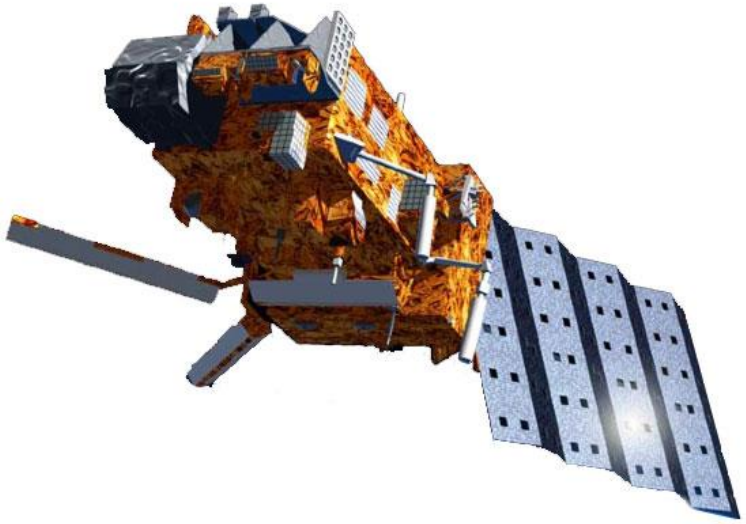
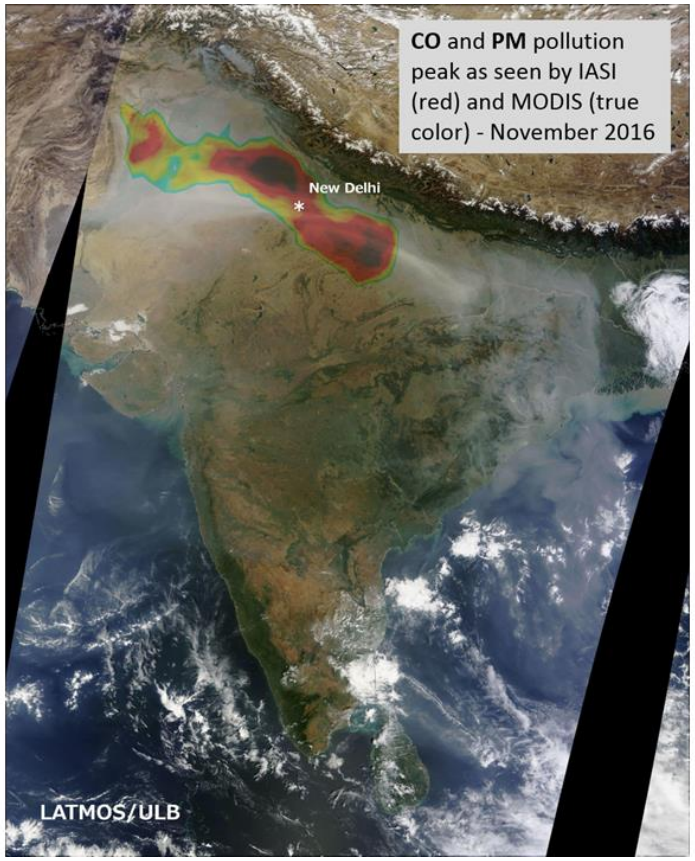
AC - Thermal IR

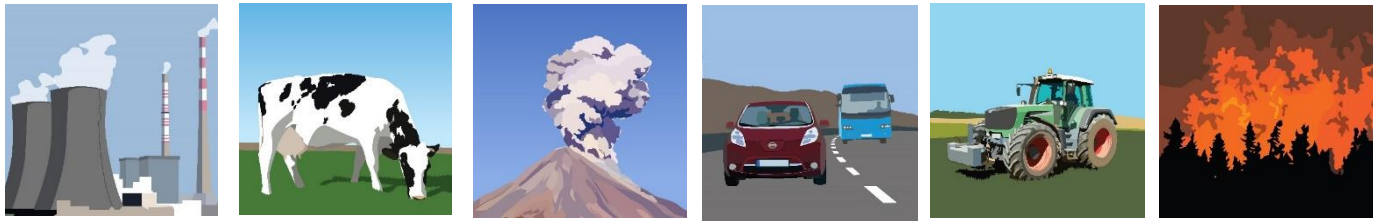
IASI, + IASI-NG/Metop_SG-S5 + IRS/MTG_S5 + Nitrosat





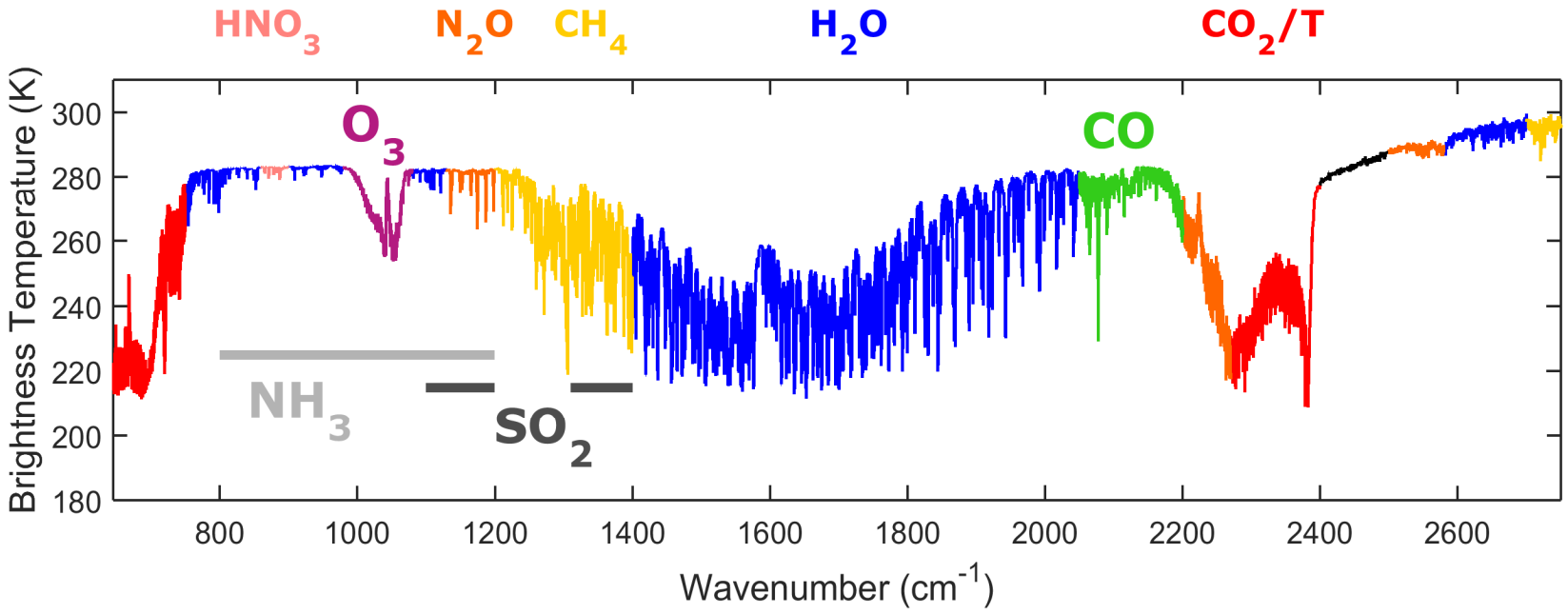
Cathy Clerbaux
and the LATMOS/ULB teams

IASI MetOp



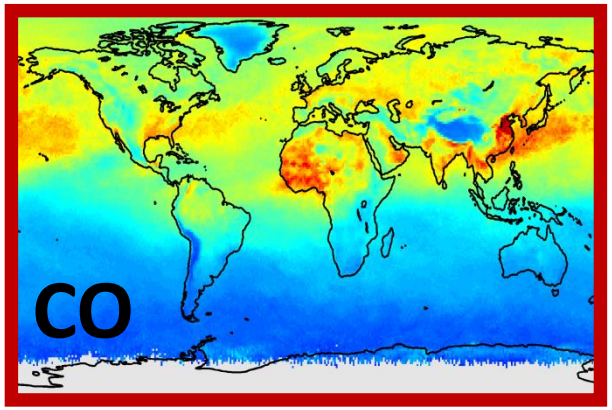
1 250 000 spectra / 15GB per day and per sat

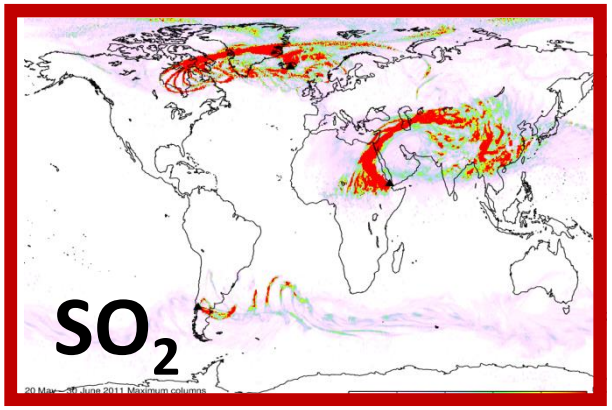
H_2O CH_4 CO_2 **CO** O_3 **NH_3** SO_2 HNO_3 HDO HCOOH + dust/ash

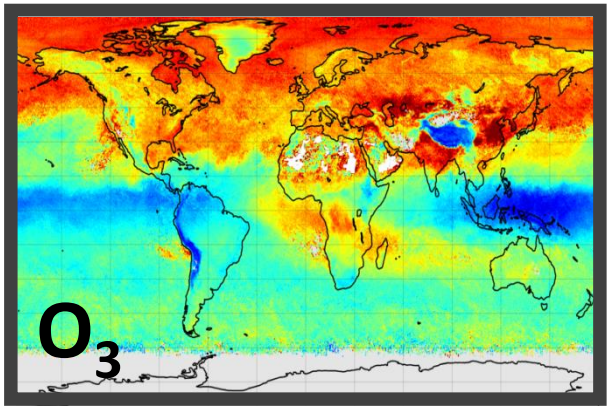


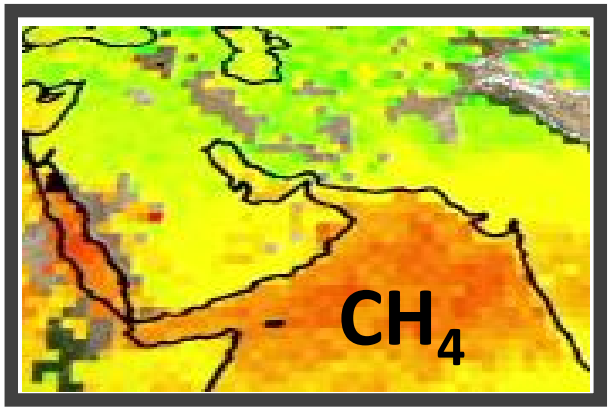
EUMETSAT AC SAF

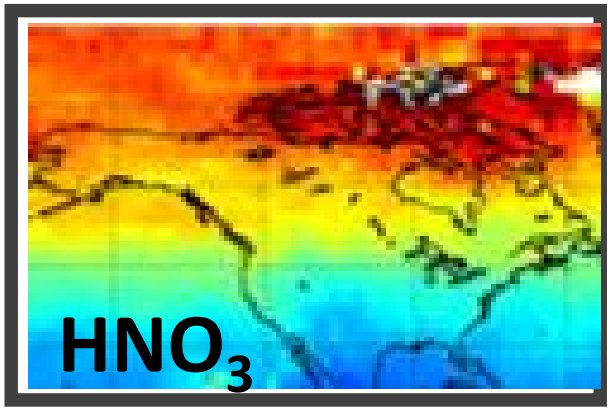
Operational distribution at Eumetsat (2016 – 2020)

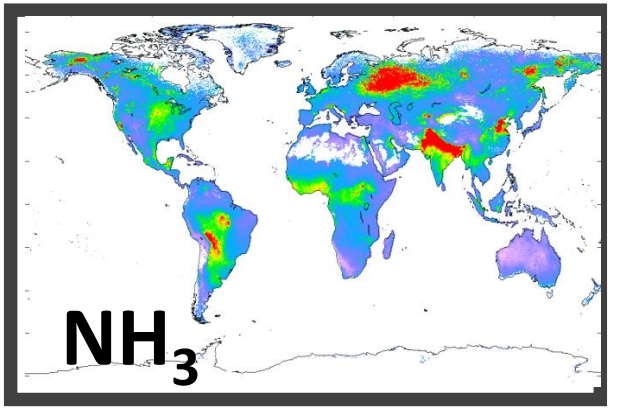


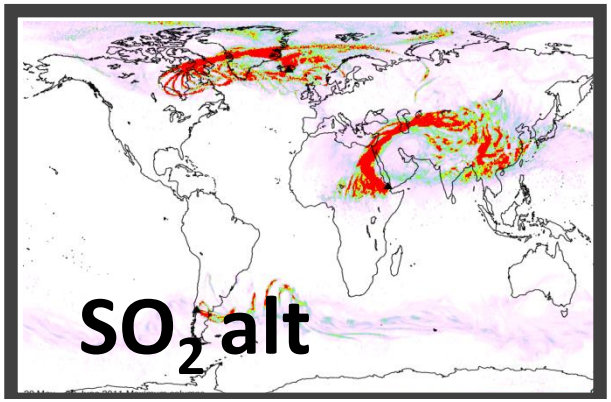


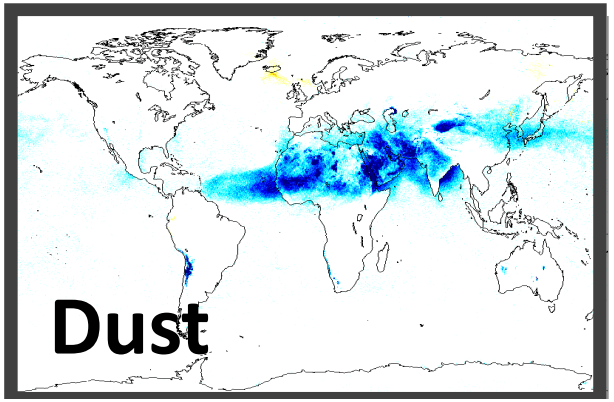


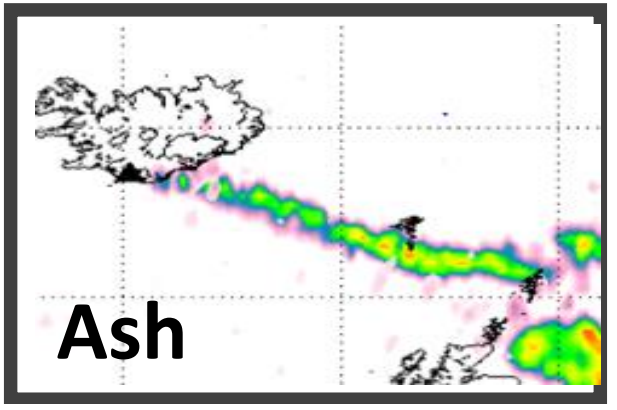












Key parameters for NRT processing

Surface temperature Ts

Temperature profiles

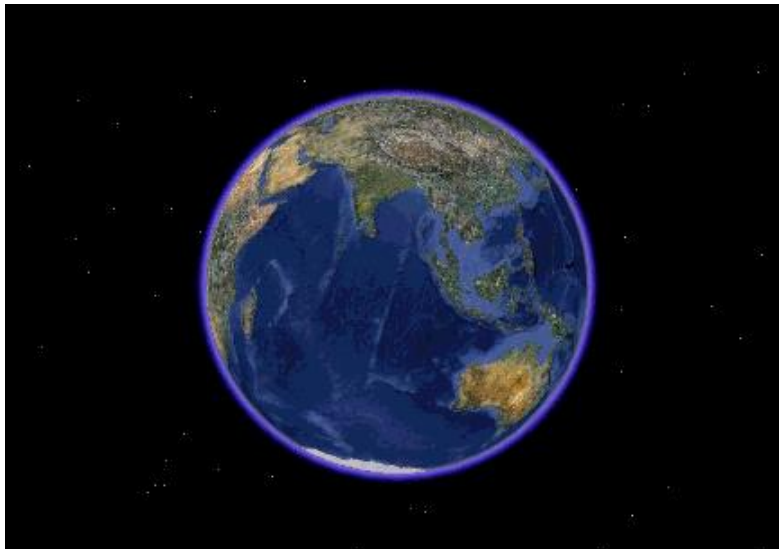
Emissivity

Other absorbers: gas & aerosols

Clouds

Instrumental specification

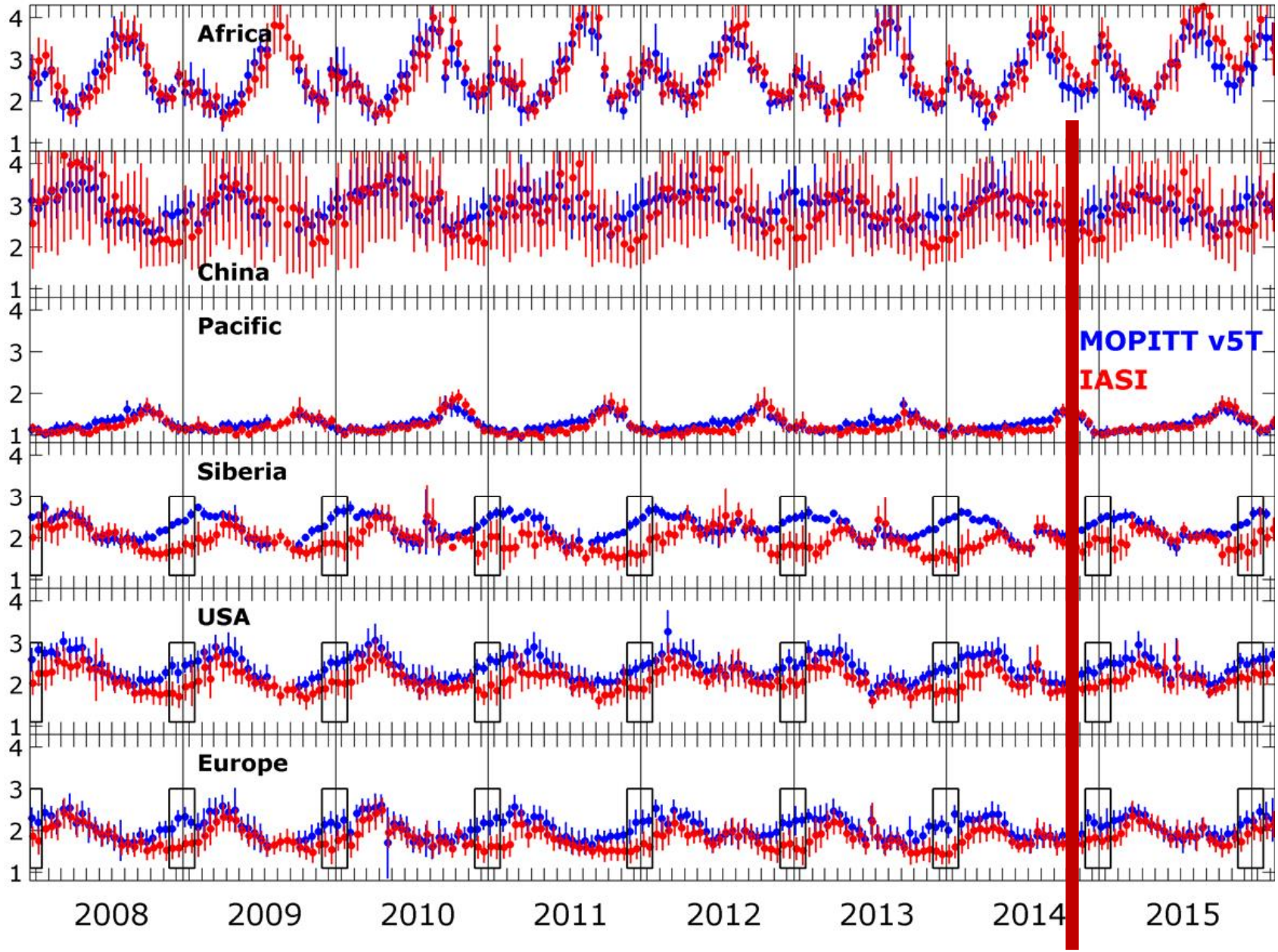
Eumetsat L2



Impact of updated version of temperature retrieval?

September 2014 : L2 Version 5 to version 6

Carbon monoxide- IASI vs Mopitt

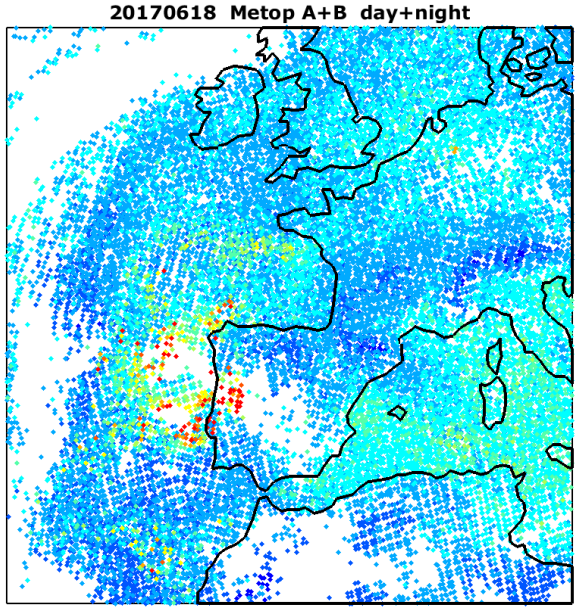


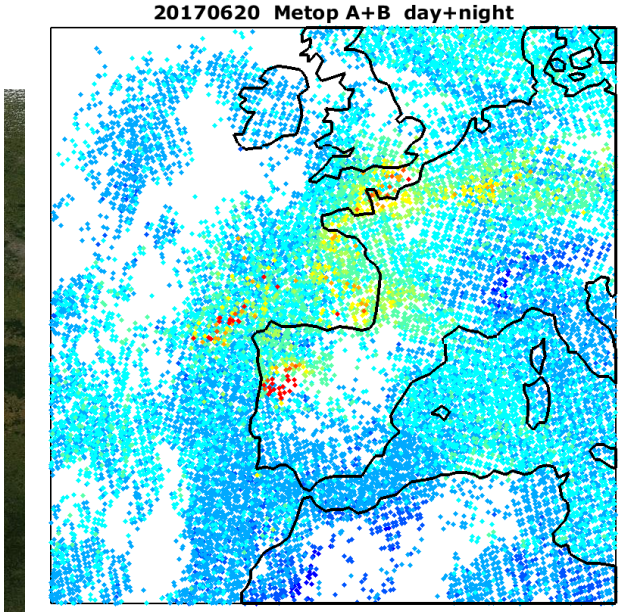
Courtesy Maya George

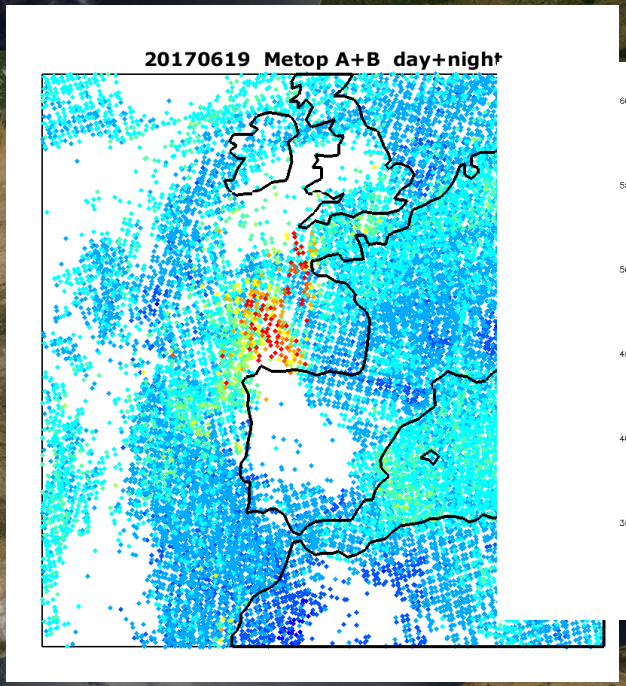
IASI L2 V5 > IASI L2 V6


Portugal wildfires – June 2017

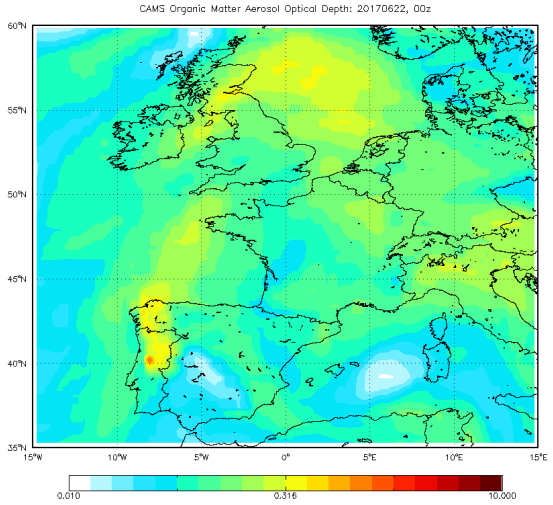
MODIS June 18th 2017



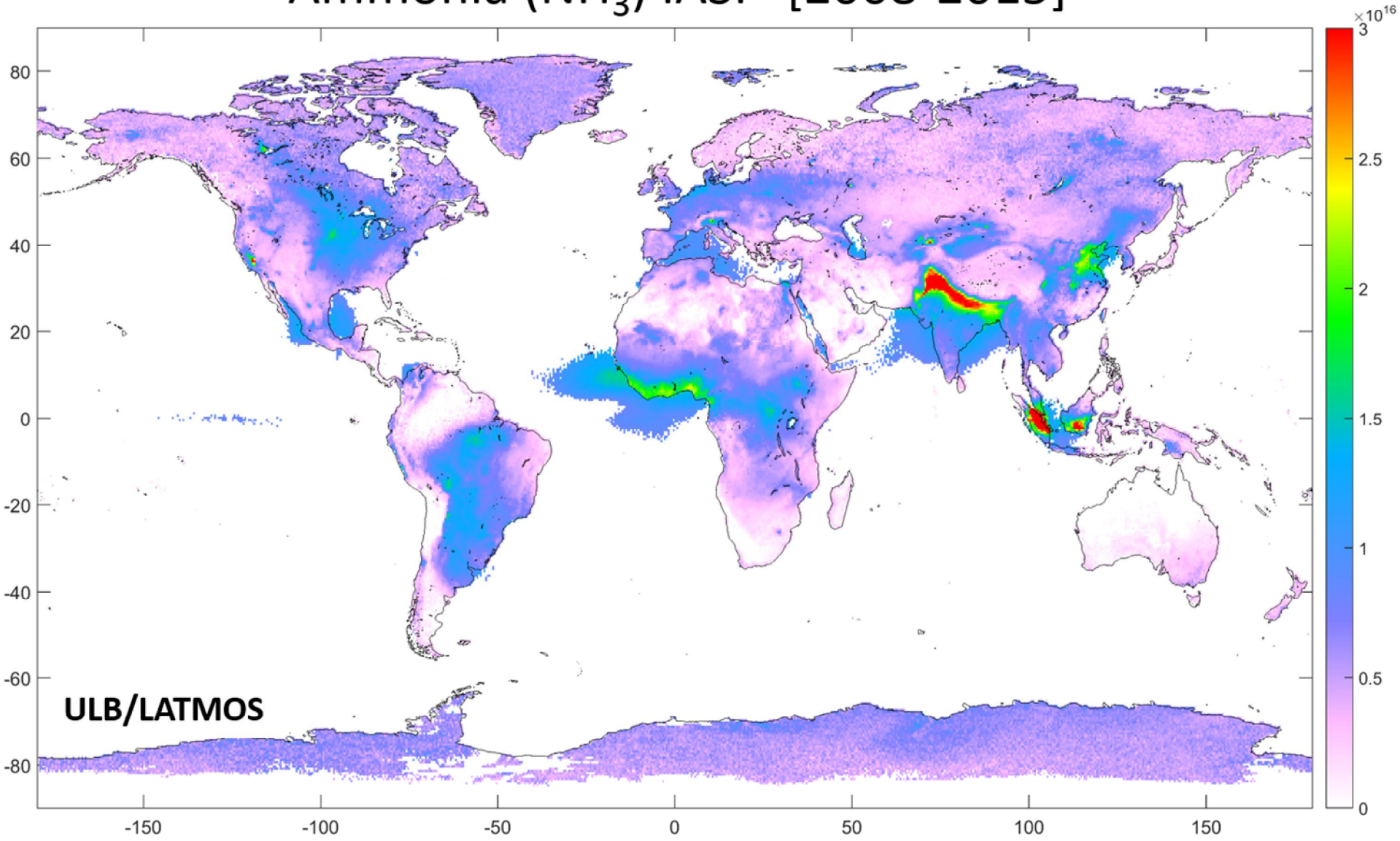




22-26 June - CAMS

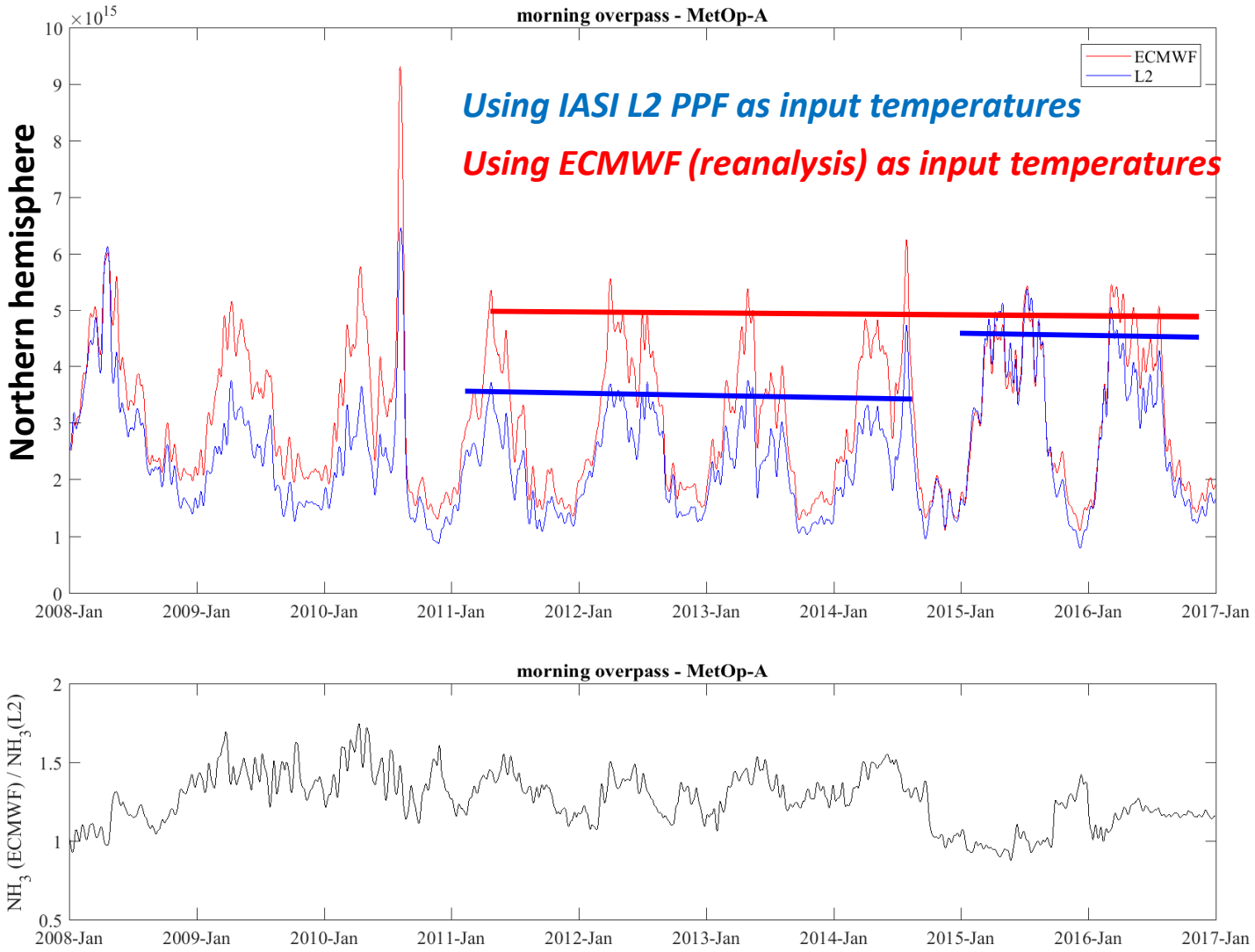


Ammonia (NH_3) IASI [2008-2015]



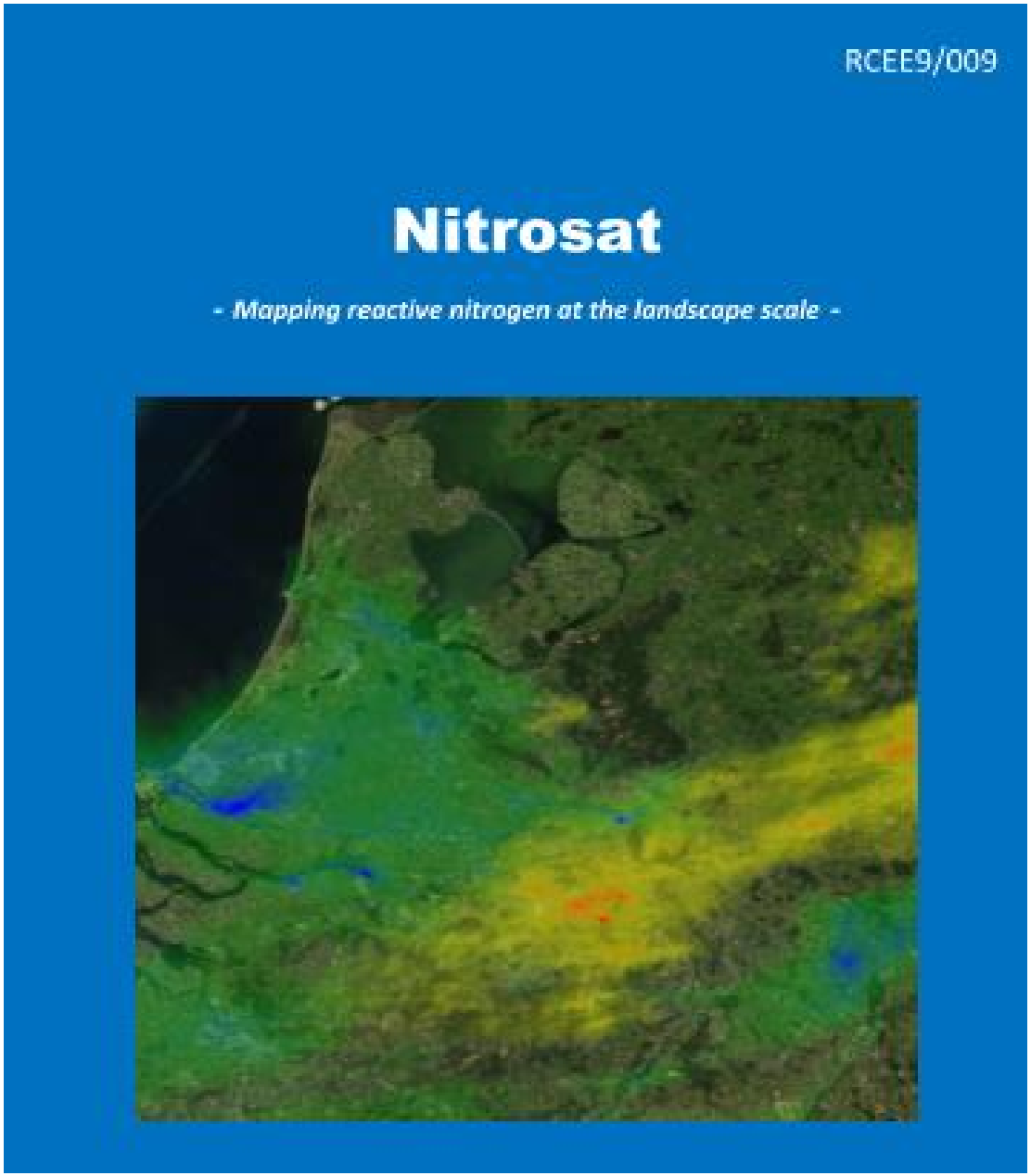
NH_3 total columns for morning orbit

L2 vs ECMWF ⇨ Significant differences at surface (T skin) and near-surface



No filtering & CLcov<10

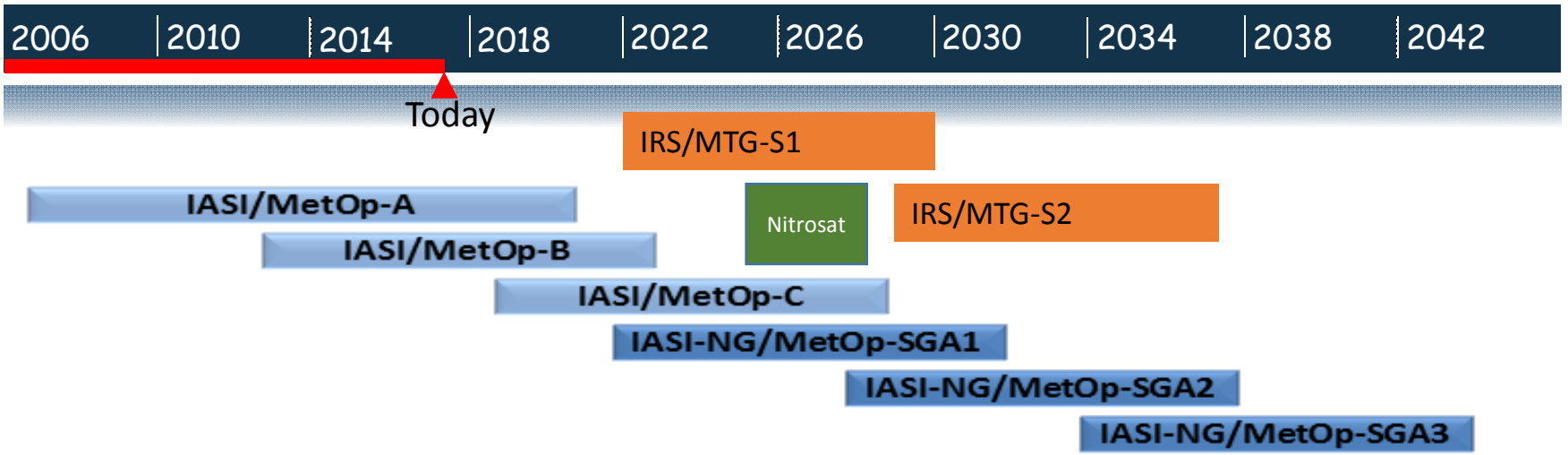
Courtesy Martin Van Damme

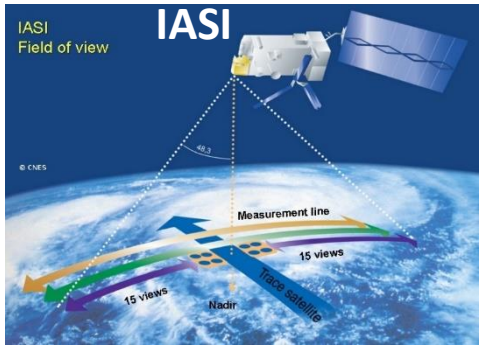


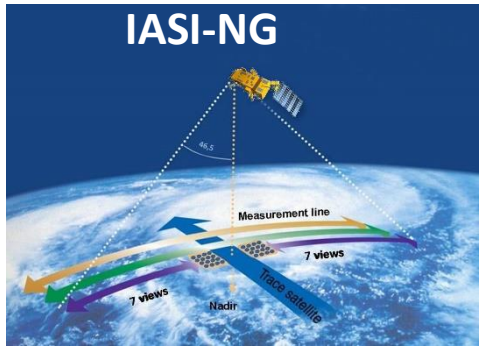
The Nitrosat Earth Explorer will operate at high spatial resolution and will be the first dedicated satellite mission to simultaneously identify the emission contributions of NH_3 and NO_2 from farming activities, industrial complexes, transport and urban areas.

Submitted to ESA/EE9
PI PF Coheur
P. Levelt

From IASI to IASI-NG and IRS/MTG

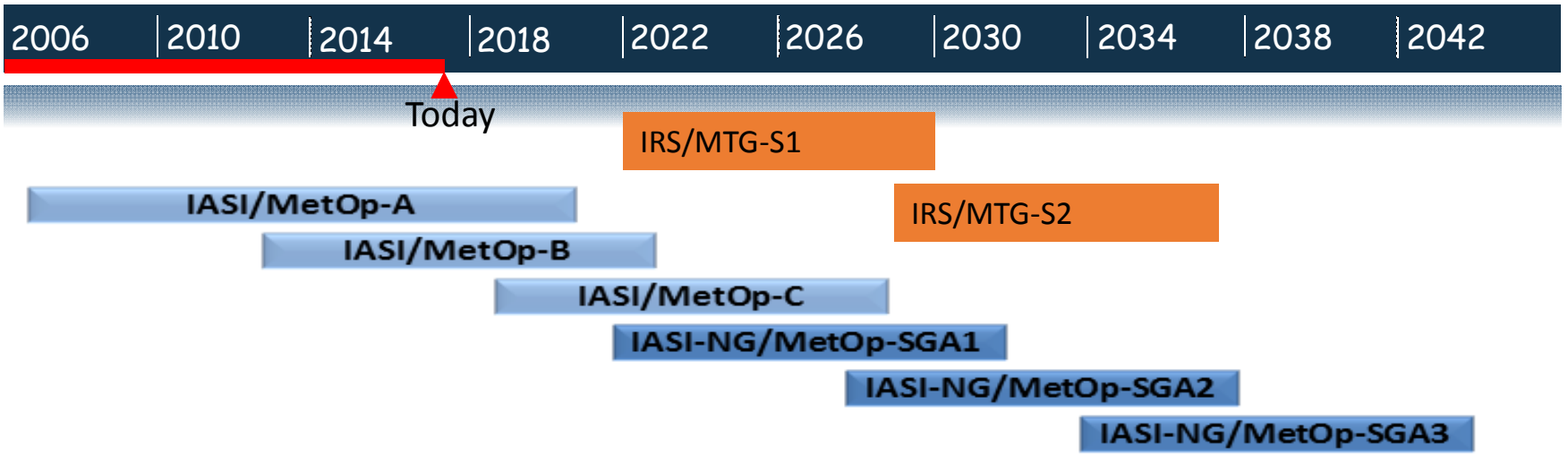


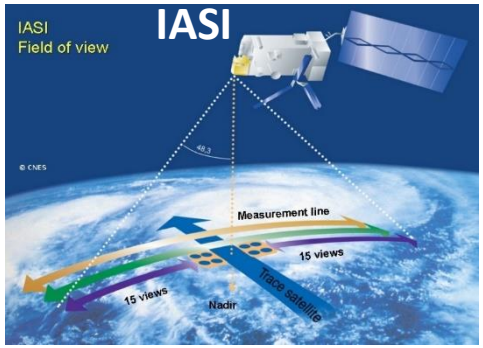


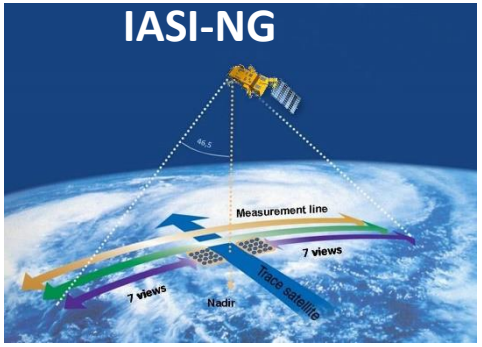


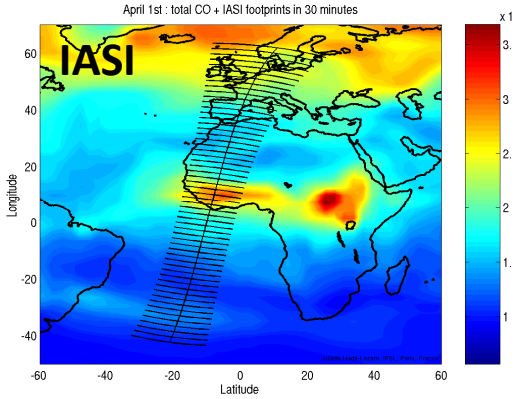
	IASI-NG
Signal/noise	**IASIx2**
Spectral resolution	**IASI/2**
Pixel size	IASI (12km)

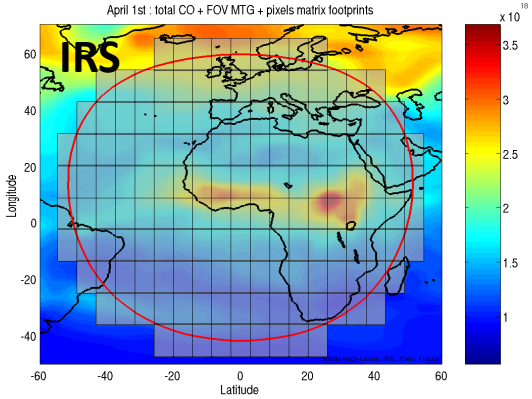
From IASI to IASI-NG and IRS/MTG











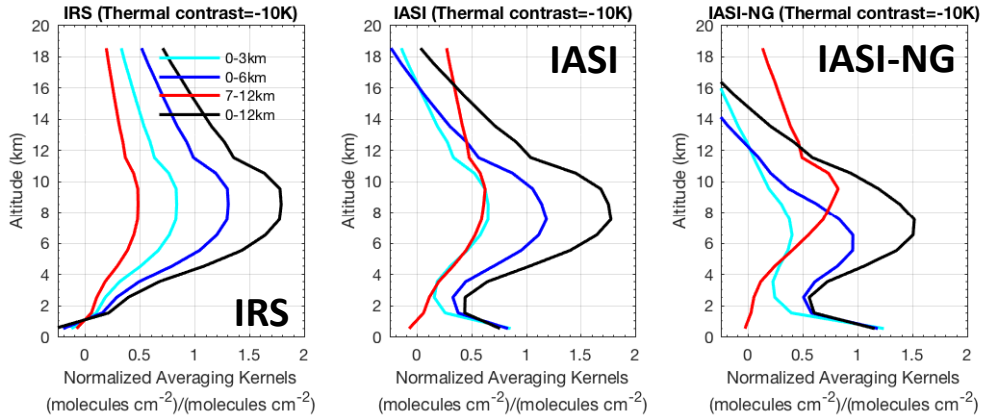
	IASI-NG	IRS
Signal/noise	**IASIx2**	O_3: ~IASI/2 CO: ~IASI
Spectral resolution	**IASI/2**	IASIx1.25
Pixel size	IASI (12km)	**IASI/3**

Potential of IASI-NG and IRS/MTG to monitor AQ

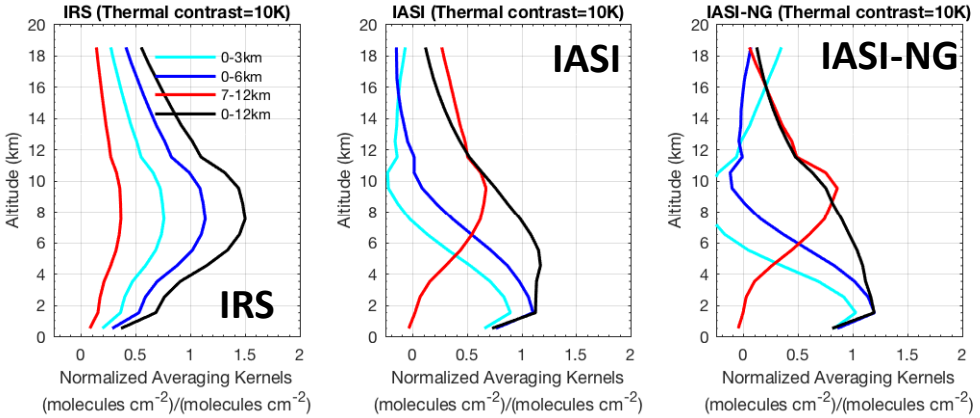
- **Based on RT simulations**
- **Theoretical characterization (error budget/information content)**

Atmosphere standard: CO background case

TC=-10K **Vertical sensibility**



TC=+10K



Impact of thermal contrast on vertical sensitivity