



Part I

ELS VENTS

D'ORIGEN LOCAL

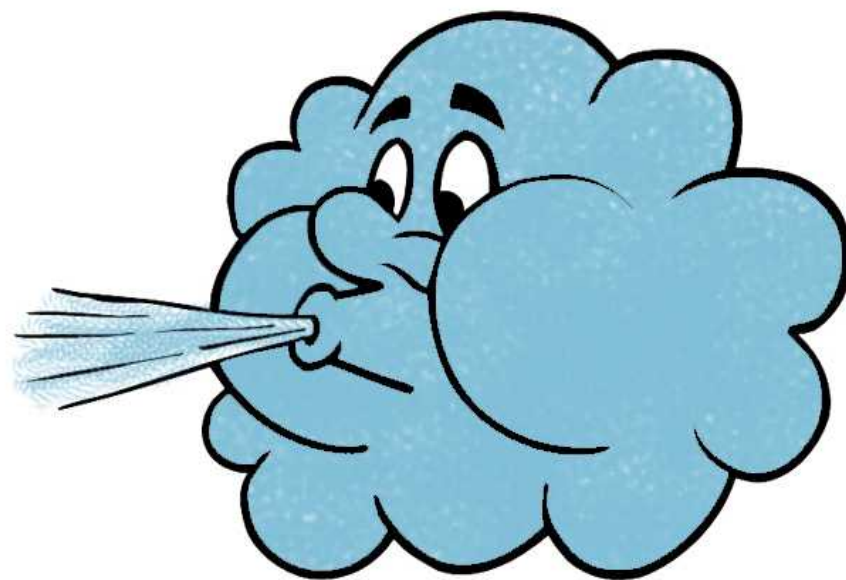
Maria Antònia Jiménez
Grup de Meteorologia,
Dpt. De Física (UIB)



Campus UIB, 15 de juliol de 2016

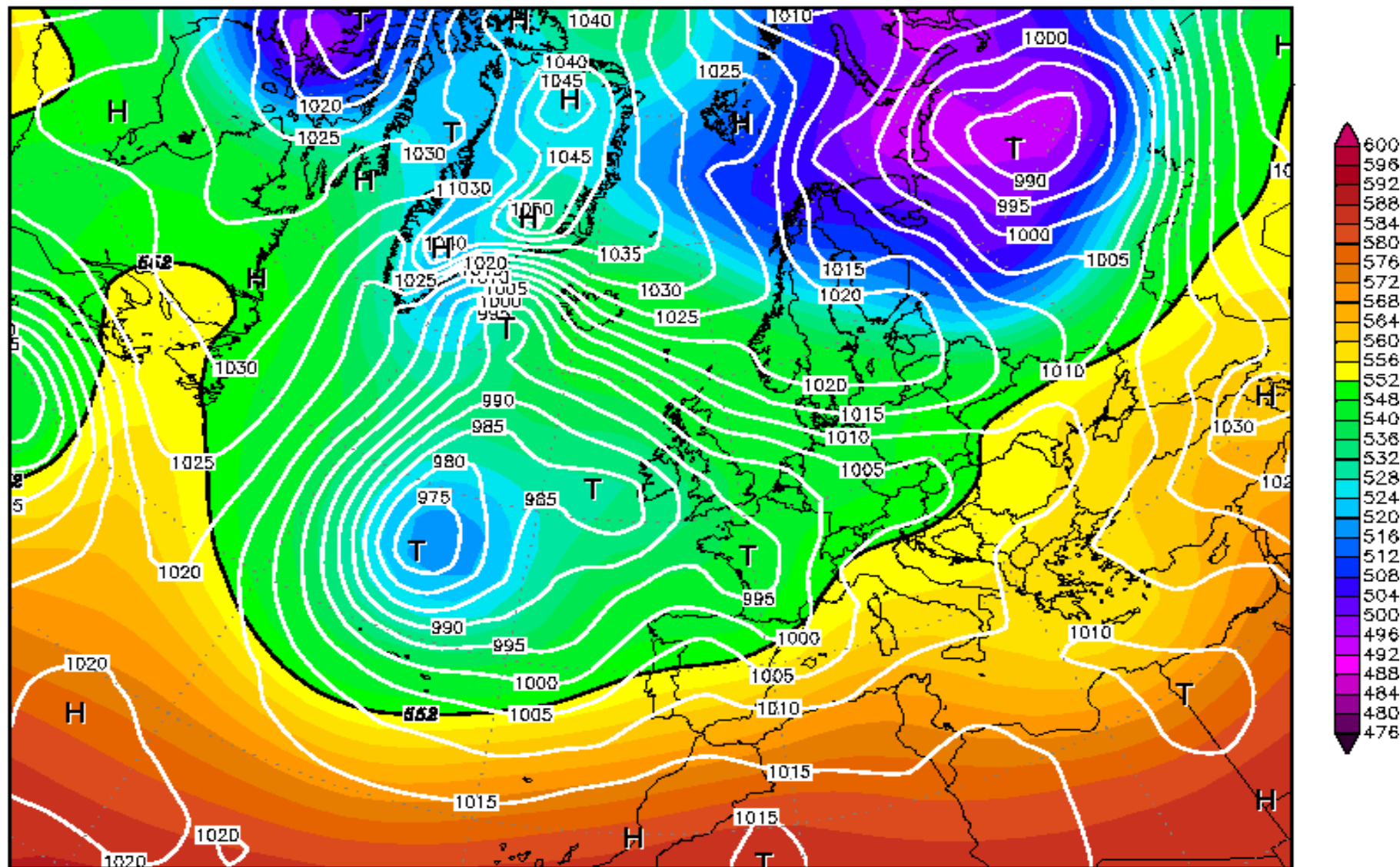


ORIGEN LOCAL? QUAN?



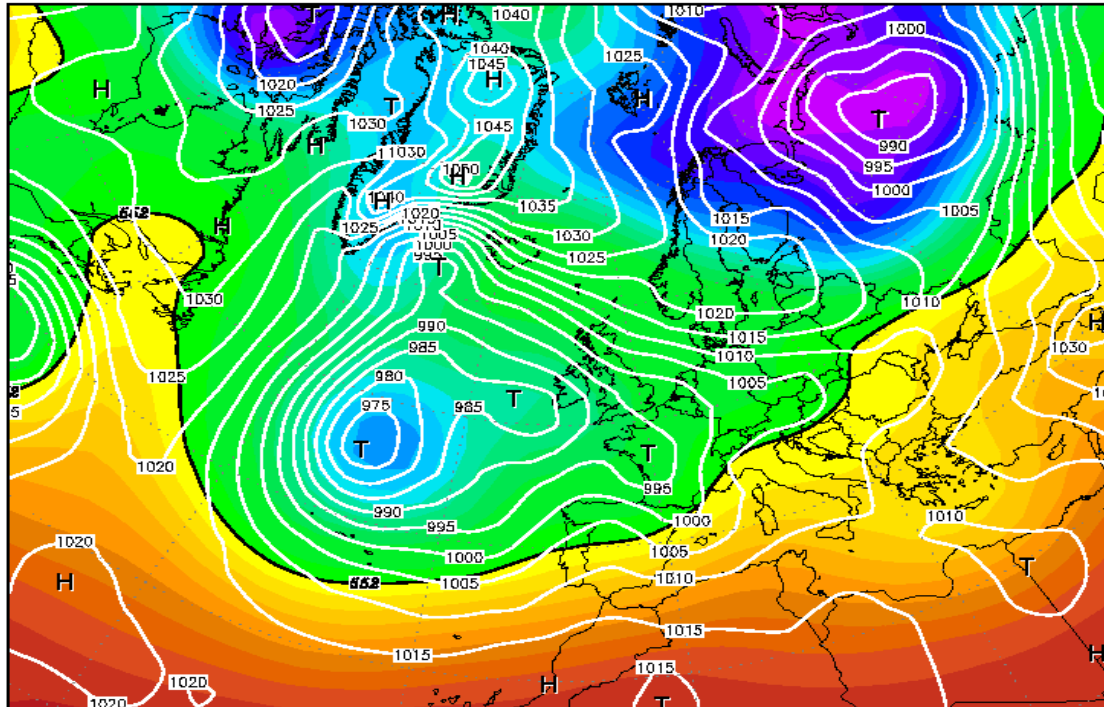
08MAR2013 00Z

500 hPa Geopotential (gpm) und Bodendruck (hPa)



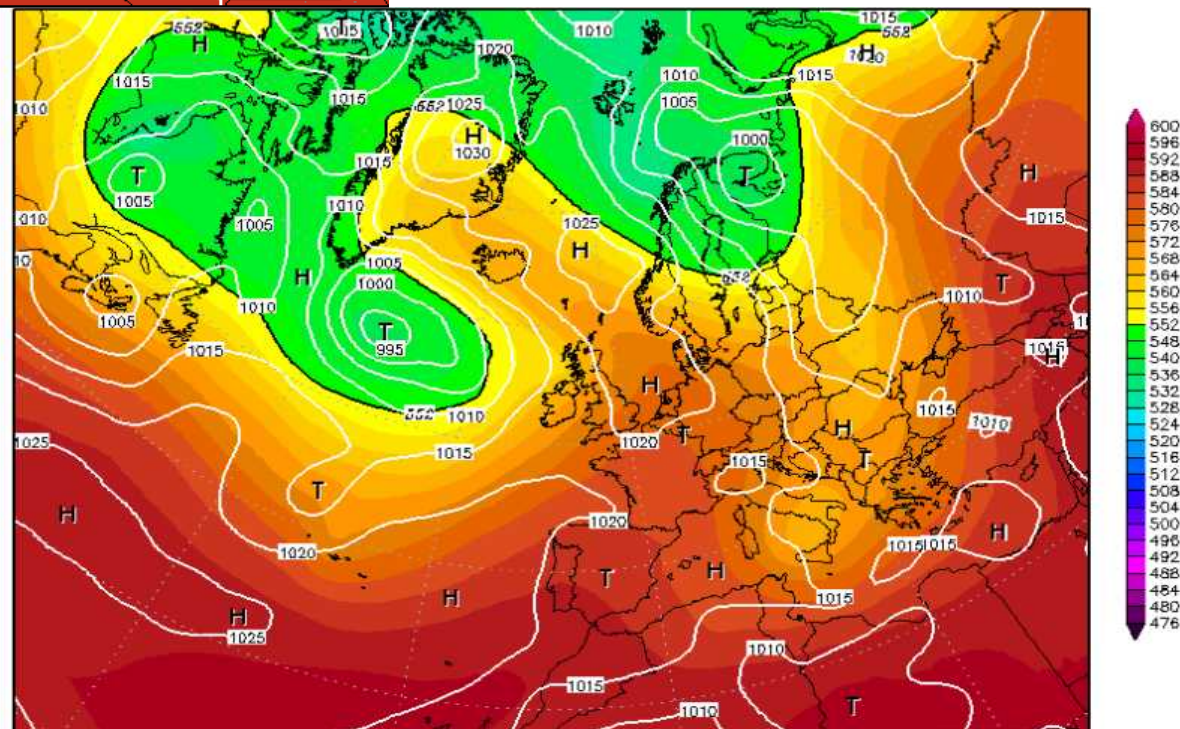
Daten: Reanalysis des NCEP
(C) Wetterzentrale
www.wetterzentrale.de

vents màxims d'uns 50km/h a Palma

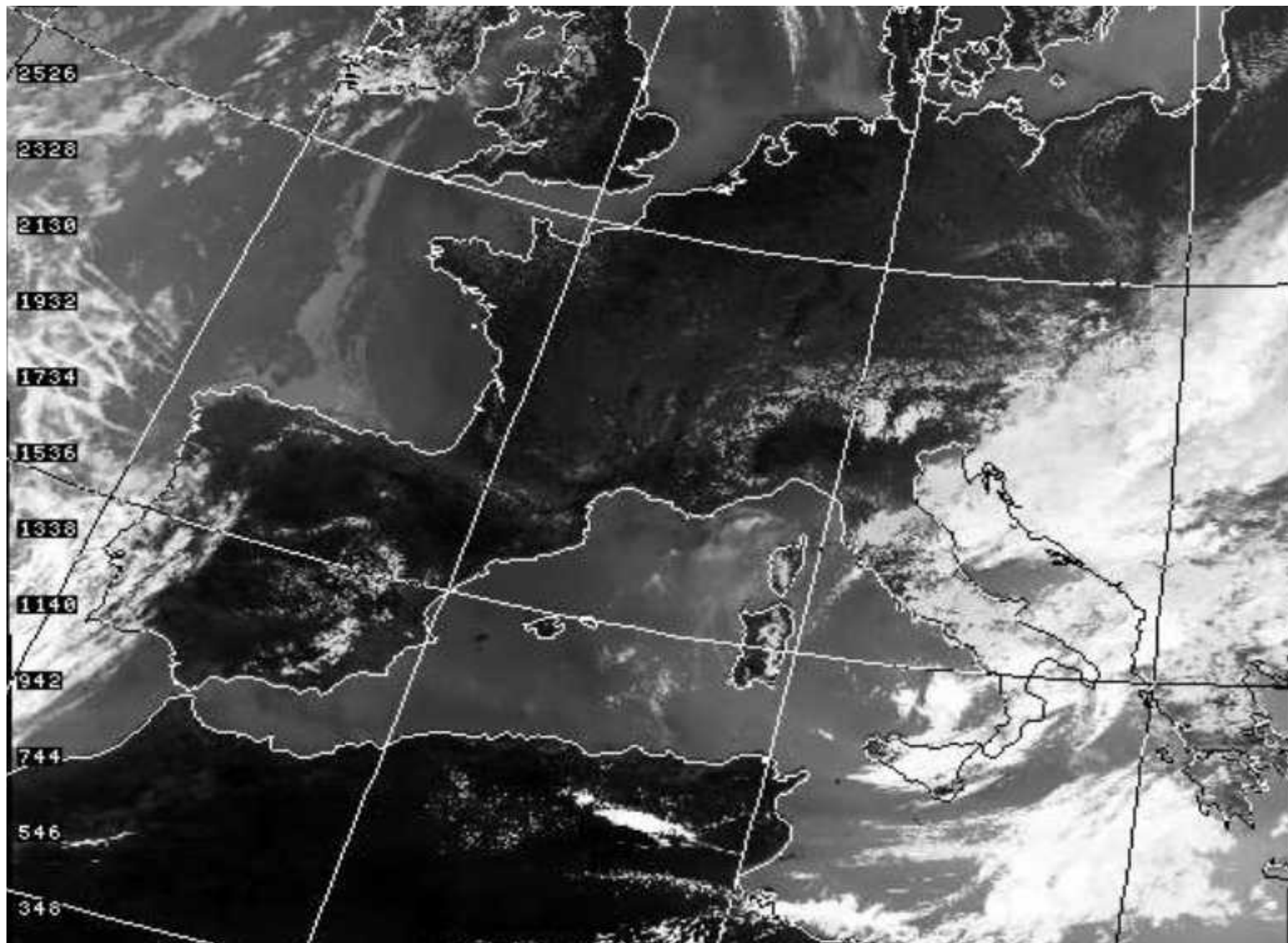


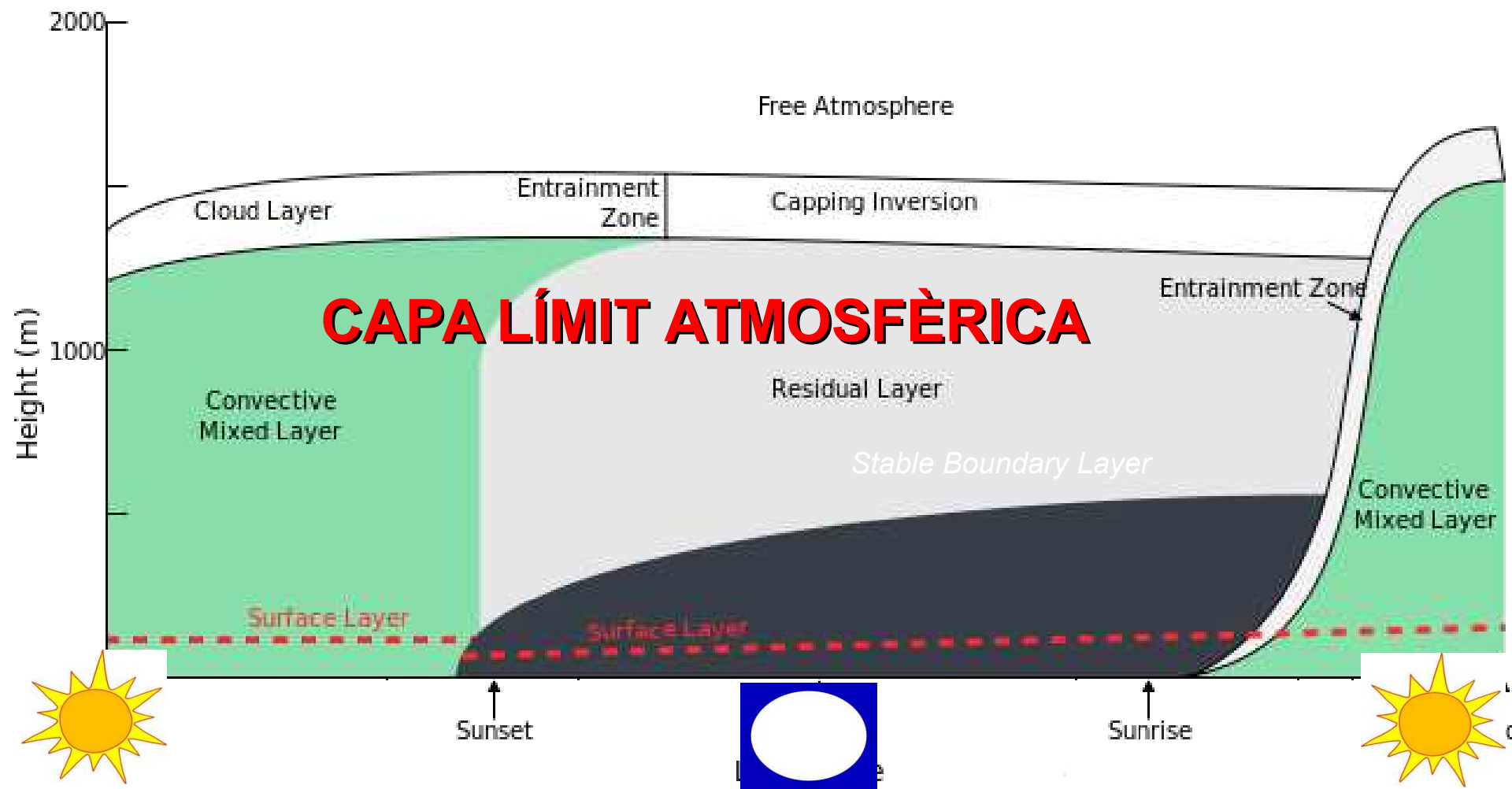
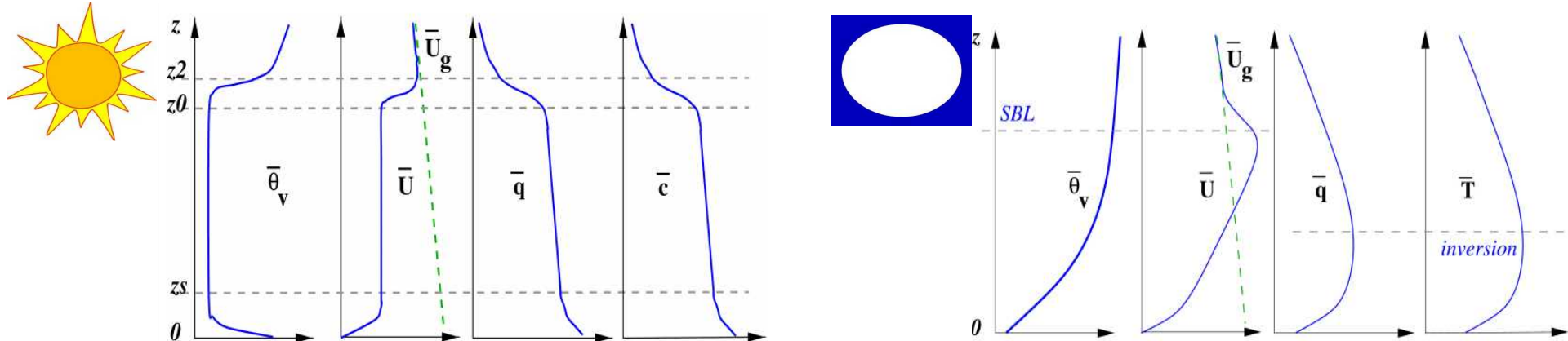
✓ *Feble gradient de pressió en superfície*

✓ *Situació (A)*

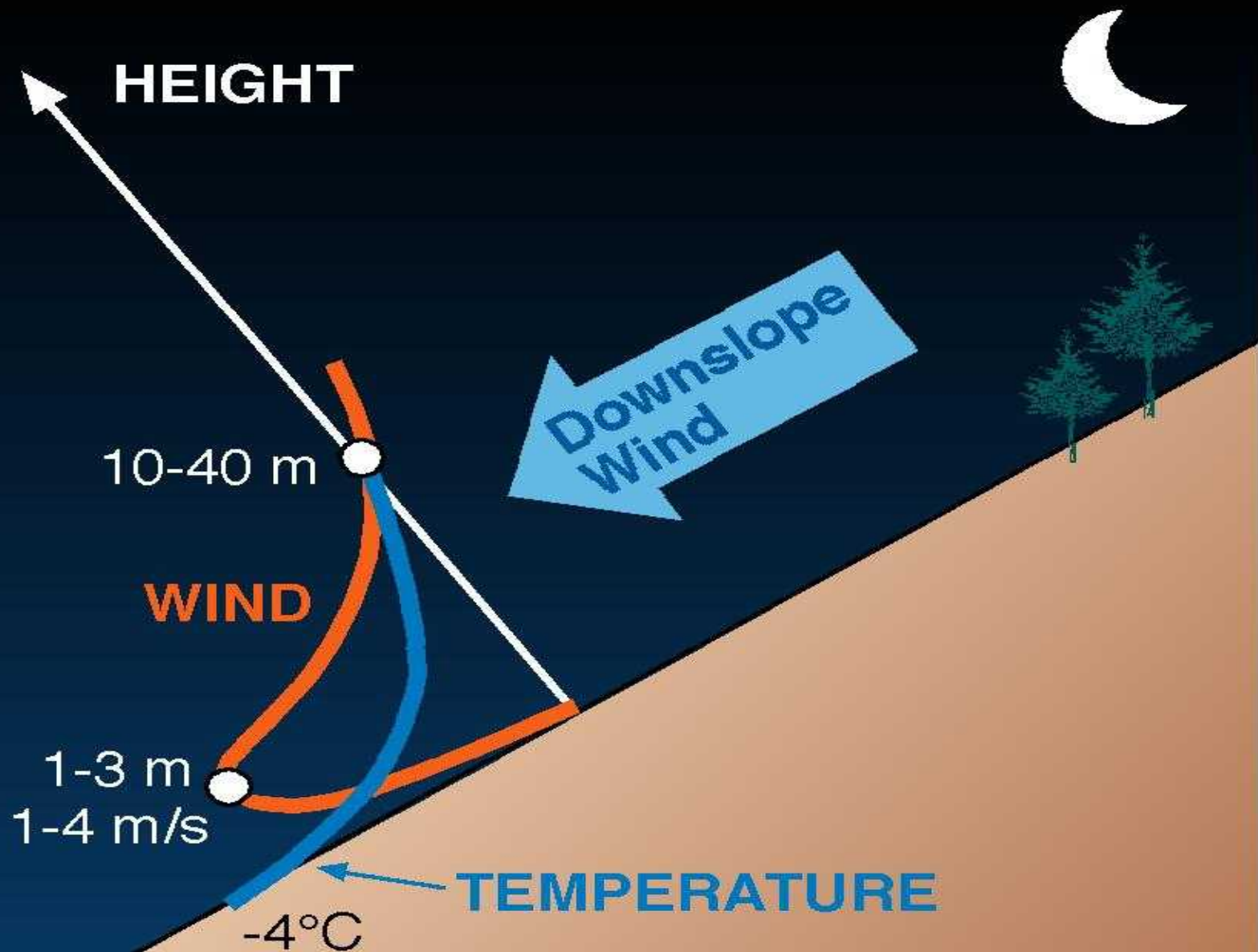


✓ *Cels clars*

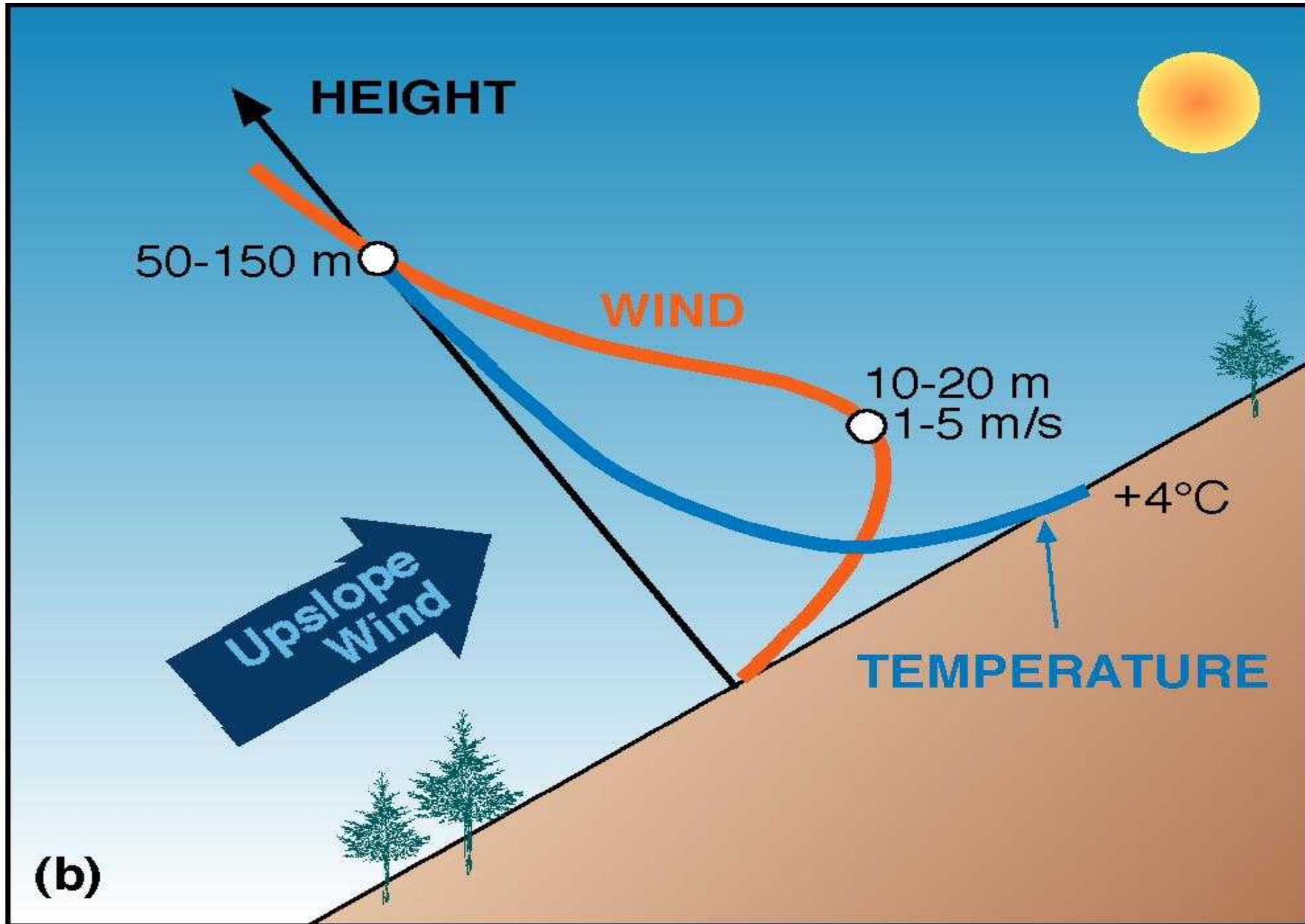




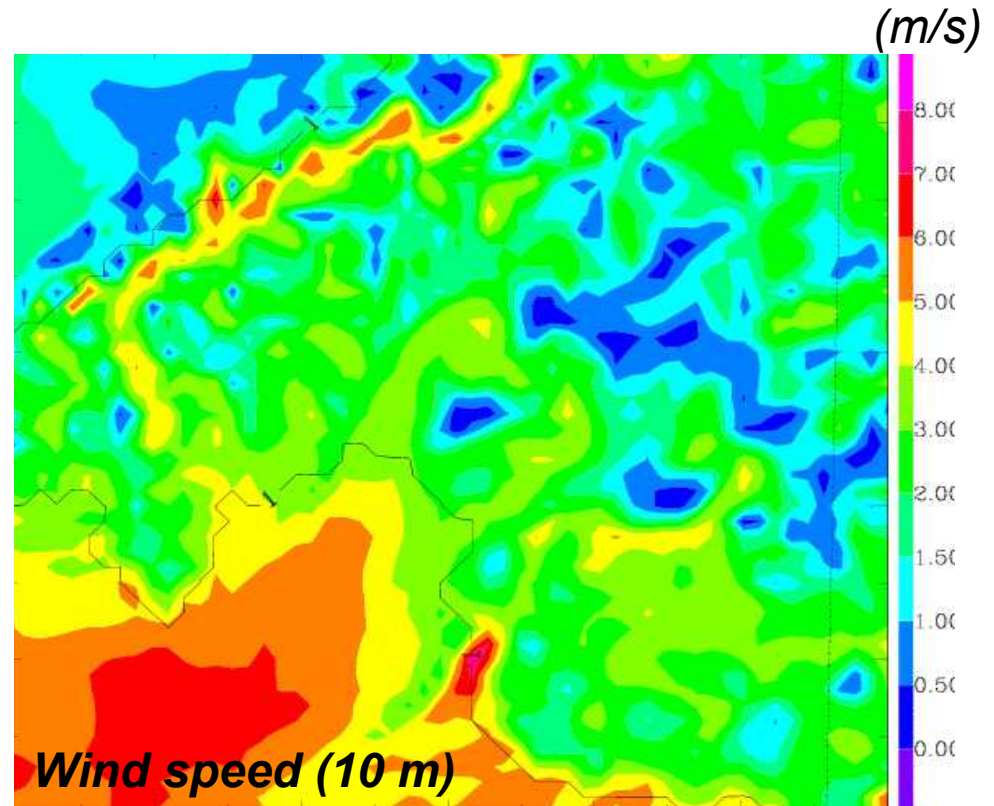
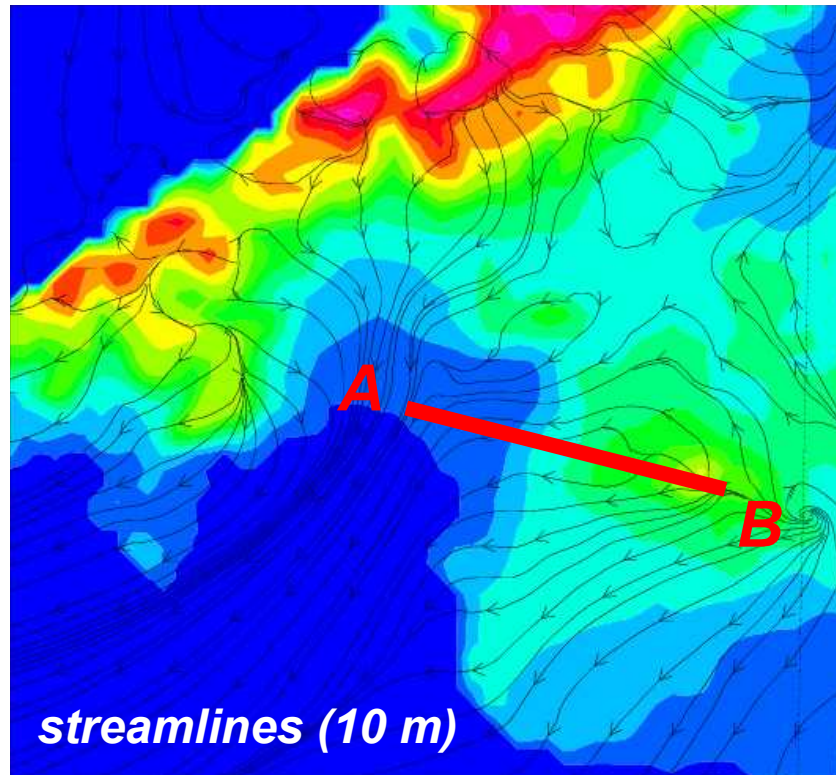
VENTS DE PENDENT – CATABÀTICS (nit)



VENTS DE PENDENT – ANABÀTICS (dia)



EXEMPLE CATABÀTIC - MALLORCA 6th January 1999 at 0400 UTC

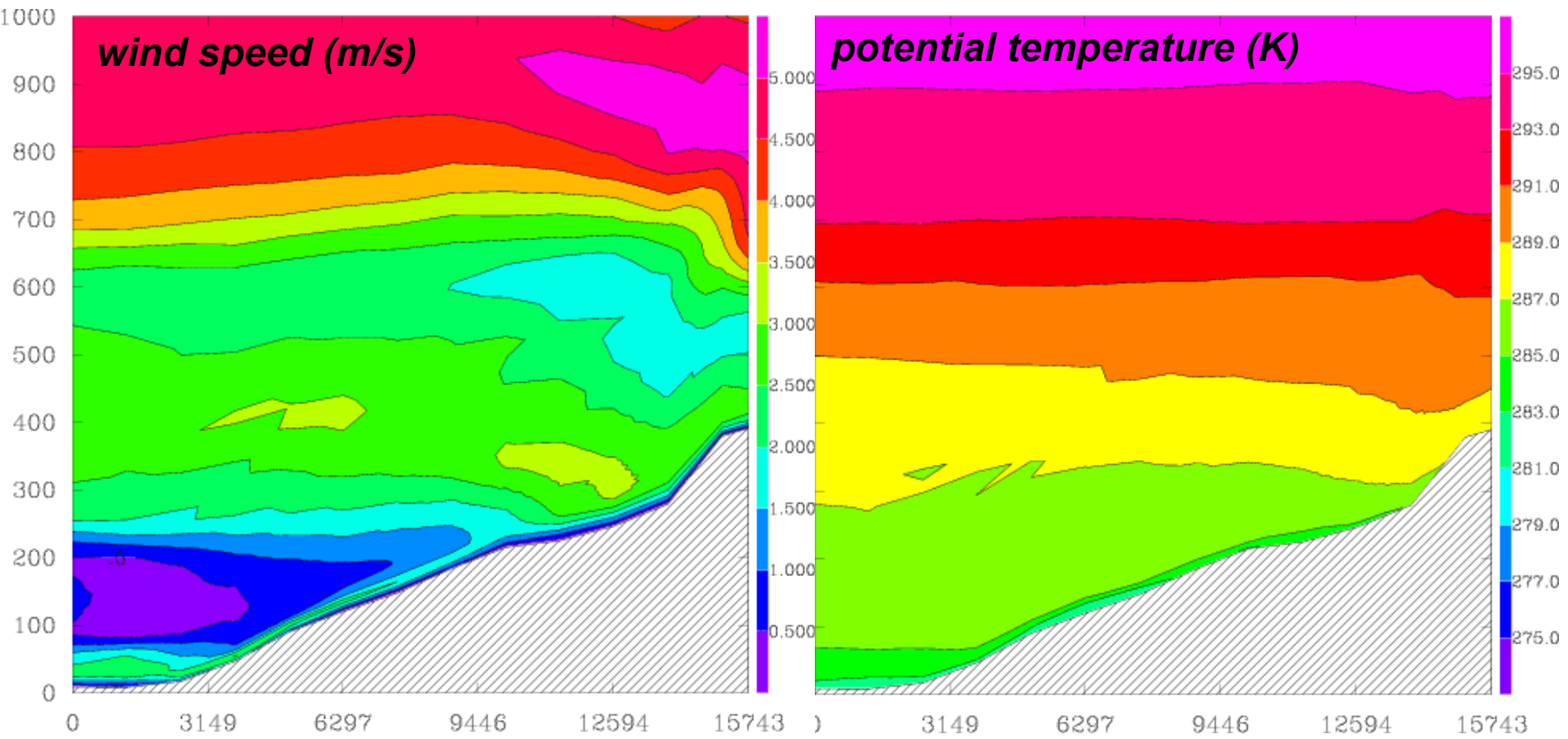
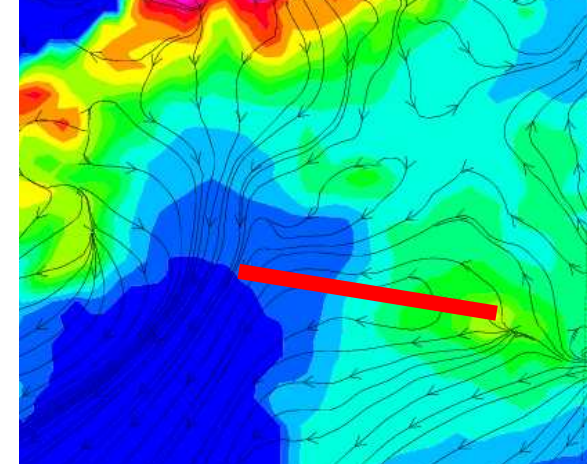


EXEMPLE CATABÀTIC - MALLORCA

VERTICAL CROSS-SECTIONS at 1800 UTC

Cuxart, Jiménez, Martínez (2007)

Martínez and Cuxart (2009)

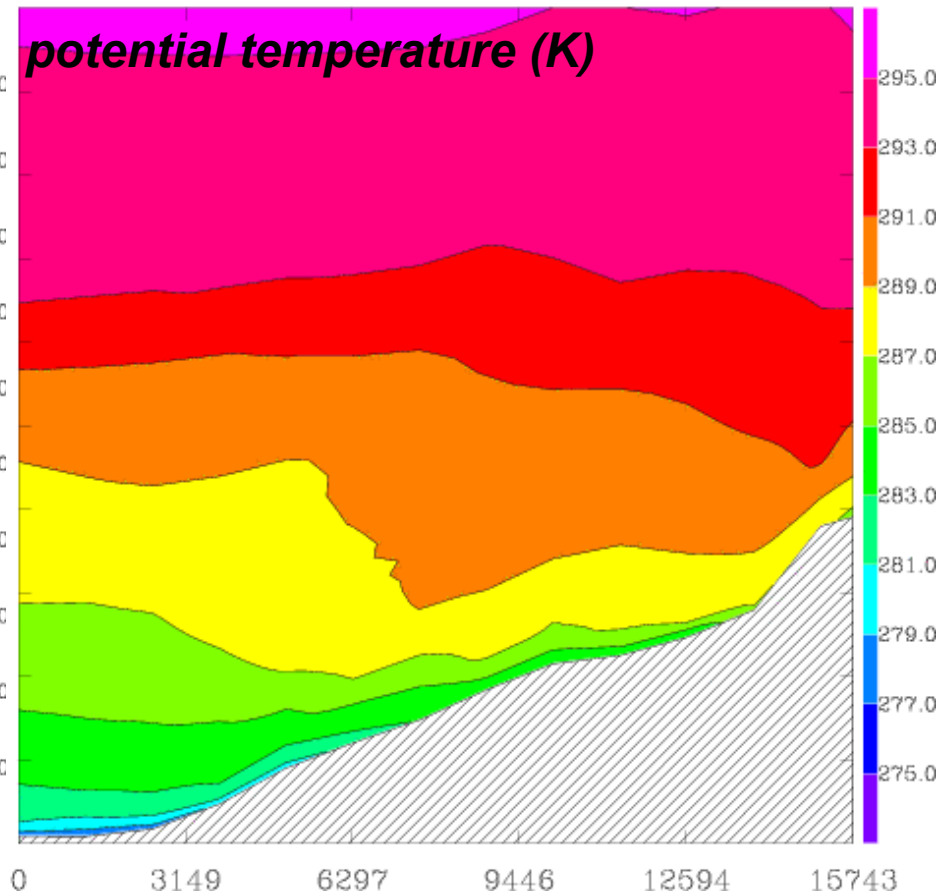
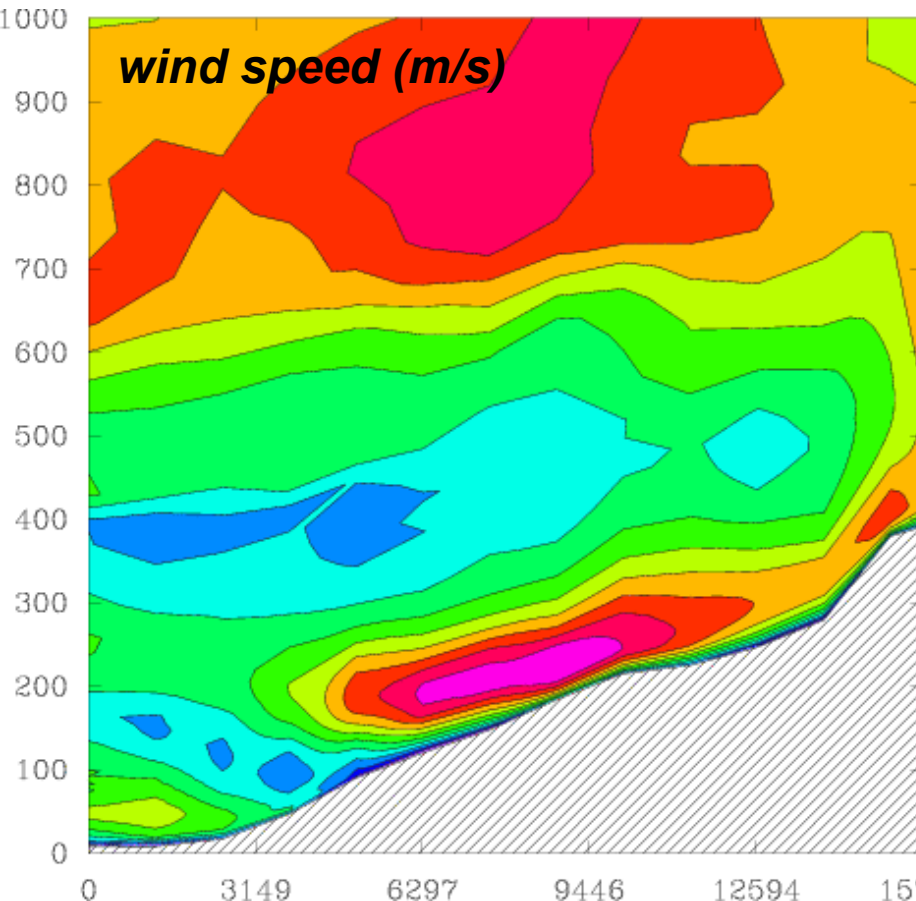
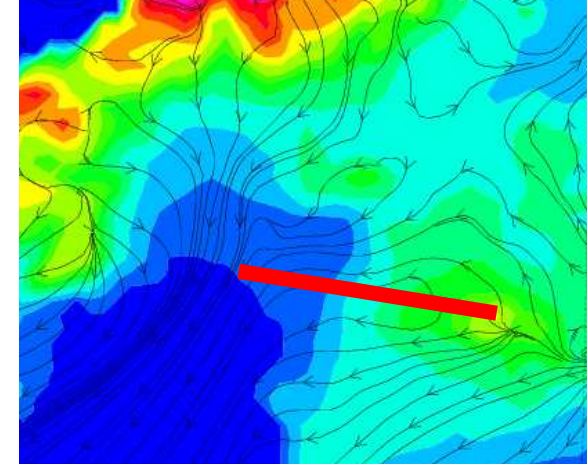


EXEMPLE CATABÀTIC - MALLORCA

VERTICAL CROSS-SECTIONS at 0000 UTC

Cuxart, Jiménez, Martínez (2007)

Martínez and Cuxart (2009)

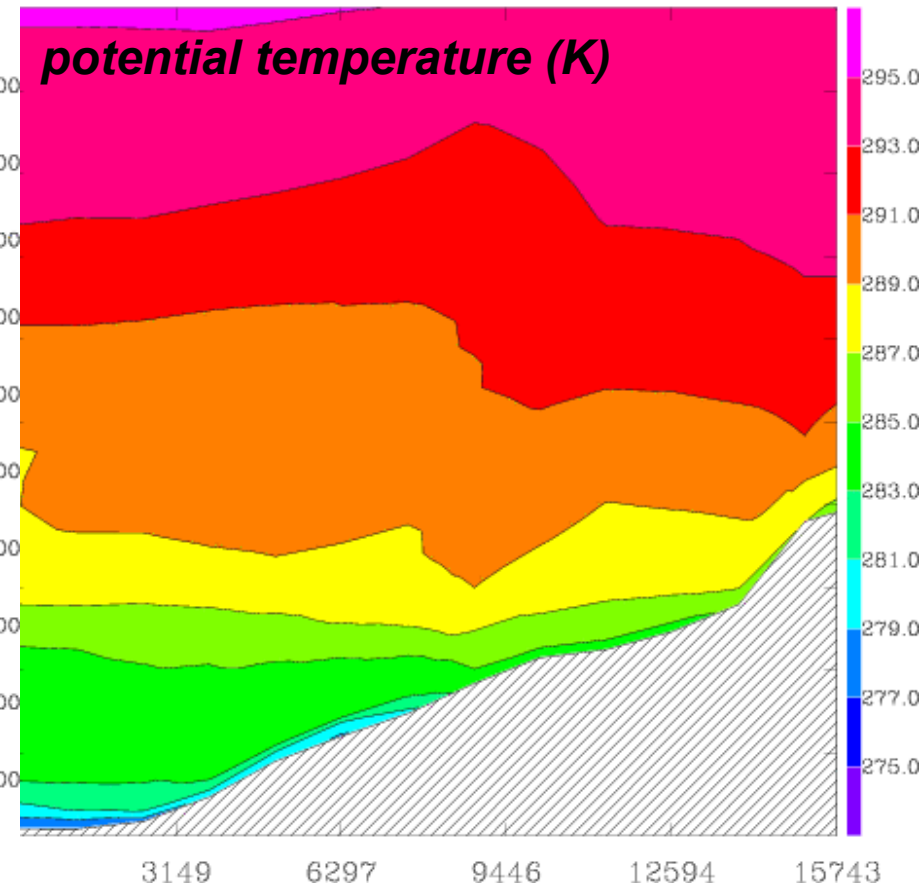
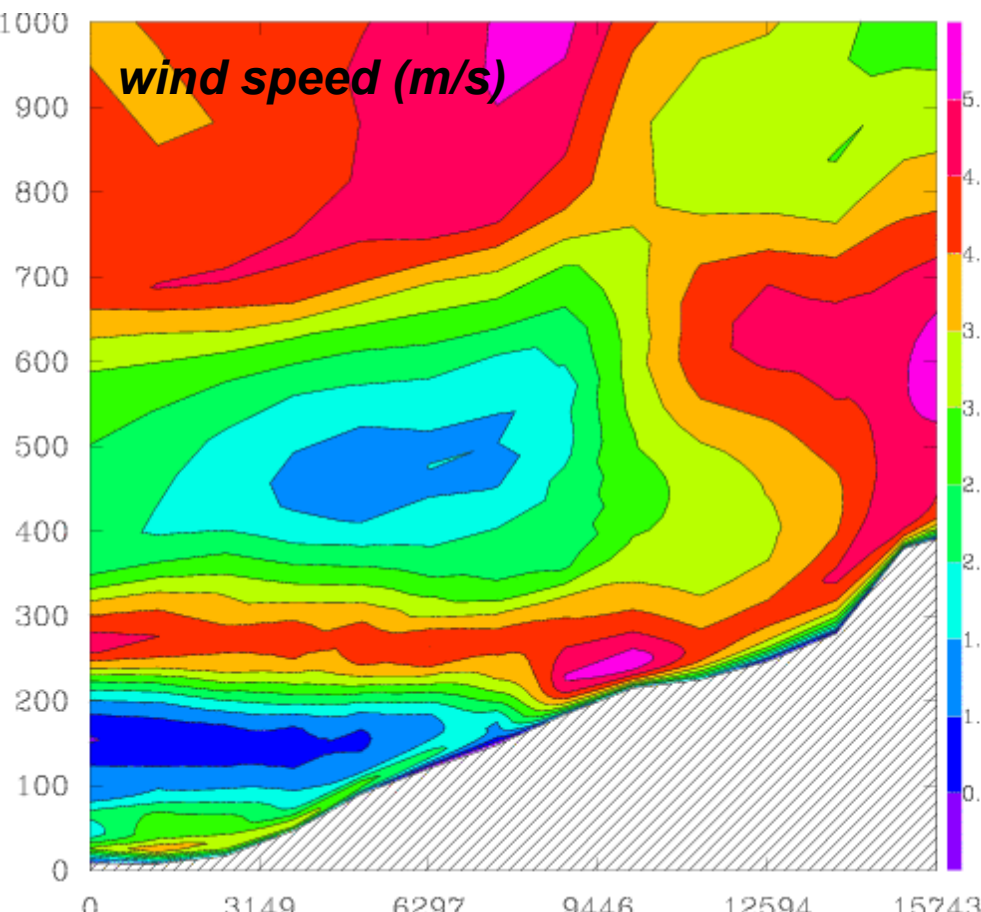
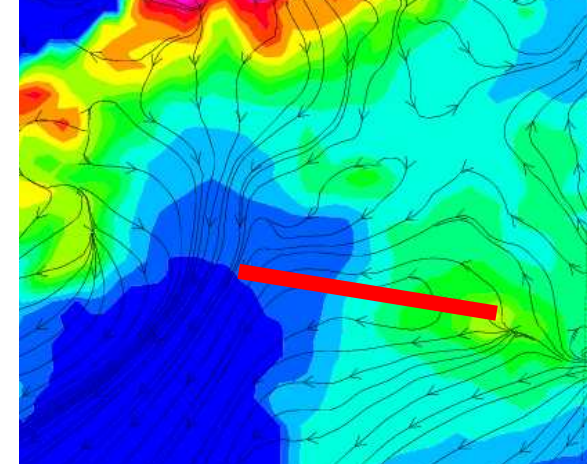


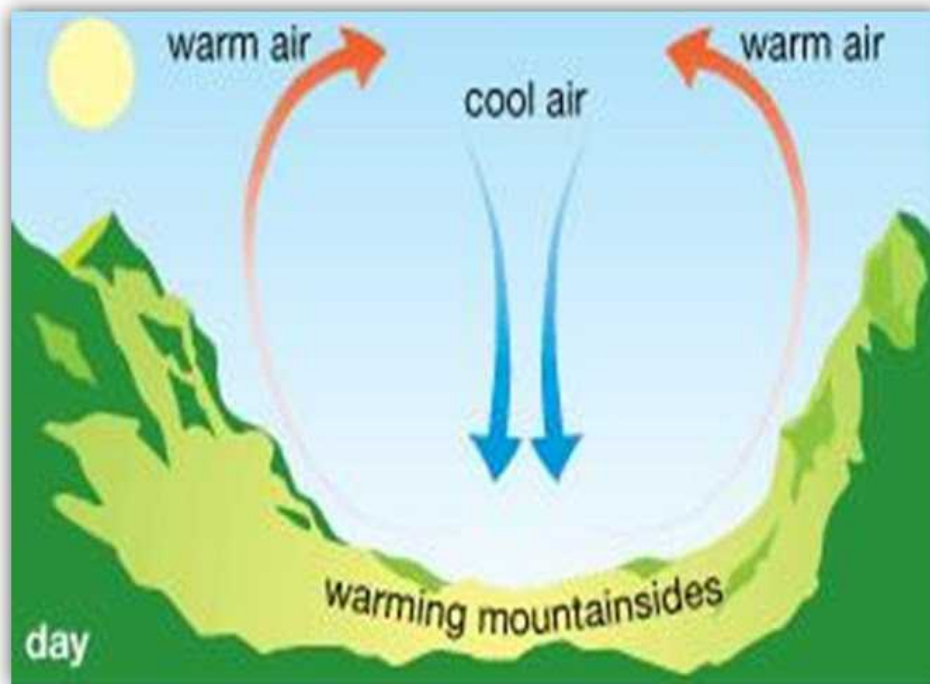
EXEMPLE CATABÀTIC - MALLORCA

VERTICAL CROSS-SECTIONS at 0200 UTC

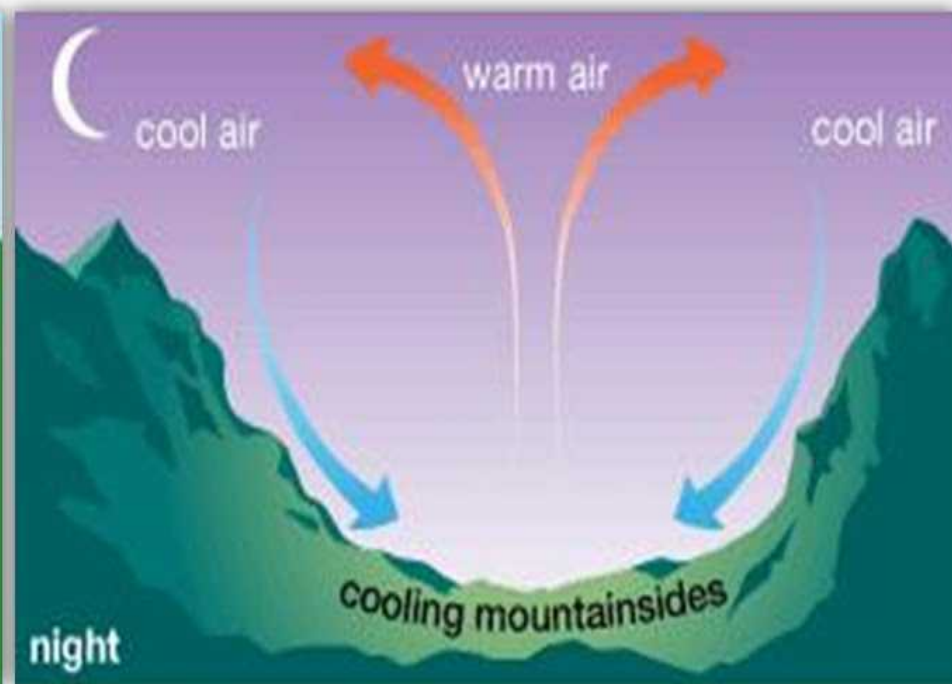
Cuxart, Jiménez, Martínez (2007)

Martínez and Cuxart (2009)

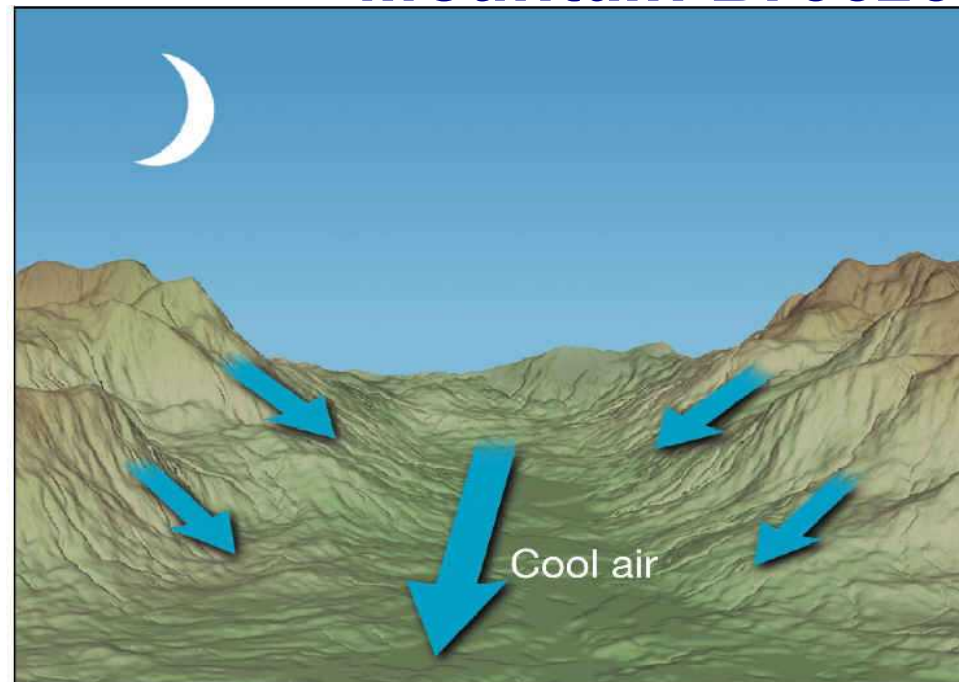
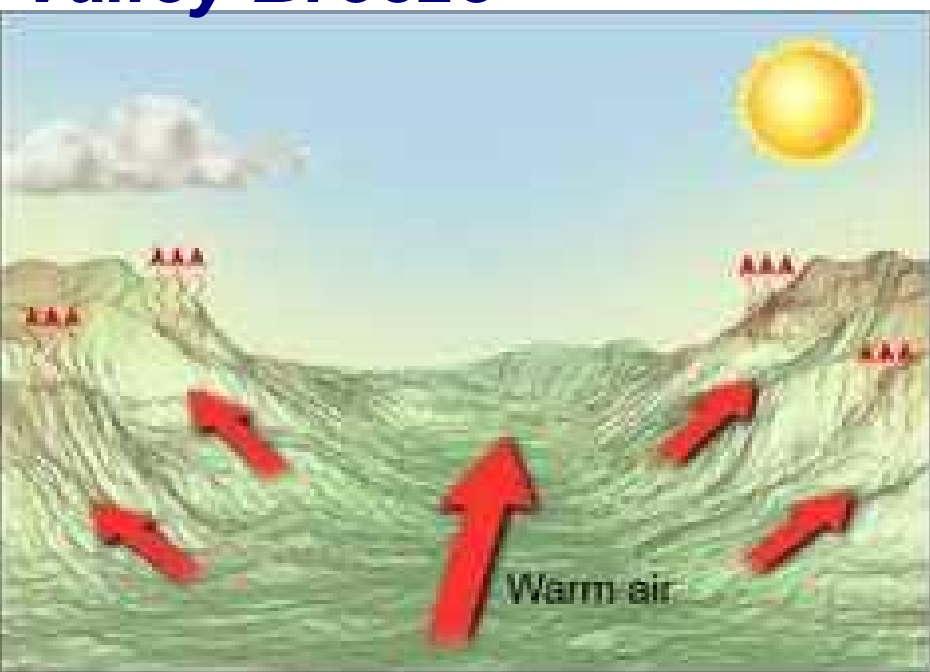




Valley Breeze



Mountain Breeze



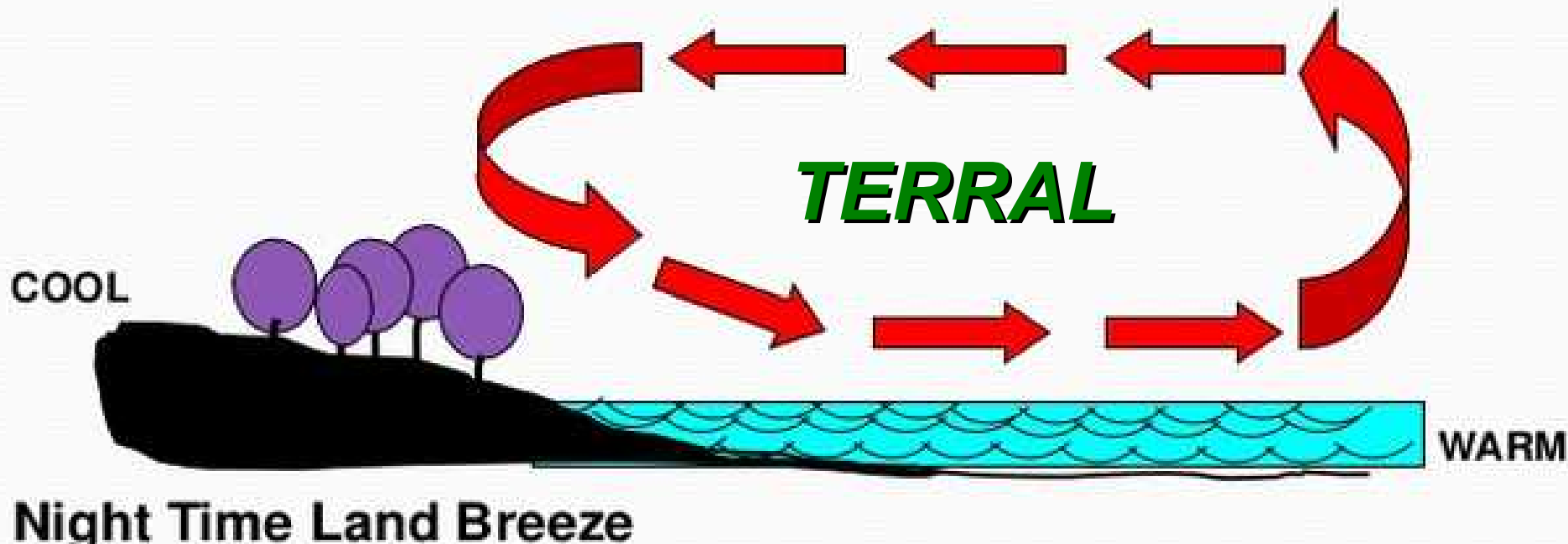
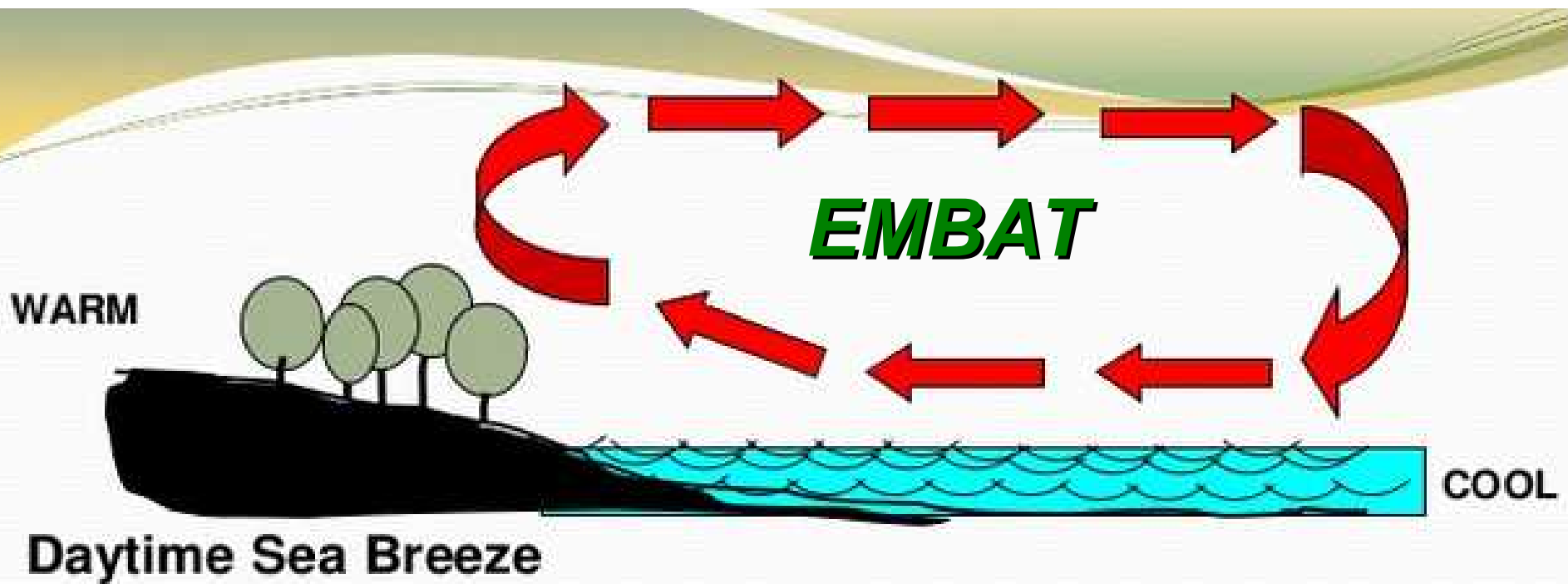
Brisa marina o embat

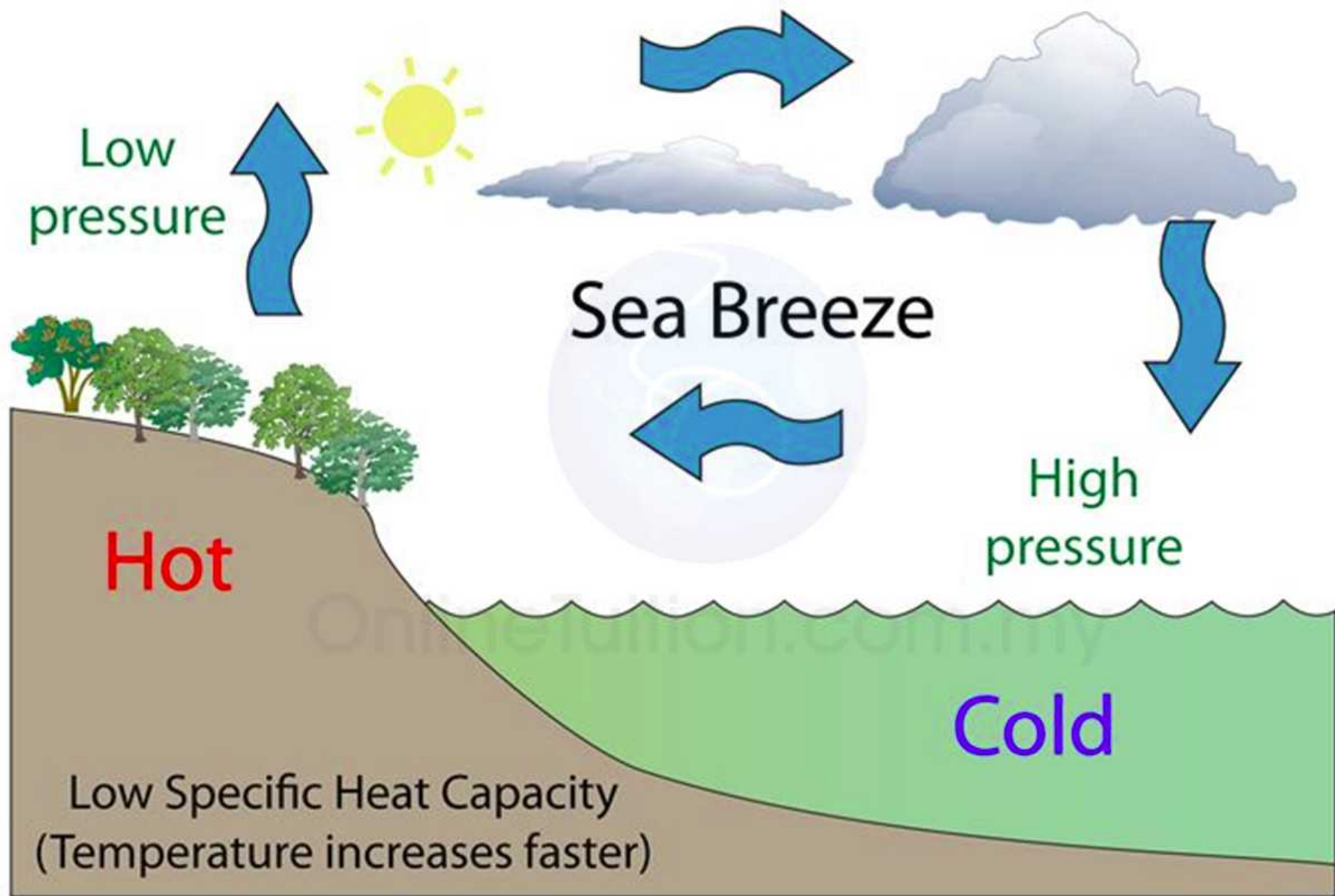




***Brisa nocturna
o
terral***









High
pressure



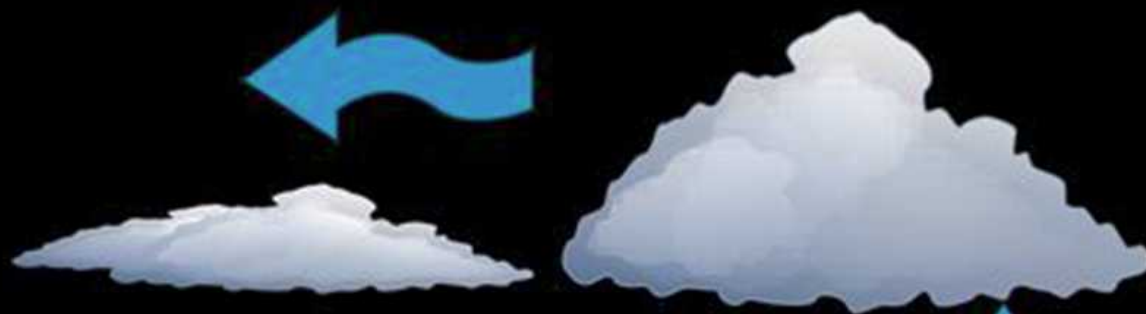
Cold

Low Specific Heat Capacity
(Temperature drops faster)

Land Breeze

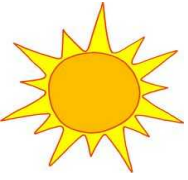


Low
pressure

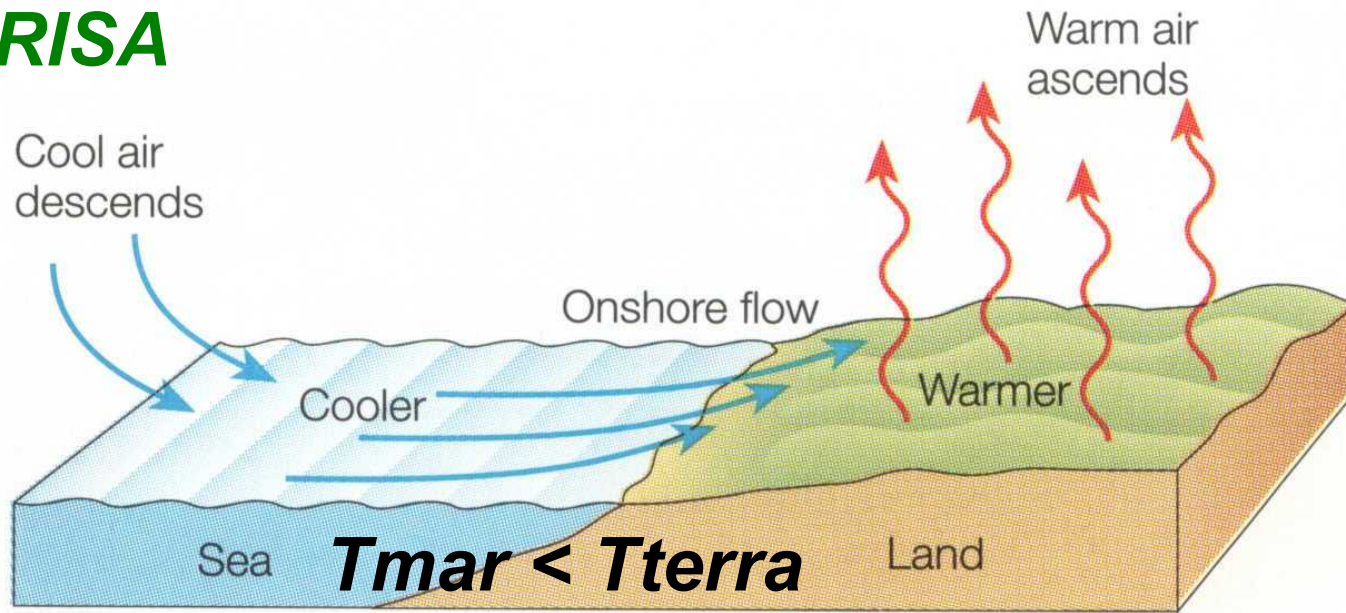


Hot

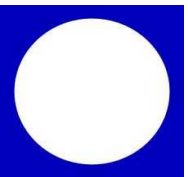




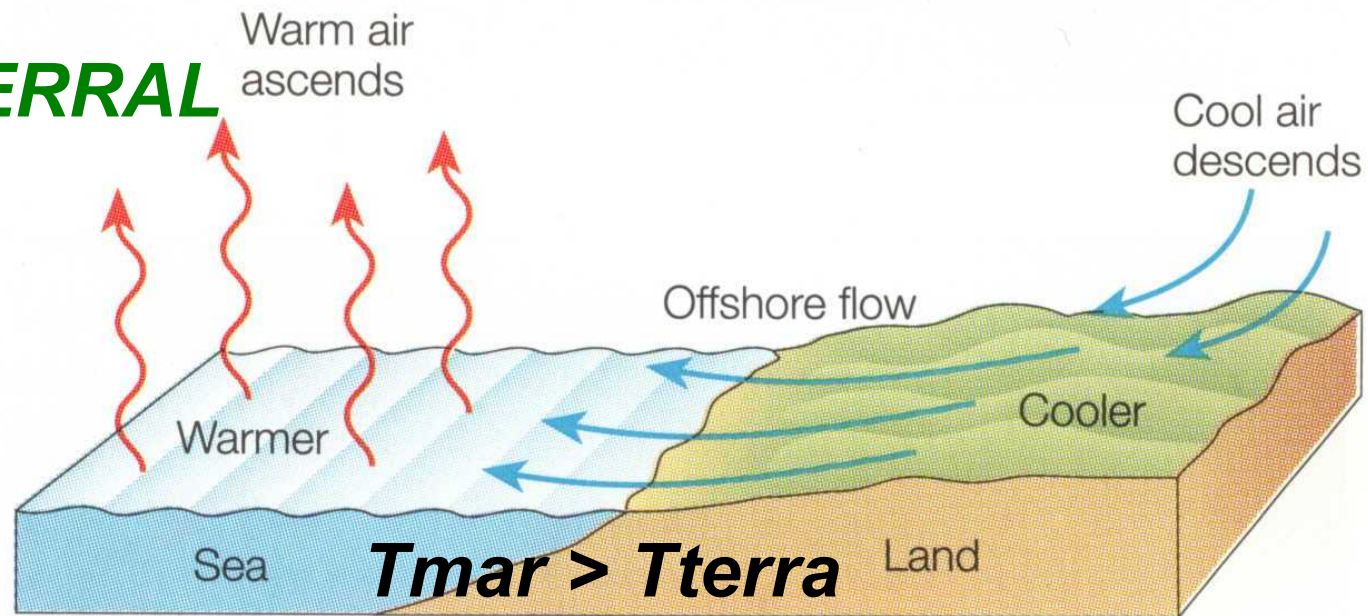
BRISA



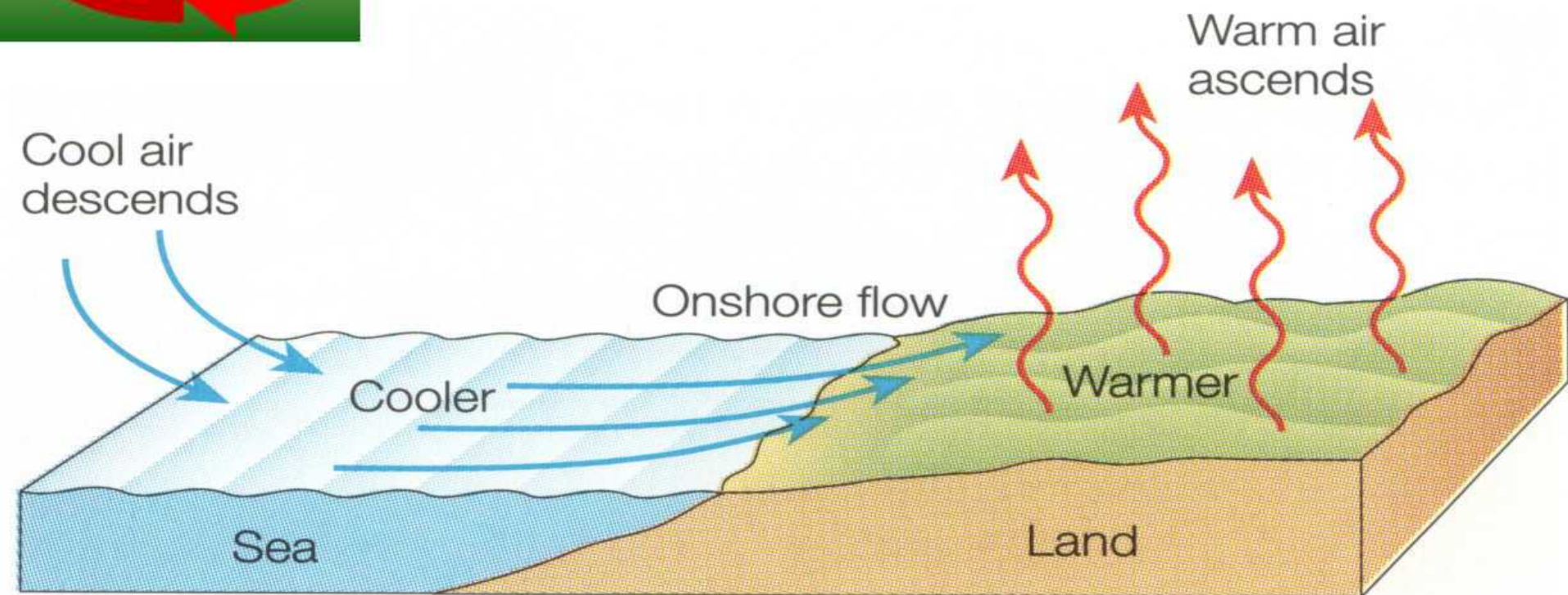
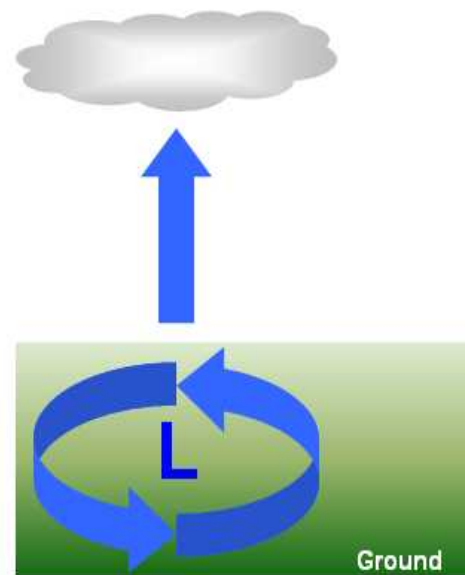
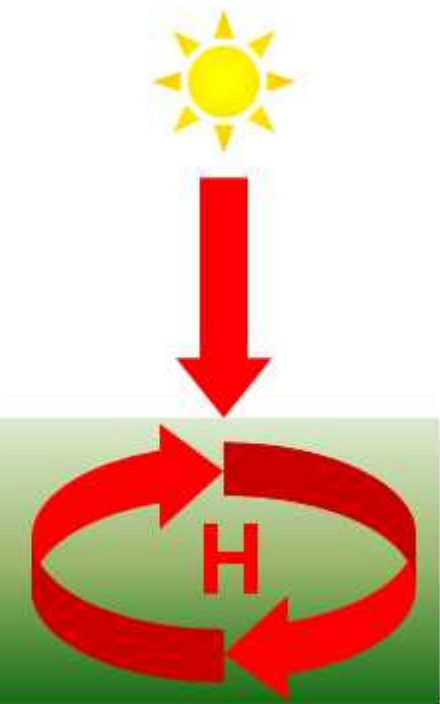
a

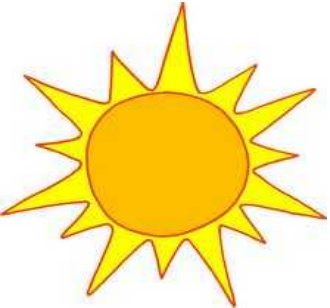


TERRAL

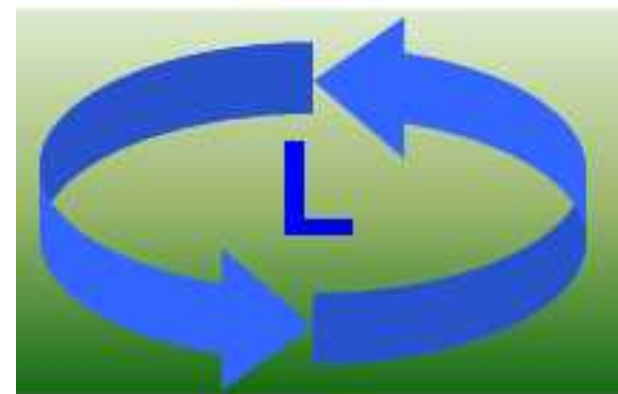
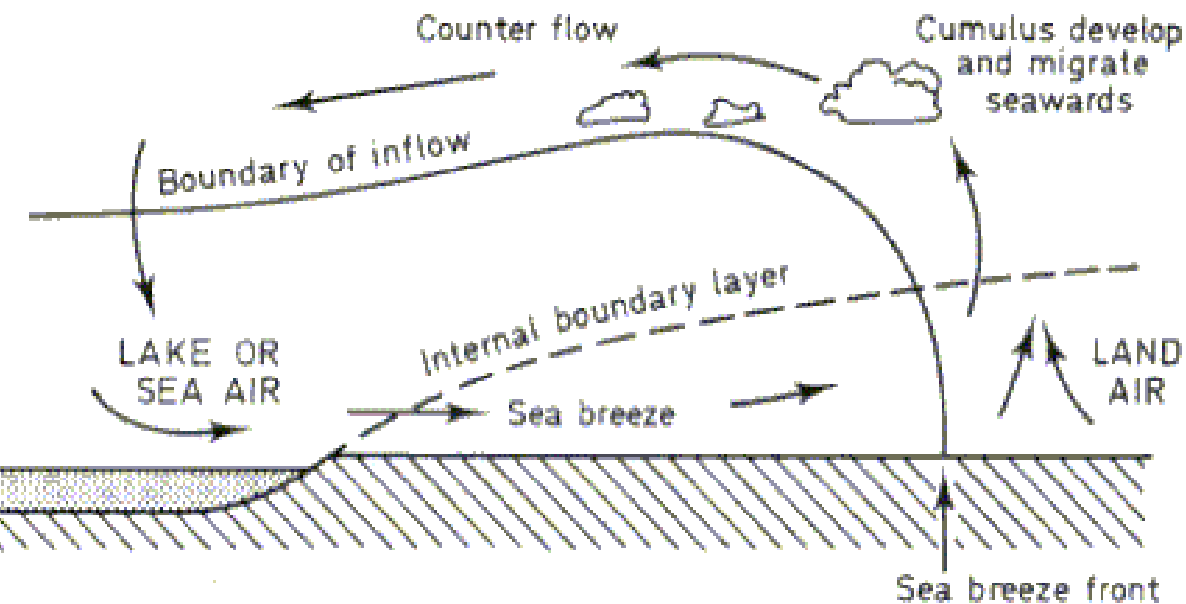
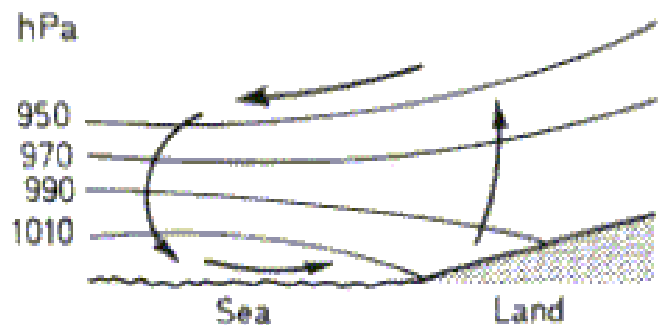


b





$$T_{mar} < T_{terra}$$
$$P_{mar} > P_{terra}$$

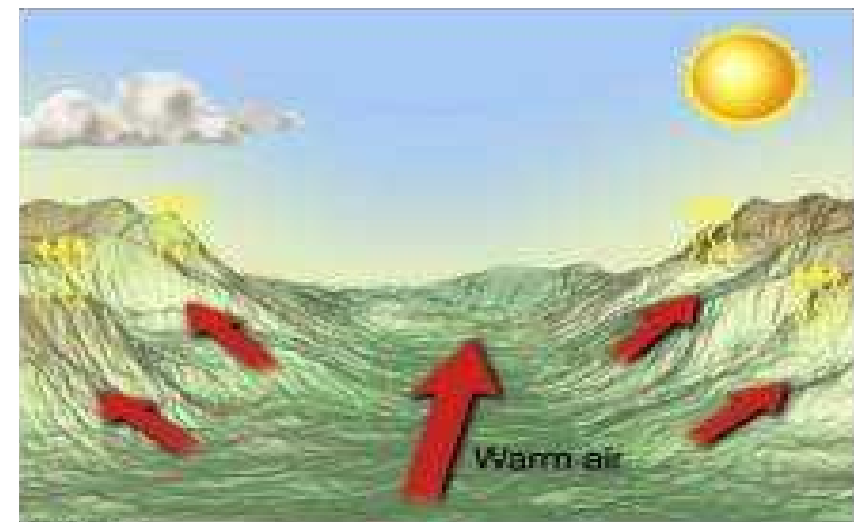
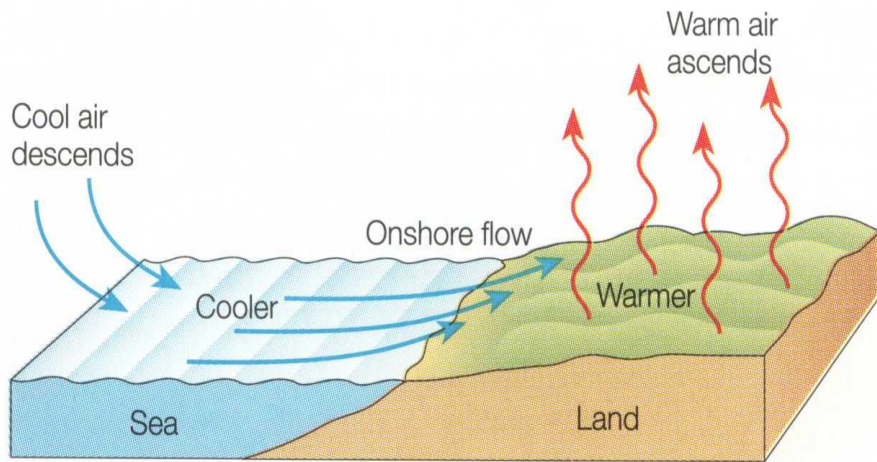
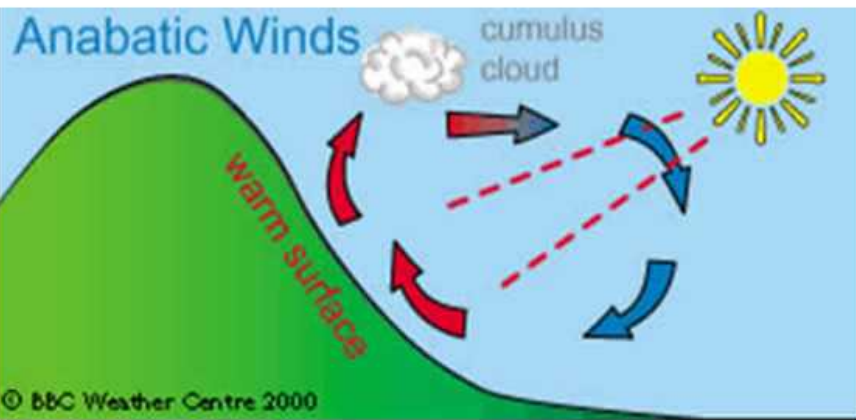


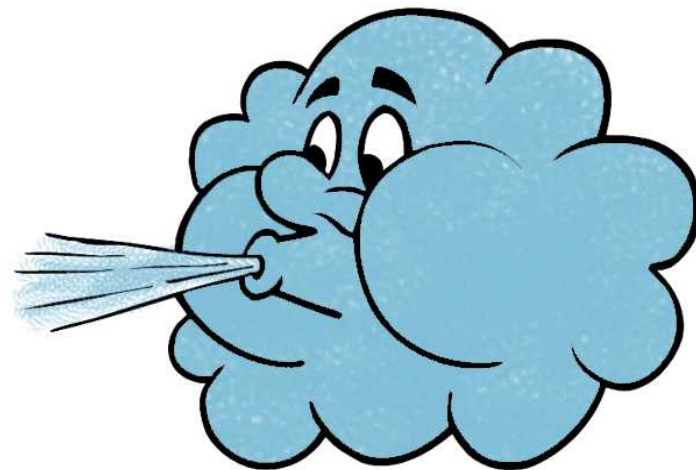


Terral
 +
Catabàtic
 +
Brisa de muntanya



Brisa
 +
Anabàtic
 +
Brisa de vall





ORIGEN LOCAL?





Part II

LA BRISA MARINA

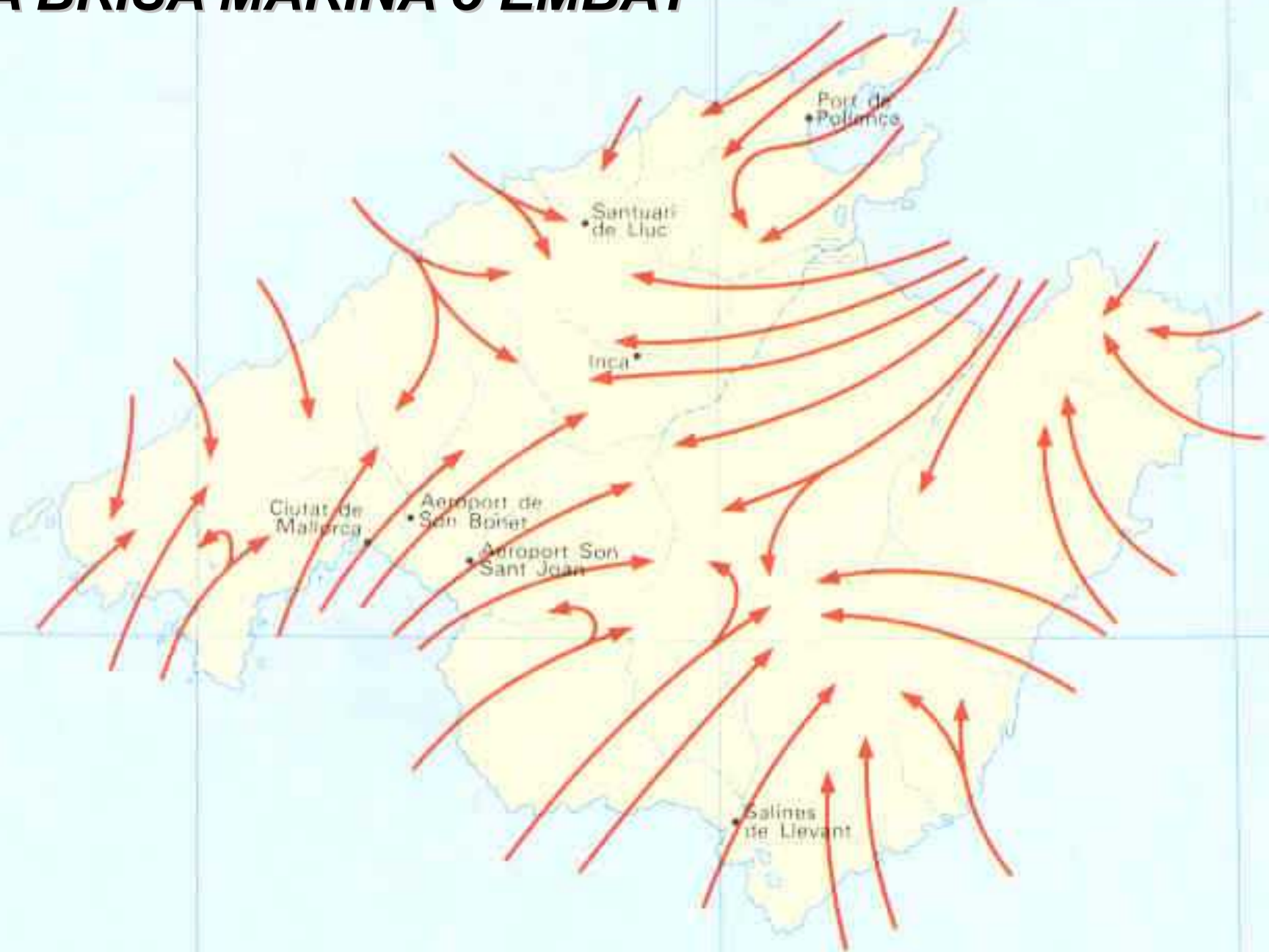
O EMBAT

Maria Antònia Jiménez
Grup de Meteorologia,
Dpt. De Física (UIB)



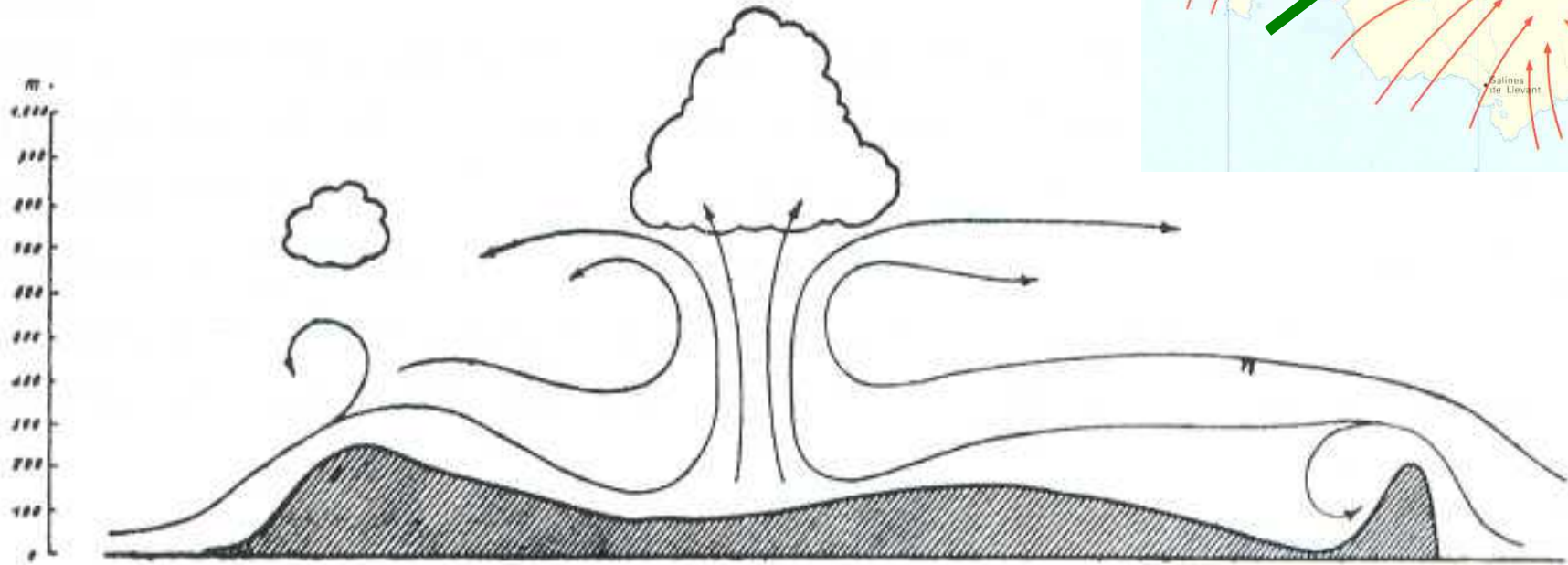
Campus UIB, 15 de juliol de 2016

LA BRISA MARINA o EMBAT



Treballs de Josep M. Jansà Guardiola (1901-1994)

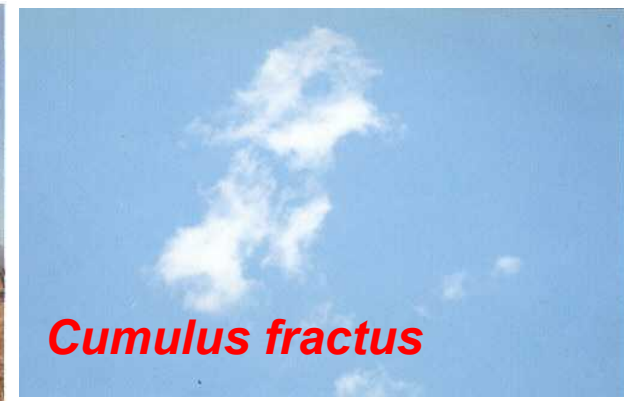
LA BRISA MARINA o EMBAT



Cumulus congestus

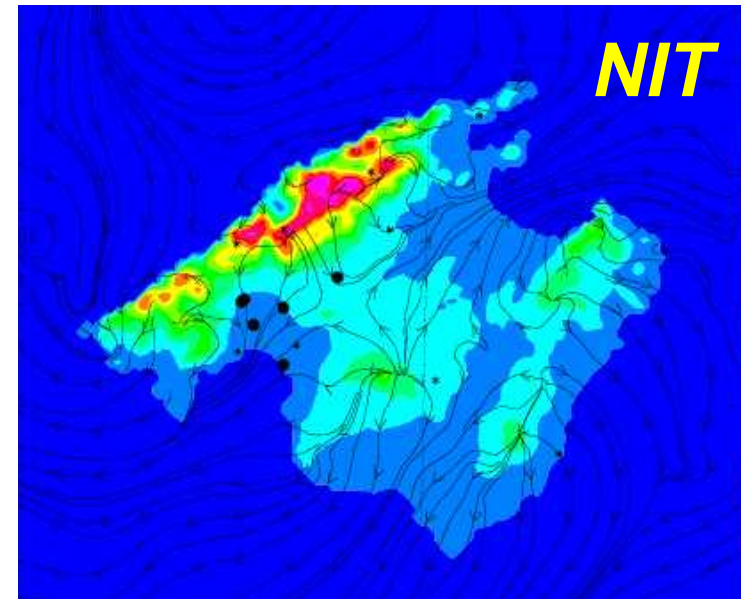
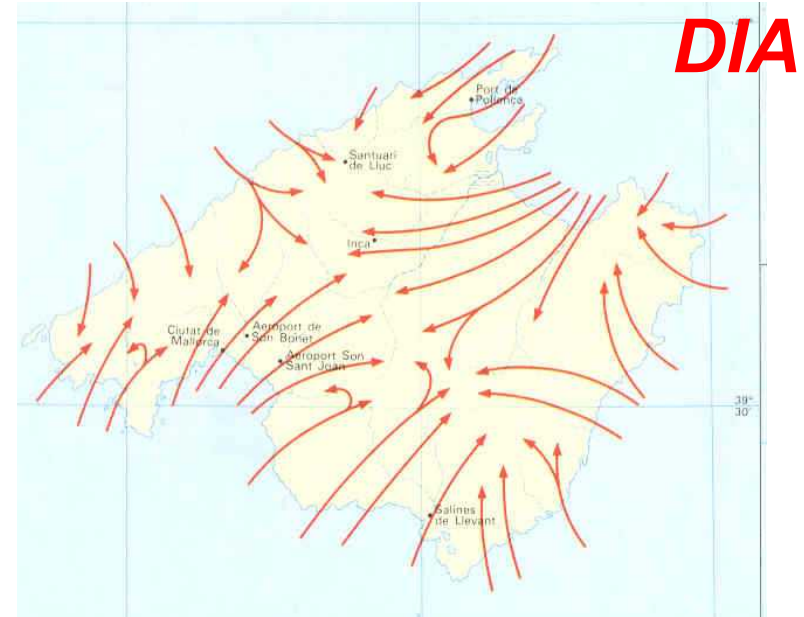
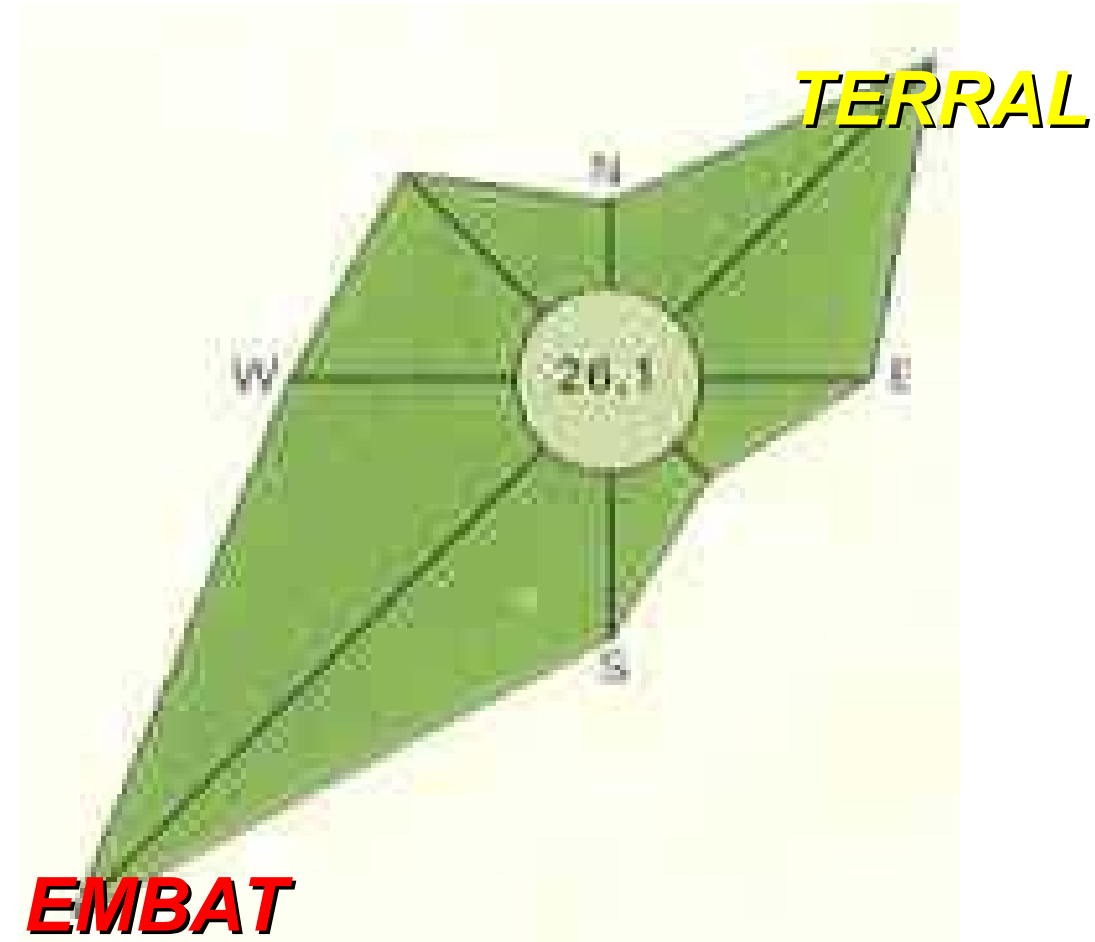


Cumulus humilis



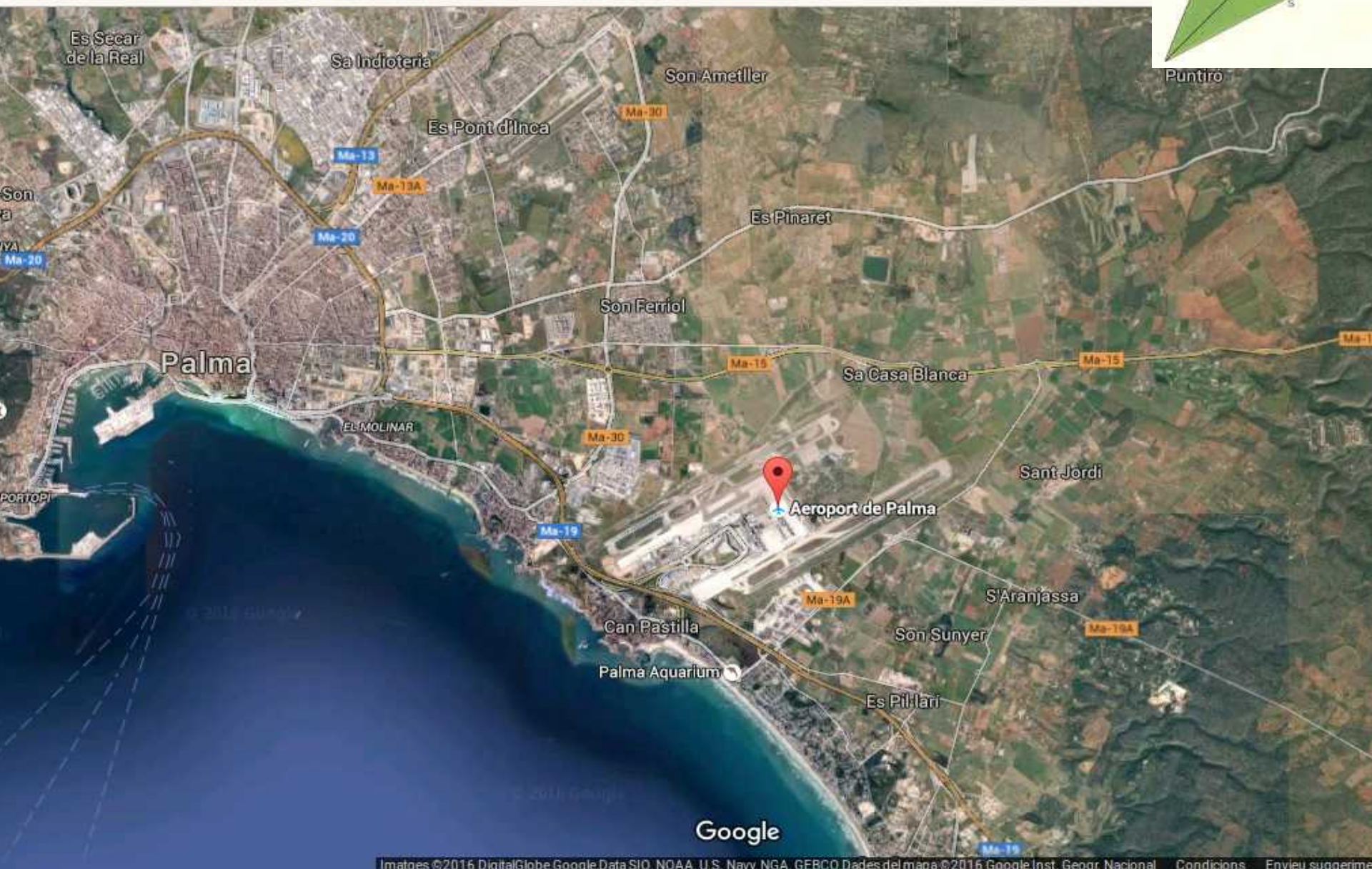
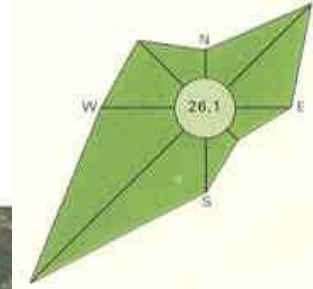
Cumulus fractus

ROSA DEL VENTS A L'AEROPORT DE PALMA

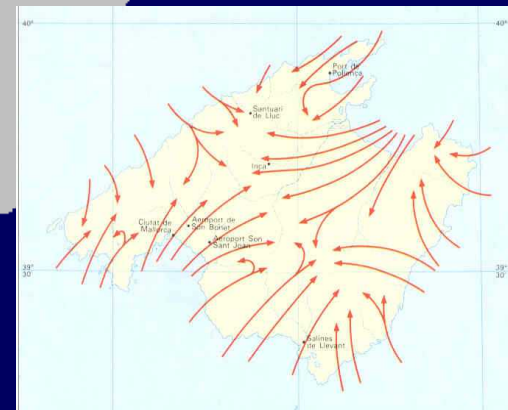
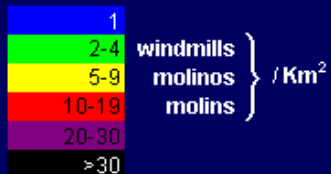


APROX. 50% DEL DIES -> «BON TEMPS»

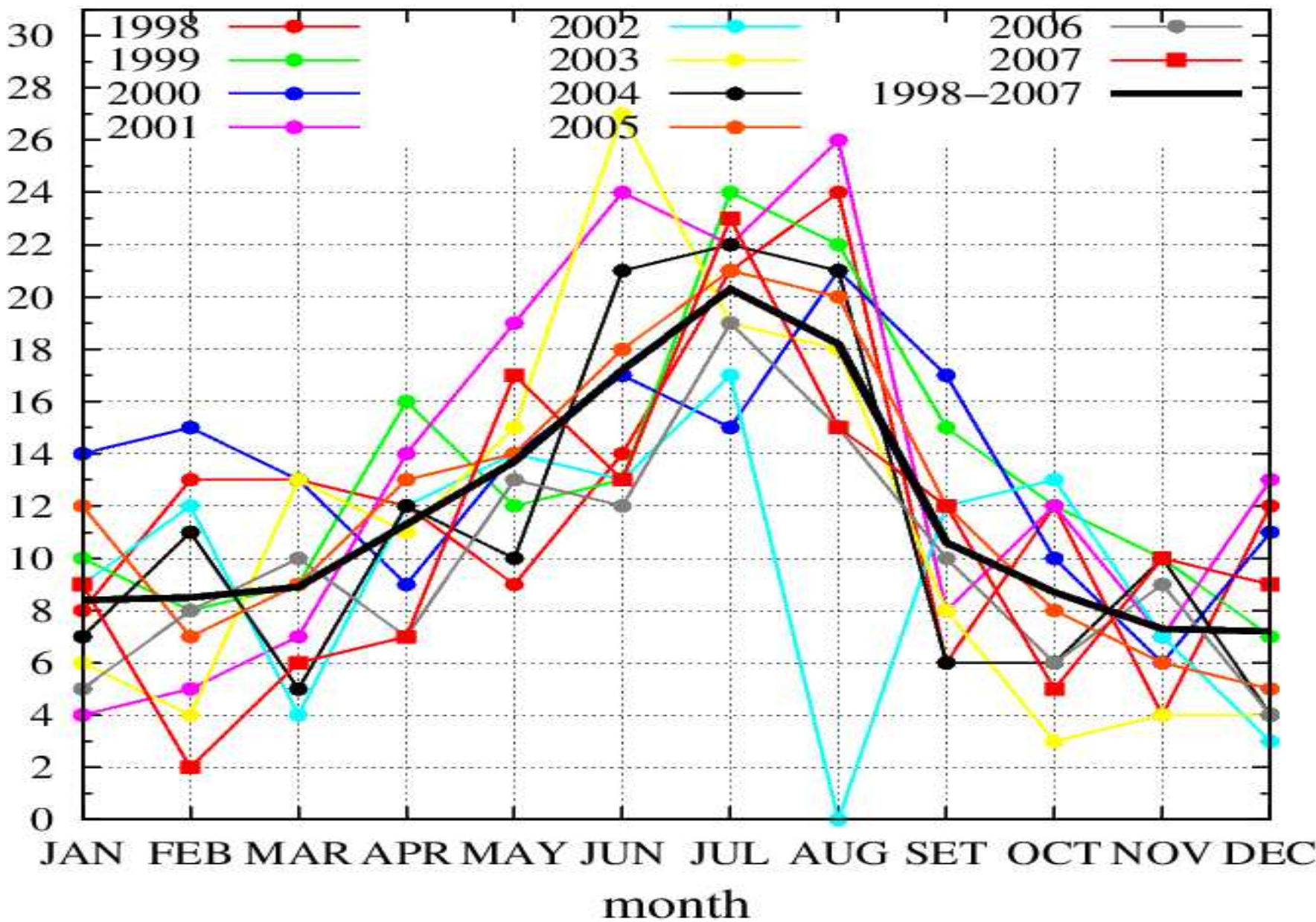
Orientació de les pistes a l'Aeroport de Palma

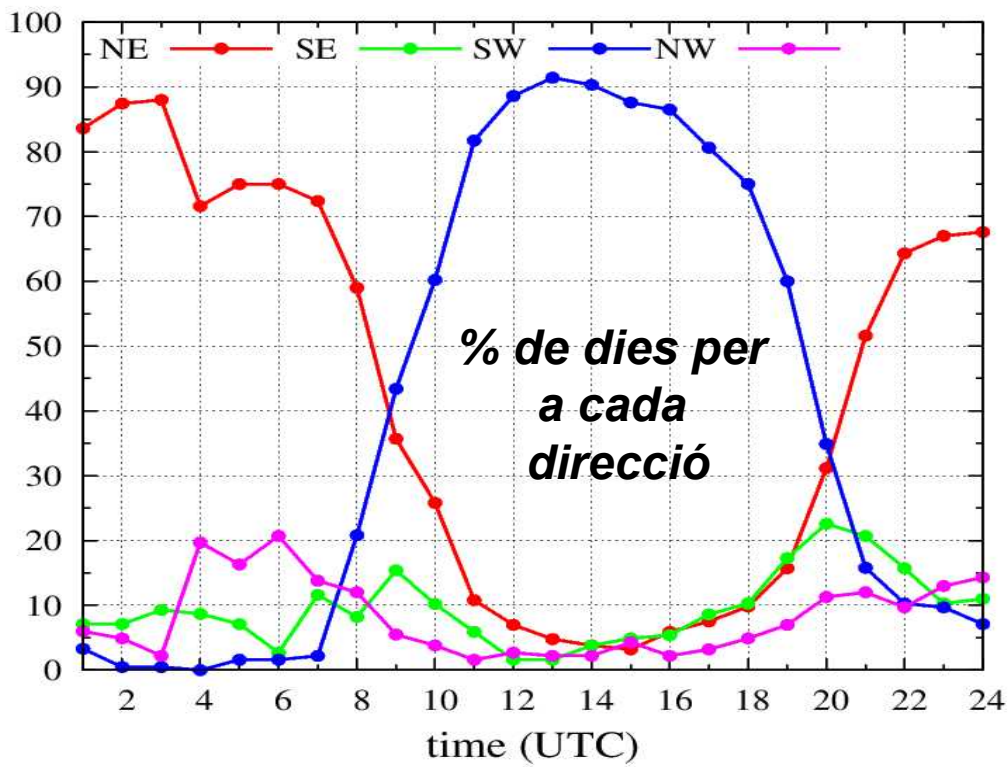
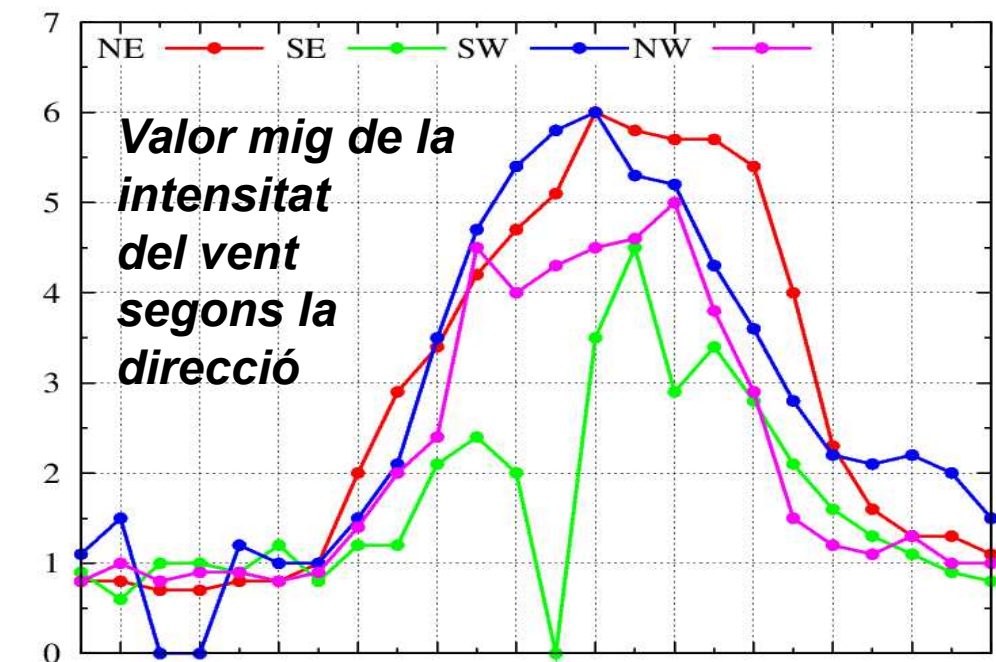


WATER PUMPING WINDMILLS CONCENTRATION
CONCENTRACION DE MOLINOS EXTRACTORES DE AGUA
CONCENTRACIO DE MOLINS AIGUADERS

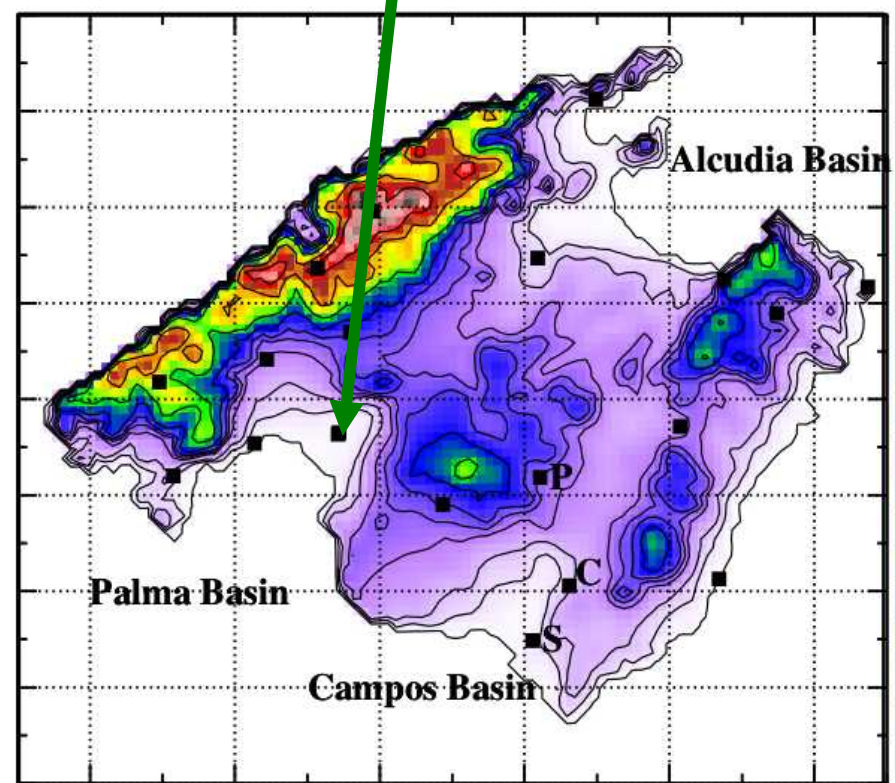


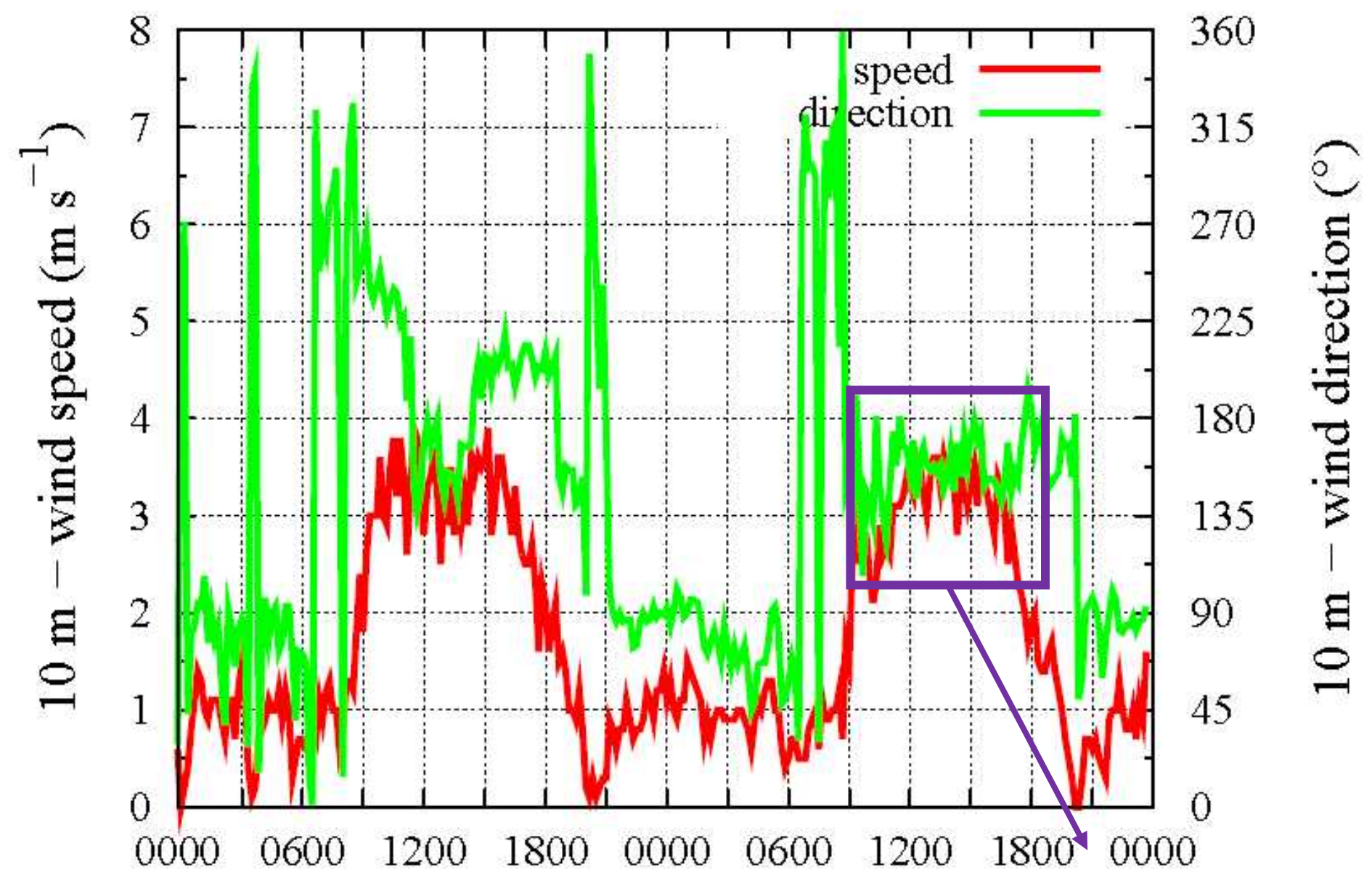
***Nombre de dies amb condicions favorables de brisa
a l'aeroport de Palma***





Agost (1998-2007) Aeroport de Palma



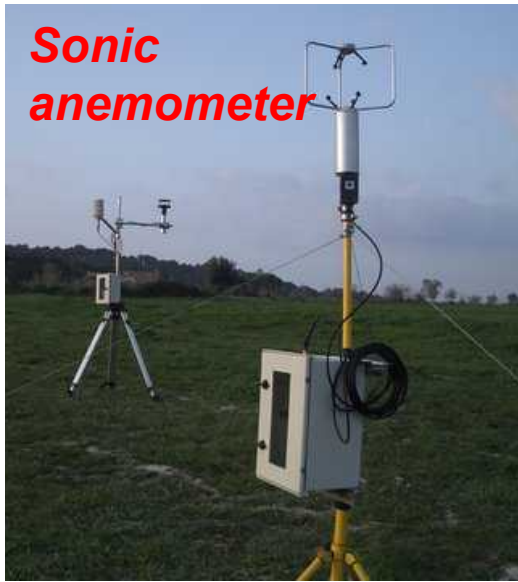
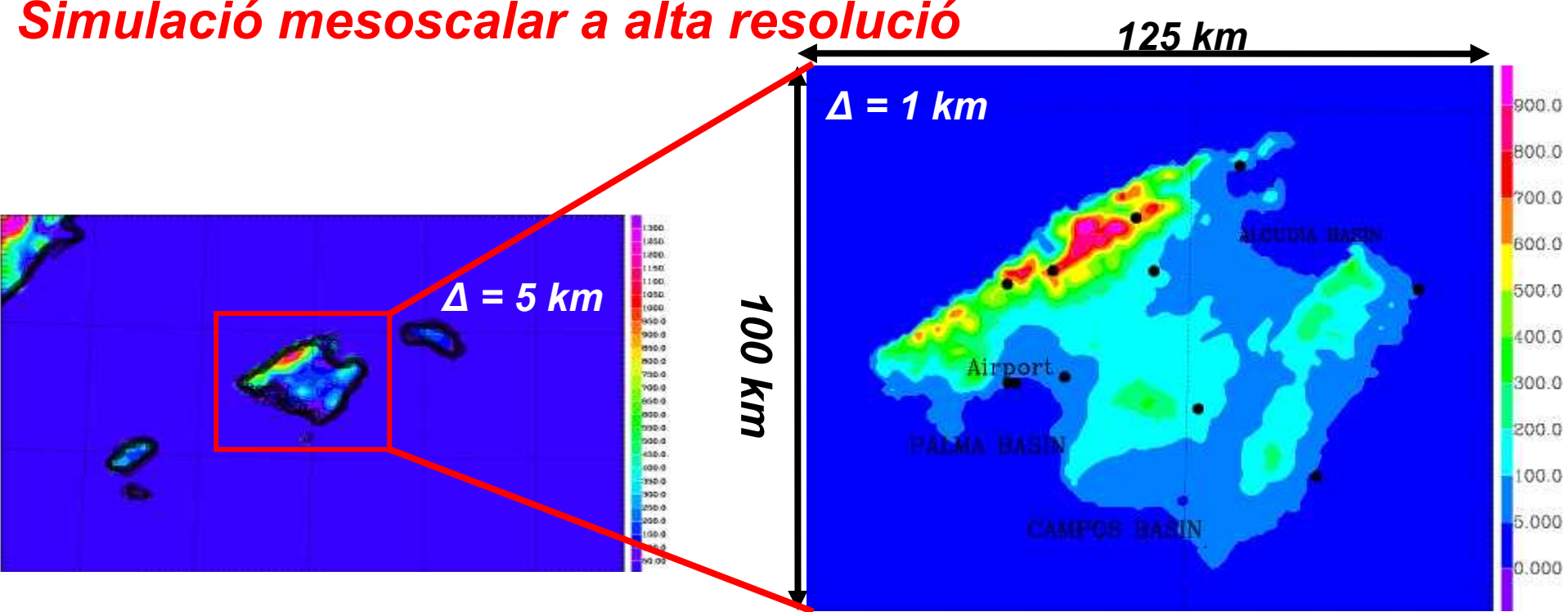


Brisa

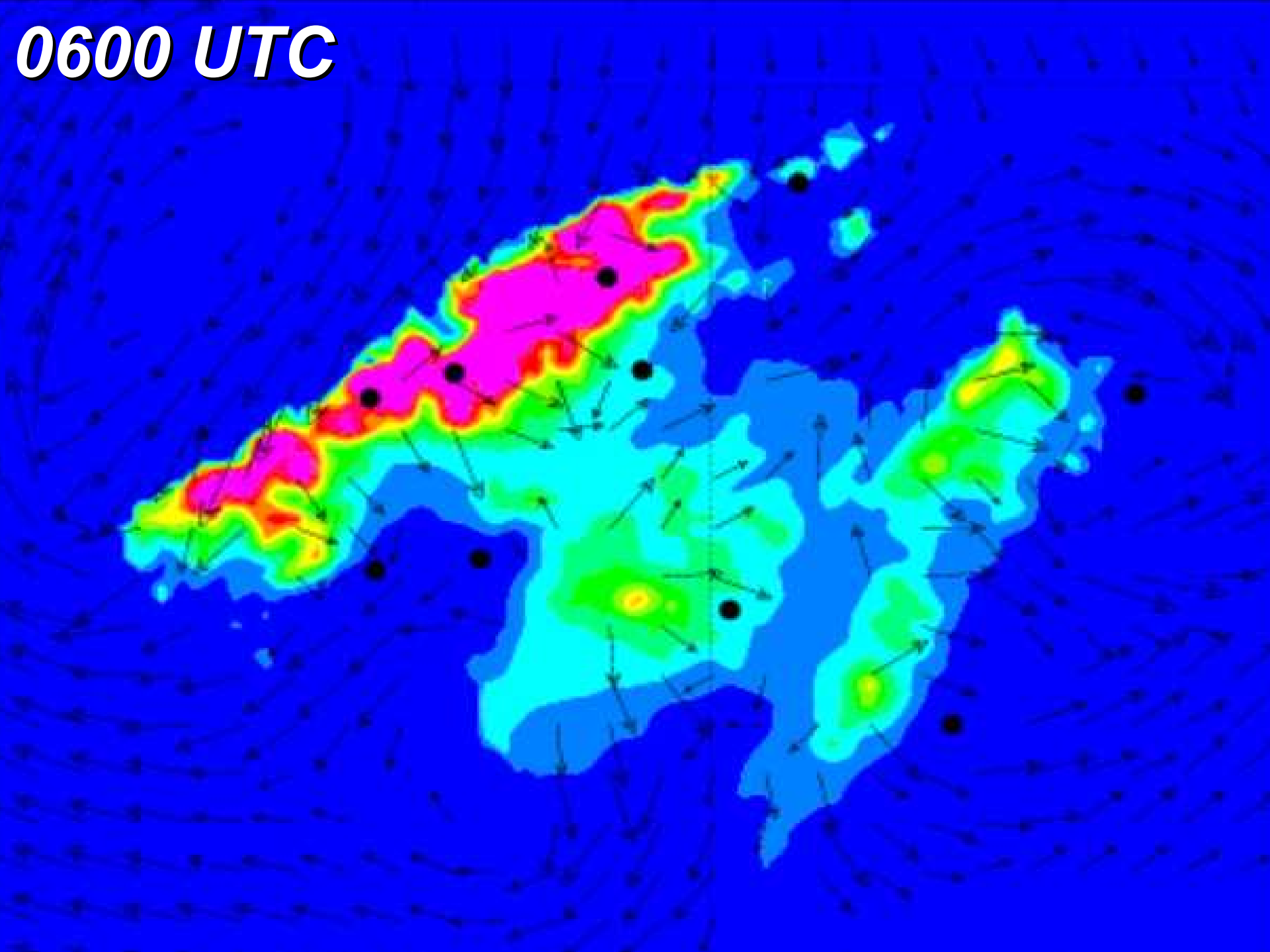
5 de juny de 2010

Observacions a Campos-Ses Salines

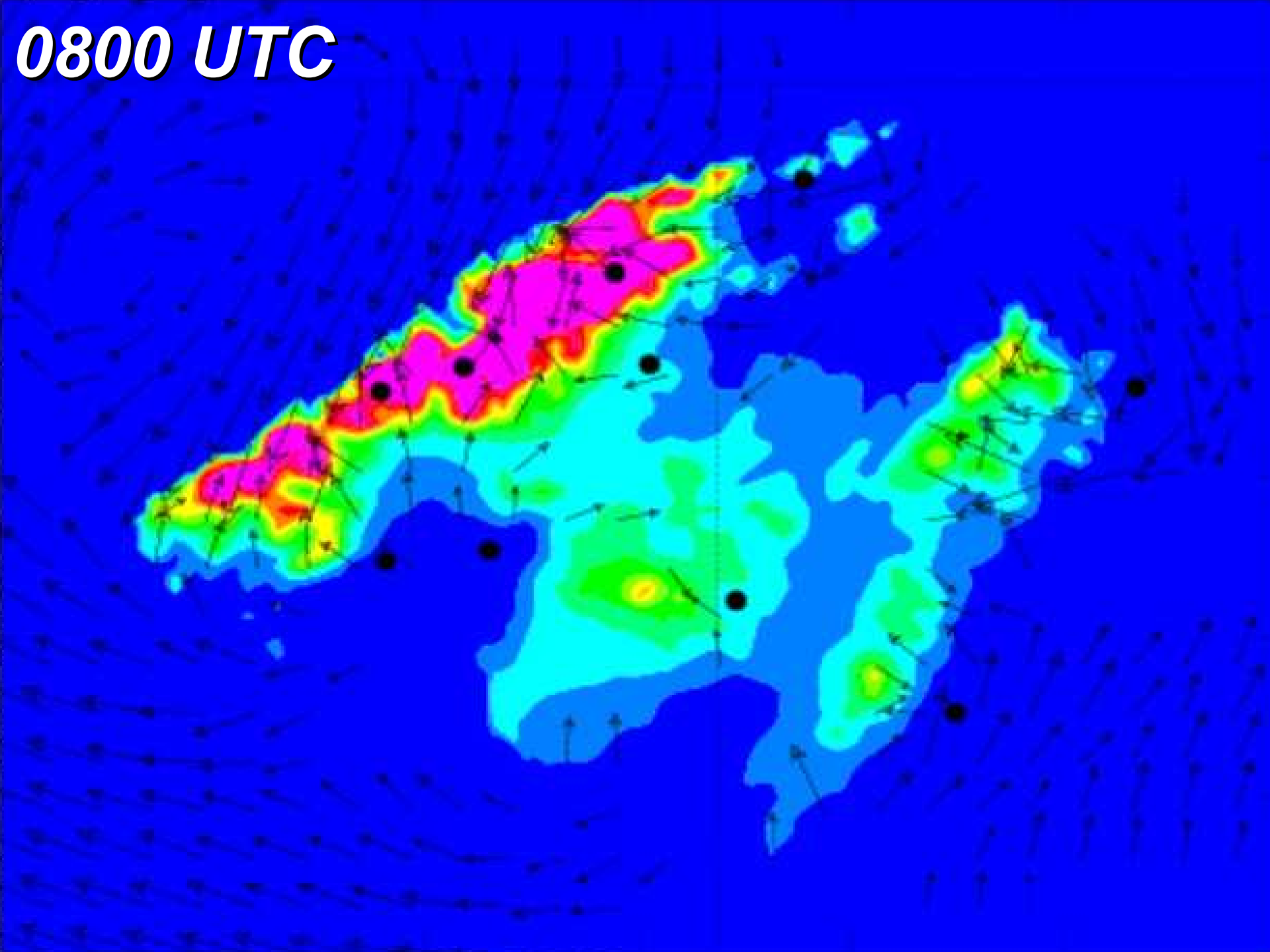
Simulació mesoscalar a alta resolució



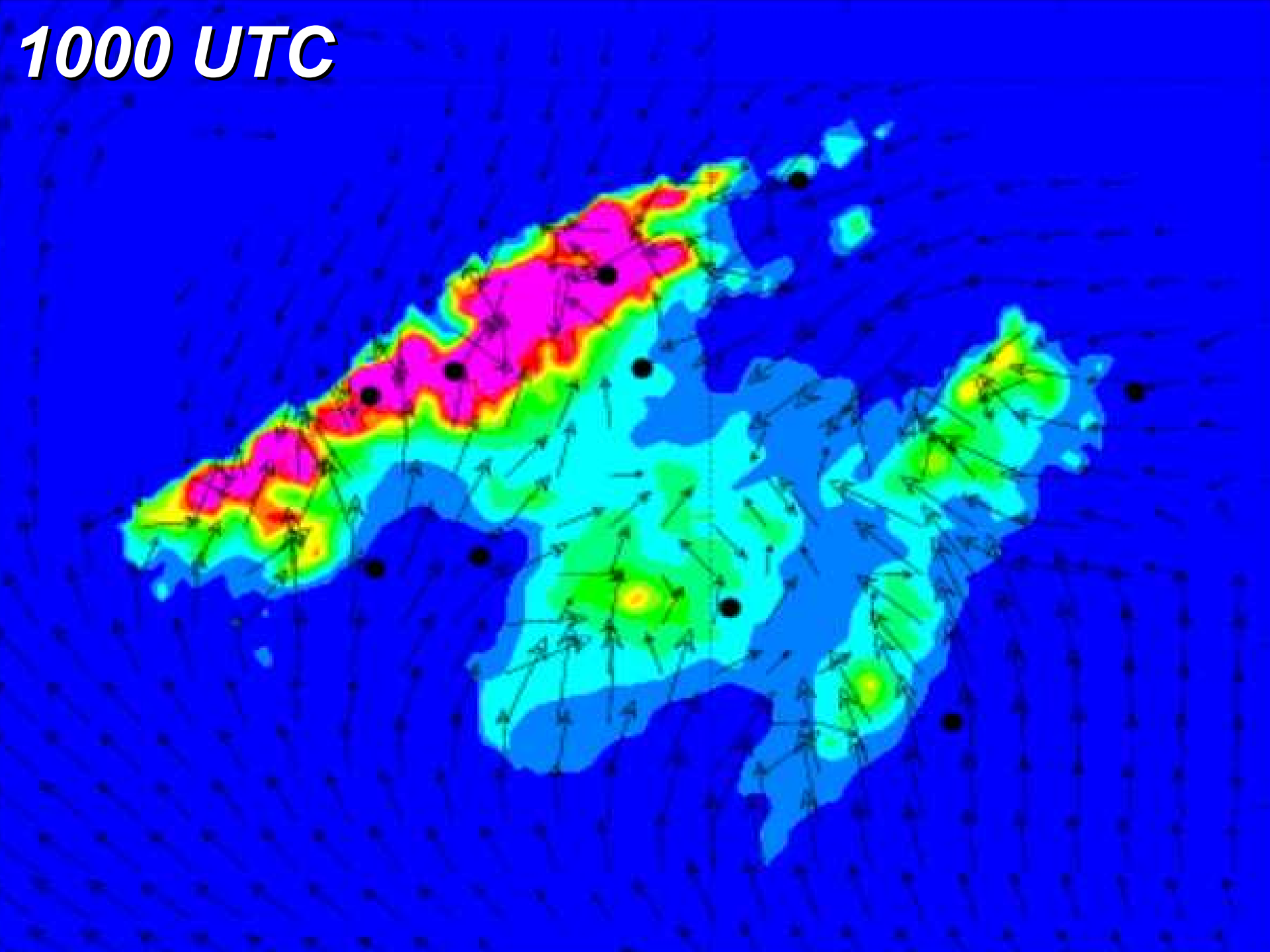
0600 UTC



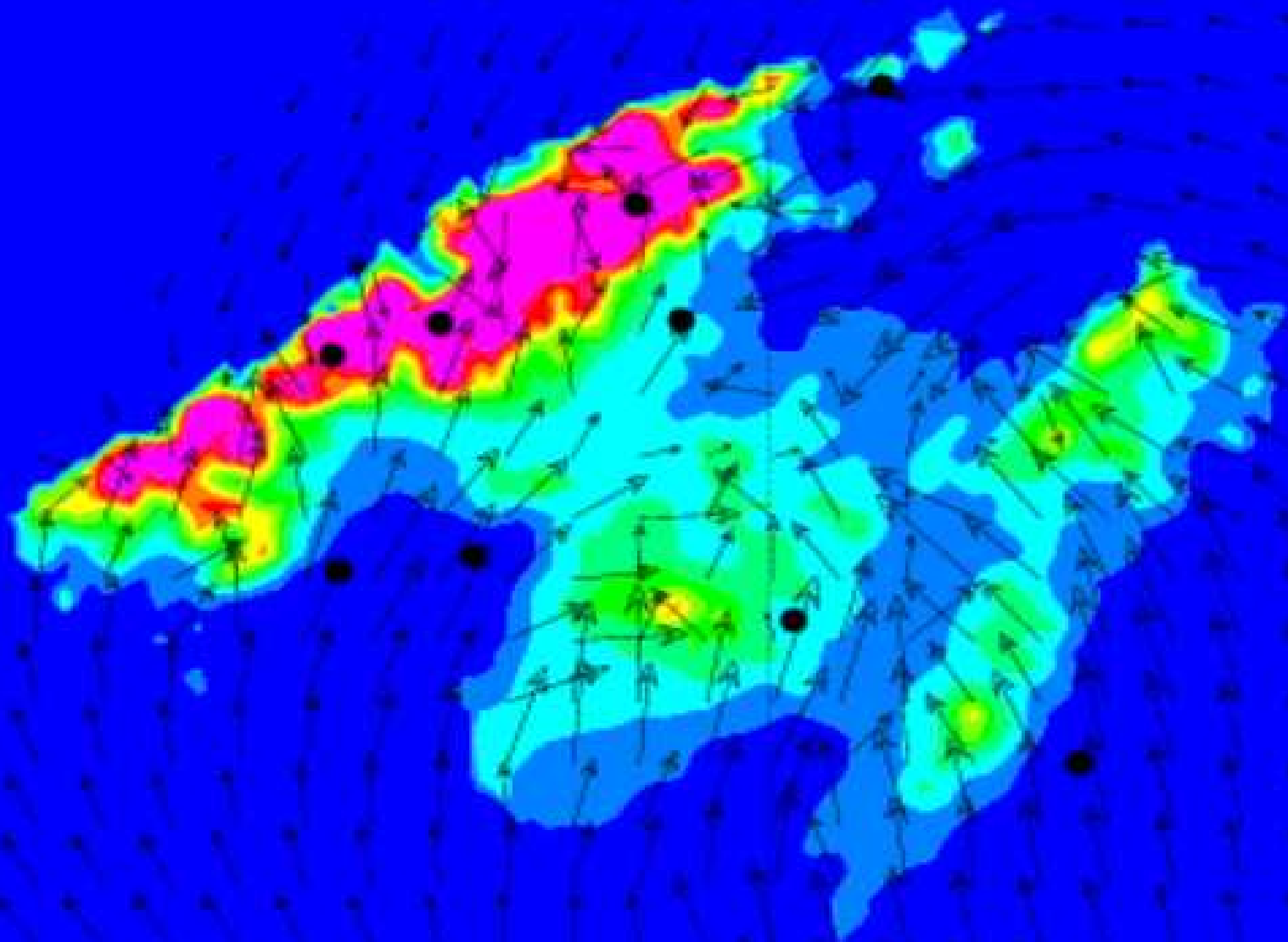
0800 UTC



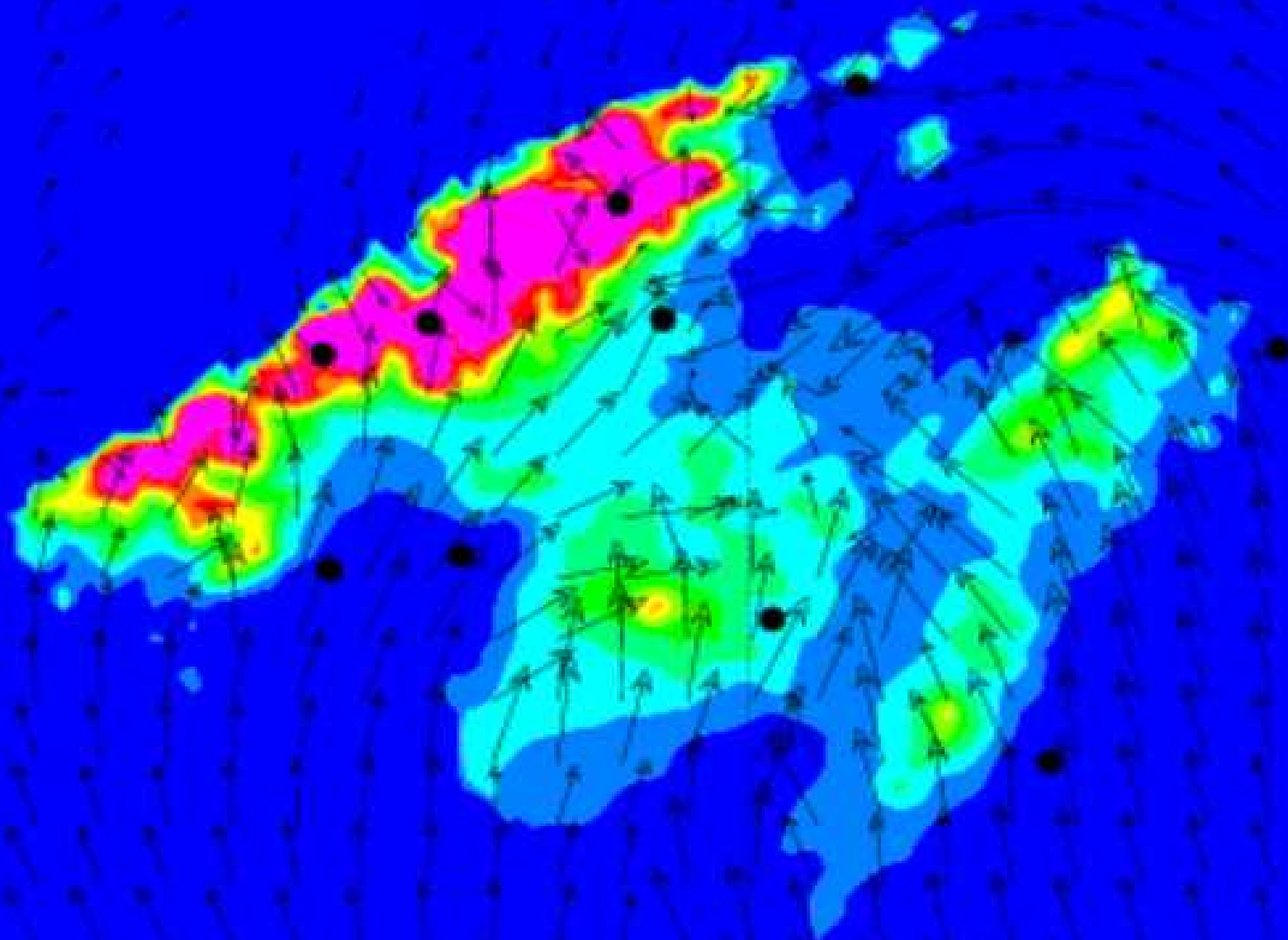
1000 UTC



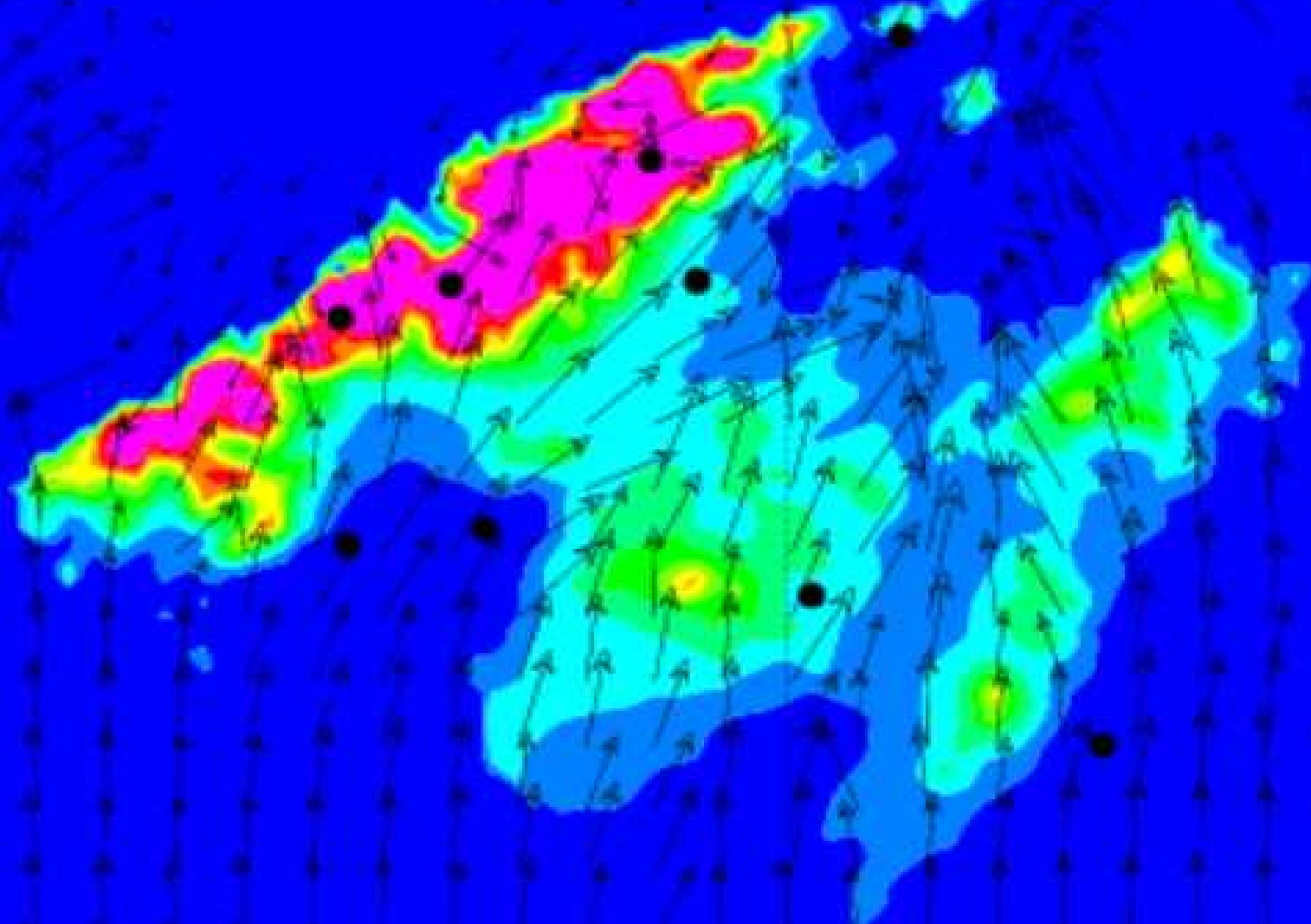
1100 UTC



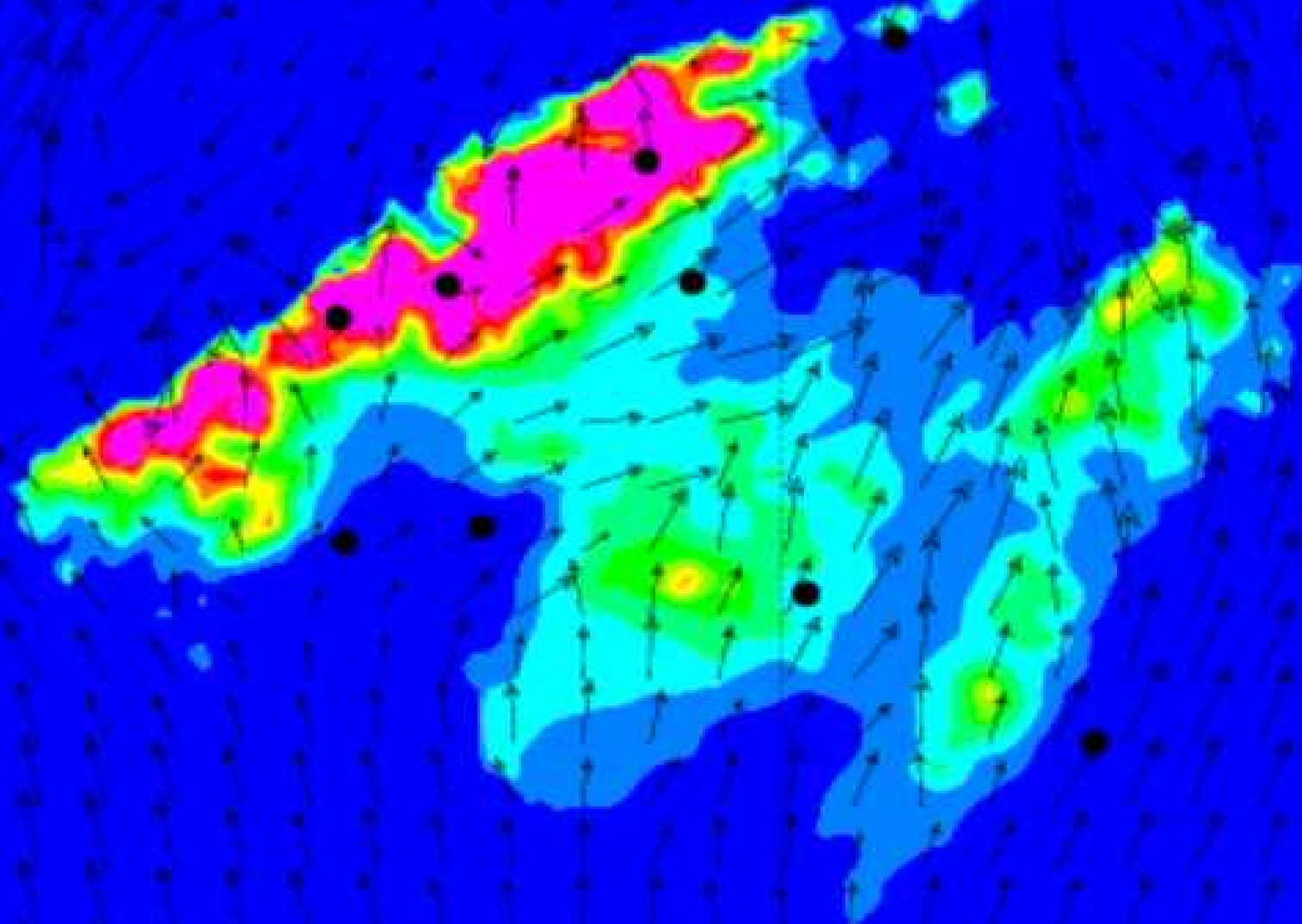
1200 UTC



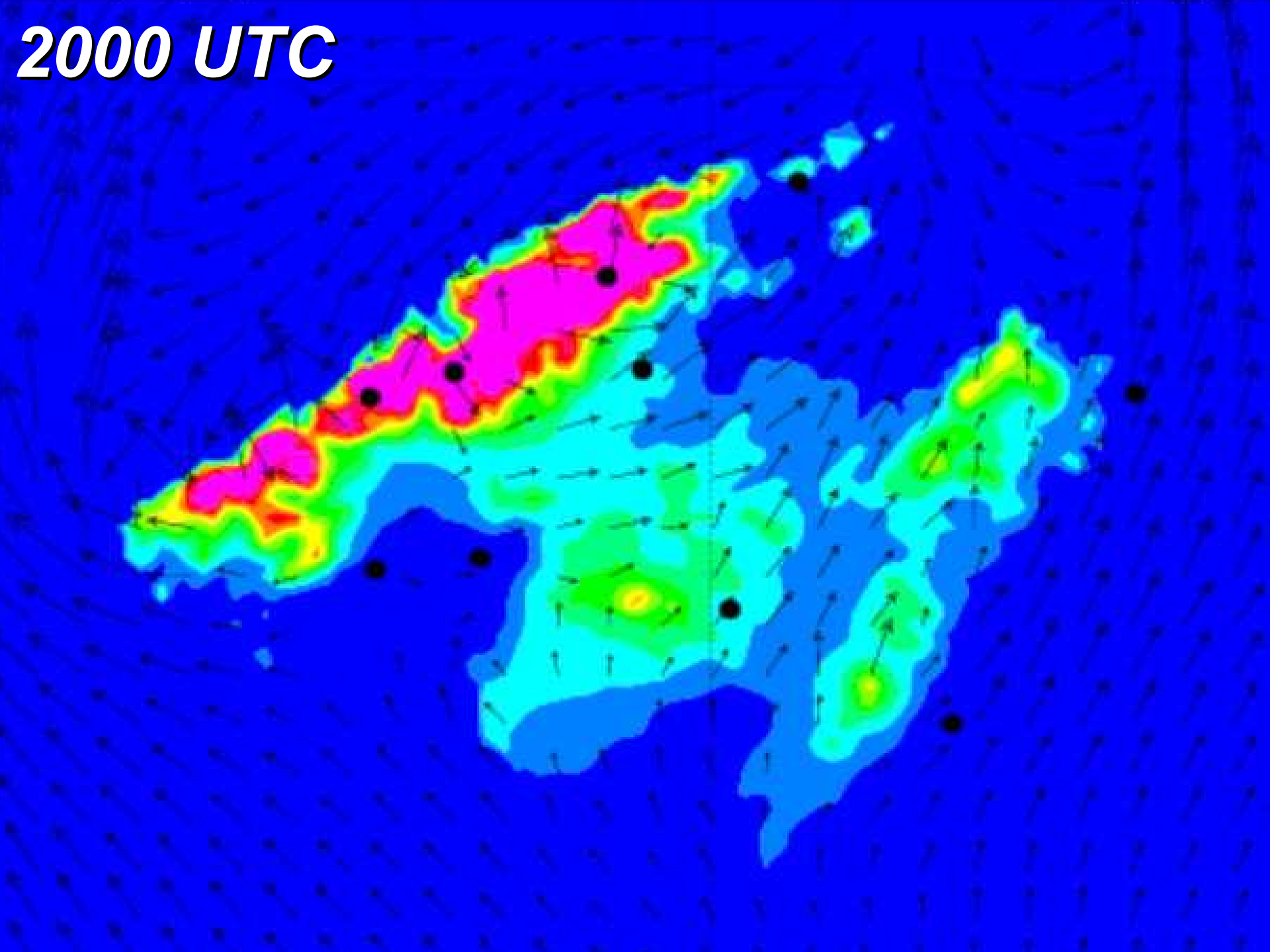
1500 UTC



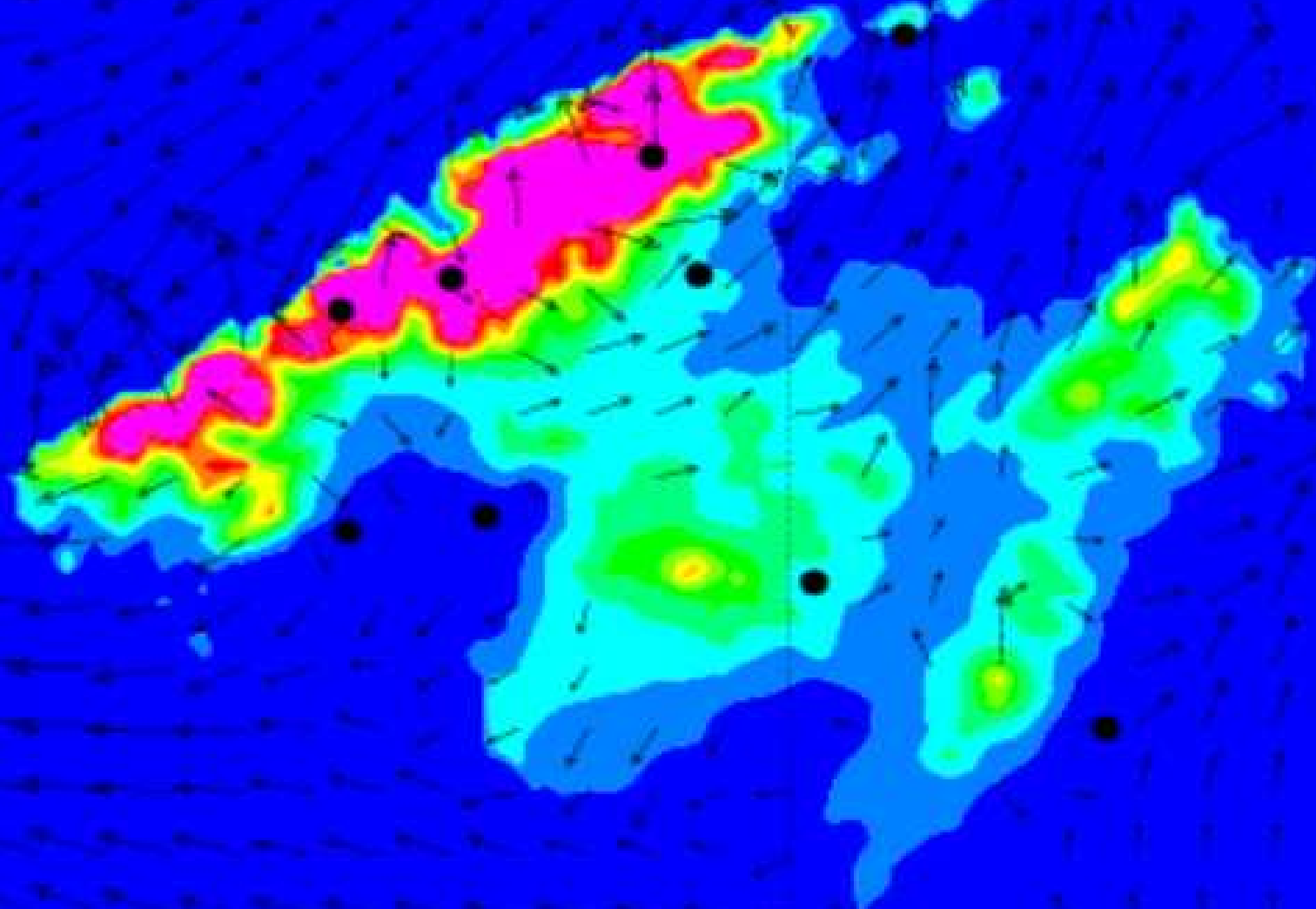
1800 UTC



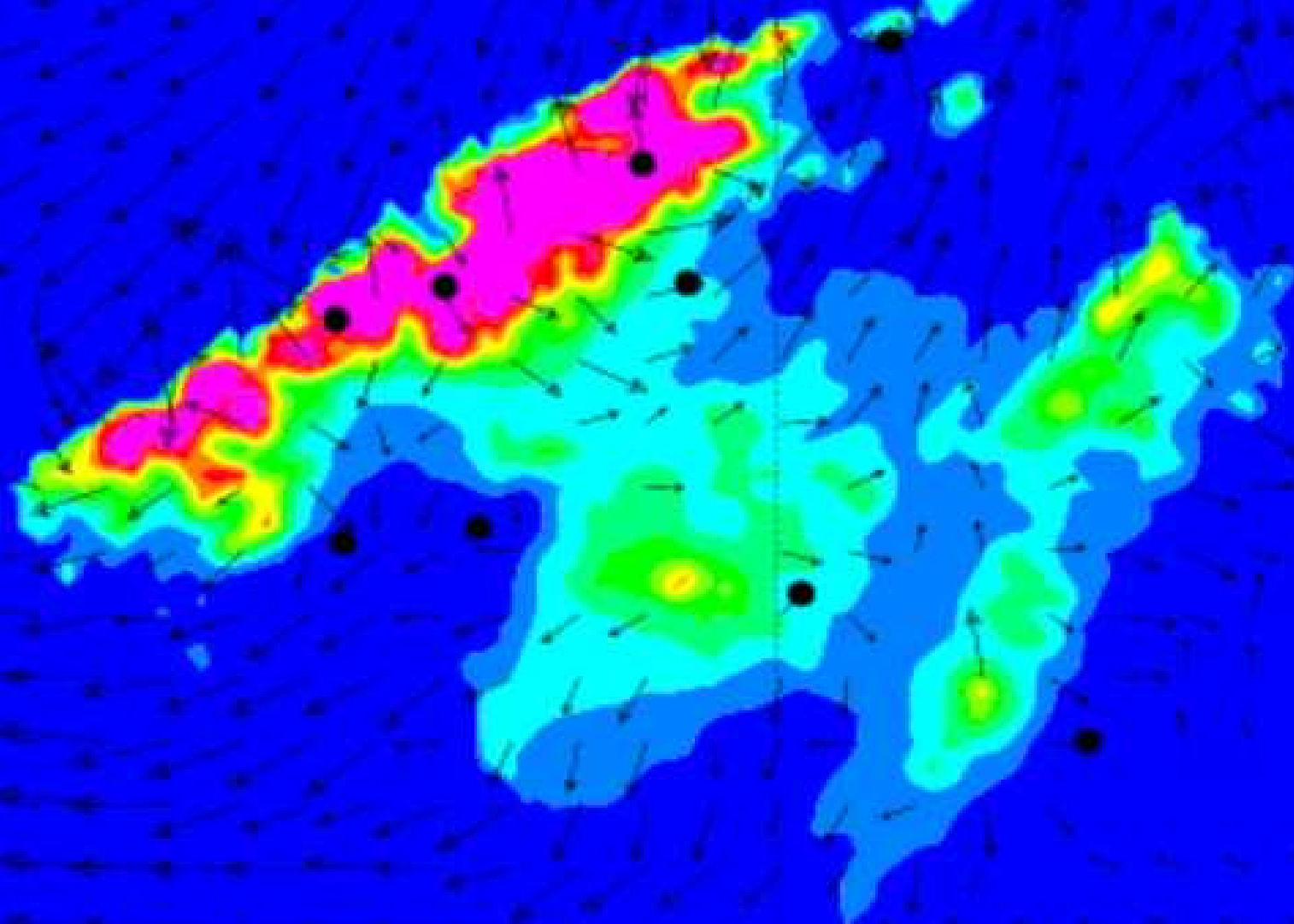
2000 UTC



2200 UTC



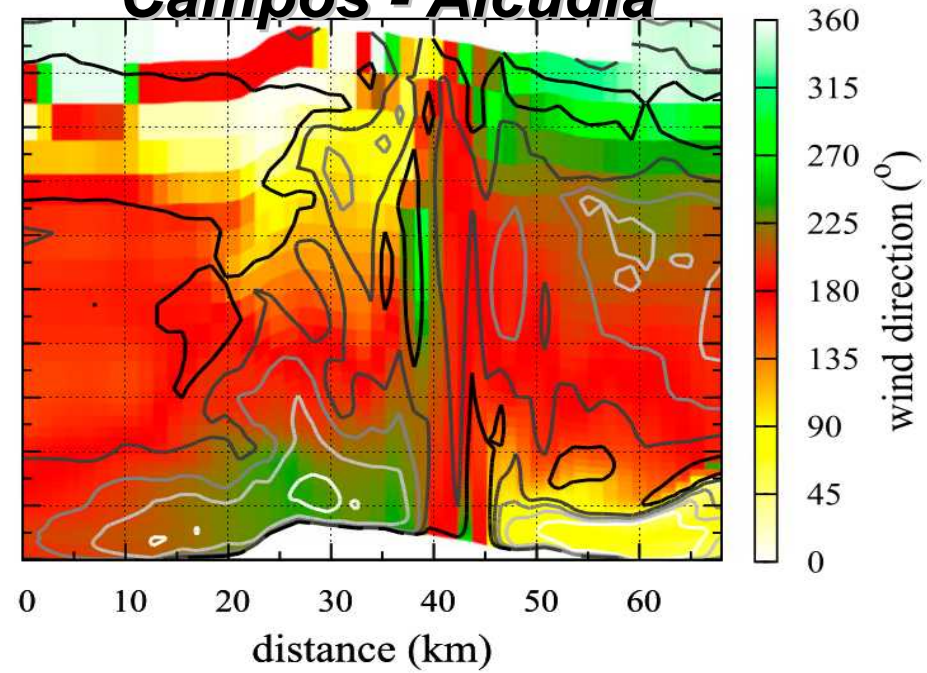
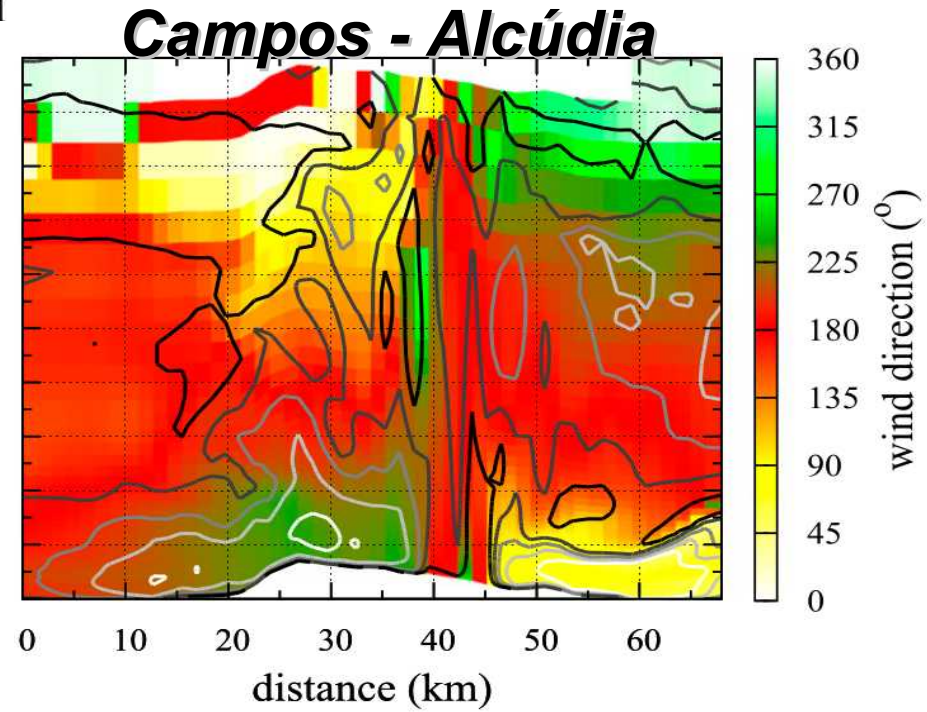
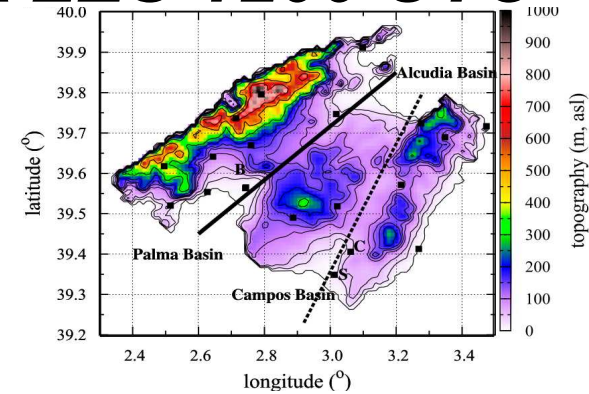
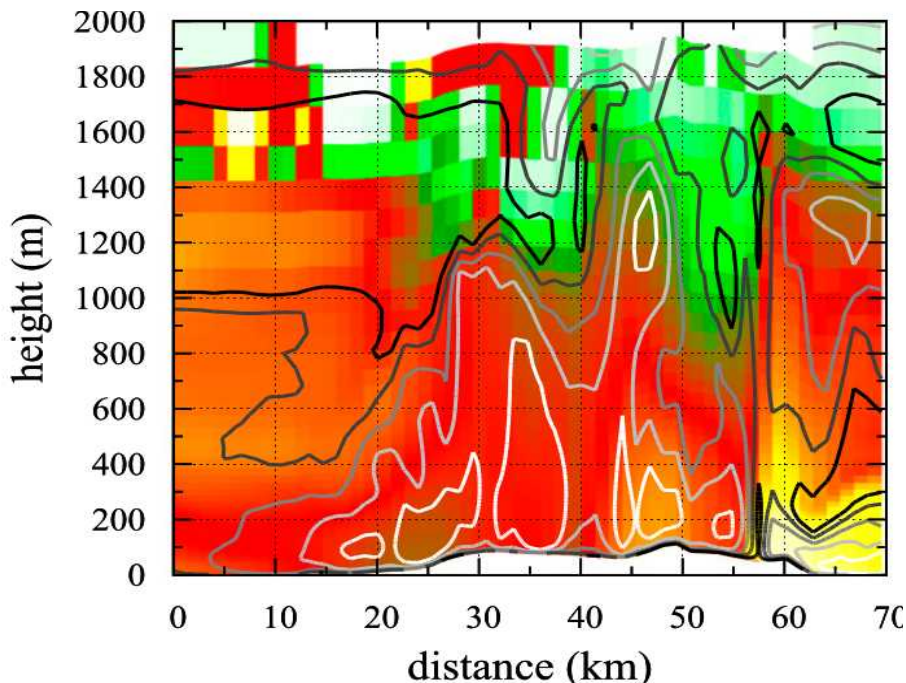
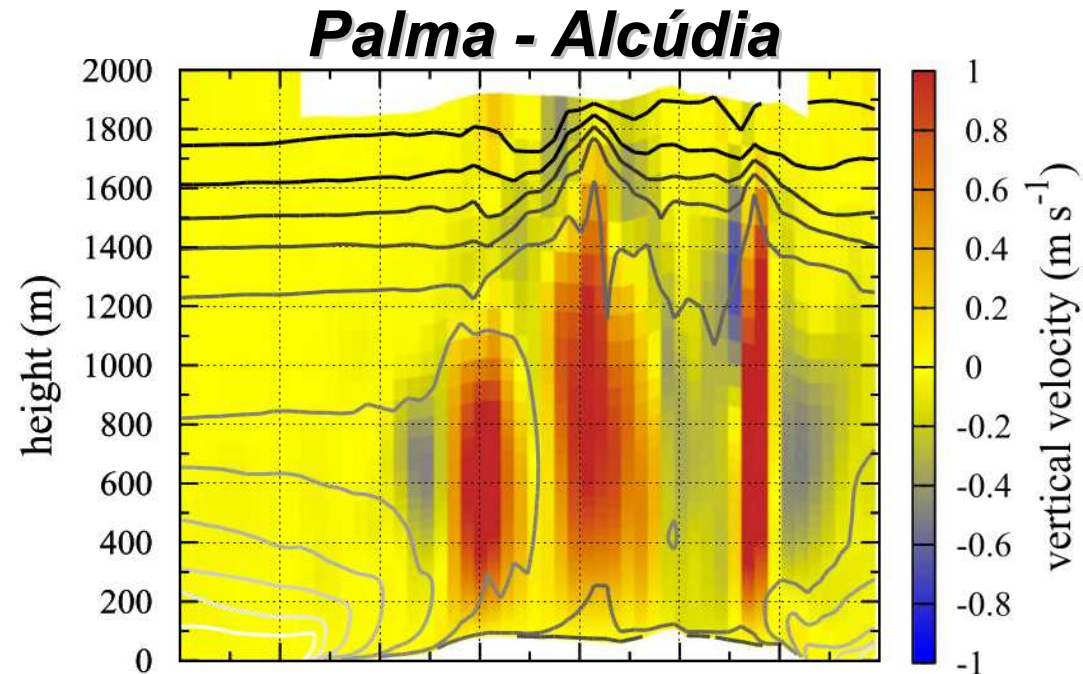
0000 UTC

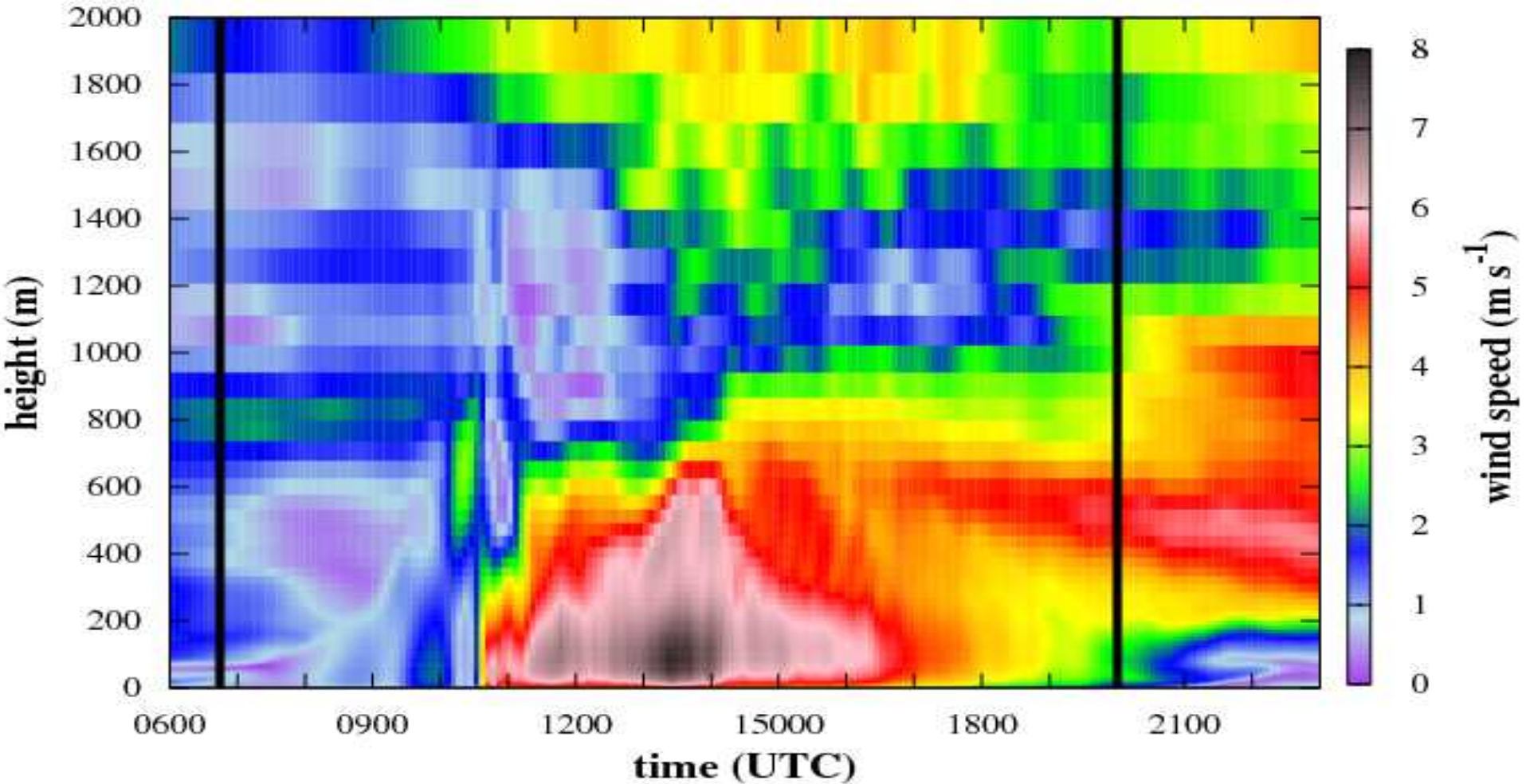


TERRAL

TALLS VERTICALS

A LES 1200 UTC



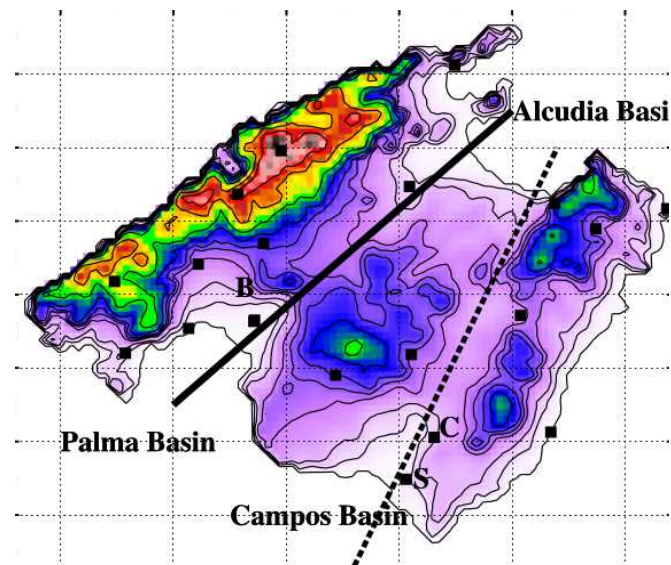
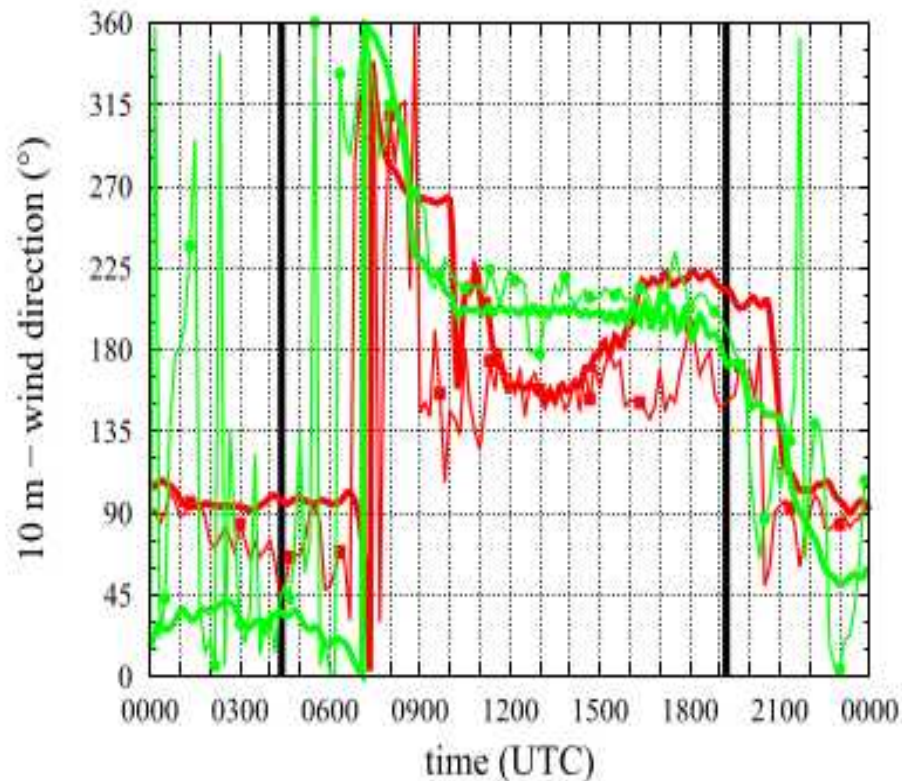
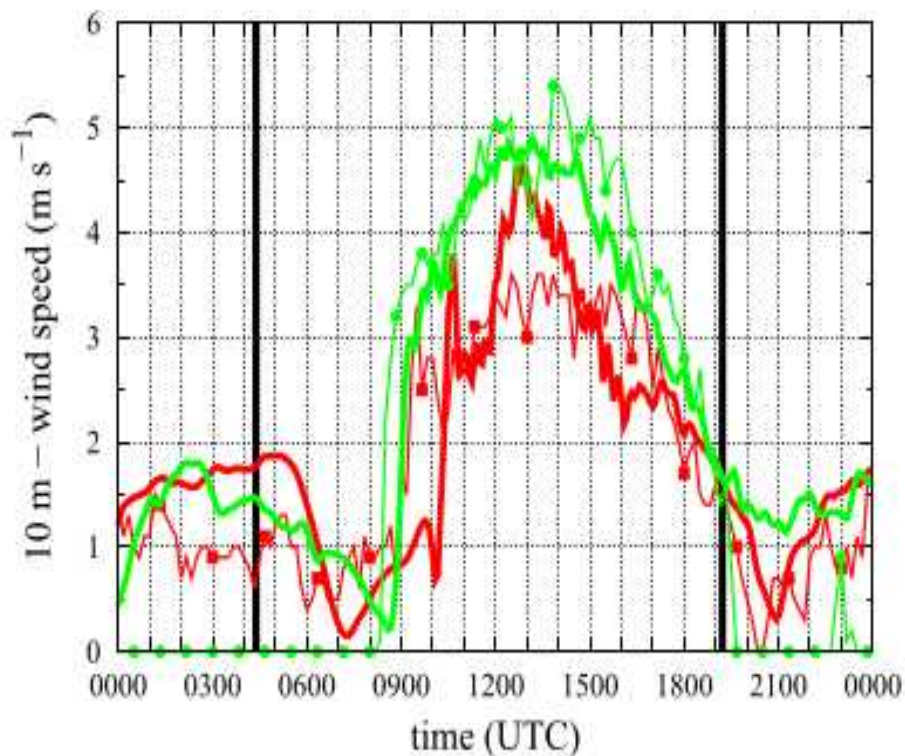


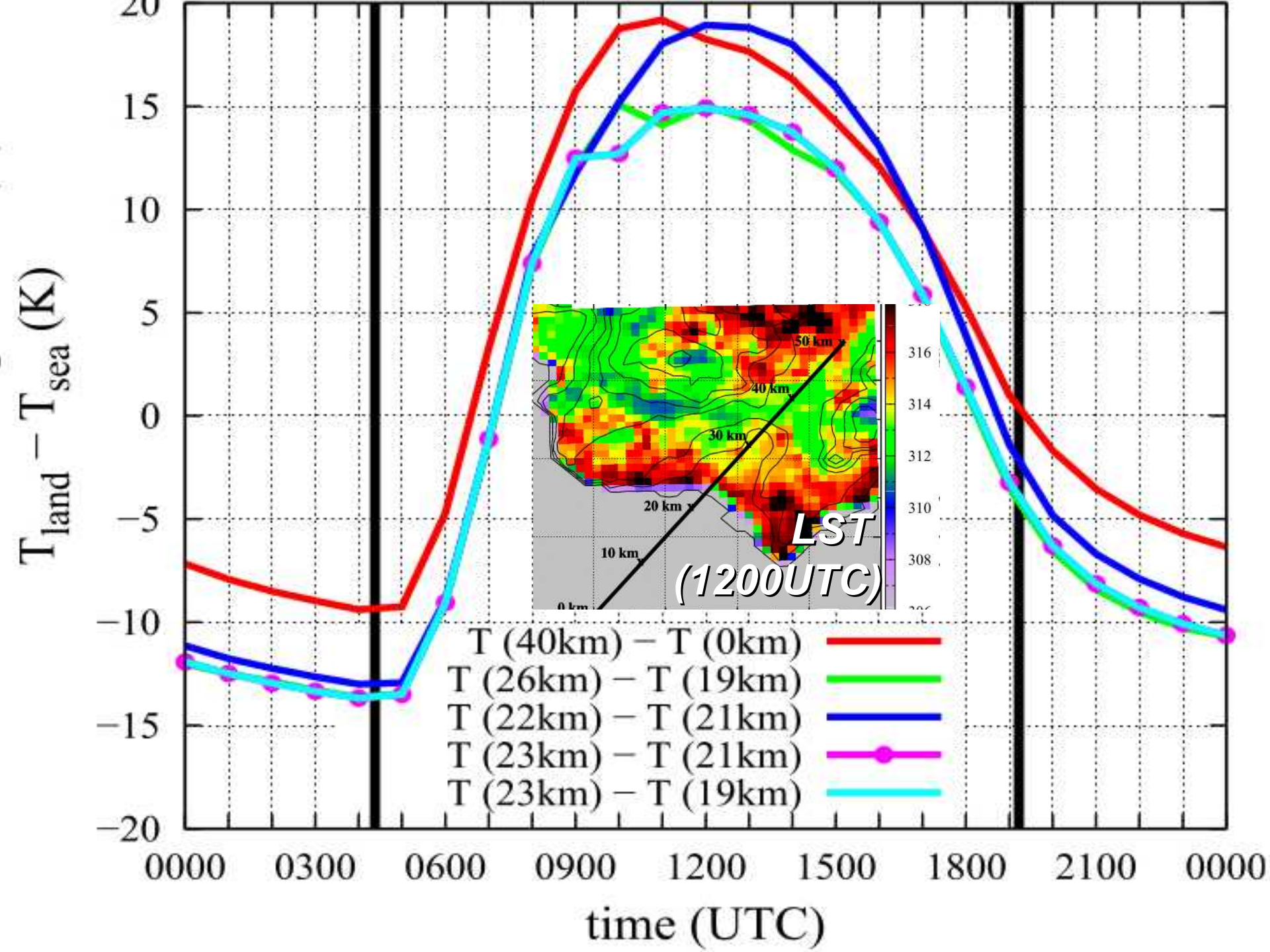
Característiques de la brisa marina

- 1) S'inicia unes 4h després de la sortida del Sol***
- 2) Intensitat màxima a les hores centrals del dia***
- 3) Vent màxim d'uns 8m/s a 150m d'altura***
- 4) Direcció de mar cap a terra***

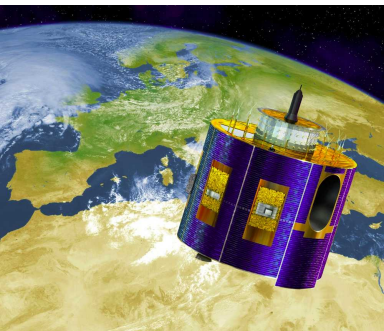
VERIFICACIÓ DE LES SORTIDES DEL MODEL (AWS)

Campos (MNH) ——— Ses Salines (MNH)
Campos (AWS) ■ Ses Salines (AWS) ■





VERIFICACIÓ DE LES SORTIDES DEL MODEL (SATÈL·LITS METEOROLÒGICS)

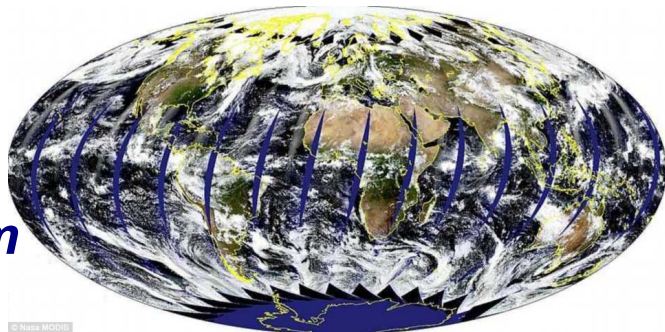


MSG

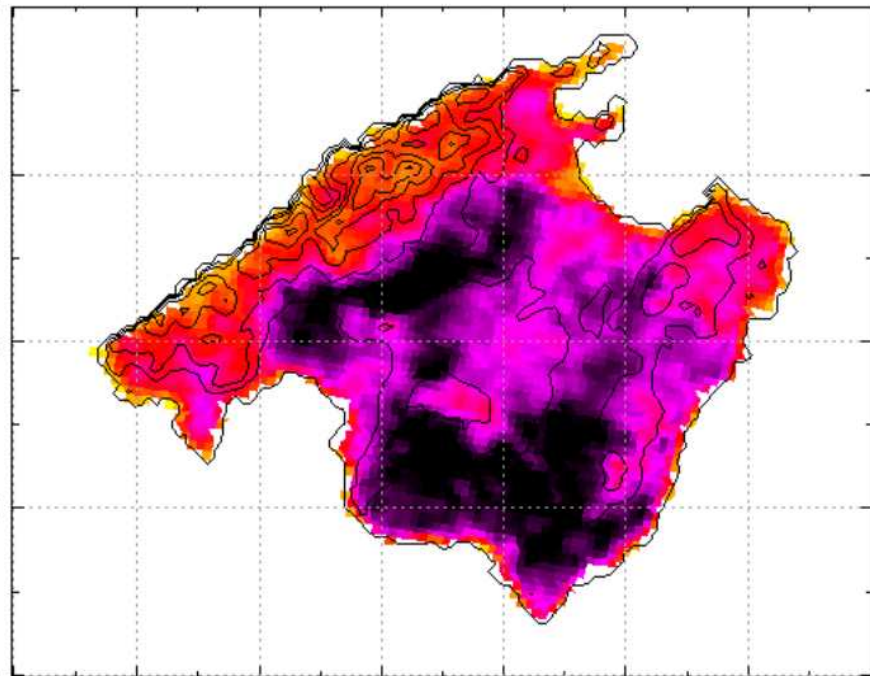
4km x 4km
cada 15min

MODIS

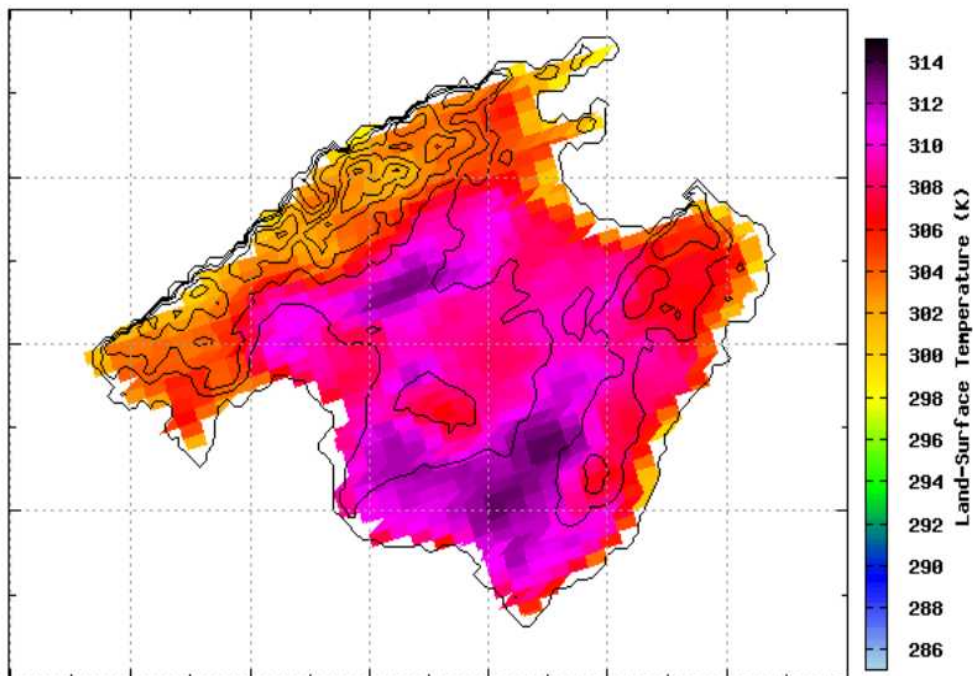
1km x 1km
4 al dia

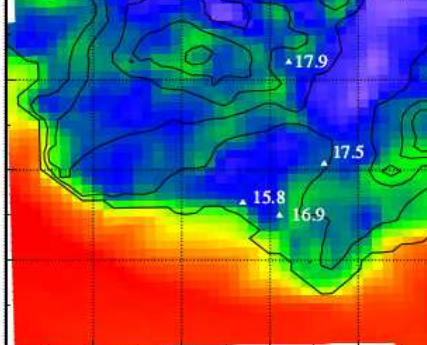
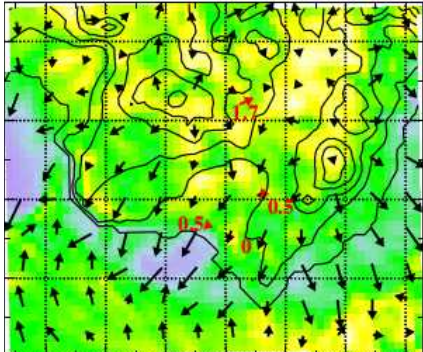


1030 UTC

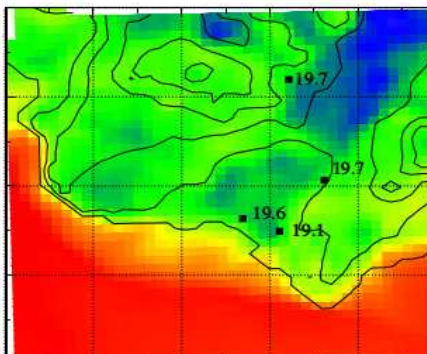
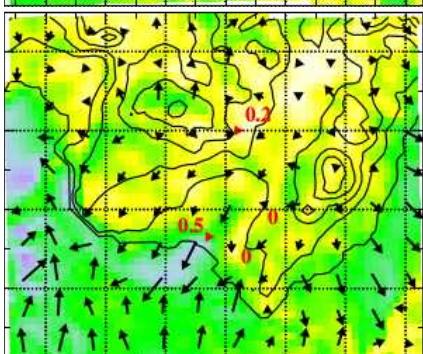


1215 UTC

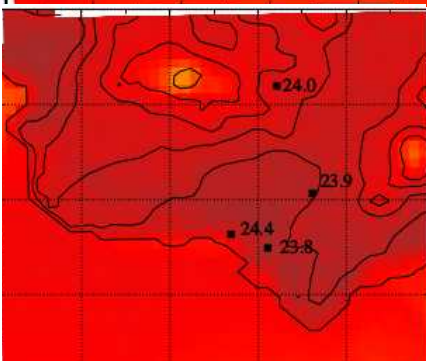
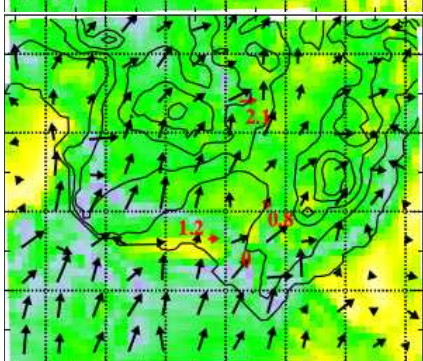




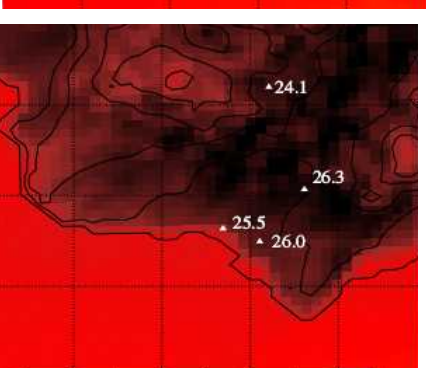
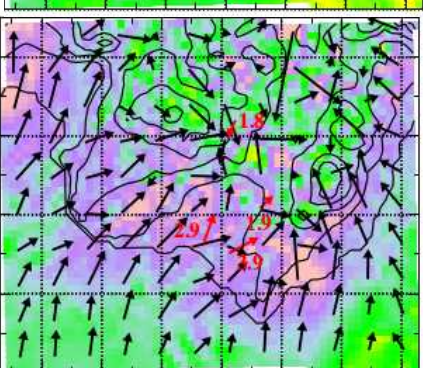
0500 UTC
terral



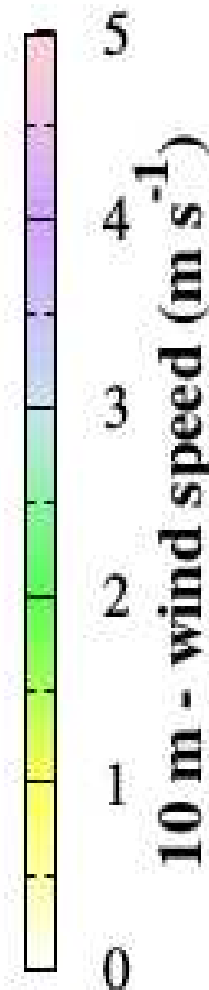
0700 UTC
prèvia



0900 UTC
preparatòria



1100 UTC
desenvolupament

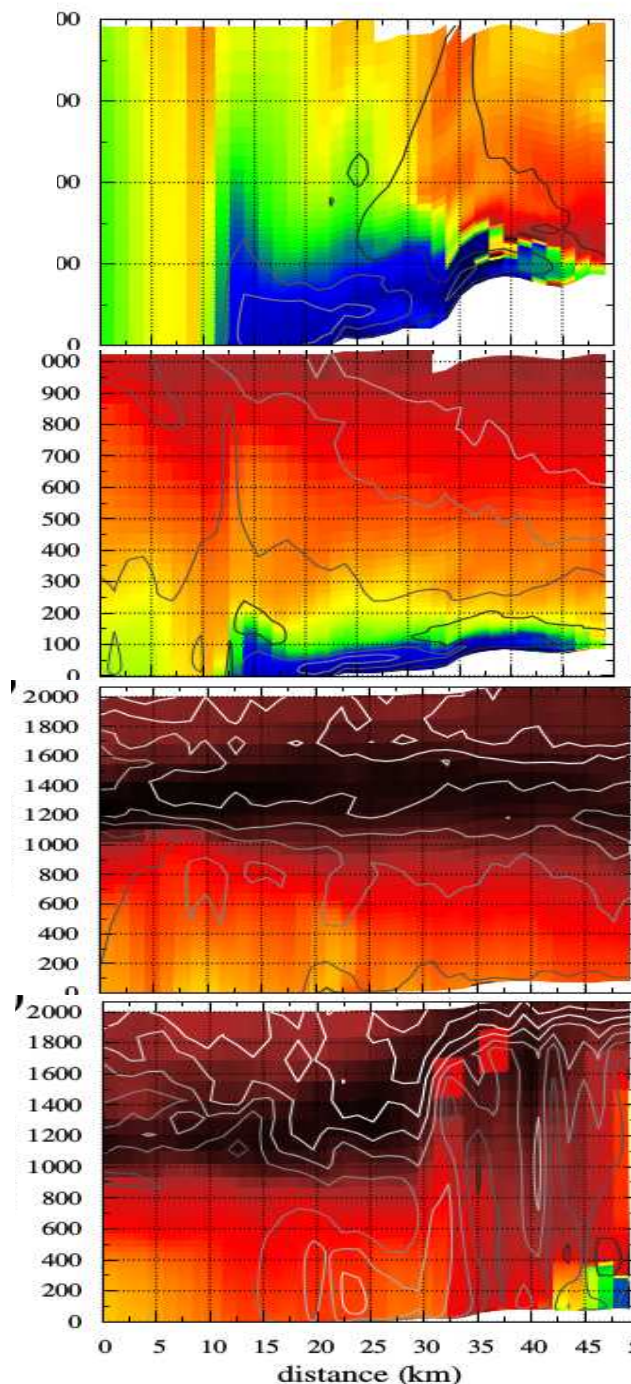
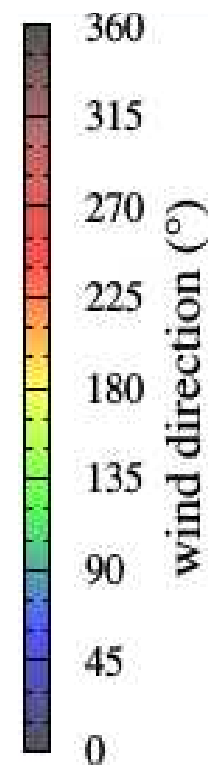
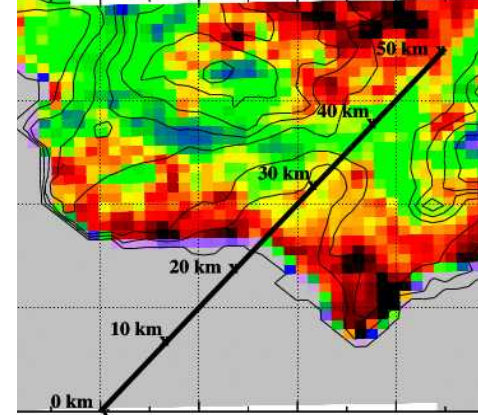


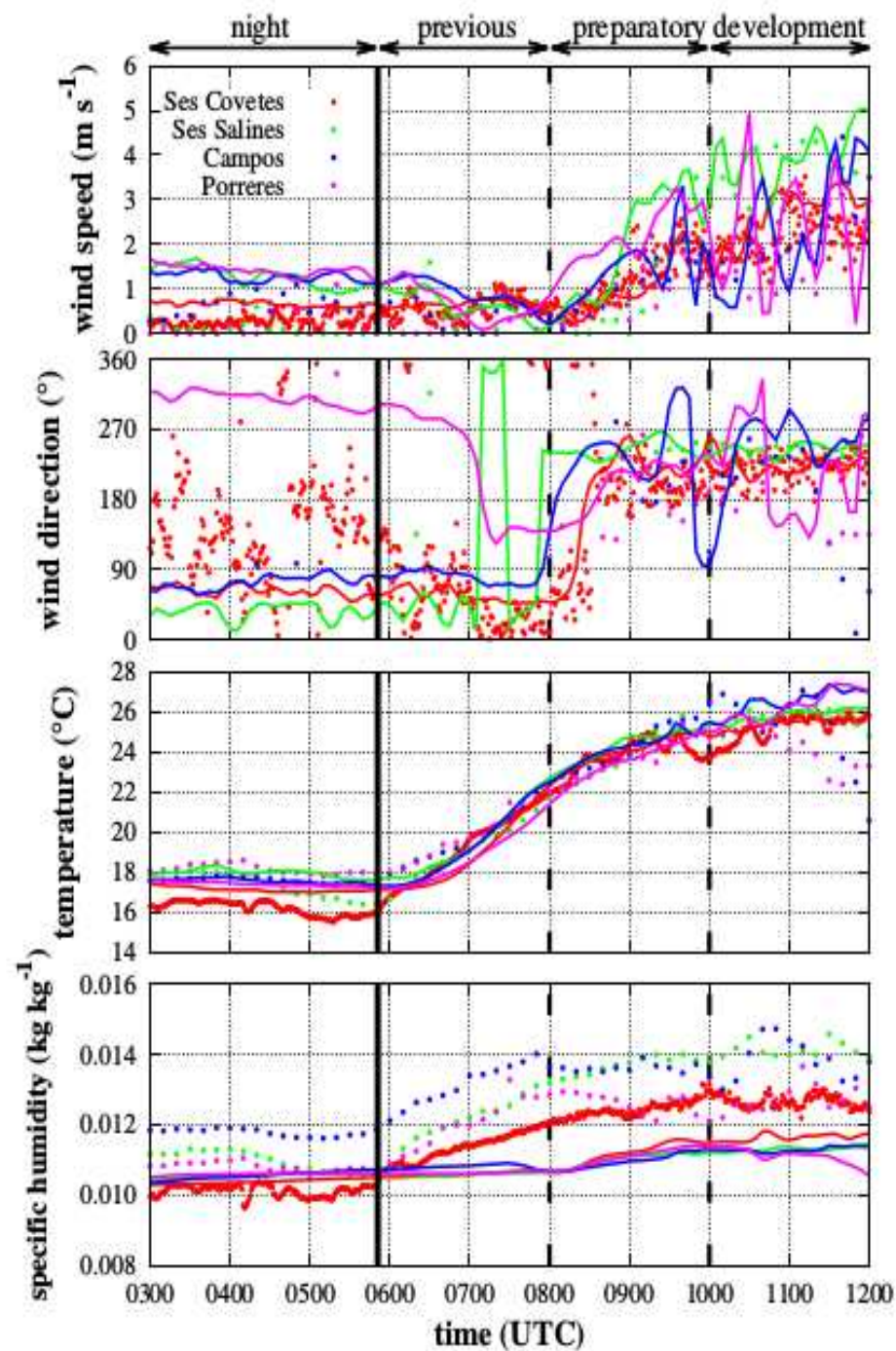
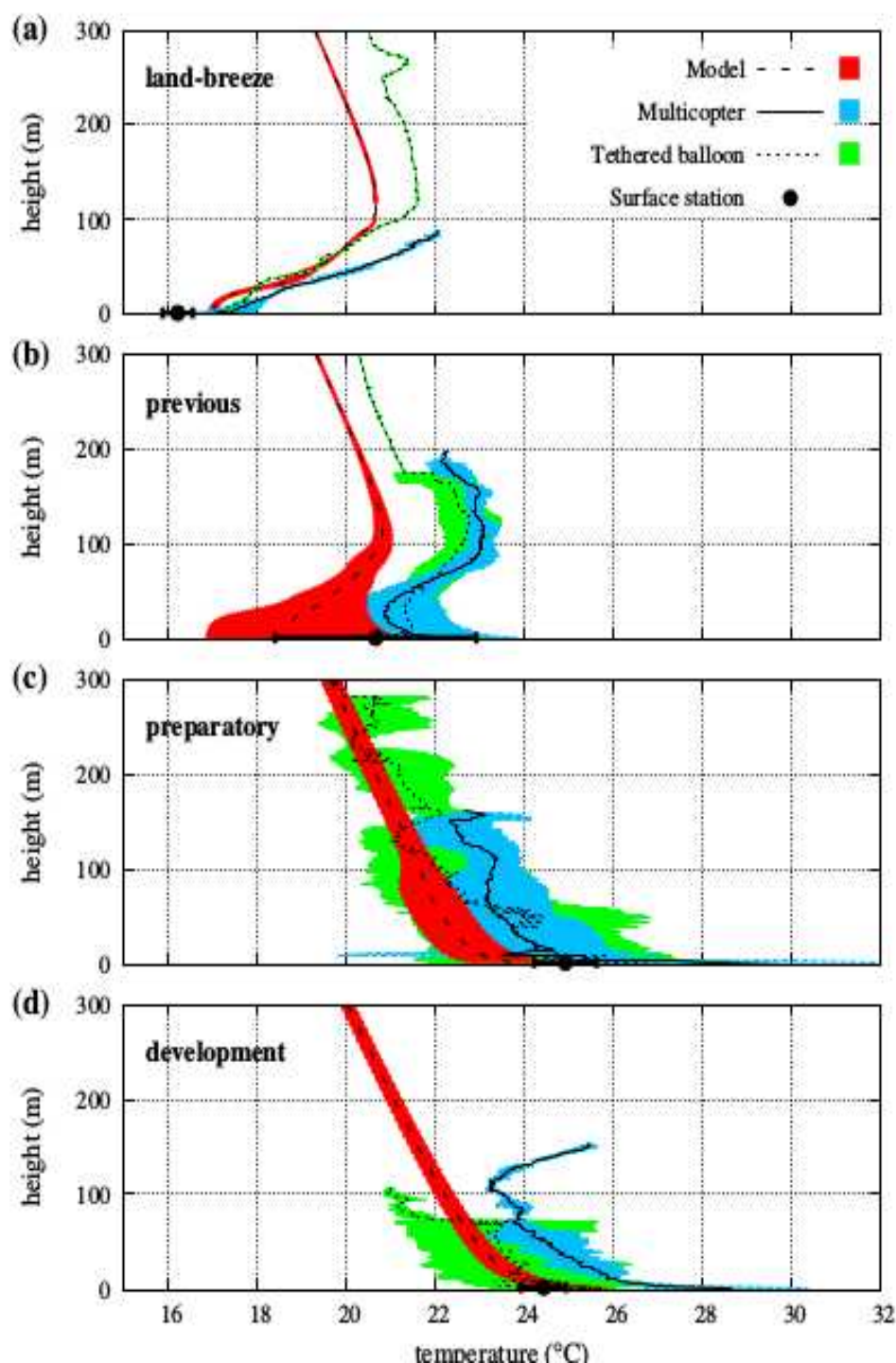
0500 UTC
terral

0700 UTC
prèvia

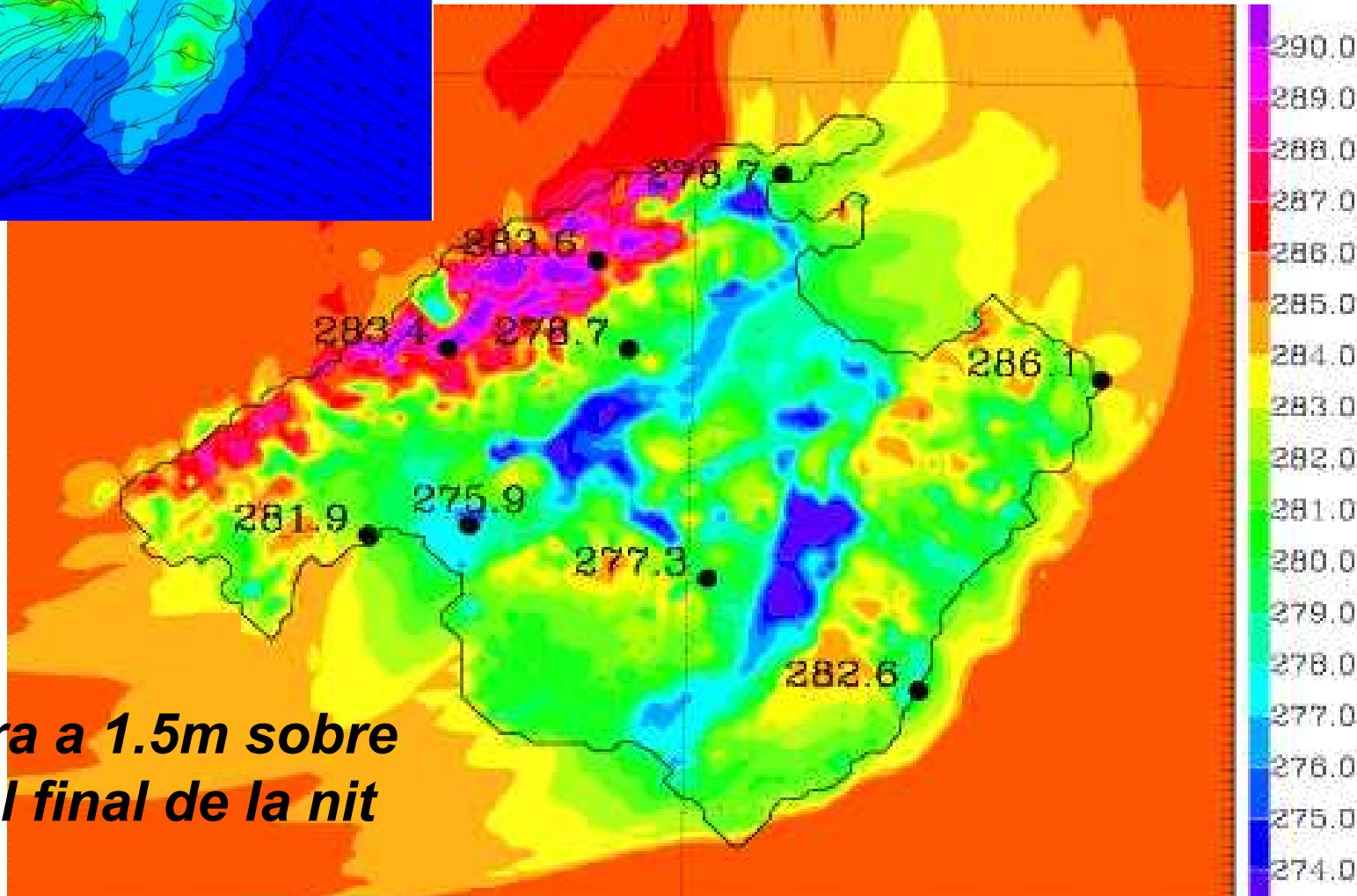
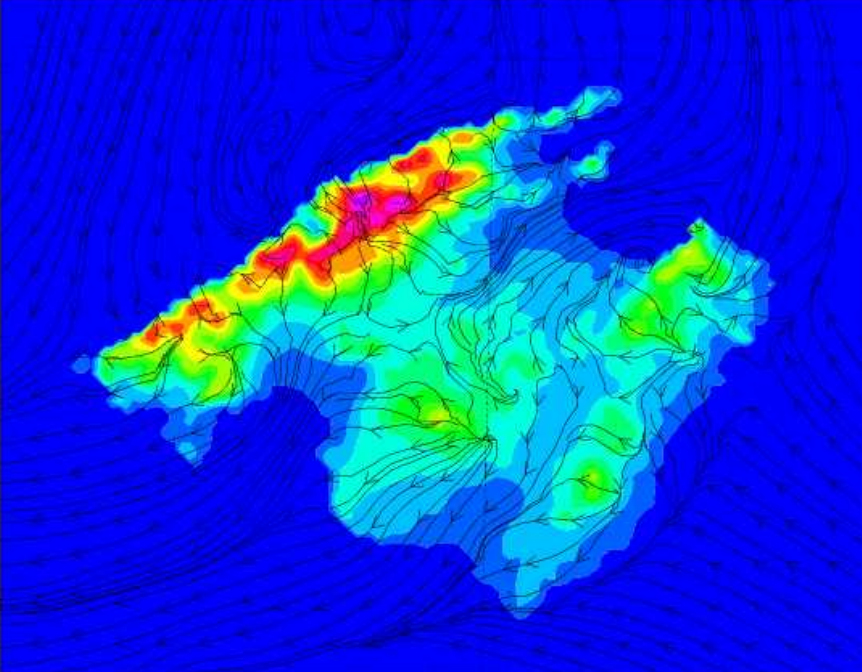
0900 UTC
preparatòria

1100 UTC
desenvolupament

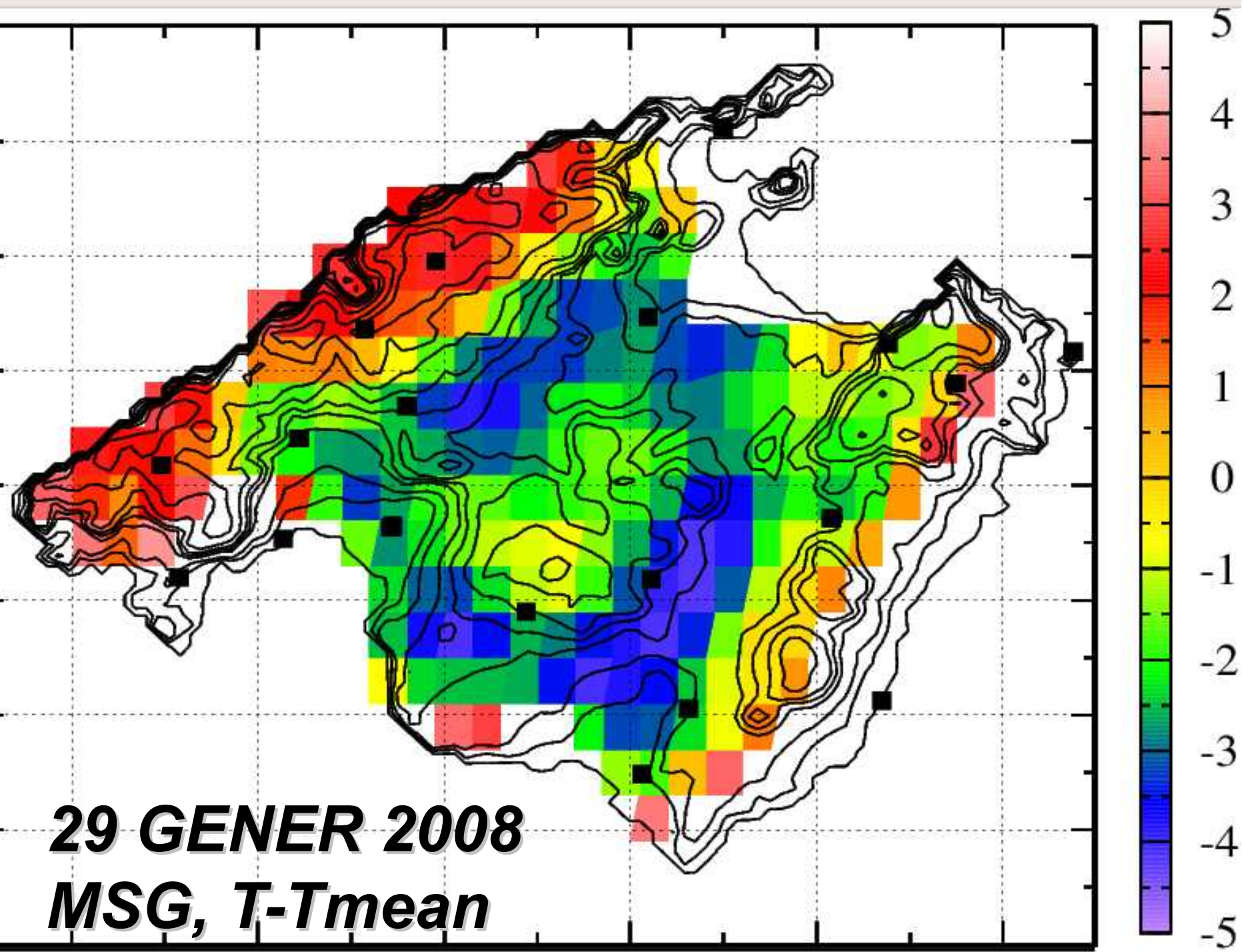


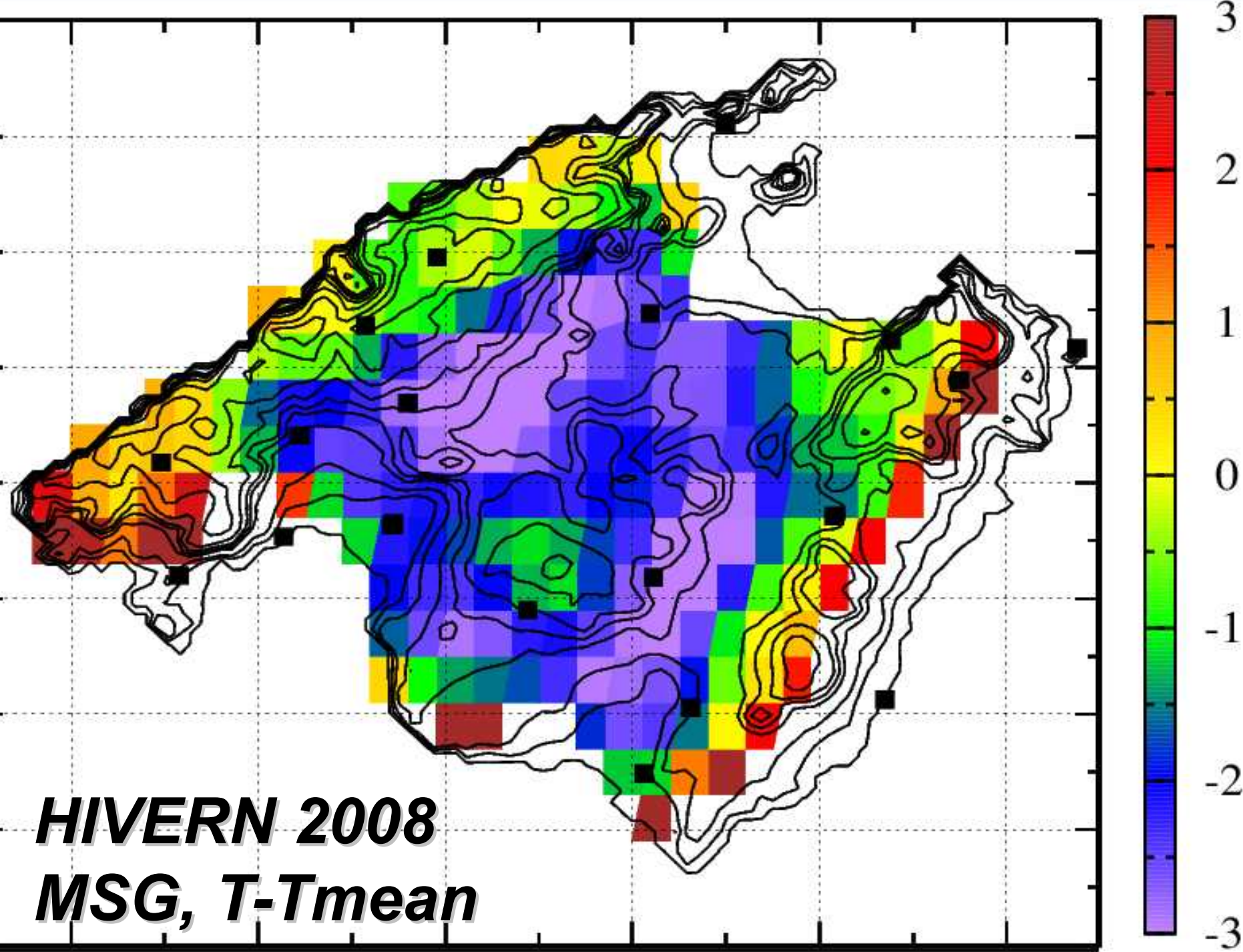


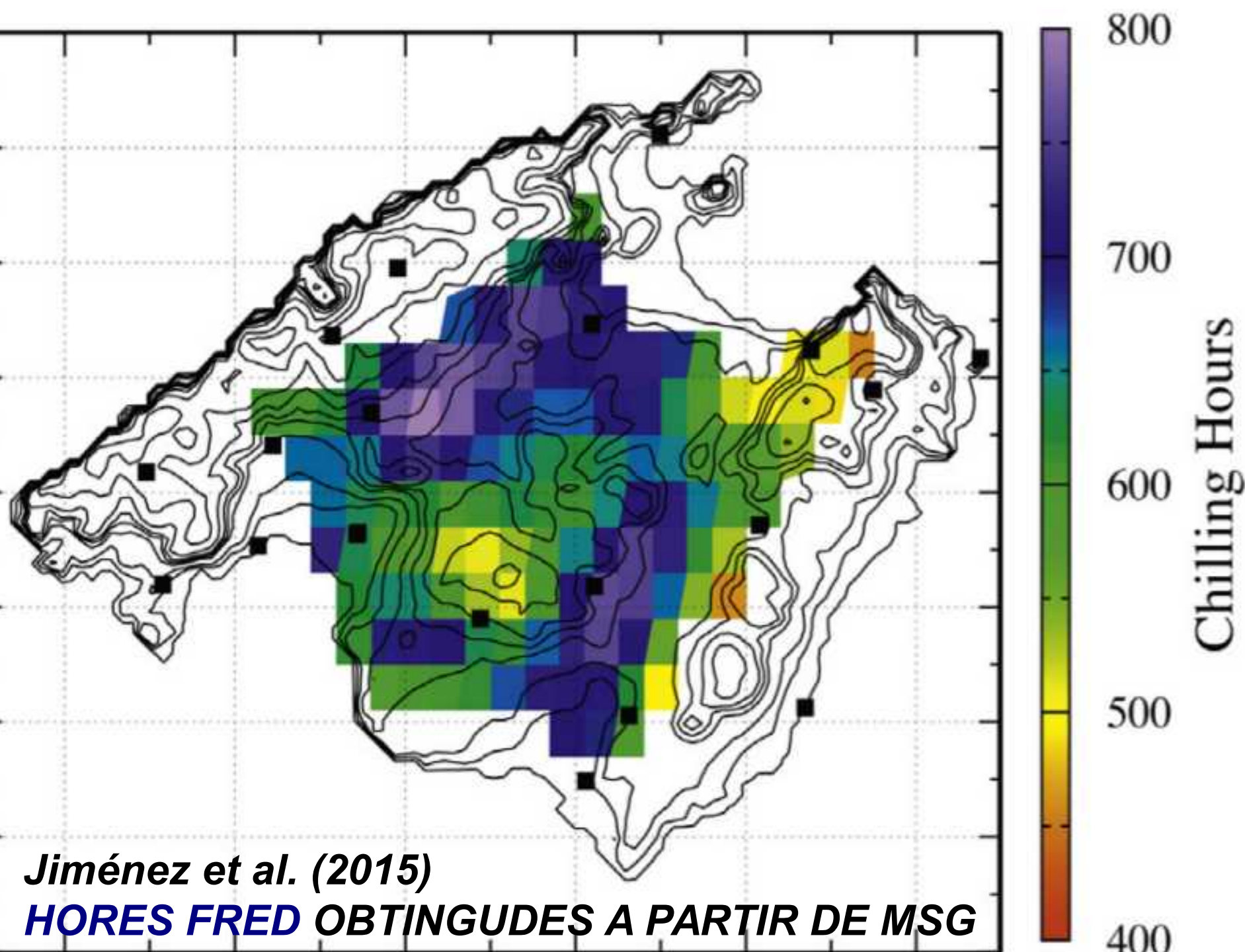
EL TERRAL I LES PISCINES D'AIRE FRED



***Temperatura a 1.5m sobre
el terreny al final de la nit***









Niebla de irradiación e inversión térmica

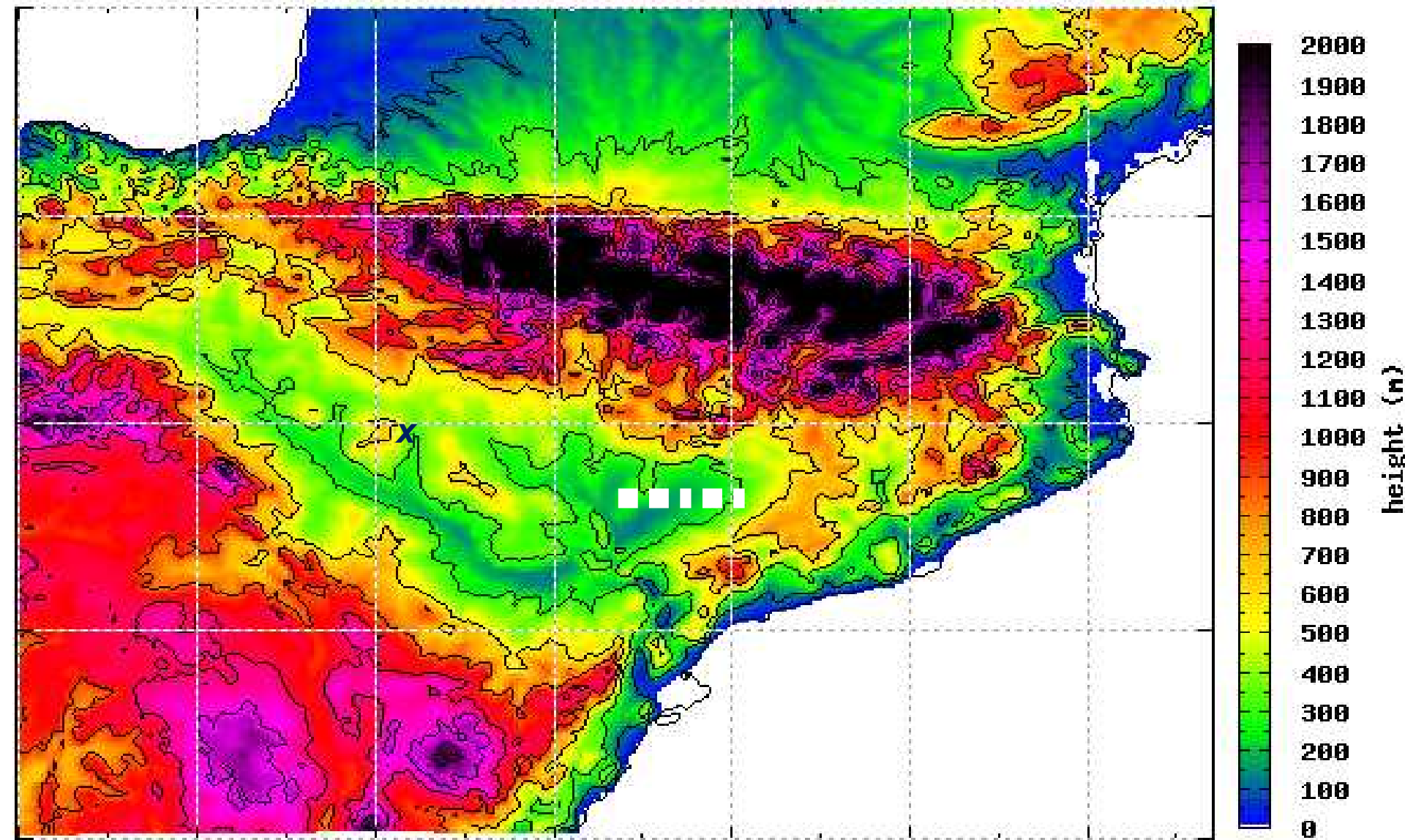


Niebla de advección

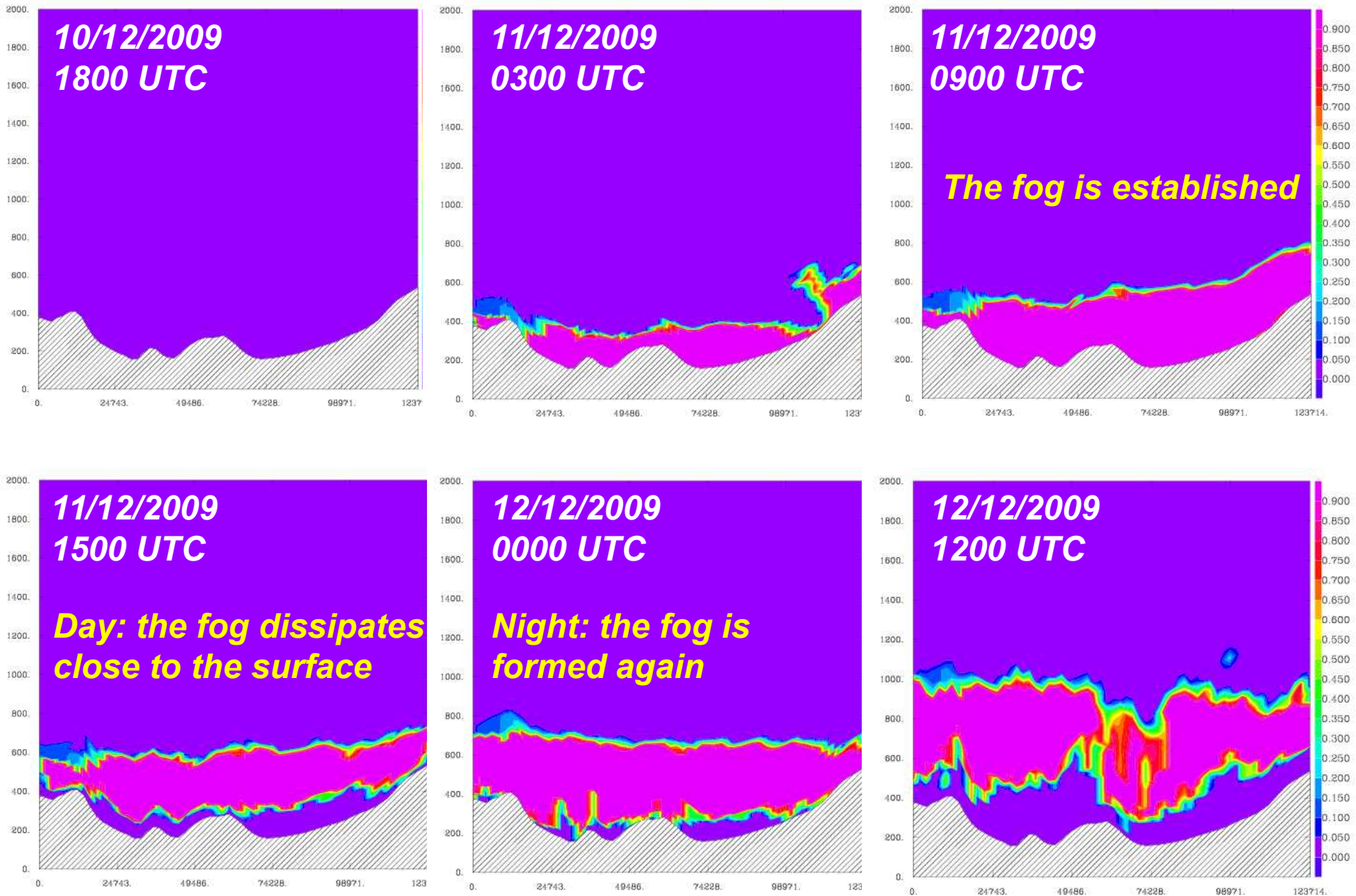


Fog formation in the Ebro river basin:

10-12 December 2009
(Cuxart and Jiménez, 2012)



Vertical cross-sections of the cloud fraction



1

La **brisa** o **embat** és un vent d'origen local (A i cels clars) de mar cap a terra.



Anàlogament, el **terral** és un vent de terra cap a mar.

Ambdós són degut a la **diferència de temperatura** mar-terra.

2

A Mallorca la **brisa/terral** interaccionen fortament amb els **anabàtics/catabàtics**.



El **front de brisa** és apreciable a les tres grans conques, generant-se una **zona de convergència** al centre de l'illa.

3

*La **brisa** té màxima intensitat durant les hores centrals del dia dels mesos d'estiu.*



*El **terral** és màxim abans de la sortida del Sol, especialment a l'hivern. A la nit els forts refredaments es troben als centres de les valls (o conques) i moltes vegades amb boires presents.*



Gràcies per la vostra atenció!