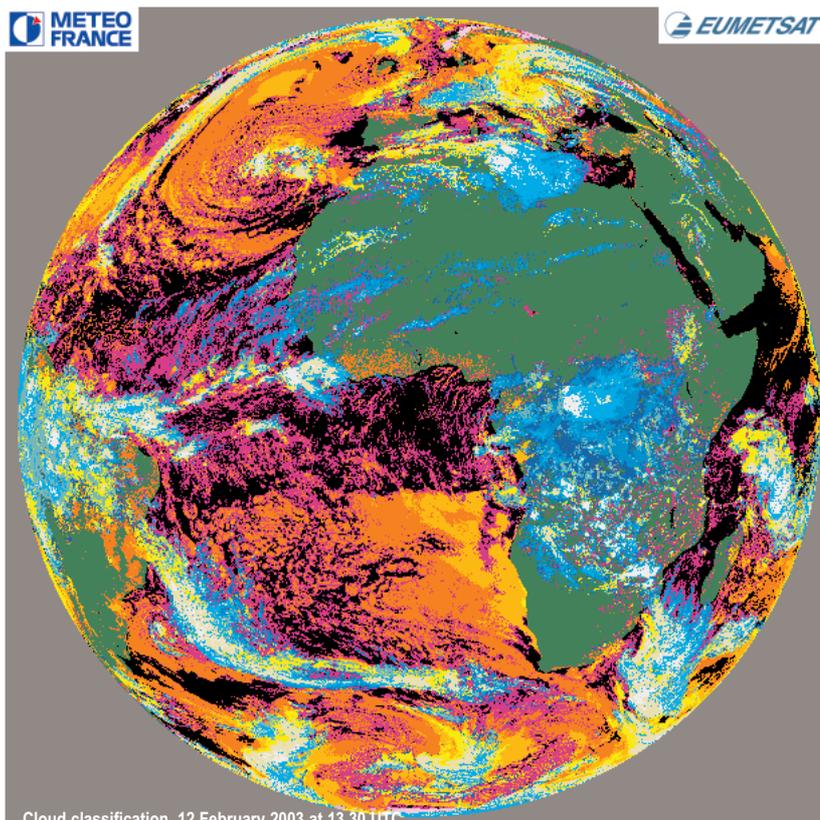


Nowcasting applications



MSG Cloud Type
25/03/2004
1200 UTC



Cloud classification, 12 February 2003 at 13.30 UTC

undefined
broken
sem. above
sem. thick
sem. med.
sem. thin
very high
very high cum.
high
high cum.
med.
med. cum.
low
low cum.
very low
very low cum.
sea.ice
land.snow
sea
land
noproc.

Satellites are an inestimable tool for observing local and/or rapidly developing phenomena. The operational availability of Meteosat-8 with its frequent observations and its resolution, brings decisive progress in the location and the monitoring of phenomena that often place the population in danger.

Cloud classification:

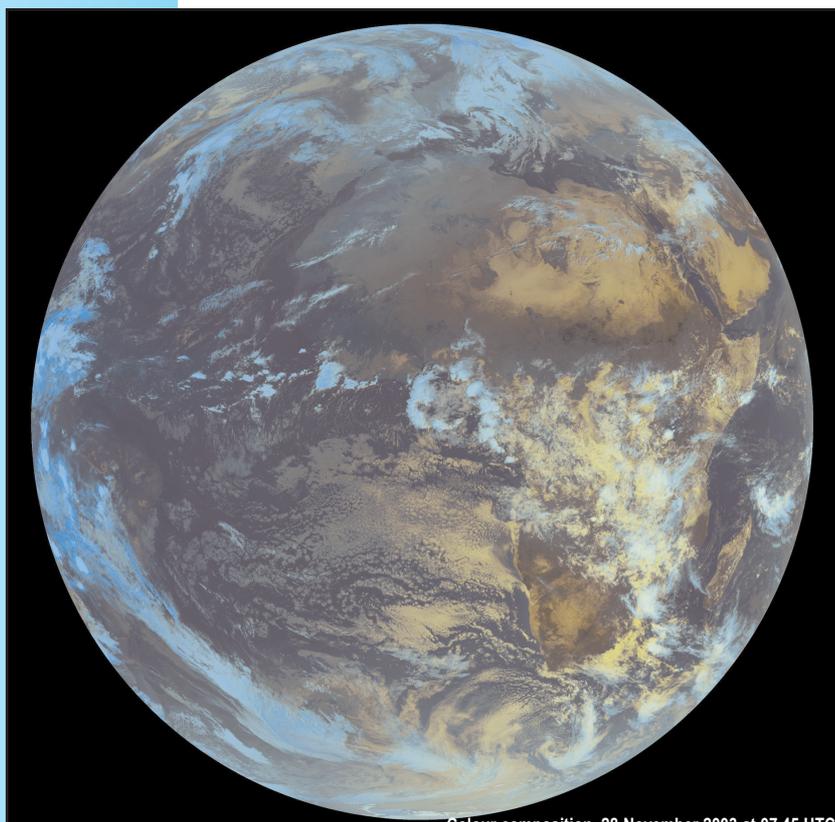
The "cloud classification" product illustrated opposite provides automatic discrimination between areas of clear sky and cloud-covered areas and shows these different cloud areas using various categories (low cloud, semi-transparent high cloud, etc.). It can be viewed directly by the forecaster or serve as input data for other applications (temperature and height of the cloud top, precipitating clouds, etc.).

Colour composite image:

Colour composition images are created using different channels of the same scene. The principle is to produce reference images for each R, G and B colour component from the different channels then superpose these three colours using video channels. The problem lies in selecting the three well-chosen reference images that contain the useful information.

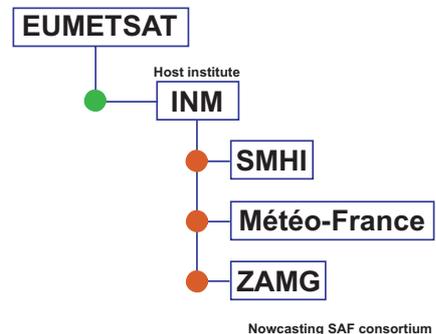
By day, the visible channel is associated with the green, infrared with the blue and a combination of the visible and infrared channels is associated with the red.

As the visible channel is not available by night, the 3.9 µm channel is associated with the red, the 11 µm channel with the green and the 12 µm with the blue.



Colour composition, 28 November 2003 at 07.45 UTC

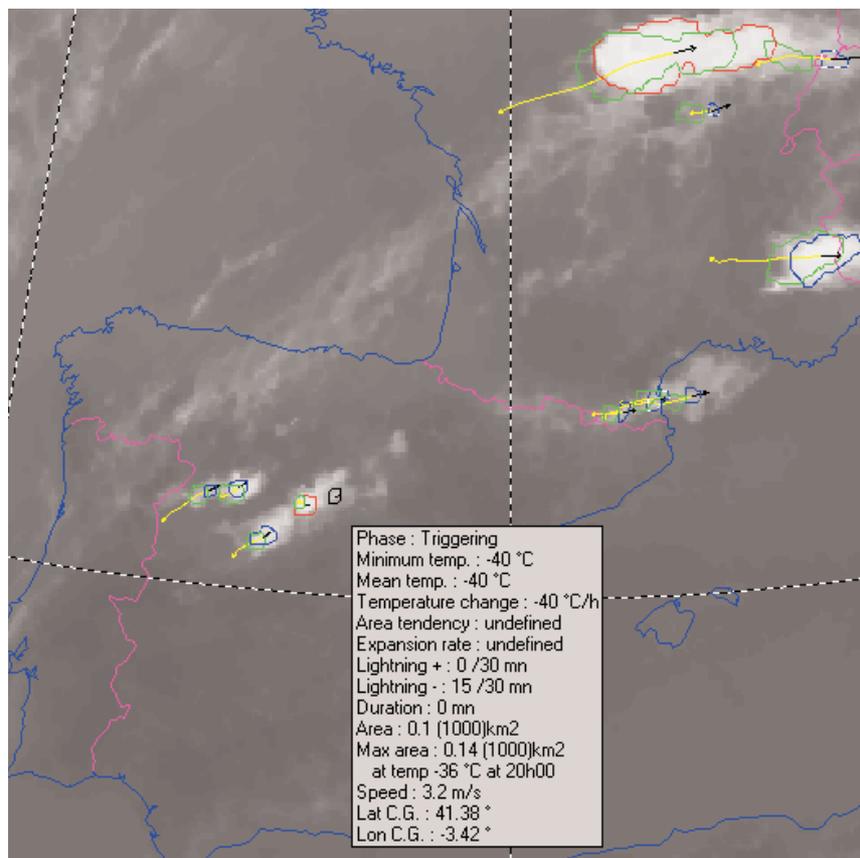
Within the international framework of the SAF (satellite applications facilities) of EUMETSAT, 1997 saw the launch of the "nowcasting and very short range forecasting" SAF. The consortium of this SAF contains the host institute INM (Spain) and the co-operating institutes: SMHI (Sweden), ZAMG (Austria) and Météo-France. Its development phase began in February 1997 and terminated in February 2002. The fine tuning and validation of the algorithms based on the MSG images began in March 2002 and should continue for 3 years.



The aim of this SAF is to develop 12 operational products that use MSG and EPS (EUMETSAT Polar System) observations:

	Products derived from MSG data	Products derived from NOAA/EPS data
Clouds	Cloud mask (CMa) Cloud type (CT) Cloud top temperature and height (CTTH)	Cloud mask (CMa) Cloud type (CT) Cloud top temperature and height (CTTH)
Precipitations	Precipitating clouds (PC) Convective rainfall rate (CRR)	Precipitating clouds (PC)
Air masses	Total precipitable water (TPW) Layer precipitable water (LPW) Stability analysis (SAI) Air mass analysis (AMA)	
Winds	High resolution winds (HRW)	
Storms	Rapid developing thunderstorms (RDT)	
Conceptual models	Automatic satellite image interpretation (ASII)	

The CMS of Météo-France develops and maintains the following modules: cloud mask (CMa), cloud type (CT) and cloud top temperature and height (CTTH) produced from the MSG.



Convective system monitoring, situation on the 30 May 2001 at 20.00 UTC

RDT

The nowcasting team of the Météo-France Forecasting Department also develops the RDT (Rapid Developing Thunderstorm) product that enables particularly rapid development convective systems to be identified, monitored and documented. In these files, the convective systems are shown in the form of objects containing a list of their satellite-based (size, speed, cloud top temperature, cooling rate, expansion rate, etc.) and electrical (number of impacts detected under the systems) characteristics.