

Surface thermal inversion evolution in the bottom of a Pyrenean valley studied by observations and mesoscale simulations

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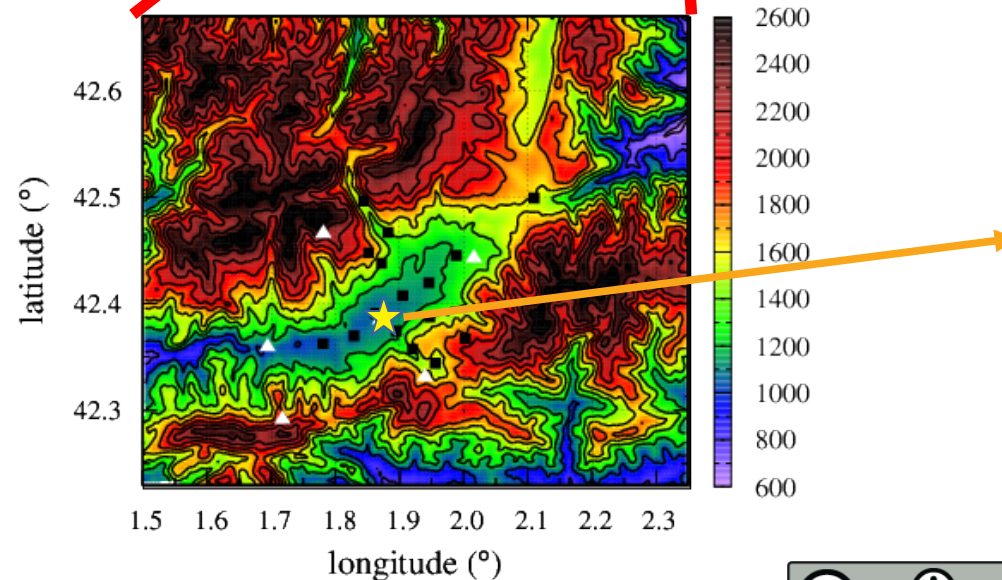
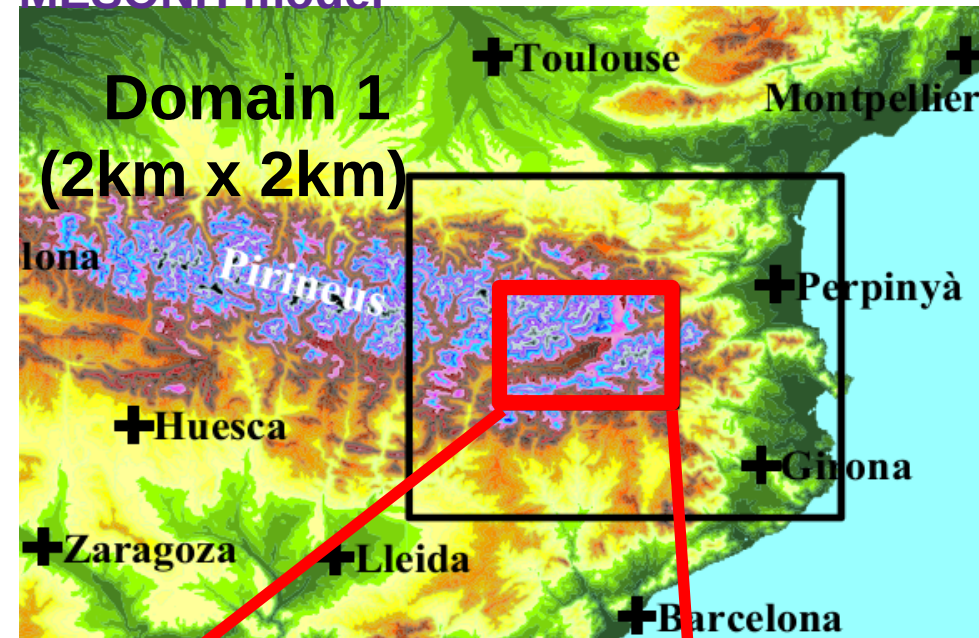
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(2) Centre Nationale de Recherches Meteorologiques, MeteoFrance, France

(3) Universitat Politècnica de Catalunya, Spain

MESOSCALE SIMULATION

MESONH model



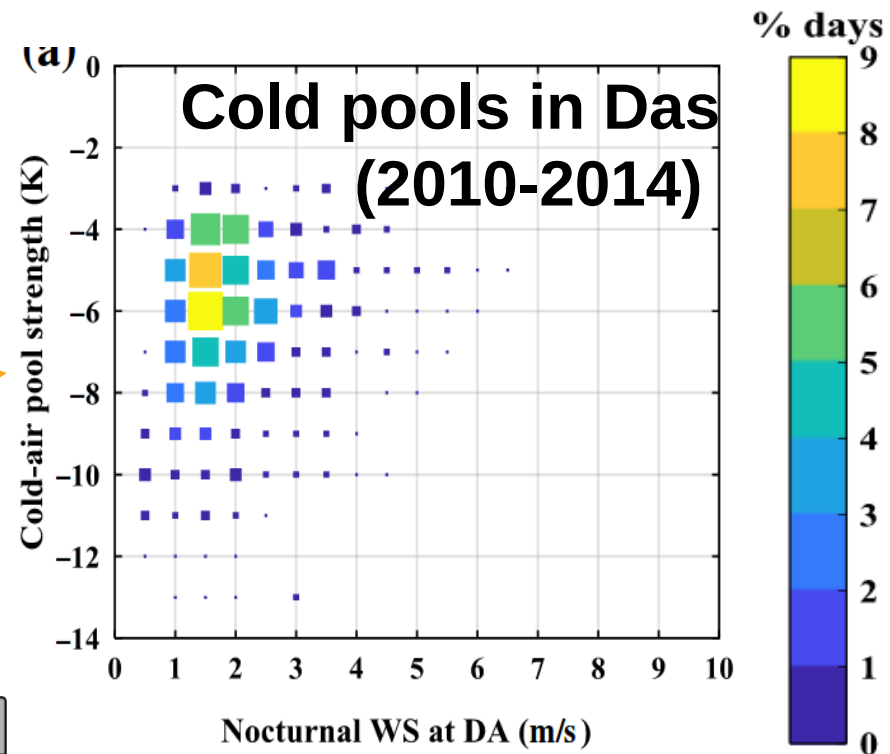
Domain 2 (400m x 400m)

Cerdanya Cold Pool (CCP)
experimental field campaign

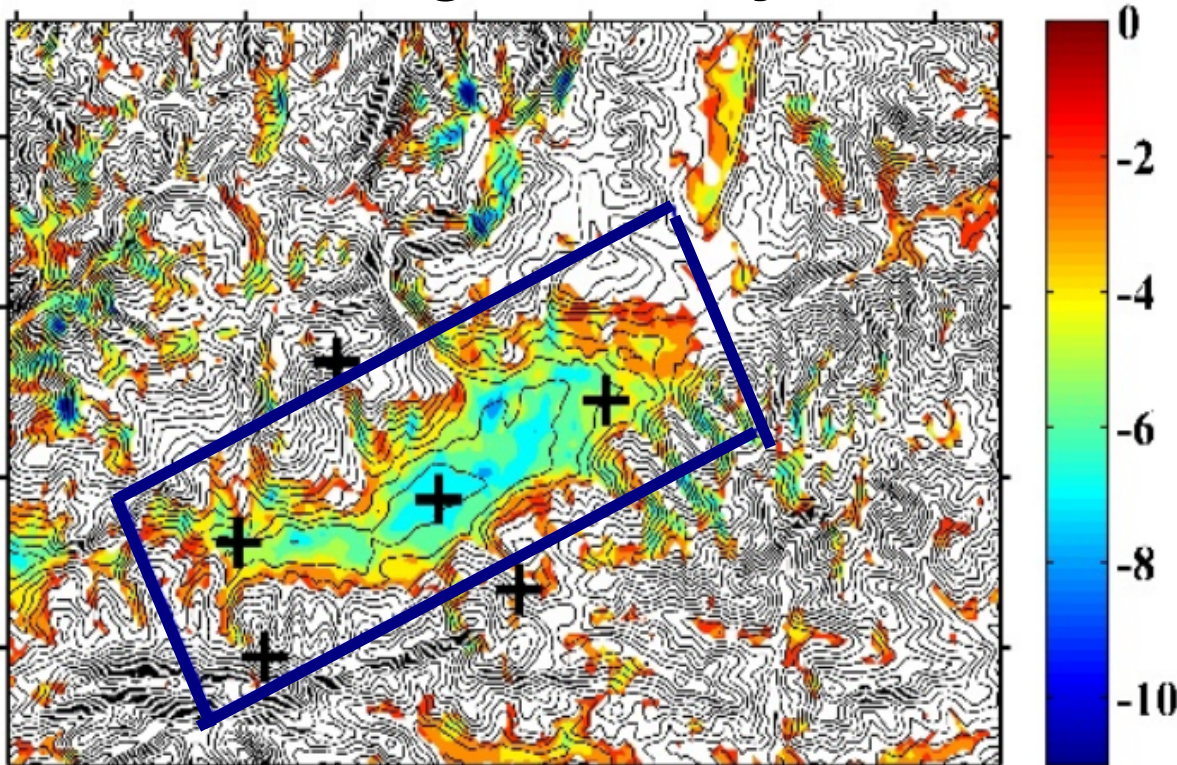
CCP15 → October 2015

CCP17 → Dec-Apr 2017

Conangla et al., (2018) IJOC



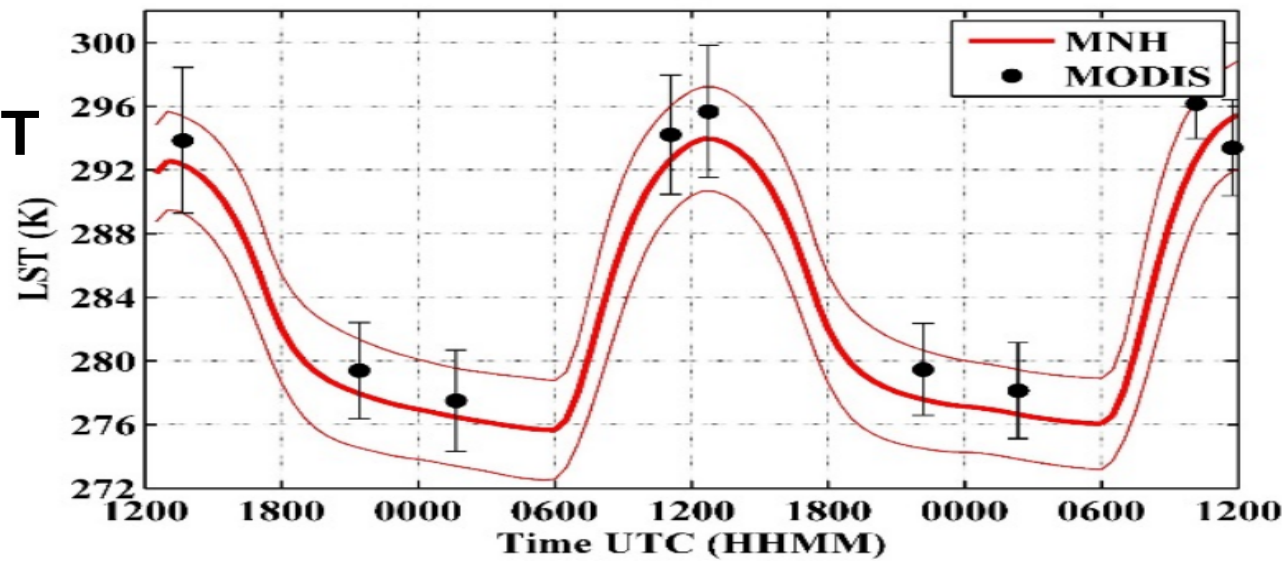
LST cooling anomaly between sunset and sunrise

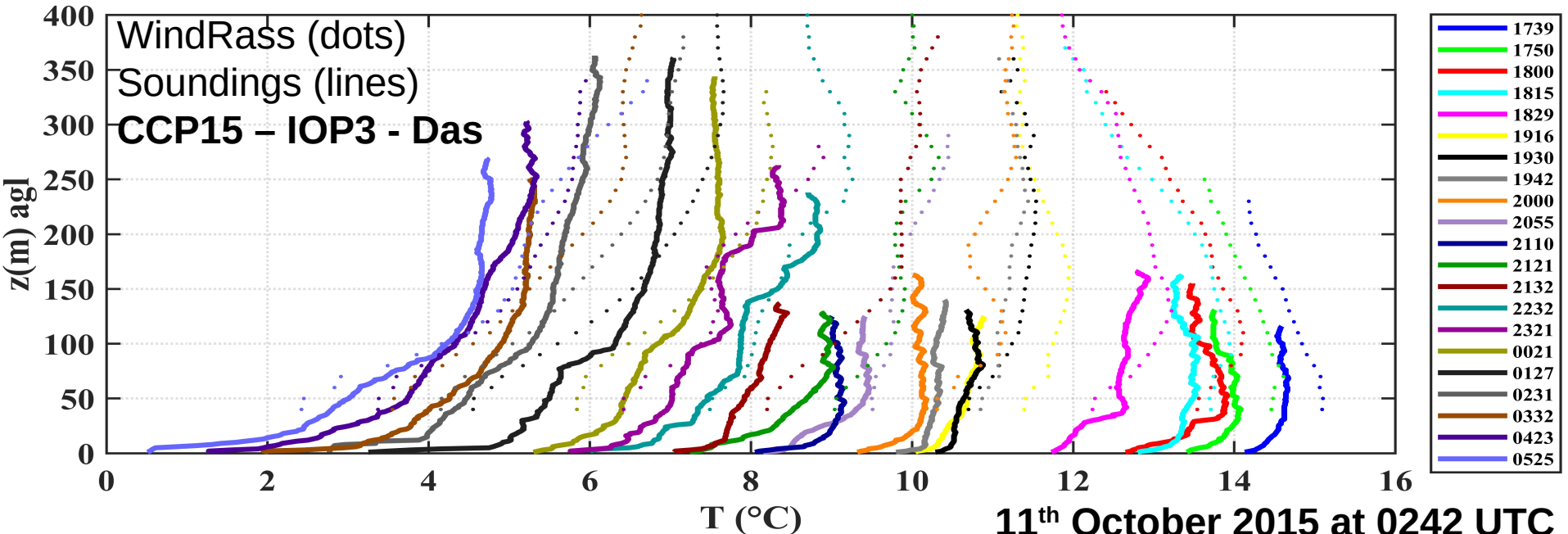


from Conangla et al. (2018)

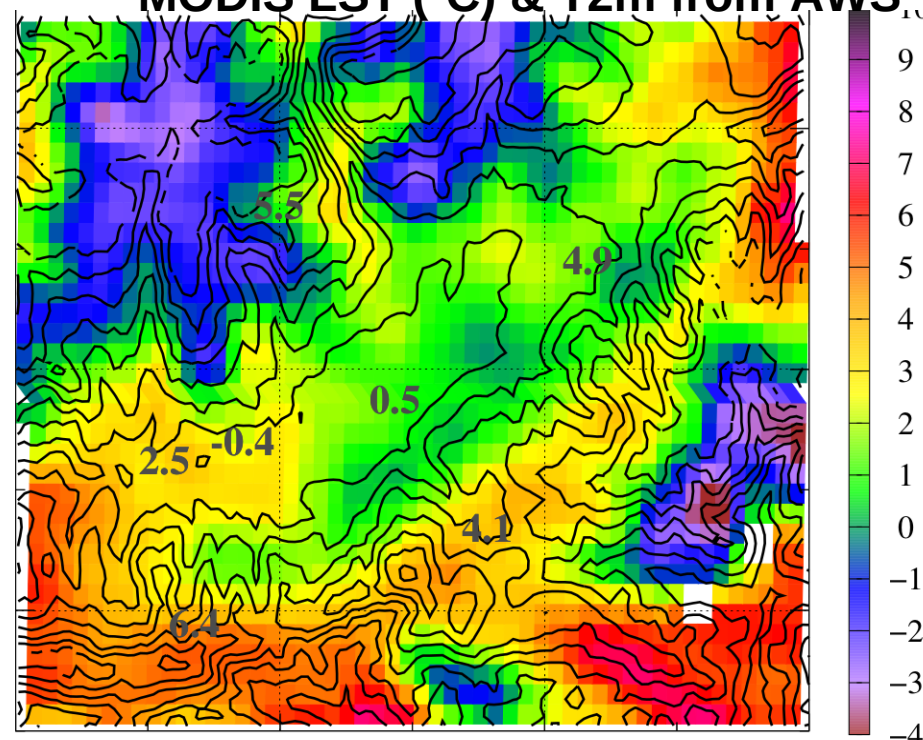
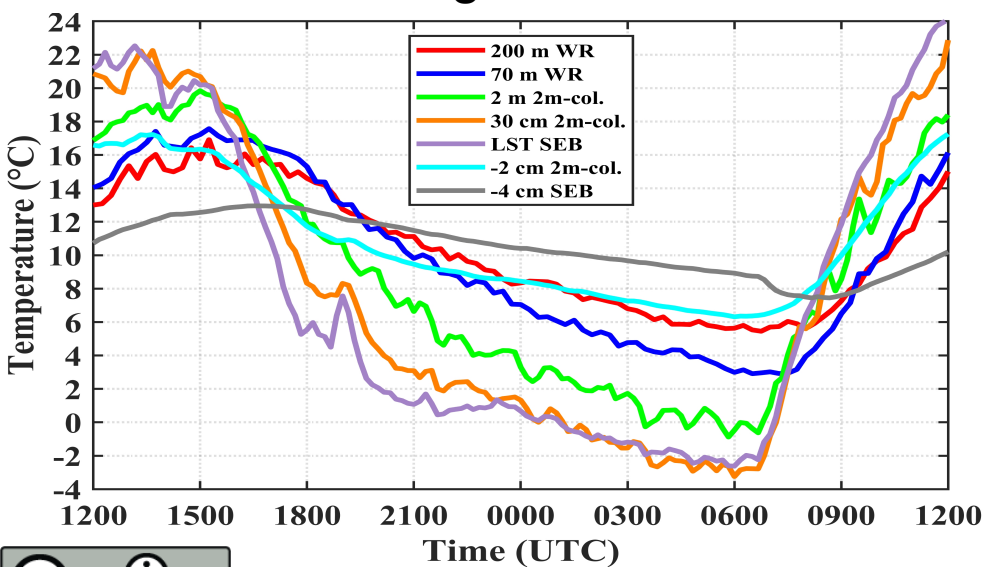
Location of the
Cold-Air Pool (CAP)
obtained by the model
(1st October 2011)

Validation of the LST
Model and MODIS
averages over
La Cerdanya
(blue square above)

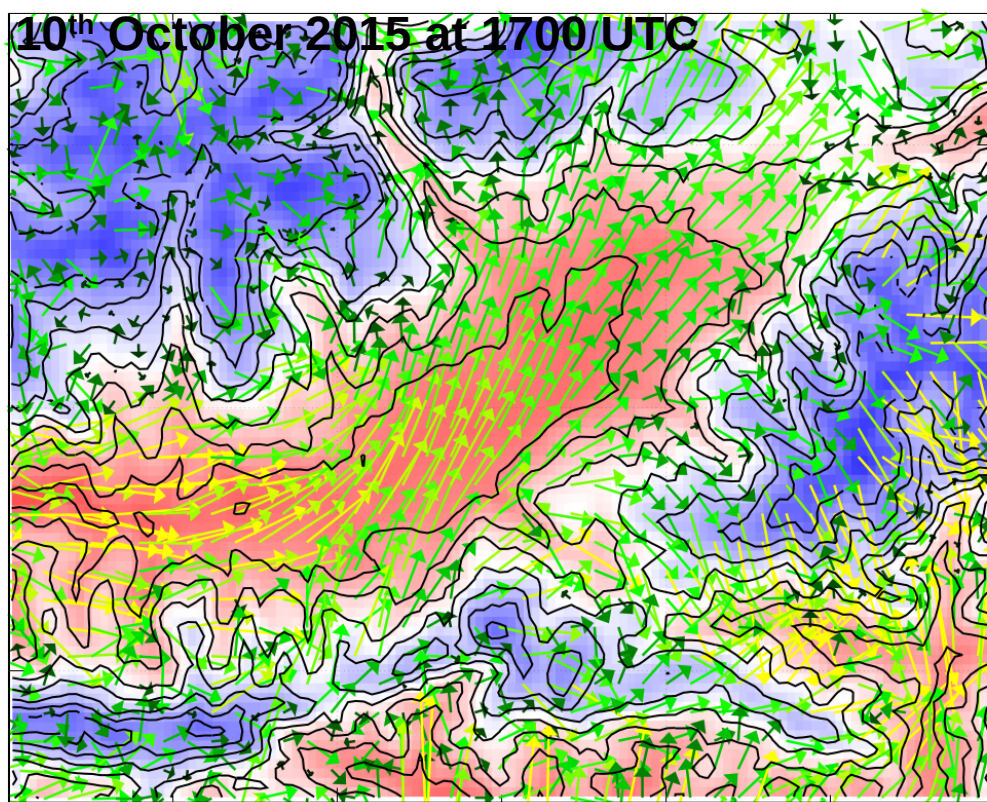




Observed temperature at different levels in Das during IOP-3



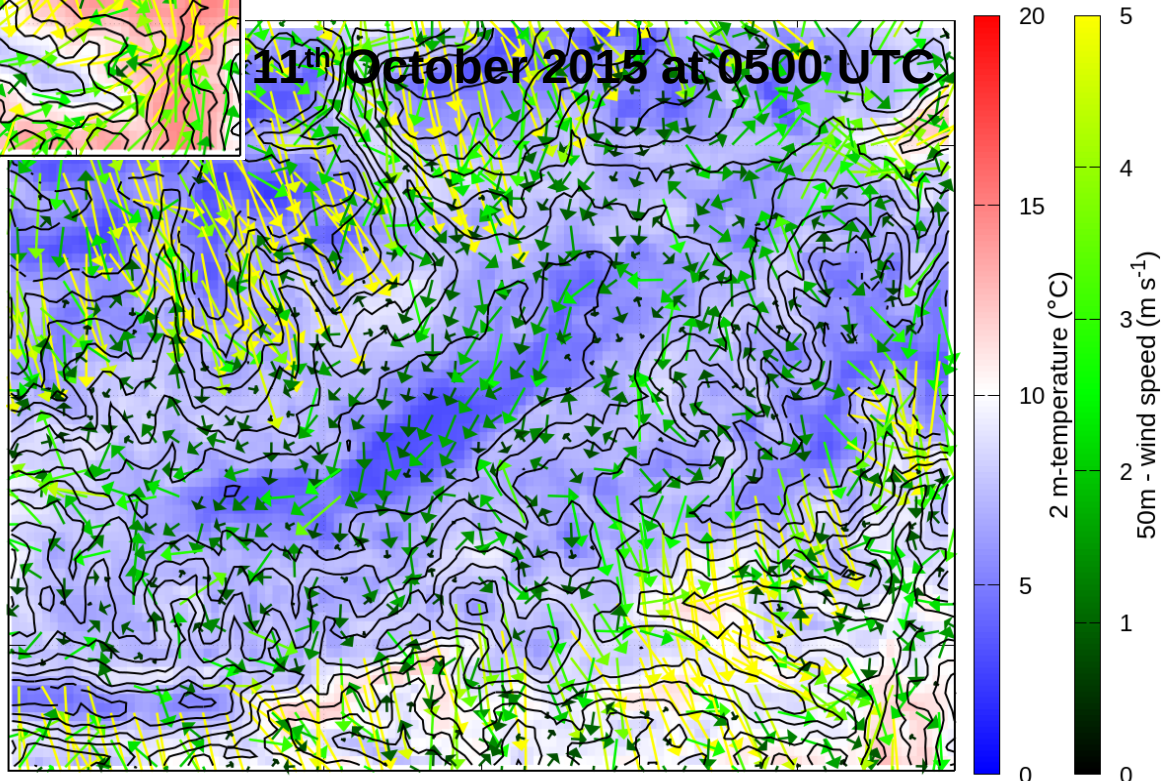
10th October 2015 at 1700 UTC



Clear-sky + weak LS wind

**Modelled
50m agl wind vectors,
T2m (colours) and
topography (lines)
for IOP3 during CCP15**

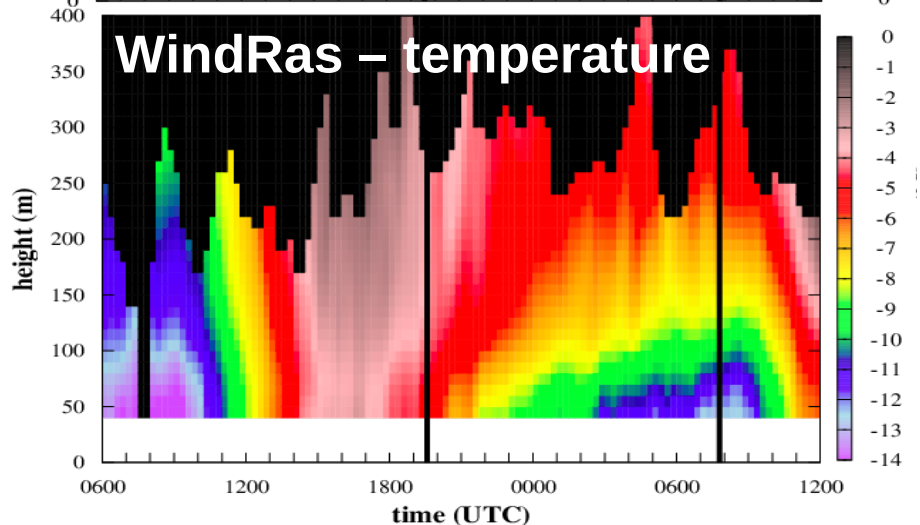
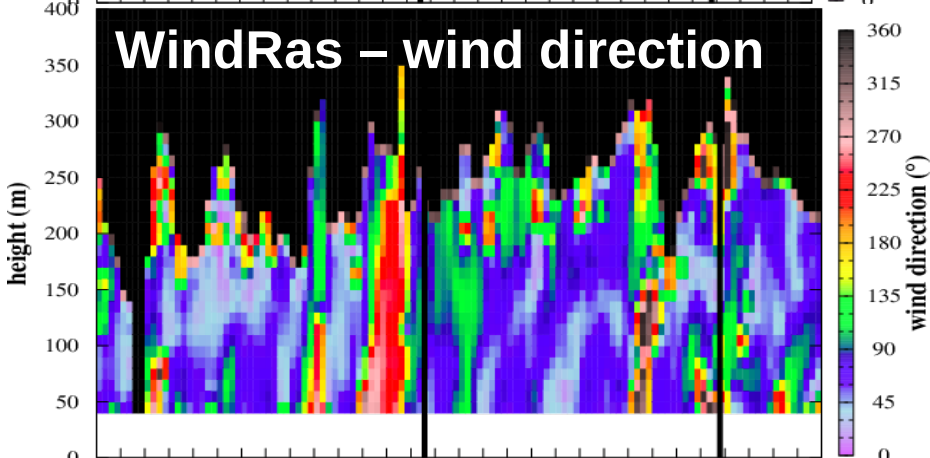
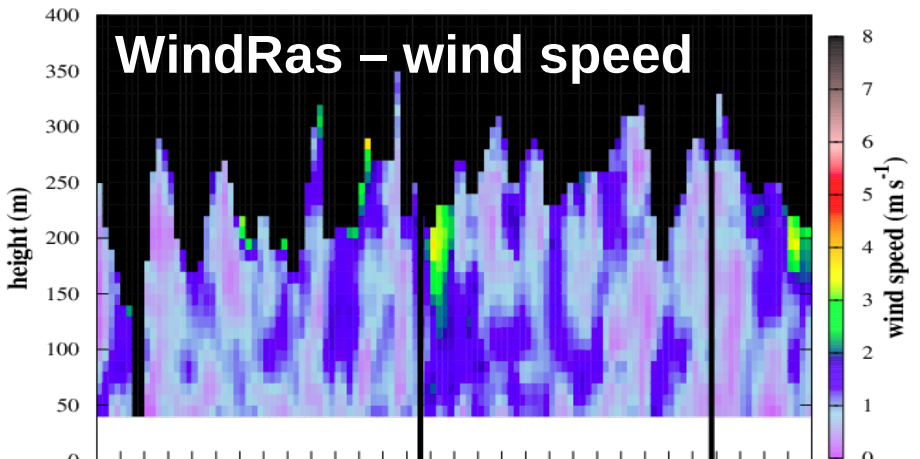
11th October 2015 at 0500 UTC



*** Upslope/Downslope winds
during day/night**

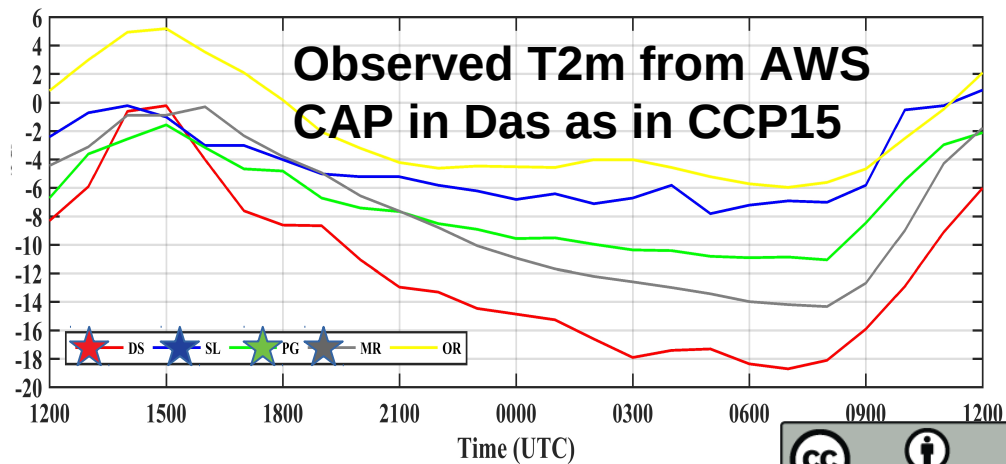
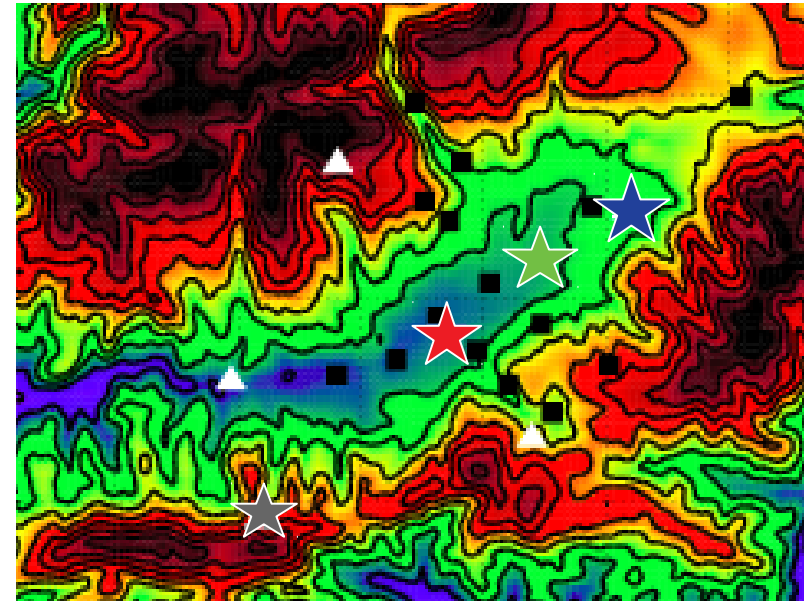
*** Winds weaker at night & strongly
influenced by the topography**

*** Cold air tends to accumulate
in the bottom parts of the basin,
where Das is located**



Clear-sky + weak LS wind + snow cover

IOP2 (18-19 Jan 2017)
Observations during CCP17



ACKNOWLEDGEMENTS

RESEARCH PROJECTS

CGL2015-65627-C3-1-R

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de les Illes Balears



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