HPC Project GLOMIR+ (GLObal MUSICA IASI Retrievals - plus)

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Satellite-based observations and processing chain

Observation geometry of the IASI instrument aboard the Metop satellites:



Schematics of the MUSICA IASI procesing chain:



Parallelism and global data generation

Parallel processing of 100 different satellite orbits and 20 different observations belonging to a single orbit, i.e. parallell processing of 2000 observations:



Example of global coverage for morning overpasses in 2014 (two satellite in orbit):



Global MUSICA IASI retrievals (contact: matthias.schneider@kit.edu)

30s: processing of one observation Parallel processing: 24h: processing of 5 million observations. Observations: 24h: 4 million obs. of 3

satellites (only 30% are processed).

Examples of $\{H_2O, \delta D\}$

pair distributions:





Project GLOMIR

- chain
- and N_2O) cycle research.



Research with MUSICA IASI $\{H_2O, \delta D\}$ data

Example of water cycle studies in the Sahel zone:

Development of efficient data flow and processing

Parallelism enables real time processing of observations from the currently orbiting three IASI instruments (≈4 million obervations each 24h).

Leading contribution to several international projects in the field of water cycle and greenhouse gas (CH₄

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