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**Assimilation of FengYun Satellite Data in CMA-GFS Using Advanced
Radiative Transfer Modeling System (ARMS)**

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A fast and accurate radiative transfer model is required for assimilation of satellite data into numerical weather prediction model. In Chinese numerical weather prediction models, RTTOV has been operationally used for assimilating NOAA, EUMETSAT and CMA satellite data. In next decade, more advanced instruments will be carried onboard Chinese FengYun satellites and will provide the unprecedented data for user communities for many applications.

At the geostationary platform, a large solid aperture will be deployed for obtaining atmospheric temperature sounding at a resolution comparable to that from the current polar microwave sounder such as Advanced Microwave Sounding Technology Sounder (ATMS) and Microwave temperature Sounder (MWTS). To accelerate the uses of current and future FengYun satellite data, CMA has developed its first generation of satellite observation operator (ARMS) and continues its updating and readiness for the new missions. ARMS has the capabilities similar to RTTOV and CRTM but is designed with more flexibilities with plug and play of new radiative transfer solvers, new scattering data bases of aerosols, clouds and precipitation, and new ocean two-scale emissivity model (TSEM) and reflectivity model (TSRM). In this presentation, I will provide an overview of ARMS science capabilities and its major applications in CMA operations, especially focusing on assimilation of FengYun satellite data in CMA global forecast system (GFS).