

## Aerosol characteristics over North India from satellite observation

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In recent years, air pollution in Asia has become more serious because of the rapid development of economic activities. Aerosol is one of the air pollutants, and it has possibility to cause transboundary air pollution over the adjacent areas via long-range transports. Actually, Delhi, the capital of India, has experienced severe air pollution recently, and it is possibly caused by the crop residual burning in the Punjab region of northwest India. Satellite observation has an advantage to monitor air pollution over a wide area. In this study, we investigated air pollution over North India using aerosol products from satellite observations.

We investigated time series of aerosol optical thickness from GCOM-C satellite observation from 2018 to 2021. It is found that aerosol optical thickness increased rapidly from late October to early November, and the peaks have been higher year by year. Furthermore, the fire detection counts from MODIS observations also increased over the Punjab region in the season every year.

Trajectory analyses using NOAA HYSPLIT indicated that air mass advected from the Punjab region to the four locations in North India including Delhi. We also investigated horizontal distribution of aerosol optical thickness at three-hour interval from NASA MERRA-2. As a result, we found some instances that a plume of higher aerosol optical thickness extended from the Punjab region to the four locations in North India. On the other hand, we found other instances that aerosol optical thickness increased locally around the four locations in the morning.

We continue to monitor the instances of higher aerosol optical thickness over North India in autumn in detail, based on the above initial results.

Keywords: Aerosol, Air pollution, GCOM-C