

## Development of remote sensing algorithm to retrieve aerosol optical properties and introduction of the results of case studies

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We have developed a satellite remote sensing algorithm to retrieve the aerosol optical properties using multi-wavelength and multi-pixel information of satellite imagers (MWP). We simultaneously retrieve several parameters that characterize pixels, such as aerosol optical thickness (AOT) of fine and coarse mode particles, single scattering albedo (SSA), and ground surface albedo of each observed wavelength, in each of horizontal sub-domains consisting the target area.

We applied the algorithm to GOSAT/TANSO-CAI and Himawari-8/AHI data. We will show the retrieval results of aerosol characteristics over the urban and forest fire regions such as the Kanto area in Japan and Beijing in China. We also tried to retrieve aerosol properties at a forest fire case, so we would like to introduce the retrieval results over the forest fire regions in Indonesia.

From the results, AOT over the urban or high population areas is larger than that around rural or the low population areas. Furthermore, the SSA is lower in the urban region. For the forest fire case, the AOT and SSA along the plume are higher and lower than that of the other region, respectively. Although the AOT of fine mode totally looks dominant, the Angstrom exponent around the hot spot is lower than that of the leeward side, and increase with the increasing distance from the hot spot.

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