

## **JCSDA Community Radiative Transfer Mode (CRTM) version 1 and development prospects**

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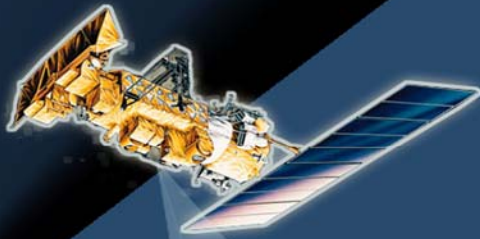
Over the past several years, a new community radiative transfer model (CRTM) has been developed at the U.S. Joint Center for Satellite Data Assimilation (JCSDA) with the joint efforts from various research groups and organizations. Since the end of 2005 it has been an essential component of the Gridpoint Statistical Interpolation (GSI) data assimilation system at the NOAA National Center for Environmental Prediction (NCEP). The current model simulates the microwave (MW) and infrared (IR) radiances observed by instruments on board spacecrafts for a given state of the atmosphere and Earth's surface under all-weather conditions. It also computes radiance sensitivities such as the radiance derivatives with respect to the state variables. It comprises four major modules: Atmospheric gaseous absorption for gaseous transmittance calculations, Cloud scattering and absorption for cloud optical parameters such mass extinction coefficients and single scattering albedo, Surface optics for emissivity and reflectivity and RT solution for solving radiative transfer equations. In this presentation we will provide an overview of the implementation of the first version of CRTM, which has been completed and integrated into the GSI system. We will also report the ongoing work for the next version.

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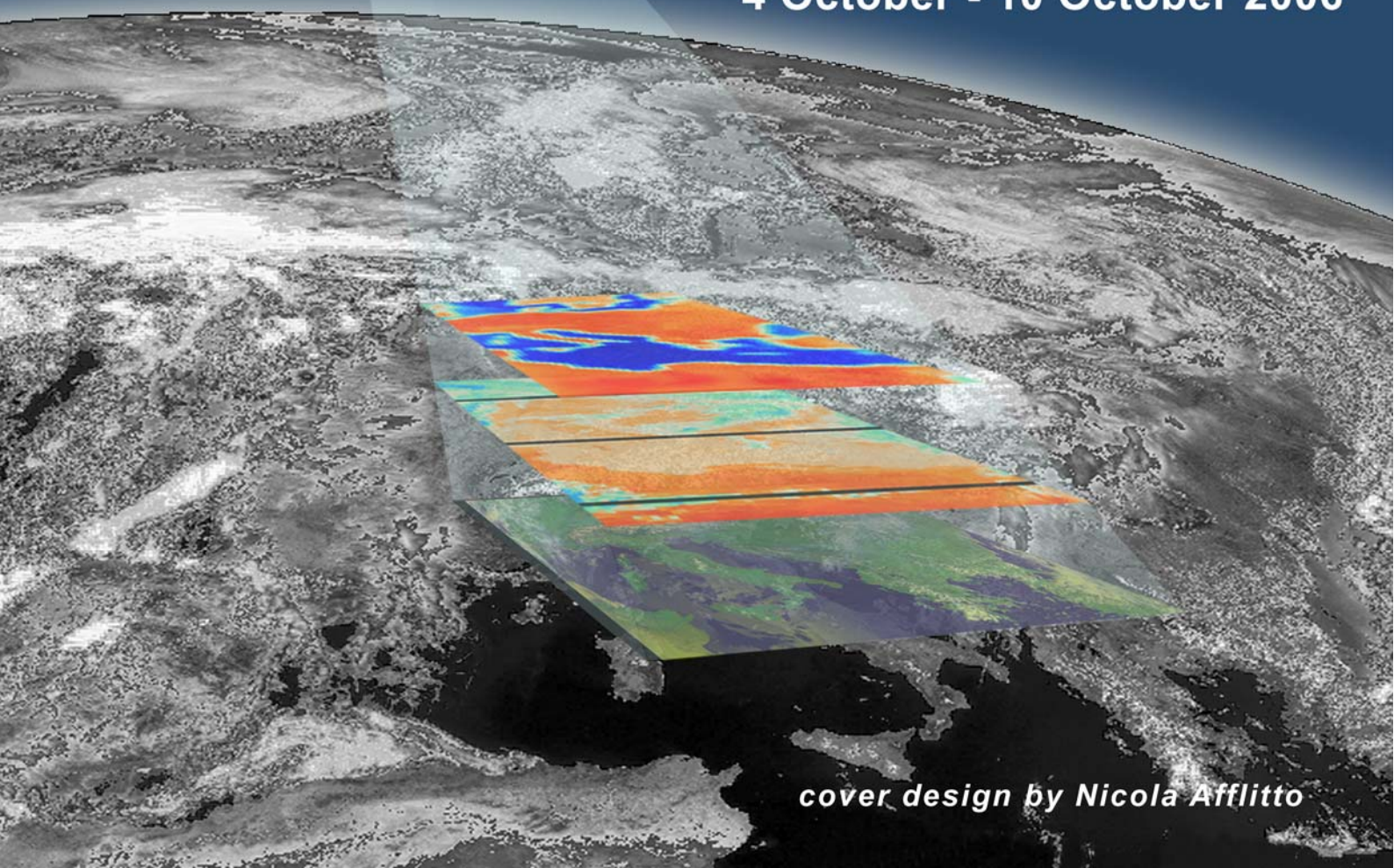
*using space-based observations*



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