



### A ROLL CLOUD IN WASHINGTON

This photograph was taken looking northwest from the World Weather Building, Camp Springs, MD at 1150 EST, 3 December 1977. A strong cold front was approaching from the northwest which was accompanied by this roll cloud, a feature more typically associated with mid-west summertime squall lines. The front passed Washington National Airport at 1154 EST. Winds shifted from  $220^{\circ}$ , 14 kts to  $280^{\circ}$ , 12 kts at that time and continued about the same until 1500 EST. There was only a sprinkle of rain associated with the dark cloud area. By 1700 EST winds were northwest at 26 kts gusting to 42 kts, dying down around midnight. Temperatures remained near  $46^{\circ}\text{F}$  until the wind strength increased and then fell rapidly to below freezing at 1900 EST.

Synoptically, Washington, D.C. was still well north of the warm front, but the cold air was very shallow with the steeper slope of the warm front

in Northern Pennsylvania, as indicated by the isobaric curvature. The strong winds associated with the influx of cold air were unable to reach ground level until the colder air aloft achieved a temperature cold enough for adiabatic instability with the relatively cold air trapped near the ground. The acoustic sounder, an experimental system to measure wind speed and direction located at Dulles International Airport, VA which is being tested by the FAA, showed the wind speed to increase gradually from the surface, measuring 30 kts at 1600 feet one hour after the frontal passage. The wind direction was within  $10^{\circ}$  of  $290^{\circ}$  up to the 1600 ft. level. No inversion was indicated by the wind direction or speed.

Pictures and data collected by the staff of NWS Forecast Office, Washington, D.C.

#### *Newsline from pg 35*

**GOASEX.** GOASEX is the acronym coined for the Gulf of Alaska Seasat-A Experiment, a major effort by NOAA and its major Program Elements; the National Environmental Satellite Service, Environmental Research Laboratories, and the NOAA Corps, to provide "sea surface truth" for Seasat-A, an experimental satellite carrying all-weather microwave sensors onboard. Seasat-A, the first sea-going satellite, dedicated to acquisition of global oceanological data, is scheduled for a May, 1978 launch into polar orbit.

The NOAA research vessel Oceanographer and various instrumented aircraft will participate in a coordinated 30-day program starting 5 July. The purpose of GOASEX is to provide time-concurrent, conventionally-obtained data to evaluate the numerical algorithms used in converting microwave sensor electrical units (a "sensed voltage") into geophysical units (sea sur-

face wind, for example). Data from the NOAA buoy system and Ocean Station Vessel P will also be used.

**The Space Environmental Monitor.** Early detection and continuous monitoring of the near-earth space environment is necessary in order for Space Shuttle-boostered human activity to proceed. A sophisticated Space Environment Monitor will be an integral part of NOAA's TIROS-N satellite series, two of which will be launched this year. The 28-pound (12-kilogram) monitor will enable the spacecraft to relay information on charged particles emitted by the sun, which stream into the vicinity of the satellite's orbit, 250 miles (400 kilometers) above the earth, to NOAA's satellite service facility at Suitland, MD.

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