



Global Ammonia Concentrations Seen by the 13-years AIRS Measurements

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Ammonia is an integral part of the nitrogen cycle and is projected to be the largest single contributor to each of acidification, eutrophication and secondary particulate matter in Europe by 2020 (Sutton et al., 2008). The impacts of NH₃ also include: aerosol production affecting global radiative forcing, increases in emissions of the greenhouse gases nitrous oxide (N₂O) and methane (CH₄), and modification of the transport and deposition patterns of SO₂ and NO_x. Therefore, monitoring NH₃ global distribution of sources is vitally important to human health with respect to both air and water quality and climate change. We have developed new daily and global ammonia (NH₃) products from AIRS hyperspectral measurements. These products add value to AIRS's existing products that have made significant contributions to weather forecasts, climate studies, and air quality monitoring. With longer than 13 years of data records, these measurements have been used not only for daily monitoring purposes but also for inter-annual variability and short-term trend studies. We will discuss the global NH₃ emission sources from biogenic and anthropogenic activities over many emission regions captured by AIRS. We will focus their variability in the last 13 years.