

# Impact of the surface discontinuity on the local boundary layer Role of boundary layer processes

Mean and turbulence structures  
Scales and energy  
Fluxes of heat, moisture, momentum  
Turbulent transport, Entrainment  
Advection, Circulations

Guylaine Canut, **CNRM**  
Marie Lothon, Fabienne Lohou, **Laboratoire d'Aérodynamique**  
Salomé Avrillaud, Meteorology School - internship jan - jul 2022 → PhD?  
And LIAISE collaborators



By use of **observations** :

- 50 m towers
- Radar and lidar profilers
- Hourly radiosoundings
- Tethered balloon
- ATR-42 (8 flights)
- etc

And **LES simulations**

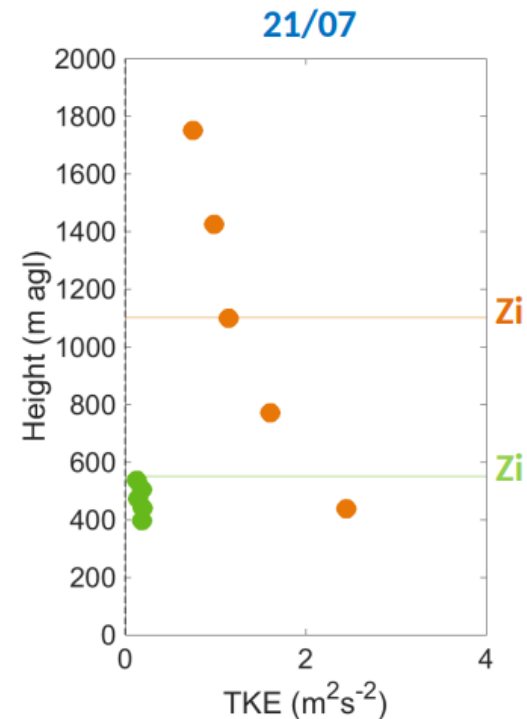
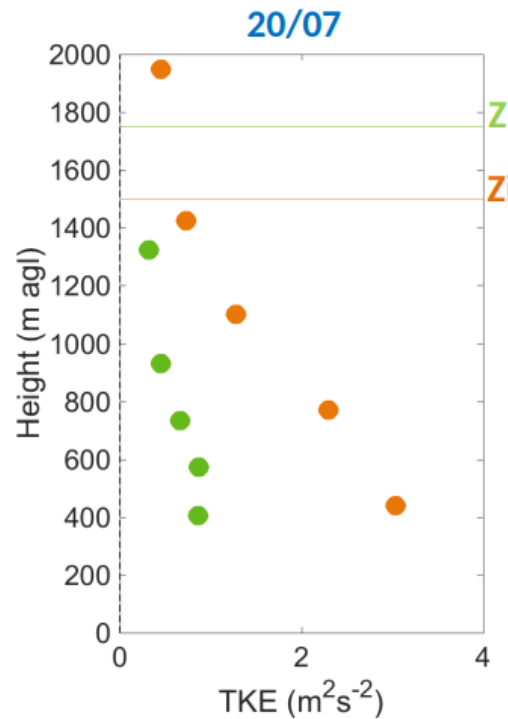
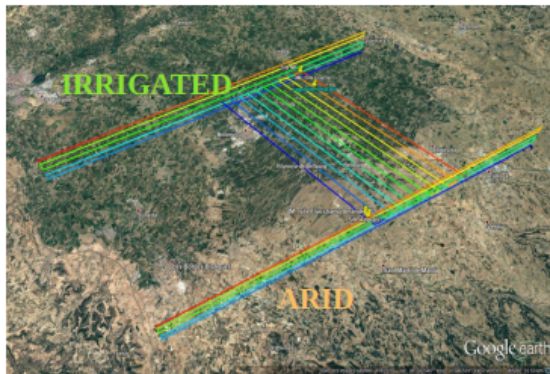


Illustration with preliminary observations

# Vertical Turbulent structure

Vertical profiles of TKE **over irrigated area (La Cendrosa),**  
and **over dry area (Els Plan)**

From ATR-42 aircraft in situ measurements (stacked legs above each area)



**Very contrasted turbulence intensity above the two sites**  
**Complexity of the vertical structure**

Illustration with preliminary observations

# Horizontal heterogeneity

16/07 - Horizontal exploration of the ATR-  
(13 - 14 UTC)

Large horizontal heterogeneity  
Even above the CBL

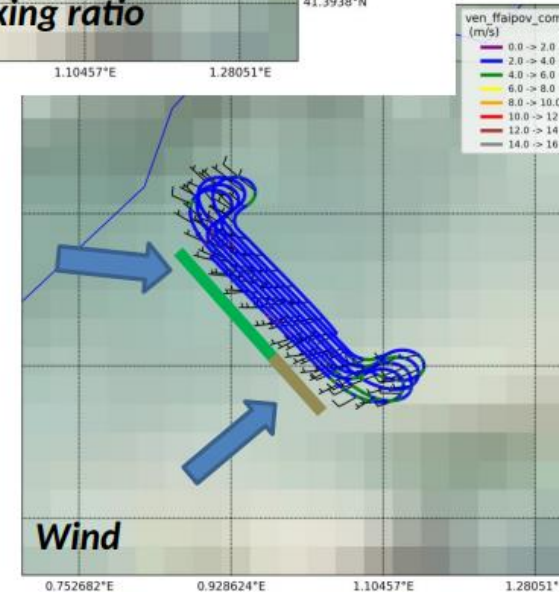
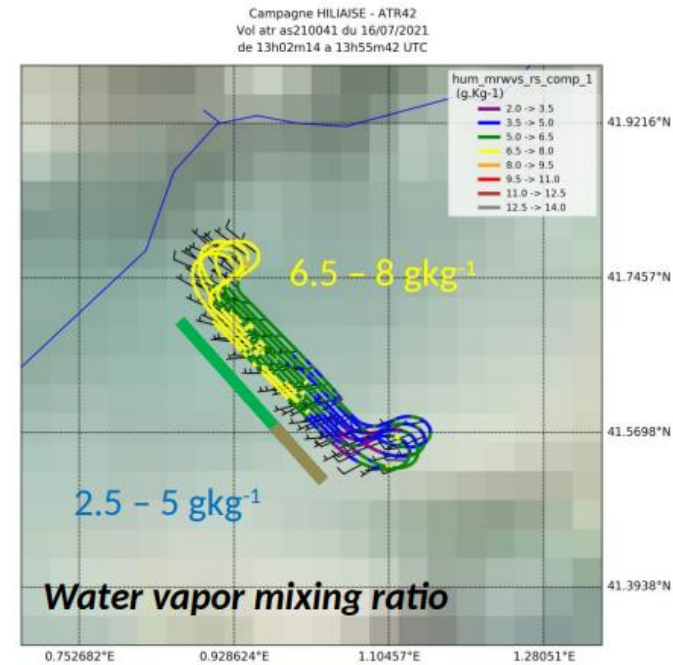
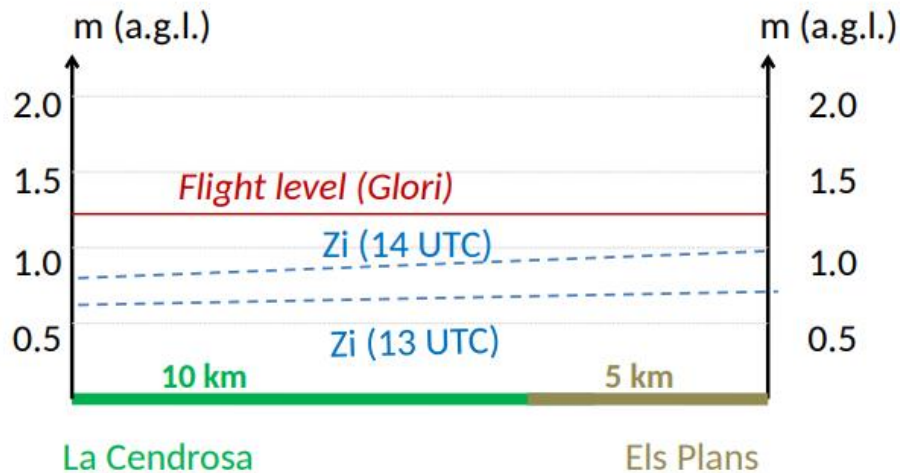
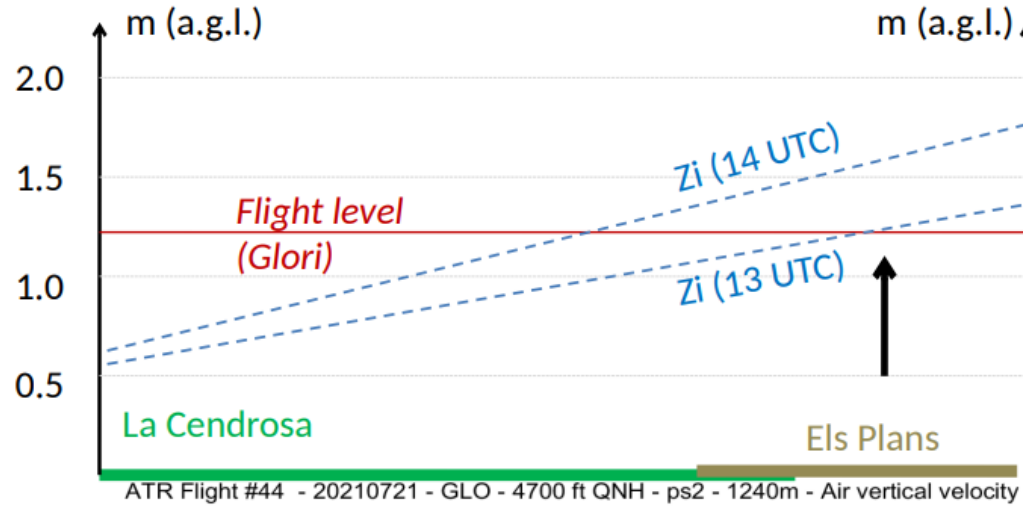


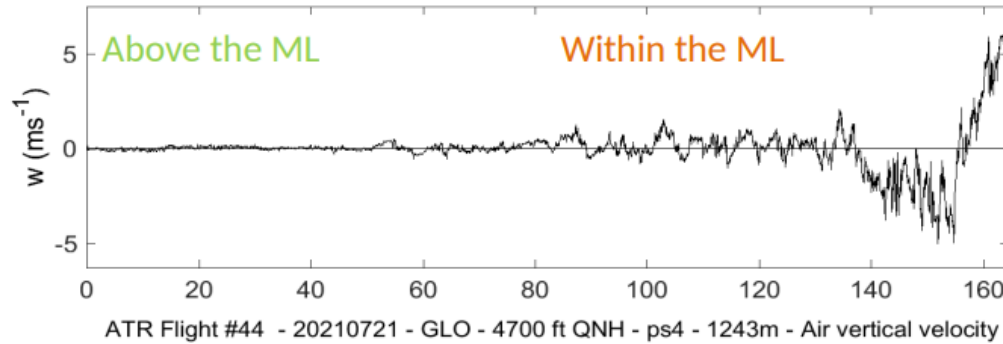
Illustration with preliminary observations



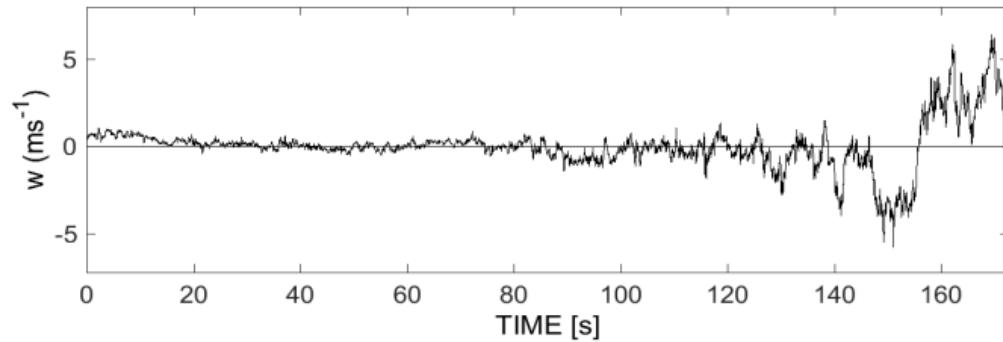
21/07 - Vol 44  
Glori (13-14 UTC)

In and Out the CBL...

→ A « steady »  
spatial feature



13:17 UTC



13:29 UTC