

Diurnal evolution of atmospheric ammonia over the Paris megacity from the ground-based and satellite remote sensing EGU PICO AS 3.2

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Why do we care about ammonia (NH₃)?

Ammonia as fertilizer is used for food security



Eutrophication



Fish dying; algae bloom



Fine particle precursor (ammonium sulfate and nitrate)



Smog events in Europe



Thursday, March 13, 2014. Photo: Reuters

Measurement methods of ammonia

In-situ: Passive samplers, filter packs and denuders

Drawback: sampling, local representation

Remote Sensing:

- Ground-based Diurnal evolution
- Satellite sounder Global coverage



OASIS Observatory

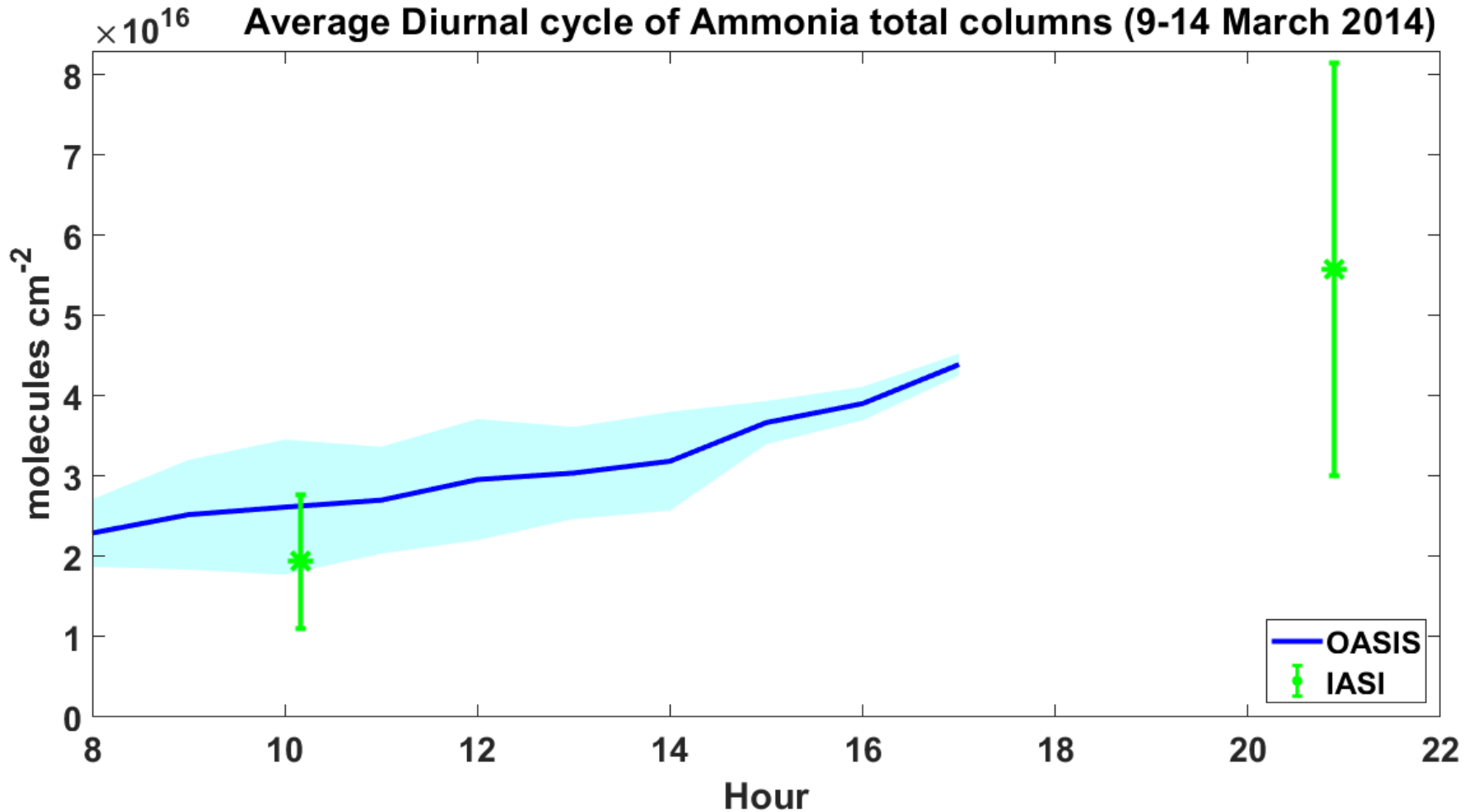
Paris Megacity



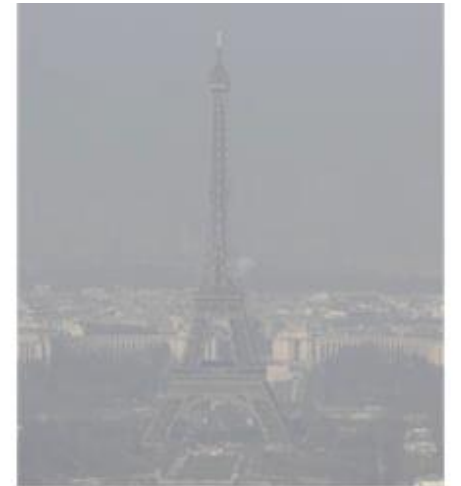
MetOp Satellite (IASI)



Air pollution event Paris March 2014



PM_{2.5} pollution outbreak
(30-100 $\mu\text{g}/\text{m}^3$ for 24-hour mean)



Thursday, March 13, 2014. Photo: Reuters

Agreement of OASIS and IASI diurnal evolution

Kutzner et al. in preparation.

Data IASI: Clarisse, L., Van Damme, M., & Coheur, P.-F. (2018). <i>Reanalyzed daily IASI/Metop-A ULB-LATMOS ammonia (NH₃) L2 product (total column)</i> [Data set]. AERIS.

<https://doi.org/10.25326/12>

Next steps

- Incorporating other satellite data
- Comparison with meteorological variables



Thank you for your attention!

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