Regional Land Fluxes TCDR within the EUMETSAT CM SAF: Sensible and Latent Heat Fluxes.


Contact: william.moutier@meteo.be

Methodology - Adaptation from LSA SAF Approach

Inputs

- AL: Surface ALbedo
- DSSF: Shortwave flux at surface
- DSLF: Longwave flux at surface
- LST: Land Surface Temperature
- LAI: Leaf Area Index
- SM: Soil Moisture
- LCI: Land Cover of tiles
- FVi: Fraction of tiles
- Ta: Air temperature
- Td: Dew point temperature
- Pa: Surface pressure
- V: Wind speed components
- U: Wind speed components
- ST: Soil Temperature
- SM: Soil Moisture

Model

Tile pixel approach

For each tile i of the pixel

- Vegetation
- Forest
- Grassland
- Bare Soil
- Cropland
- Water

Surface energy balance

Heat fluxes

Model outputs

- Image k

Quality assessment

Various evaluation approaches:

- In-situ validation (Fluxnet stations).
- Models/Products inter-comparison (ECMWF, GLDAS, MOD16-ET, etc).
- Consistencies check (LSA SAF ET V2).
- Based on water balance

Soil Moisture (Regional product selection)

- Leaf Area Index (LAI) GLOBMAP [1]
- Scaled SM ERA-5 [2]
- Scaled SM ESA CCI [3]
- Scaled SM from the LST [4]

Clusterisation (kmeans) using the LAI / Climatic informations

Define LAI criterias to select the most appropriate products according to the ground conditions:

1. big
2. shjklk

Acocisoeach cluster to a specific product according to the statistic

Identify the best product according to the station

Comparison with scaled In-Situ SM and identification of valid stations (R>0.6 and MAD≤0.2)

52 selected

Progress in homogenizing input data for CDR

EUMETSAT Satellite Application Facility on climate Monitoring (CMSAF)

www.cmsaf.eu - contact.cmsaf@dwd.de

June 2019