



Ground-based FTIR measurements of NH₃ total columns and comparison with IASI data

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Atmospheric ammonia (NH₃) dominates global emissions of total reactive nitrogen. It has an impact on human health, as a precursor of fine particulate matter, and on Earth's ecosystems, via deposition. The main source of global NH₃ emissions is agriculture, the remaining ones being the oceans, natural vegetation, humans, wild animals and biomass burning. The global atmospheric budget of NH₃ is still very uncertain in chemical models, highlighting the critical need for satellite and ground-based observations.

We present, for the first time, time-series (2009 - 2011) of NH₃ total columns obtained from ground-based FTIR measurements. These observations are performed at Reunion Island (21°S, 55°E), one of the two subtropical stations, in Southern Hemisphere, of the ground-based Network for the Detection of Atmospheric Composition Change (NDACC) equipped with FTIR instruments. The seasonal and inter-annual variabilities of ammonia observed at Reunion Island from the ground are compared to the ones derived from recent IASI data obtained with a new retrieval method based on the calculation of a Hyperspectral Range Index.