

Nimbus-7 Narrow Field of View (NFOV) Maximum Likelihood Cloud Estimation (MLCE) Data in Native Format (NIMBUS7_NFOV_MLCE)

Summary:

This document is a temporary abstract provided as an interim Guide description until a detailed Guide document can be prepared.

The Earth Radiation Budget (ERB) parameters, derived from the Nimbus-7 scanner measurements, have recently been rederived using two new and distinct algorithms. Narrow-field-of-view (NFOV) radiances can be used to estimate the total upward flux emanating from an observed region, but this is difficult because of the anisotropic nature of the radiance fields. We have used a Maximum Likelihood Cloud Estimation (MLCE) algorithm similar, but not identical, to the Earth Radiation Budget Experiment (ERBE) algorithm. Because of the unique bidirectional scanning patterns used by the Nimbus-7 ERB scanner, radiance measurements can be collected over a period of time, sorted into angular bins (SAB), and a direct angular integration performed to determine the upward flux density. This procedure needs no angle-dependent models (ADMs) or cloud-identification algorithm. However, because of the moderate measurement rate of the scanner, it does require collecting data over a longer period of time and/or area than does the MLCE procedure. The MLCE data set gives better regional and temporal resolution, while the SAB results act as an accuracy control and yield information on average bidirectional reflectance and emittance patterns.

The scanner took measurements from November 16, 1978 through June 20, 1980; however, only 13 months (May 1979 through May 1980) of data sampling were reprocessed using the SAB and MLCE algorithms.

Document Information:

Document Revision Date:

August 8, 1997; November 24, 1997

Document Review Date:

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Document ID:

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Citation:

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