

satellite

DMSP INFRARED WINDOW COMPARISONS

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Since weather satellites started using infrared sensors, NOAA has always used the IR window of 10.5 to 12.5 microns. This choice was influenced by the fact that very

little atmospheric absorption is present in this spectral interval. Water vapor and carbon dioxide in the atmosphere affect the 10.5 to 12.5 microns only slightly.

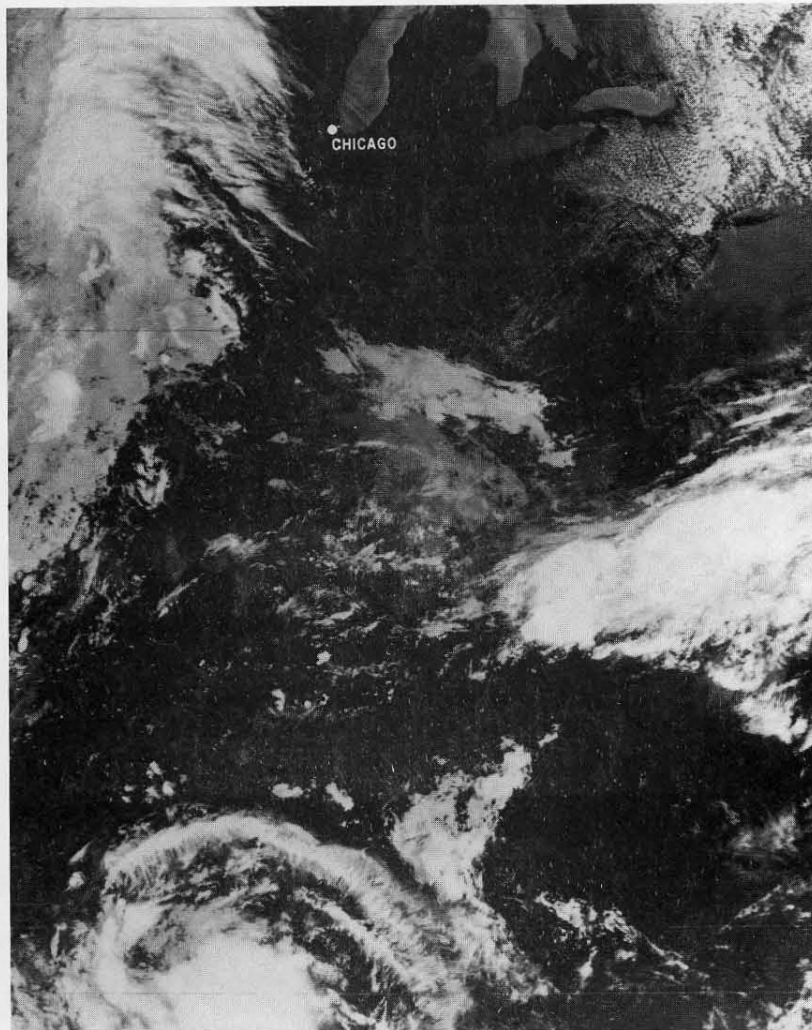


Fig. 1. DMSP infrared photo on 6 July 1979, 16106 MT, 8-13 microns.

NATIONAL WEATHER DIGEST

The Department of Defense also uses infrared sensors on their DMSP meteorological satellites and have used 8 to 13 microns for their "Thermal Windows". Water vapor, carbon dioxide and ozone absorption in this window tended to give greater temperature corrections. Recently, the Department of Defense launched a new weather satellite with a 10.8 to 12.5 micron window. It is now possible to present simultaneous views from the same altitude at approximately the same time of the

two thermal windows since DMSP has several spacecraft in orbit.

On 6 July 1979, two DMSP birds captured these views. They are presented in Figures 1 and 2. It can be seen that better cloud delineation is presented on the newest satellite. However, the older bird does show better ground as well as land/water and water/water thermal contrast. Meteorologically, the thermal window of 10.8 to 12.5 microns is obviously the better choice.

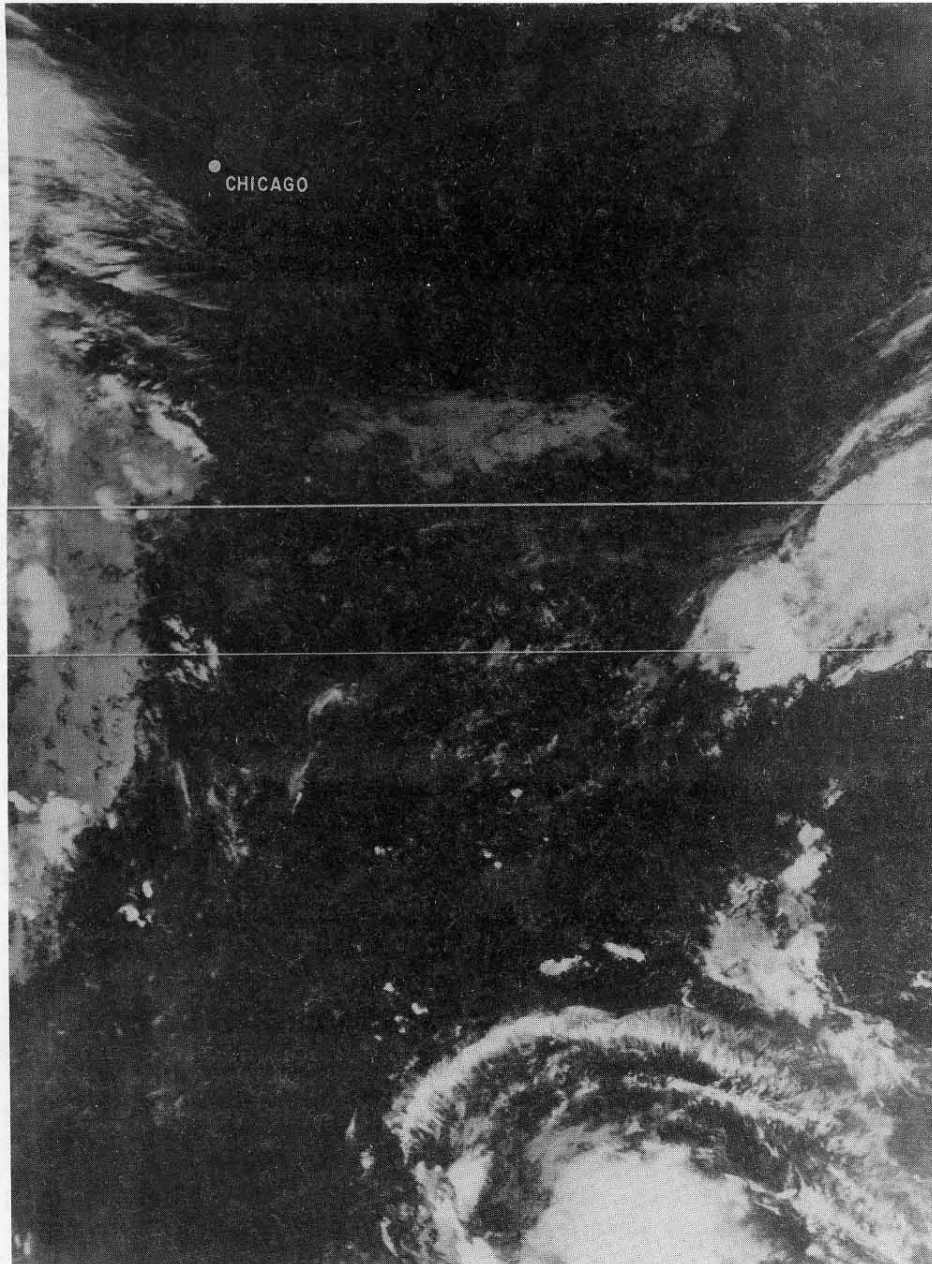


Fig. 2. DMSP infrared photo on 6 July 1979, 15556 MT, 10.8-12.5 microns.