Finanziato dall'Unione europea NextGenerationEU | Ministero dell'Università e della Ricerca | Italiadomani PIANO NAZIONALE DI RIPRESA E RESILIENZA

ASI - CNR - INAF EMM EARTH - MOON - MARS

Consiglio Nazionale delle Ricerche

PNRR Project – Task 1500-10 | Progetto: EMM – Earth Moon Mars

Optimization and upgrade of the KLIMA radiative transfer and inversion model

Hardware (c/o AdR CNR-FI, IFAC)

- 5 computing servers (2 CPUs AMD EPIC 9474@3.6GHz, provided with 768GB RAM DDR5, 43.5 TB of SSD raw storage and connectivity up to 100Gb Ethernet);
- SSD storage server with total raw capacity of 153.6 TB with connectivity up to 100Gb Ethernet;
- 16 ports 100Gb Ethernet switch;
- The network infrastructure is composed of a passive section of mono-modal optical fibers (type 96/125 OS2) connecting the EMM data-centers and laboratories, and an active section consisting of new fast network switches (the center is connected to internet router; the data centers and labs of IFAC, INO, IBE, IAC are in the different branches of the same network).

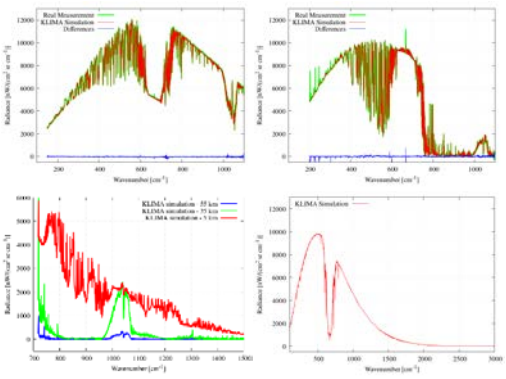
Software

- The KLIMA code used to simulate and analyse the spectral radiance acquired by remote sensing measurements of the atmosphere in all-sky conditions.
- KLIMA can be applied to various viewing geometries (limb, zenith and nadir) and spectral bands (from millimetre and sub-millimetre wave to the near-infrared).

Applications and know-how

- Data analysis for atmospheric remote sensing satellite, aircraft, balloon and ground missions;
- Impact studies and optimization studies of the requirements for atmospheric remote sensing satellite missions.

Facility Images



Example of simulated radiance at various observing geometries using KLIMA in different planetary atmospheres.

Scheme of the CNR Research Area of Firenze with the external fibre-optic backbone (blue lines) connecting building “F” (core) and buildings “B”, “D” e “DC-Area”.