SatCORPS Global Geostationary Cloud Parameters for Weather and Climate Applications

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Abstract
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Cloud systems develop at both long and short time scales and often form and dissipate over the course of a diurnal cycle. Thus, it is important to monitor them at hourly or better temporal scales. This monitoring is best accomplished with geostationary satellites (GEOSats), at least, over nonpolar areas. At NASA Langley Research Center, a set of algorithms, the Satellite ClOud and Radiative Property retrieval System (SatCORPS), has been developed to analyze imager data from both GEOSats and polar-orbiting satellites to provide a global cloud property dataset that is as consistent as possible, given the differences among the various satellites. This paper presents a summary of the SatCORPS results for climate and weather studies.

The global analyses extend back to 2000 as part of the CERES project in order to provide complete diurnal sampling to achieve a more accurate estimate of the Earth's radiation budget. They are also being run in near-real time for aviation weather nowcasts of severe weather and of HIWC and airframe icing conditions, as well as assimilation into numerical weather forecast models. The results and ongoing improvements are discussed.