Wind gusts registered in Zaragoza Airport associated to supercellular convection on 1st July 2018 and its spatial variability

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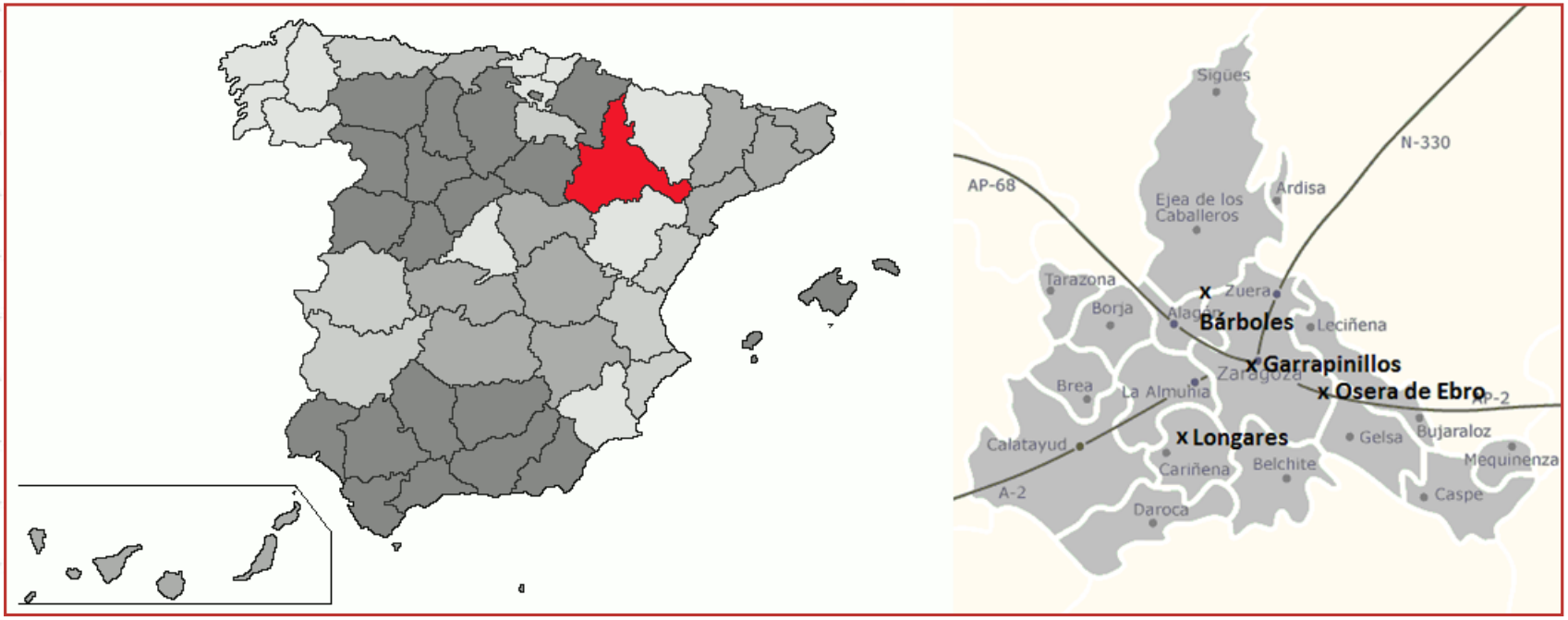
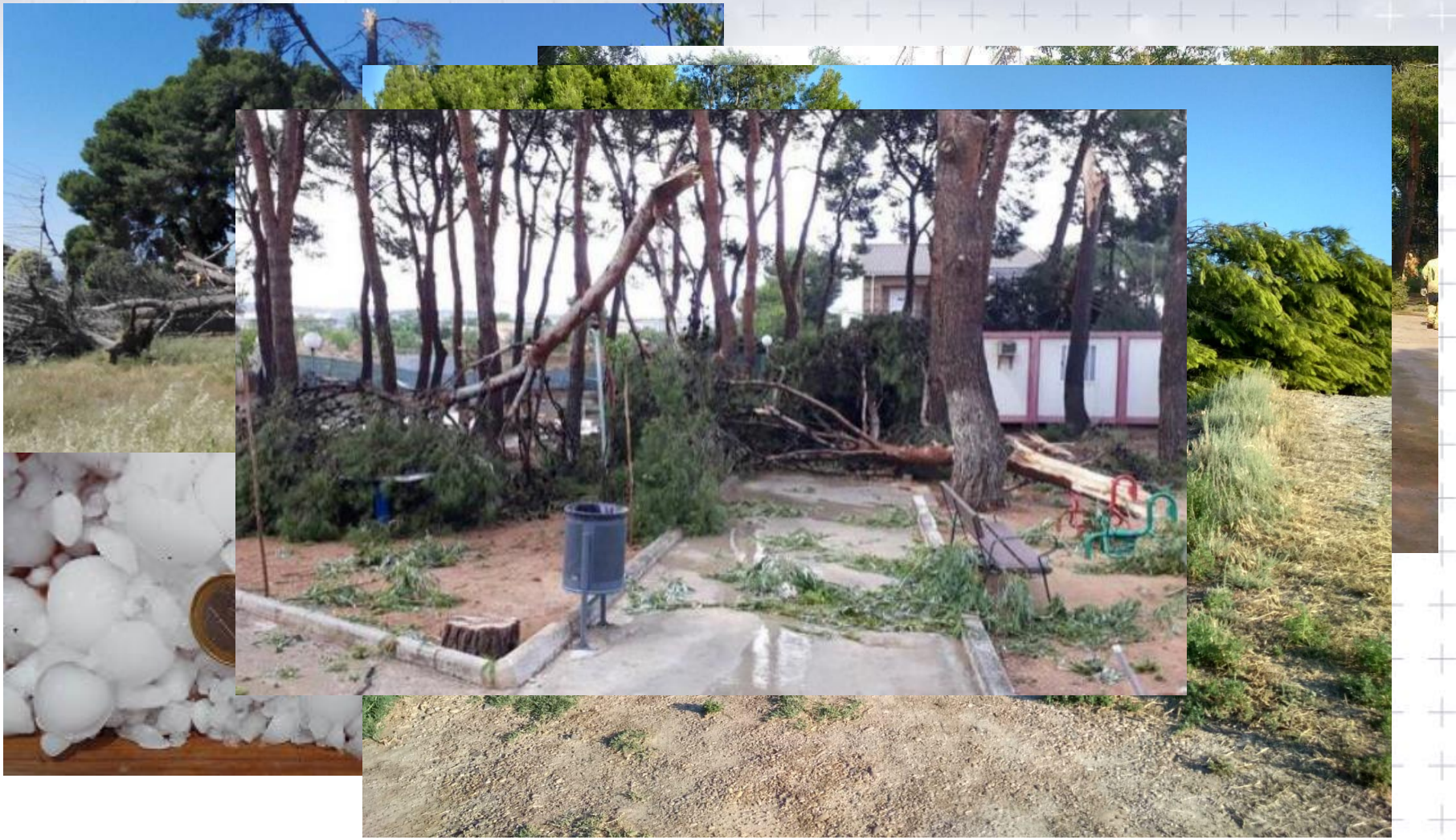


Some of the most affected places in Zaragoza province

Some effects of the thunderstorms



Damages caused by the thuderstorms in different places.

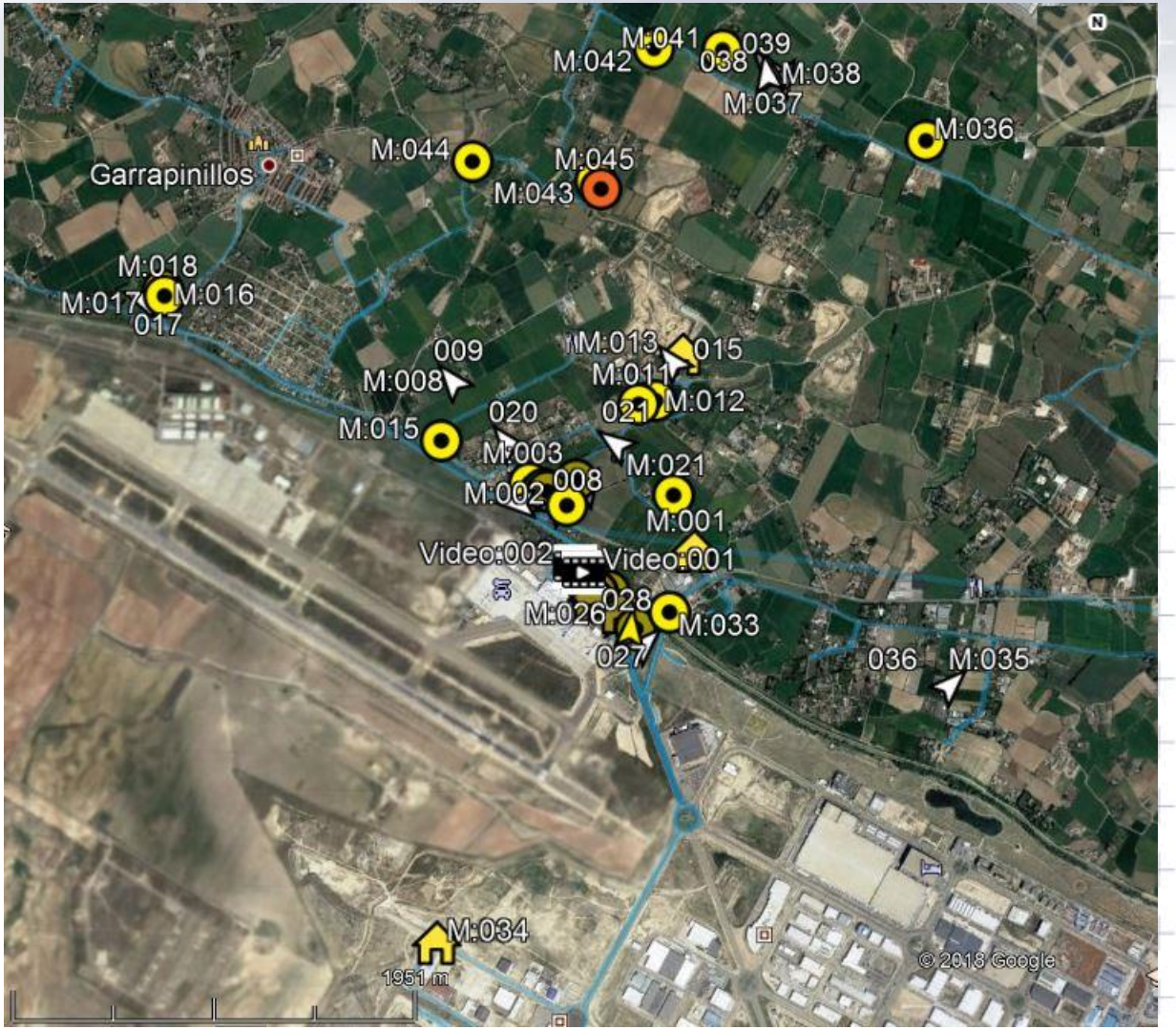
Some effects of the thunderstorms

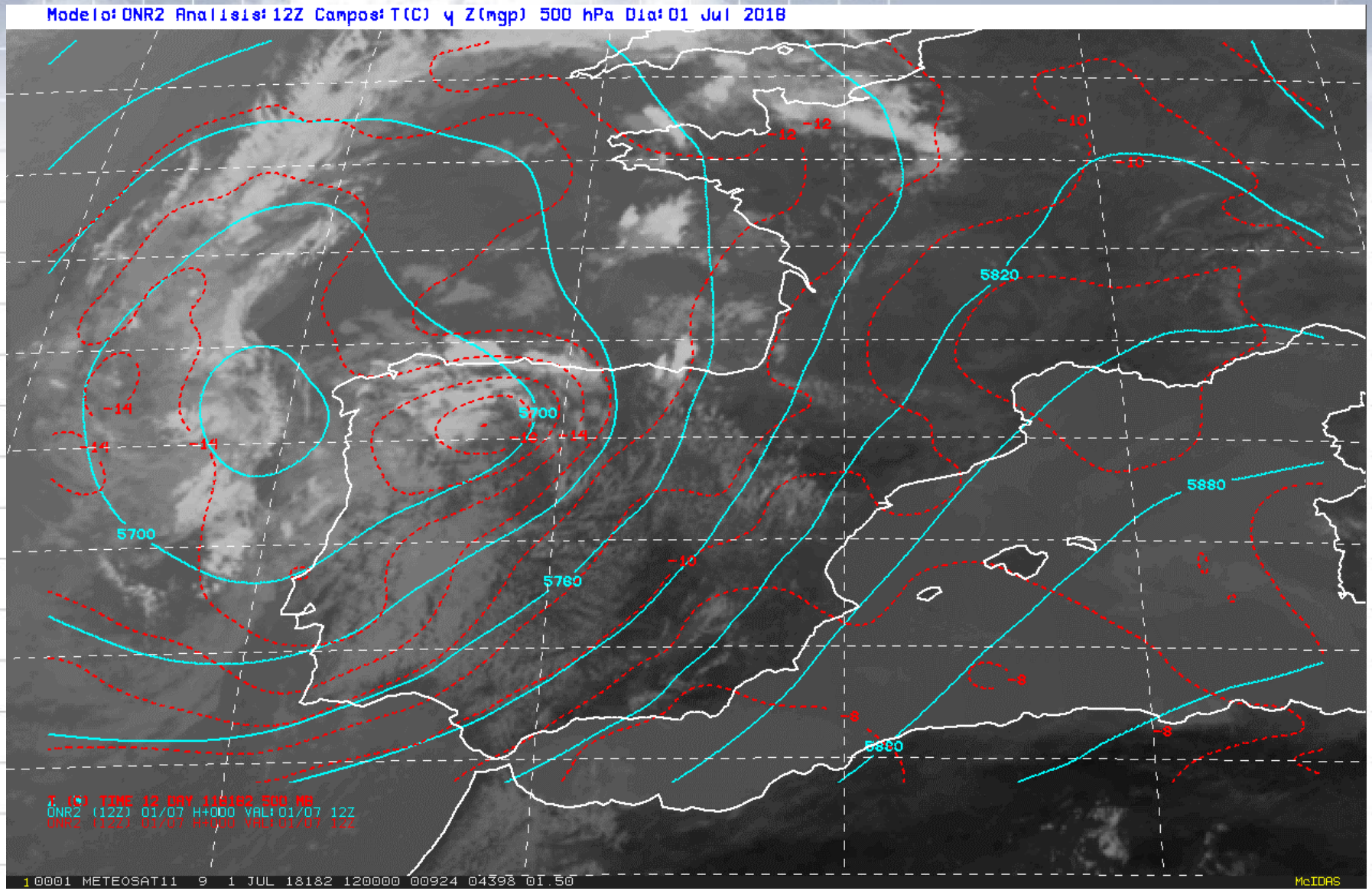
Some effects of the thunderstorms

Damages reported by Insurance Companies in the vicinity of LEZG:

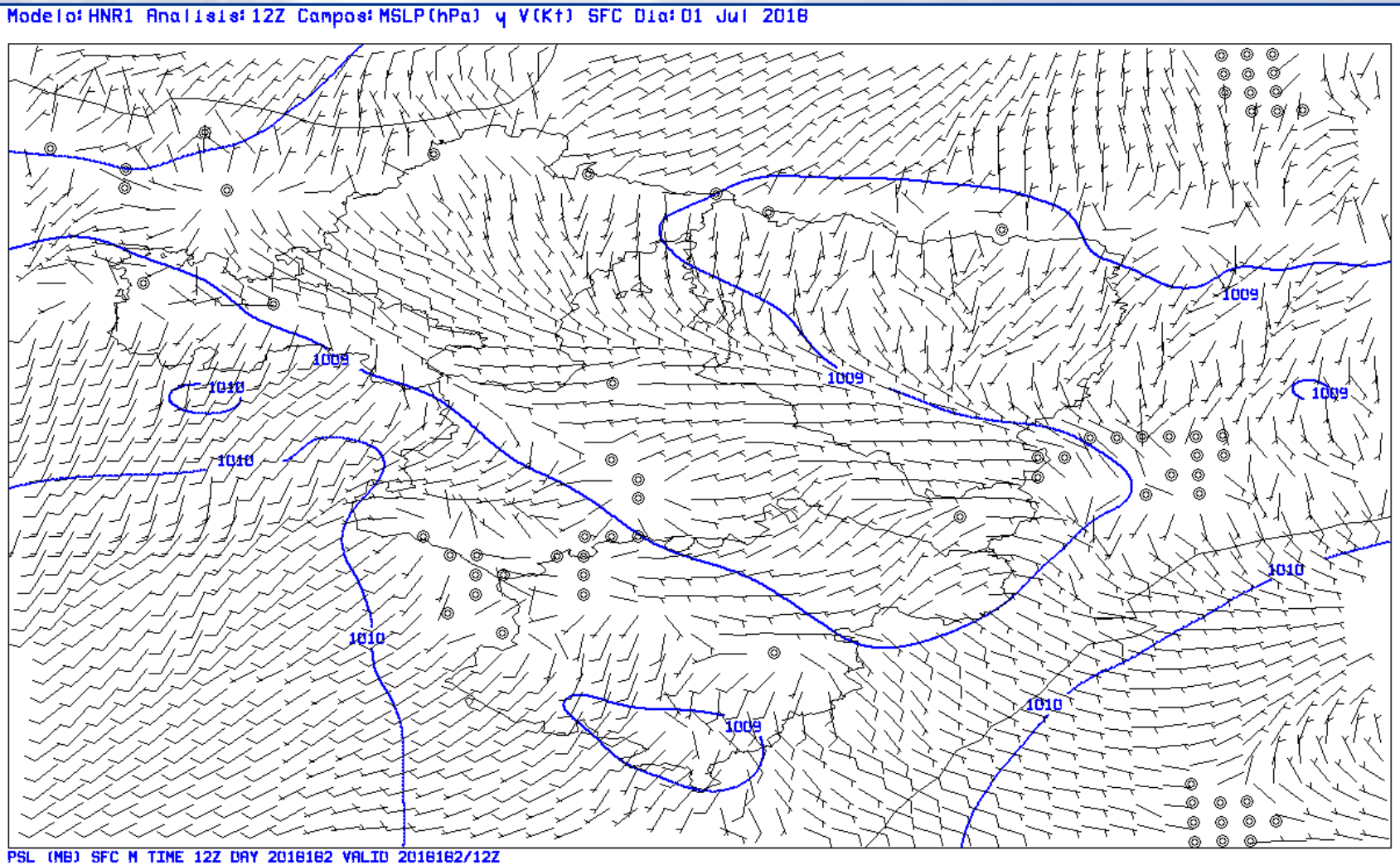
- **Facilities**
- **Roof and strcutures of buildings**
- **Trees cut down or pulled up.**

Almost 20000 Ha of crops in the province.





Analysis by HIRLAM model, Z and T (500 hPa).



Analysis by HIRLAM model, PSL and Wind (Surface).

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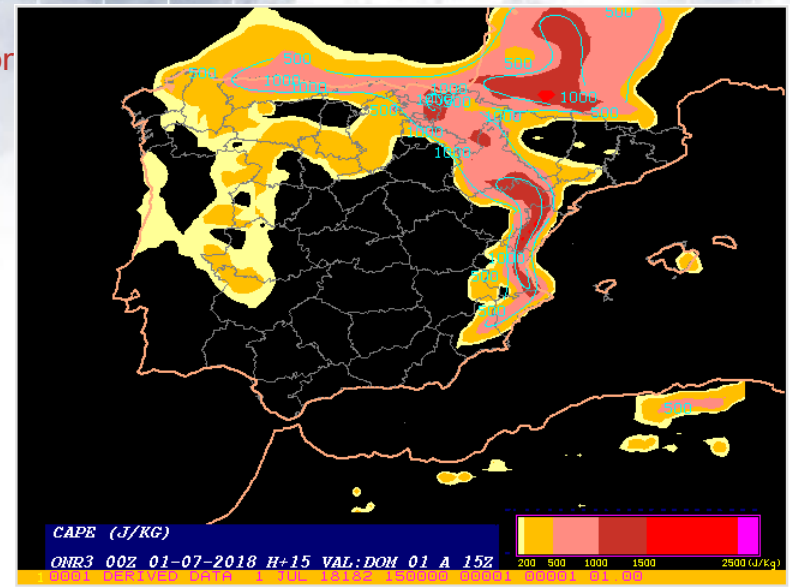
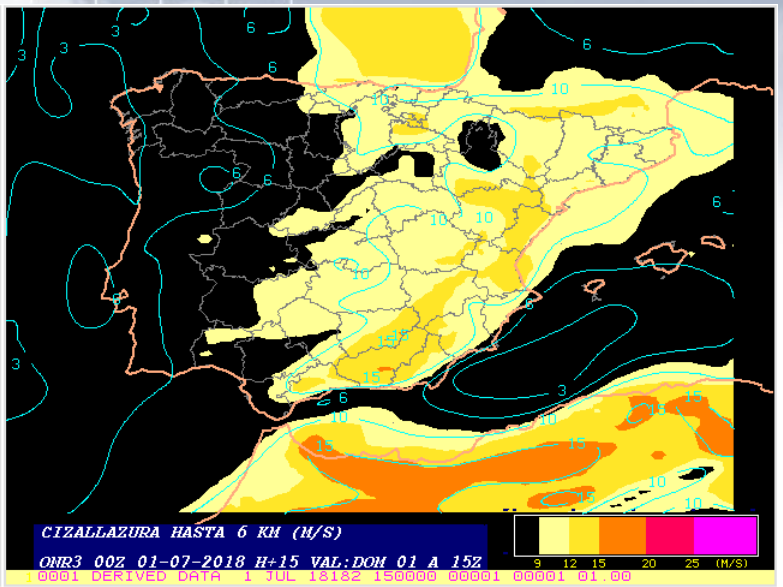
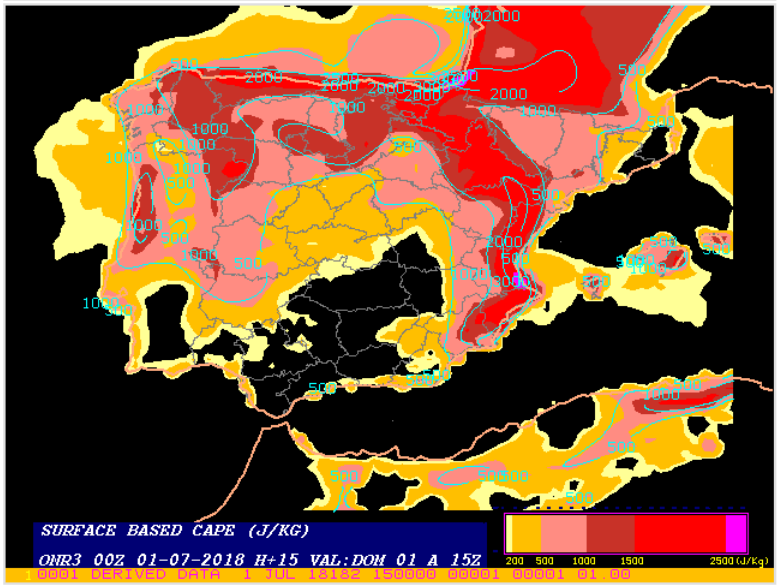
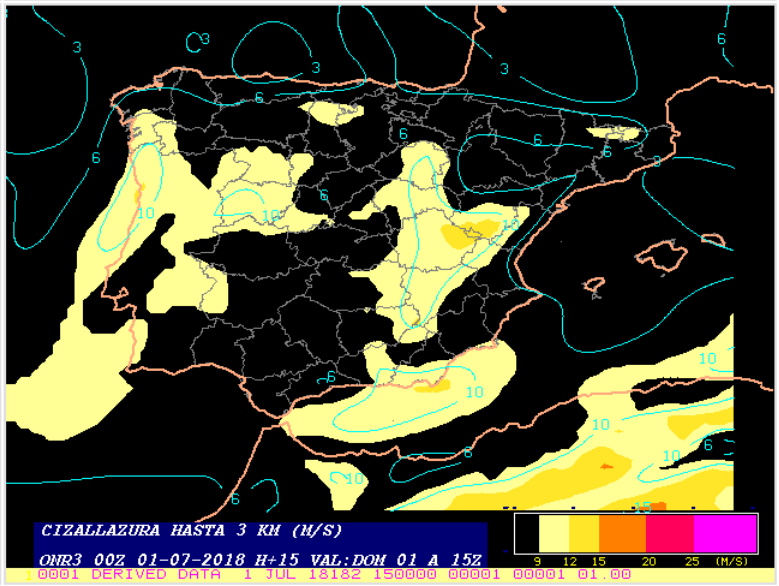
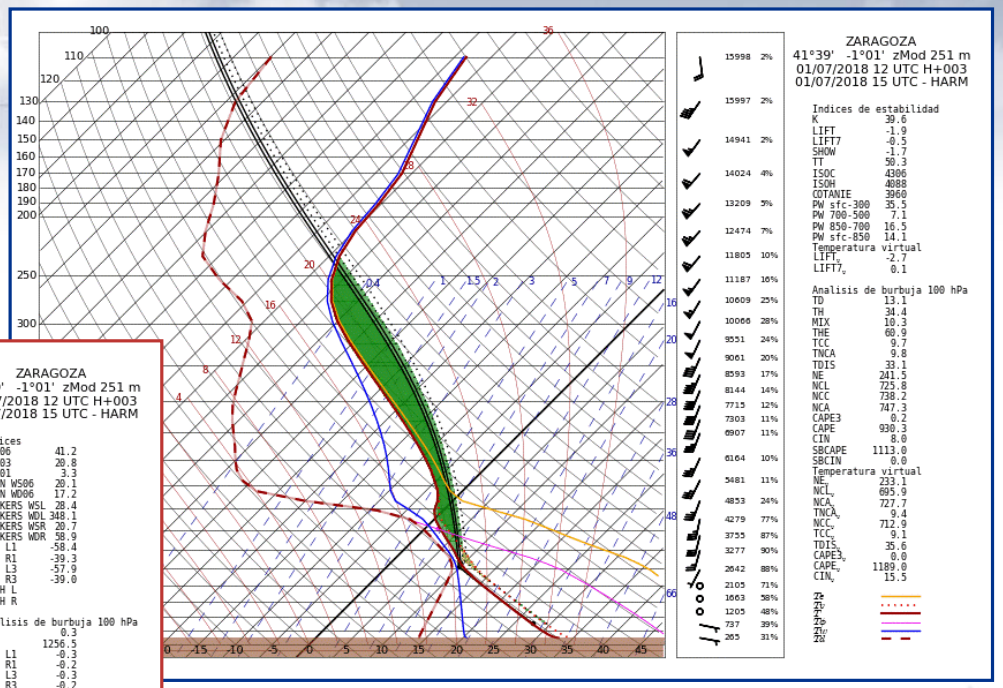


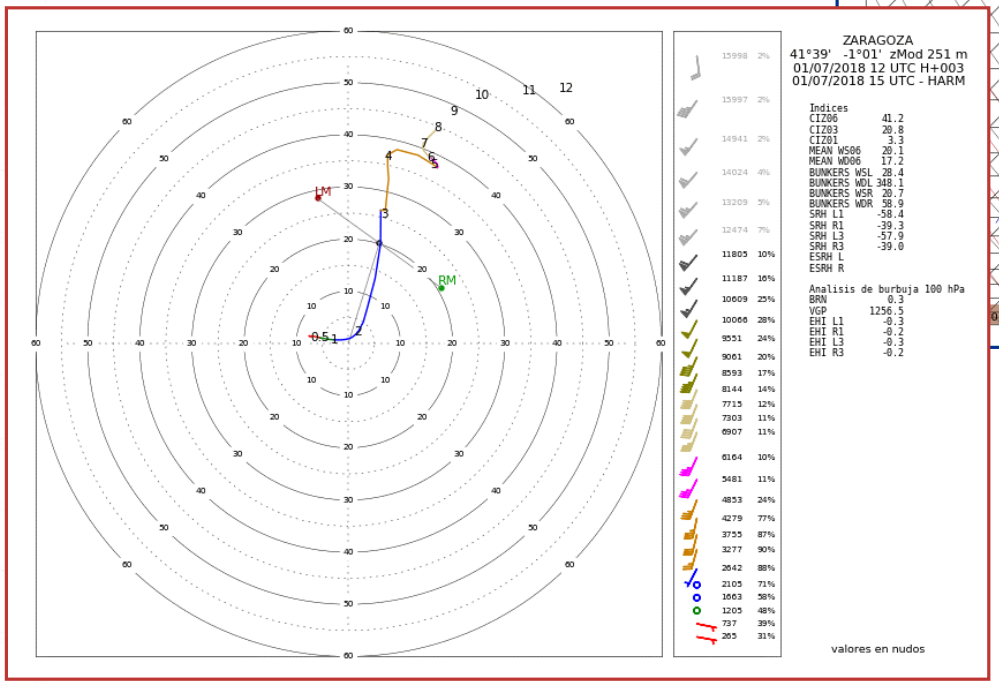




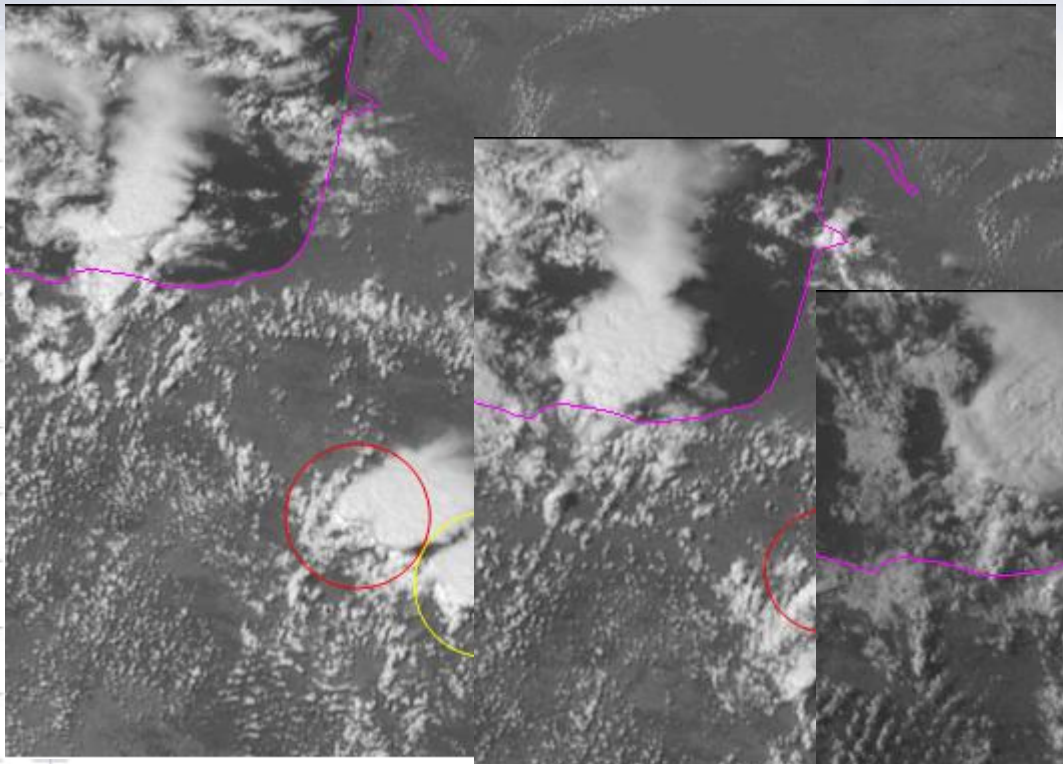


In this area there were a lot of instability and vertical wind shear in the environment.

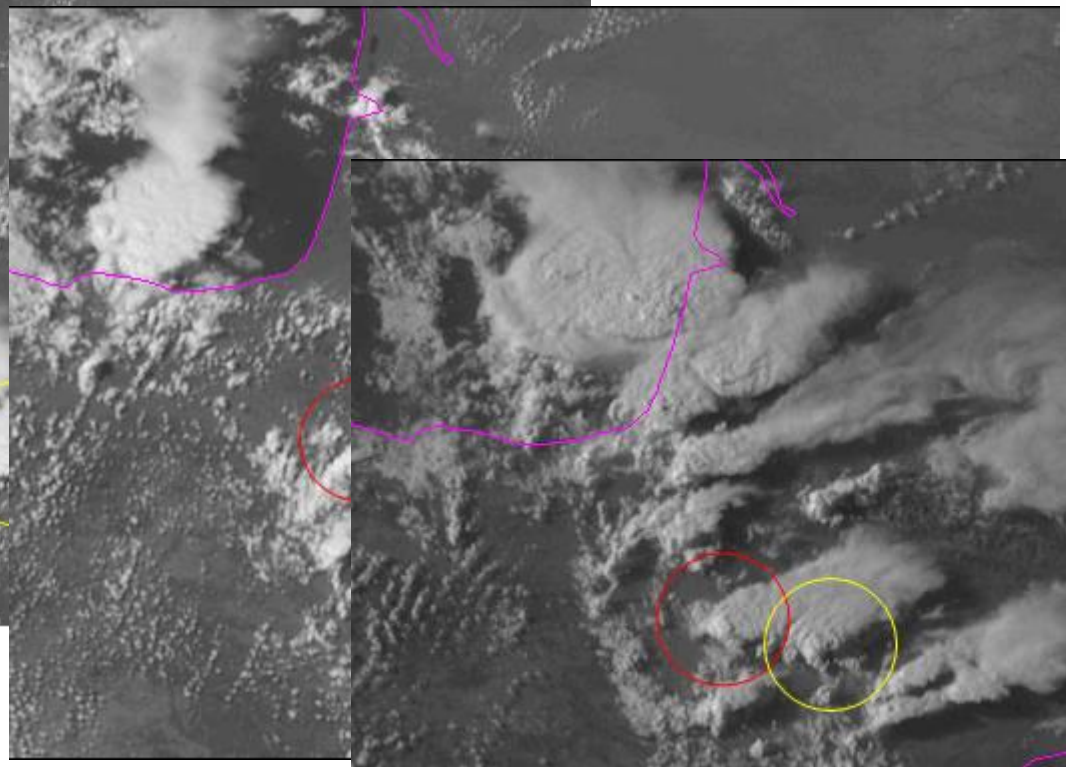




Sounding and hodograph H+03 in LEZG, from HARMONIE-AROME model.



13:45 UTC image.

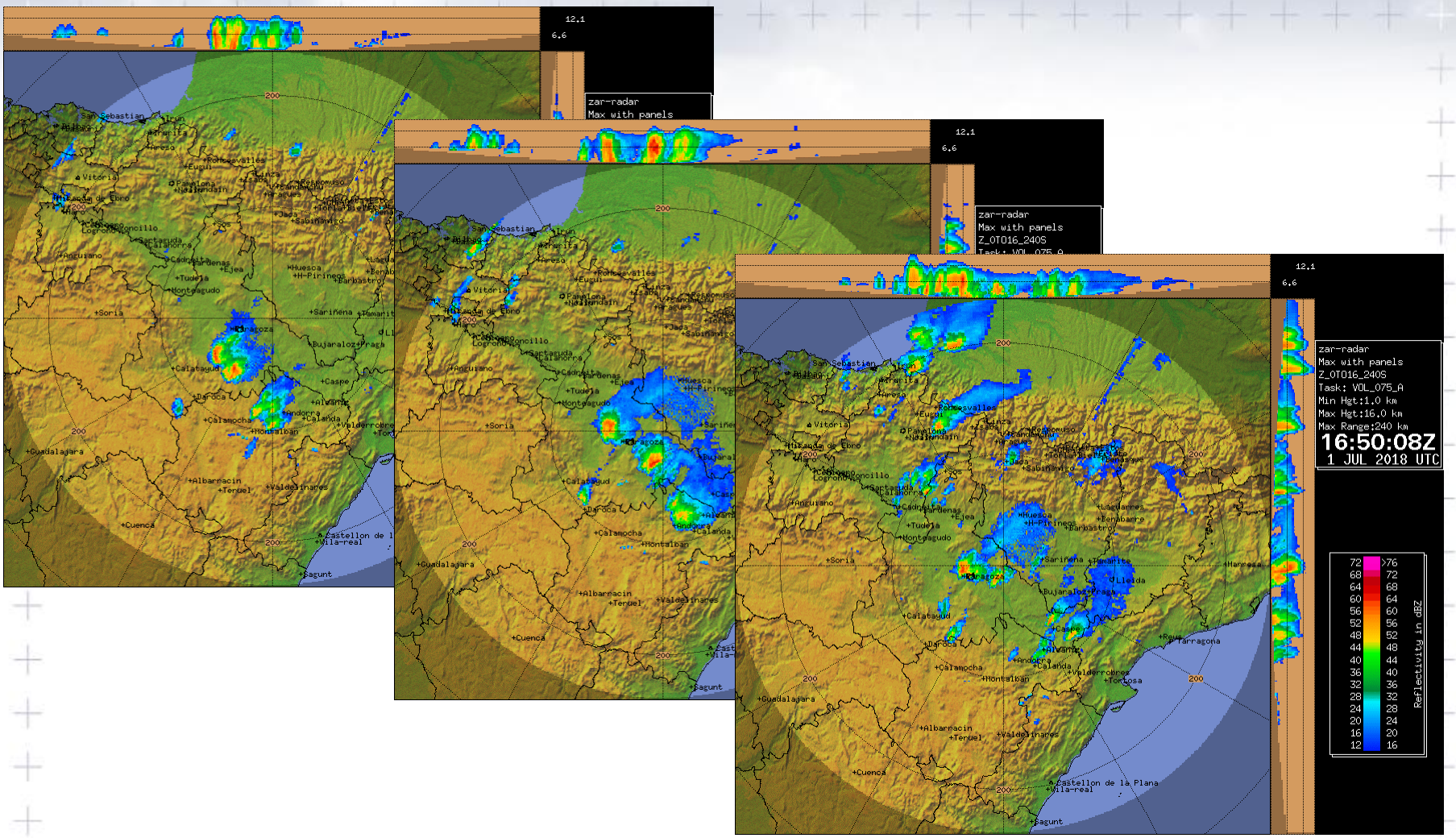


14:30 UTC image.

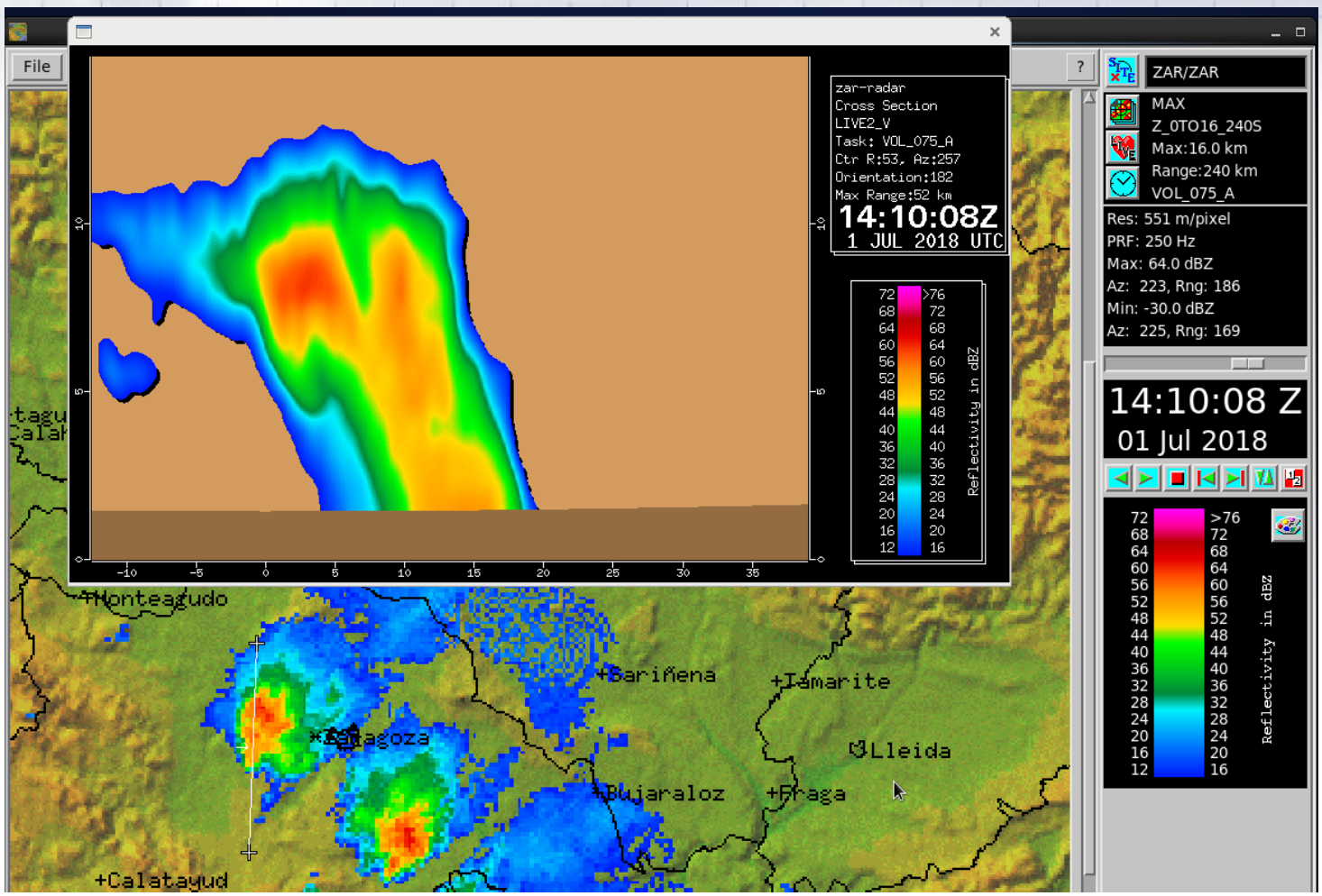
17:00 UTC image.

MSG HRVIS imagery.

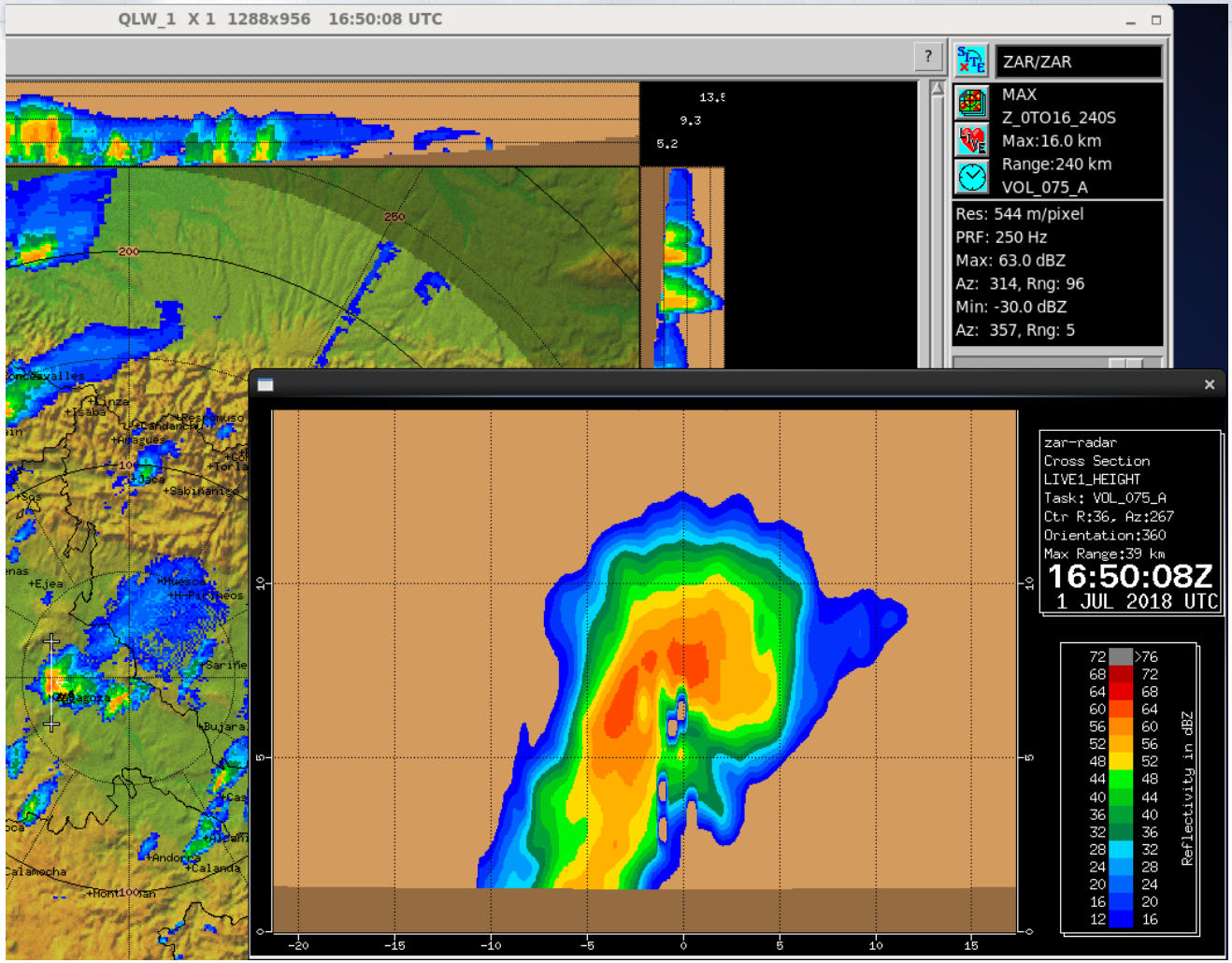
Storms organization and type



RADAR Imagery. Max Z combined images.

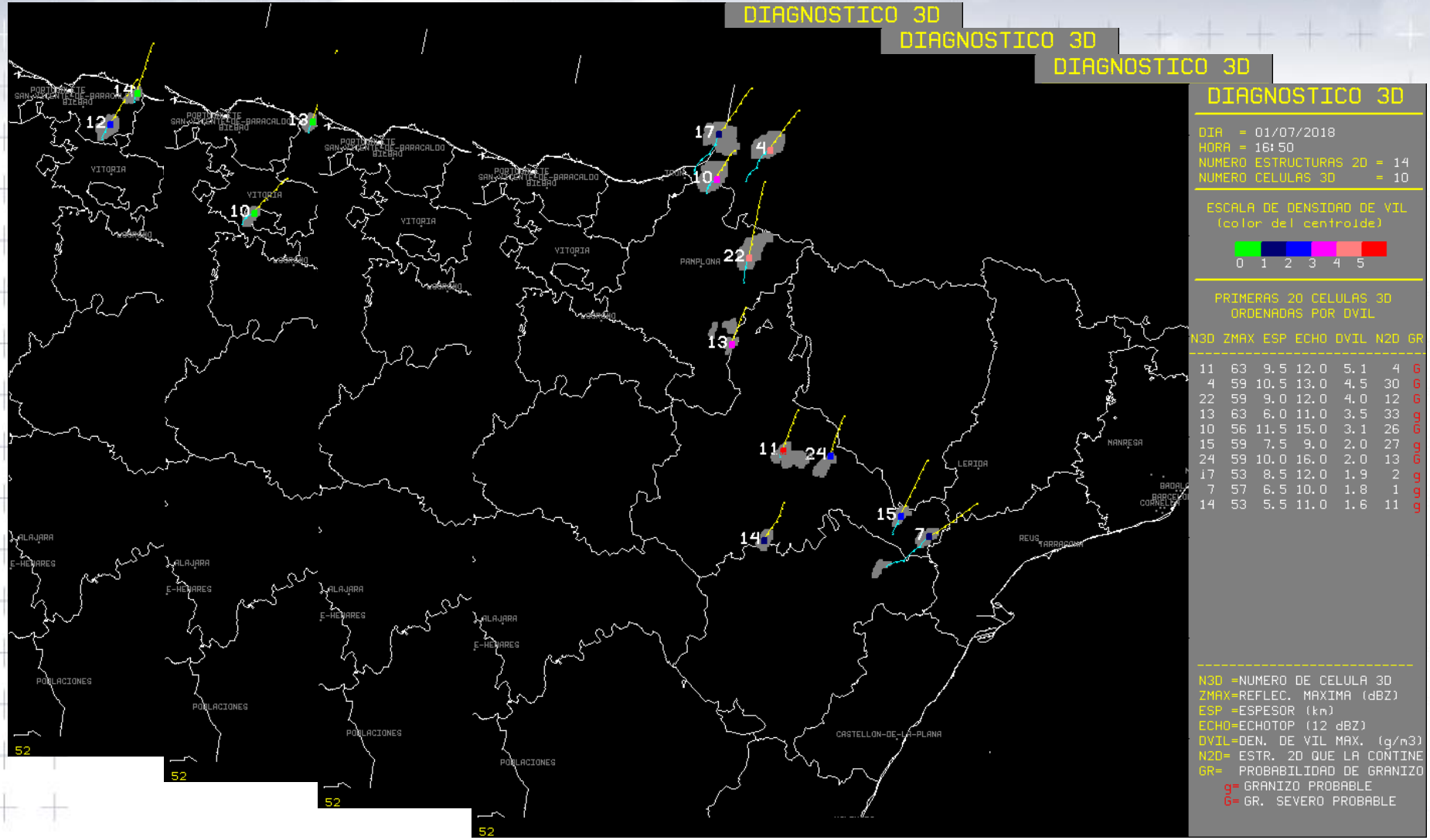


Cross section (Z of a supercell in the first splitting process).



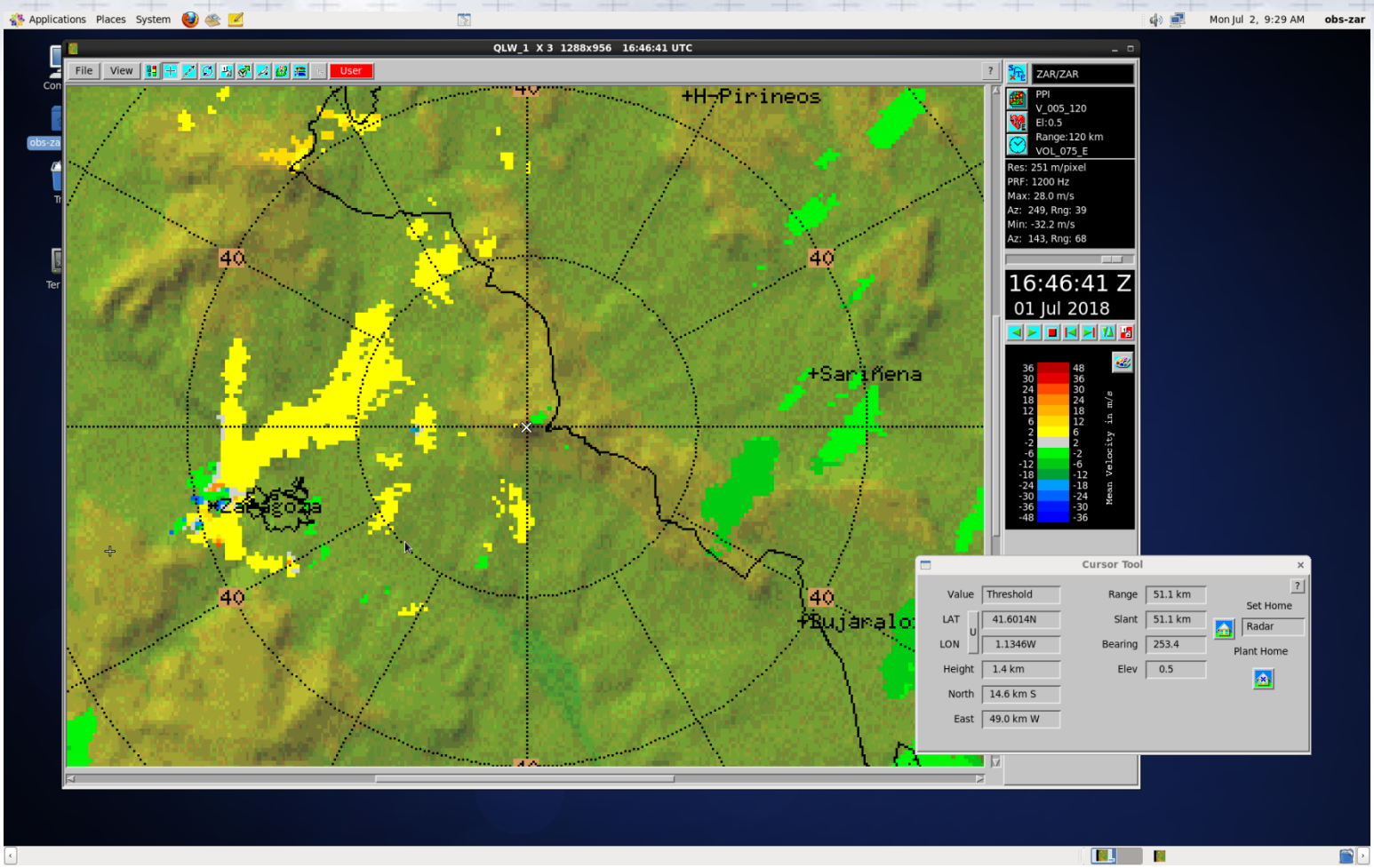
Cross section (Z of the supercell affecting LEZG).

Storms organization and type

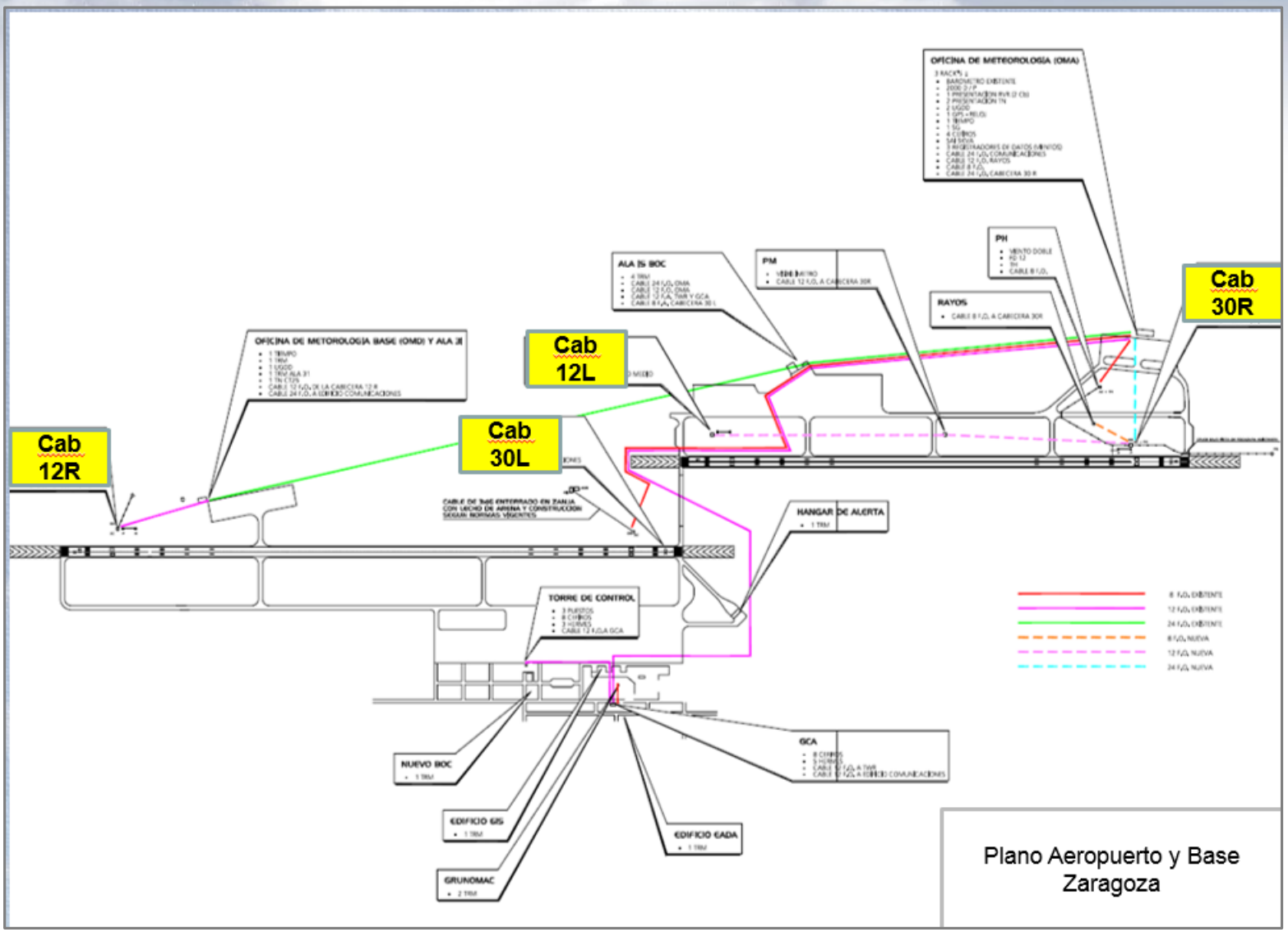


Outputs of YRADAR3D, (procedure to identify, track and extrapolate convective cell).

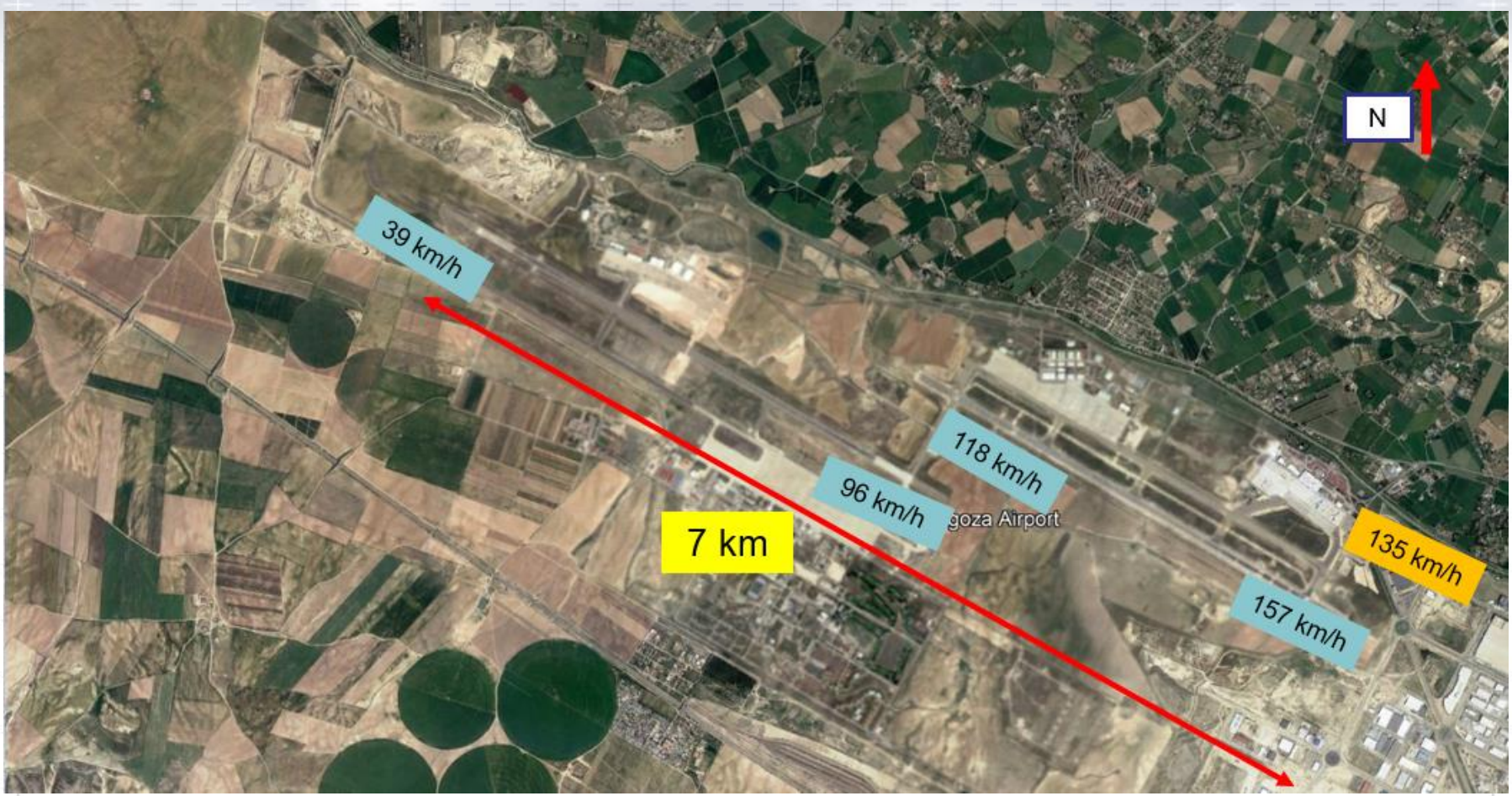
Storms organization and type



Radar imagery: radial wind at LEZG.



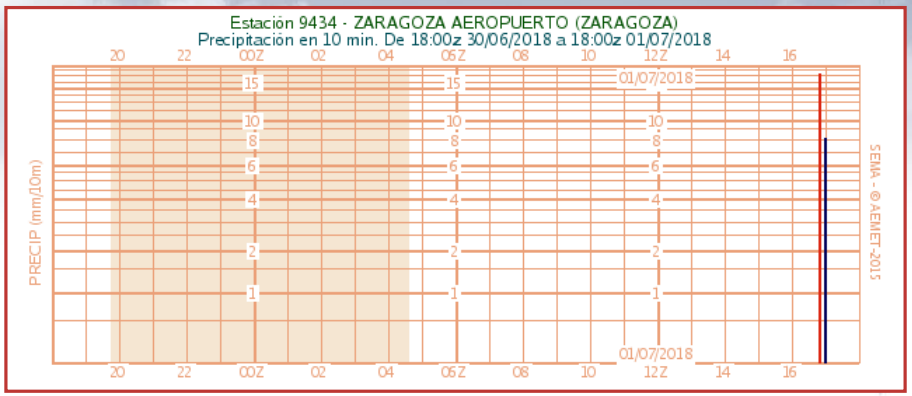
Location of the aeronautical wind sensors in LEZG airport facilities.

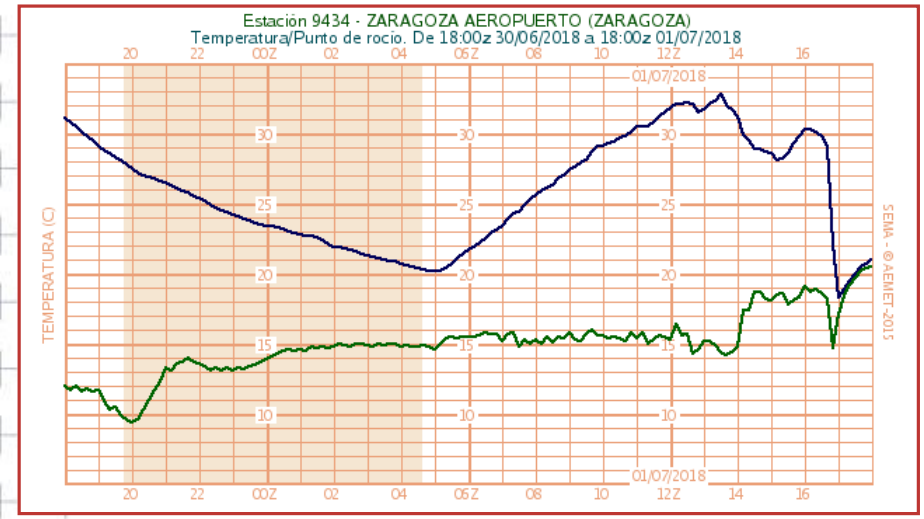


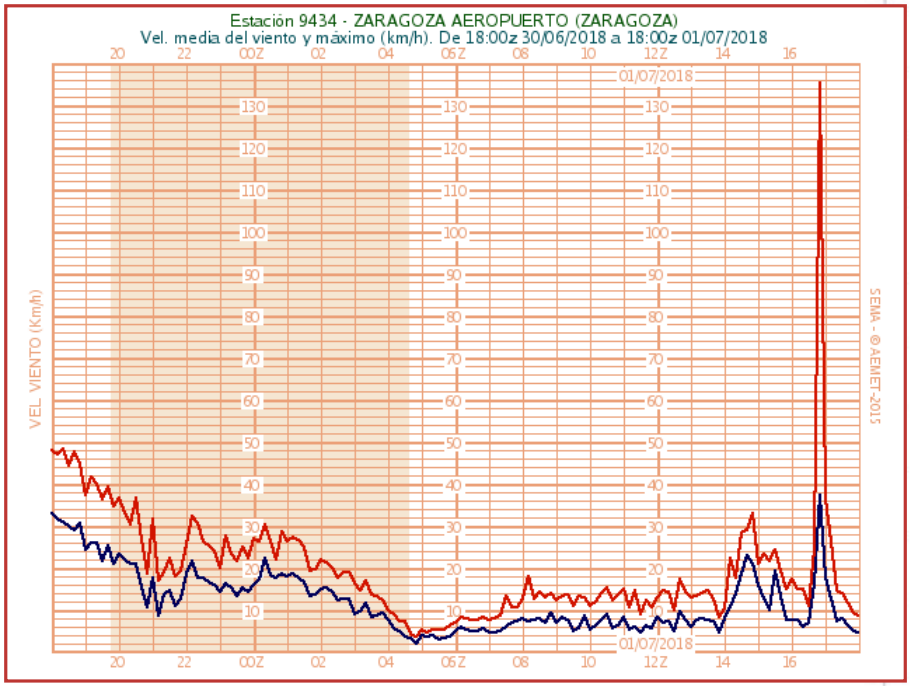
Wind gusts registered in the different anemometers.

In Valdespartera EMA, 6 km SE of airport, in the urban area of Zaragoza: 39 km/h

Spatial variability of the wind gusts







Time evolution of different meteorological variables.

- Environmental conditions were favourable to generate and develop well organized deep moist convection.
- As a matter of fact, several splitting storm processes took place.
- These convective cells were very well detected by MSG and radar imagery. So we could characterize the convective cell as SP coming from storm splitting processes.
- Damaging winds, with gusts over 60 km/h were registered in several locations of Zaragoza province.
- “Fortunately” one of these supercells hit the airport facilities, highly monitored with meteorological instruments, allowing us to verify the huge spatial variability of the effects of these convective structures.

THANKS A LOT