

(b) The reflectivity of wet ice is approximately 0.2 times that of water, while the reflectivity of dry ice is 0.05 times that of water. Ice on the other hand has 10 to 20 times the diameter of water droplets. Therefore, when height is plotted against reflectivity it is seen that the reflectivity is greater at heights where hail or ice is present than at lower heights where only water droplet are present. Recently it has been found that a mushy coating around an ice nucleus has a greater reflectivity than ice or water.

(c) Measurements of reflectivity give an indication of the composition of rainclouds and therefore an insight into the rain-producing mechanism.

Dr. Atlas then proceeded to describe the principles and use of Doppler radar. The Doppler shift of the radar beam could be measured and by analysis of the Doppler spectra the drop size distribution for different rates of precipitation could be determined for both water and snow.

Also wind speed, wind shear and the fall speed of rain droplets could be measured by Doppler radar, and it would be possible to obtain the entire vertical wind profile in a short period of time.

Another important use of Doppler radar is in the analysis of the wind structure of tornadoes.

9 October 1963

JET STREAMS AND TURBULENCE

by E. R. Reiter

At a special colloquium, Dr. Reiter, Associate Professor, Department of Atmospheric Science, Colorado State University, Fort Collins, Colorado, U. S. A., a visitor to the Meteorology Department of the University of Melbourne, gave a talk on jet streams and clear air turbulence, with special reference to the high altitude turbulence measurements over southern Australia by a team, with an instrumented Canberra Aircraft, from the Royal Aircraft Establishment, Farnborough, England. An account of Dr. Reiter's talk will be published in the next issue of this Magazine.

19 November 1963

OPERATIONAL AND RESEARCH ASPECTS OF METEOROLOGICAL SATELLITE DATA

by L. F. Hubert

Mr. Hubert, Chief of the Synoptic Research Section, Meteorological Satellite Laboratory, U. S. Weather Bureau, commenced his talk with the introductory remarks that almost from the day of launch of TIROS I on April 1st, 1960, large scale cloud patterns were used in operations. The gross cloud patterns revealed the presence of cyclones and generally disturbed regions.

In addition infra red radiation data were obtained on later TIROS satellites and these are useful for determining the cloud heights. So far this has been done only in research studies but will soon be available quickly enough for operational use.

An important aspect in the interpretation of television cloud pictures for both operations and research is the exploitation of meso-scale and sub-synoptic scale patterns.

It is essential that we investigate this class of phenomena in order to understand the underlying thermo- and hydro-dynamics, but it is not necessary to await these results to use the information revealed in day to day analysis. Certain patterns have been seen so frequently that we have come to know some of the general atmospheric conditions, even though there are