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Analysis of aerosol and cloud signatures in the data from new satellite imagers and their model simulation

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New type global satellite imagers have been launched in the last several years, including those on JPSS, GOES-R, Sentinel series imagers, Chinese FY series, Korean GOCI, and Japanese Himawari, GOSAT, GCOM-C, GOSAT-2 etc. These imagers have better sensitivity, higher spatial resolution, multi-angles, polarization and wider spectral coverage including near-ultraviolet wavelengths. With such improved technologies, new aerosol and cloud remote sensing algorithms have been also developed and applied to the large volume data from these imagers. A new trend is a use of combined algorithms of multi-dimensional data, i.e. multi-angles, multi-wavelengths, multi-times, and multi-pixels and polarization such as in data use of the A-Train satellite constellation, that makes it possible to retrieve better aerosols optical properties over land and turbid ocean regions. In this talk, we like to introduce some new results from Himawari-8/AHI, GOSAT/CAI, GOSAT-2/CAI-2 and GCOM-C/SGLI to discuss advantages of the new imagers and algorithms. The talk will be extended to how to use these data for aerosol data assimilation and aerosol impact studies using MIROC climate model and NICAM high-resolution model. This year we have new analyses of 340nm and 380nm data from CAI-2 and polarization from SGLI. Some comparison of MODIS, AHI, and GOCI aerosols is also shown.