3.085 Ammonia concentrations in East Asia assessed from near surface and satellite measurements.

Early Career Scientist

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Abstract:

Ammonia (NH3) is an important component of nitrogen emissions to the atmosphere. Primarily it is emitted from agriculture and biomass burning. EANET (Acid Deposition Monitoring Network in East Asia) performs regular continuous monitoring of air pollutants in thirteen countries in East Asia since 2000. Among other species ammonia concentrations are included in the monitoring program and data from 25 stations are available.

However due to high variability of NH3 in space and time, local point measurements are not enough for detailed understanding of the situation in the region of interest. For large spatial coverage satellite data may be used. In this study total ammonia amount retrieved from IASI/MetOp-A measurements since 2008 was used together with near surface measurements performed at EANET stations.

To understand limitations of using satellite data, the comparison of satellite and near-surface measurements for 25 stations for years from 2008 to 2015 was done in this study. Good agreement was found for monthly mean values and proved that satellite data may be used for regional air pollution monitoring and seasonal changes assessment for majority of stations. However number of differences between remote sensing data and near surface measurements was observed. The disagreement may be explained by several reasons and was considered for each station. Local features while comparison were taken into account in order to interpret satellite data in the correct way.

The assessment of ammonia concentrations for several regions in East Asia was done with use of both *in situ* and remote sensing data.