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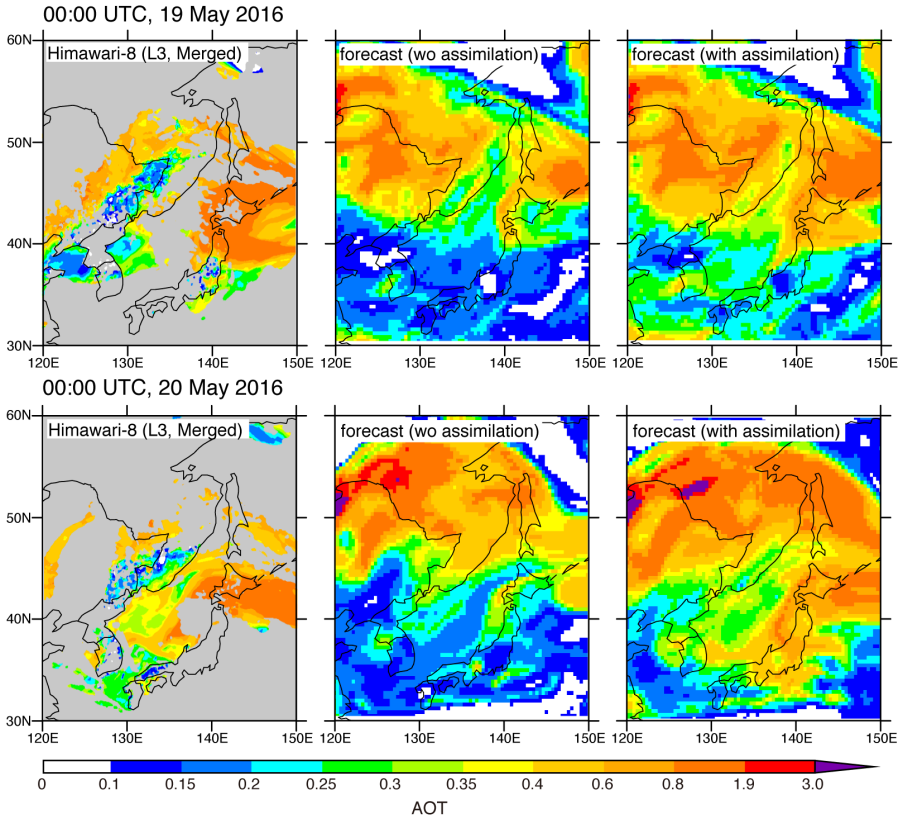

←Figure 1. Horizontal distribution of observed and forecasted aerosol optical thickness (AOT) on May 19 (upper panels) and May 20 (lower panels), 2016: (left panels) observed from Himawari-8, (central panels) forecasted without data assimilation, and (right panels) forecasted with data assimilation.

- The first application of aerosol optical thickness (AOT) provided by Himawari-8, a Japanese third-generation geostationary meteorological satellite launched by Japanese Meteorological Agency, to an operation-oriented aerosol assimilation and forecasting system is demonstrated.
- To effectively utilize the observational capability of Himawari-8, the system assimilated 1-h merged AOTs generated through the combination of six AOT snapshots taken over 10-min intervals, three times per day.
- An assimilation and forecasting experiments for a heavy Siberian wildfire smoke event show that data assimilation with the Himawari-8 AOTs successfully improved the underestimation of the smoke in the forecast without assimilation and resulted in a better forecast performance (Fig. 1).
- Our results also indicate that the inheritance of assimilation cycles and the assimilation of more recent observations let to better forecasting in this case of a continental smoke outflow.