

Observational and numerical study of the severe convective storm of 29th October 2013 in the Balearic Islands

R. Romero

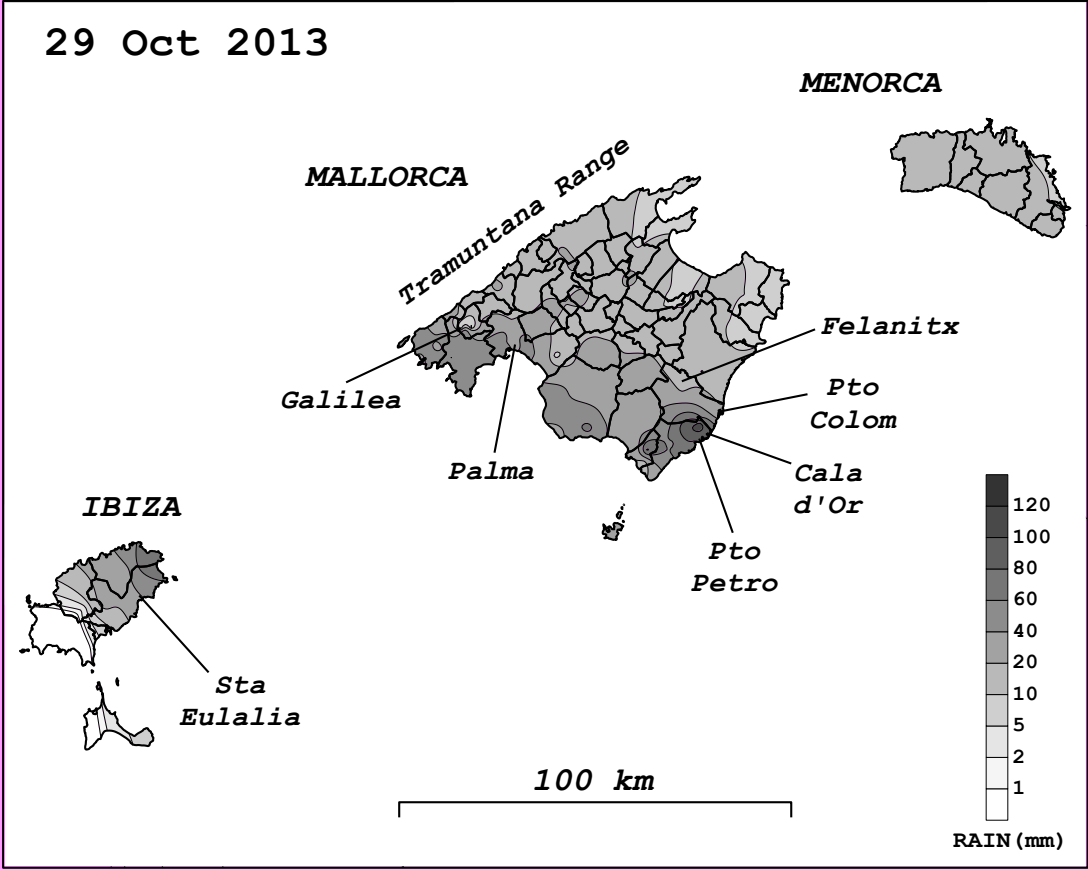
C. Ramis

V. Homar



Universitat
de les Illes Balears

GEOGRAPHICAL DOMAIN



PHOTOGRAPH

Portocolom
15:15 UTC



SOME EFFECTS



Cala Mondragó



Cala d'Or

CONTENT

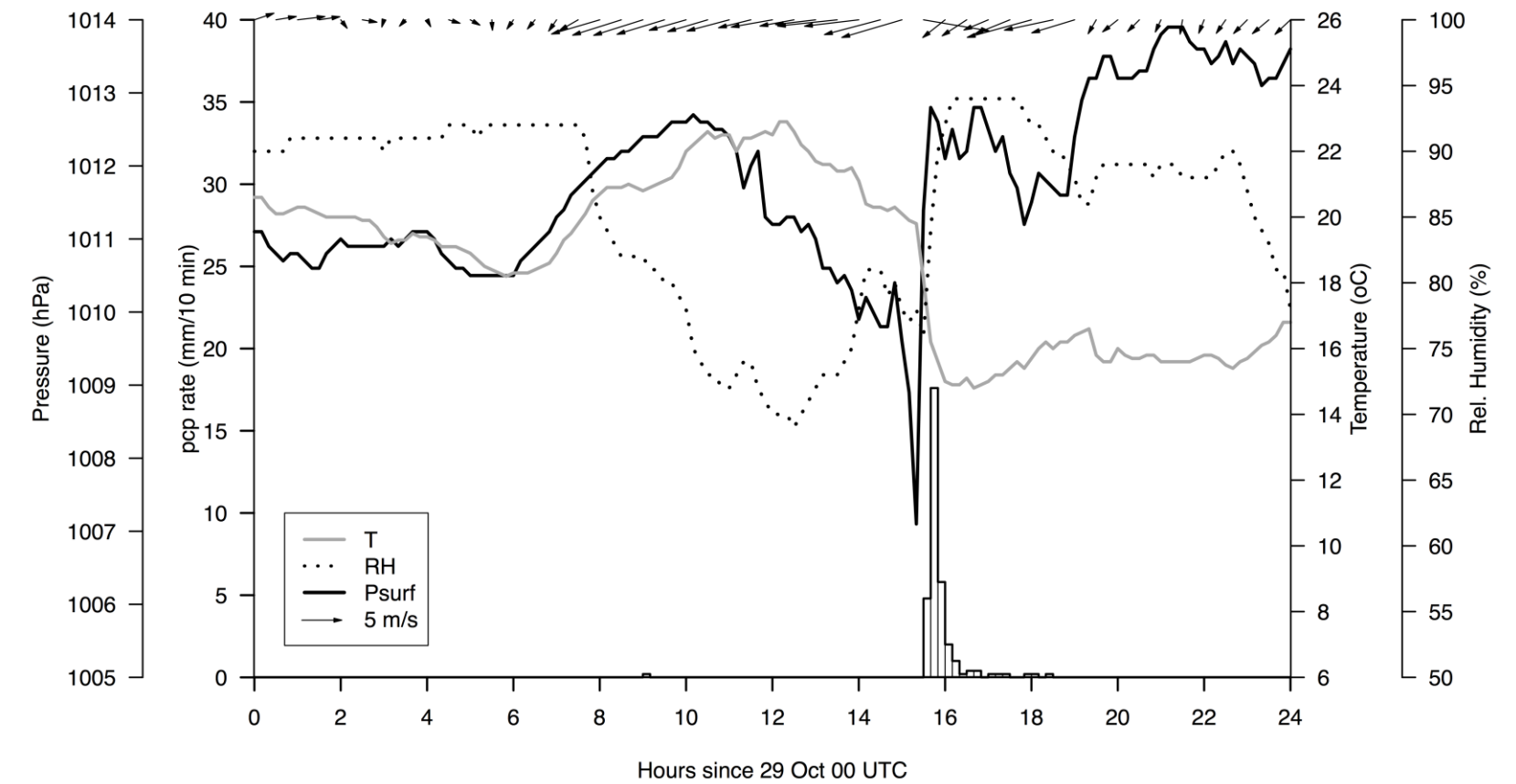
- **OBSERVATIONS:** Surface, Satellite, Radar ...
- **METEOROLOGICAL SETTING:** Synoptic charts, Radiosoundings, Mesoanalyses
- **CONTROL SIMULATION:** Validation, Mesocale environment, Squall-line structure
- **SENSITIVITY TESTS:** Role of local and regional factors (ORO, EVAP and SST)
- **CONCLUSIONS:** On the go ...

OBSERVATIONS

METEOGRAM

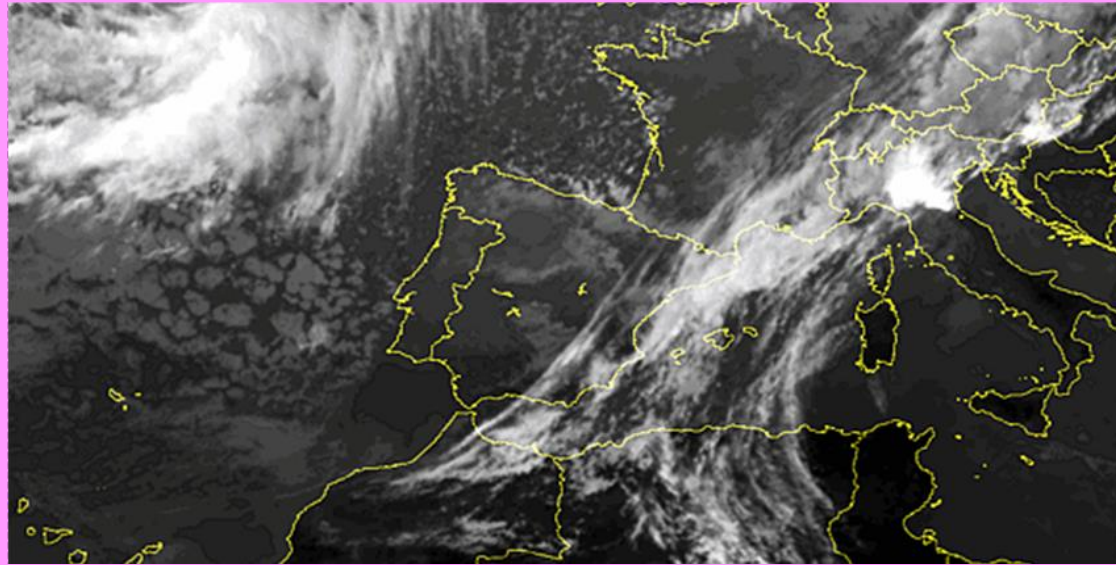
AEMET

PORTOCOLOM

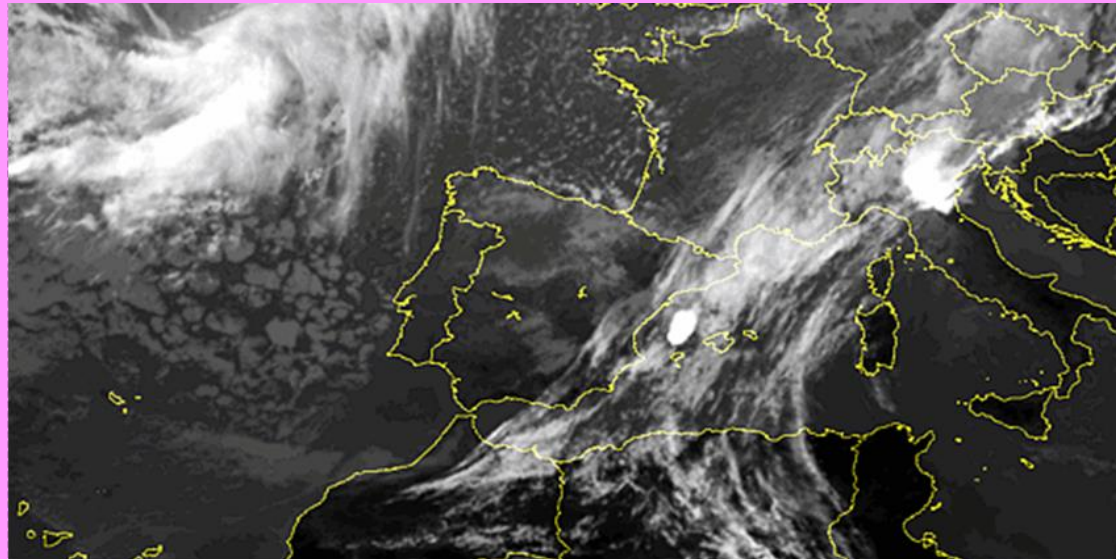


***IR
METEOSAT***

10 UTC

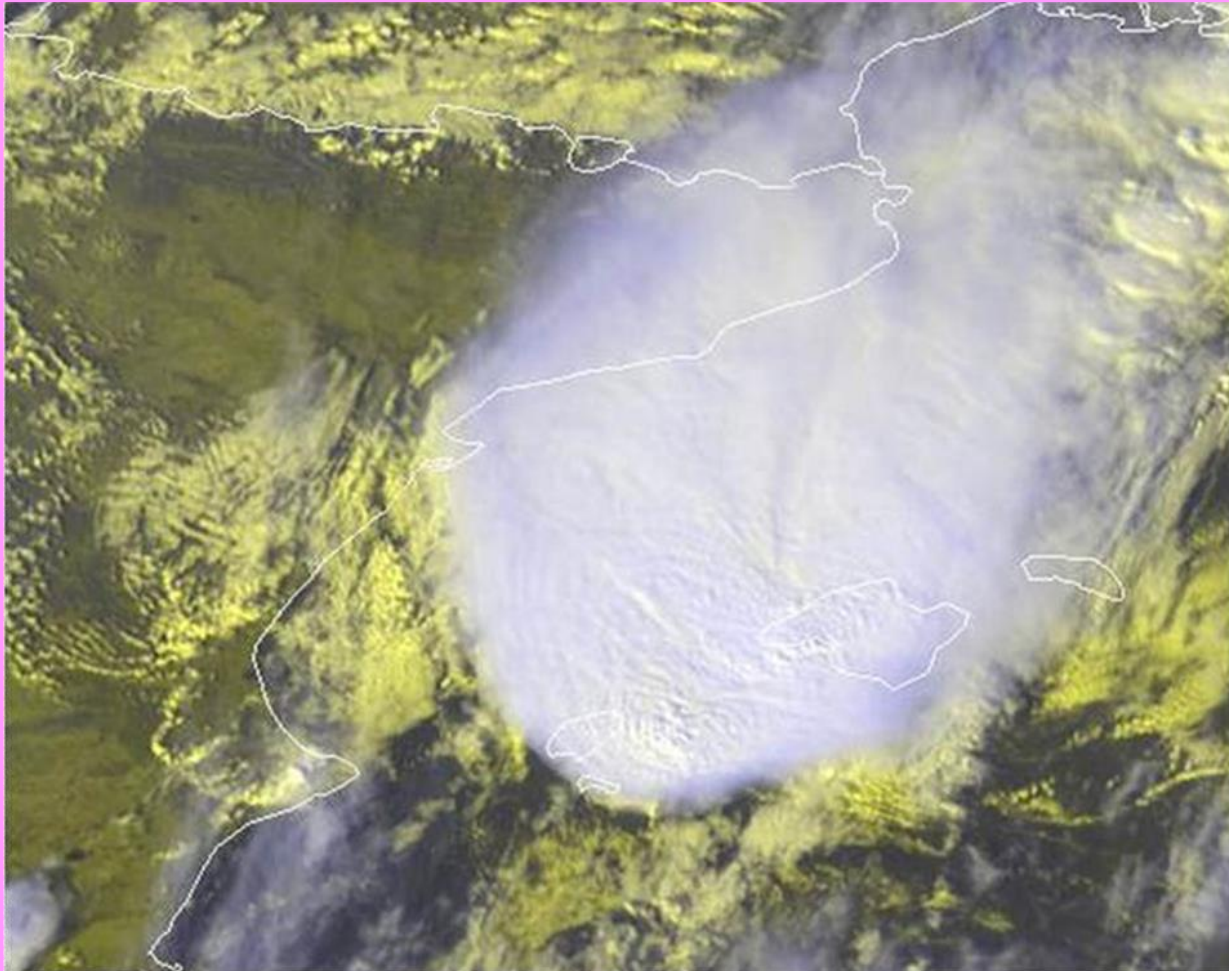


11 UTC



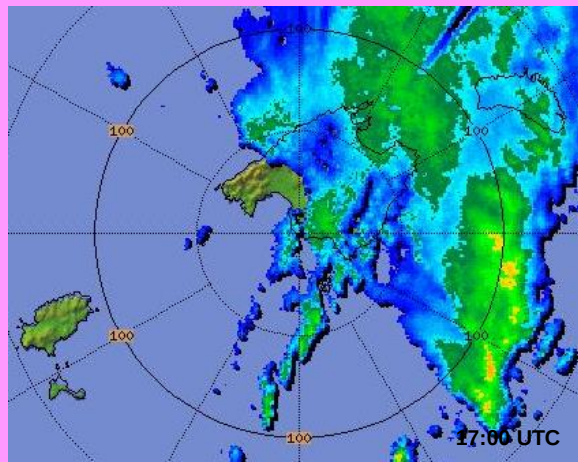
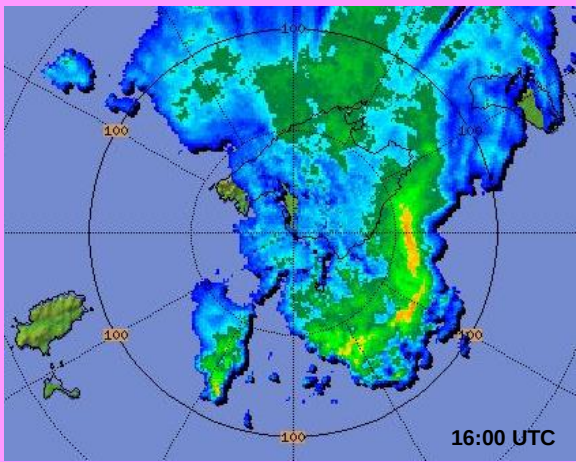
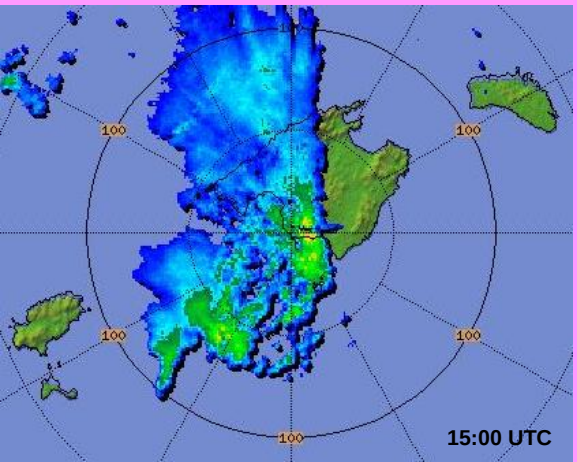
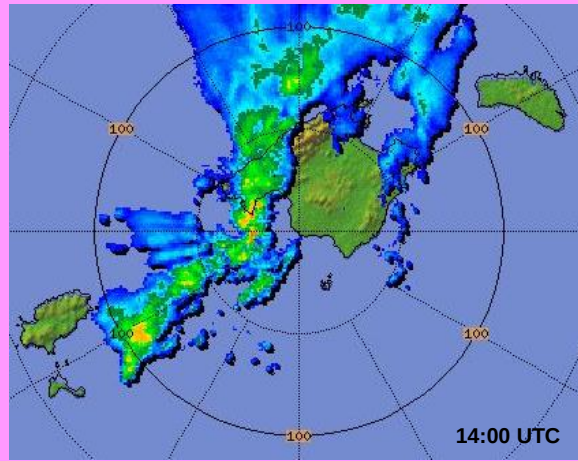
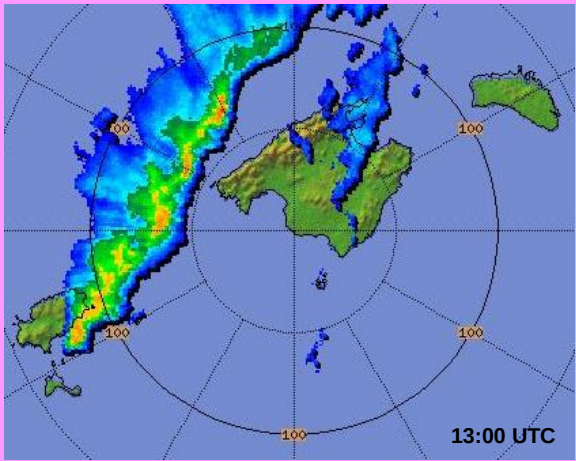
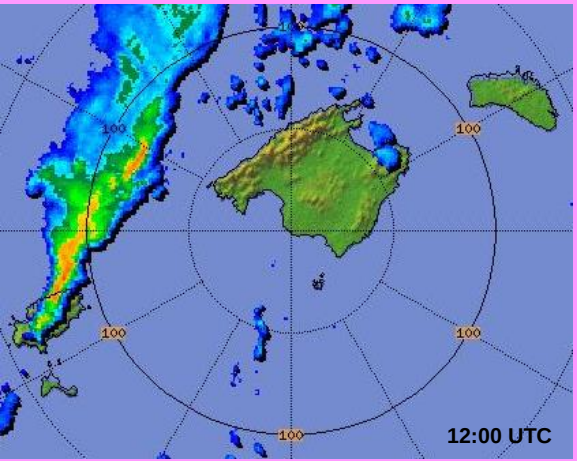
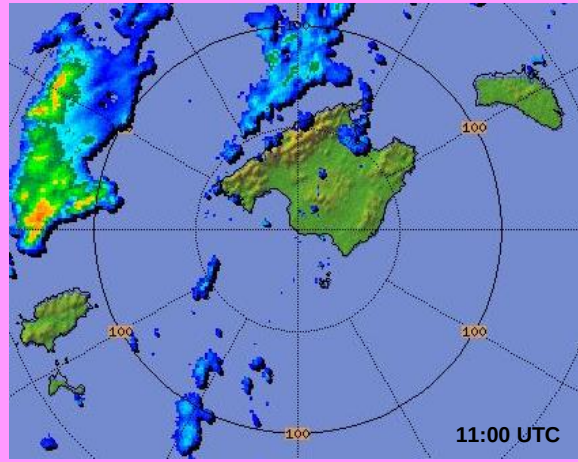
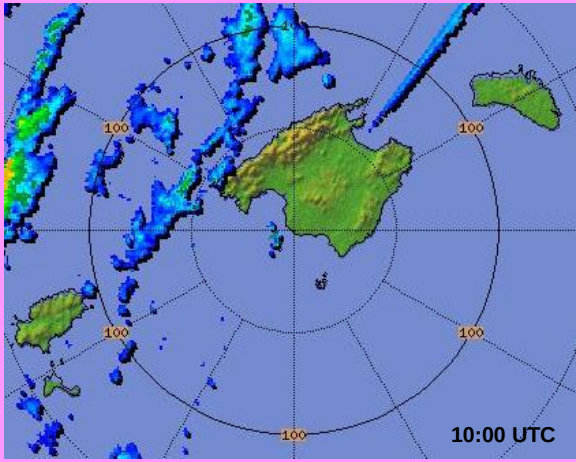
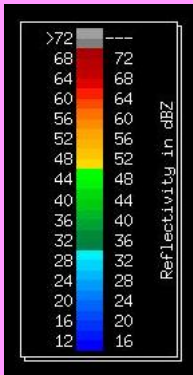
VISIBLE

14 UTC



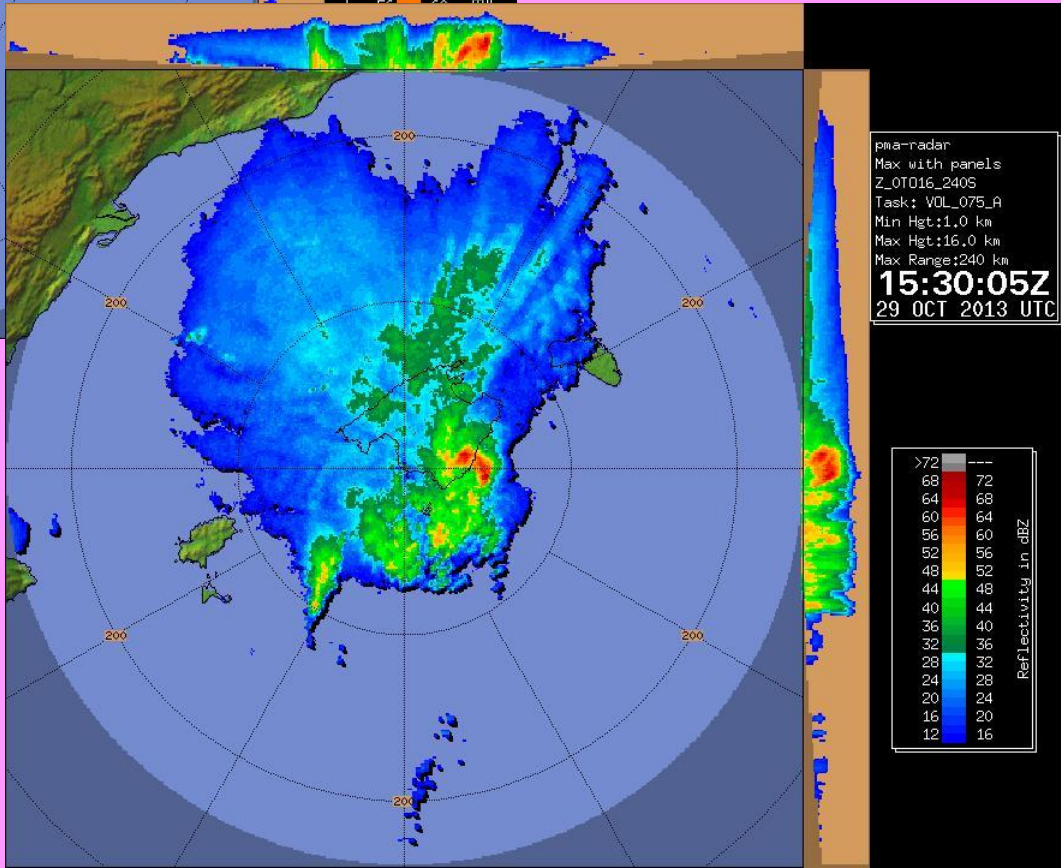
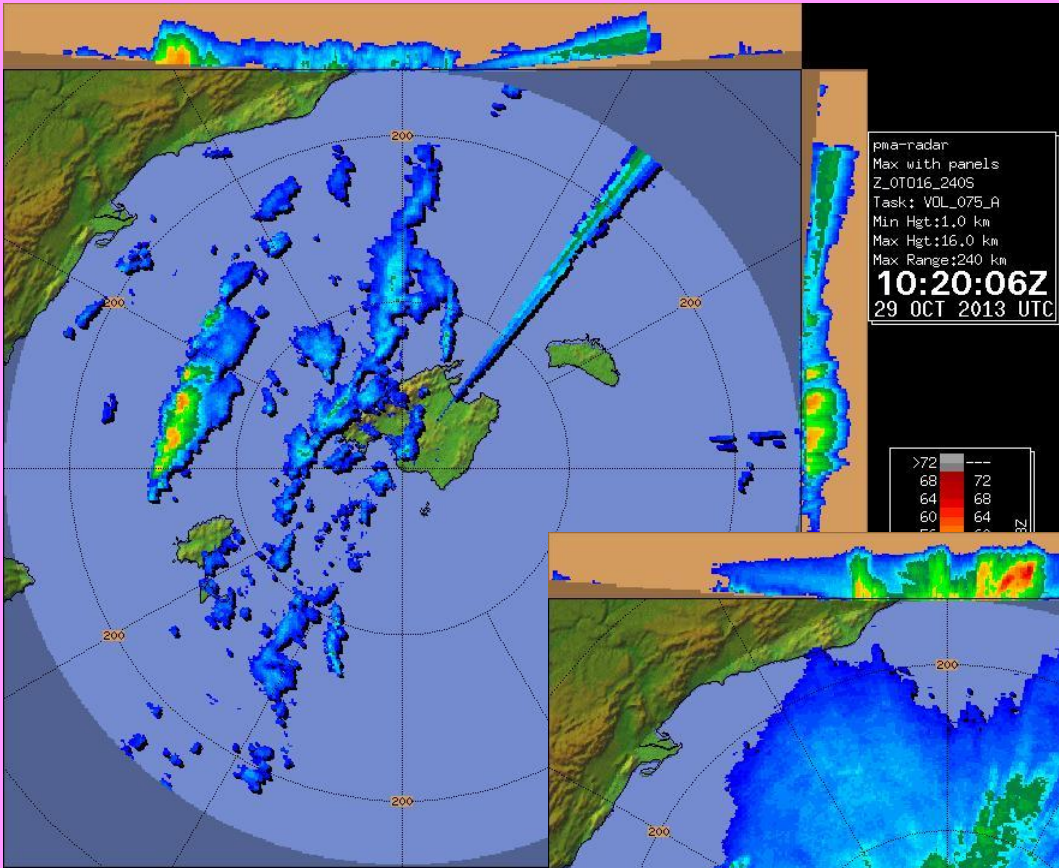
RADAR

CAPPI
2.5 km



RADAR

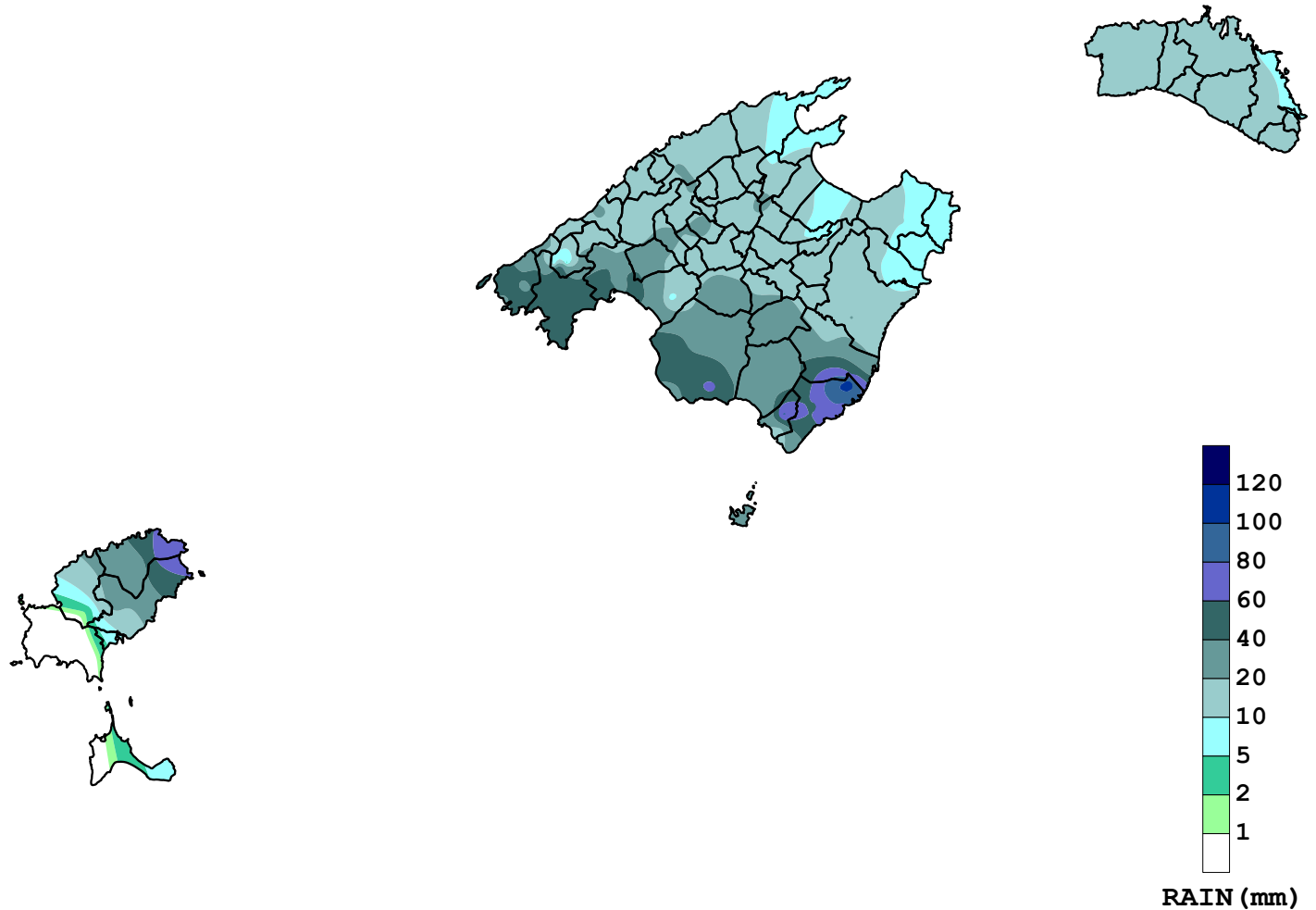
MAX
REFLEC



TOTAL RAINFALL

29 Oct 2013

OBSERVED

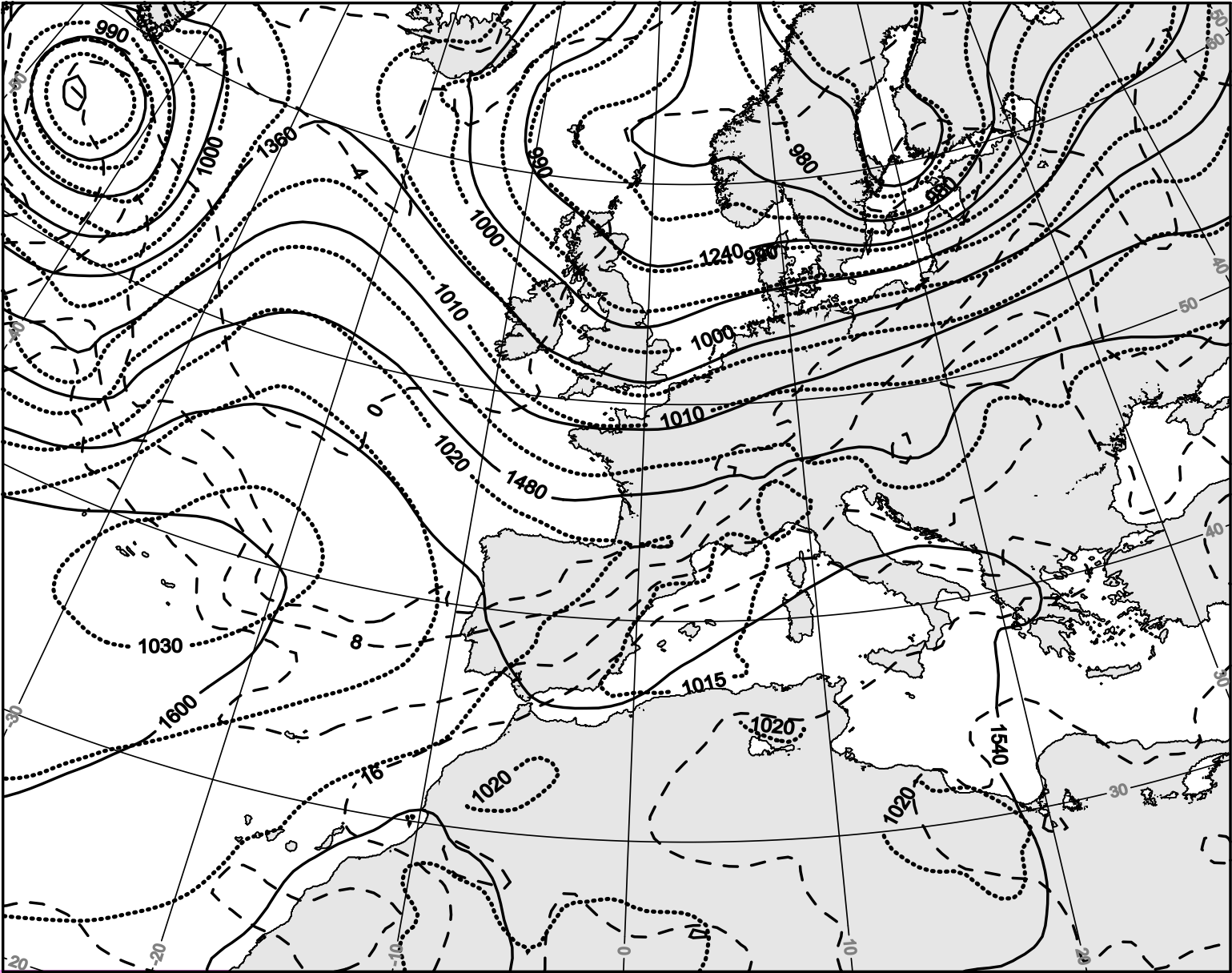


METEOROLOGICAL SETTING

ECMWF
00 UTC

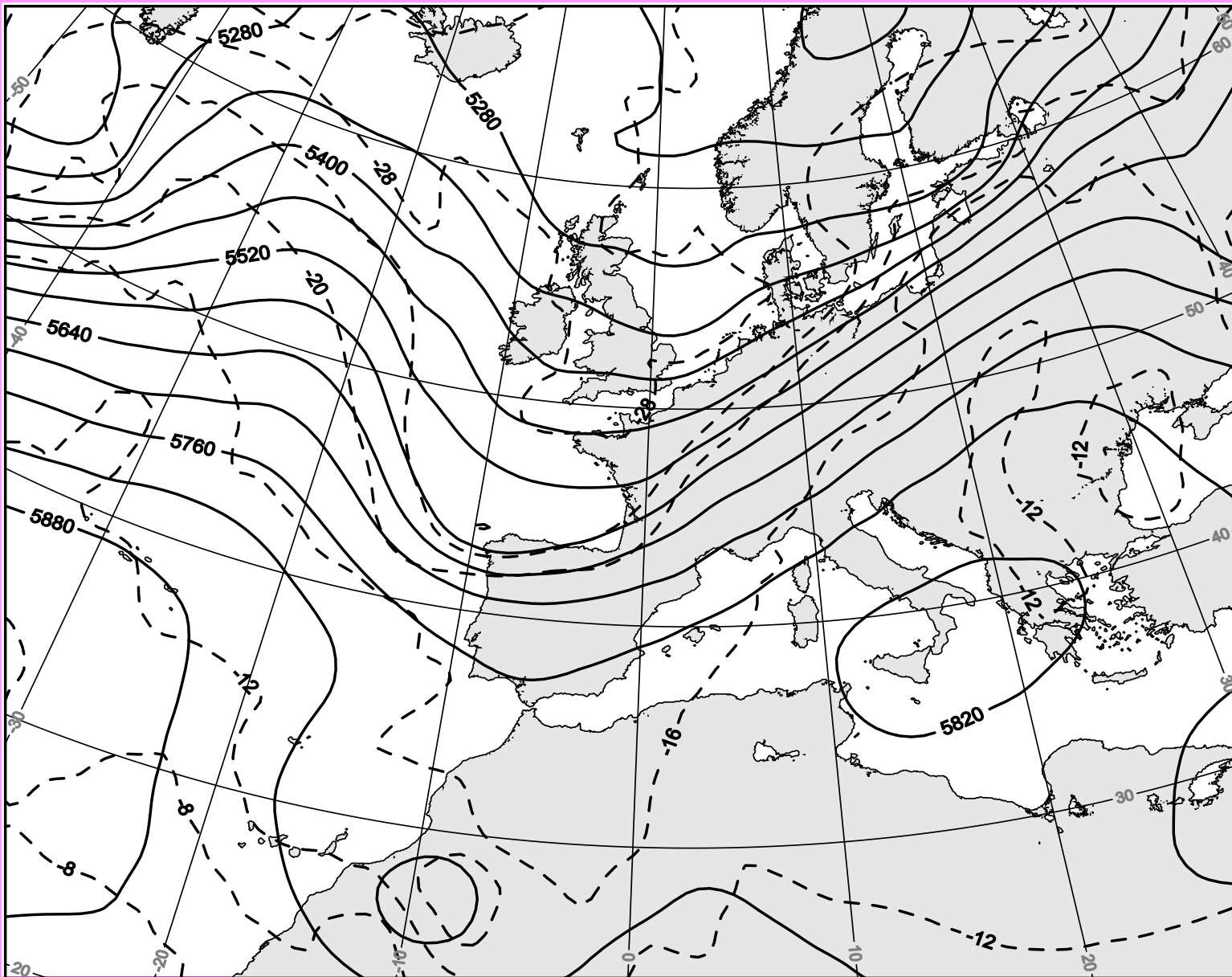
850 hPa
H and T

SLP



ECMWF
00 UTC

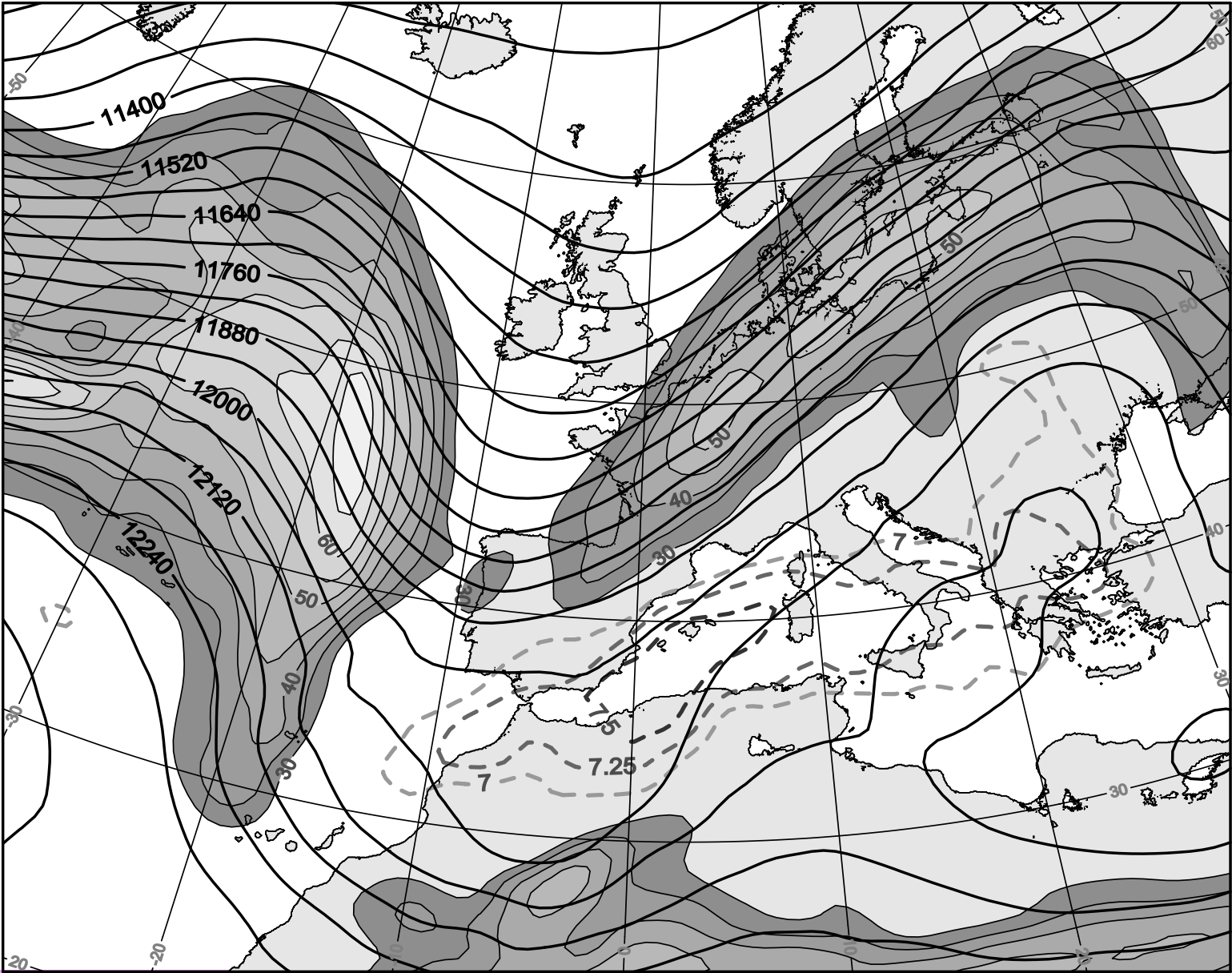
500 hPa
H and T



ECMWF
00 UTC

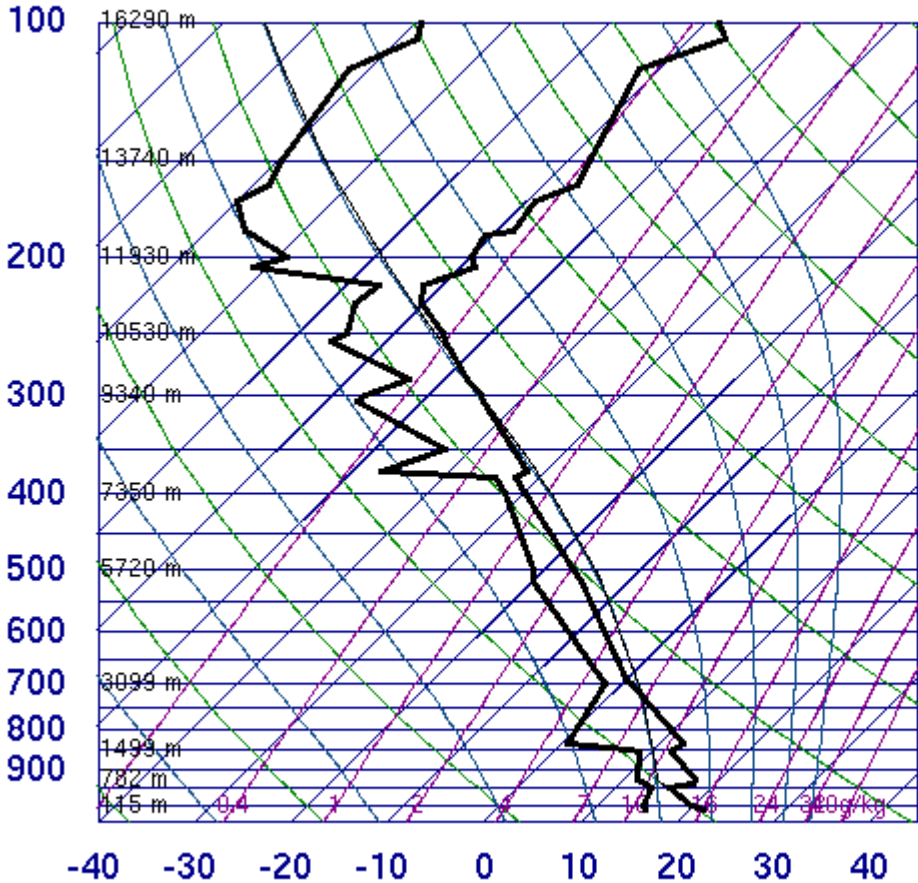
200 hPa
H and
>30m/s

850-200
Lapse Rate



RADIO SOUNDING

08302 Palma De Mallorca



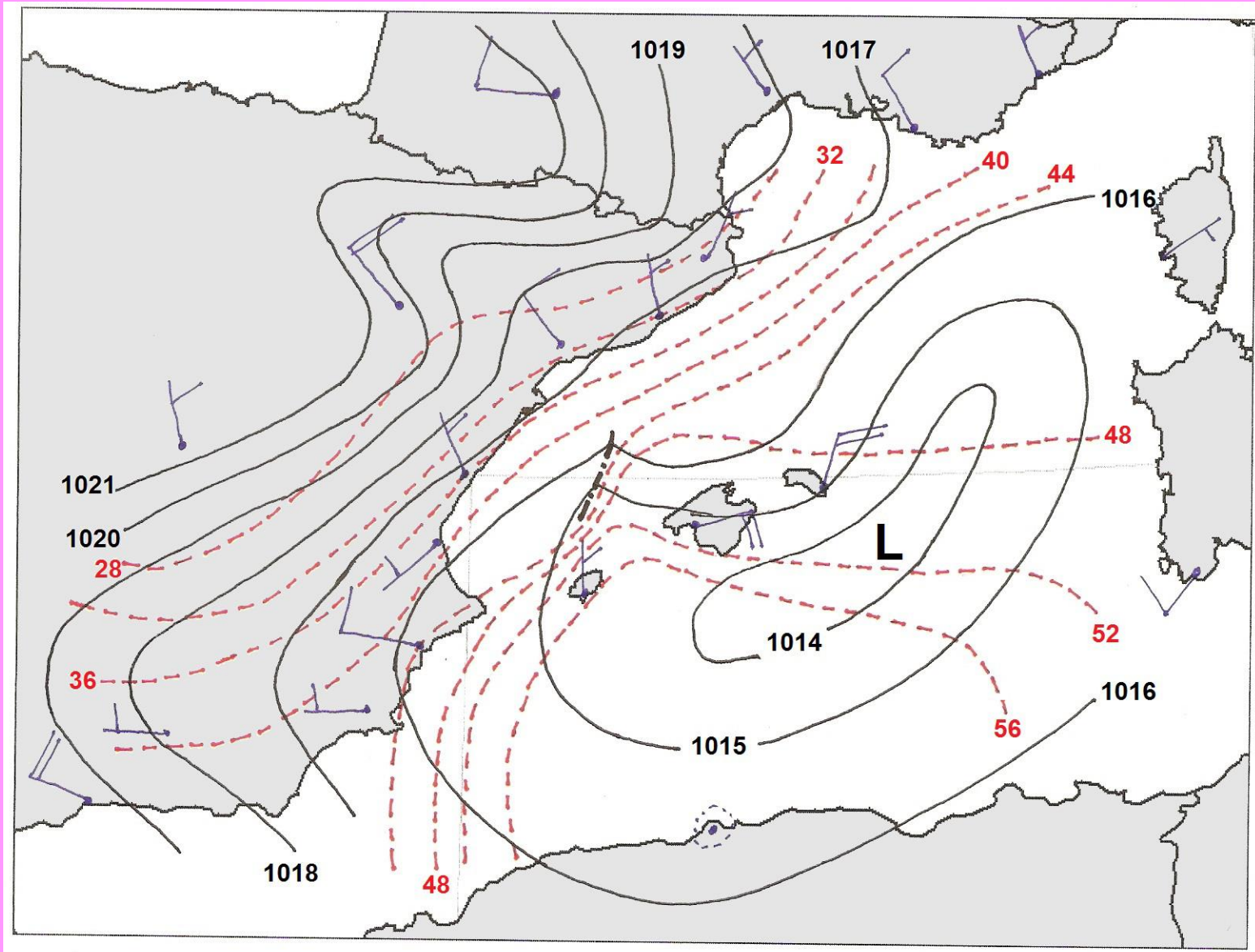
SLAT	39.61
SLON	2.71
SELV	41.00
SHOW	-1.58
LIFT	-2.35
LFTV	-2.52
SWET	245.3
KINX	34.00
CTOT	24.60
VTOT	29.10
TOTL	53.70
CAPE	429.4
CAPV	466.5
CINS	-165.
CINV	-138.
EQLV	274.8
EQTV	274.1
LFCT	724.8
LFCV	736.7
BRCH	2.20
BRCV	2.39
LCLT	286.6
LCLP	925.6
MLTH	293.0
MLMR	10.63
THCK	5605.
PWAT	30.59

12Z 29 Oct 2013

University of Wyoming

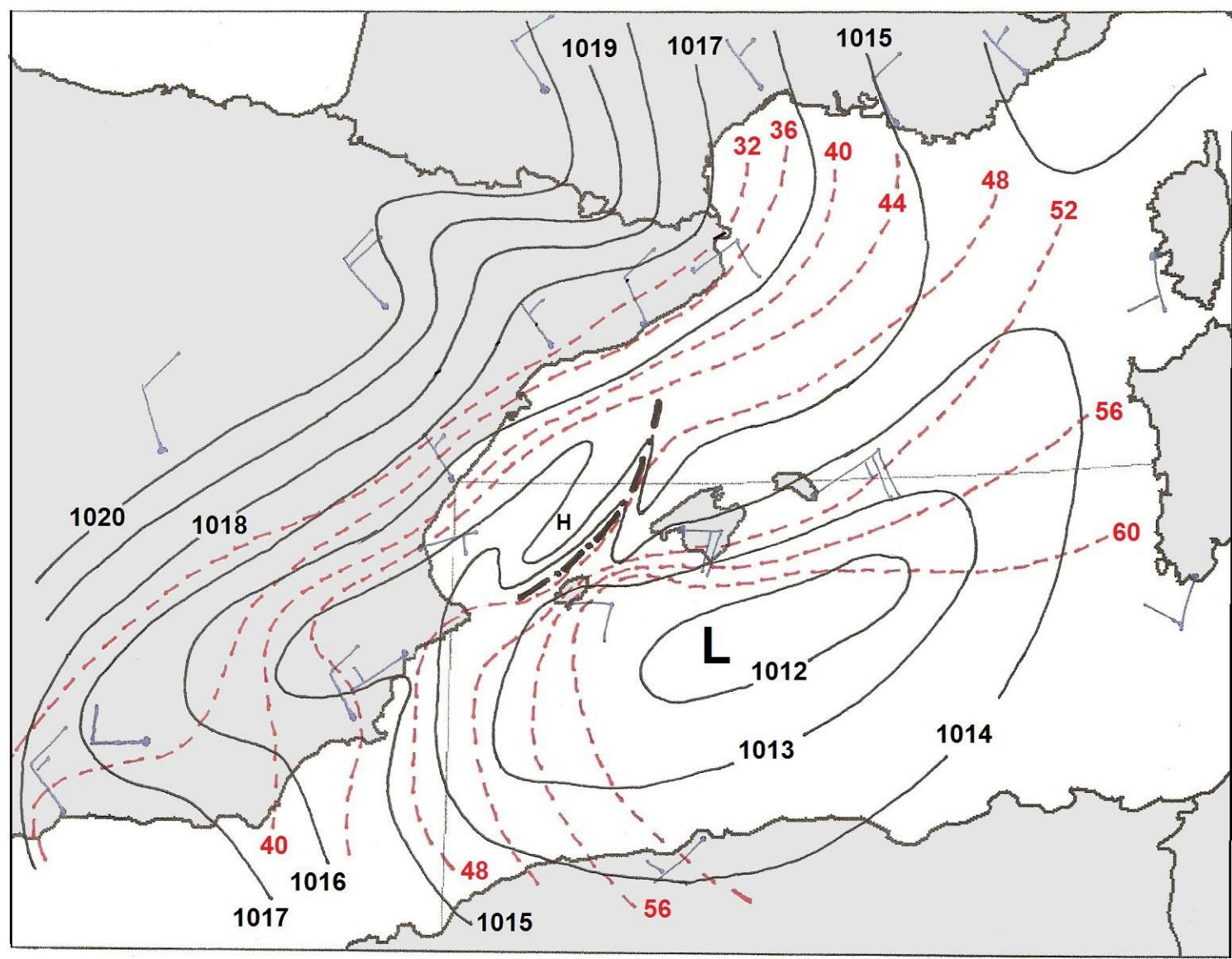
**MESO
ANALYSIS
09 UTC**

SLP
Sfc EPT
Sfc WINDS



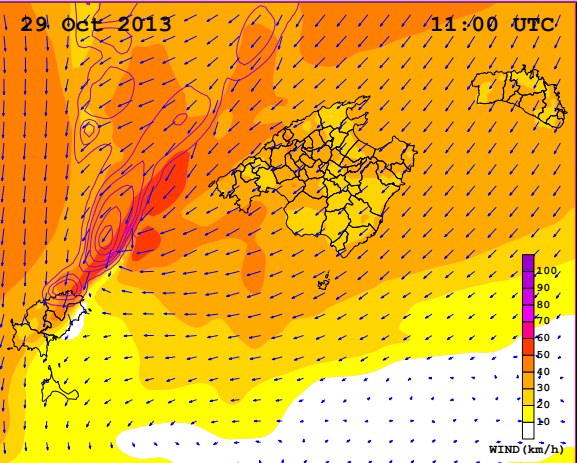
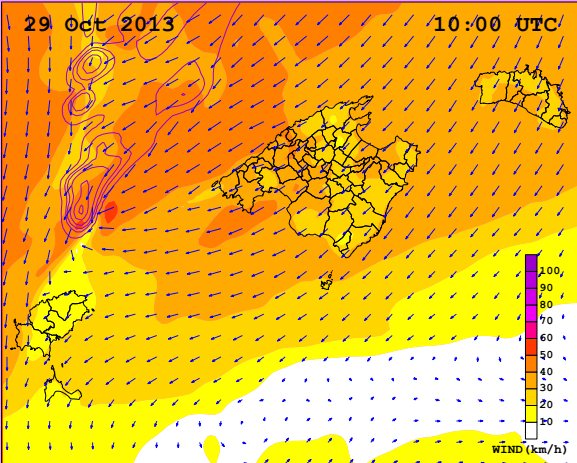
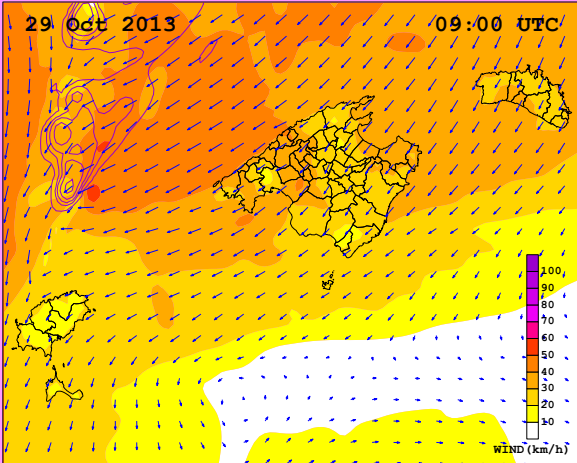
**MESO
ANALYSIS
12 UTC**

SLP
Sfc EPT
Sfc WINDS



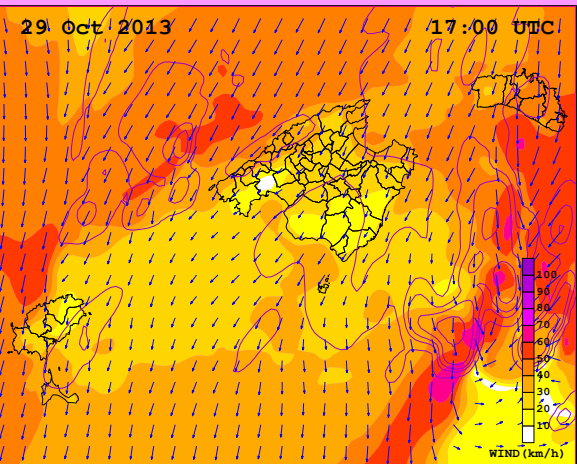
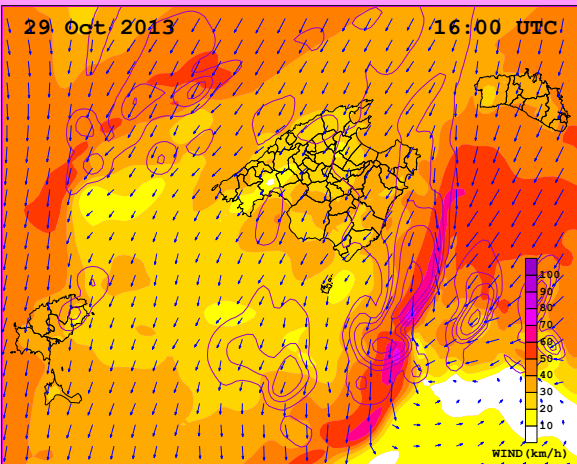
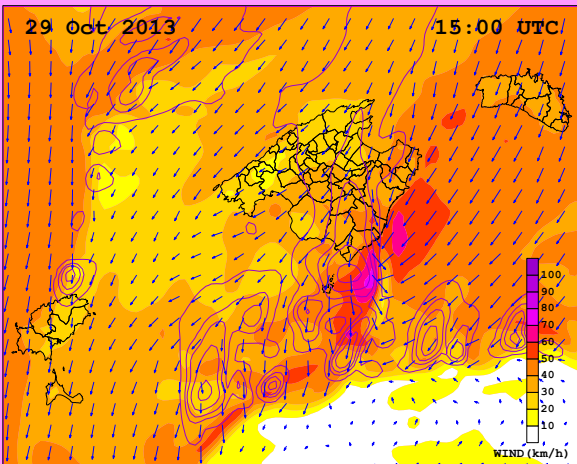
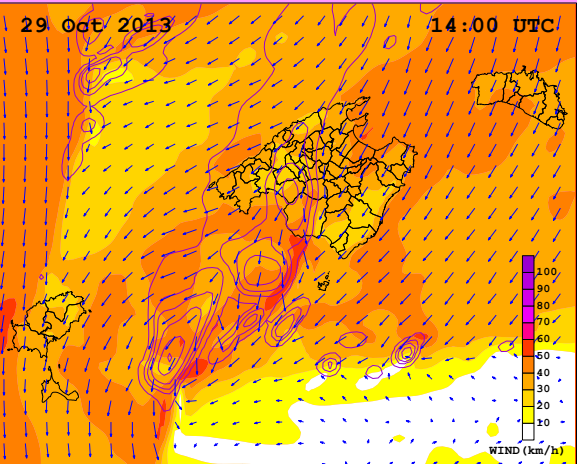
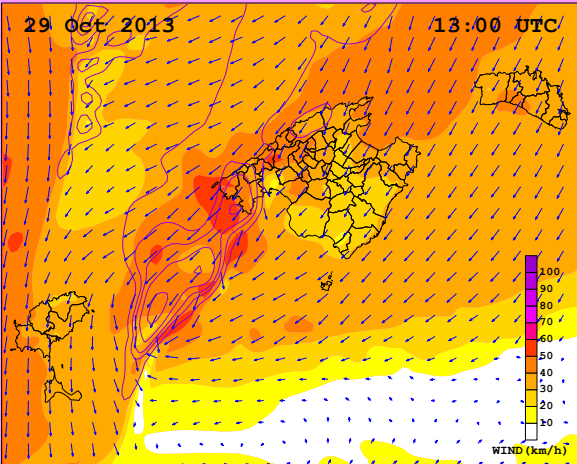
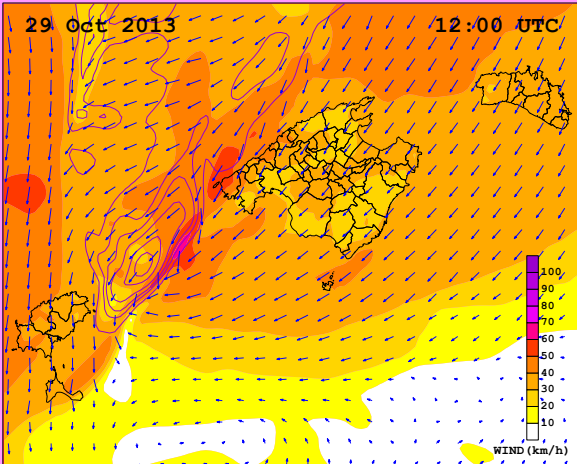
CONTROL SIMULATION

RUN
phys
55



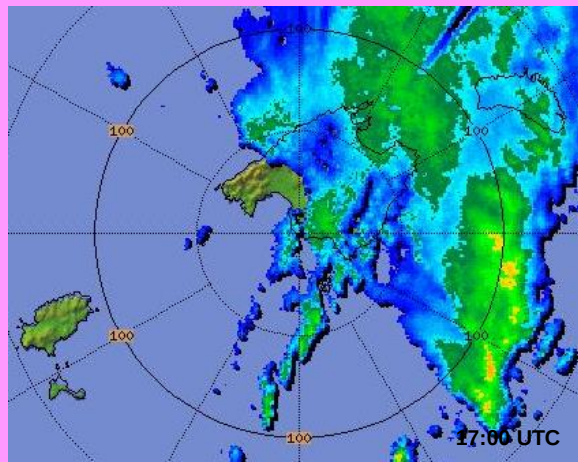
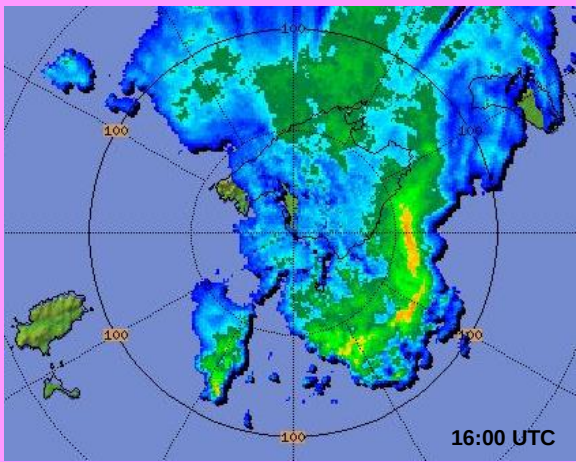
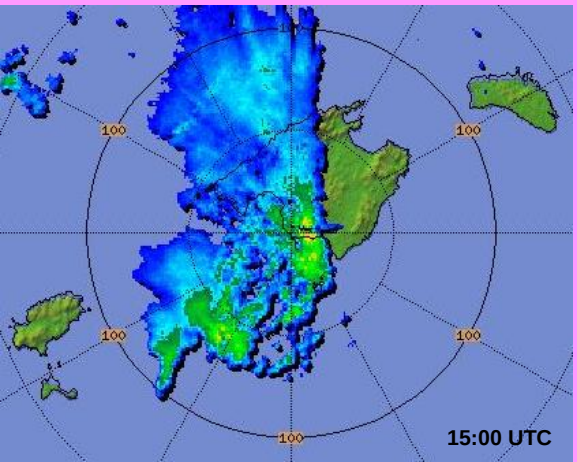
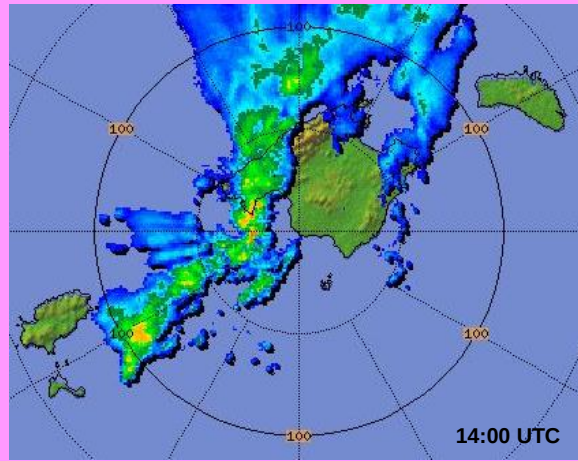
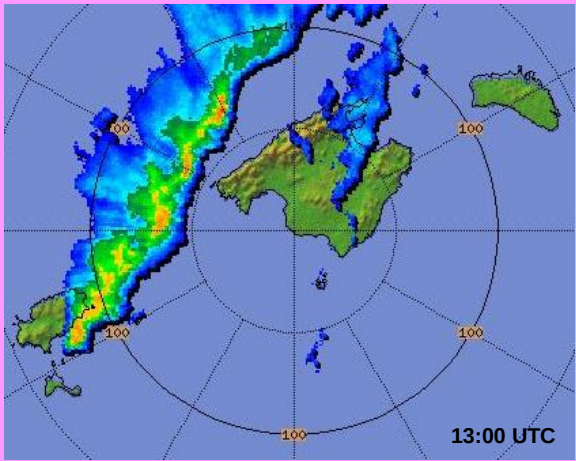
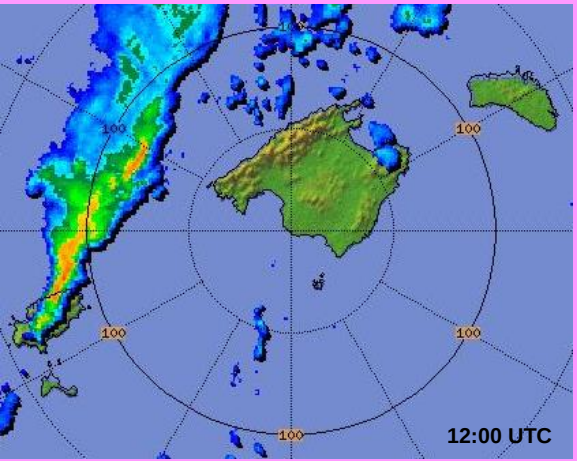
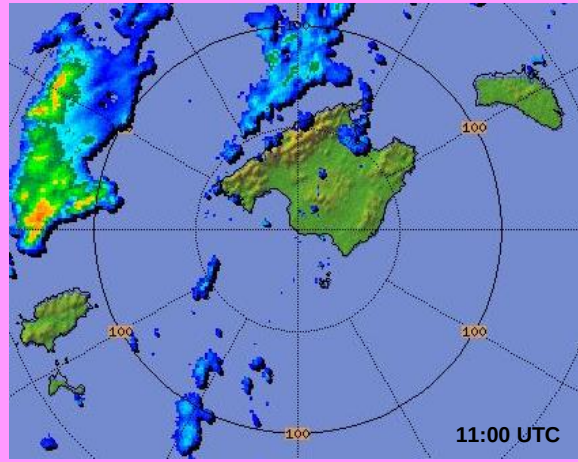
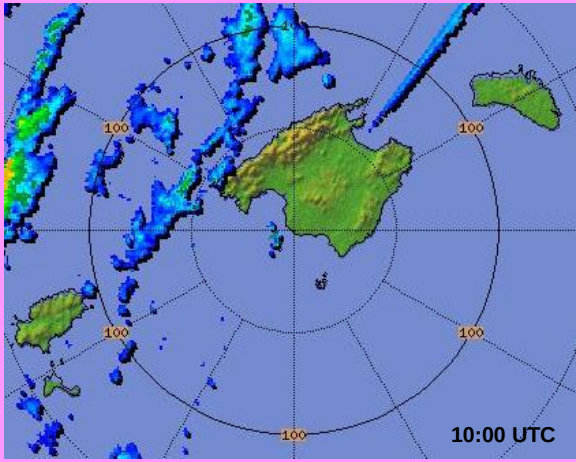
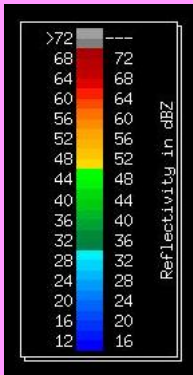
SFC
Wind

30'
Rain

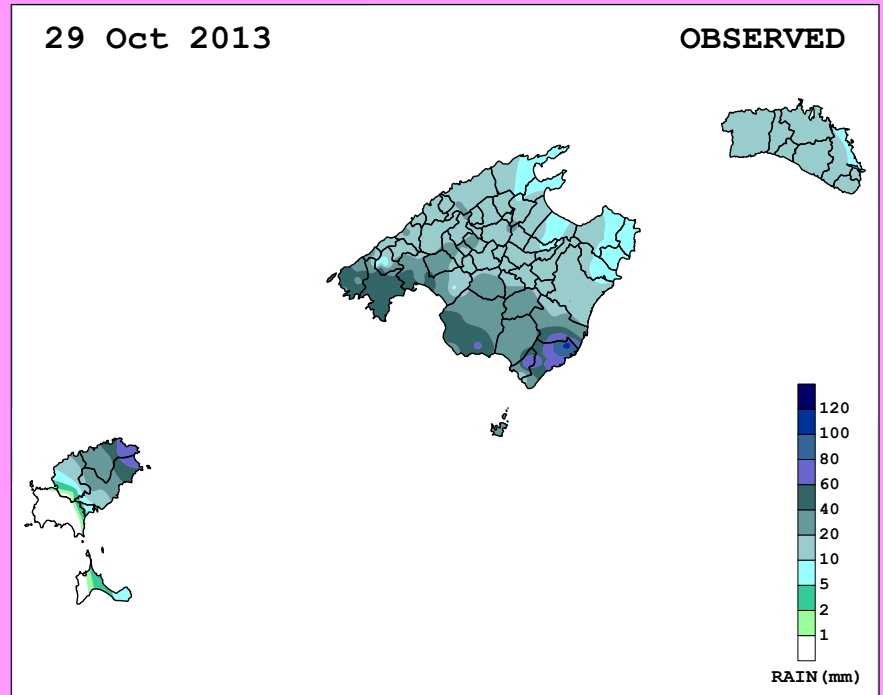
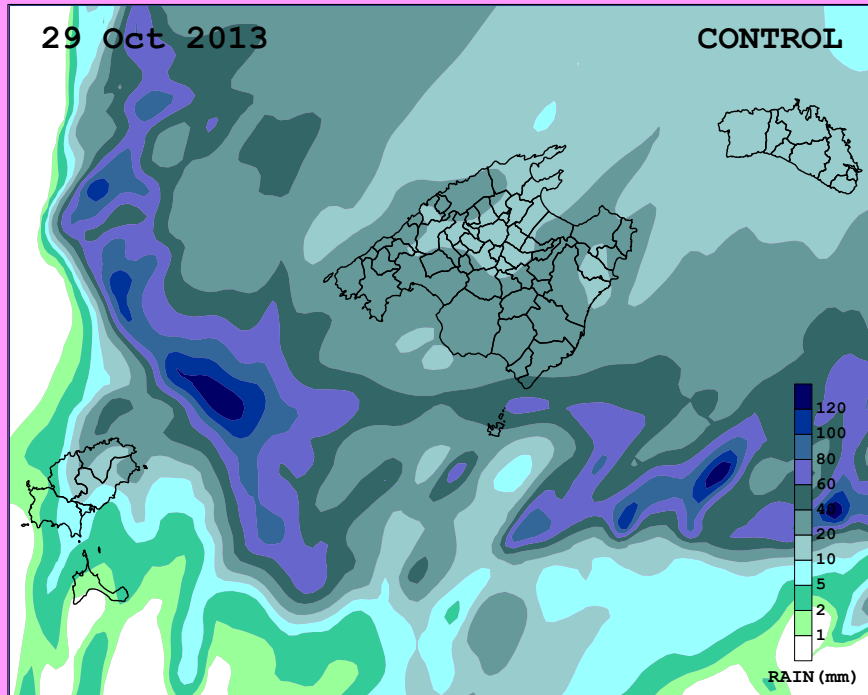


RADAR

CAPPI
2.5 km



TOTAL RAINFALL



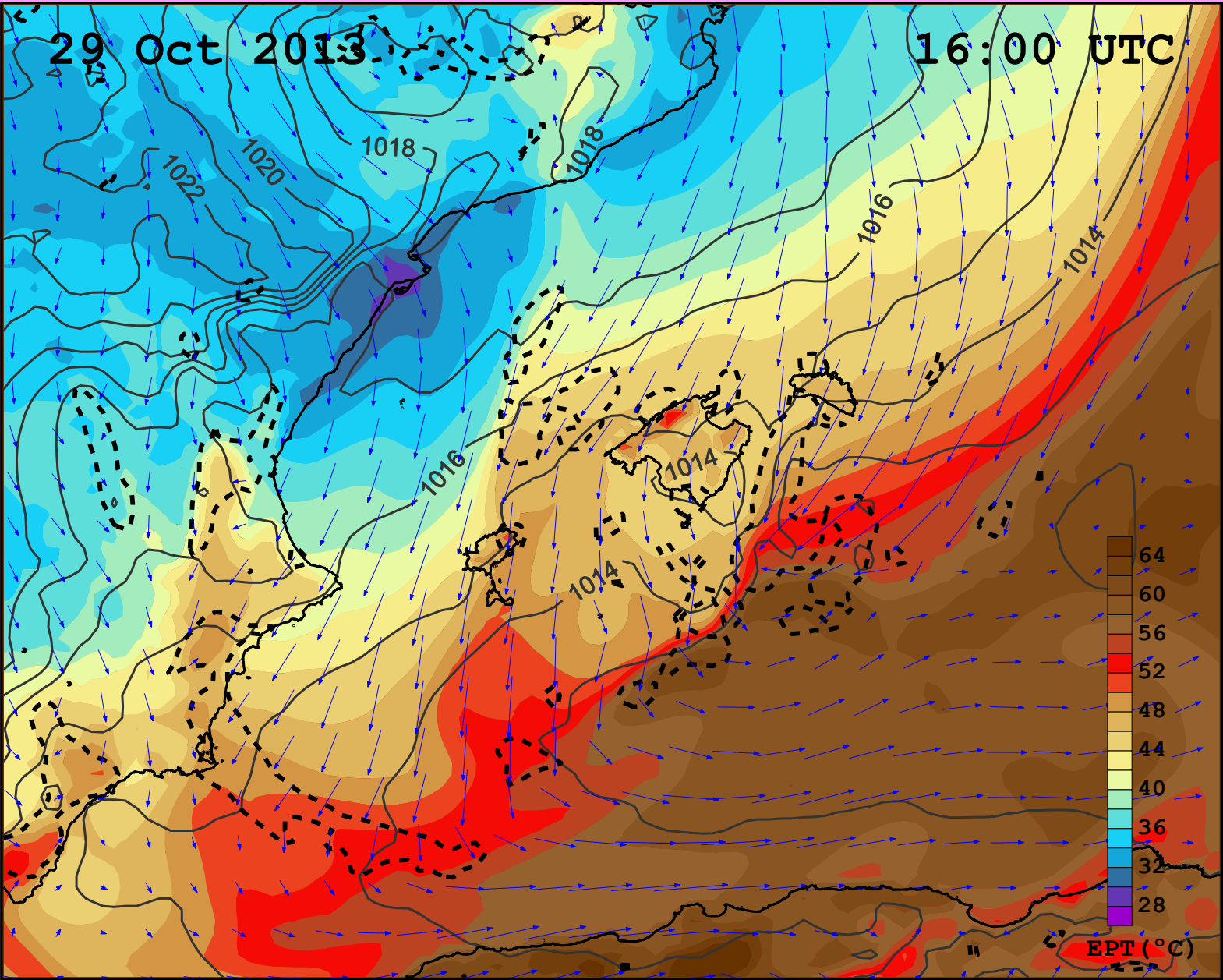
MESO-INGREDIENTS

Low-level
WV Flux

Sfc EPT

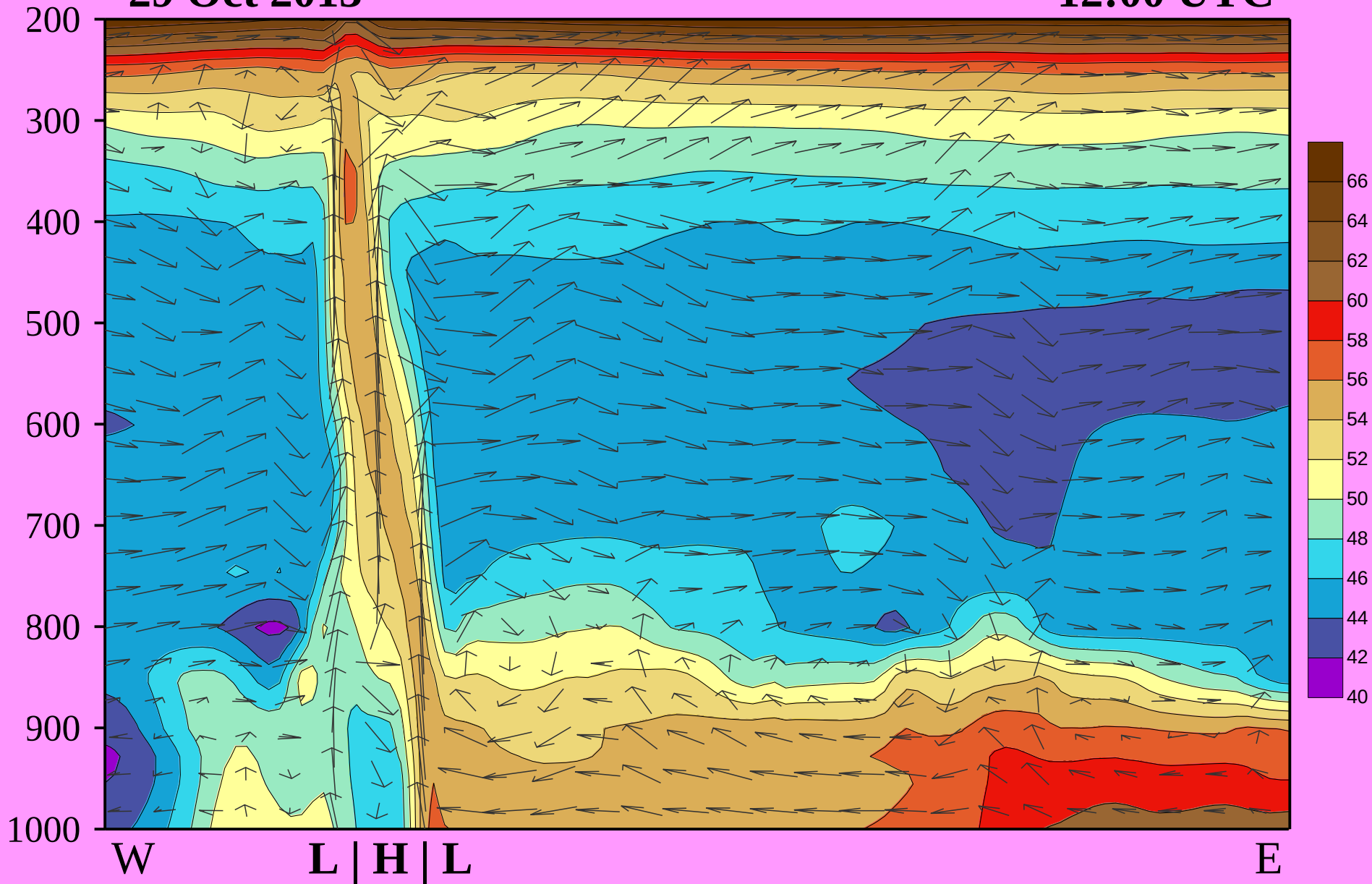
SLP

850 hPa
Upward
Motion



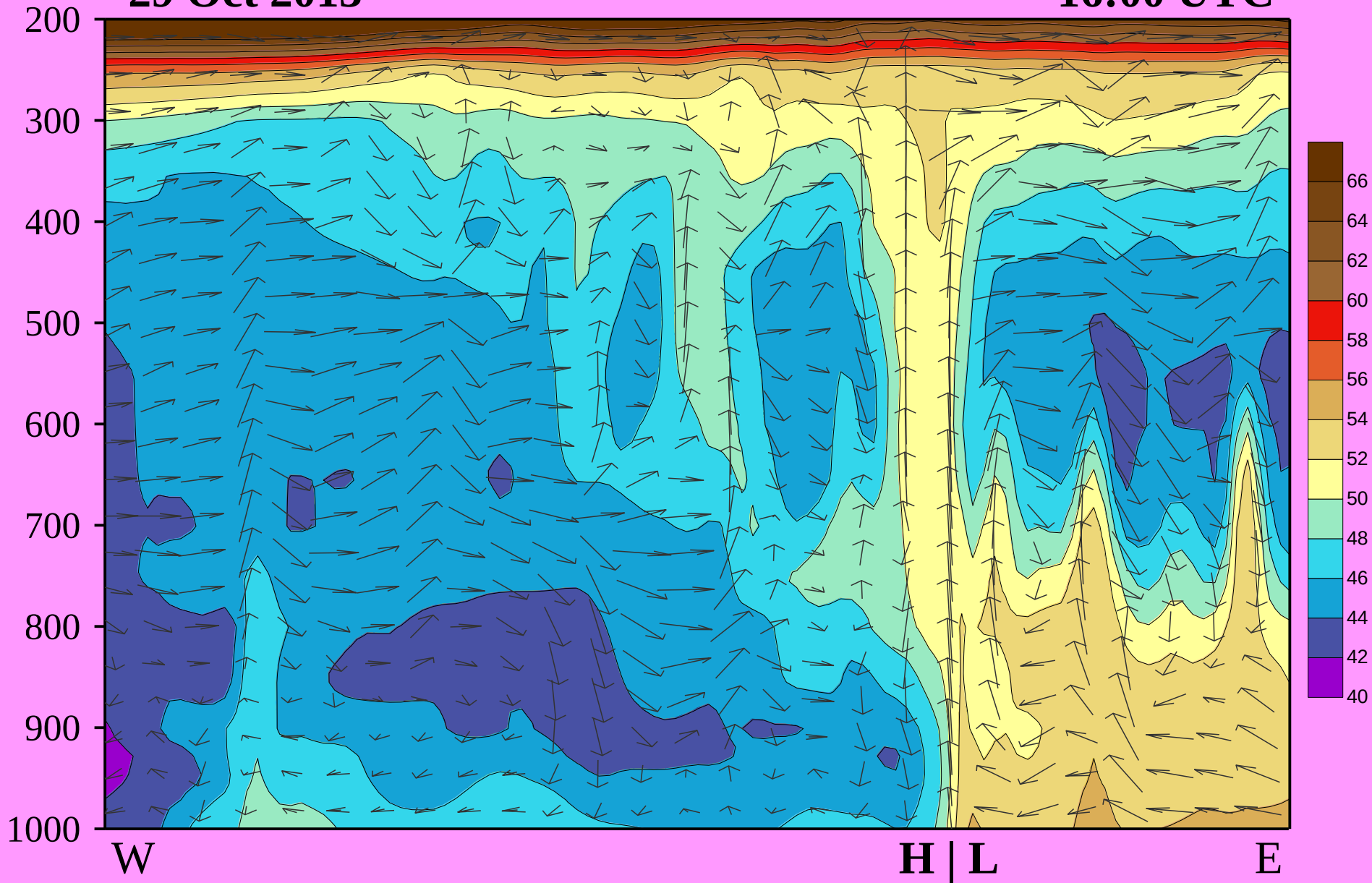
29 Oct 2013

12:00 UTC

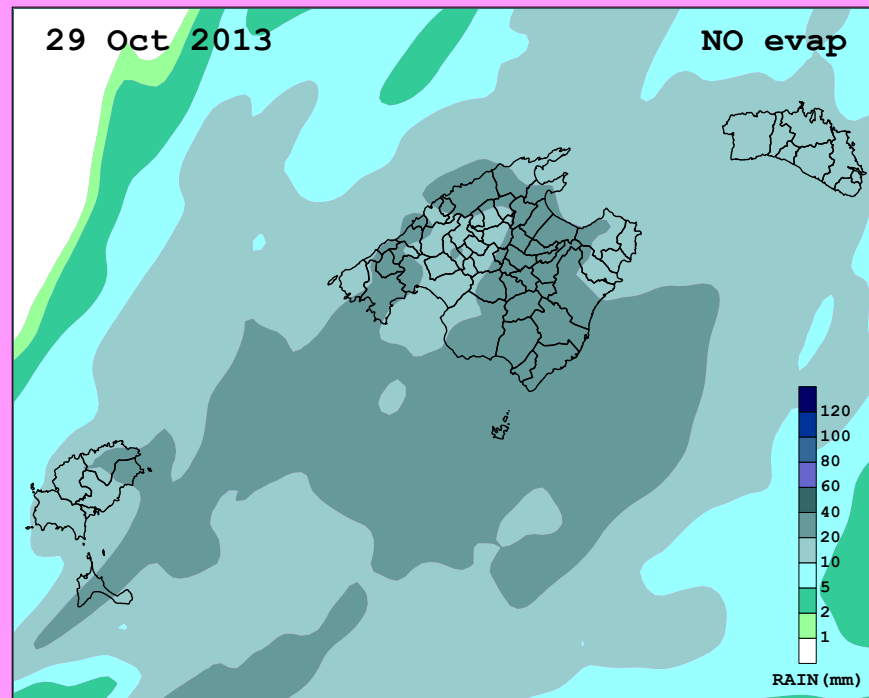
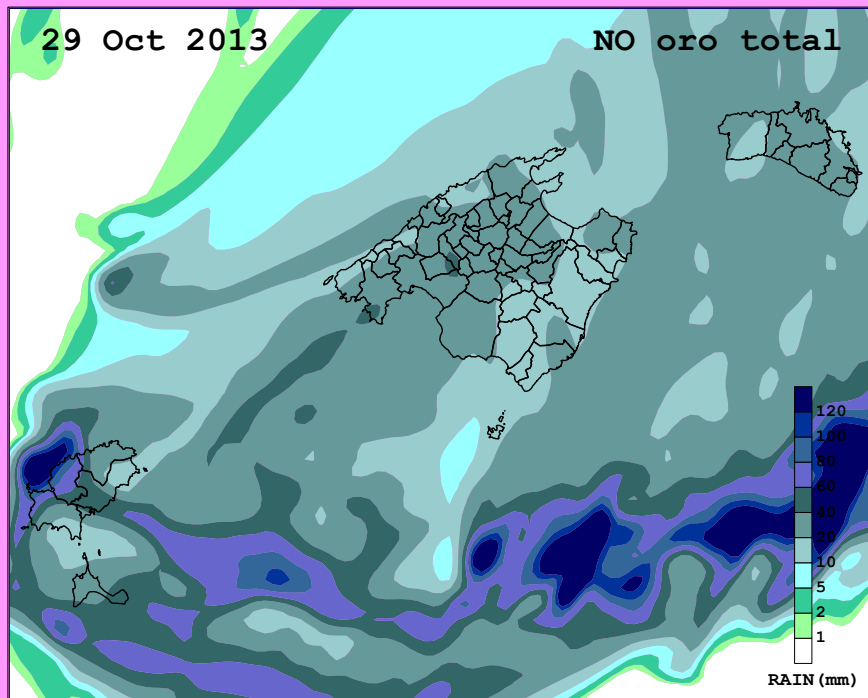
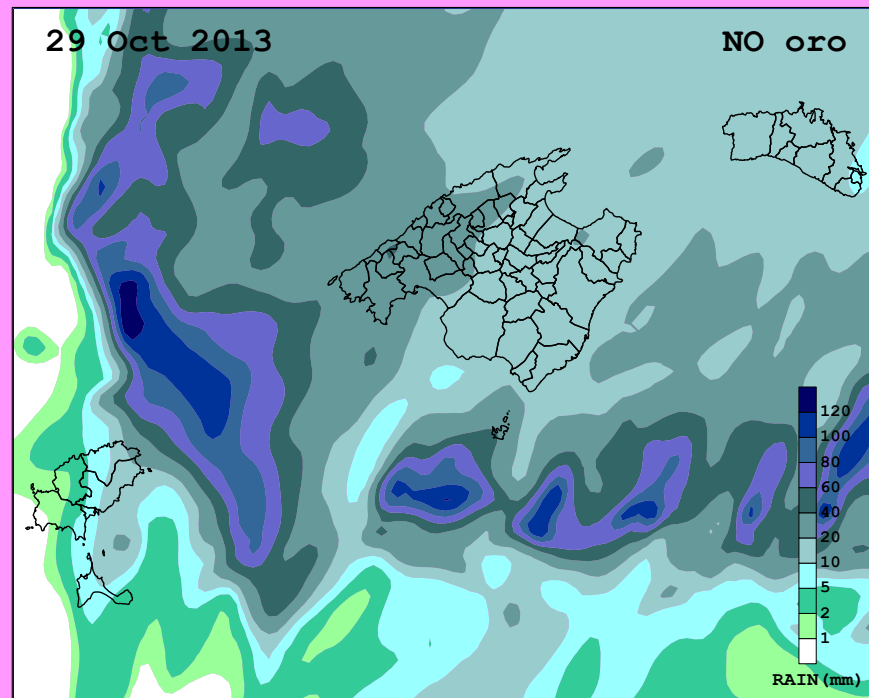
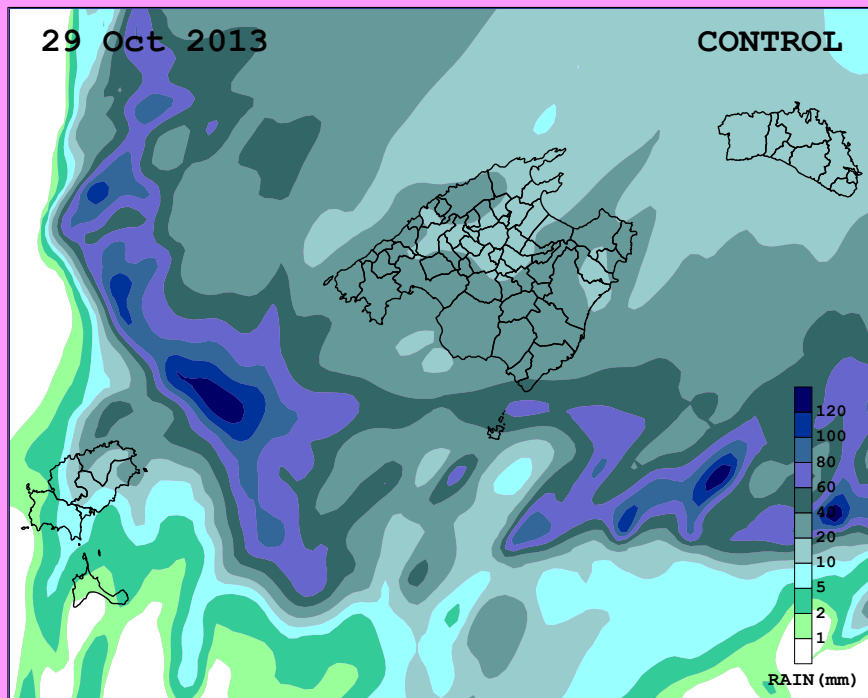


29 Oct 2013

16:00 UTC



SENSITIVITY TESTS



MESO-INGREDIENTS

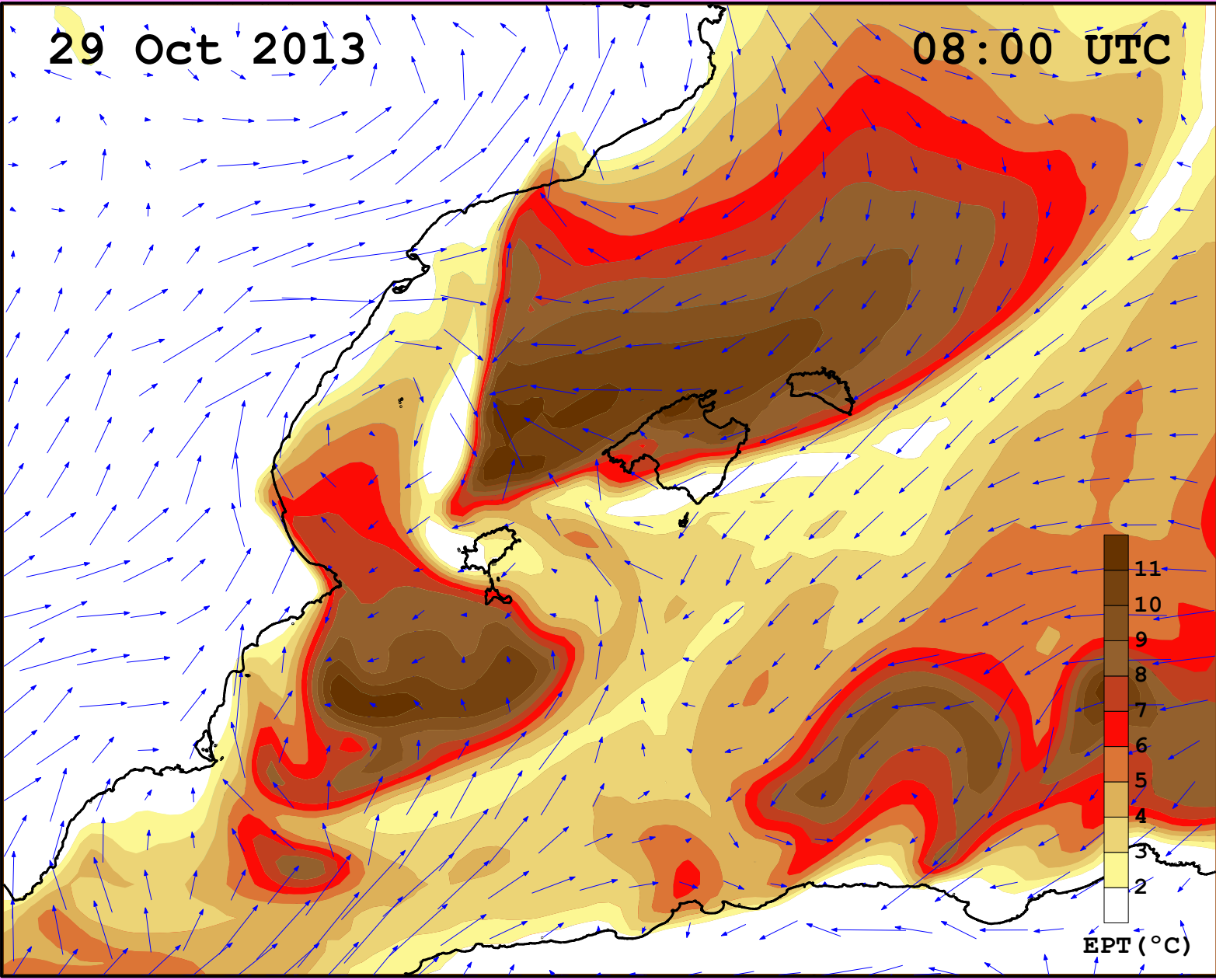
Low-level
WV Flux

Sfc EPT

SLP

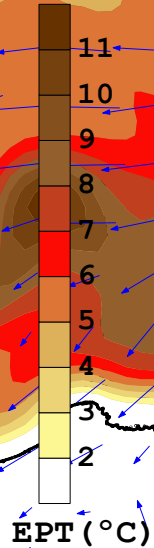
850 hPa
Upward
Motion

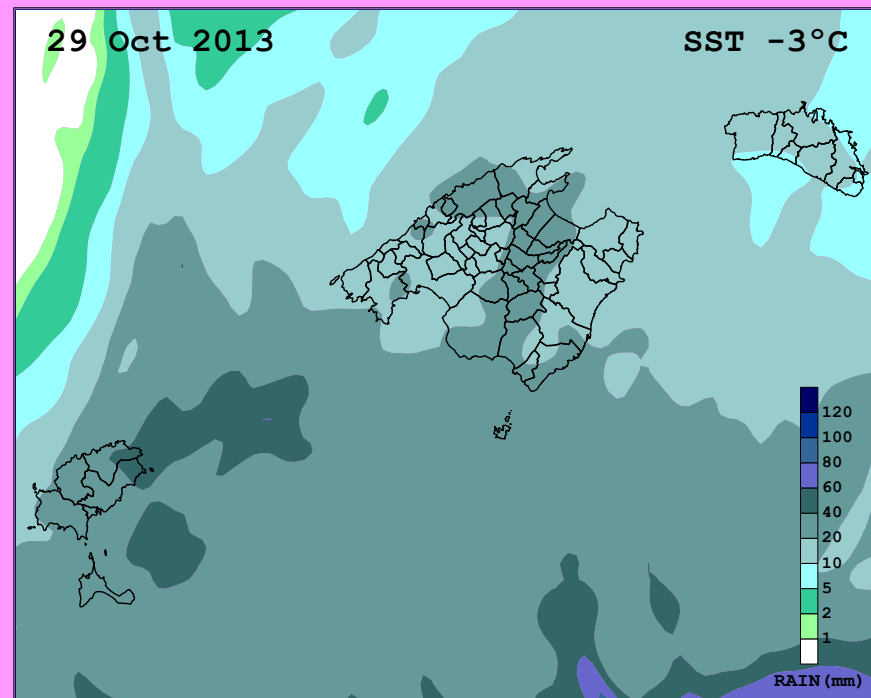
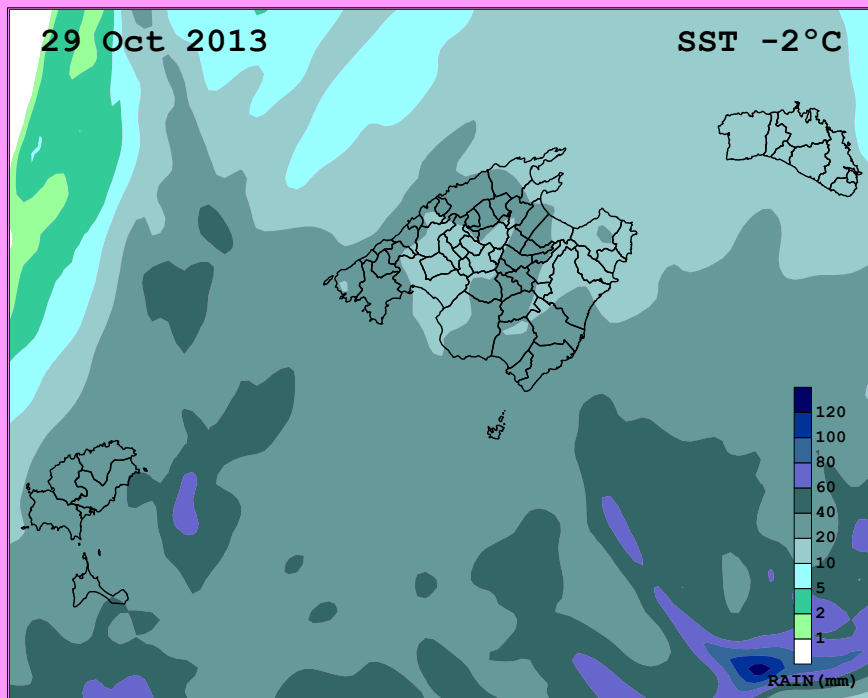
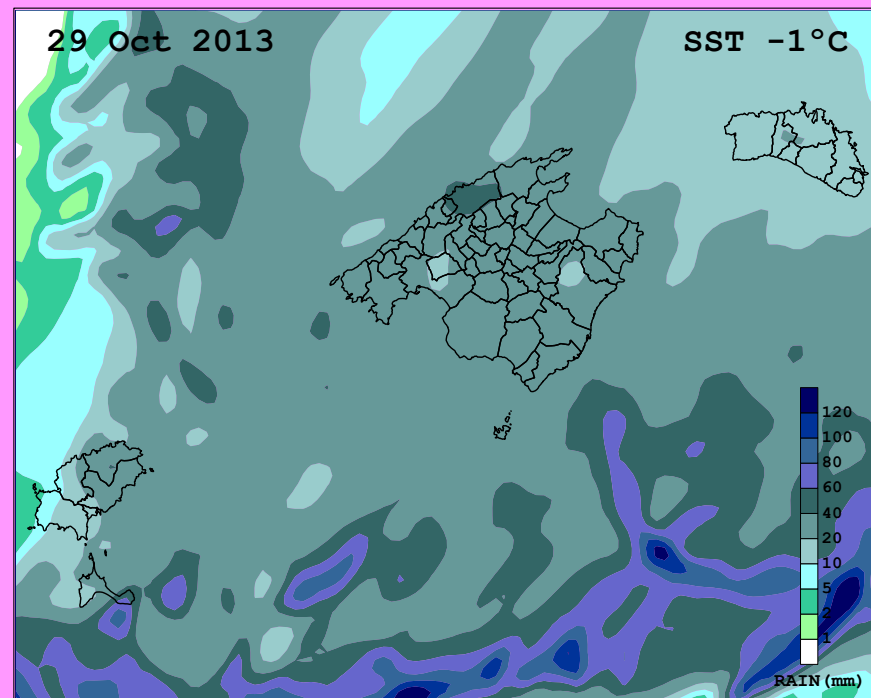
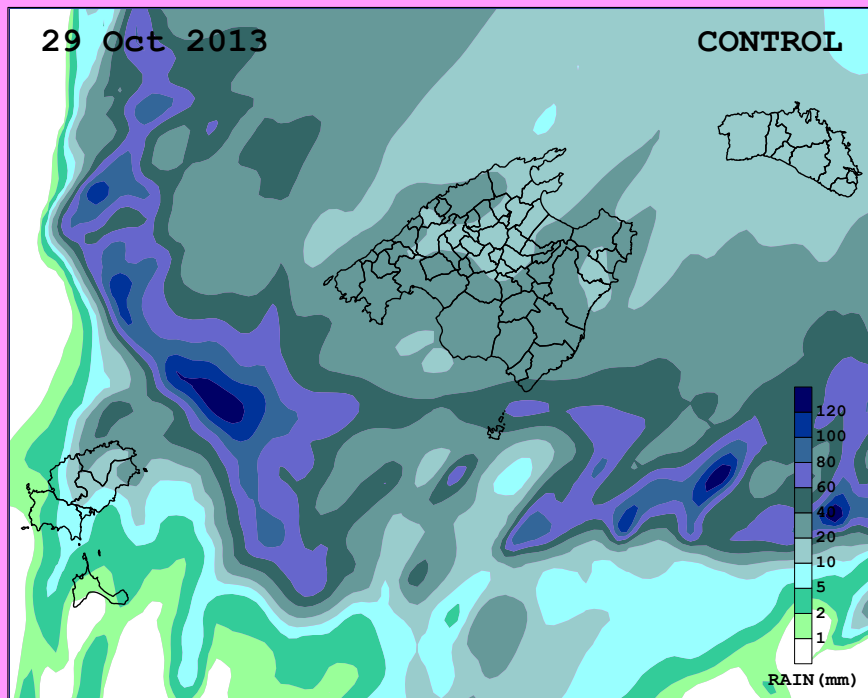
Combined
EFFECTS

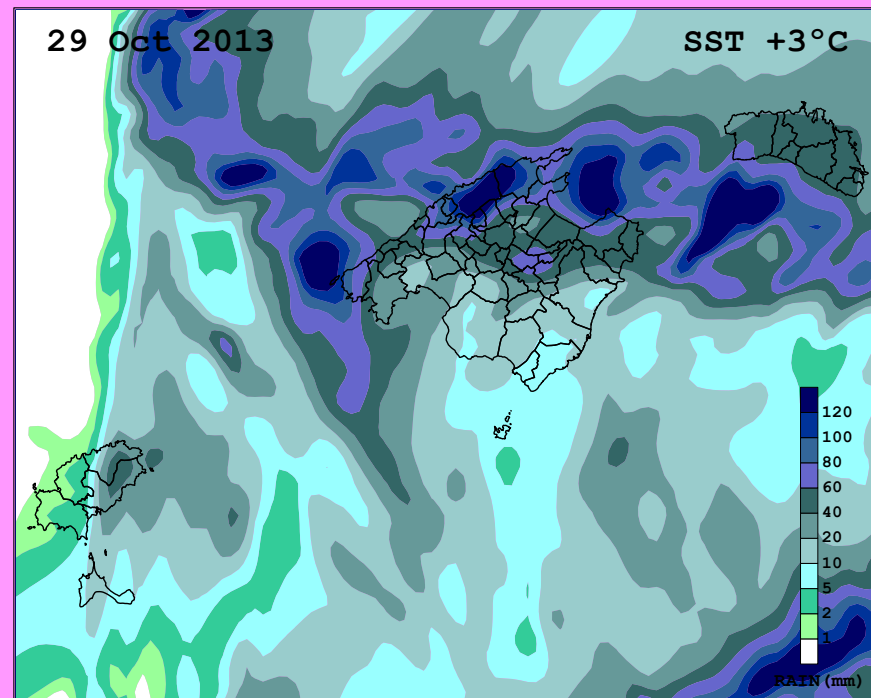
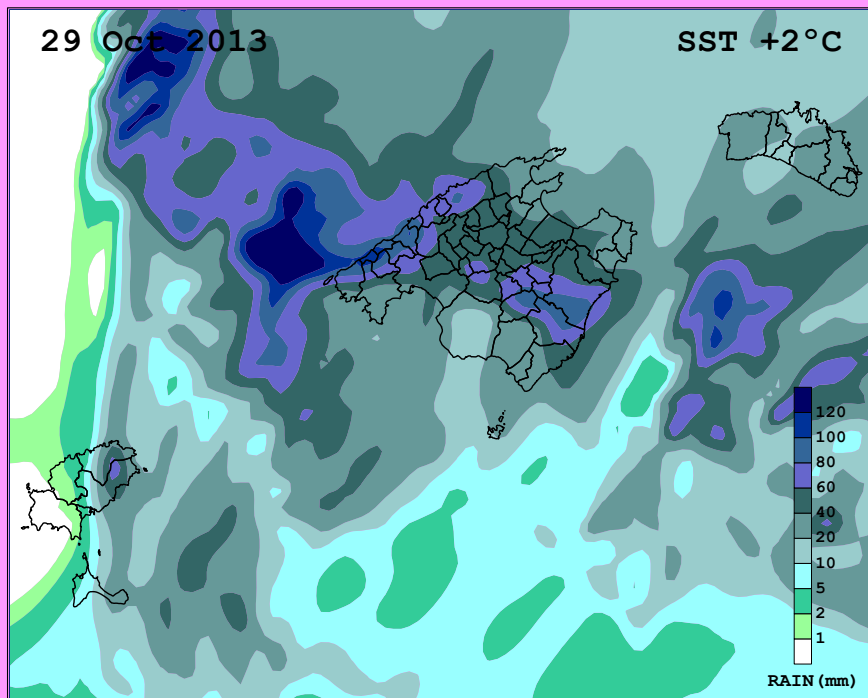
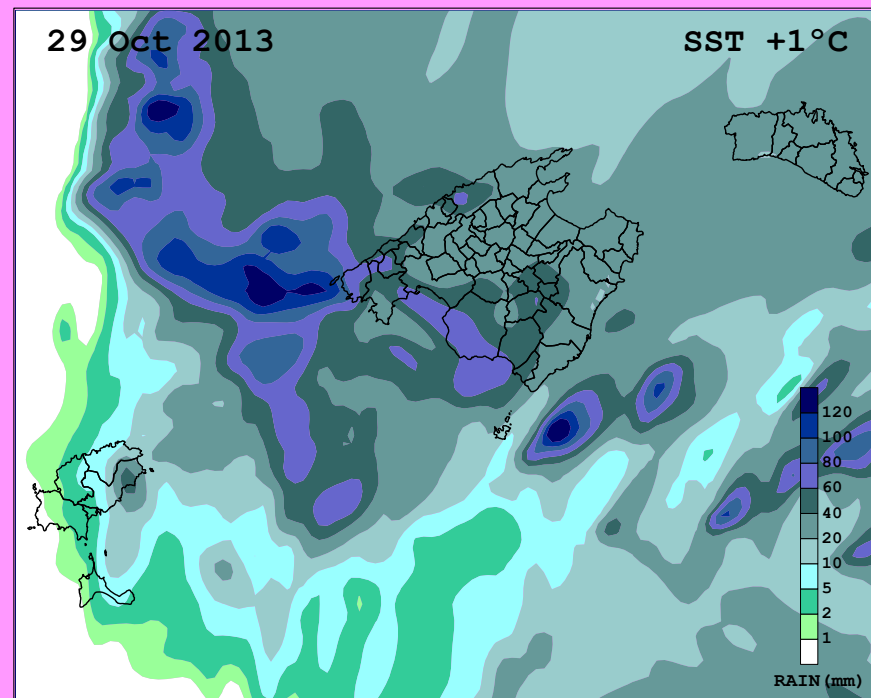
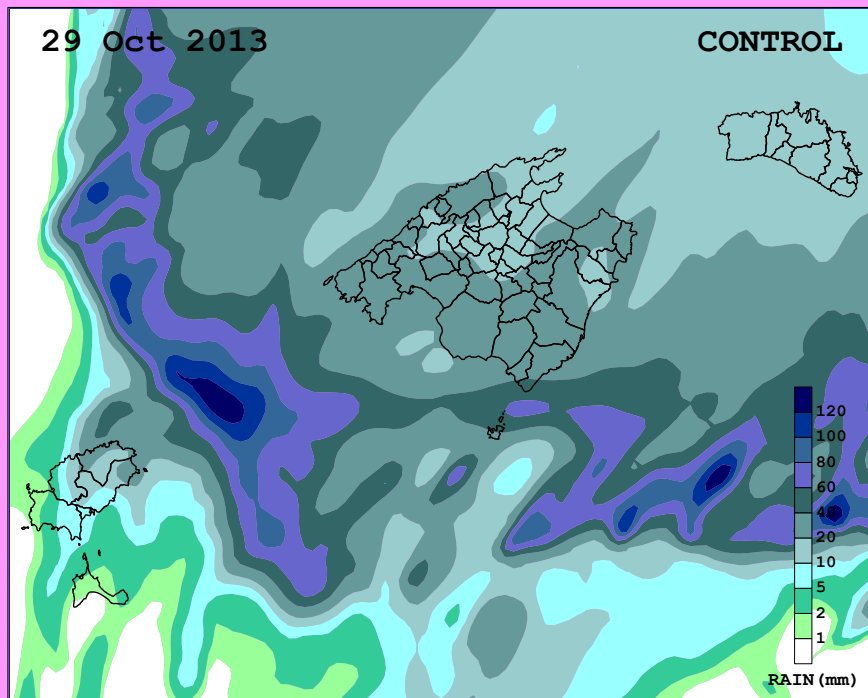


29 Oct 2013

08:00 UTC







An aerial photograph of a river with rapids and a waterfall. The water is white and turbulent as it flows over rocks. The surrounding landscape is rugged and rocky, with some sparse vegetation on the left side.

**THANK YOU
FOR
YOUR ATTENTION**