



Observations of ammonia in the Ile-de-France region using IASI and CrIS

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The Paris megacity experiences strong particulate matter (PM) pollution episodes in springtime (March-April). Exposure to such particles is harmful to human and can lead to cardiovascular and respiratory diseases. Large parts of the particles composition are ammonium sulfate and nitrate which are produced from ammonia (NH₃) used as fertilizer during spreading practices and transported from the surrounding areas to Paris.

Using space-borne observations of NH₃ from the Infrared atmospheric sounding interferometer (IASI) and the Cross-Track Infrared Sounder (CrIS) instruments, regional pattern of NH₃ variabilities (seasonal and inter-annual) have been provided in the Paris region. The PM observations are derived from the Airparif network.

NH₃ and PM enhancements and variabilities in Ile-de-France are studied from 2008 to 2017 to understand the development of the PM pollution caused from NH₃ emissions in springtime. Atmospheric measurements of NH₃ and PM have also been compared to a regional atmospheric model - CHIMERE - to discuss our knowledge about NH₃ emissions and PM formation mechanisms in the atmosphere.