

A survey of tropical and mid-latitude cirrus particle size and shape using ATSR-2 visible/near infrared data

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The visible (0.55, 0.67 and 0.87 micron) and near-infrared (1.6 micron) channels of the Along Track Scanning Radiometer are capable of determining the optical depth, the size and to some extent the shape of cirrus cloud crystals. An addition, the along track view of the ATSR allows cloud height determination and cloud temperature can be derived from the thermal channels (11 and 12 micron). We briefly describe the retrieval of these cloud properties, using representative ice crystal phase functions such as hexagonal columns, plates and polycrystals, from the ATSR-2 data and their likely errors.

We present results of a preliminary survey of cirrus cloud properties from areas of tropical convection and from midlatitude frontal cirrus. The cloud top temperatures of our survey are consistent with more recent in-situ field campaigns such as CEPEX and EUCREX which measured ice crystal shape and size. We are therefore able to compare our retrievals with measurements of ice crystal shape and size made during those campaigns we will show the results of such comparisons.