

SPATIAL AND TEMPORAL PATTERNS IN CLOUD PROPERTIES FROM THE ATSR-2 GRAPE DATASET

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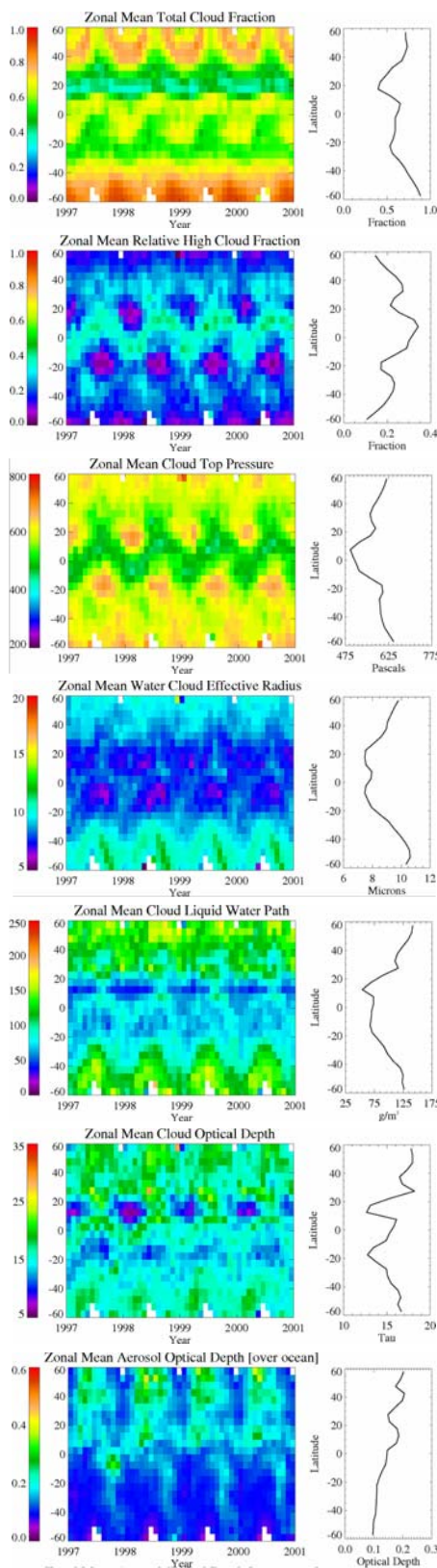
INTRODUCTION

The Global Retrieval of ATSR Cloud Parameters and Evaluation (GRAPE) project provides a six-year dataset (June 1995 - January 2001) of cloud and aerosol parameters. This poster highlights some of the spatial and temporal patterns in these products.

The potential for extending the ATSR-GRAPE retrieval scheme to incorporate the forward view of the Along Track Scanning Radiometer (ATSR) 2 instrument is also explored.

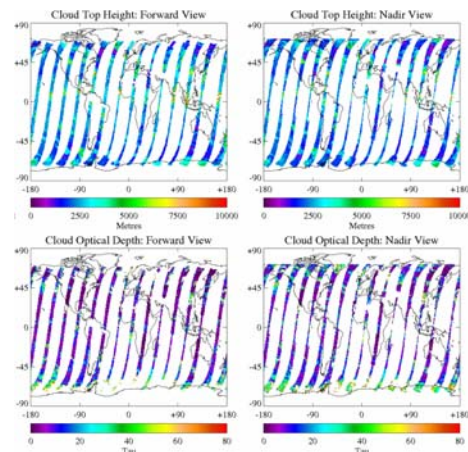
TIME SERIES OF CLOUD PROPERTIES

The figures below show the monthly variability of zonal mean cloud properties as derived from the ATSR-GRAPE dataset. Consistent seasonal cycles can be observed in many parameters.

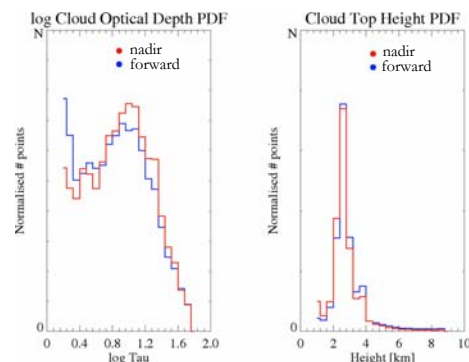


USING THE FORWARD VIEW OF THE ATSR INSTRUMENT

At present, the GRAPE cloud retrieval uses only nadir measurements from the ATSR-2 instrument. An active area of study is the possibility of incorporating information from the forward view in order to develop a dual-view cloud retrieval scheme. The forward view of the ATSR instrument scans the ground with an instrument zenith angle of 53°-55°. The increased slant path through the atmosphere may improve the detection of optically thin Cirrus clouds.



The maps above show the retrieved cloud top height and cloud optical depth for the 1st October 2000, as retrieved by ATSR-GRAPE using the forward-view and nadir-view radiances respectively. The results are gridded at 1° x 1° resolution. The results of using the different viewing geometries are compared in the histograms below.



Using the forward-view radiances results in a greater proportion of optically thin cloud being detected. Similarly, a slightly greater proportion of high cloud is detected when the forward view radiances are used. Incorporating the forward view radiances into the retrieval scheme may improve the retrieval of Cirrus cloud. Further work is required to correctly collocate the properties derived using the different radiance measurements.

At present, the retrieval scheme is also being extended to use radiance measurements from the Advanced ATSR (AATSR) instrument. Once this processing is complete, the ATSR-GRAPE dataset will contain more than 13 years of global cloud and aerosol properties.

SEE ALSO

At this meeting:

- Oral presentation: *Cloud Properties From (A)ATSR* (Caroline Poulsen)
- Poster presentation: *Global Retrieval of ATSR Cloud Parameters and Evaluation: Overview of the GRAPE Project* (Andy Sayer)

On the web:

- GRAPE project website: <http://www.atm.ox.ac.uk/project/grape/>
- GRAPE dataset on the BADC: <http://badc.nerc.ac.uk/data/grape/>
- GlobAerosol project website: <http://www.globaerosol.info>

The maps below show monthly mean cloud properties for June 1995-2000. Data is reported at 1° x 1° resolution, with a 10° x 5° [longitude x latitude] smoothing filter applied over the ocean, except for high cloud fraction, where a 15° x 15° smoothing filter is applied. The data is smoothed in this way because of the narrow swath width of the ATSR-2 instrument over the ocean.

