

The use of HSAF products in Weather Watching System

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Centro Nazionale di Meteorologia e Climatologia Aeronautica

ECMWF/H-SAF and HEPEX Workshops on coupled hydrology
Reading (UK), 2014 November 3-7



- Sardinia flooding
- Liguria flooding
- H-SAF products in Weather Watching System

Sardinia Flooding

November 18th, 2013

Sardinia Flooding

November 18th, 2013



Sardinia Flooding

November 18th, 2013



Sardinia Flooding

November 18th, 2013



Sardinia Flooding

November 18th, 2013

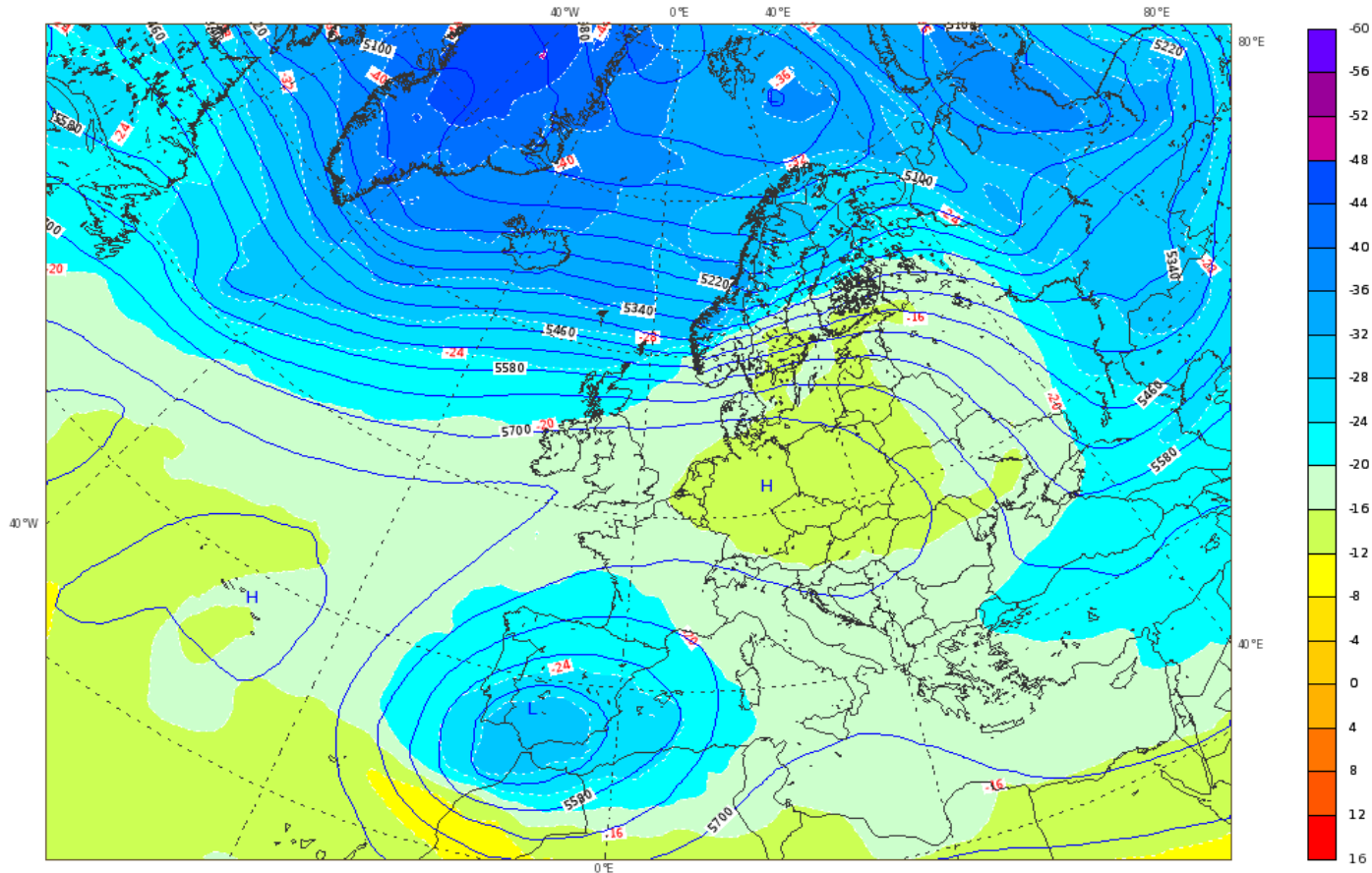


Sardinia Flooding

November 18th, 2013



ECMWF 17 Novembre 2013 00UTC Forecast T+0 VT: Domenica 17 Novembre 2013 00UTC
EUROATLANTICO - Geopotenziale 500 hPa + Temperatura 500 hPa

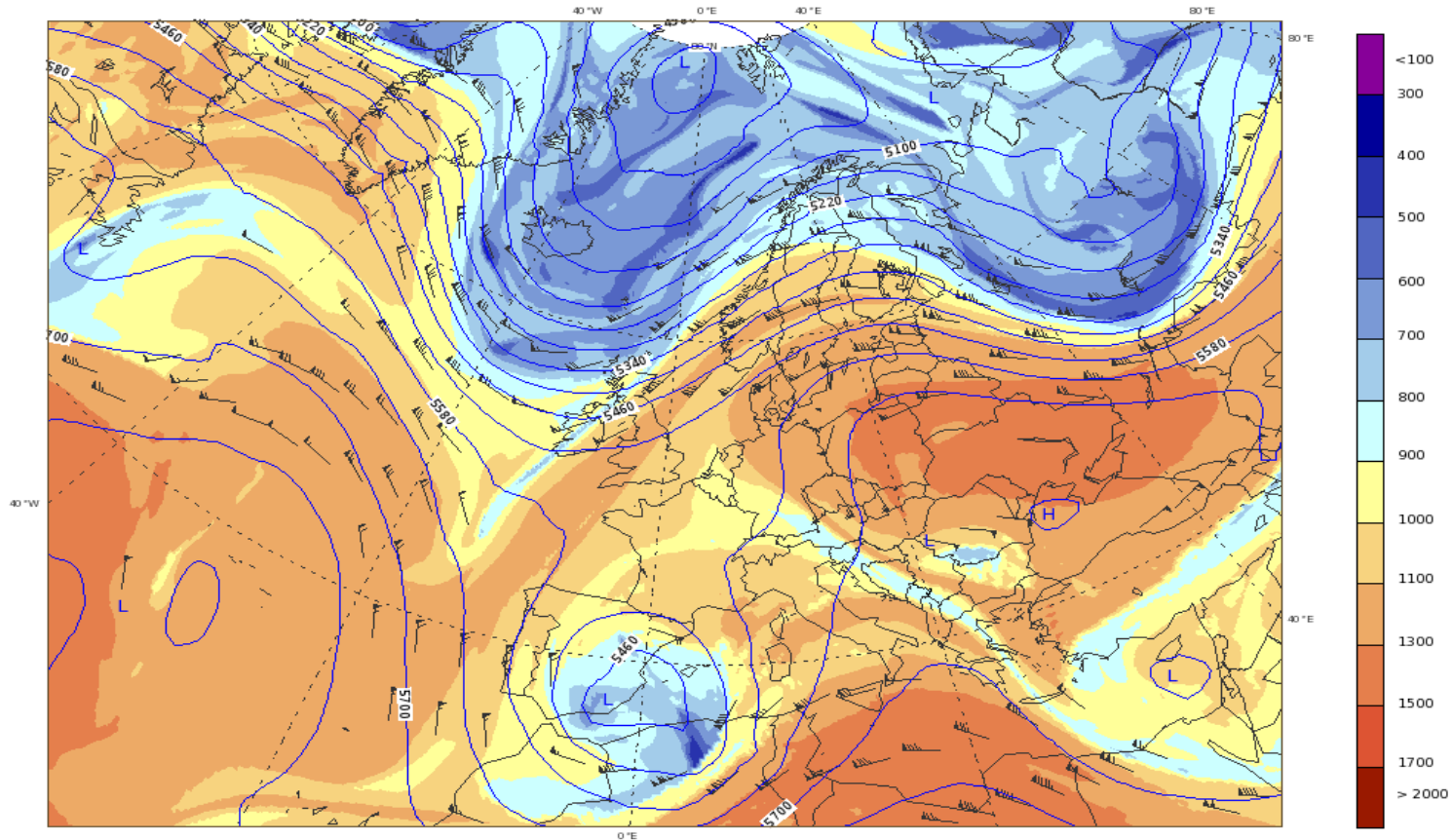


Sardinia Flooding

November 18th, 2013



ECMWF 18 Novembre 2013 00UTC Forecast T+6 VT: Lunedì 18 Novembre 2013 06UTC
EUROATLANTICO- Altezza della tropopausa dinamica (dam geop)
Vento a 300 hPa + Geopotenziale a 500 hPa



Sardinia Flooding

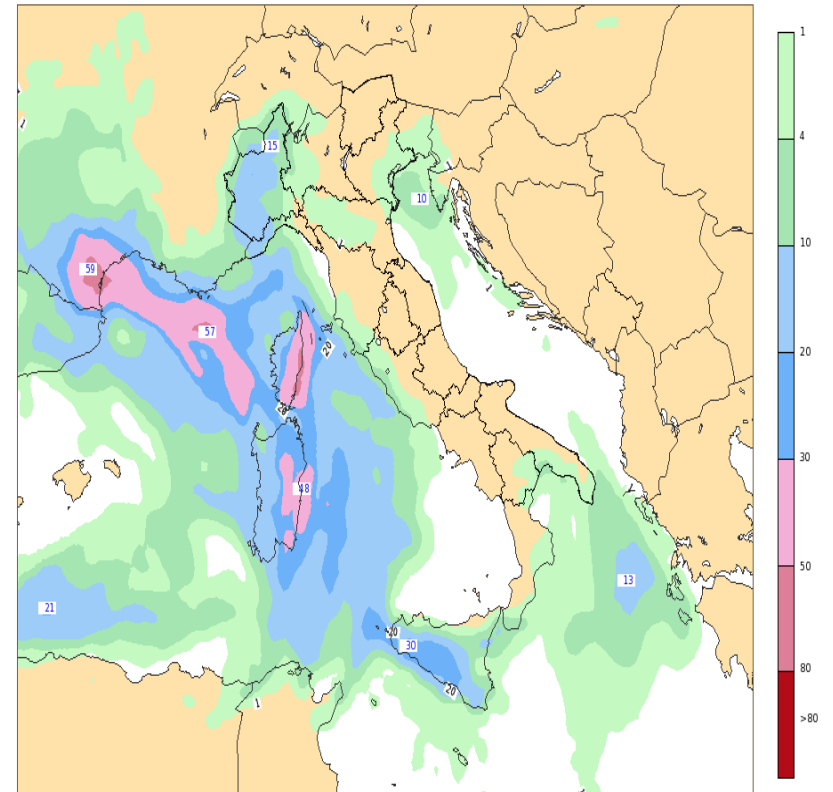
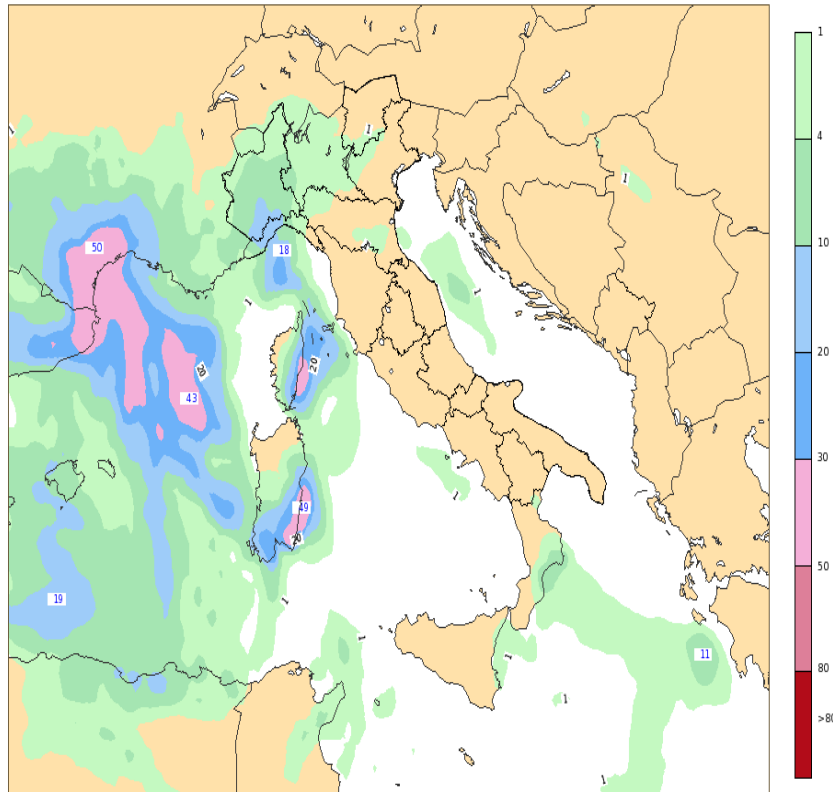
November 18th, 2013



ECMWF 17 Novembre 2013 00UTC Forecast T+36 VT: Lunedì 18 Novembre 2013 12UTC
ITALIA - Precipitazioni cumulate nelle 12 ore precedenti (mm)



ECMWF 17 Novembre 2013 00UTC Forecast T+48 VT: Martedì 19 Novembre 2013 00UTC
ITALIA - Precipitazioni cumulate nelle 12 ore precedenti (mm)



Sardinia Flooding

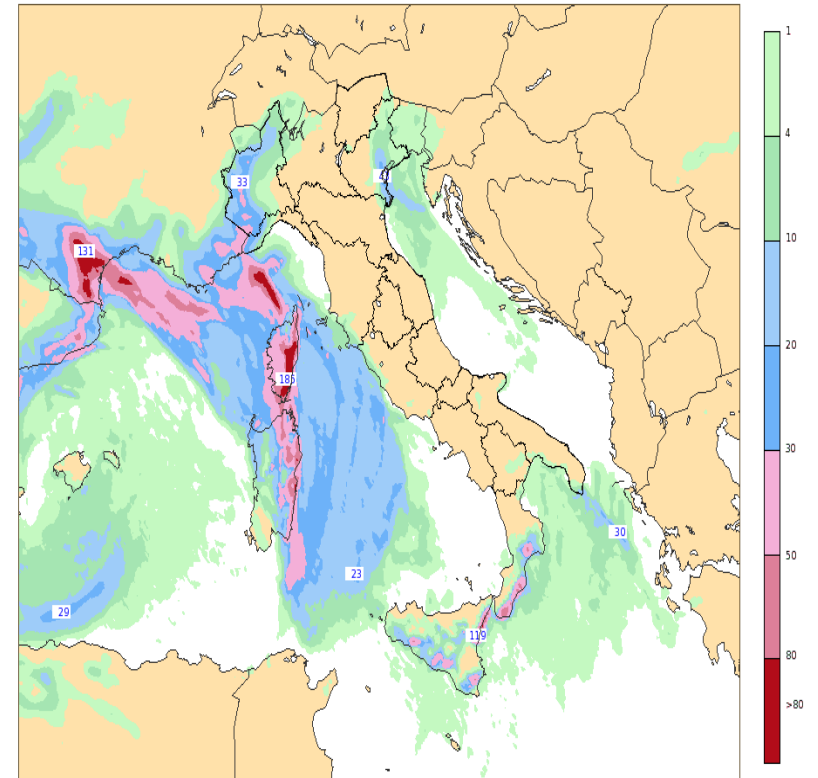
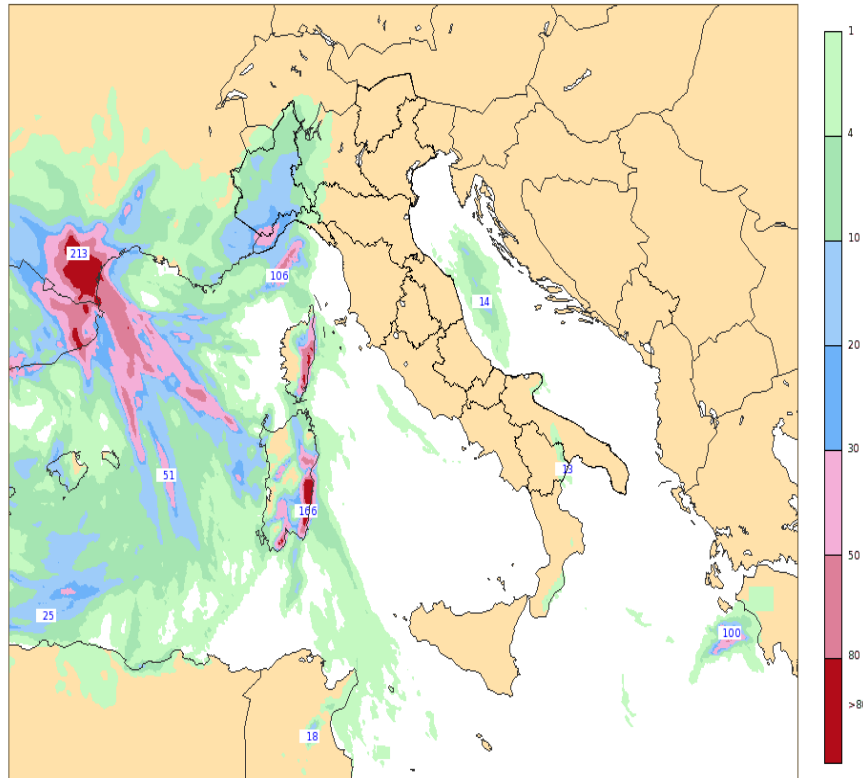
November 18th, 2013



COSMOE 17 Novembre 2013 00UTC Forecast T+36 VT: Lunedì 18 Novembre 2013 12UTC
ITALIA - Precipitazioni cumulate nelle 12 ore precedenti (mm)

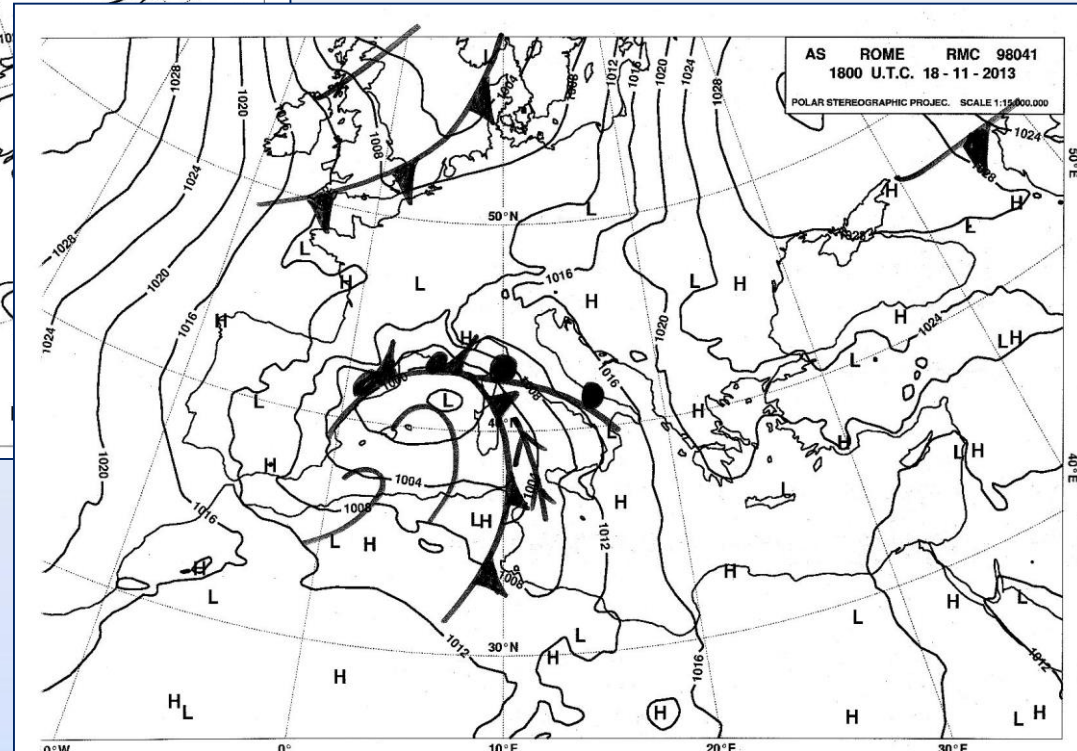
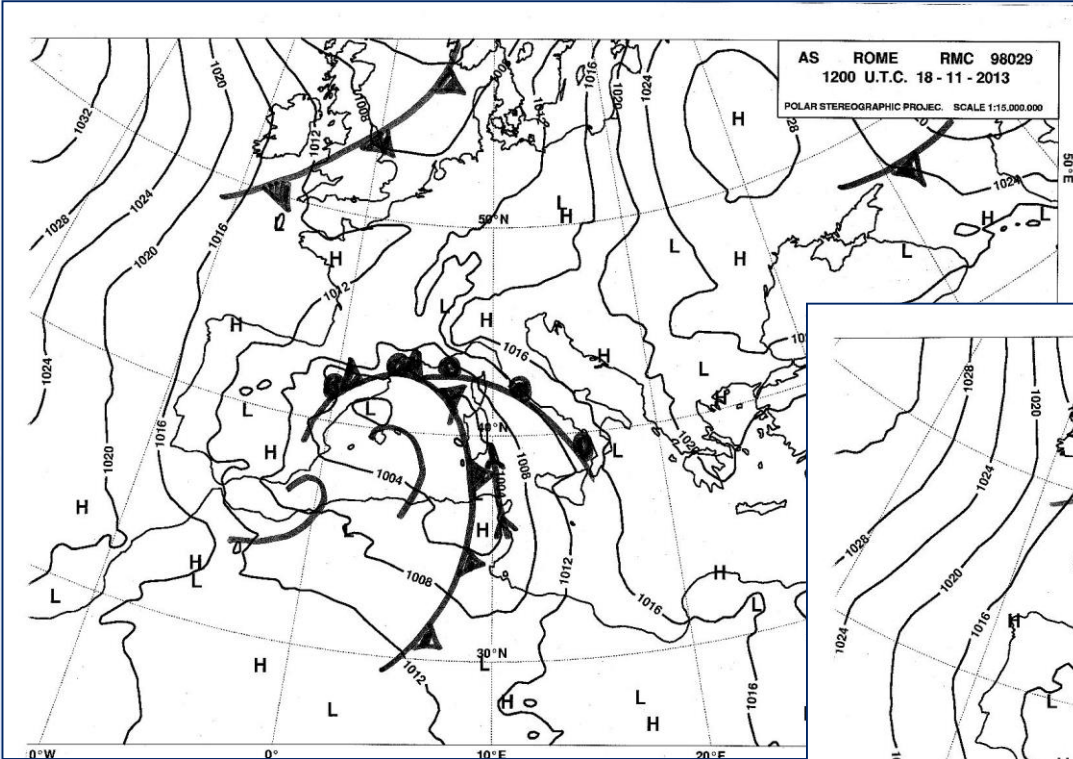


COSMOE 17 Novembre 2013 00UTC Forecast T+48 VT: Martedì 19 Novembre 2013 00UTC
ITALIA - Precipitazioni cumulate nelle 12 ore precedenti (mm)



Sardinia Flooding

November 18th, 2013

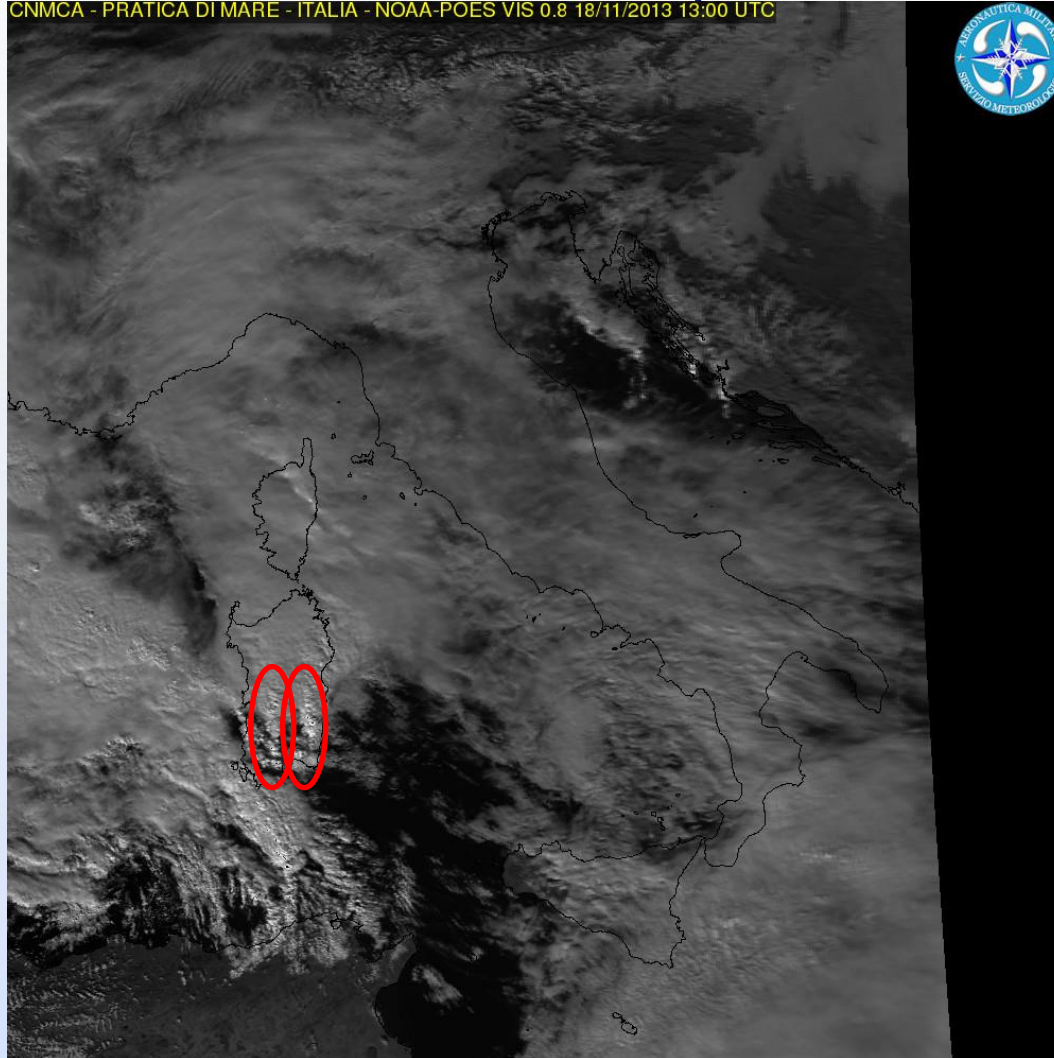


Sardinia Flooding

November 18th, 2013



CNMCA - PRATICA DI MARE - ITALIA - NOAA-POES VIS 0.8 18/11/2013 13:00 UTC

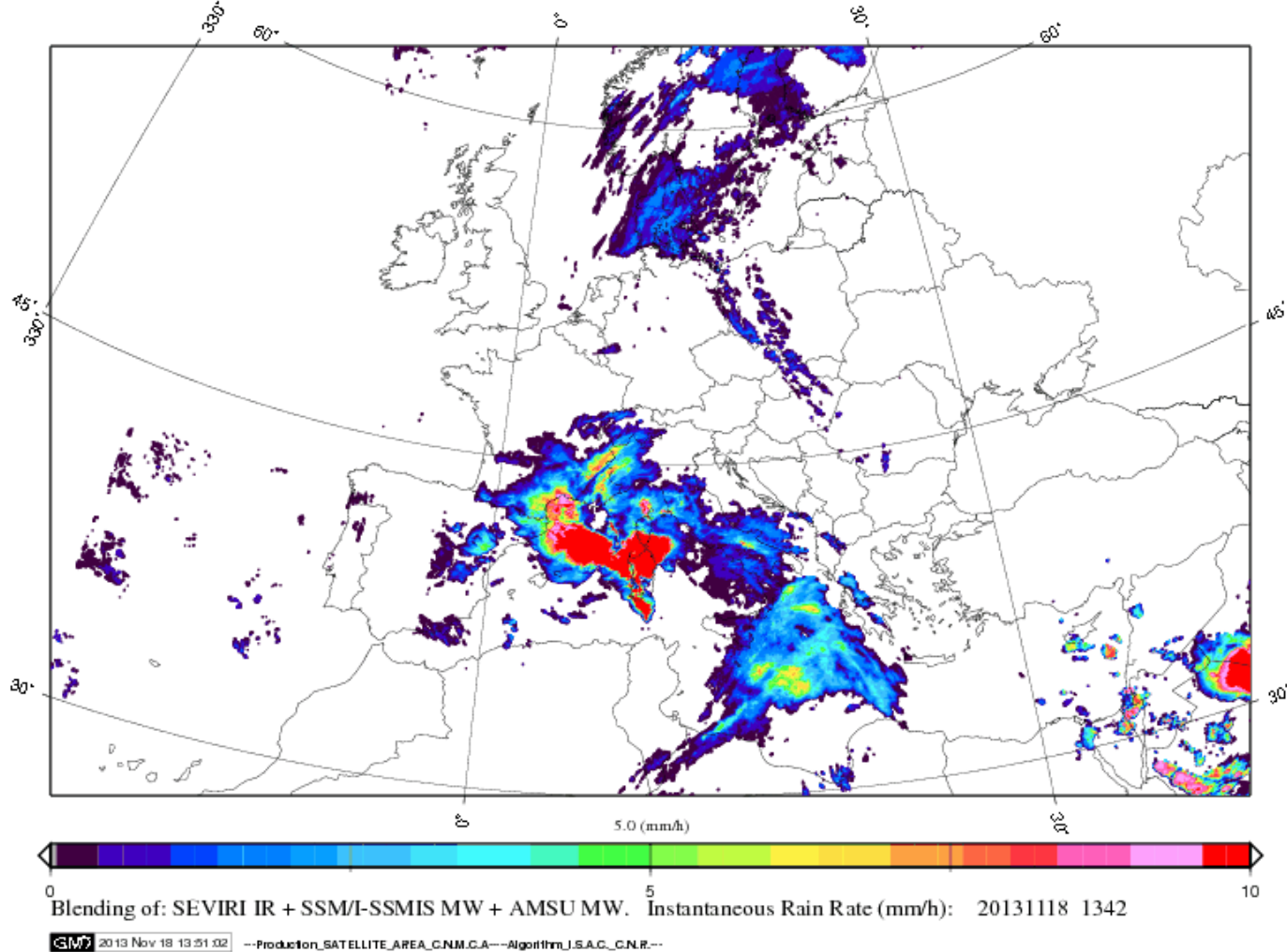


Sardinia Flooding

November 18th, 2013



EUMETSAT H-SAF PR-OBS-3 Instantaneous Rain Rate retrieved from IR-MW blending data

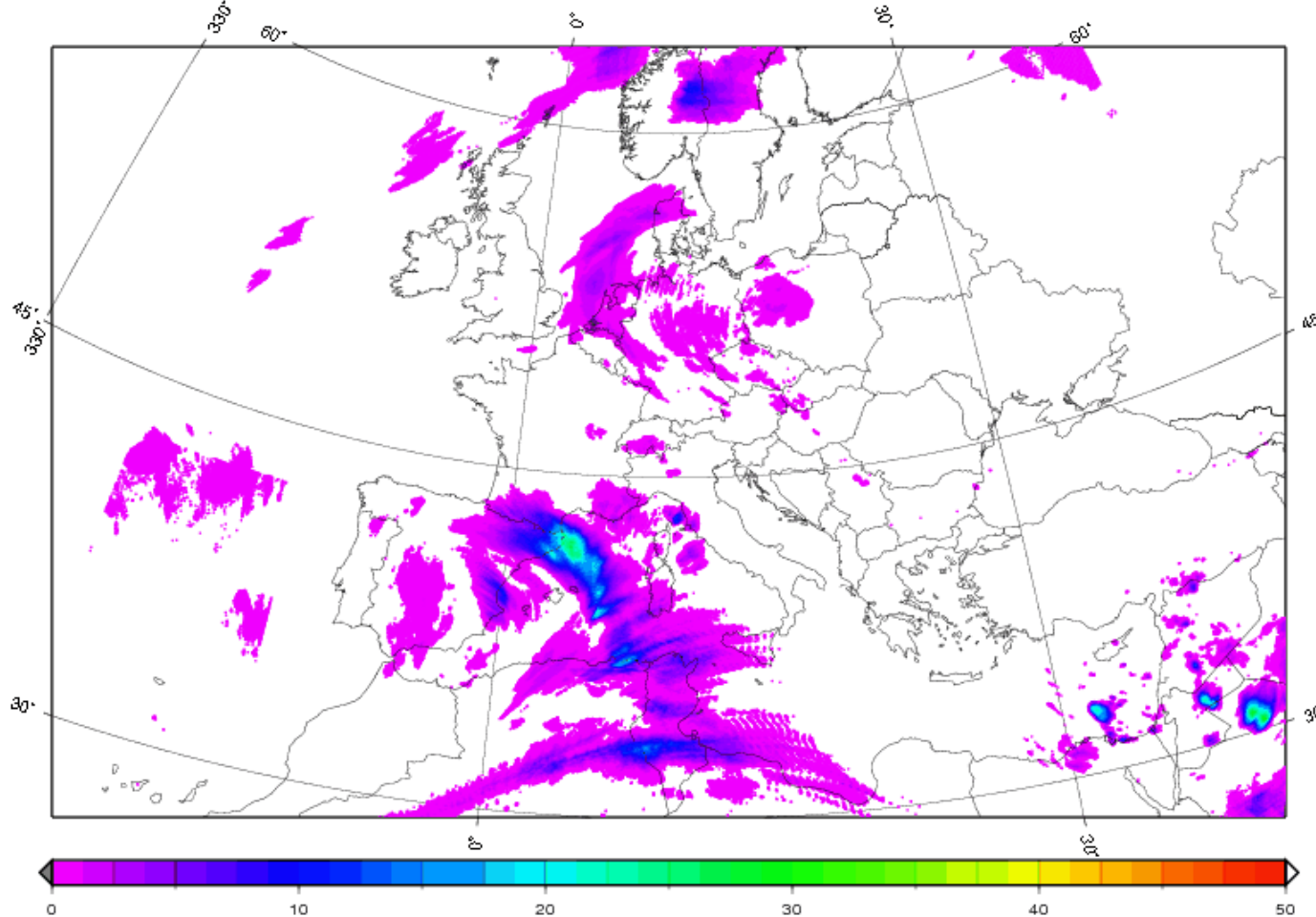


Sardinia Flooding

November 18th, 2013



EUMETSAT H-SAF PR-OBS-5 Accumulated Precipitation in the previous 3 hours



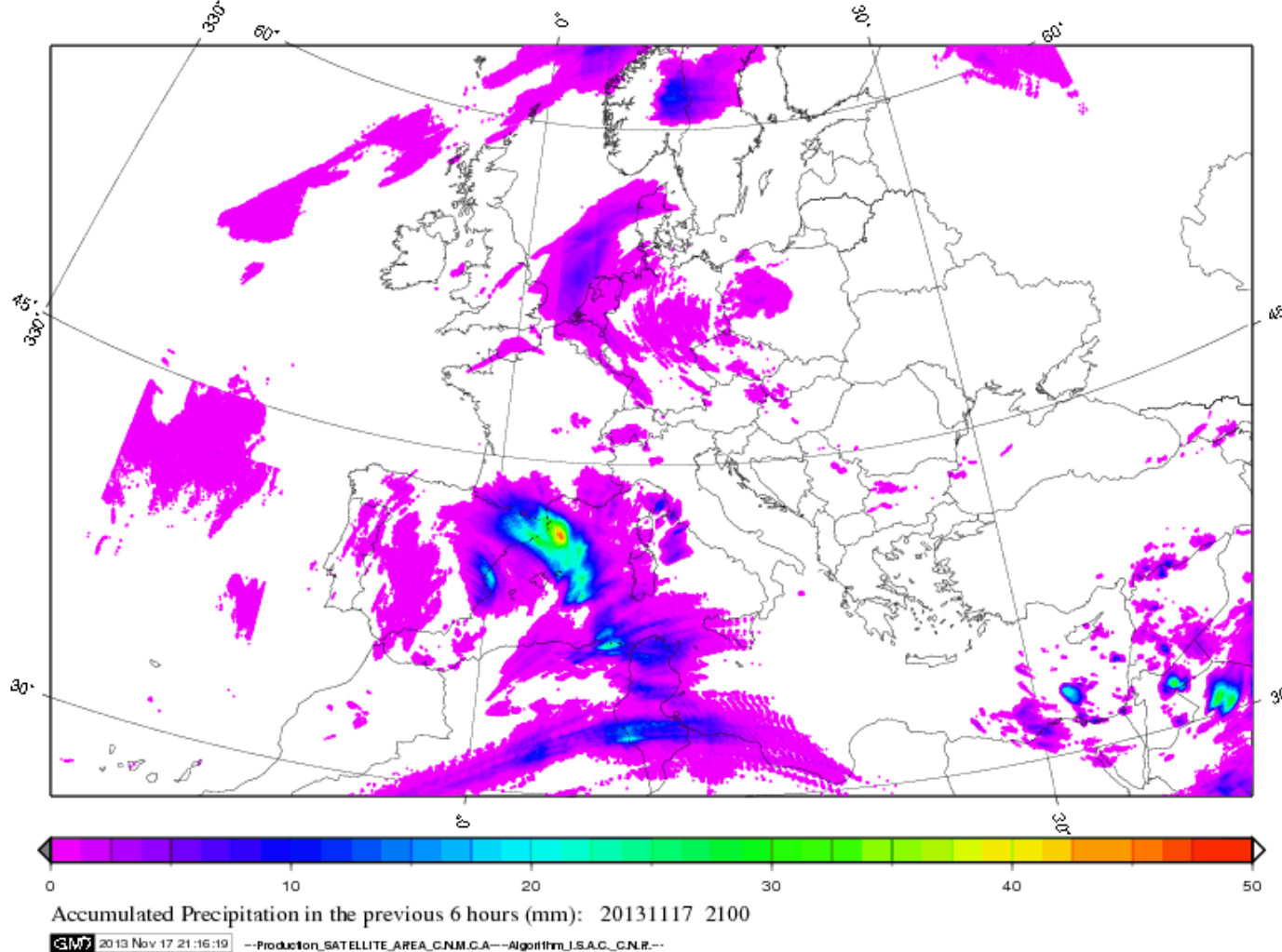
Accumulated Precipitation in the previous 3 hours (mm): 20131117 2100

CM7 2013 Nov 17 21:15:34 --Production_SATELLITE_AREA_CN.M.C.A.--Algorithm_I.S.A.G._C.N.R.--

Sardinia Flooding

November 18th, 2013

EUMETSAT H-SAF PR-OBS-5 Accumulated Precipitation in the previous 6 hours

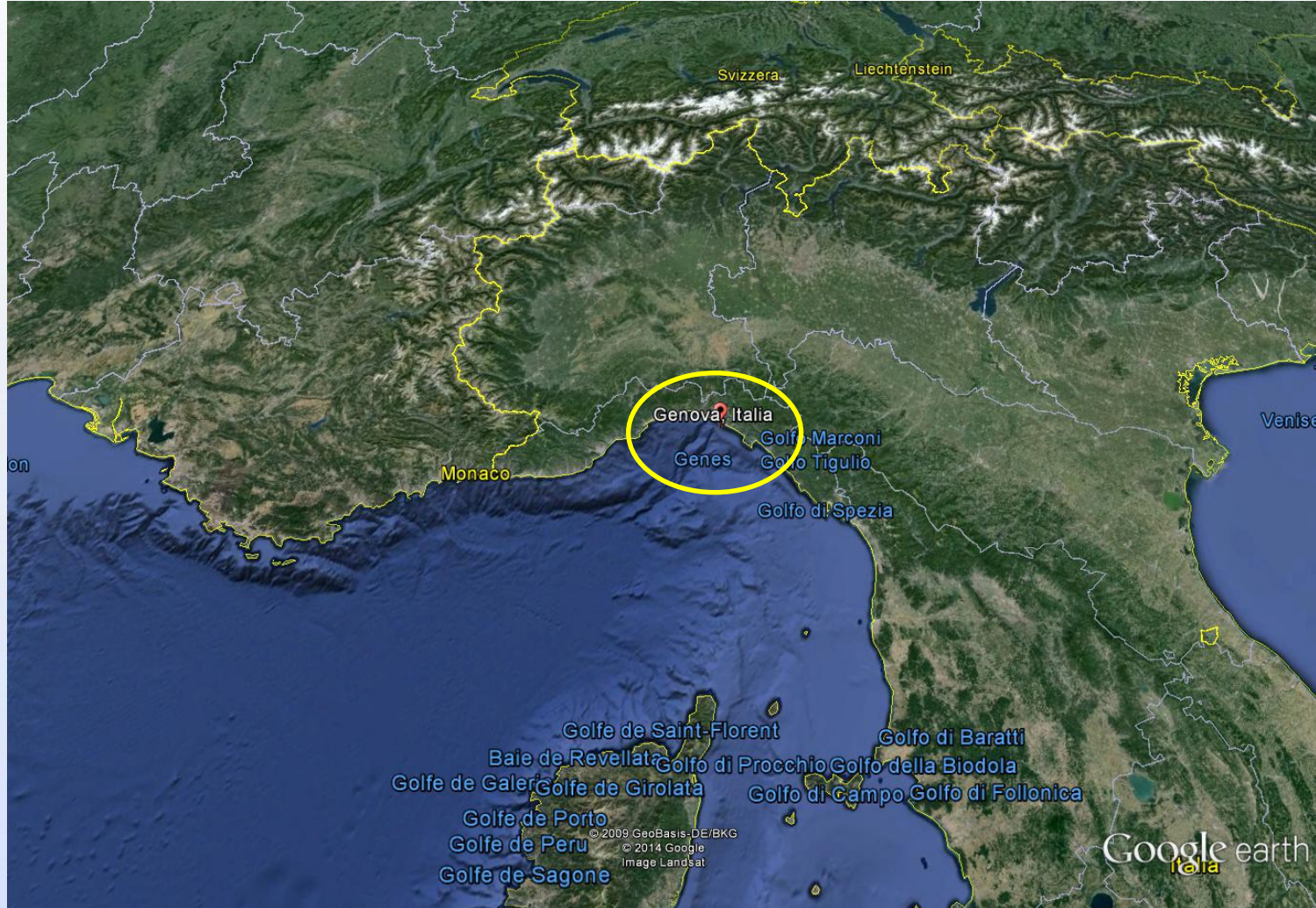


Liguria Flooding

October 9th-10th, 2014

Liguria Flooding

October 9th- 10th, 2014



Liguria Flooding

October 9th- 10th, 2014



Liguria Flooding

October 9th- 10th, 2014



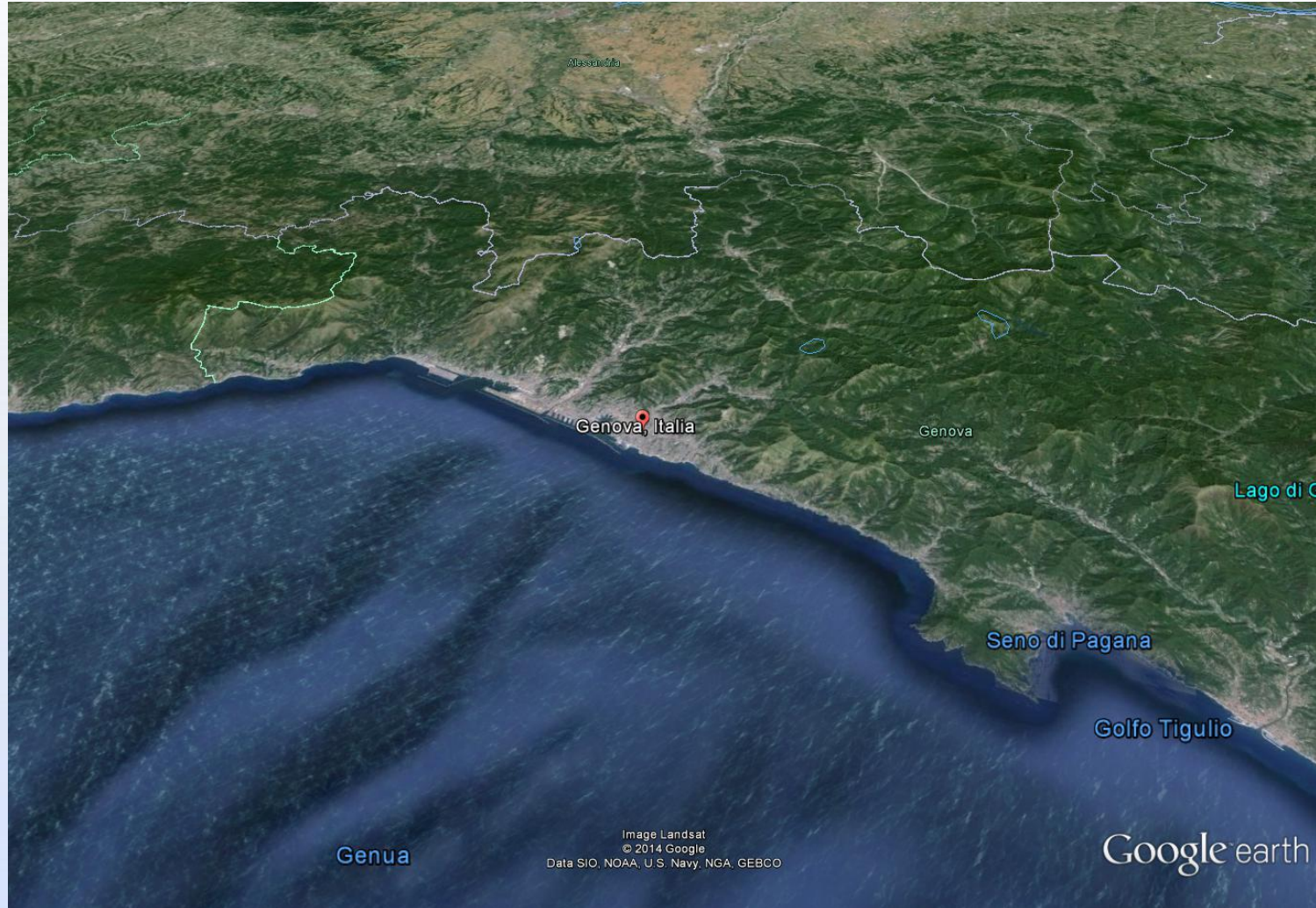
Liguria Flooding

October 9th- 10th, 2014



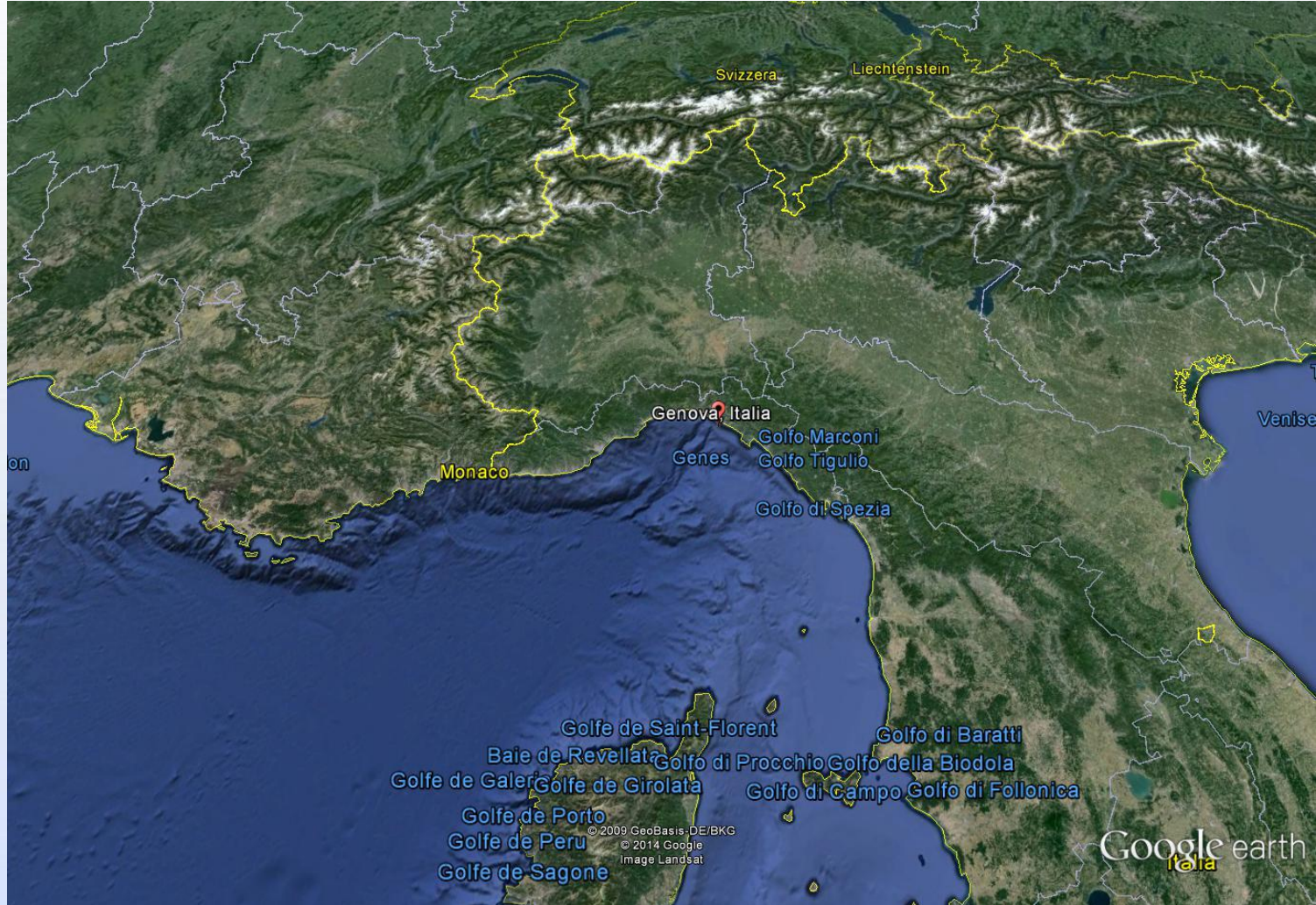
Liguria Flooding

October 9th- 10th, 2014



Liguria Flooding

October 9th- 10th, 2014

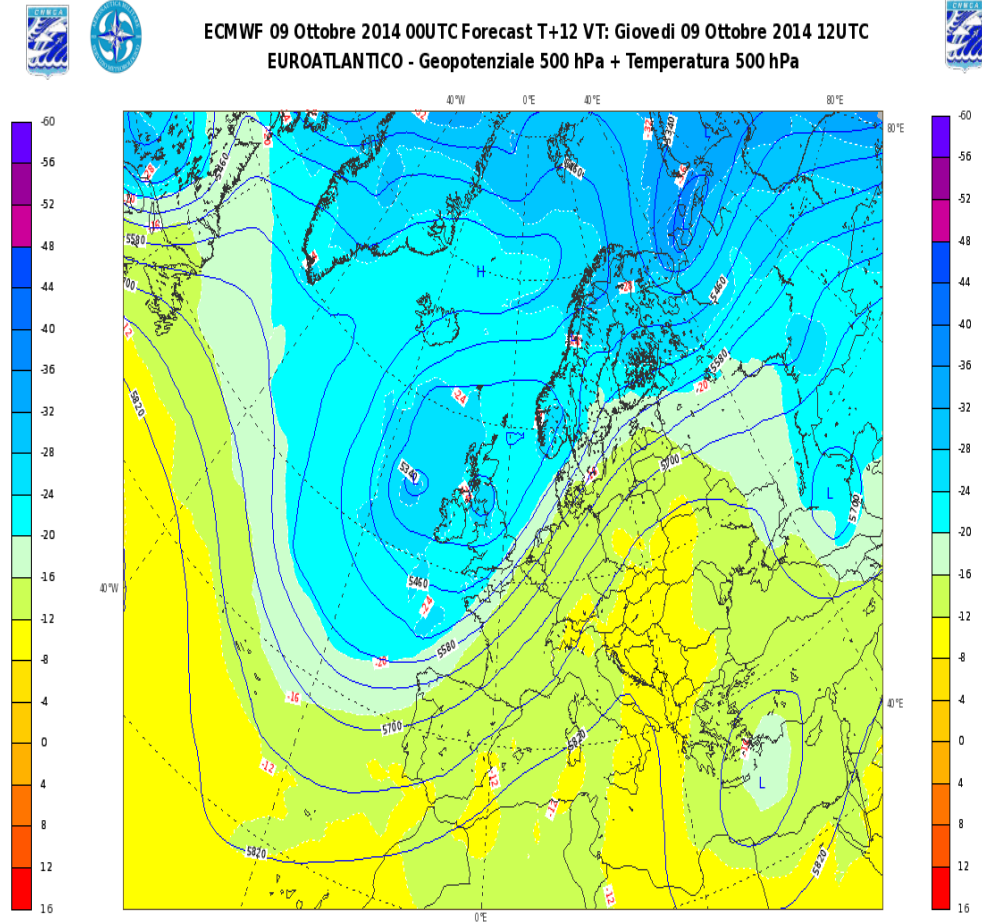
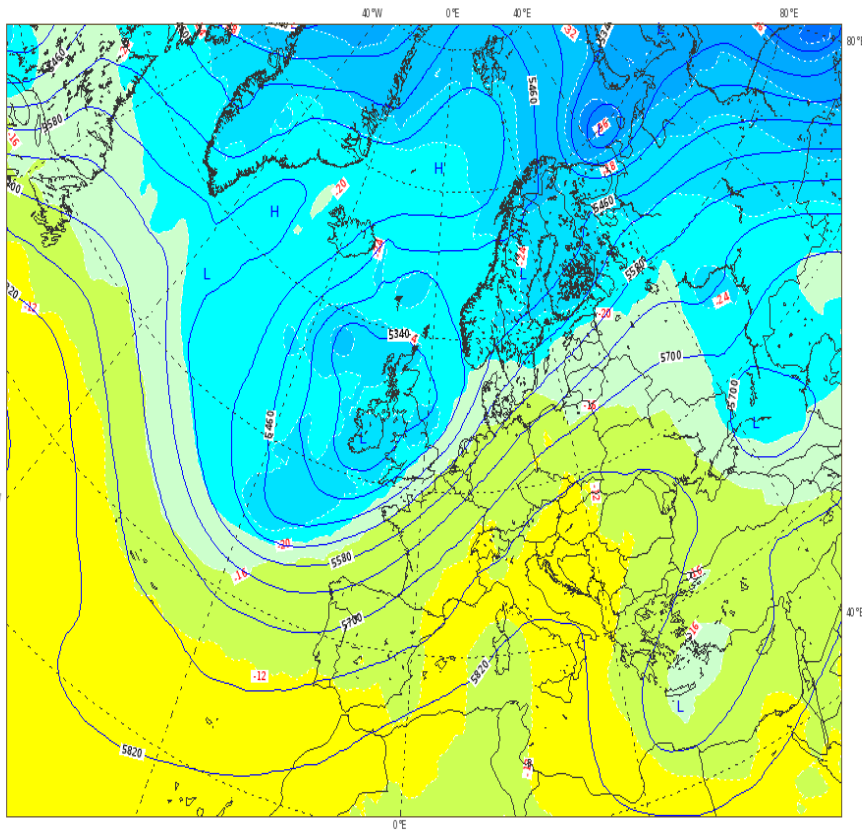


Liguria Flooding

October 9th- 10th, 2014

ECMWF 09 Ottobre 2014 00UTC Forecast T+0 VT: Giovedì 09 Ottobre 2014 00UTC
EUROATLANTICO - Geopotenziale 500 hPa + Temperatura 500 hPa

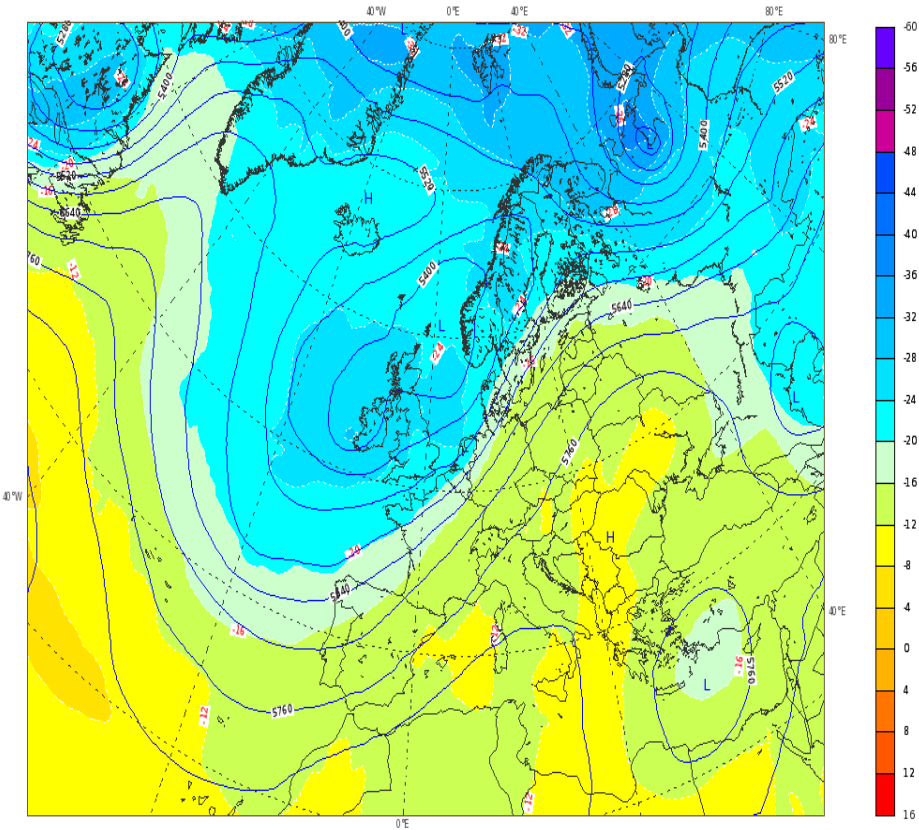
ECMWF 09 Ottobre 2014 00UTC Forecast T+12 VT: Giovedì 09 Ottobre 2014 12UTC
EUROATLANTICO - Geopotenziale 500 hPa + Temperatura 500 hPa



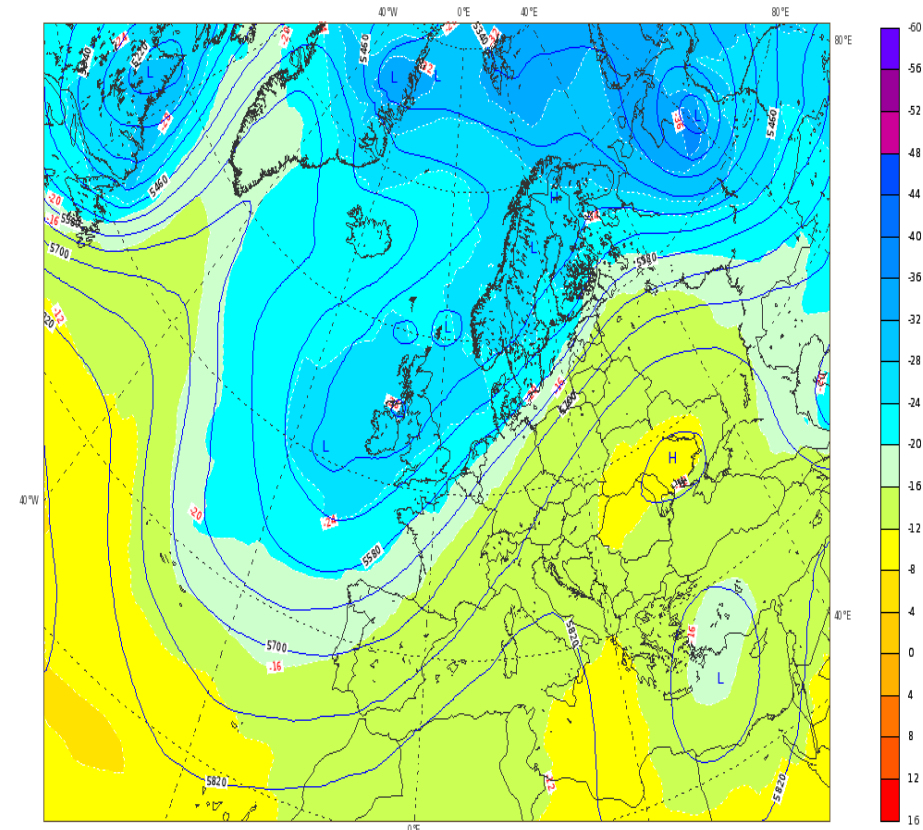
Liguria Flooding

October 9th- 10th, 2014

ECMWF 10 Ottobre 2014 00UTC Forecast T+0 VT: Venerdì 10 Ottobre 2014 00UTC
EUROATLANTICO - Geopotenziale 500 hPa + Temperatura 500 hPa



ECMWF 10 Ottobre 2014 00UTC Forecast T+12 VT: Venerdì 10 Ottobre 2014 12UTC
EUROATLANTICO - Geopotenziale 500 hPa + Temperatura 500 hPa



Liguria Flooding

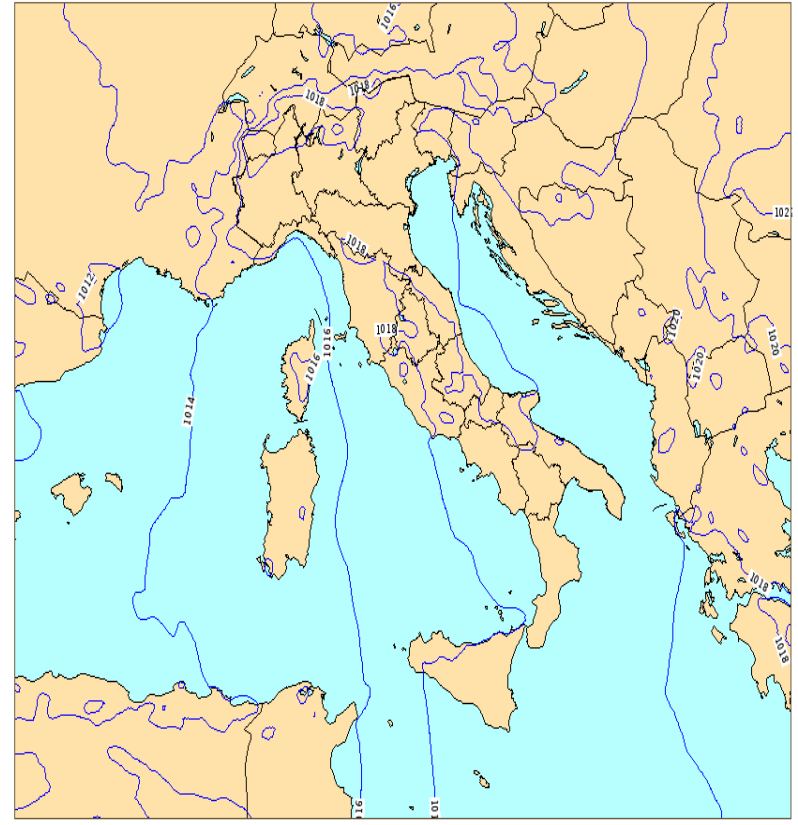
October 9th- 10th, 2014



COSMOME 09 Ottobre 2014 00UTC Forecast T+12 VT: Giovedì 09 Ottobre 2014 12UTC
ITALIA - Pressione al suolo (hPa)



COSMOME 10 Ottobre 2014 00UTC Forecast T+12 VT: Venerdì 10 Ottobre 2014 12UTC
ITALIA - Pressione al suolo (hPa)

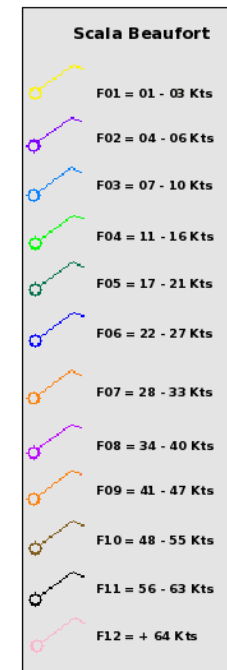
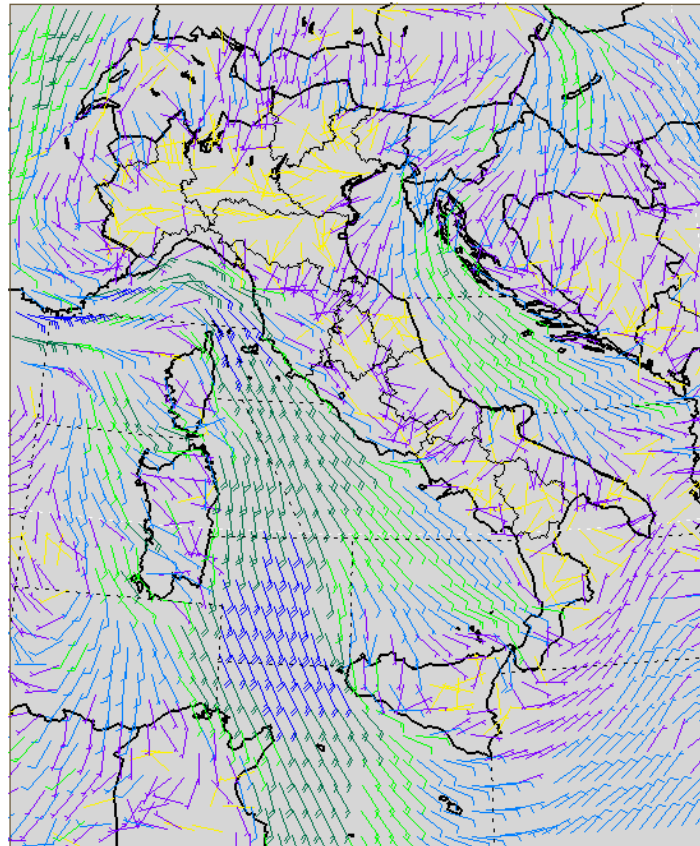


Liguria Flooding

October 9th- 10th, 2014

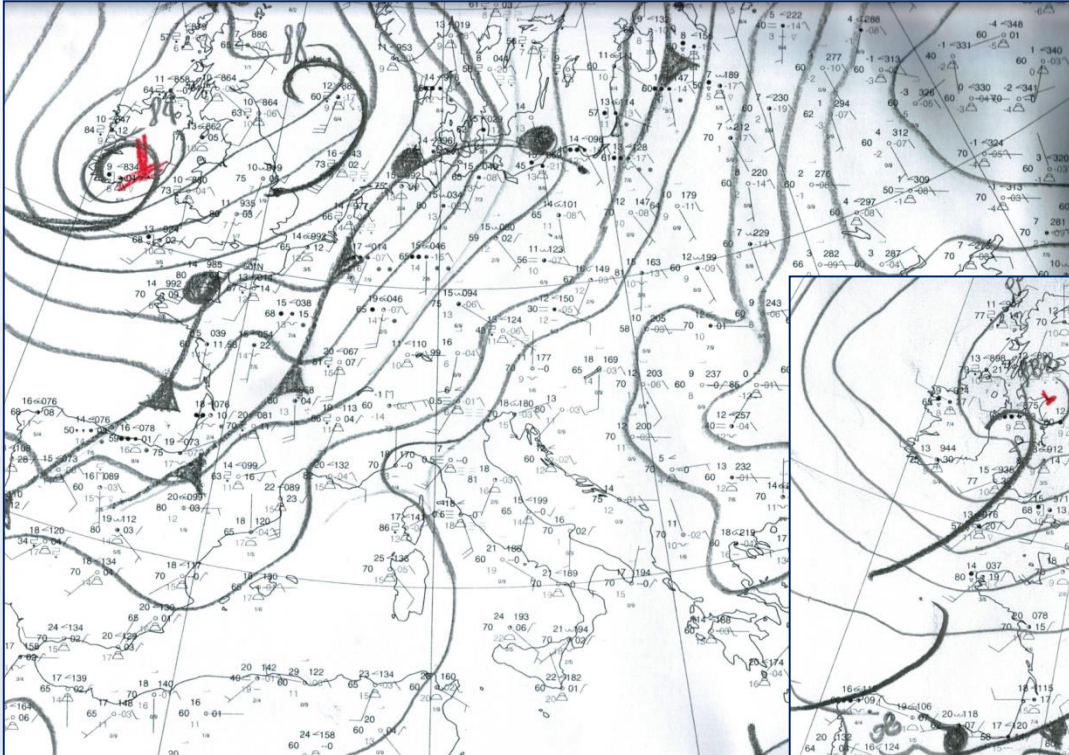


COSMOME 09 Ottobre 2014 00UTC Forecast T+6 VT: Giovedì 09 Ottobre 2014 06UTC
ITALIA - Vento previsto a 10 metri (Kts)

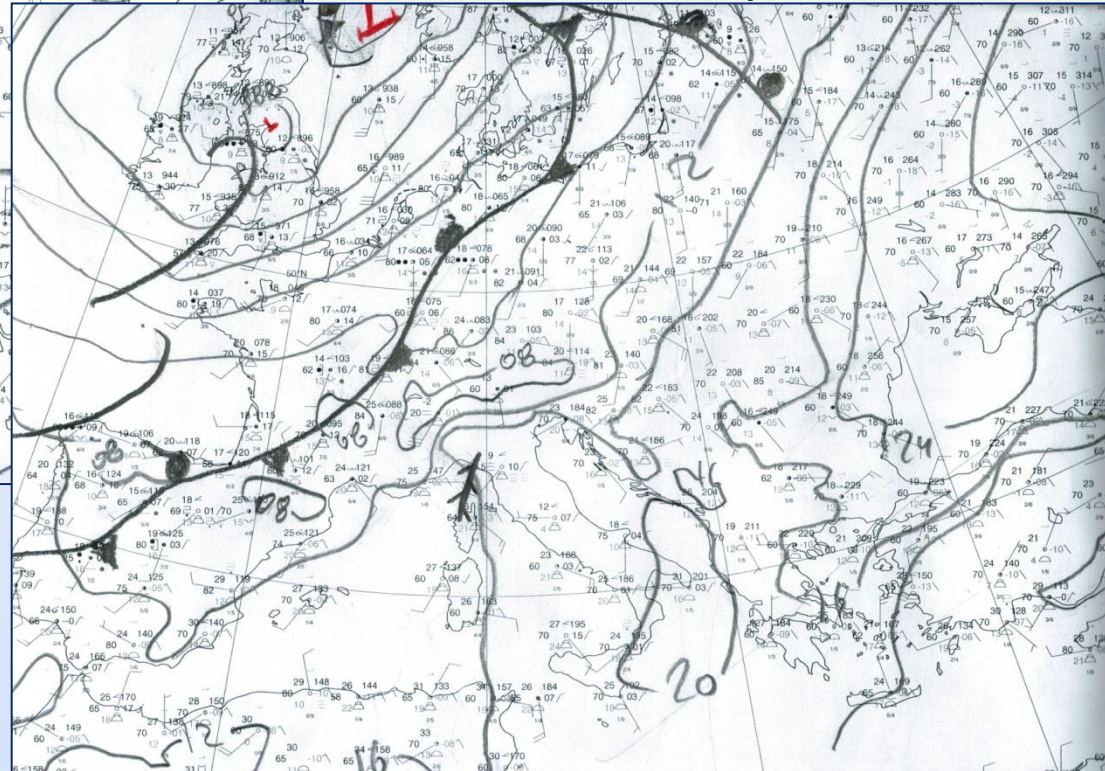


Liguria Flooding

October 9th- 10th, 2014



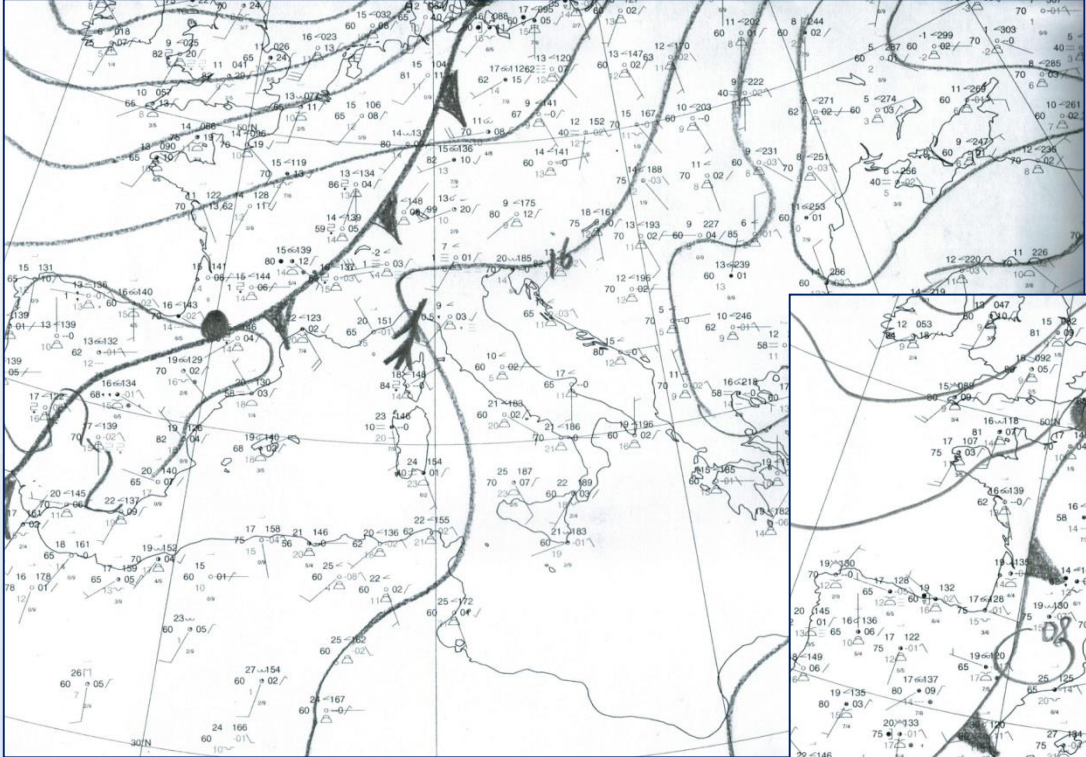
Surface Analysis 9 OCT 12Z



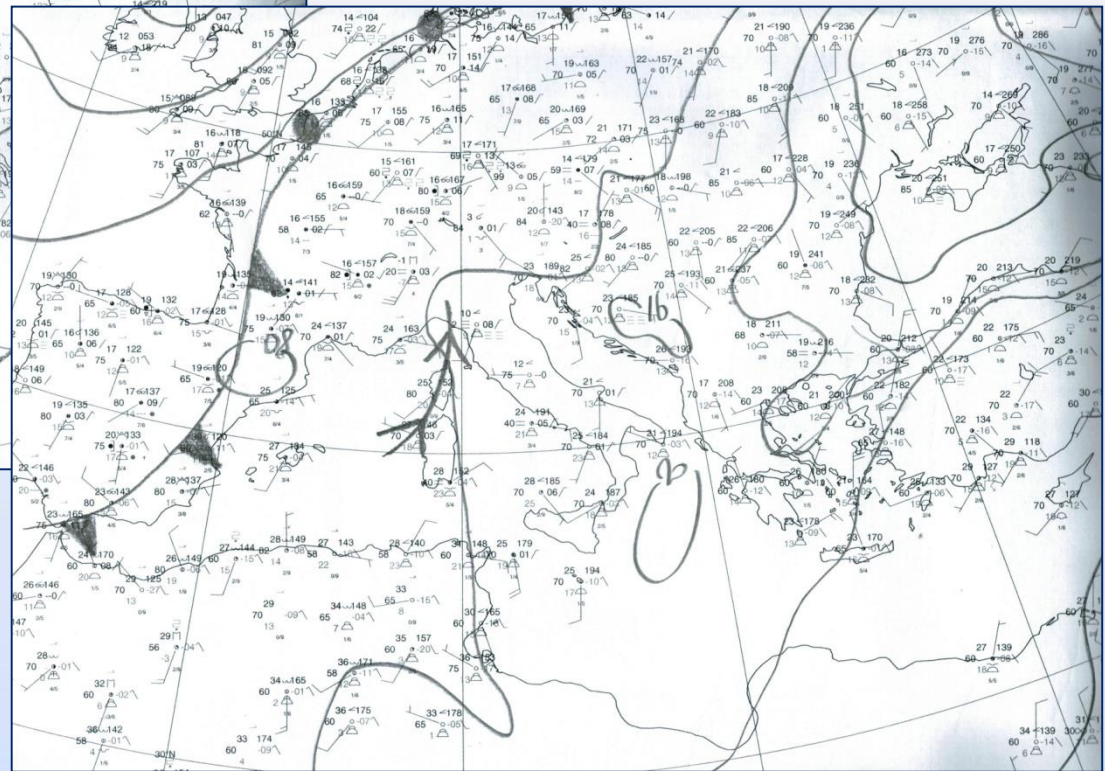
Surface Analysis 9 OCT 00Z

Liguria Flooding

October 9th- 10th, 2014



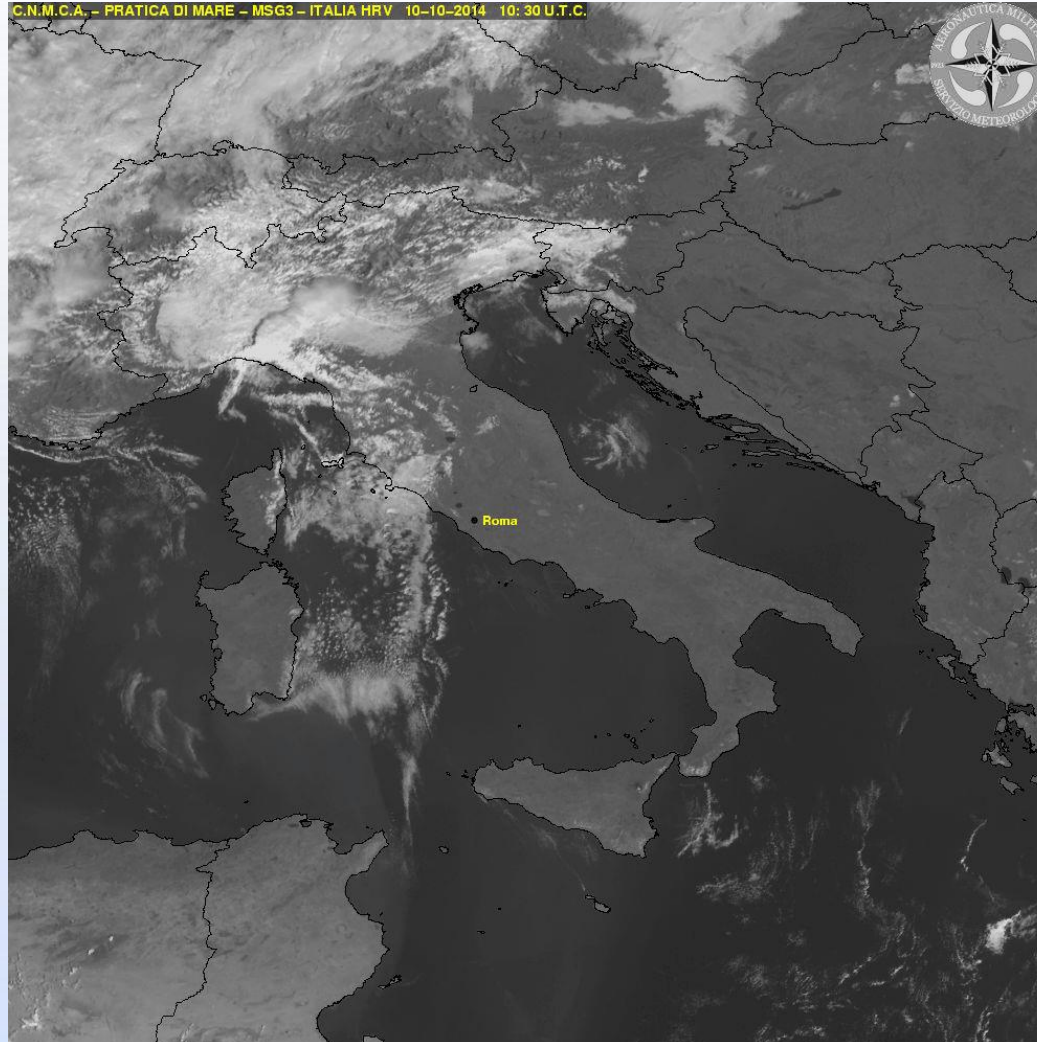
Surface Analysis 10OCT 12Z



Surface Analysis 10 OCT 00Z

Liguria Flooding

October 9th- 10th, 2014

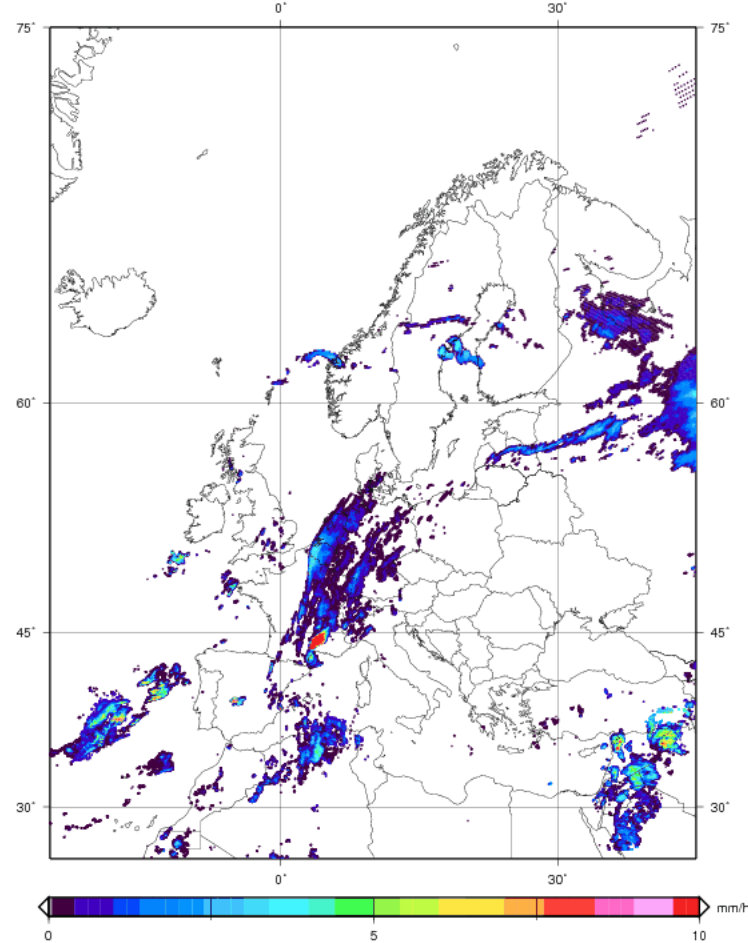


Liguria Flooding

October 9th- 10th, 2014



EUMETSAT H-SAF PR-OBS-3 Instantaneous Rain Rate retrieved from IR-MW blending data



Blending of: SEVIRI IR + SSM/I-SSMIS MW + AMSU MW 20141010 1942

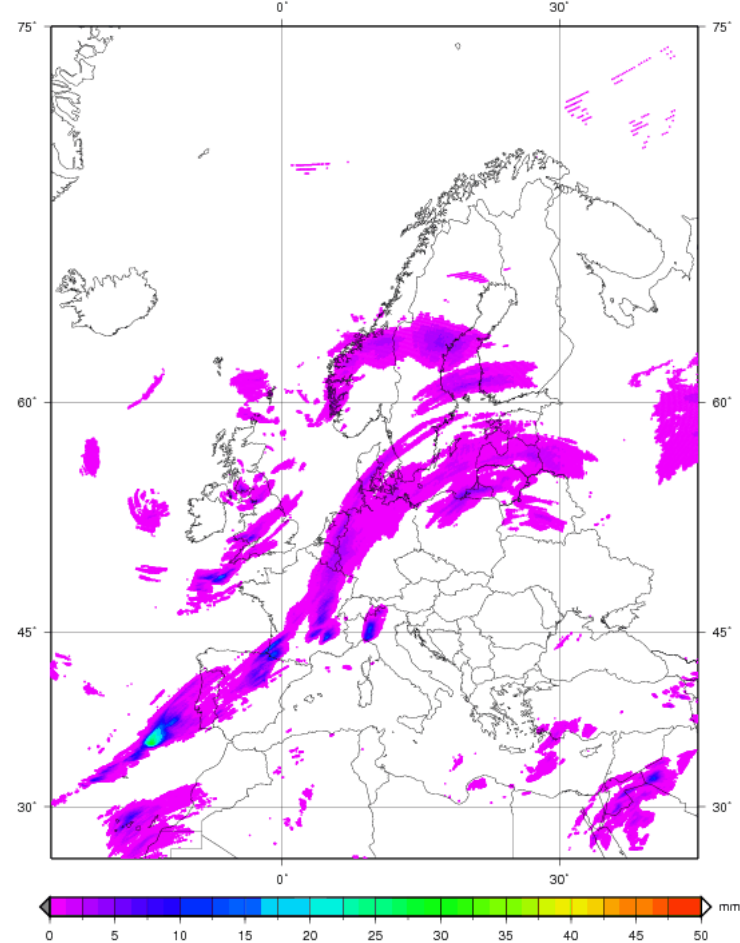
CSM 2014 Oct 10 19:48:32 --Production_SATELLITE_AREA_C.NM.CA--Algorithm_J.S.A.C_CN.P--

Liguria Flooding

October 9th- 10th, 2014



EUMETSAT H-SAF PR-OBS-5 Accumulated Precipitation in the previous 3 hours



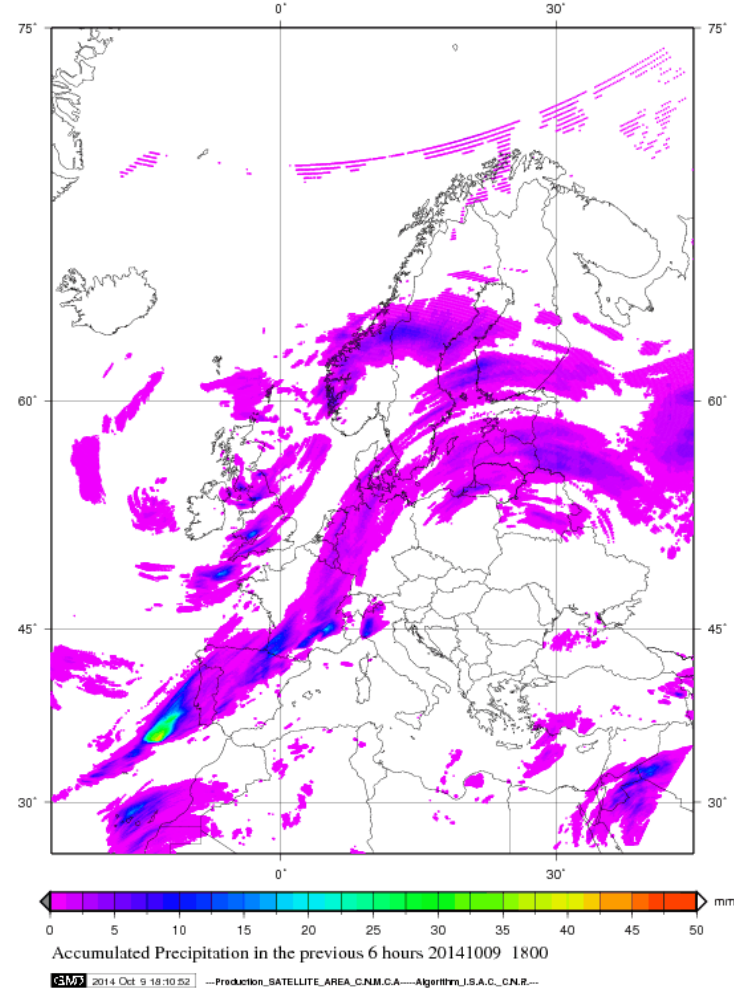
2014 Oct 9 15:10:19 -- Production_SATELLITE_AREA_CNMI.CA -- Algorithm_U.S.A.C_CN.R --

Liguria Flooding

October 9th- 10th, 2014



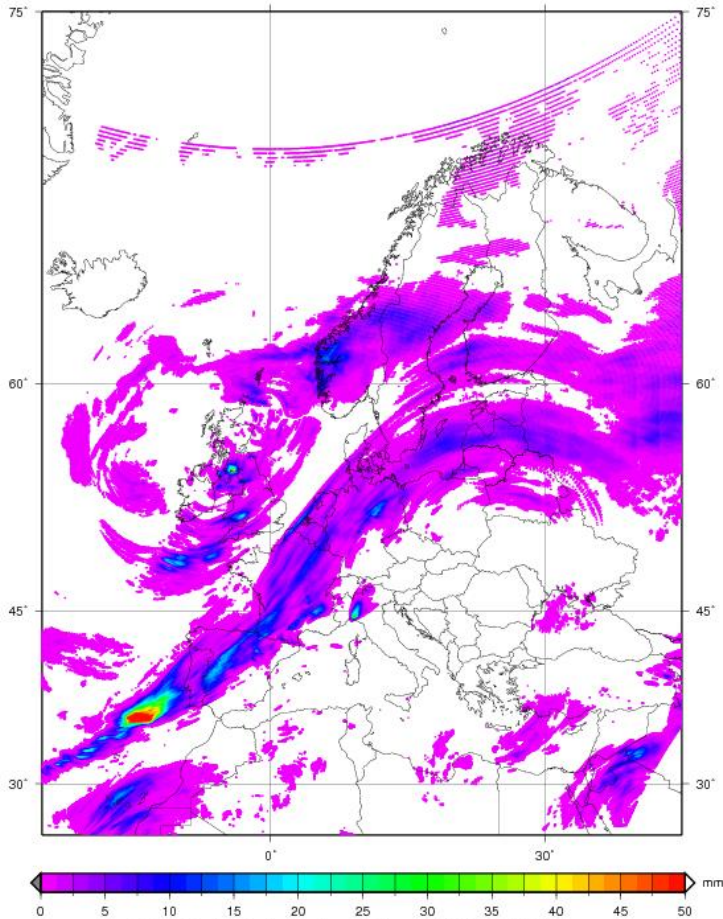
EUMETSAT H-SAF PR-OBS-5 Accumulated Precipitation in the previous 6 hours



Validation 9oct 18z (precip previous 12H)



EUMETSAT H-SAF PR-OBS-5 Accumulated Precipitation in the previous 12 hours



Accumulated Precipitation in the previous 12 hours 20141009 1800

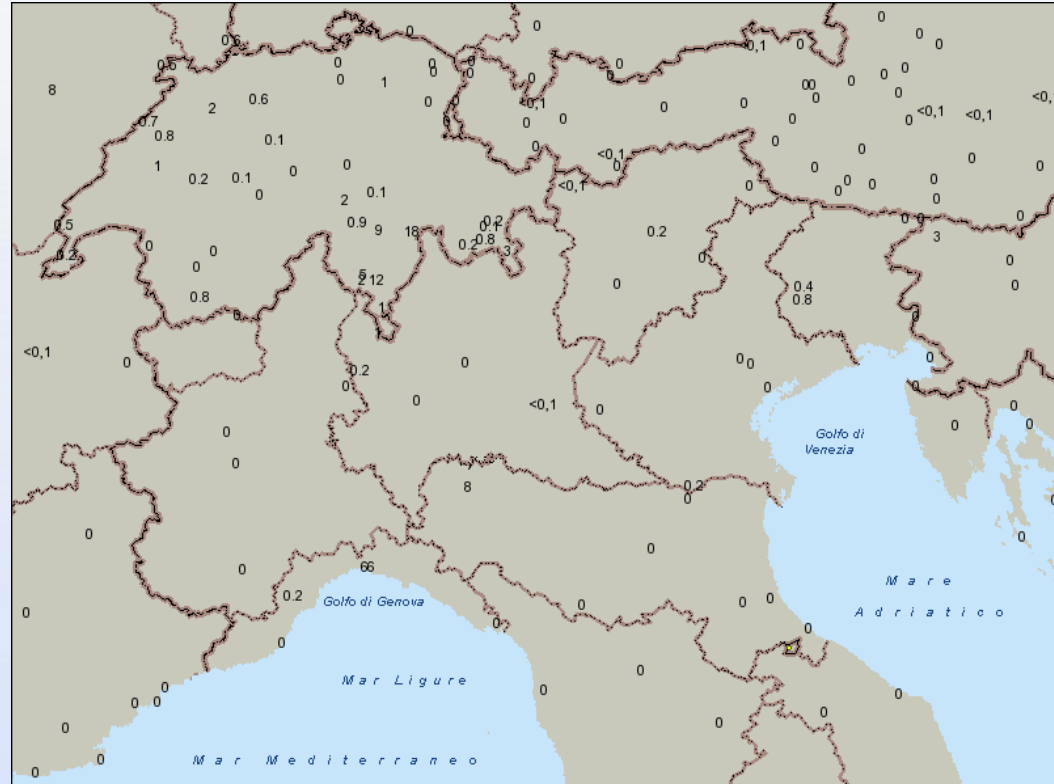
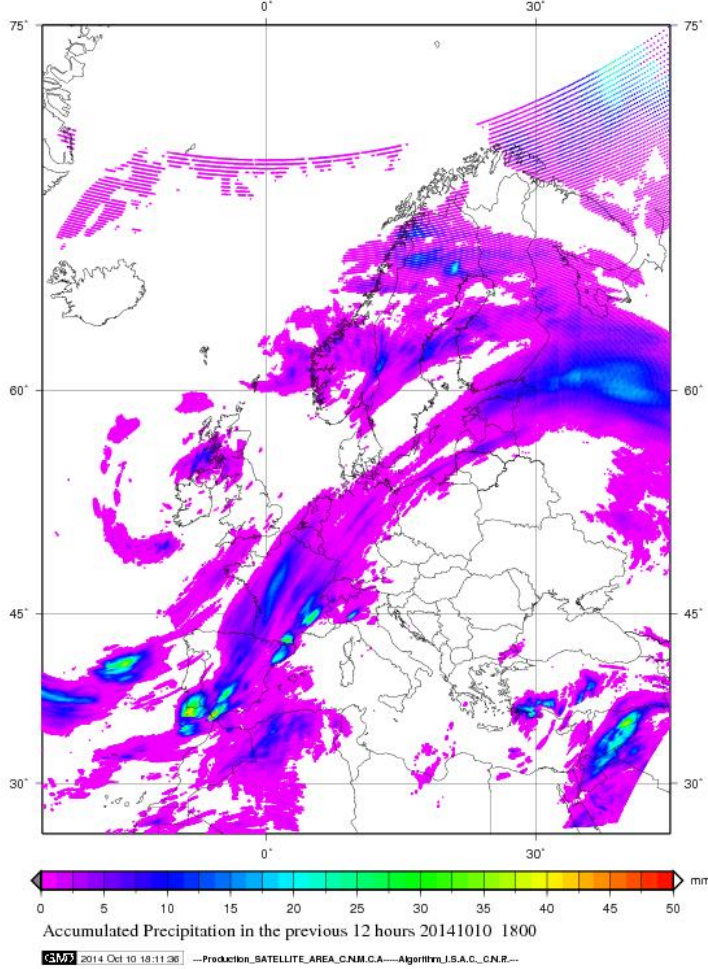
2014 Oct 9 18:11:22 --Production_SATELLITE_AREA_C.N.M.C.A.--Algorithm_U.S.A.C.-C.N.R.--



Validation 10oct 18z (precip previous 12H)



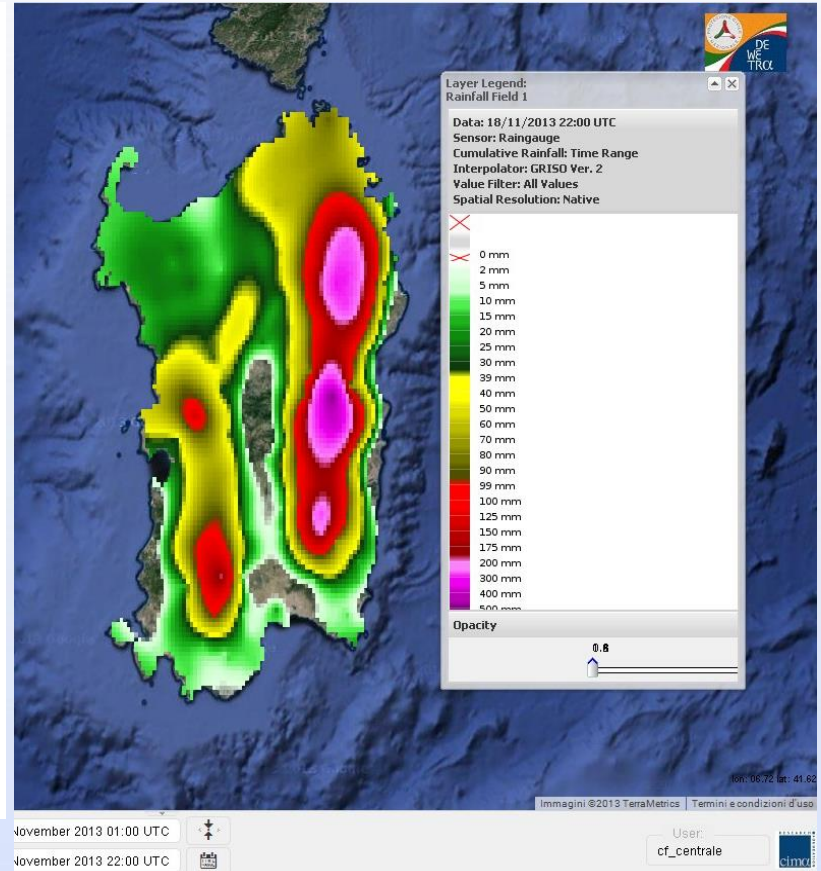
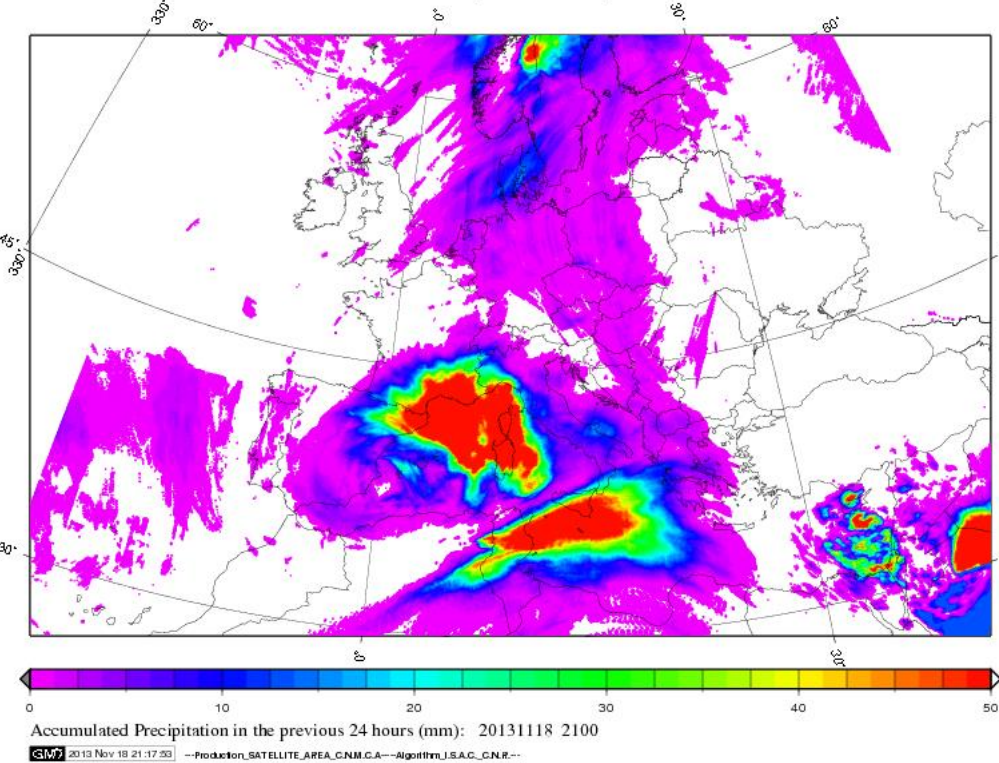
EUMETSAT H-SAF PR-OBS-5 Accumulated Precipitation in the previous 12 hours



Validation 18nov 21z (precip prevoius 24H)



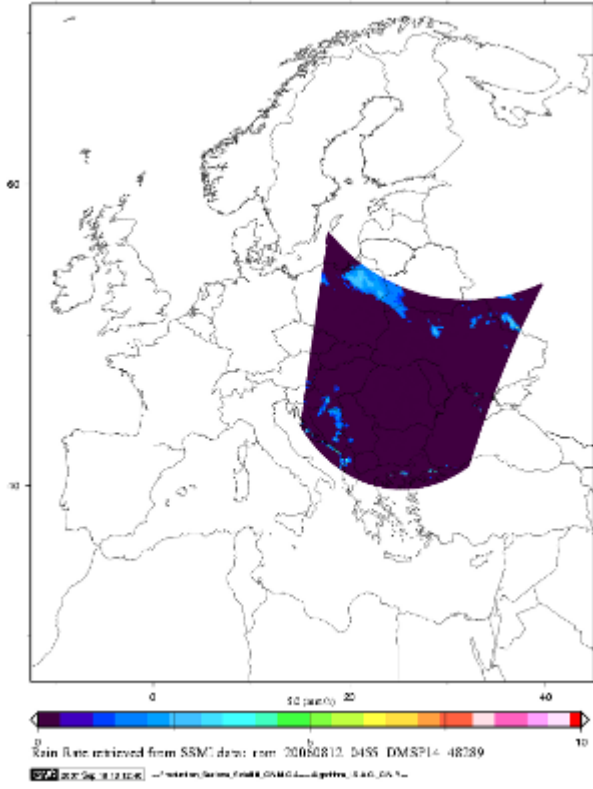
EUMETSAT H-SAF PR-OBS-5 Accumulated Precipitation in the previous 24 hours



H-SAF products in Weather Watching System



EUMETSAT H-SAF PR-OBS-1 Instantaneous rain rate from conical MW scan



PR-OBS-1

Precipitation rate at ground by MW conical scanners (with indication of phase)

Timeliness: 150 min from observing time

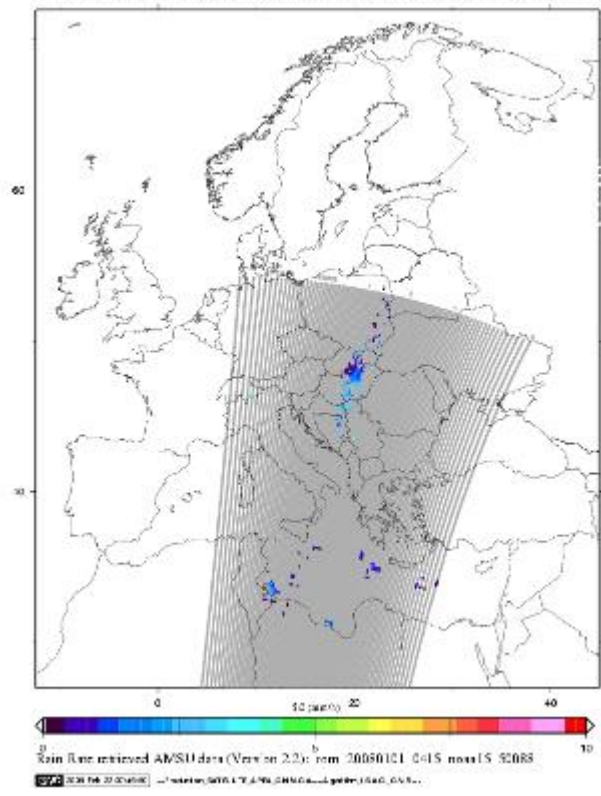
Cycle: Up to six passes/day (if three DMSP satellites are available)

Spatial Resolution: Approximately 30 km

H-SAF products in Weather Watching System



EU-METSAT H-SAF PR-OBS-2 Instantaneous Rain Rate from Cross-track MW Scans



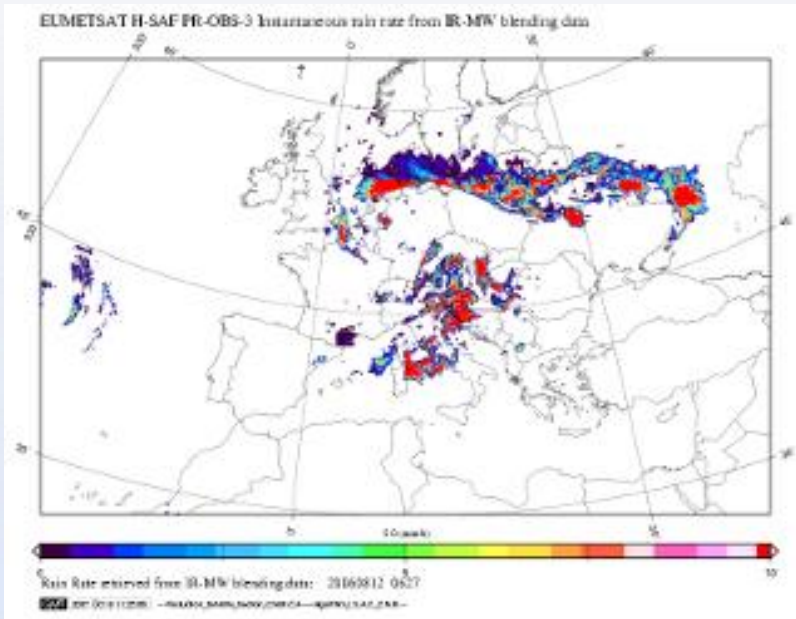
PR-OBS-2

Precipitation rate at ground by
MW cross-track scanners (with
indication of phase)

Timeliness: 30 min from observing time

Cycle: Up to six passes/day (if one Met-
Op-A and two NOAA satellites are
available)

H-SAF products in Weather Watching System



PR-OBS-3

Precipitation rate at ground by
GEO/IR supported by LEO/MW

Coverage: The rectangular area of the
Meteosat field of view that includes the H-
SAF area limited to 60° N

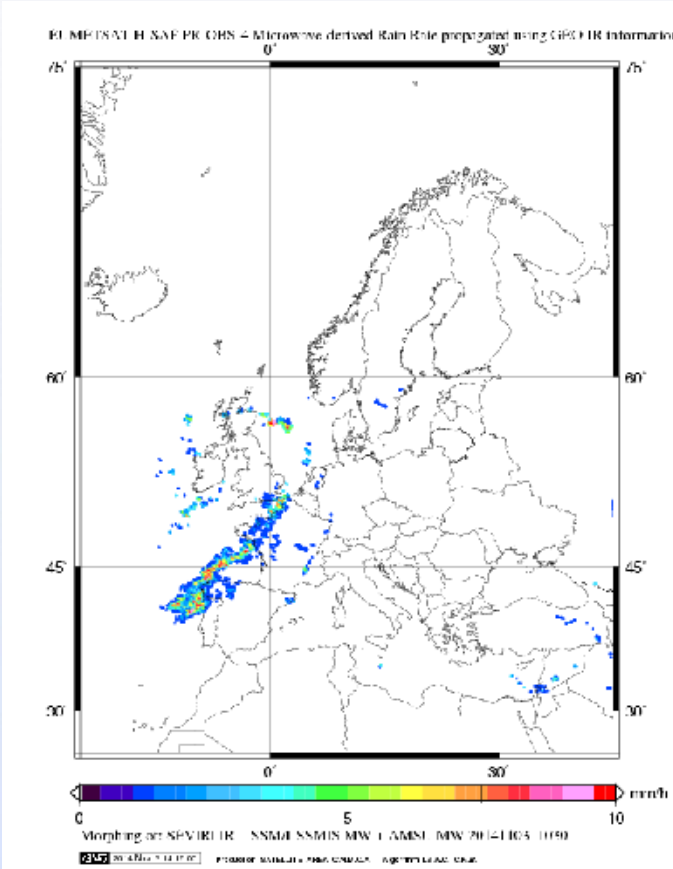
Cycle: 15 min

Resolution: Average over Europe: 8 km
(controlled by the IR pixel size)

Timeliness: Within 5 min from the end of
(real time) acquisition

pre-operational

H-SAF products in Weather Watching System



PR-OBS-4

Precipitation rate at ground by
LEO/MW supported by GEO/IR
(with flag for phase)

Cycle: the observing cycle is 3 h

Accuracy: To be defined

Timeliness: The PR-OBS04 maps are
available at 30 min intervals (sampling
time) but we have a timeliness at least of 2
h depending on the availability of the input
rain products

pre-operational

H-SAF products in Weather Watching System



PR-OBS-5

Accumulated precipitation at ground by blended MW and IR

Coverage: The rectangular area of the stereographic projection that includes the H-SAF area

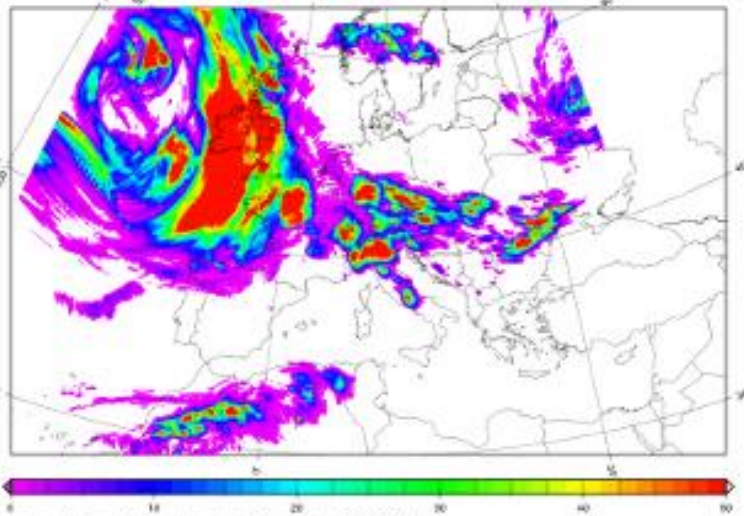
Cycle: Each 3 hours: MW+IR integrated over the previous 3, 6, 12 and 24

Resolution: Average over Europe: 8 km intended as sampling, ~ 30 km effective

Timeliness: At fixed times of the day, within 15 min after synoptic hours

pre-operational

ELMETSAT H-SAF PR-OBS-5 Accumulated Precipitation in the previous 24 hours



Accumulated Precipitation in the previous 24 hours (mm) 20080731 1110

The use of HSAF products in Weather Watching System

Any Question?

[Massimiliano Morucci, Lt.Col. ItAF \(morucci@meteoam.it\)](mailto:morucci@meteoam.it)

Centro Nazionale di Meteorologia e Climatologia Aeronautica

ECMWF/H-SAF and HEPEX Workshops on coupled hydrology
Reading (UK), 2014 November 3-7