

H01 new release : changes and improvements

Major algorithm improvements:

- Upgrade of the dynamical/meteorological component in the database used in the retrieval procedure. Four dynamical variables are considered: Omega (vertical motion) at 700 mb, CAPE, Moisture flux close to the surface, and Freezing level height; these variables are extracted from the operational ECMWF forecast at 3 or 6 hours.
- Determination of a pixel based quality flag associated to the precipitation retrieval; the flag is derived from the "Percentage of Confidence Index" (PCI) (ranging from 0 to 100), which is based on quality of input data, background surface, event type, and algorithm performance. PCI is converted into four discrete values of the quality flag: "missing data" (flag value 0), "poor" (flag value 1), "fair" (flag value 2), and "good" (flag value 3)

Other algorithm changes:

- Increased horizontal resolution of the surface precipitation rate, which now corresponds to the IFOV of the high frequency channels of SSMIS (i.e. 13.2 km x 15.5 km);
- Upgrade of the screening procedure of non-precipitating pixels, to achieve consistency with product H02 new release;
- Detection of frozen background surface;
- Retrieval of the phase of the precipitation (solid, liquid, mixed, unknown).

Product characteristics changes:

- Timeliness: it is conditioned by limited access to DMSP (via NOAA and UKMO); Foreseen 1h timeliness as a long term requirement
- Spatial resolution: 13.2 km x 15.5 km
- Sampling: 12.5 km

H02 new release : changes and improvements

Major algorithm improvements:

- Usage of a new optimal three-layer ANN (Artificial Neural Network) created with the goal of achieving consistency of precipitation pattern and estimates with respect to H01. ANN training database is derived from the same 60 CRM (Cloud Radiation Model) simulations and the same RTE (Radiative Transfer Equation) model used for product H01 new release; a unique ANN for all types of background surfaces so as to guarantee continuity of retrieved precipitation fields;
- Determination of a pixel based quality flag associated to the precipitation retrieval; the flag is derived from the "Percentage of Confidence Index" (PCI) (ranging from 0 to 100), which is based on quality of input data, background surface, event type, and algorithm performance. PCI is converted into four discrete values of the quality flag: "missing data" (flag value 0), "poor" (flag value 1), "fair" (flag value 2), and "good" (flag value 3)

Other algorithm changes:

- Upgrade of the screening procedure with detection of frozen background surface;
- Retrieval of the phase of the precipitation (solid, liquid, mixed, unknown).