

Assimilation System: Specification of Error Statistics

NASA Technical Reports Server (NTRS), et al., Ivanka Stajner





## The Geos Ozone Data Assimilation System: Specification of Error Statistics

By Ivanka Stajner

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 36 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.A global three-dimensional ozone data assimilation system has been developed at the Data Assimilation Office of the NASAGoddard Space Flight Center. The Total Ozone Mapping Spectrometer (TOMS) total ozone and the Solar Backscatter Ultraviolet (SBUV) or (SBUV2) partial ozone profile observations are assimilated. The assimilation, into an off-line ozone transport model, is done using the global Physical-space Statistical Analysis Scheme (PSAS). This system became operational in December 1999. A detailed description of the statistical analysis scheme, and in particular, the forecast and observation error covariance models is given. A new global anisotropic horizontal forecast error correlation model accounts for a varying distribution of observations with latitude. Correlations are largest in the zonal direction in the tropics where data is sparse. Forecast error variance model is proportional to the ozone field. The forecast error covariance parameters were determined by maximum likelihood estimation. The error covariance models are validated using x squared statistics. The analyzed ozone fields in the winter 1992 are validated against independent observations from ozone sondes and HALOE. There is better than 10 agreement between mean Halogen Occultation Experiment (HALOE)...



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