

## ACOM Seminar

# Climate-related studies with the IASI satellite data

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Links: <https://operations.ucar.edu/live-acom>

### ABSTRACT

The IASI infrared remote sensor flying on the suite of Metop satellites is a versatile mission that fulfills the needs of three different communities: numerical weather forecast, atmospheric composition monitoring, and climate research. Until recently, its remotely-sensed hyperspectral observations were still underexploited for climate change assessment's.

In this talk we will describe the main results obtained in the framework of the IASI - Flux and Temperature project, which aims at providing new benchmarks for top-of-atmosphere radiative flux and temperature observations using the calibrated radiances measured twice a day at any location. Innovative algorithms and statistical tools were developed to generate climate data records, both for outgoing longwave radiation (OLR) and temperatures at different altitude levels.

We will illustrate what can be observed for the long-term monitoring of trace gases and clouds, how temperatures increased at surface levels on the global scale but not everywhere, the challenge to disentangle weather dynamical variability and human-induced climate forcings, how IASI zonal temperature trends compare to ERA5 reanalysis, and why wet bulb temperature matters for future climates. We will also show urban heat islands and sudden stratospheric warmings, as well as the wave patterns following the Hunga-Tonga eruption.