Transmit diameter in nautical miles. *Examples:* C8 – Circular eye 8 miles in diameter. E09/15/5 – Elliptical eye, major axis 090–270, length of major axis 15 NM, length of minor axis 5 NM. CO8–14 – Concentric eye, diameter inner eye 8 NM, outer eye 14 NM.
R	GOOD DEFINITION	R. EYE CHARACTER: Closed Wall, Poorly Defined, Open SW, etc.
S	FEEDER BANDS TO NORTH OPEN SW - 5 N/A	NOT
T	° / Min N S ° / Min E W	T. AIRCRAFT POSITION IF RADAR FIX *(Degrees/Minutes)*.

*Required in Pacific only: Checksum (C and D) and Fix Level (E).

INSTRUCTIONS: MAKE EVERY EFFORT TO ELIMINATE AMBIGUOUS OR MISLEADING STATEMENTS. USE AUTHORIZED CONTRACTIONS. TRANSMIT IN FLIGHT ONLY THAT PORTION BEGINNING WITH "MESSAGE HEADING." SIGNIFICANT CLOUDS OBSERVED IN THE EYE/CENTER SHOULD BE REPORTED UNDER "REMARKS" OR BE SUMMARIZED IN THE WRITTEN POST-FLIGHT REPORT. ENTER "N/A" FOR ITEMS THAT ARE NOT AVAILABLE.

RECCO RECORDING FORM

DATE: 19 JUN 1972
ORGANIZATION: 53 WRS
TRACK: AT GULF 04 AGNES
OBSERVER: Capt Henry
TYPE AIRCRAFT: WC130B

	1 9 X X X 9 KEY GROUPS Table 1 (Note 13)	2 G G g g i_u TIME (GMT) OF OBSERVATION HOURS And MINUTES UNITS INDEX Table 2	3 Y Q L_a L_a L_a DAY OF WEEK SUN-1 OCTANT Table 3 LATITUDE DEGREES AND TENTHS	4 L_o L_o L_o B f_c LONGITUDE DEGREES AND TENTHS TURBULENCE Table 4 FLIGHT CONDITIONS Table 5	5 h h h d_t d_a TRUE ALTITUDE OF AIRCRAFT REPORTED TO THE NEAREST DECAMETER ABOVE M.S.L. TYPE OF WIND Table 6 RELIABILITY OF WIND Table 7	6 d d f f f WIND DIRECTION AT FLIGHT LEVEL (Tens of deg. true) WIND SPEED AT FLIGHT LEVEL (Knots)	7 T T T_d T_d w TEMPERATURE WHOLE °C Note 6 DEW POINT WHOLE °C (Note 6) PRESENT WEATHER (Note 2) Table 8	8 m j H H H REMARKS ON w (Note 3) Table 9 INDEX TO HHH Table 10 HEIGHT DATA (Note 7)	9 1 k_n N_1 N_2 N_3 INDICATOR NR OF CLOUD LAYERS (Note 4) AMOUNT OF CLOUDS IN ASCENDING ORDER (Note 5) Table 11	10 C h h H H CLOUD TYPE Table 12 ALTITUDE OF BASE Table 13 ALTITUDE OF TOP Table 13	11 C h h H H CLOUD TYPE Table 12 ALTITUDE OF BASE Table 13 ALTITUDE OF TOP Table 13	12 C h h H H CLOUD TYPE Table 12 ALTITUDE OF BASE Table 13 ALTITUDE OF TOP Table 13	13 1 k_n N_4 N_5 N_6 INDICATOR NR OF CLOUD LAYERS (Note 4) AMOUNT OF CLOUDS IN ASCENDING ORDER (Note 5) Table 11	14 C h h H H CLOUD TYPE Table 12 ALTITUDE OF BASE Table 13 ALTITUDE OF TOP Table 13	15 C h h H H CLOUD TYPE Table 12 ALTITUDE OF BASE Table 13 ALTITUDE OF TOP Table 13	16 C h h H H CLOUD TYPE Table 12 ALTITUDE OF BASE Table 13 ALTITUDE OF TOP Table 13	17 4 d d f f INDICATOR (Note 8, 9, & 10) DIRECTION OF SFC WIND (Tens of deg. true) SURFACE WIND SPEED (Knots)	18 5 D F S D_k INDICATOR (Note 8, 9, & 10) DIRECTION OF SEC WIND Table 14 FORCE OF SFC WIND (Note 11) Table 15 STATE OF SEA Table 16 DIRECTION OF SWELL Table 14	19 6 W_S S_s W_c D_w INDICATOR SIGNIFICANT WEA CHANGES Table 17 DISTANCE OF OCCURRENCE OF Ws Table 18 WEA OFF COURSE Table 19 BEARING OF W_c Table 14	20 6 W_S S_s W_c D_w INDICATOR SIGNIFICANT WEA CHANGES Table 17 DISTANCE OF OCCURRENCE OF Ws Table 18 WEA OFF COURSE Table 19 BEARING OF W_c Table 14	21 7 I_r I_t S_b S_e INDICATOR RATE OF ICING Table 20 TYPE OF ICING Table 21 DISTANCE TO BEGINNING OF ICING Table 18 DISTANCE TO ENDING OF ICING Table 18	22 7 h_i h_i H_i H_i INDICATOR ALT OF BASE OF ICING STRATUM (Note 12) Table 13 ALTITUDE OF TOP OF ICING STRATUM Note 12 Table 13	23 8 d_r d_r S_r O_e INDICATOR (Note 13 & 14) BEARING OF ECHO CENTER (Tens of Deg. True) DISTANCE TO ECHO CEN (Tens of nau. mi.) ORIENTATION OF ELLIPSE Table 22	24 8 w_e a_e c_e I_e INDICATOR ECHO WIDTH OR DIAM (Tens of nau. mi.) LENGTH OF MAJ AXIS (Tens of nau. mi.) CHARACTER OF ECHO Table 23 INTENSITY OF ECHO Table 24	VSBY T A S
1		DEPARTURE MESSAGE																							
2	97779	02194	20200	6880/	78500	99045	6880/	9/758	1/990																3
3	97779	02514	20214	7110/	78300	33017	6978/	9/760	1/990																3
4	97779	03344	20230	74300	78200	27018	69780	9/760																	3
5	97779	04154	20246	77200	78200	21020	68740	9/754																	3
6	97779	05154	20265	82004	29100	20052	10062	93103																	3
7		INITIAL VORTEX																							
A 8	97779	06514	20265	86804	29700	30025	12072	93990																	3
9		DROP																							
10		INITIAL VORTEX																							3
B 11	97779	07574	20289	84604	29900	16050	10092	93002																	3
12		DROP																							
13		DETAILED VORTEX																							
C 14	97779	08334	20289	86804	97500	36020	11092	93005																	3
15		INITIAL																							
D 16	97779	09404	20273	84704	29800	22047	10072	93999																	3
17		DROP																							
18		SUPPLEMENTAL VORTEX																							
A 19	97779	10324	20298	87003	29800	29040	11062	93993																	3
20		INITIAL VORTEX																							
21		DROP																							
22		INITIAL																							
23		DROP																							
24	97779	12534	20280	83304	60500	22050	56702	94578	13268	8//69	4//67	275//													3
25		ARRIVAL																							

DROPSONDE AND AIRCRAFT SOUNDING DATA

97779	71717	UUAA	1931/	99275	70857	08175	99979
25807	00698	/////	85236	20800	70908	15056	88999
77999	UUBB	1931/	99275	70857	08175	00979	25807
11906	22800	22962	23000	33808	19200	44781	18220
55759	17608	66700	15056				

97779	71717	UUAA	1957/	99280	70858	08185	99978	25800
00702	/////	85227	20600	70893	15056	88999	77999	UUAA
19571	99280	70858	08185	00978	25800	11944	23400	22938
23800	33902	23000	44772	16600	55700	15056		

97779	71717	UUAA	1909/	99284	70857	08185	99978
25803	00699	/////	85234	21002	70908	15056	88999
77999	UUBB	1909/	99284	70857	08185	00978	25803
11887	22000	22767	18418	33700	15056		

AWS FORM AUG 67 35 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

CHAPTER 4

Remotely Sensed Observations

RADAR

Modern technology makes it possible to scan and measure weather systems remotely. This chapter contains illustrations of radar and satellite film observations. A primary advantage of this technology is the portrayal of the storm in time sequence fashion.

Radar photography is particularly useful in analyzing the movement of precipitation cells. The white echoes shown in the photographs are usually areas of precipitation. Ground clutter, nearby buildings, trees, and hills, appear near the center of the scope. Echoes away from the center may be from aircraft or mountains, as well as precipitation. The markings around the rim of the scope are oriented with 360° toward true North. Times shown on the clocks are in GCT. The day is shown by the Julian date number on the face of the clock.

Some of the radar photographs show a contouring effect of the echoes. This is due to a new attachment called the Video-Integrator and Processor (VIP). Instead of merely showing rainfall as white patches, the new display indicates the rainfall intensity through a system of 6 gray scales. For the Miami radar, the calibration of this scale is as follows:

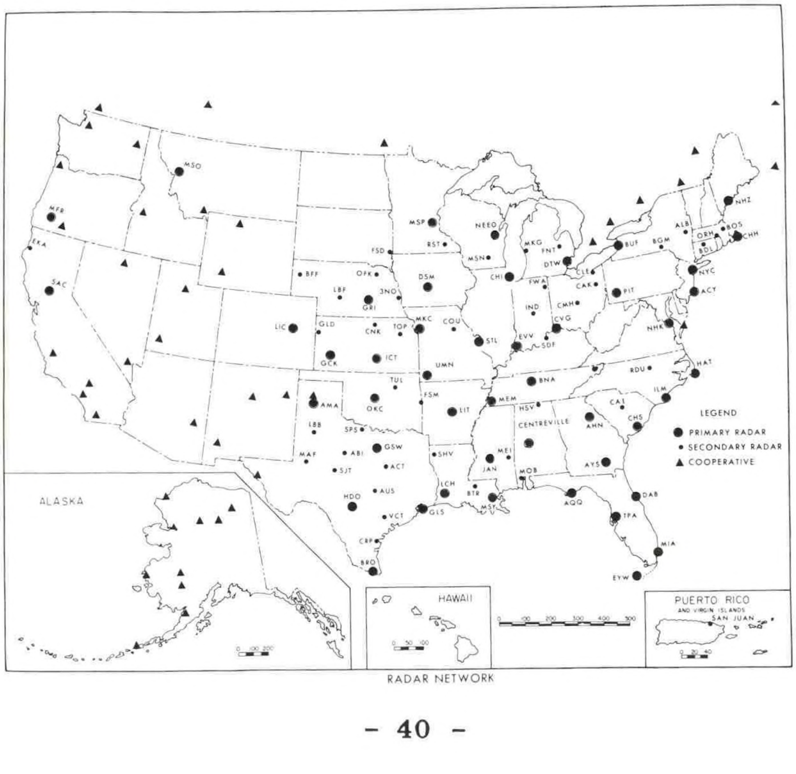
Rainfall rate per hour	Display Level
Less than .02 in.	Gray
.02- .10	White
.10- .50	Black
.50-1.00	Gray
1.00-2.00	White
2.00-5.00	Black

The other NWS radars use the following calibration:

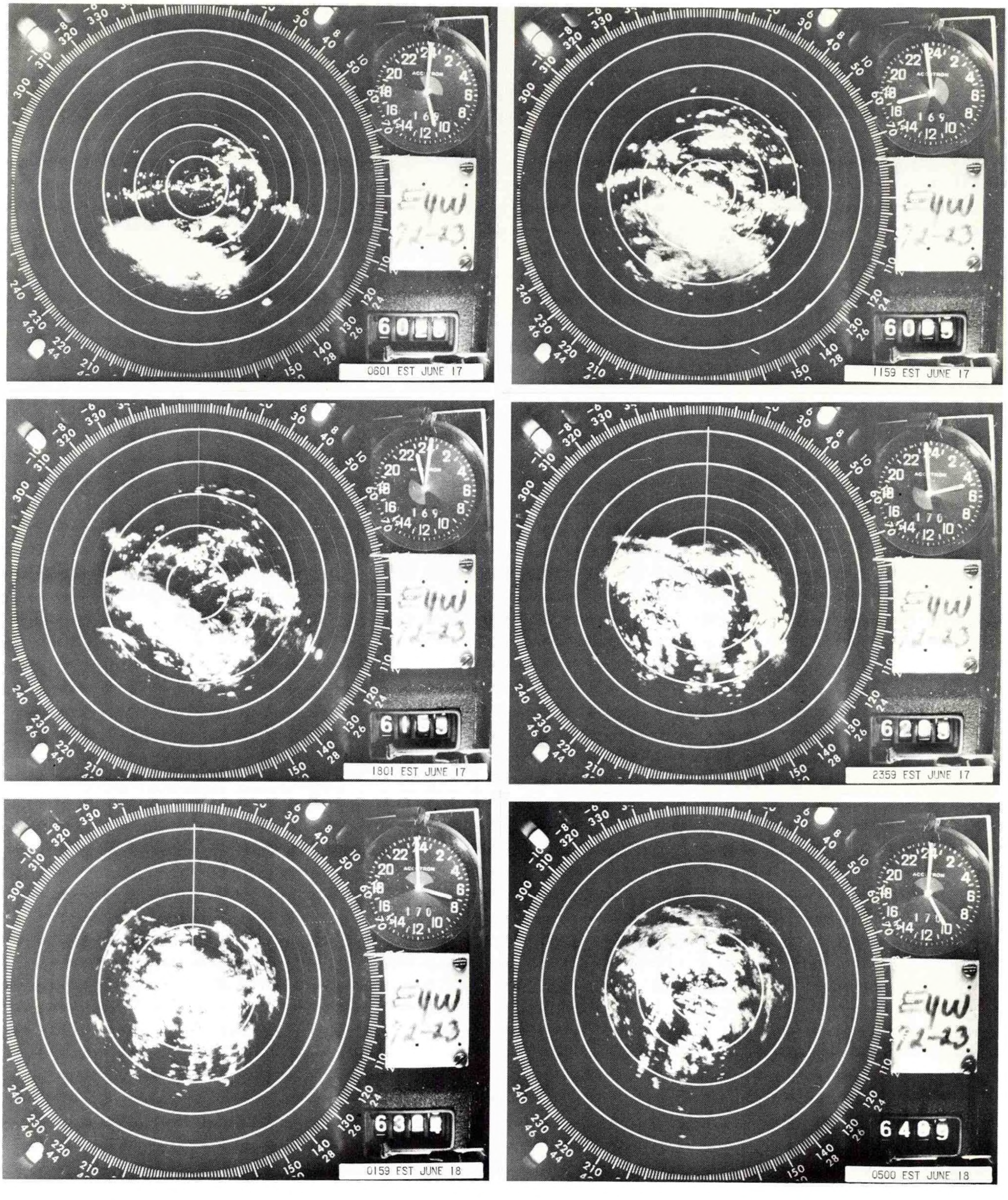
Rainfall rate per hour	Display Level
Less than .02 in.	Gray
.02- .10	White
.10-1.00	Black
1.00-5.00	Gray
5.00-10.00	White
Over 10.00	Black

Radar photography not shown in this publication can be ordered in the form of 16 and 35 mm movie film from the NCC. For further information see the chapter on Sources of Additional Data.

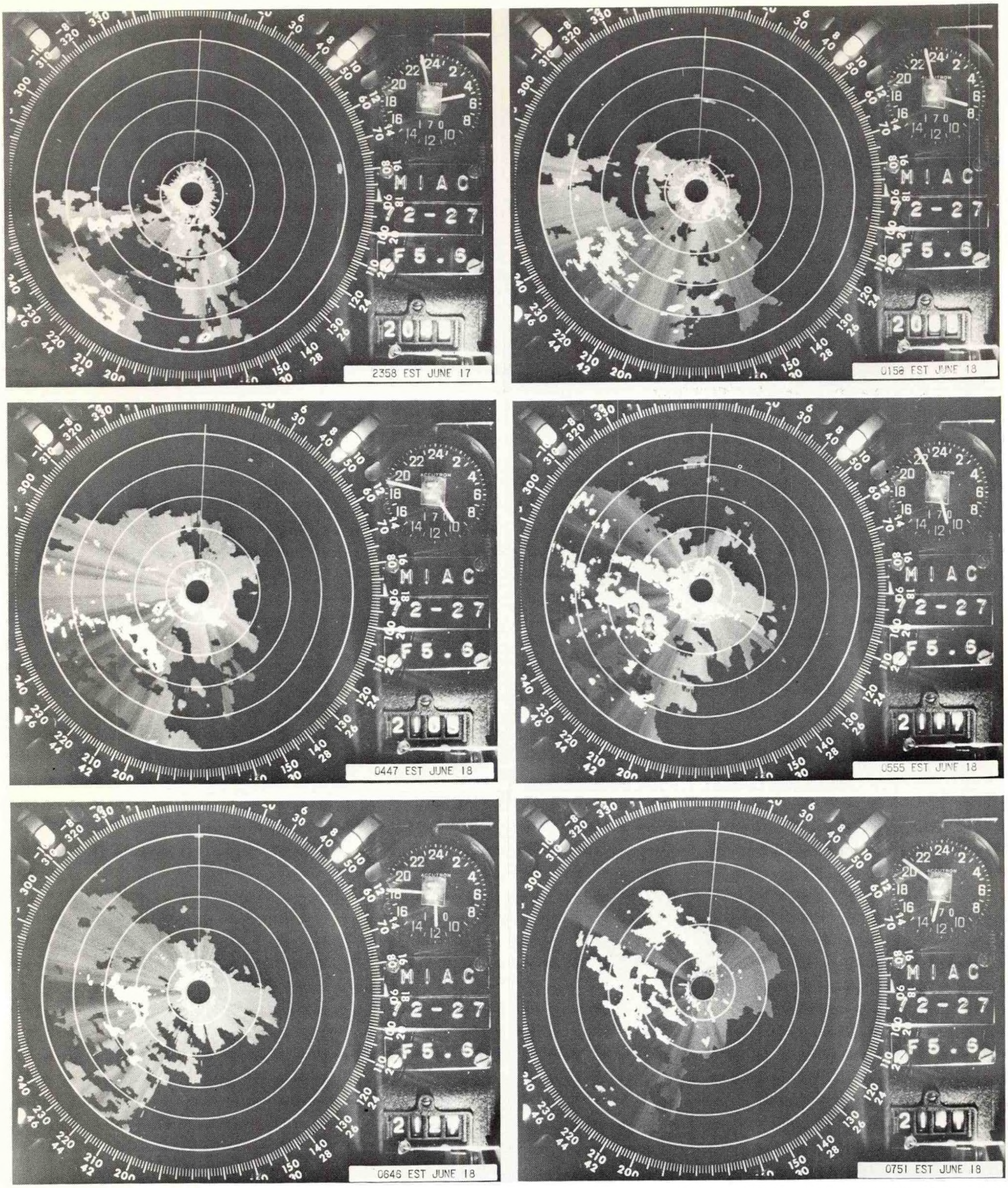
Satellite photographs are from the ATS-3 geostationary satellite and the ESSA 9 polar orbiting satellite.



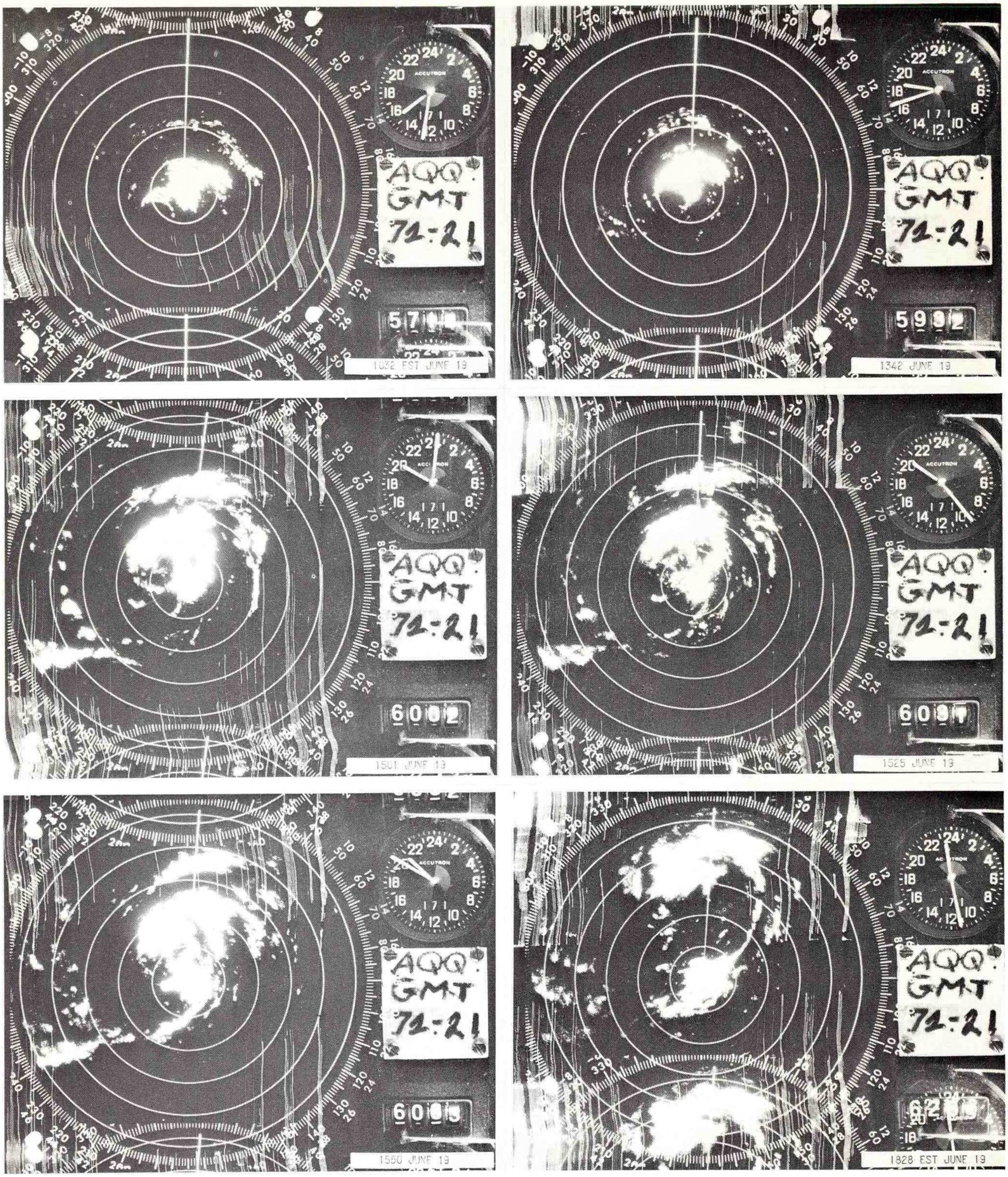
RADAR NETWORK



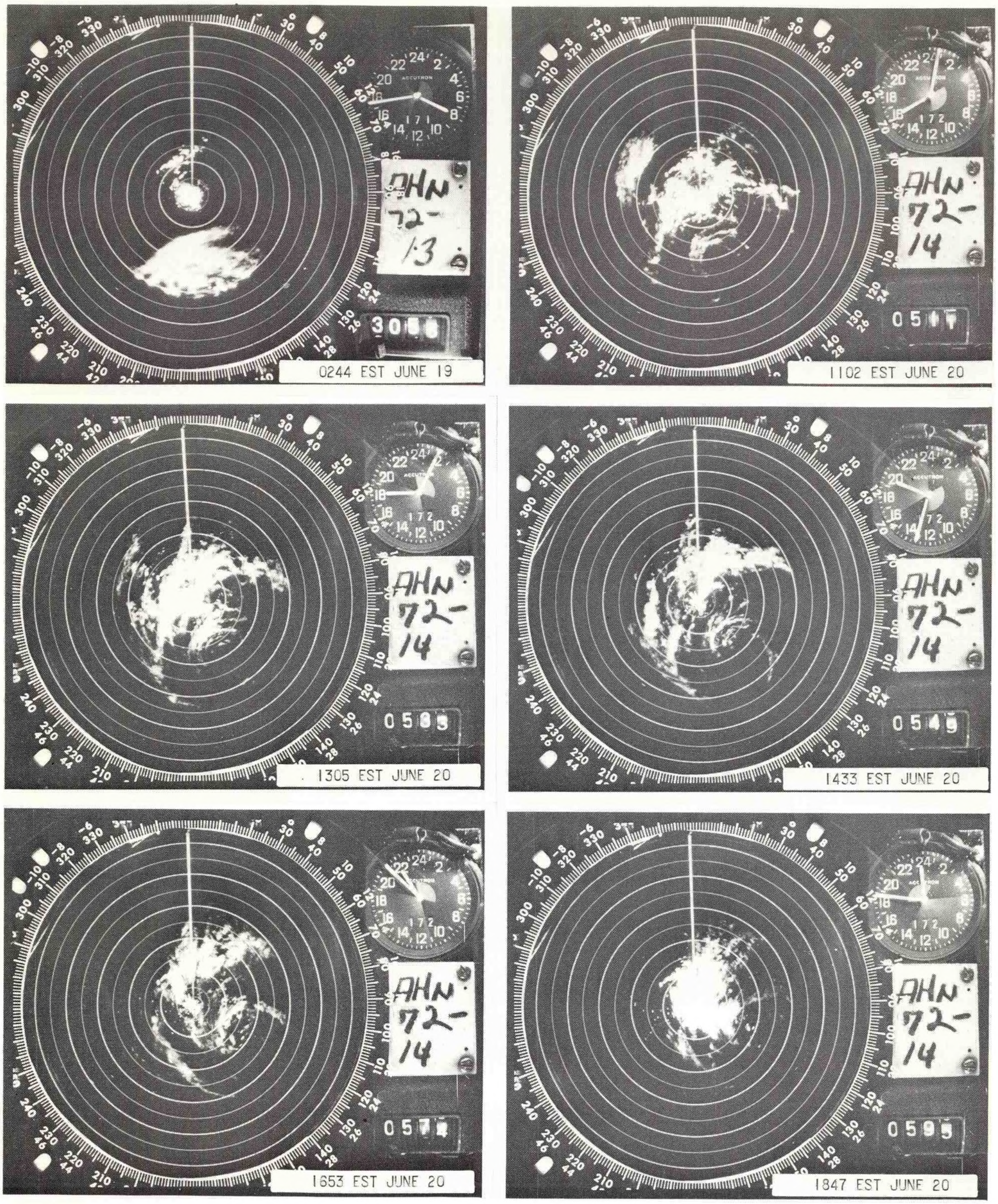
Key West, Florida, radarscope photographs. Frame 6020 shows the hurricane rainshield moving in from the southwest. Heavy rains and strong winds were imbedded in the echoes shown on Fr 6324. (50-mile range markers).



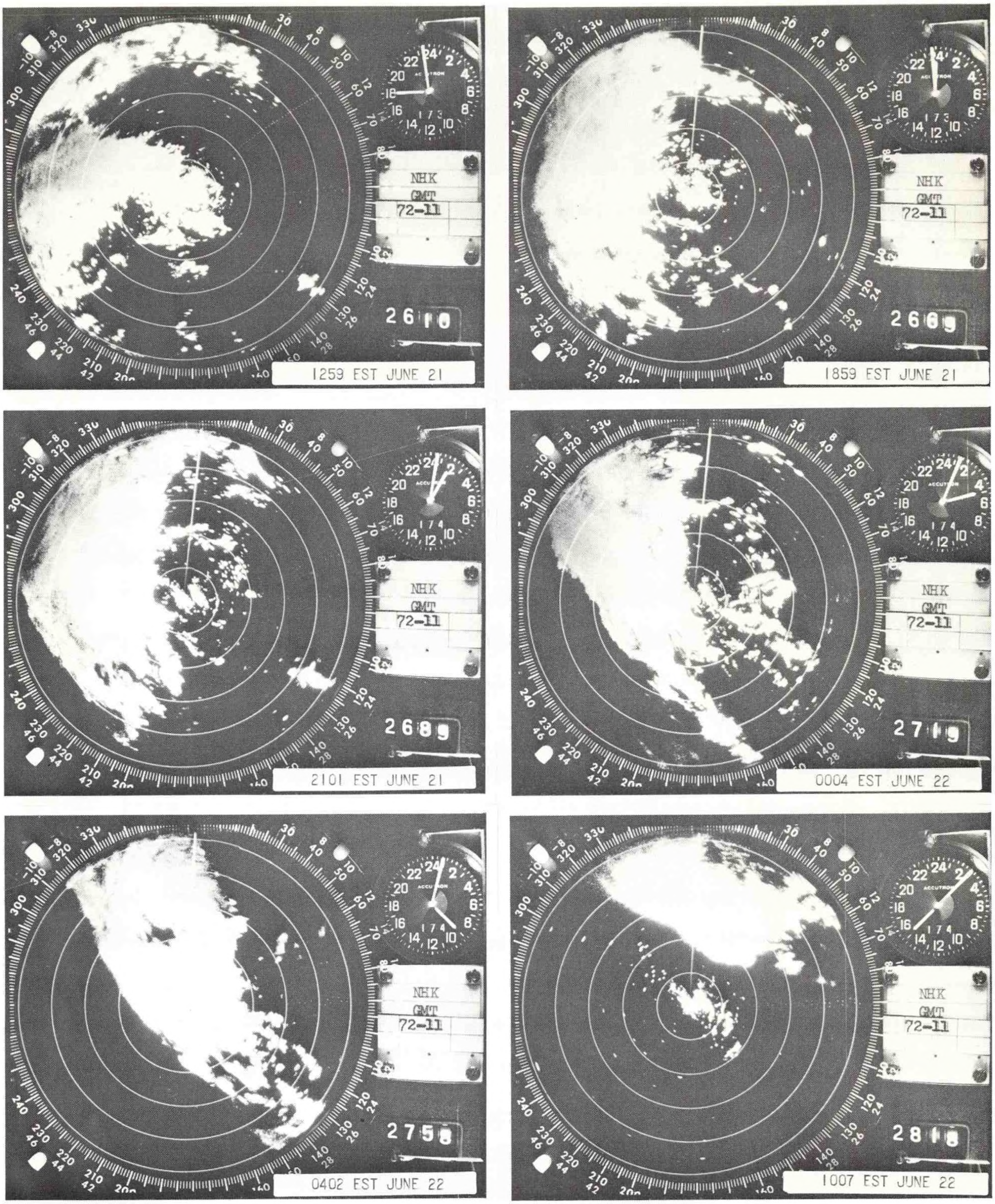
Miami, Florida, radarscope photographs. Edge of rainshield appears in Frame 2043. Frame 2103 shows a line of three strong thunderstorm cells which were accompanied by heavy rains and strong winds in the vicinity of the Upper Keys. Note the consolidation and growth evident in Frame 2117 and dissipation later. (25-mile range markers).



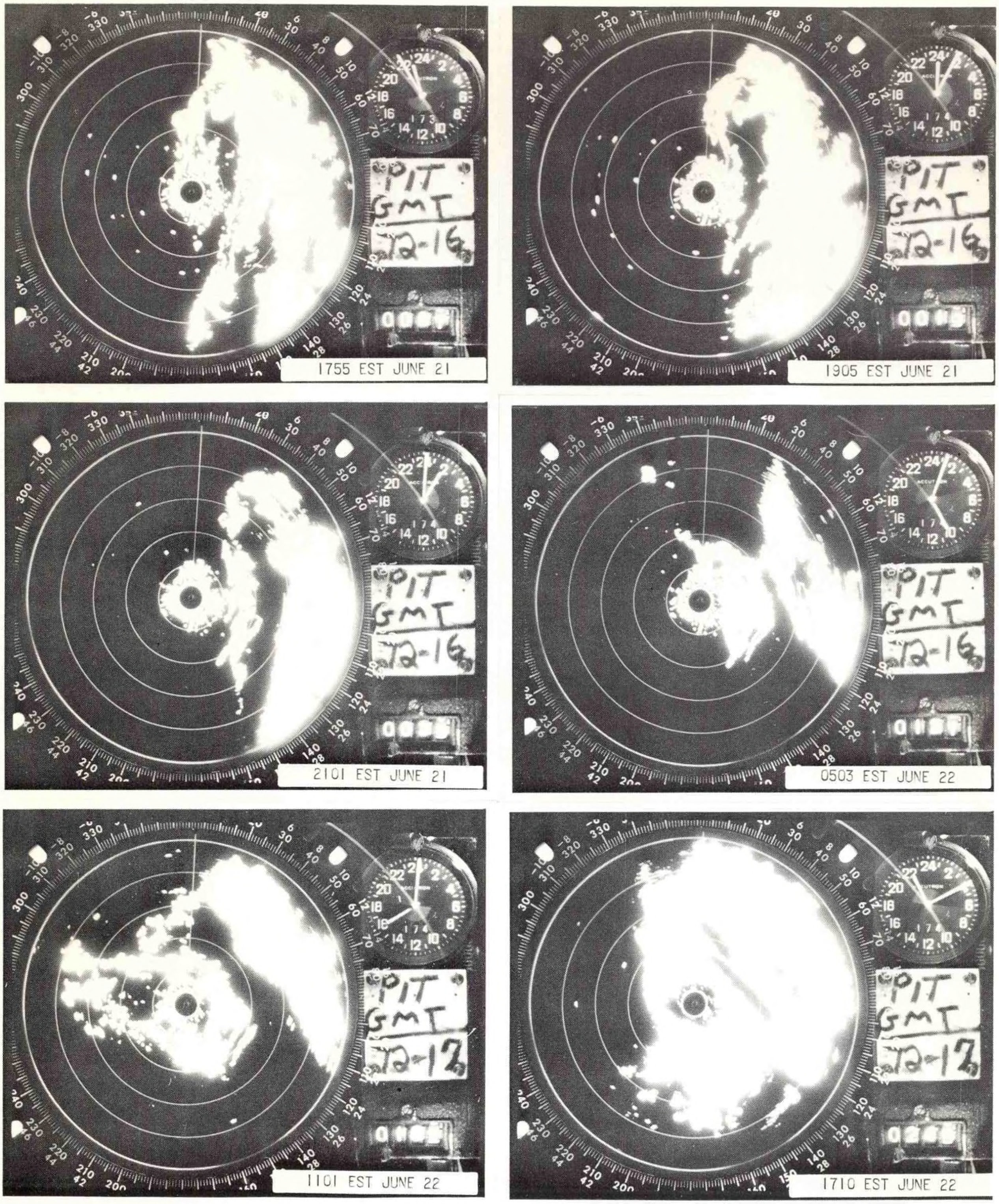
Apalachicola, Florida, radarscope photographs. Frame 5714 shows the echoes curving around the eye southwest of the station. Overlapping frames and scratches are due to a camera malfunction. Later frames show the movement of the storm inland. (Range markers: 50 miles on first two frames, 25 miles thereafter).



Athens, Georgia, radarscope photographs. Movement of rainshield is evident; echoes near the vortex can be seen faintly. (Range markers: 50 miles, heavy; 25 miles, lighter).



Patuxent River, Maryland, radarscope photographs. Among the echoes appearing here are the heavy rains that hit the Washington, D. C., area. (Range markers: 25 miles).



1755 EST JUNE 21

1905 EST JUNE 21

2101 EST JUNE 21

0503 EST JUNE 22

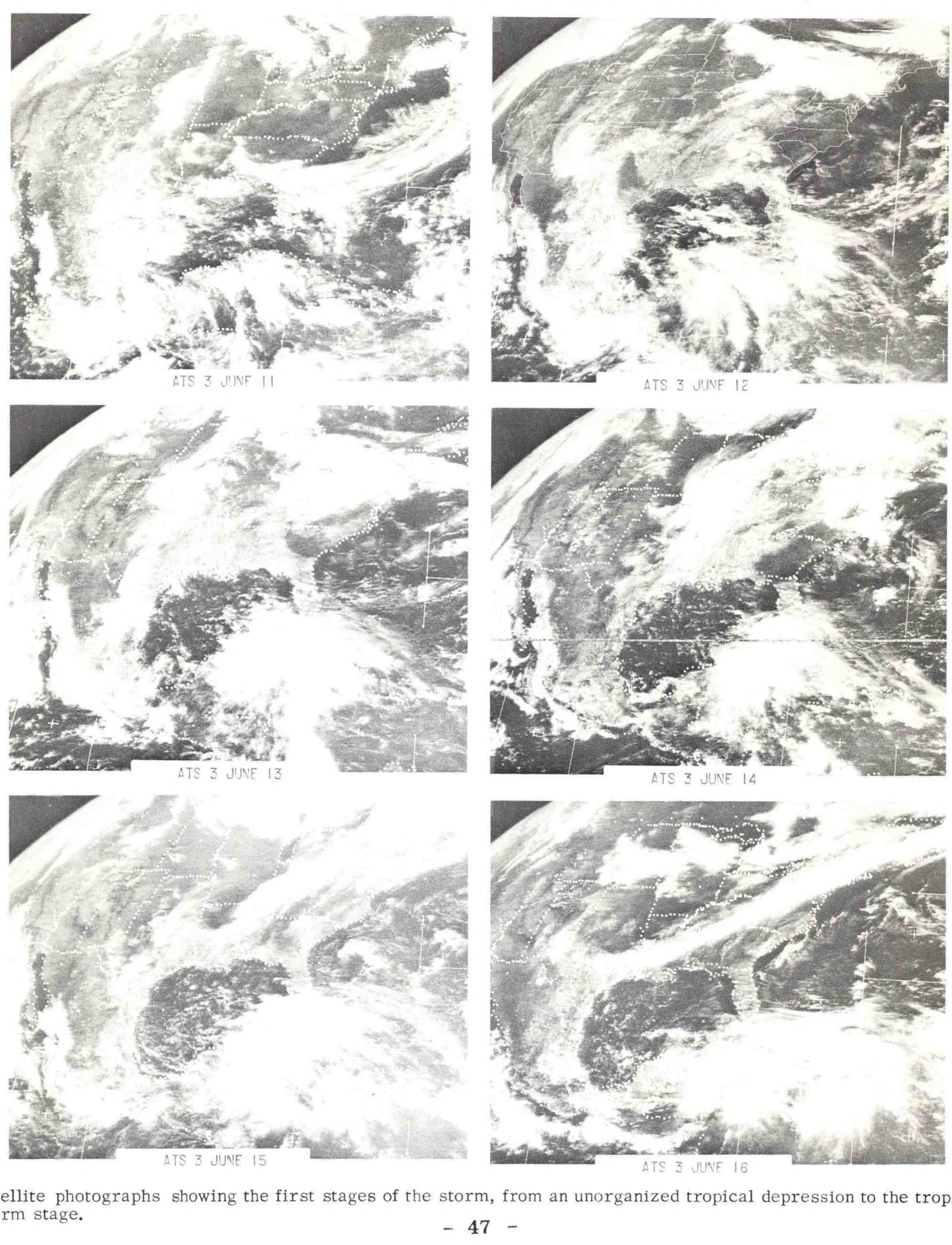
1101 EST JUNE 22

1710 EST JUNE 22

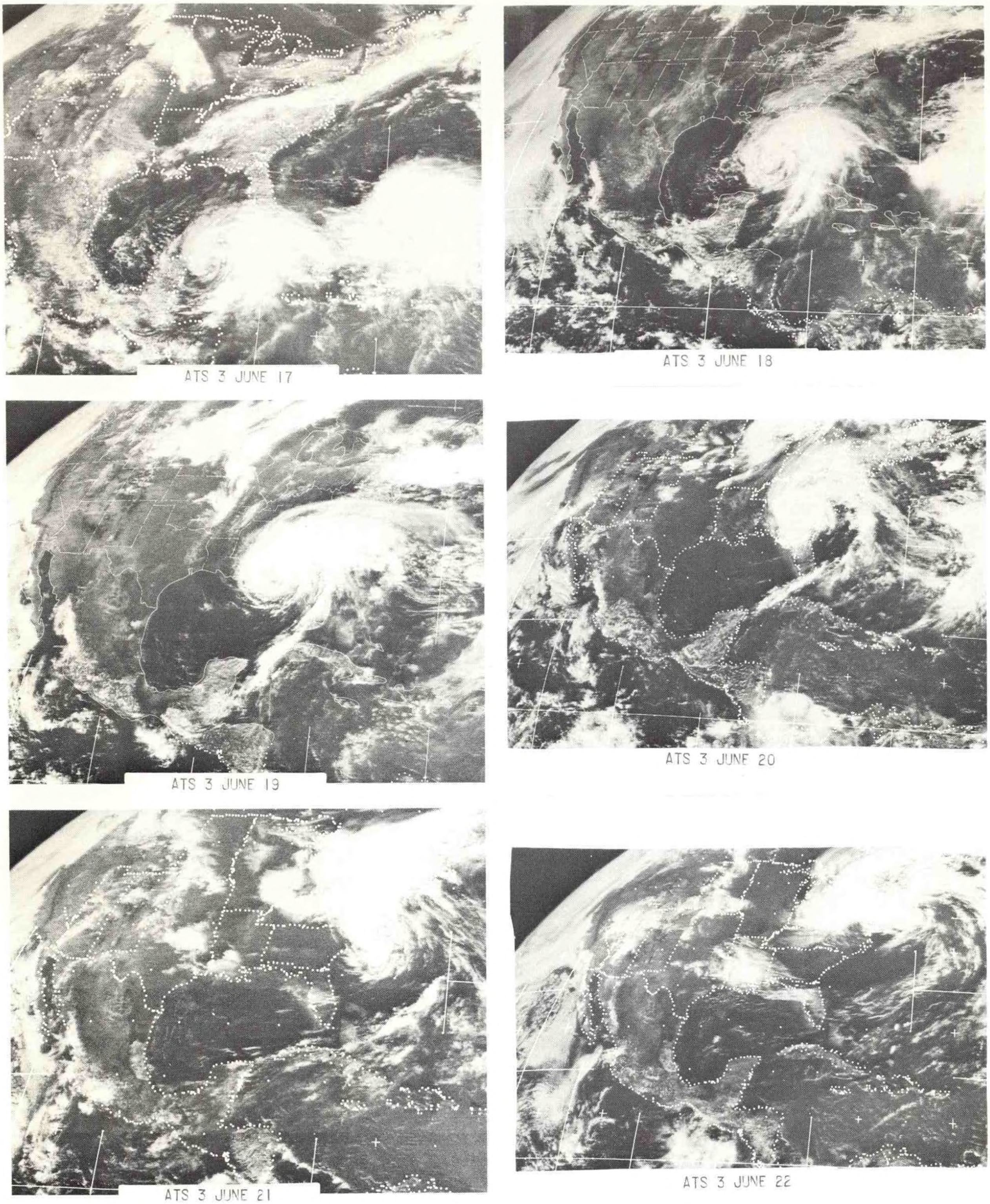
Pittsburgh, Pennsylvania, radarscope photographs. Some of the holes appearing in the echoes are contours of heavy rain created by the Video Integrator and Processor mode of the radar set. Note the slow movement of the rain patterns. (Range markers: 25 miles).

Satellite

SEQUENCE OF SATELLITE PHOTOGRAPHS FROM ATS-3.

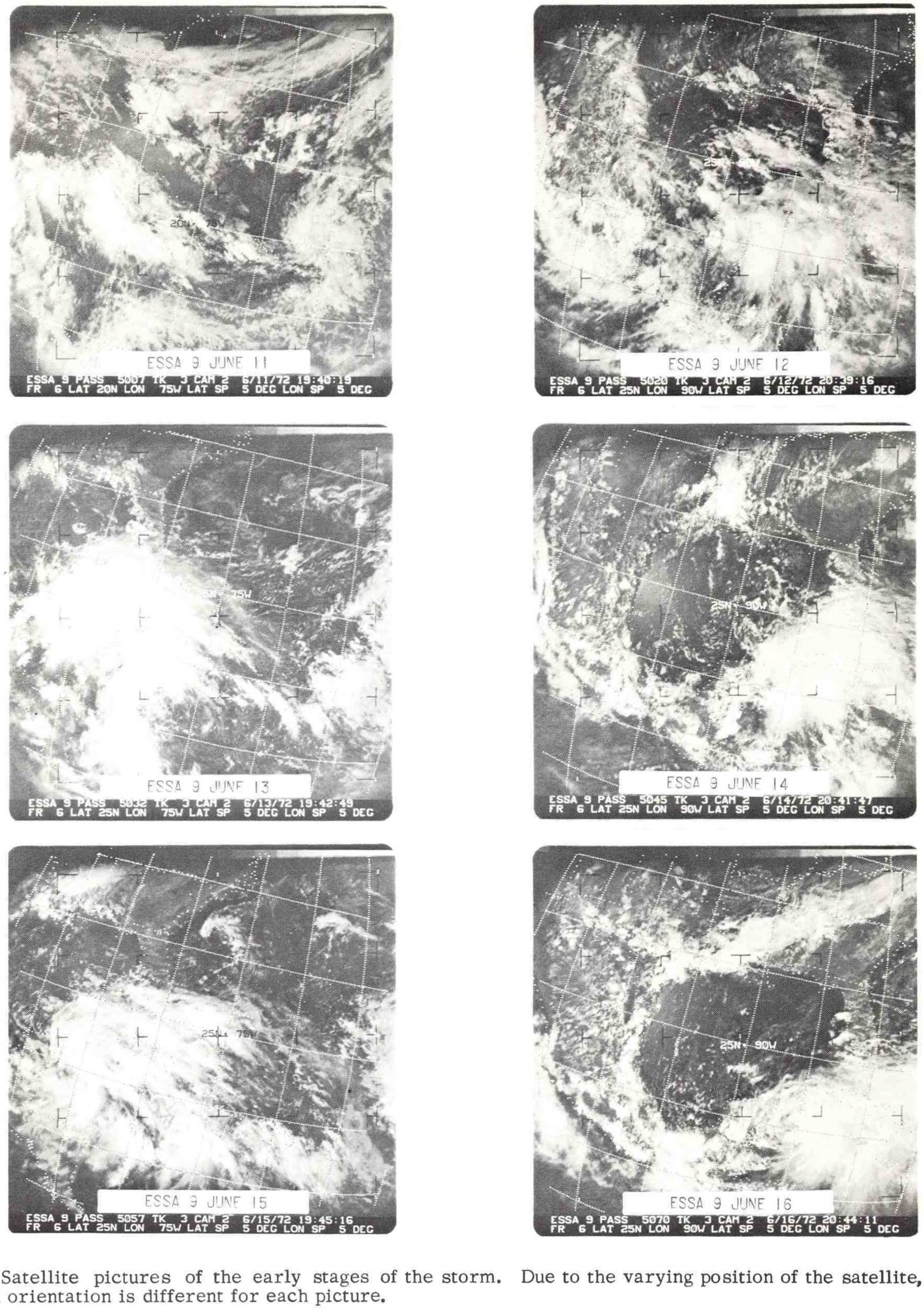


Satellite photographs showing the first stages of the storm, from an unorganized tropical depression to the tropical storm stage.

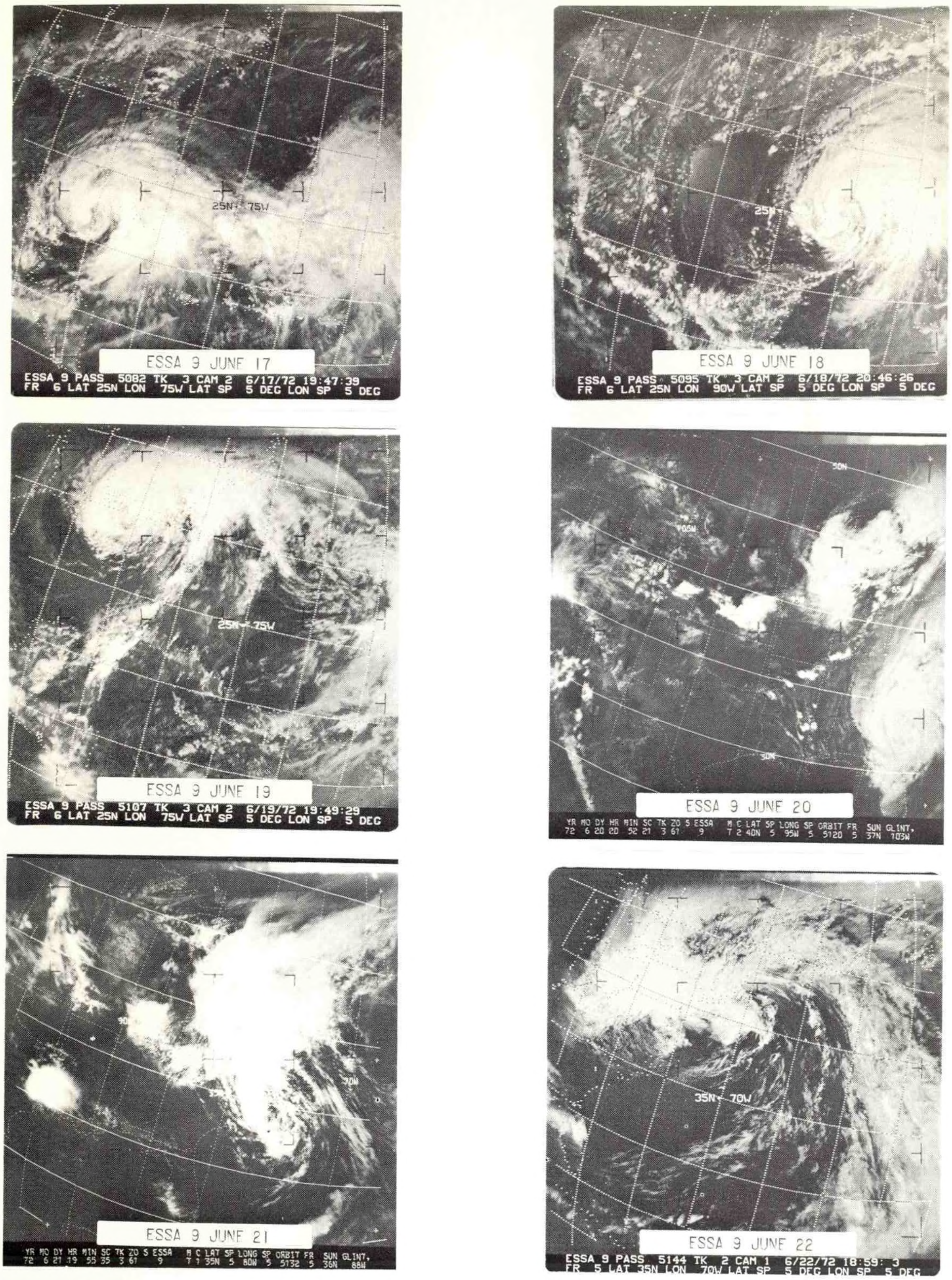


Satellite photographs showing the movement of the hurricane onshore at Florida, across the southeastern United States and into the Atlantic Ocean. The northern portions of the pictures are distorted because of the angle of view from the satellite which was positioned over South America.

SEQUENCE OF SATELLITE PHOTOGRAPHS FROM ESSA 9.



ESSA 9 Satellite pictures of the early stages of the storm. Due to the varying position of the satellite, the geographical orientation is different for each picture.



ESSA 9 pictures of the later stages of the storm.

CHAPTER 5

Extremes of Pressure, Winds, Tides, Rainfall

The extremes published here must be considered tentative. All data have not been received and some that are on hand have not been evaluated.

Reports, observations and measurements of various aspects of the hurricane come from many sources. The network of official NOAA stations is not dense enough to answer detailed questions, so other observations are solicited. Many agencies, universities and individuals have well-calibrated, fully reliable instruments. These observations can be readily merged with the NOAA ones. Readings from uncalibrated or damaged instruments must be studied before being incorporated into the other data. Casual and anonymous reports must be weighed carefully.

Extremes of rainfall have been dealt with in this chapter in several ways because of the heavy flood damage. Occasional discrepancies between tables and the text are due to the receipt of data after portions of the publication had been assembled. Table 3 shows the State extremes of rainfall for stations processed so far. Which rains should be attributed to Hurricane Agnes was not always evident. For example, New Haven, Connecticut, had 7.25 inches of rain on the 19th, while Agnes was centered far to the south. The delineation was sometimes arbitrary.

Table 4 gives extremes for several elements in the format commonly used for tabulating tropical cyclone data. Note from the pressures in this table and in Appendix A that the lowest pressure in the storm did not occur when Agnes was over tropical or subtropical waters, but after it had crossed the southeastern States and had regenerated over the Gulf Stream in more northerly latitudes.

Tables 5 and 6 are included to show the features of the heaviest precipitation for durations of less than one hour and for one to five hours. The short duration statistics are usually compiled only for First Order National Weather Service stations equipped with recording raingages.

Table 7 shows selected heavy rainfall amounts of four types. Comparatively few stations have the kind of raingage necessary for recording the greatest hour- and greatest 24-hour amounts. The statistics have not been worked up for some stations that have the basic data. Those needing information for stations not included here should refer to the publications Climatological Data and Hourly Precipitation Data.

The maps of total precipitation in Appendix B show the distribution of the rains. The two maps are composites of large detailed maps provided by the Hydrometeorological Branch, Office of Hydrology, National Weather Service. Some of the rainfall amounts published in this chapter were not available at the time the maps were drawn.

New Records Established

The comparison of Hurricane Agnes records with the past histories of the thousands of weather stations in the area affected will not be completed for a long time. A few new records are known and some are listed below.

FLORIDA. Key West set a new record for the wettest June, 14.43 inches.

NORTH CAROLINA. New records were set at some stations for the greatest 24-hour amount during the month of June.

Table 3

RAINFALL EXTREMES BY STATE

							Available Only For Recording Raingages					
	Greatest Storm Total			Greatest Daily Amount*			Greatest 24-Hour Amount*			Greatest 1-Hour Amount		
	Amt.	Date	Place	Amt.	Date	Place	Amt.	Date	Place	Amt.	Date	Place
DELAWARE	8.40	18-24	Middletown 1WSW	6.08	22	Middletown 1WSW	4.35	21-22	Wilmington	1.27	22	Wilmington
FLORIDA	8.41	18-20	Okeechobee 9W	6.57	19	Cornwell 4NW	6.44	18-19	Tallahassee	2.36	18	Fort Myers
GEORGIA	8.55	18-20	Brunswick FAA	8.19	19	Brunswick FAA	6.98	18-19	Brunswick	2.85	19	Brunswick
MARYLAND	14.68	21-23	Westminister Pol.	12.25	22	Pretty Boy Dam	10.3	21-22	Pankton 2SW	1.8	21	Leonardtown 3NW
NEW JERSEY	5.23	20-24	Woodstown	4.55	22	Woodstown	4.35	22-23	Glassboro	1.8	22	Glassboro
NEW YORK	13.72	20-25	Wellsville	6.57	21	Wellsville	3.19	21-22	Binghamton	1.31	21	Dunkirk Power Pl.
NORTH CAROLINA	11.14	18-21	Celo 2S	7.68	21	Statesville 2NNE	7.7	20-21	N. Wilkesboro 12SE	1.0	21	N. Wilkesboro 12SE
PENNSYLVANIA	16.00	21-25	York 3SSW	13.50	22	York 3SSW	12.53	21-22	Harrisburg FAA	2.50	21	Spring Grove
SOUTH CAROLINA	9.40	18-21	Hogback Mtn.	7.9	20	Travelers Rest	8.2	19-20	Travelers Rest	1.08	20	Columbia WSO
VIRGINIA	13.95	18-24	Montebello 3NE	10.67	21	Dulles Int'l AP	11.88	21-22	Dulles Int'l AP	2.1	21	The Plains 2NNE
WEST VIRGINIA	9.28	18-24	Harpers Ferry	5.20	22	Harpers Ferry	4.72	22-23	Lake Lynn	.49	21	Charleston WSO

*"Daily" in Greatest Daily Amount refers to the daily period used for normal reporting purposes, and for some stations ends at midnight, for others 8 a.m., 5 p.m., 6 p.m., etc. The 24-hour period used in Greatest 24-Hour Amount is not dependent upon a fixed observing time. The seeming discrepancies in the table are explained by the fact that data for every column is not available for each station.

TABLE 4

PRELIMINARY TROPICAL CYCLONE DATA
HURRICANE AGNES JUNE 14-23, 1972

Station	Date	Pressure (inches)		Wind (miles per hour)				Highest Tide ft. abv. msl.	Time+	Rainfall (inches)	Date/ Time+	Greatest 24-hr rainfall inches	Date
		Low	Time+	Fastest Mile	Time+	Gusts	Time+						
FLORIDA													
Apalachicola WSO	19	29.15	1512			E 55'	0612	6.4#	1512	3.40	18/1050-20/0610	2.99	18-19
Crestview FAA	19	29.07	1556-1757	NE 39	0958								
Daytona Beach WSO	19	29.68	1656	E 29*	18/2337	E 45	0312	1.7	0057	4.37	18/0701-19/1340	4.02	18-19
Fort Myers WSO	18	29.65	1630	E 25'*	17/1328	SE 53	0955	3.7#	19/08-12	5.55	17/1200-19/1000	4.96	18-19
Jacksonville WSO	19			E 39	0636	SE 56	0637	2.8#		5.36	18/1343-20/1315	5.14	18-19
Key West WSO	18	29.59	0310	SE 43	0519	E 52	0144	1.4	02-05'	8.53	11/2033-18/1840	3.66	17-18
Lakeland	19	29.66	0230	SE 33	18/1828	SE 55	18/1816			5.10	17/2335-20/0800	4.53	18-19
Orlando WSO	19	29.68	1655	ESE 30*	18/2013	E 41	18/1928			5.28	18/0620-19/1905	4.64	18-19
Panama City FAA	19	29.16¢	1600&1800	NE 40	0700-0750								
Pensacola FWF, NAS	19	29.44	1355-1655	NNE 35	0737	NNE 48	0648			2.58	18/1451-19/2055		
Pensacola WSO	19	29.45	1500	NNW 23*	1556	N 43	1223	2.0	0458	2.34	18/1440-20/0035	2.18	19
St. Pet'brg AP, FAA	19	29.58¢	0353-0552	S 29*	0850	S 48	1455						
Tallahassee WSO	19	29.27	1709	S 31*	1757	SSE 46	1817			7.17	18/1118-20/1145	6.44	18-19
Tampa WSO	19	29.59	0600	SE 27*	18/2057	SE 43'	18/2048	5.6	1115	3.47	18/0300-19/0955	3.38	18-19
Tyndall AFB	19	29.11	1458	NE 40	0655	NE 52	0655			5.66	18/1239-19/2358		
W. Palm Beach WSO	18	29.78	1632	E 32*	1632	E 46	1632			1.97	17/0632-19/2000	0.86	18-19
ALABAMA													
Dothan FAA	20	29.26	0200	N 29*	19/2157	N 43	19/2157			3.52	18/1452-20/1124		
Mobile WSO	19	29.59	1745	N 22*	1457	N 35	1452	1.3#	0330-0600	1.08	19/0617-19/1830		
Montgomery WSO	20	29.48	0200-0400	N 25	1421	N 37	19/1411			2.12	19/0528-20/0710	2.07	19-20
GEORGIA													
Albany FAA	20	29.30	0555	ENE 17*	19/1156	NE 29	19/1115			4.54	19-21		
Albany NAS	20	29.27	0558	ENE 24*	19/1158	SE 33	19/2128			2.77	19-20		
Augusta WSO	20	29.32	1800-2000	E 24*	19/2010	E 35	19/1957			3.70	19/0500-21/0500	2.57	19-20
Macon WSO	20	29.40	1010	E 33	19/1537	NE 35	19/1555			3.18	19/0200-20/2000	2.28	19-20
Macon, Robins AFB	20	29.37	0655	ENE 35*	19/1614	NE 37	19/1545			3.55	18-20		
Savannah WSO	20	29.38	1800	E 37*	19/1349	E 48	19/1340			3.95	19-21	3.19	19
SOUTH CAROLINA													
Beaufort MCAS	21	29.31	0200	SE 29*	19/1941	ESE 46	19/1901			4.11	19-21		
Charleston WSO	21	29.30	0400	W 39'	0644	E 40	19/2234	7.0@		3.10	19/0255-21/0823	2.29	19
Columbia WSO	21	29.30	0300-0400	E 24	19/2255	E 32	19/2254			4.19	19/0527-21/0653	3.08	20-21
Florence FAA	21	29.24	0400	WNW 23*	1354	WNW 44	1354			3.61	19-21		
Greer WSO	21	29.38	0200	E 21	20/0200	N 29	20/2156			5.89	19/0338-21/0505	4.66	19-20
Myrtle Beach AFB	21	29.23	0700	WNW 29*	1136	NW 46	1350			1.57	19-21		
NORTH CAROLINA													
Cape Hatteras WSO	21	29.13	1755	WNW 37*	2158	WNW 62	2155			0.43	20/0915-21/2035		
Charlotte WSO	21	29.27	0400	NW 23	0617	NNW 26	0622			2.85	19/0915-20/0910	2.06	20-21
Elizabeth City FAA	21	29.11	1758	SSE 23*	0600	SSW 35	1159						
Greensboro WSO	21	29.30	0700	NW 26	0804	NNW 30	0747			5.43	19-21	4.91	20-21
New Bern FAA	21	29.19	1450	SE 18*	0255	W 32	1855			1.43	19-21		
Pope AFB	21	29.22	0955	E 12*	20/0457	NNW 30	1125			3.03	19-21		
Raleigh WSFO	21	29.25	0956	N 24*	1256	WSW 31	22/1555			2.92	19/1404-21/1620	2.47	20-21
Rocky Mount FAA	21	29.18	1358	NNW 23*	1555	NNW 35	1555			3.11	20-21		
Wilmington WSO	21	29.20	1055-1255	SE 26'	20/1038	SE 37	20/1004			2.53	19/0518-21/1535	1.90	20-21
VIRGINIA													
Chesapeake Lt/Sta	21	29.12	2300										
Langley AFB	21	29.11	1855	NNW 35	22/0055	NW 54	22/0058			0.57	22-23		
Norfolk WSO	21	29.10	2000	NW 42*	22/0037	NW 54	22/0032	1.2#	1730	0.33	20-23		
Richmond WSO	21	29.14	1658	NW 31	1905	NW 32	1858			3.28	20-23		
DISTRICT OF COLUMBIA													
Andrews AFB, Md.	21	29.26	1855	NNW 29	2230	NNW 46	0209			5.57	21-22		
Dulles Intl.AP, Va.	21	29.29	1555	NNW 25*	1855	N 50	1853			13.65	20-23	11.88	21-22
Washington Nat'l AP	21	29.23	2015	NW 43	2217	NW 49	2103			8.16	20-23	7.19	21-22
MARYLAND													
Assateaque	22			SW 20	1100	SW 50	0800			2.77			
Baltimore WSO	22	29.24	0042	NW 37	0116	NW 39	0155			6.81	20-23	5.19	21-22
Patuxent NAS	21	29.12	2358	NNW 25*	22/0158	NNW 43	22/0257			3.53	21-23		
Salisbury FAA	22	29.07	0256-0356	W 28*	1259	NW 57	0708			3.80	21-23		
DELAWARE													
Dover AFB	22	29.12	0355	NW 46	0928	NW 67	0918			3.17	20-23		
Rehoboth Beach	22	29.12	0500-0800	NW 35	1100	NW 37	1200	1.5#					
Wilmington WSO	22	29.12	0807	NW 35	1055	WNW 51	1133			4.94	21/0200-23/1100	4.35	21-22
NEW JERSEY													
Atlantic City WSO	22	29.01	0900-1115	WNW 31*	1255	W 49	1227	2-3#		2.12	22-23	1.91	22-23
Trenton WSO	22	29.00	1300	SW 29*	2018					2.51	21-23	1.97	21-22
NEW YORK													
JFK Int'l AP WSO	22	28.98	1451	WSW 32*	1651	WSW 47	1712			1.25	21-23		
LaGuardia Fld. WSO	22	28.98	1454	NE 41	0848	WSW 44	1747	2.9	1300	1.22	21-23		
New York City WSO	22	28.99	1450	NE 36	0843	NE 55	0839			1.86	21-23		
CONNECTICUT													
Hartford WSO	22	29.00	1730	S 29	1931	S 46	1923			1.62	22-23		
New Haven FAA	22	29.00	1712	SSW 29	2047	SW 40	1945						
RHODE ISLAND													
Providence WSO	22	29.11	1559	S 26*	1928	S 38	1923	3.2#	1700	0.26	22/0345-22/1940		

+	Eastern Standard Time	@	Tides above mean low water
*	Fastest one minute speed	¢	Altimeter setting
#	Tides above normal	'	First of two or more occurrences

VIRGINIA. Some record high monthly totals were set, with Washington National Airport and Lynchburg having the highest in this century.

MARYLAND. A great many new records were set for June monthly amount and greatest daily amounts. In many cases all-time monthly and 1-day records were broken. Details are given in Climatological Data, Maryland and Delaware for June 1972.

PENNSYLVANIA. Total precipitation records for June were exceeded in many areas, and where rainfall was heaviest, new all-time records for any month were set. The greatest June rainfall in the State prior to this storm was 13.74 inches. Several stations exceeded that amount in the 5-day storm period alone.

NEW YORK. Wellsville, Olean, Alfred, Elmira, Dansville, Penn Yan, and Dobbs Ferry surpassed the records of greatest rainfall in any month. Others set new records for heavy June rainfall.

CONNECTICUT. Windsor Locks had a record low barometer reading, 29.21 inches. Many stations set new June rainfall records.

TABLE 5
EXCESSIVE PRECIPITATION
(INCHES)

STATE/PLACE	DATE	MINUTES											
		5	10	15	20	30	45	60	80	100	120	150	180
CONNECTICUT													
Hartford	23	.38	.45	.46	.48	.61	.63	.73	.75	.75	.75	.75	.75
DELAWARE													
Wilmington	22	.22	.32	.43	.62	.79	1.10	1.27	1.48	1.65	1.88	2.24	2.49
DISTRICT OF COLUMBIA													
Washington National	21	.15	.24	.36	.46	.80	1.03	1.25	1.54	2.10	2.45	3.03	3.73
FLORIDA													
Daytona Beach	19	.10	.18	.25	.33	.40	.50	.75	1.00	1.30	1.42	1.55	1.60
Fort Myers	18	.73	1.04	1.10	1.28	1.65	1.95	2.36	2.73	2.92	3.02	3.10	3.20
MARYLAND													
Baltimore	22	.20	.37	.43	.52	.73	.90	1.13	1.39	1.49	1.75	2.20	2.45
NEW JERSEY													
Atlantic City	22	.13	.22	.28	.38	.50	.72	.88	1.02	1.05	1.10	1.32	1.57
NEW YORK													
Buffalo	21	.47	.70	.75	.80	.89	.94	.99	1.00	1.09	1.19	1.32	1.43
N. Y. Central Park	19	.29	.30	.30	.34	.37	.39	.39	.39	.39	.39	.39	.40
NORTH CAROLINA													
Greensboro	20	.18	.35	.45	.54	.60	.68	.73	.78	.84	.88	.93	1.06
Raleigh	21	.26	.35	.40	.50	.55	.56	.56	.60	.69	.69	.70	.74
VIRGINIA													
Lynchburg	21	.25	.40	.48	.60	.75	1.05	1.58	2.02	2.45	2.67	2.90	3.13
Richmond	21	.20	.38	.50	.59	.77	.82	1.00	1.13	1.20	1.25	1.44	1.60

TABLE 6
MAXIMUM RAINFALL FOR PERIODS OF ONE- TO FIVE-HOURS

STATE/PLACE	1 HR	2 HRS	3 HRS	4 HRS	5 HRS
VIRGINIA					
Altavista	1.20	2.15	3.00	3.57	4.02
Columbia	1.6	2.7	3.6	4.3	4.8
Elkwood 6SE	1.5	2.6	3.3	3.8	4.1
Fredericksburg National Park	1.5	2.4	3.2	3.6	4.0
Lynchburg WSO	1.24	2.28	3.04	3.58	4.06
Piedmont Res. Stn.	1.7	3.1	4.1	5.1	5.8
The Plains 2NNE	2.1	4.0	5.0	5.8	6.6
Washington Nat'l/WSO	1.25	2.45	3.55	4.44	4.89
MARYLAND					
Unionville	1.5	2.5	3.2	3.8	4.6
Parkton 2SW	1.5	2.7	3.1	4.3	4.7
NEW JERSEY					
Glassboro	1.80	3.17	3.30	3.40	3.47
PENNSYLVANIA					
Harrisburg FAA	1.21	2.27	3.18	3.95	4.84
Spring Grove	2.50	3.70	4.40	4.65	5.30
York 2S	2.05	2.90	3.57	3.94	4.27
Reading	1.4	2.7	3.8	4.6	5.2
Sunbury	1.45	2.52	3.27	3.90	4.37

TABLE 7

FLORIDA

General Dates for Table Below - Storm Total: 18-20; Greatest Day: 19; 24 Hours: 18-19; 1 Hour: 18, 19.

STATION	Storm Total	GREATEST AMOUNT		
		DAY	24 Hrs.	1 Hour
Clermont 6SSW	7.93	5.00		
Cornwell 4NW	6.57	6.57		
Daytona Beach			4.02	.75
Everglades	7.33	4.30		
Felda				1.47
Fort Myers			4.96	2.36
Fountain 3SSE	6.30	6.30		
Indian Lake Est.	8.06	4.60		
Melbourne	5.7		4.9	2.2
Naples 2NE	7.97	4.20		
Okeechobee 9W	8.41	6.02		
Panama City 5NE	5.7	5.1	5.6	1.8
Tallahassee	7.17	5.80	6.44	
Weeki Wachee	6.46	6.20		

GEORGIA

General Dates for Table Below - Storm Total: 18-21; Greatest Day: 19; 1 Hour: 19.

STATION	Storm Total	GREATEST AMOUNT		
		DAY	24 Hrs.	1 Hour
Alma FAA	5.82	4.42		
Americus Exp Sta	5.80	4.23	4.44	.76
Blakely	7.12	5.70		
Bowman	5.74	2.93		
Brooklet	7.09	5.60		
Brunswick FAA	8.55	8.19		
Brunswick Climat	7.75	6.75		
Brunswick WRG	7.23	6.74	6.98	2.85
Buena Vista	5.11	3.92		
Coolidge	5.78	3.97	4.00	.57
Cuthbert	6.31	4.43		
Dawson	6.06	4.55		
Dover	5.04	3.88		
Edison	6.6	3.4	5.3	.8
Experiment	5.90	3.97		
Fleming Climat	6.94	5.83		
Fleming WRG	6.1	5.2	5.2	1.7
Folkston 9SW	5.70	5.37		
Fort Gaines	6.70	5.02		
Fort Stewart	7.79	6.66		
Gainesville	5.75	3.27		
Hartwell	6.52	3.82		
Hazlehurst	5.9	4.6		
Jesup	5.1	4.2	4.3	1.6
Lumber City	5.71	4.00		
Lumpkin	5.62	3.71	4.26	.54
Monticello	5.24	3.75		
Morgan 5NW	7.08	5.28		
Newington	5.90	4.15		
Plains Exp Sta	6.63	4.39		
Preston	7.15	4.63		
Sylvania	5.9	4.6		
Thomasville 4SE	6.05	4.15		
Toccoa	5.66	3.06		

SOUTH CAROLINA

General Dates for Table Below - Storm Total: 18-21; Greatest Day: 20; 24 Hours: 19-20; 1 Hour: 20.

STATION	Storm Total	GREATEST AMOUNT		
		DAY	24 Hrs.	1 Hour
Caesars Head 1NE	6.71	3.18		
Cleveland 4S	6.50	4.15		
Columbia WSO	4.19	2.32	3.08	1.08
Greenville	5.75	4.61		
Greer	5.89	4.19	4.65	.75
Hogback Mtn.	9.40	4.70		
Jocassee 8WNW	7.06	4.63		
Landrum 1NE	6.43	4.50		
Pickens 5SE	6.93	5.62		
Pickens Coop.	7.18			
Spartanburg	6.84	4.28		
Travelers Rest	9.3	7.9	8.2	1.0
Ware Shoals	6.10			

NORTH CAROLINA

General Dates for Table Below - Storm Total: 18-21; Greatest Day: 20; 24 Hours: 19-20; 1 Hour: 20.

STATION	Storm Total	GREATEST AMOUNT		
		DAY	24 Hrs.	1 Hour
Asheboro 2W	8.60	4.67		
Ashford 1SSW	7.59	5.55		
Black Mtn.	8.63	5.16		
Blue Ridge P.O.	7.76	5.47		
Cedar Mtn.	8.28	5.79	6.90	.80
Celo 2S	11.14	5.97		
Danbury 1NW	8.09	6.99		
Eden	8.6	4.8		
Elkin	7.82	5.37		
Glendale Springs	8.79	5.43		
Grandfather Mtn.	8.23	4.32		
Greensboro	5.57		4.91	.73
Haywood Gap	7.95	5.36	6.18	.65
Idlewild	8.07	4.22		
Lexington	6.91	5.34		
Marion	7.37	4.42		
Mocksville	8.07	4.76		
North Fork	8.01	6.39	6.59	.55
N.Wilkesboro 12SE	9.2	6.2	7.7	1.0
Reidsville 2NW	8.17	5.15		
Roaring Gap 1NE	7.40	5.51		
Statesville 2NNE	9.68	7.68		
Tryon	7.93	3.85		
Turnersburg	6.83	5.60		
Wilbar 2NW	7.78	3.09		
Yadkin College	6.52	5.18		
Yadkinville 6E	7.25	5.40		

VIRGINIA

General Dates for Table Below - Storm Total: 18-23; Greatest Day: 21-22; 24 Hours: 20-21; 1 Hour: 21.

STATION	Storm Total	GREATEST AMOUNT		
		DAY	24Hrs.	1 Hour
Alexandria City	10.98	8.13		
Altavista	6.56	5.29	5.61	1.20
Appomattox	10.15	6.85		
Big Meadows	9.4	5.0	7.6	1.1
Big Meadows Coop.	13.88	9.50		
Blackstone FAA	8.81	5.02		
Buckingham	9.39	7.33		
Colonial Beach	7.37	6.66		
Columbia	8.37	6.95		
Columbia WRG	8.4	7.2		1.6
Concord 5S	9.03	5.75		
Copper Hill 1NNE	12.11	8.12		
Corbin	8.78	7.45		
Culpeper	9.44	5.30		
Elkwood 6SE	8.9	7.3		1.5
Farmville 2N	8.38	6.62		
Floyd 2NE	7.90	5.69		
Fredericksburg NP	7.5	5.6	6.5	1.5
Free Union	9.12	6.30		
Gordonsville 3S	10.22	6.85		
Lincoln	11.03	8.26		
Louisa	9.23	4.89		
Lynchburg WSO	7.39	6.02		1.58
Lynchburg WSO	7.39	6.02		
Manassas	11.15	9.50		
Meadows of Dan	8.96	6.61		
Montebello 3NE	13.95	4.43		
Mount Weather	10.04	7.67		
New Canton	8.99	7.81		
Palmyra 1E	9.73	7.60		
Peaks of Otter	9.48	5.05		
Philpot Dam 2	8.52	5.47		
Piedmont Res.	10.23	7.85		
Piedmont Research	9.4	8.0	8.0	1.7
Quantico 1S	8.55	5.01		
Randolph 5NNE WRG	6.2	5.3		.9
Randolph 5NNE	6.77	5.04		
Rockfish	9.13	5.79		
Rocky Knob	10.95	6.59		
Somerset	9.89	7.98		
Star Tannery	8.0	3.0	4.9	.6
The Plains 2NNE	12.0	9.3	9.7	2.1
Tye River 1SE	9.47	6.38		
Vienna Dunn Lor.	11.64	6.67		
Warrenton 3SE	11.50	8.85		
Warsaw 2NW	7.43	4.53		
Wash. Dulles AP	13.81	10.67	11.88	
Washington Nat'l	9.00	6.11	7.19	1.25
Wash. Nat'l WSO	9.06	6.11		
Woolwine 4S	10.14	6.70		

WEST VIRGINIA

General Dates for Table Below - Storm Total: 18-24; Greatest Day: 22.

STATION	Storm Total	GREATEST AMOUNT		
		DAY	24Hrs.	1 Hour
Berkeley Springs	8.11	3.51		
Harpers Ferry NP	9.28	5.20		
Kearneysville WSO	6.01	3.65		
Lake Lynn	5.65	4.01	4.72	.37
Mathias	6.00			
Vandalia	5.84	4.25		

DELAWARE

General Dates for Table Below - 1 Hour: 22.

STATION	Storm Total	GREATEST AMOUNT		
		DAY	24Hrs.	1 Hour
Wilmington	5.67	4.15	4.35	1.27

MARYLAND

General Dates for Table Below - Storm Total: 18-23; Greatest Day: 21, 23; 24 Hours: 22-23; 1 Hour: 21, 22.

STATION	Storm Total	GREATEST AMOUNT		
		DAY	24Hrs.	1 Hour
Aberdeen Phlps Fl	11.52	10.11		
Baltimore WSO AP	7.01	3.84	5.19	1.13
Beltsville Plant	7.29	5.12	5.70	1.00
Bltsvl Plt Sta 5	7.43	5.60		
Benson Police Bks	7.72	5.53		
Boyds 2NW	10.69	8.07		
Brighton Dam	11.16	9.36		
Brookdale	11.00	7.08		
Catoctin Mtn Pk	11.65	6.08		
Chestertown	8.54	6.28		
Clarksville 3NNE	11.91	9.13		
College Park	7.75	5.23		
Dalecarlia Rsv DC	9.51	5.92		
Emmitsburg 2SE	9.60	6.10		
Federalsburg	4.6	3.3	3.7	1.3
Frederick 3E	8.25	6.10		
La Plata 1W	10.31	7.49		
Laurel 3W	8.44	5.60		
Leonardtown 3NW	7.3	3.3	5.5	1.8
Middletown 1WSW	8.40	6.08		
Nat Arboretum DC	9.61	6.28		
Parkton 2SW	12.7	7.6	10.3	1.5
Parkton 2SW	**12.47**	**8.81**		
Perry Point	8.2	7.1		1.4
Potomac Fltr Plt	10.51	7.96		
Rockville 4NE	11.02	7.90		
Towson	10.54	8.52		
Unionville WRG	12.06	8.58		
Unionville WRG	12.2	7.2	9.4	1.5
US Soldiers Ho DC	9.47	6.05		
Wheaton Reg Park	13.20	10.00		
Woodstock	13.97	11.47		

NEW JERSEY

General Dates for Table Below - Storm Total: 20-24; Greatest Day: 22; 24 Hours: 22-23; 1 Hour: 22.

STATION	Storm Total	GREATEST AMOUNT		
		DAY	24 Hrs.	1 Hour
Bernardsville 2E	4.43	2.64		
Glassboro	4.81	4.00	4.35	1.80
Mays Landing	3.49	3.00		
Woodstown	5.23	4.55		

PENNSYLVANIA

General Dates for Table Below - Storm Total: 20-25; Greatest Day: 22; 24 Hour: 1 Hour: 21,22.

STATION	Storm Total	GREATEST AMOUNT		
		DAY	24 Hrs.	1 Hour
Alvin R Bush Dam	7.8	4.4		.5
Bechtelsville	9.45	5.90		
Blain	9.52	5.32		.50
Canton 1NW	8.13	5.05		.55
Carlisle	12.50	5.40		
Chambersburg 1ESE	10.1	5.1		.5
Coatesville 1SW				1.00
Covington 2WSW	8.78	5.65		
Cresson 1SE	7.35	3.80		.47
Derry	10.83	5.85		
English Center	8.82	6.63		.50
Ephrata	7.30	5.79		
Geigertown	8.80	5.93		
Gettysburg	10.23	5.75		
Gettysburg 1S	9.80	5.00		.90
Glenmoore				1.3
Hanover	10.00	6.10		
Harrisburg FAA	15.25	9.13	12.53	1.21
Holtwood	7.25	3.93		1.12
Home	7.17	2.68		.40
Huntsdale	10.2	5.6		.8
Lancaster 2NE	8.73	6.54		1.35
Landisville 2NWWRG	9.19	7.07	7.93	.78
Landisville 2NW	9.17	7.74		
Lebanon 3SW	14.08	8.85		
Le Roy	10.44	5.15		
Madera WRG	9.30	5.72		.50
Madera	9.28	5.81		
Mahandy City 2N	9.55	5.10		
Millheim	9.56	4.60		.51
Millville 2SW	10.9	8.6	8.7	1.2
Morgantown	8.06	5.63		
Myerstown	11.13	5.72		
New Park	9.50	8.40		
Palm 3SE	6.2	4.9		1.2
Philipsburg FAA	10.30	5.84		.55
Reading 3N	9.2	6.8		1.4
Renovo 5S	8.35	5.27		.48
Safe Harbor	9.50	7.26		.96
Saxton	9.20	5.01		
Saxton WRG	7.72	3.92		.47
Sayers Dam	9.75	6.12		.63
Sellersville 2NW	5.19	3.65		1.10
Shamokin	13.59	7.73		
Shickshinny 3N	8.10	4.91		.75
Sinnemahoning	8.83	5.71		
Smethport	9.60	4.30		.92
South Mountain	12.85	6.25		
Spring Grove				2.50
State College	9.58	4.89		.35
Stevenson Dam	7.00	4.12		.46
Strongstown	7.65	3.10		.40
Stump Creek 2SW	8.2	4.1		.5
Sunbury	12.93	9.35	10.30	1.45
Tamaqua WRG	9.1	6.0		1.2
Tamaqua	9.50	5.34		
Tamaqua Dam WRG	8.29	5.63		1.0
Tamaqua Dam	9.03	5.28		
Tionesta Dam	7.0	2.2		.9
Towanda 1ESE	7.58	4.88		.65
Tyrone 4NE	9.44	4.77		.49
Wellsboro 3S WRG	8.30	6.35		.55
Wellsboro 3S	8.89	5.97		
West Grove 1SE	7.67	5.75		
Williamsport WSO	12.21	7.65		.85
York 2S				2.05
York 3SSW	16.00	13.50		
Zerbey AirportWRG	13.31	8.84	10.25	1.00
Zerbey Airport	13.95	6.53		

NEW YORK

General Dates for Table Below - Storm Total: 20-25; Greatest Day: 22: 24 Hours: 21-22; 1 Hour: 21.

STATION	Storm Total	GREATEST AMOUNT		
		DAY	24 Hrs.	1 Hour
Alfred	13.24	5.83		
Binghamton			3.19	.40
Boliver	11.7	6.1		1.1
Camden 2NW	8.18	5.37		
Candor	8.48	5.31		
Highmarket	6.84	5.13		
Hornell-Almond Dm	11.7	7.2		1.0
Wellsville	13.72	7.59		1.10

CHAPTER 6

Sources of Additional Data

Most of the records mentioned in this report are available at the National Climatic Center. To order or inquire about any of the material listed below, write the National Climatic Center, EDS-NOAA, Federal Building, Asheville, North Carolina 28801. Long distance telephone calls should be placed to 704 254-0961, extension 683. Requesters in the Washington D. C. telephone area may call 495-2424.

Conventional weather statistics will be found in the publications printed by the Environmental Data Service. Descriptions of the books and their data will be found in Selective Guide to Climatic Data Publications, price $1.00. Several key ones are:

CLIMATOLOGICAL DATA. Contains daily and monthly temperature and precipitation. Order by month and State, except New England states are combined and Maryland and Delaware are combined. 20 cents per copy.

HOURLY PRECIPITATION DATA. Contains hourly rainfall amounts. Available as above, except 10 cents per copy.

STORM DATA. Lists numbers of deaths, injuries, and estimated monetary losses. Order by month. One publication for entire U. S. 15 cents per copy.

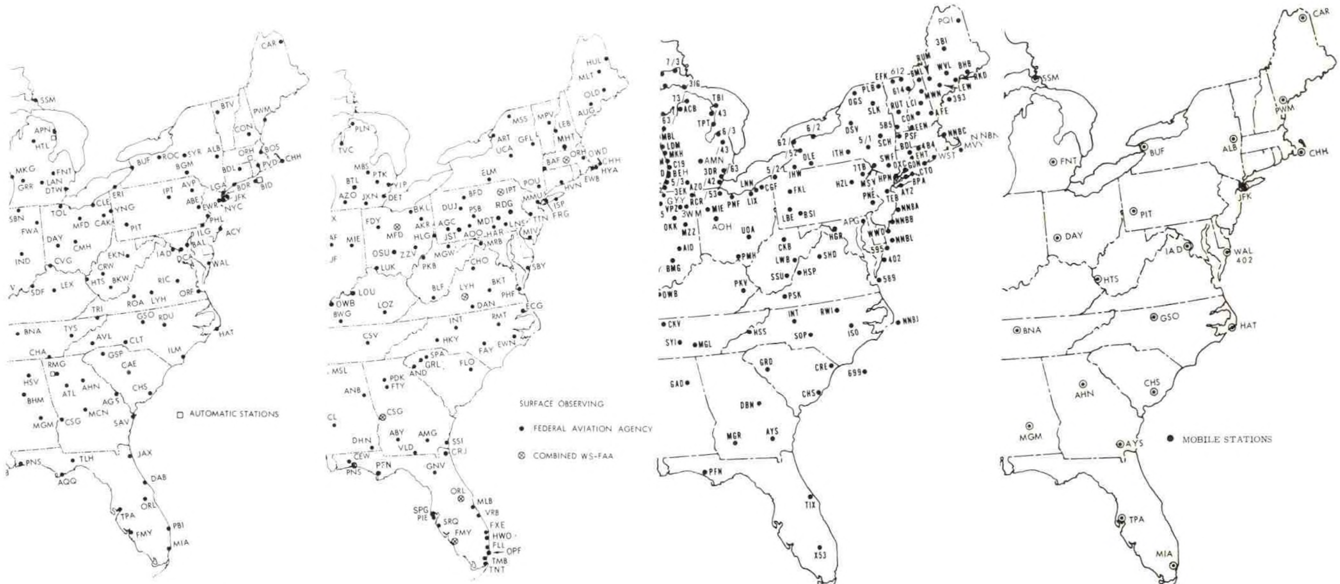
Copies of manuscript weather observation forms may be ordered by station and date. Records are available for most of the stations shown on the accompanying page. A cost estimate should be requested prior to placing an order; extensive search and file time is necessary to retrieve large groups of records. Government regulations make it necessary to charge requesters for services of this nature and for certifying records.

A brochure describing the Center and some of its products will be sent upon request.

Surface weather observations for first order stations may be ordered in the form of microfiche, 65 cents per station per month, $3.00 minimum order.

Weather maps may be ordered on 35mm microfilm at $9.00 per reel.

Primary Weather Observing Stations in the Eastern United States



DOMESTIC WEATHER SERVICE

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OTHER

DOMESTIC RAWINSONDE

APPENDIX A
Chronology of the Hurricane

CHRONOLOGY - HURRICANE AGNES - JUNE 14-23, 1972

Based on early reports. Parts are subject to revision.
Entries in parentheses ( ) are estimates.

EST Dt/Hr	GMT Dt/Hr	Lat-Long °N	°W	Miles from Landmarks	Min.Pressure Mbs.	Inches	Avg.Past 6-Hr.Movement Dir/	Speed#	Storm Type*	Remarks & Selected Events During Preceding Six Hours
14/07	12	20.0	89.0	70SSE Merida					TDS	
14/13	18	20.0	88.7				E	3	TDS	Hvy rains portions W. Cuba;Up to 6" past 48 hrs.
14/19	15/00	20.0	88.4				E	3	TDS	
15/01	06	20.0	88.1				E	3	TDS	
15/07	12	20.0	87.8				E	3	TDS	
15/13	18	20.0	87.4				E	4	TDS	
15/19	16/00	20.0	87.0	30S Cozumel Is.	1001	29.56	E	4	TDP	
16/01	06	20.0	86.6				E	4	TDP	
16/07	12	20.0	86.2		998	29.47	E	4	TS	
16/13	18	20.2	85.8				ENE	4	TS	Gales 200 mi to N&E;100 mi.S;Rains cont. over NW Carib.
16/19	17/00	20.5	85.5		(995	29.38)	NE	4	TS	Gradually increasing strength. 11" rain at Grand Cayman Is.
17/01	06	20.9	85.3		(995	29.38)	NE	4	TS	Hvy rains cont. over W. Cuba and Cayman I.
17/07	12	21.4	85.2	150W Isle of Pines	(992	29.29)	NNE	5	TS	Hvy rain W. Cuba;intermittent over Caymans.
17/13	18	21.9	85.3		(990	29.23)	N	5	TS	Gales & hvy rains W. Cuba; Gales & rough seas S of lower keys.
17/19	18/00	22.4	85.4		(986	29.12)	N	5	TS	Hvy squalls S. Fla; near hurricane winds & flooding, W. Cuba.
18/01	06	23.0	85.5	200W Havana			N	6	TS	Moving faster. Heavy rains continue over W. Cuba.
18/07	12	23.8	85.6		986	29.12	N	8	HUR	Tornadoes reported Fla. Keys. Storm circulation pat'rn extensive.
18/13	18	24.8	85.7	250W Key West	983	29.03	N	10	HUR	Minimal hurricane strength. Hvy rain S.Fla. Tornado at Basinger.
18/19	19/00	26.0	85.7	290S Panama City	982	29.00	N	12	HUR	Moderate to hvy rains, Fla; other tornadoes reported.
19/01	06	27.2	85.7	205S Panama City	978	28.88	N	12	HUR	Maintaining steady course;windstorms-Okeechobee;hvy rain, Fla.
19/07	12	28.5	85.7	115S Panama City	(978	28.88)	N	13	HUR	Moving faster. Other tornadoes in Fla.
19/13	18	29.6	85.6	Just SW Cape San Blas	983	29.03	N	11	HUR	Eye near coast;disorganized,weakening;beach erosion; central pres. rising.
19/19	20/00	30.5	85.2	40NE Panama City			NNE	10	TS	Crossing Fla. panhandle,weakening. Center broad. Hvy rains, Ga.
20/01	06	31.4	84.7	70SSE Columbus	990	29.23	NNE	10	TDP	Center poorly defined, weakening.
20/07	12	32.2	83.8	45S Macon	(992	29.29)	NE	10	TDP	Moderate to hvy rains--W. N.Car., S. Car., Ga.
20/13	18	32.9	82.8	50E Macon	992	29.29	NE	11	TDP	Rains continue.
20/19	21/00	33.5	81.7	20E Augusta	992	29.29	NE	11	TDP	Tides above normal along Carolina coasts.
21/01	06	34.1	80.3	40W Florence	990	29.23	ENE	12	TDP	Mud & rock slides and flash floods in Carolina mountains.
21/07	12	34.9	79.1	65SSW Raleigh	990	29.23	NE	13	TDP	Flash flooding continuing. Hvy rains in Virginia's Blue Ridge Mtns.
21/13	18	35.7	77.9	40ESE Raleigh	988	29.18	NE	13	TS	Hvy rains,rockslides,flash floods--SW Va. Record high flooding.
21/19	22/00	36.5	76.7	30SW Norfolk	(986	29.12)	NE	12	TS	Agnes reintensified. Very hvy rain SE & SC NY into central Va.
22/01	06	37.5	75.5	60NE Norfolk	984	29.06	NE	13	TS	Fldg. central Va. & near D.C.;torrential rains NC Md., central Pa.
22/07	12	38.7	74.6	55S Atlantic City	977	28.85	NE	14	TS	Disastrous fldg. & torrential rain. Heaviest rain NE Md.,Pa.,into NY
22/13	18	40.1	74.0	20E Lakehurst	980	28.94	NNE	13	TS	Major flooding. Heavy rains, up to 12".
22/19	23/00	41.7	74.3	60NNW New York	(982	29.00)	N	15	XTS	Center diffuse;major fldg. cont.; hvy rains advancing northward.
23/01	06	42.5	76.0	20N Binghamton	(985	29.09)	NW	15	XTS	Storm becoming non-tropical;being absorbed by storm center over Pa.
23/07	12	41.7	77.7	45E Bradford	(989	29.21)	WSW	13	XTS	Rains occasionally hvy but showing signs of diminishing

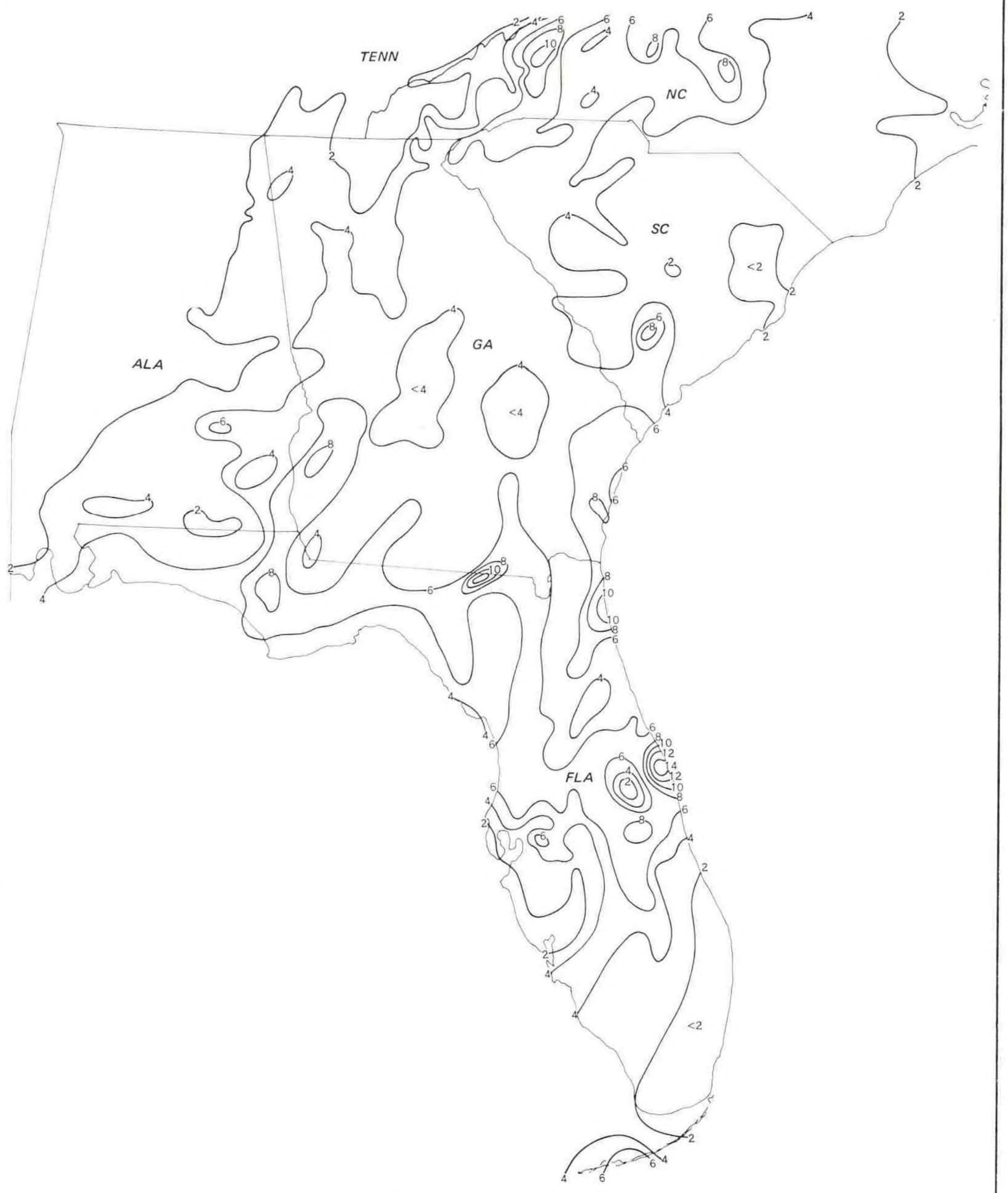
#Speed is in knots.

*Storm Type:
TDS = Tropical Disturbance
TDP = Tropical Depression
TS = Tropical Storm
HUR = Hurricane
XTS = Extratropical Storm

Note: Latitudes, longitudes, pressures other than those estimated and storm types were provided by the National Hurricane Center, Miami, Florida.

APPENDIX B

Maps of Rainfall



TOTAL PRECIPITATION IN INCHES
HURRICANE AGNES
JUNE 18–25, 1972

Compiled from Data provided by the Hydrometeorology Branch, Office of Hydrology, National Weather Service, Washington, D. C. These totals may include pre-Agnes rainfall in the North and post-Agnes rainfall in the South. This will account for some difference with the amounts shown in the text.

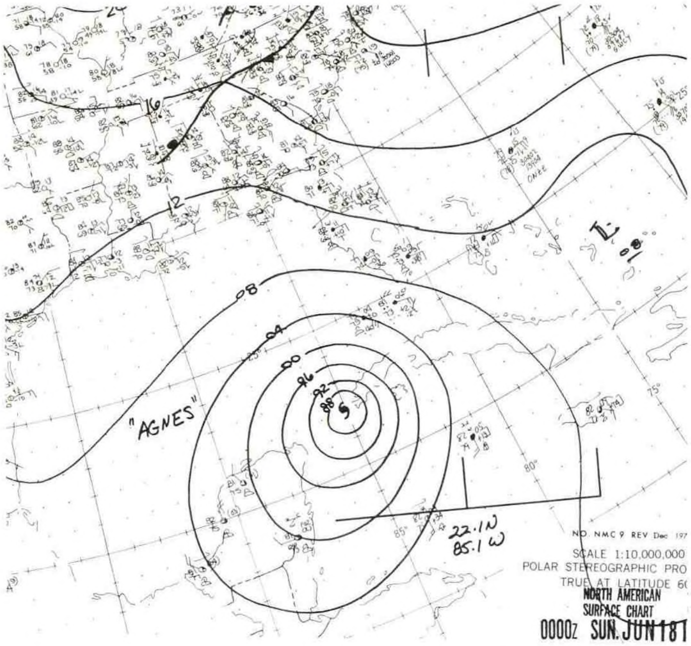
TOTAL PRECIPITATION IN INCHES

HURRICANE AGNES

JUNE 18–25, 1972

APPENDIX C

Surface Weather Maps



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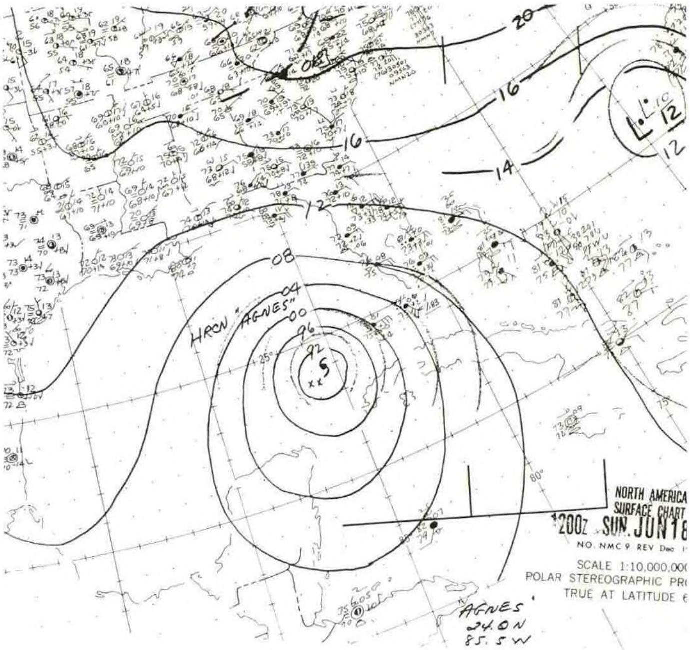

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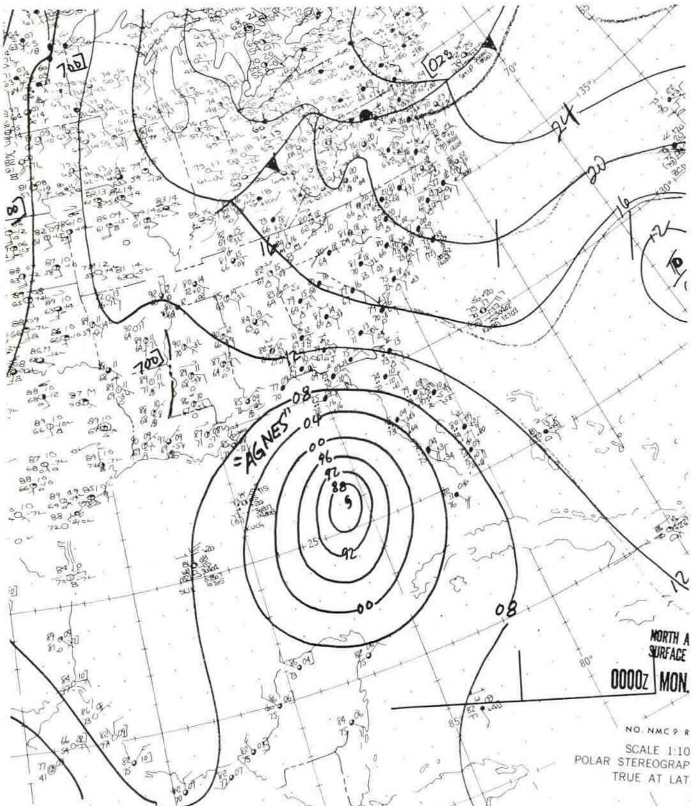

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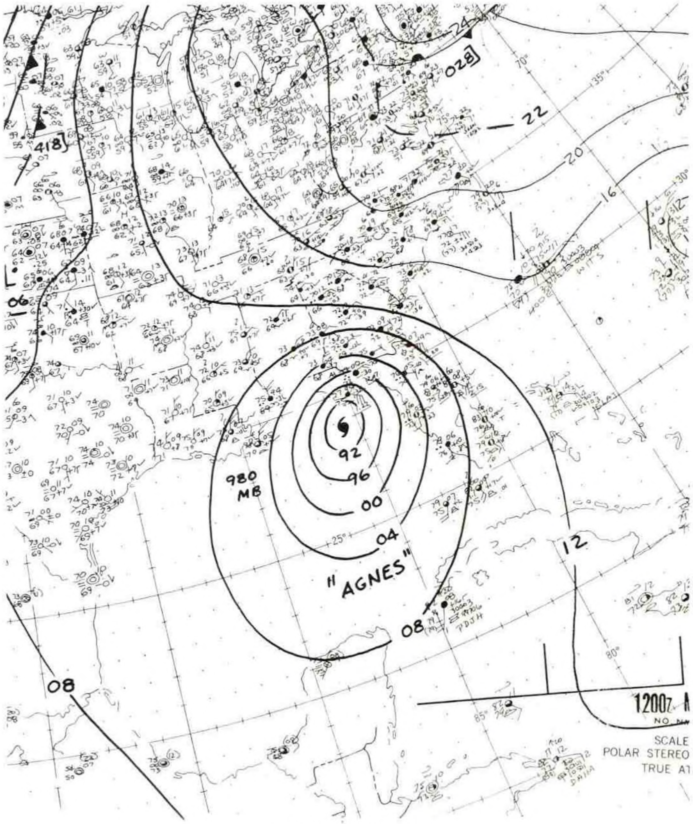
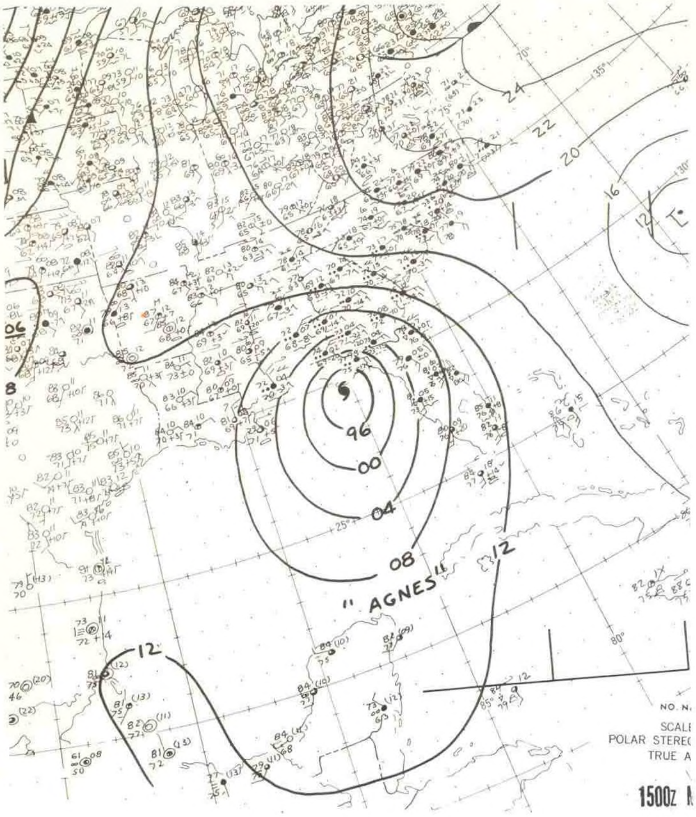


7 AM EST JUNE 19, 1972

The maps in this Section are from the North American Series prepared by the National Meteorological Center, Suitland, Maryland.



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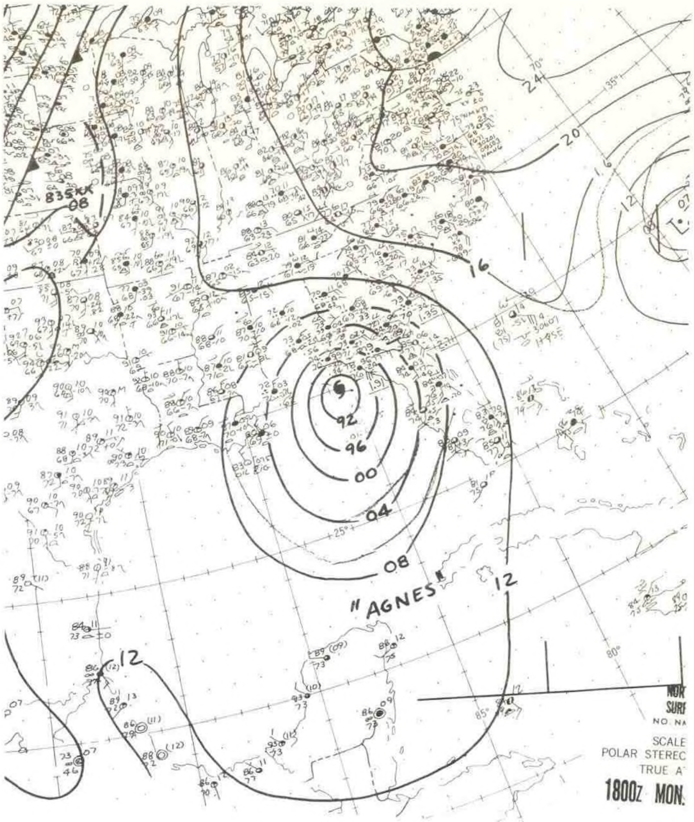

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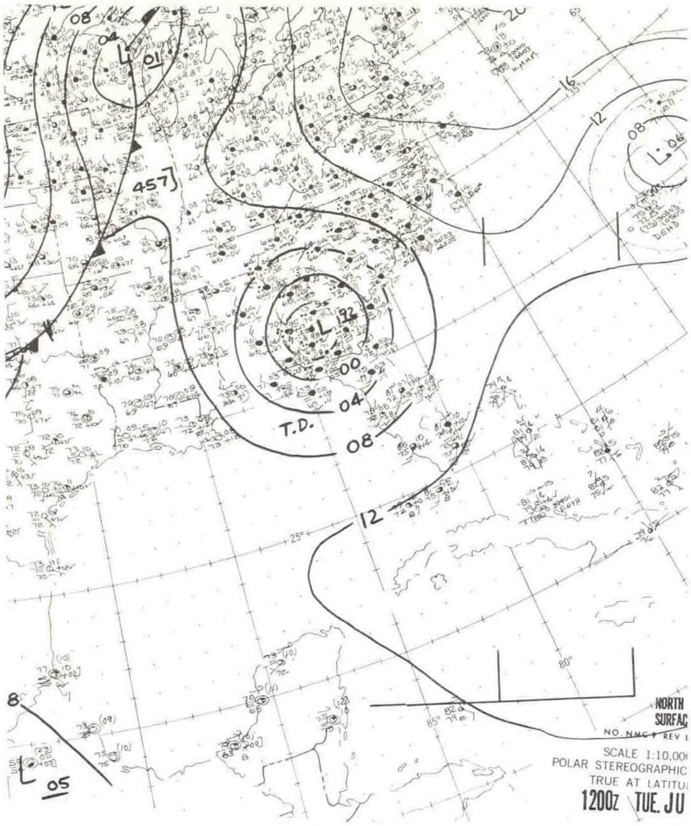

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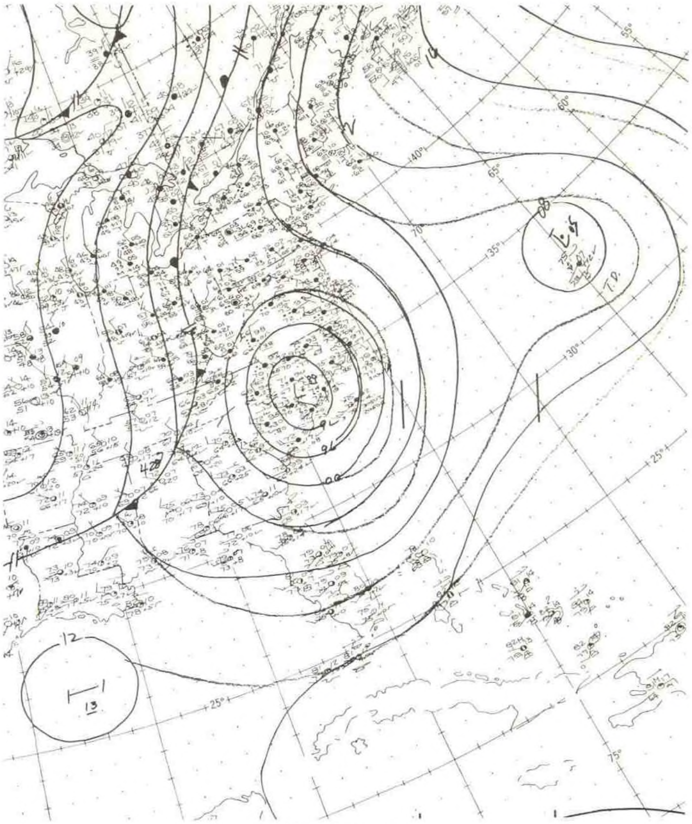

7 AM EST JUNE 21, 1972

7 AM EST JUNE 22, 1972

7 AM EST JUNE 23, 1972

APPENDIX D

Preliminary Flood Stages

Preliminary Flood Stage and Comparative Crest Stage Data
North Carolina - South Carolina

River and Station	Flood stage ft.	Above flood stages dates from	to	Crest June 1972 stage ft.	date	Previous maximum crest of record stage ft.	date
Reedy River							
Greenville, S.C.	9	20	23	12.0	21		
Saluda River							
West Pelzer, S.C.	9	21	22	10.3	21	25.60	Aug. 25, 1908
Chappels, S.C.	14	21	23	21.4	22	36.70	Aug. 26, 1908
Broad River							
Gaffney, S.C.	10	21	22	12.8	21	19.80	Aug. 14, 1940
Blair, S.C.	14	21	24	25.5	23	40.00	Aug. 17, 1928
Congaree River							
Columbia, S.C.	19	23	23	19.0	23	39.80	Aug. 27, 1908
Yadkin River							
Elkin, N.C.	16	21	21	22.6	21	18.59	Feb. 13, 1956
Yadkin College, N.C.	18	21	23	32.81	22	36.3*	July 1916
Rocky River							
Norwood, N.C.	15	22	22	18+	22	46.37	Sept. 18, 1945
Pee Dee River							
Cheraw, S.C.	30	22	25	40.65	24	49.45	Sept. 19, 1945
Pee Dee, S.C.	19	24		23.89	29	33.30	Sept. 22, 1945
Lumber River							
Lumberton, S.C.	9	27		10.2#	28	17.0*	Aug. 1928
Catawba River							
Lookout Shoals Lake, N.C.	100‡	21	24	104.0	21		
New York - New Jersey							
Susquehanna River							
Unadilla, N.Y.	11			7.87	23	18.0	July 1935
Conklin, N.Y.	11	23	24	12.9	23	20.83	Mar. 1948
Binghamton, N.Y.	14			13.60	23	22.85	Mar 1936
Vestal, N.Y.	18	23	24	22.2	23	30.5	Mar. 1936
Waverly, N.Y.				21.25	23	21.4	Mar. 1936
Chenago River							
Sherburne, N.Y.	8	22	24	9.60	23	10.60	Mar 1936
Green, N.Y.	13	23	24	14.58	23	18.33	Dec. 1942
Chenango Forks, N.Y.	10	22	24	11.19	23	20.3	July 1935
Tioughnioga River							
Cortland, N.Y.				11.4	23	10.82	April 1950
Whitney Point, N.Y.	13			14.3	23	21.7	July 1935
Otselic River							
Cincinnatus, N.Y.				9.3	23	10.68	April 1950
Unadilla River							
Rockdale, N.Y.	11			7.97	23	12.98	Dec. 1942
Chemung River							
Elmira, N.Y.	10	22	25	19.3	23	21.2*	May 1946
Chemung, N.Y.	12	22	25	32.14	24	23.97	May 1946
Cowanesque River							
Lawrenceville, N.Y.				17.2		10.99	Feb. 1955
Tioga River							
Tioga, N.Y.				19.5		17.4	1889
Lindley, N.Y.	17	22	23	26.1	23	22.87	May 1946
Erwins, N.Y.				28	23	23.54	May 1946
Canisteo River							
Arkport, N.Y.				3.6		5.60	Jan. 1959
Hornell, N.Y.				12.47	21		
Addison, N.Y.	17	22	23	19.7	21	17.50	Mar. 1964
W. Cameron, N.Y.	17			22.8	23	18.09	May 1946
Cohocton River							
Bath, N.Y.	11			8.5	21	7.90	Mar. 1956
Campbell, N.Y.				11.1	23		
Delaware River							
Hale Eddy, N.Y.	11			6.92	25	20.3	Oct. 1903
Fishs Eddy, N.Y.	11			10.15	23	23.6	Oct. 1903
Barryville, N.Y.	17			10.37	24	26.40	Aug. 1955
Port Jervis, N.Y.	18			10.46	24	23.91	Aug. 1955
Montague, N.J.	25			16.28	24	35.5	Oct. 1903
Belvidere, N.J.	20			12.93	24	30.21	Aug. 1955
Phillipsburg, N.J.	22			18.7	24		
Trenton, N.J.	20			17.84	23	20.83	Aug. 1955
Ramapo River							
Mahwah, N.J.	8	22	24	8.59*	23	11.87	May 1968
Pompton Lakes, N.J.	2	23	23	1.91*	23	4.40	Oct. 1955
Pequannock River							
Macopin Dam, N.J.	15	23	24	15.27*	23		
Pompton River							
Pompton Plains, N.J.	15	22	26	18.10*	23	18.75	Mar. 1951
Wanaque River							
Wanaque, N.J.	5	22	26	6.31*	23	9.12	Mar 1951
Rockaway River							
Boonton, N.J.	5	23	24	5.27*	23	8.14	May 1968
Passaic River							
Chatham, N.J.	6	22	27	6.62	25	8.30	Jan. 1905
Little Falls, N.J.	7	22	29	9.27	25		
Assunpink Creek							
Trenton, N.J.	5	22	23	5.8	22	10.74	Sept. 1938
Raritan River							
Manville	12	22	24	17.92	23	22.10	Aug. 1955
Bound Brook	8	22	24	14.2	23	16.30	Sept. 1938
Millstone River							
Blackwells Mills	7	22	24	10.40	23	15.29	Sept. 1938
Virginia-West Virginia-Maryland-District of Columbia							
Appomattox							
Farmville Va.	16	21	23	30.04	22	23.60	Aug. 15, 1940
Mattoax	21	21	28	34.08	25	35.3	Aug. 18, 1940
Jackson							
Covington	9	21	22	17.6	21	21.5**	Mar. 1913
Maury							
Buena Vista	17	21	22	17.10	21	31.2	Aug. 20, 1969
Rivanna							
Palmyra	17	21	23	37.34	22	39.9	Aug. 20, 1969
James							
Lick Run		20	22	27.01	21	33*	Nov. 1877
Buchanan	17	21	23	30.49	22	34.9*	Nov. 29, 1877
Holcombs Rock	22	21	22	32.38	22	35.6	Aug. 20, 1969
Lynchburg	18	21	22	26.0	22	30*	May 26, 1771
Bent Creek	16	21	23	27.13	22	27*	Sept. 30, 1870
Scottsville	20	21	23	34.02	22	30.7*	Oct. 1870
Bremo Bluff	19	21	24	44.8	22	39.1	Aug. 20, 1969
Columbia	18	21	24	45.20	22	41.3	Aug. 20, 1969
Cartersville	20	21	24	37.87	22	33.8	Aug. 21, 1969
State Farm	12	21	25		23		
Westham	12	21	25	28.62	23		
City Locks	9	22	26	36.51	23	30.0**	May 27, 1771
Potomac							
Hancock, Md.	30	23	23	30.9	23	47.6	Mar. 18, 1936
Williamsport, Md.	23	23	23	34	23		
Shepardstown, Md	15	22	25	31.8	24		
Harpers Ferry, W.Va.	18	22	25	31.0	24	36.5	Mar. 19, 1936
Point of Rocks, W.Va.	16	22	25	37	23	41.03	1936
Washington (Little Falls) D.C.	10	21	26	22.0	24	28.10	Mar. 19, 1936
Washington (Wisc. Ave.)	7	22	25	15.45	24	17.72	Oct. 17, 1942
Rappahannock							
Remington Va.	15	21	23	24.5	22	23.52	1955
Fredericksburg, Va.	18	22	23	34.0	22		
Rapidan							
Rapidan, Va.	14	21	23	26.0	22	22.50	1955

Preliminary Flood Stage and Comparative Crest Stage Data
Virginia-West Virginia-Maryland-District of Columbia-Continued

River and station	Flood stage ft.	Above flood stages Dates from	to	Crest June 1972 stage ft.	date	Previous maximum crest of record stage ft.	date
South Branch Potomac							
Springfield, W.Va.	15	23	23	17.2	23	34.20	Mar. 18, 1936
Shenandoah							
Millville, W.Va.	13	22	24	21.8	23	32.40	1942
South Fork Shenandoah							
Front Royal, Va.	16	22	23	23.8	22		
Riverton, Va.	22	22	23	29.5	22	47.0*	1870
Monocacy							
Frederick, Md.	15	21	24	36.1	23		
Pennsylvania, West Virginia, and Ohio							
Susquehanna							
Towanda	16	22	25	33.25	24	25.0	May 1946
Wilkes Barre	22	22	26	40.60	24	33.1	Mar. 1936
Bloomsburg	19			31.2	25	27.8	Mar. 1936
Danville	20	22	26	32.32	24	28.0	Mar. 1936
Sunbury	24	22	26	35.82	24	34.65	Mar. 1936
Harrisburg	17	22	27	32.57	24	29.23	Mar. 1936
Tunkhannock Creek							
Dixon	9	22	23	11.23	23	11.36	Mar. 1936
Lackawanna River							
Old Forge	11			8.50	23	20.05	Aug. 1955
West Branch Susquehanna							
Bower				15.22	23	19.74	Mar. 1936
Clearfield	10			8.73	23	18.49	Mar. 1936
Karthaus	19	22	23	18.56	23	15.98	Mar. 1964
Sinnemahoning	15	22	23	21.78	23	21.94	Mar. 1936
Renovo	16	22	24	26.56	23	29.34	Mar. 1936
Loch Haven	21	22	25	32.7	23	32.3	Mar. 1936
Jersey Shore	26			38.4	23	38.0	Mar. 1936
Williamsport	20	22	25	34.75	23	33.57	Mar. 1936
Milton	19	22	25	35.1	24	34.65	Mar. 1936
Lewisburg	18	22	26	34.3		32.1	Mar. 1936
Pine Creek							
Cedar Run	12			15.33	23	14.39	May 1946
Waterville				32.0		16.0	Mar. 1964
Juniata River							
Saxton	17	22	23	17.3	22	24.54	Mar. 1936
Williamsburg	12	22	24	18.35	23	18.6	Mar. 1936
Huntingdon	12	22	24	20.02	23	21.9	Mar. 1936
Mapleton Depot	20	22	25	33.1	24	38.2	Mar. 1936
Lewistown	23	22	25	42.1	23	42.3	Mar. 1936
Newport	20	22	25	33.91	23	34.2	Mar. 1936
Lehigh River							
Lehighton	10	22	23	11.5	22	20.7	May 1942
Walnutport	8	22	23	10.96	22	17.68	Aug. 1955
Bethlehem	16	23	23	20.9	23	25.9	May 1942
Allentown				23.8	23		
Schuylkill River							
Berne	12	22	23	19		15.73	Aug. 1955
Reading	12	22	24	31.5	23	22	May 1942
Pottstown	13	22	24	29.97	23	21.0	Feb. 1902
Norristown	17	22	24	24.5	23	21	Aug. 1933
Philadelphia	11	22	24	14.67	23	17.0	Oct. 1869
Perkiomen Creek							
Graterford	11			17.6	22	18.261	July 1935
Brandywine Creek							
Chadds Ford	9	22	23	15.93	22	15.0	May 1920
Wilmington, Del.	11	22	23	15.4	23	11.95	Aug. 1955
Allegheny River							
Olean, N.Y.	10	21	27	24.2	23	21.3*	July 1942
Salamanca, N.Y.	1370	22	27	1381.95	23		
Parker, Pa.	20	23	23	22.23	23	29.6	Jan. 1959
Rimerton, Pa.							
Lock 9 (upper)	21	23	24	22.8	23	24.0	Mar. 1964
Mosgrove, Pa.							
Lock 8 (upper)	24	23	24	26.7	23	32.6	Mar. 1964
Kittanning, Pa.							
Lock 7 (upper)	23	23	24	25.5	23	26.4	Jan. 1959
Clinton, Pa.							
Lock 6 (upper)	23	23	24	21.6	23	28.3	Mar. 1936
Freeport, Pa.							
Lock 5 (upper)	21	23	27	25.8	23	34.6	Mar. 1936
Natrona, Pa.							
Lock 4 (upper)	20	23	27	25.0	23	34.0	Mar. 1936
Acmetonia, Pa.							
Lock 3 (upper)	20	23	27	23.7	23	33.9*	Mar. 1936
Sharpsburg, Pa.							
Lock 2 (upper)	23	23	24	27.3	24		
Conewango Creek							
Russell, Pa.	8	25	29	8.77	26	10.69	Apr. 1947
Clarion River							
Ridgway, Pa.	11	21	25	19.49	23		
Mahoning Creek							
Punxsutawney, Pa.	7			15.94*	23	13.01	Mar. 1964
Youghiogheny River							
Connellsville, Pa.	16	23	23	16.48	23	21.96	Oct. 1954
Sutersville, Pa.	20	23	24	29.71	23	32.50	Oct. 1954
Tygart Valley River							
Belington, W.Va.	14	23	24	17.48	23	20.3	July 1912
Philippi, W.Va.	17	23	24	24.75	23	26.0*	July 1912
Cheat River							
Parsons, W.Va.	13	23	23	13.76	23	19.08	Oct. 1954
Rowlesburg, W.Va.	12	23	24			15.67	Oct. 1954
Wheeling Creek							
Near Elm Grove, W.Va.	7.5	23	23	8.57	23		
Monongahela River							
Point Marion, Pa.							
Lock 8 (lower)	26	23	23	27.1	23	33.5	Mar. 1967
Greensboro, Pa.							
Lock 7 (upper)	21	23	24	22.8	23	36.0*	July 1888
Maxwell L&D, Pa. (lower)	32	23	24	32.6	24	38.2	Mar. 1967
Charleroi, Pa.							
Lock 4 (lower)	26	23	25	35.4	24	39.7	Mar. 1967
Elizabeth, Pa.							
Lock 3 (upper)	20	23	25	29.0	24	32.5	Mar. 1936
McKeesport, Pa.	17	23	25	22.4	24	28.8	Mar. 1936
Braddock, Pa.							
Lock 2 (upper)	19	23	25	29.7	24	35.3	Mar. 1936
Ohio River							
Pittsburgh, Pa.	25	23	26	35.82	24	46.0	Mar. 1936
Dashfields Dam, Pa.							
(upper)	26	23	25	34.4	24	44.2	Mar. 1936
Montgomery Dam, Pa.							
(lower)	32	23	25	47.4	24	46.8	Dec. 1942
New Cumberland L&D, Ohio							
(lower)	36	23	26	45.4	24	45.7	Mar. 1964
Wellsburg, W.Va.	33	23	27	45.1	24	54.6	Mar. 1936
Pike Island L&D, W.Va.							
(lower)	37	23	27	47.5	24	44.2	Mar. 1964
Wheeling, W.Va.							
Dam 12 (upper)	36	24	27	46.6	24	55.2	Mar. 1936
McMechen, W.Va.							
Dam 13 (upper)	37	23	27	48.7	25	57.9	Mar. 1936
Clarington, Ohio							
Dam 14 (upper)	37	24	27	46.3	25	53.3	Mar. 1936
Steubenville, Ohio	33	23	26	43.5	24	37.4	Feb. 1966

* From high water mark
** Stage referred to present gage datum and site
\# Also later date
‡ Full lake

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