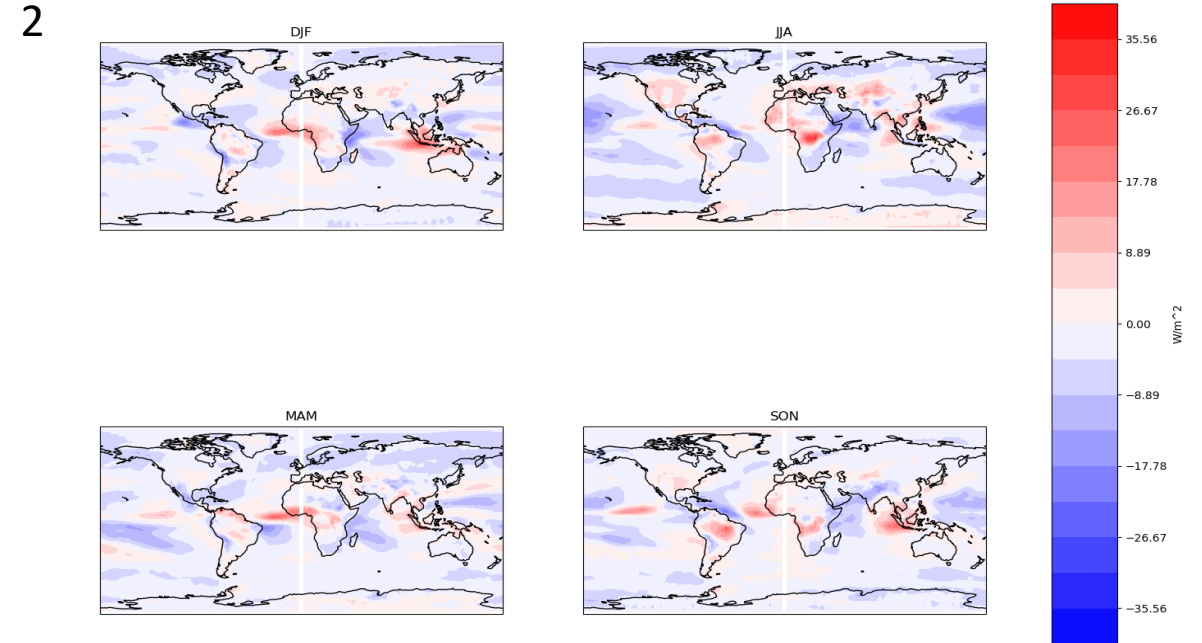
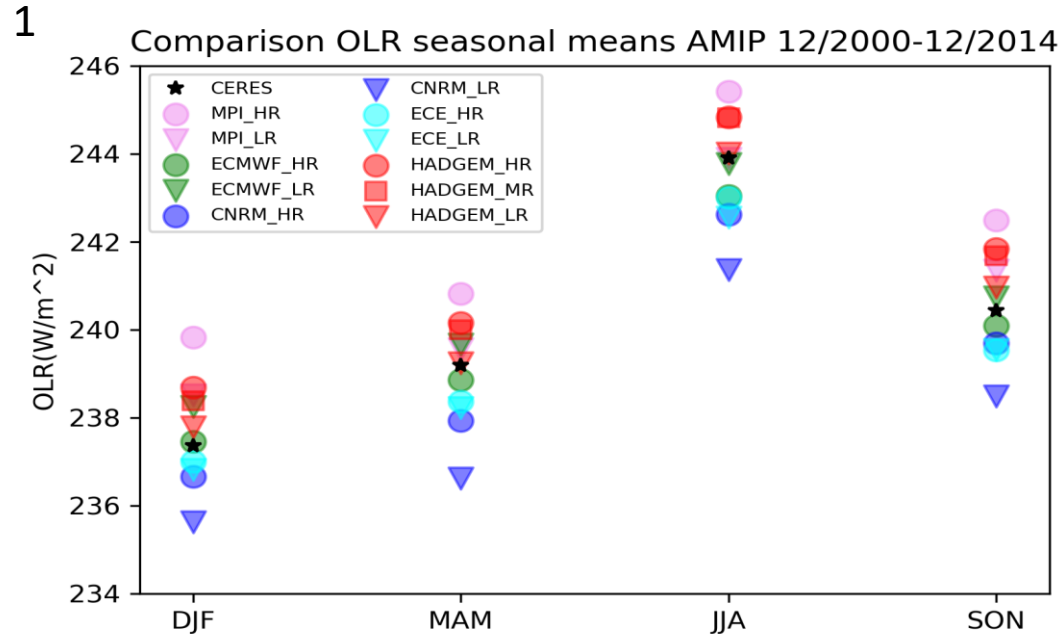


Climate models: the representation of the Outgoing Longwave Radiation

Observed and simulated Outgoing Longwave Radiation **fluxes** integrated over the whole Earth emission spectrum

OBSERVATION: CERES dataset

MODELS: CMIP6 GCMs output

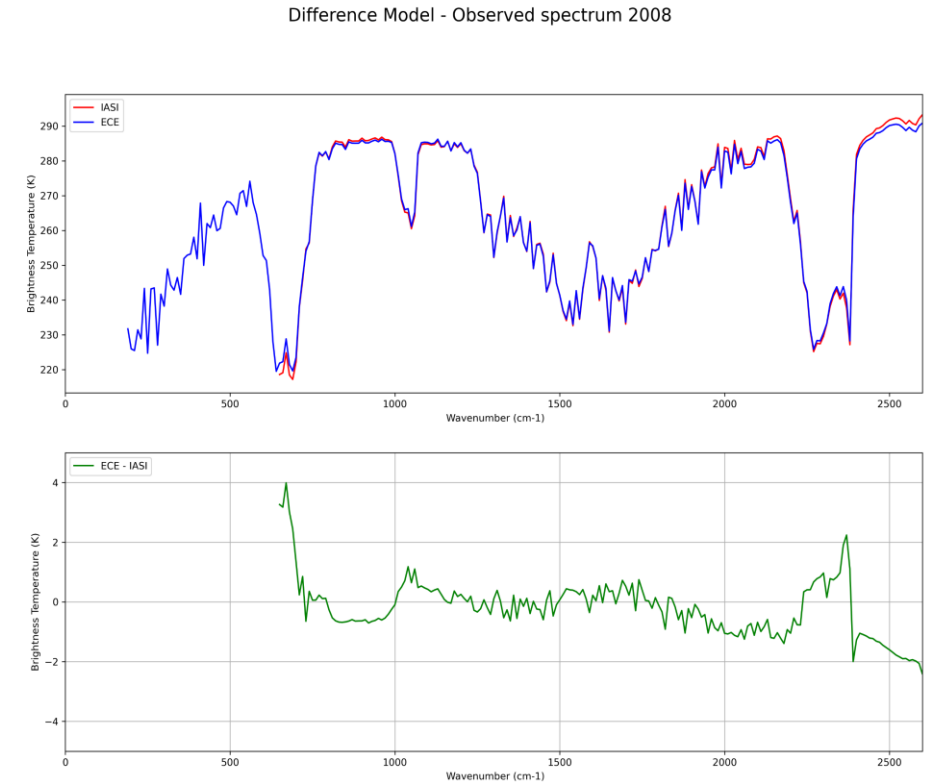
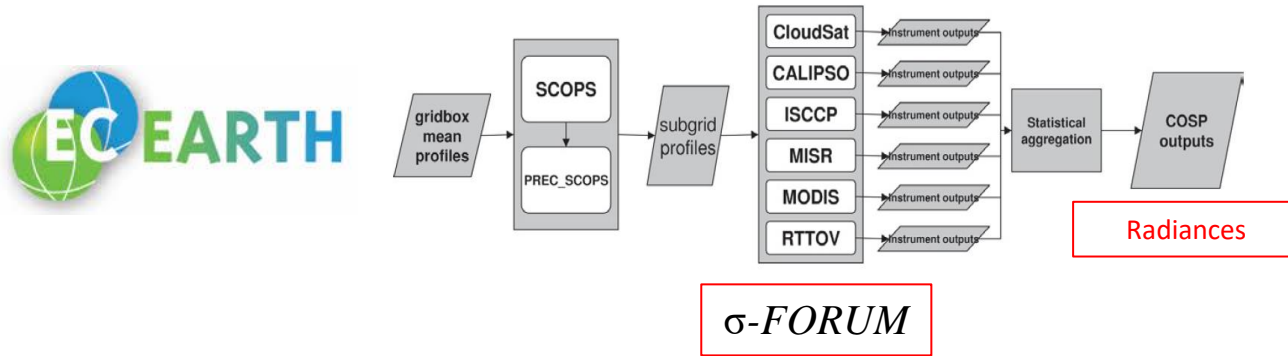


1) Global OLR Seasonal means (from 2000 to 2014) provided by a subset of CMIP6 models compared to CERES data - 2) Regional OLR fluxes Biases

Energy fluxes integrated over the whole Earth emission spectrum could be affected by compensation errors.

IASI/FORUM simulator inside the EC-Earth climate model

In anticipation of FORUM mission, which will provide nadir-looking radiances at the top of the atmosphere in the FIR/MIR (from 100 to 1600 cm^{-1}), we compare the MIR (from 645 to 2760 cm^{-1}) existing observations from IASI to **OLR radiances** extracted from the EC-Earth Climate Model (ECE)



1. Simulation with EC-Earth + COSP equipped with σ -FORUM in CLEAR-SKY condition is performed with prescribed sea-temperature and sea-ice extension over the period compatible with IASI measurements.
2. IASI CLEAR SKY climatology constructed from observations
3. Comparison of CLEAR-SKY zonal means radiances between model and observation over land/ocean and both.

Comparison of global Clear sky simulated (ECE) and observed (IASI) BT for 2008