

# Land Surface Observations monitoring

## Conventional Observations:

Conventional land surface observations have been monitored in operations from IFS cycle 40r1, since November 2013.

- [SYNOP Snow depth observations](#)
- [SYNOP two-meter temperature observations](#)

## Satellite Observations:

- [ASCAT-A and ASCAT-B soil moisture monitoring](#)  
The C-band active sensors ASCAT-A and ASCAT-B on the MetOp series were launched in 2006 and 2012, respectively. The EUMETSAT (European Organisation for the Exploitation of Meteorological Satellites) ASCAT surface soil moisture product is the first operational soil moisture product. It is available in near-real time on EUMETCast (which is the EUMETSAT near-real time dissemination system) and it has been monitored operationally at ECMWF since September 2009 for ASCAT-A and since December 2012 for ASCAT-B.
- [SMOS Brightness Temperature monitoring](#)  
The European Space Agency (ESA) Soil Moisture and Ocean Salinity (SMOS) mission was launched in 2009. Based on L-band passive microwave measurements, SMOS is the first mission dedicated to providing information about soil moisture globally at about 40km resolution. SMOS brightness temperatures have been monitored at ECMWF in near-real time since November 2010. It became operational in November 2013 with IFS cycle 40r1.
- [NESDIS Snow and Ice mapping System \(IMS\)](#)

The IMS snow cover product combines ground observations and satellite data from microwave and visible sensors (using geostationary and polar orbiting satellites) to provide snow cover information in all weather conditions. The IMS product is available daily for the northern hemisphere. It has been monitored operationally at ECMWF since November 2013. IMS provides a binary information on snow cover (snow or no snow). The model first guess snow cover is compared to that of IMS using a contingency table. Monitoring statistics are expressed using the four elements of the contingency table: Miss rate, Hit rate, false alarm rate and correct-nulls.