EVEREST: AN INTEGRATED WEATHER PRODUCTS TESTBED FOR ENVIRONMENTAL REMOTE SENSING SATELLITE SYSTEMS

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Introduction
An essential tool for an environmental remote sensing mission developer or system integrator is the ability to predict the impact of various elements of the system on the performance of the environmental data products (EDR) delivered by the system. EVEREST is an end-to-end modeling and simulation testbed developed by Northrop Grumman to support the NPOESS program, as well as other similar programs, in assessing the performance of EDR during the various phases of the program. It supports design trades early in the development phase, verification testing of sensor data and weather retrieval algorithms, independent performance assessment of impact of sensors developed on EDR, and support of on-orbit calibration and validation of the data products. The testbed is comprised of five main components: global environmental databases covering typical and extreme environmental conditions, radiative transfer models covering the microwave, optical, and ultra-violent frequency regimes, detailed sensor models capable of reproducing the effects observed by the actual sensors being build, spacecraft models for pointing and jitter, and retrieval algorithms to calculate the weather data records. In addition, EVEREST is also comprised of a detailed event-based simulation that computes latency and processing load for the system.

The presentation will highlight the main features of the testbed and how it is used to assess performance of the data products.