

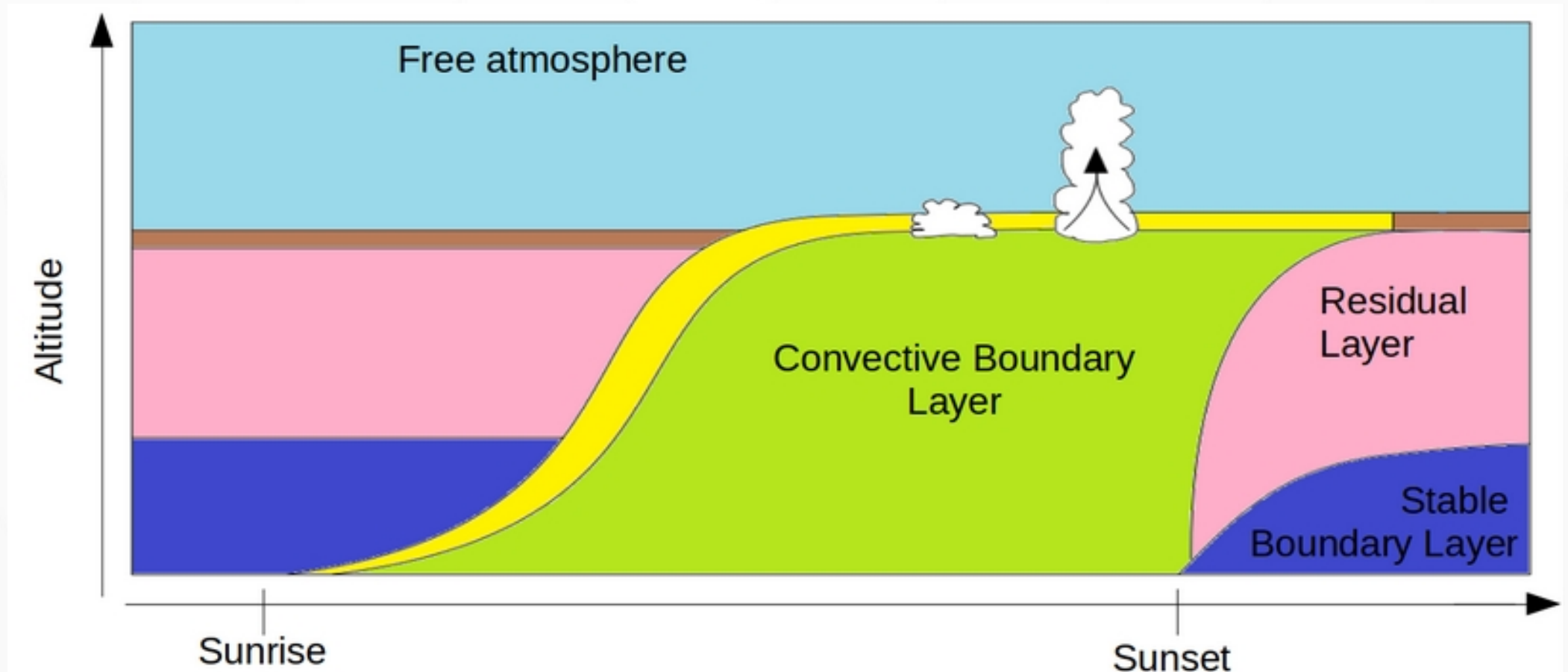
# MOSAI SOP1 Radiosounding



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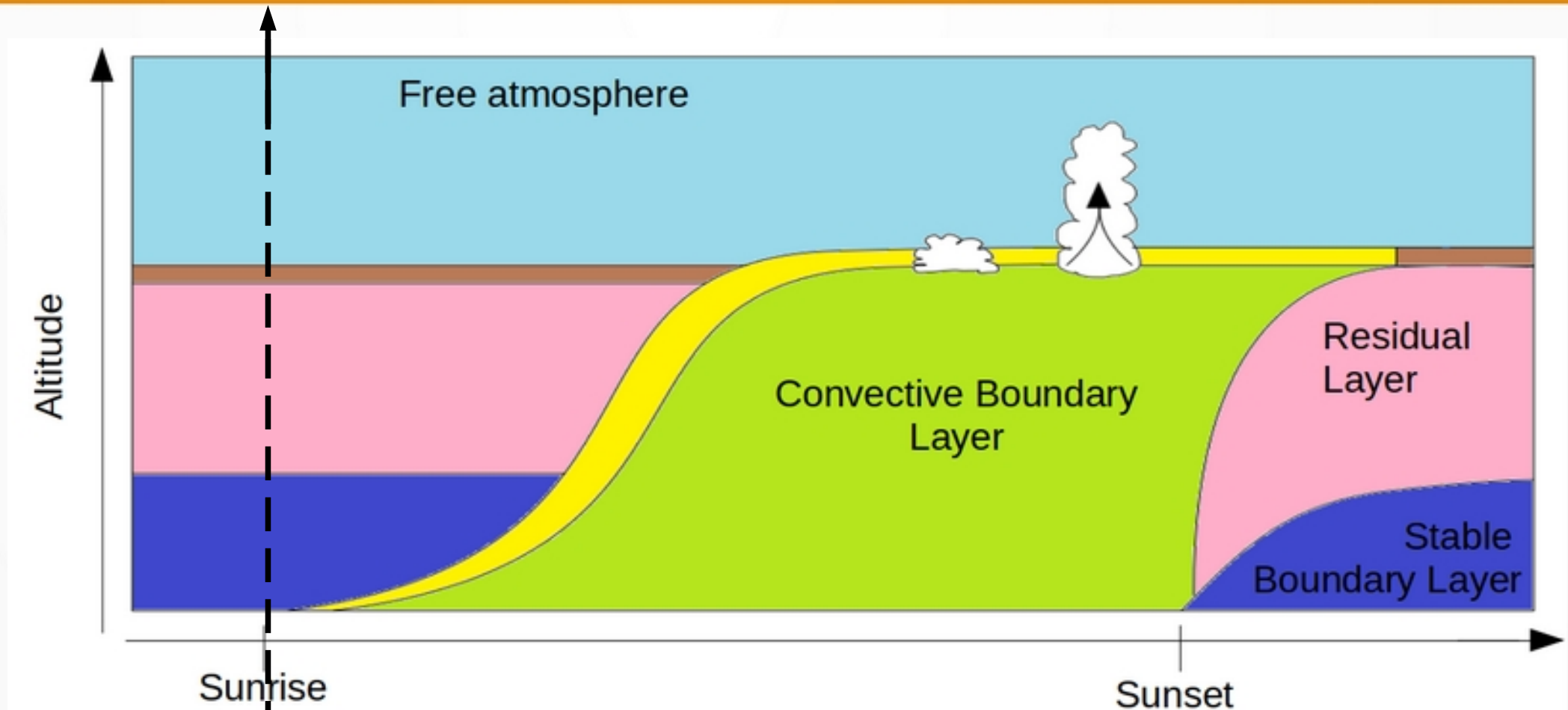
Aim:

Description of the boundary layer evolution during each IOP



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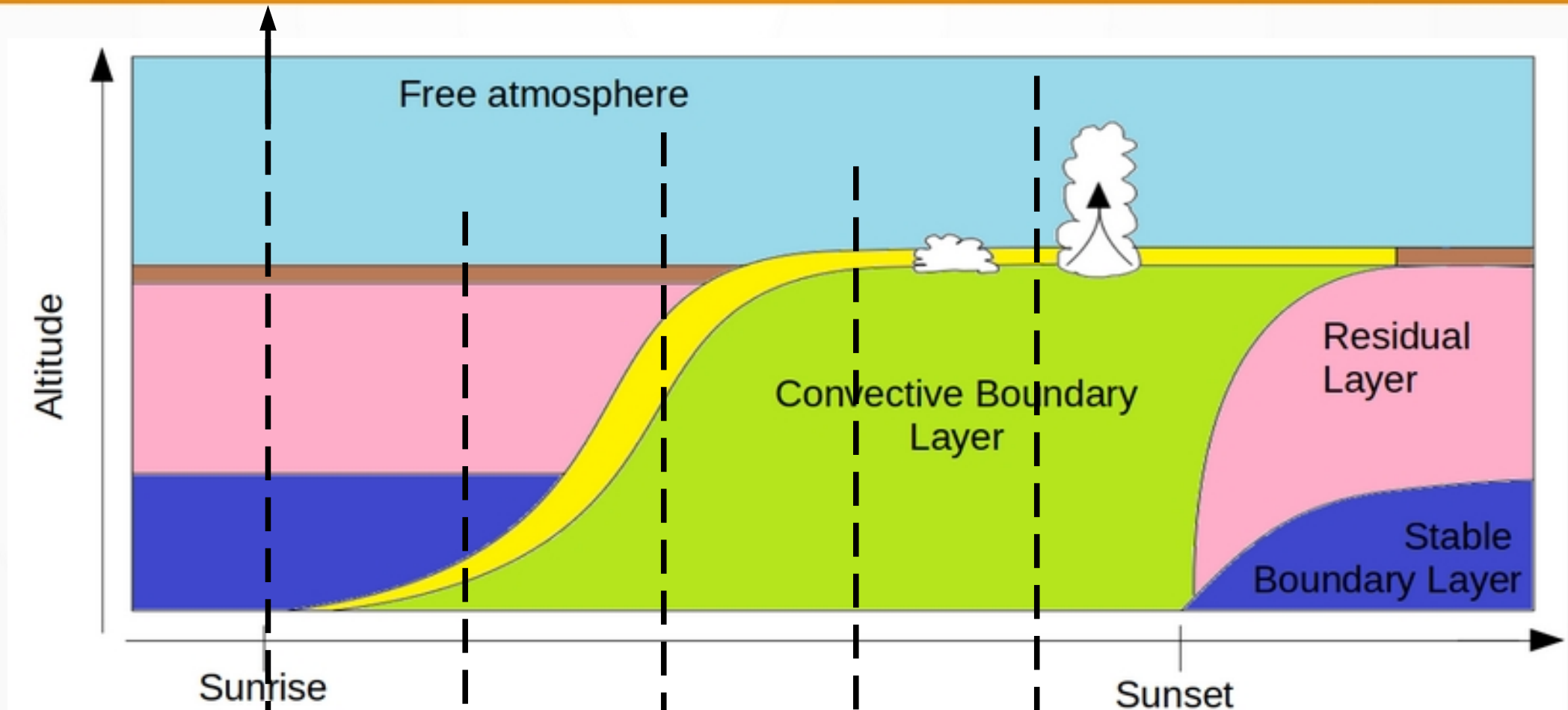
1 standard radiosonde

(~14 000 m agl)

**5 UTC**

# Aim:

Description of the boundary layer evolution during each IOP



1 standard radiosonde

(~14 000 m agl)

**5 UTC**

**8 UTC**

**11 UTC**

**14 UTC**

**17 UTC**

4 re-usable radiosondes

(~2 000 m agl)

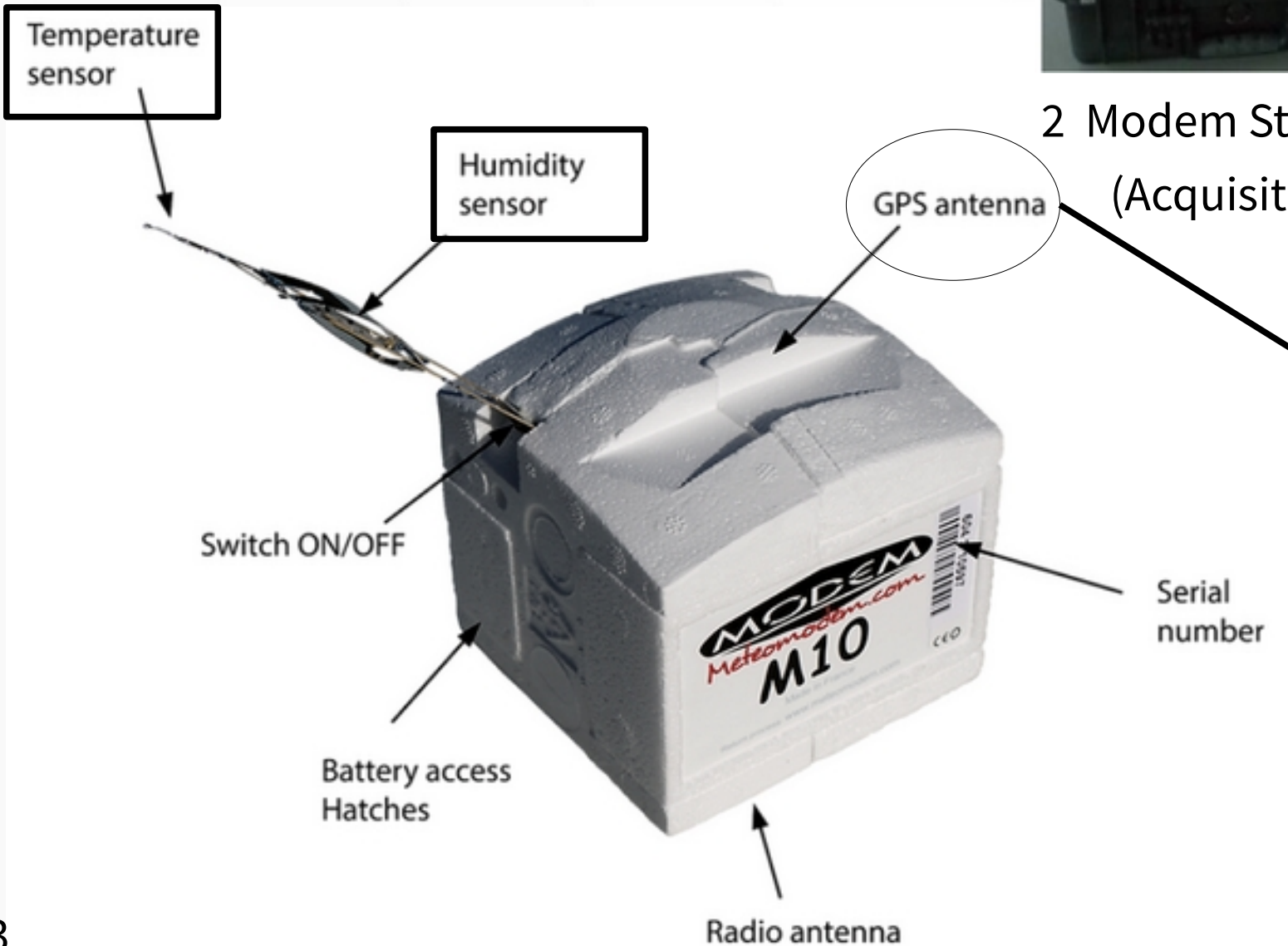
# Material : hardware



2 Modem Stations  
(Acquisition)

Antennas  
(Radio & GPS)

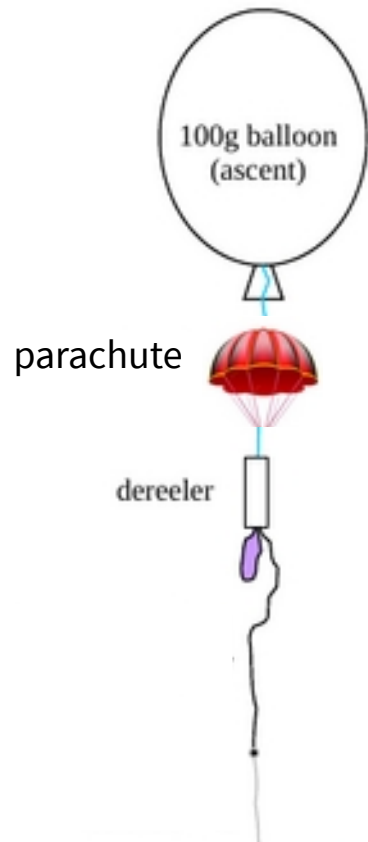
GroundCheck  
(calibration)



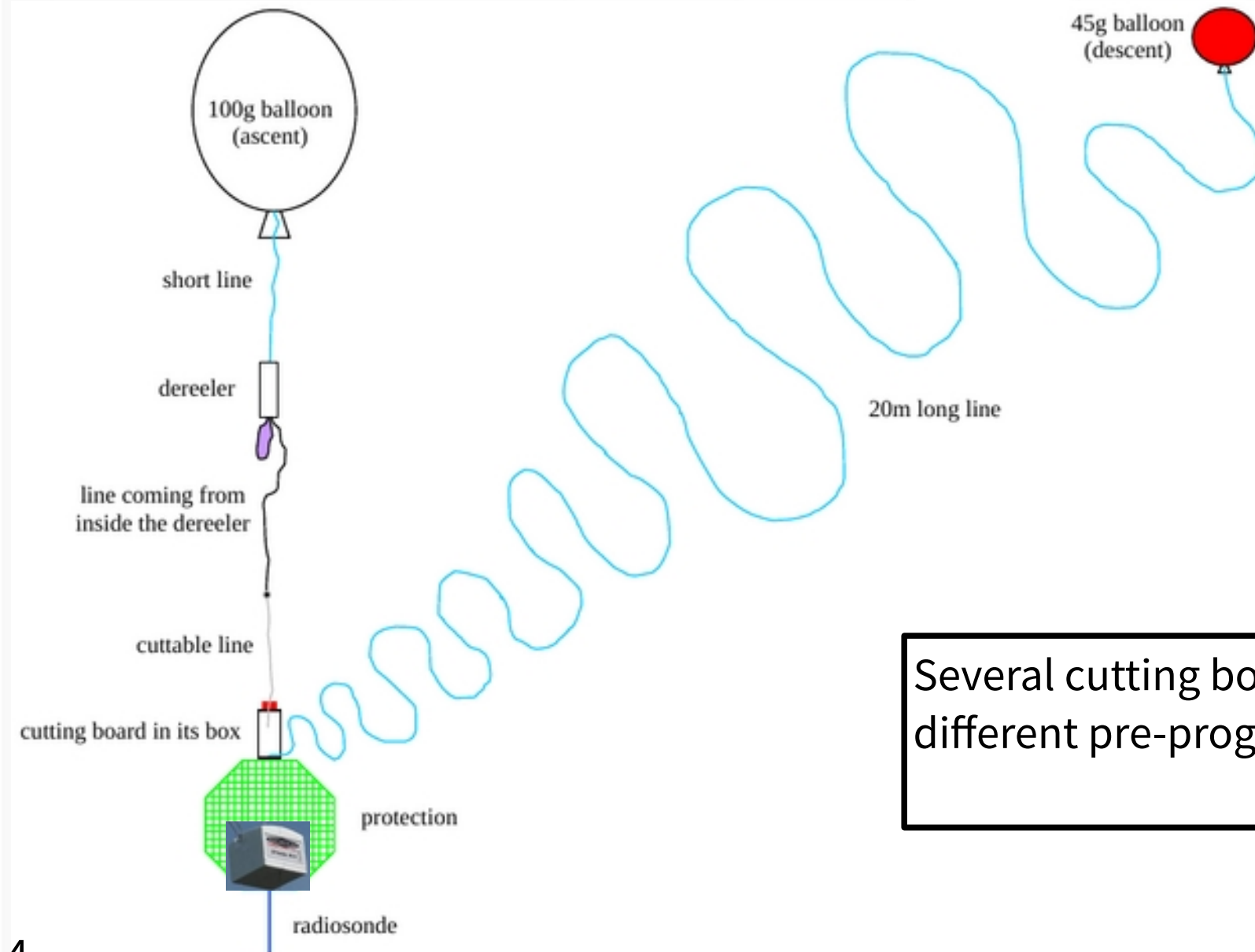
- Altitude
- Wind

- Pressure derived from altitude and temperature

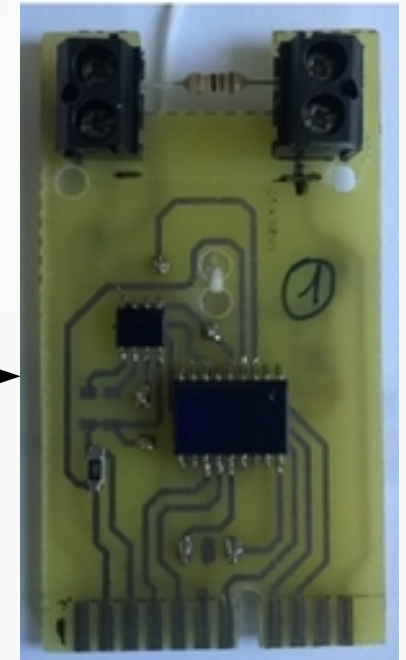
# Material : Flying chain (standard)




# Material : Flying chain (re-usable)



Several cutting boards with different pre-programmed times



# Softwares

- Acquisition : IR2010 & Icare
- Home-made landing prediction software (to avoid the highway and prison ):
  - Based on UHF & VHF wind profiler data
  - Last 30min profiles (15 profiles for UHF & 1 profile for VHF)
  - Area of uncertainty:
    - Ascent & descent velocity uncertainty
    - Wind measurement uncertainty





# Landing forecast: 9 min

Estimation du 2023/04/17 10:41 UTC

Minuteur = 9 min

— Incertitude Totale sur les 15 derniers profils  
— Incertitude vitesse verticale sur les 15 derniers profils  
● Atterrissage théorique

Dernier profil mode bas:

17/04/2023 10:33 UTC

Dernier profil mode haut:

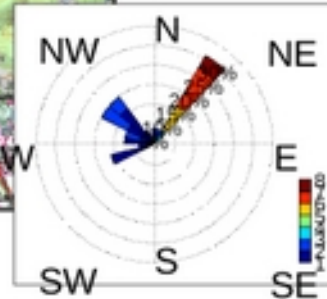
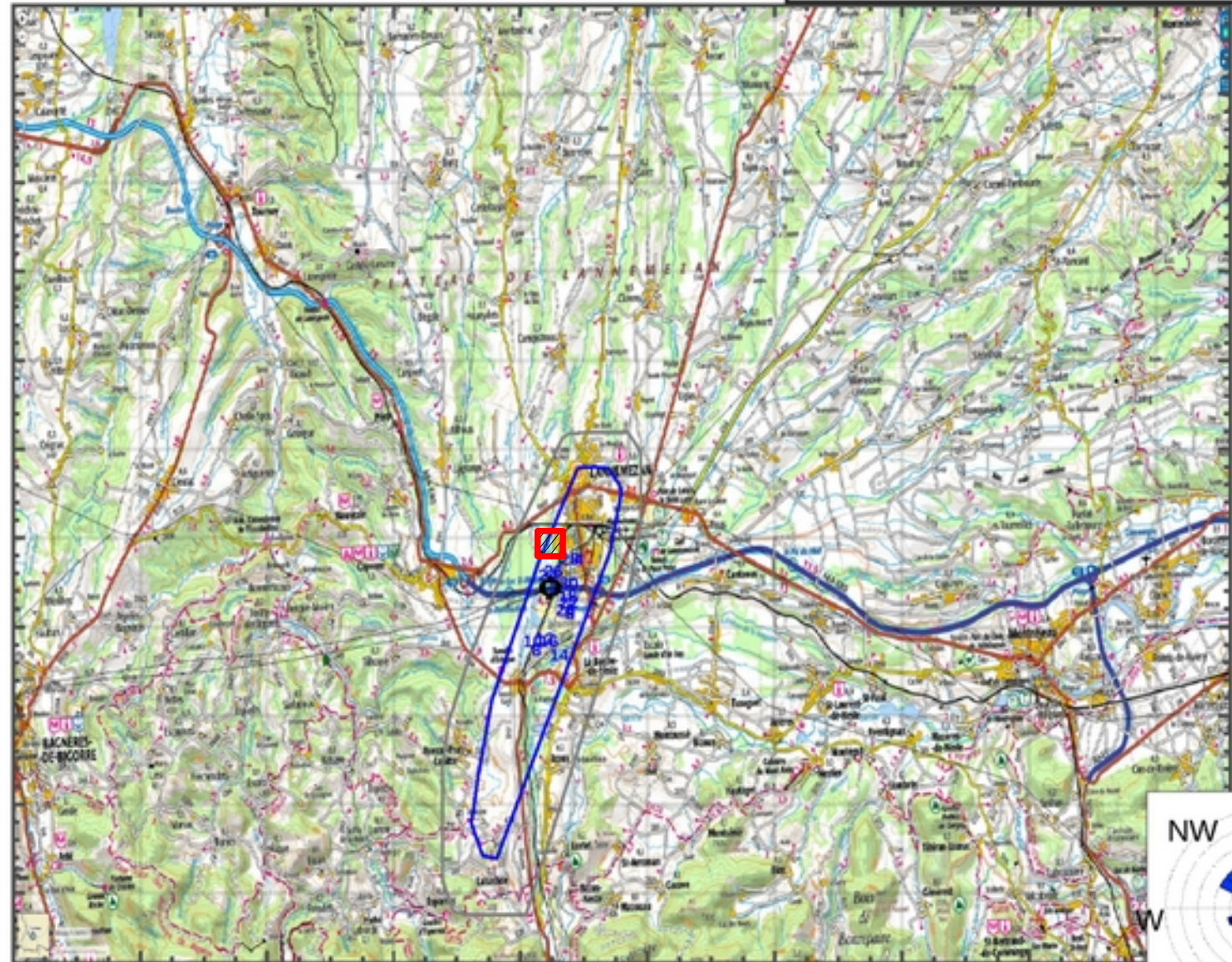
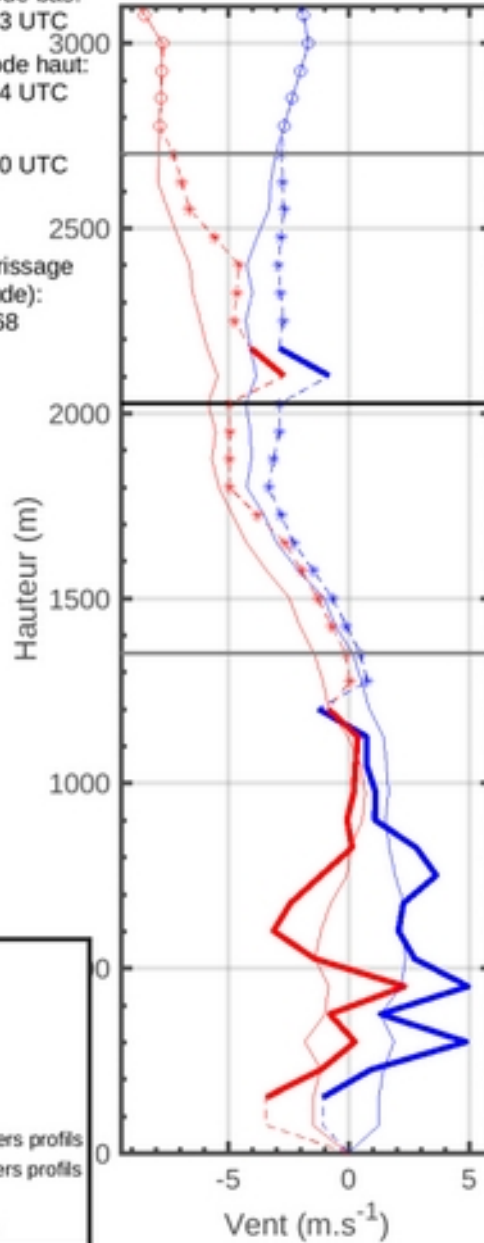
17/04/2023 10:34 UTC

Profil VHF:

17/04/2023 10:00 UTC

Coodonnée atterrissage  
(latitude ; longitude):

43.1079 ; 0.37268



# Landing forecast: 11 min

Estimation du 2023/04/17 10:41 UTC

Minuteur = 11 min

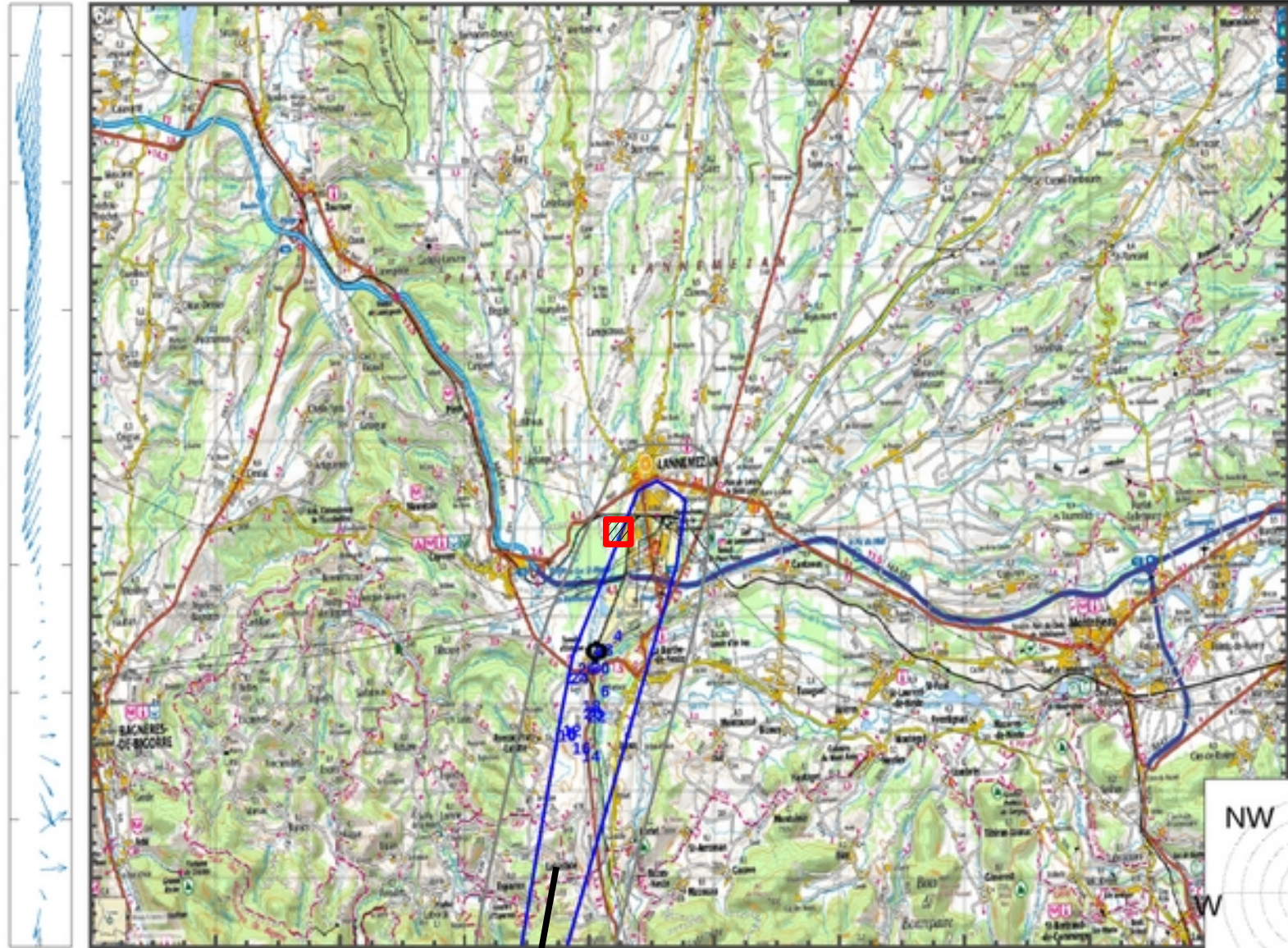
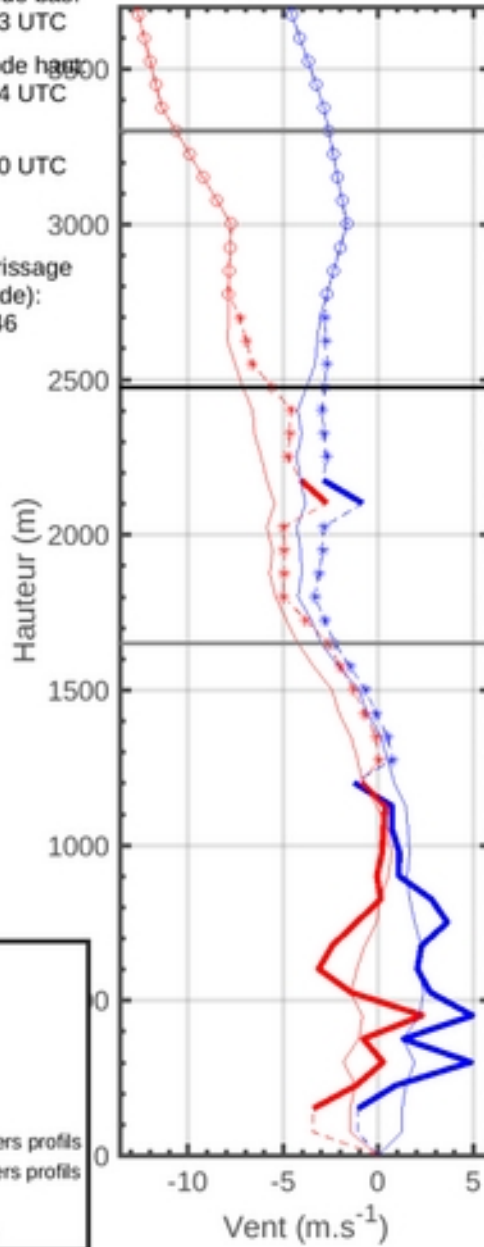
— Incertitude Totale sur les 15 derniers profils  
— Incertitude vitesse verticale sur les 15 derniers profils  
⊙ Atterrissage théorique

Dernier profil mode bas:  
17/04/2023 10:33 UTC

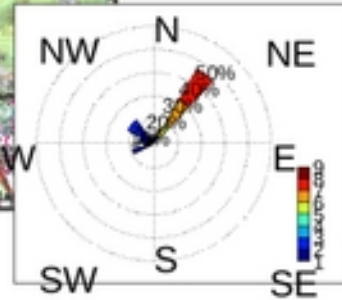
Dernier profil mode haut:  
17/04/2023 10:34 UTC

Profil VHF:  
17/04/2023 10:00 UTC

Coodonnée atterrissage  
(latitude ; longitude):  
43.0964 ; 0.36346



Pyrenees



# Recap tables of all soundings launched

Date	16/04/2023					17/04/2023					18/04/2023					19/04/2023					20/04/2023				
Time UTC	5	8	11	14	17	5	8	11	14	17	5	8	11	14	17	5	8	11	14	17	5	8	11	14	17
Landing Forecast		Yellow	Green	Black X	Light Green		Green	Green	Light Green	Black X		Yellow	Black X	Green	Green		Light Green	Yellow	Yellow	Green		Black	Green	Green	Yellow
Material	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Red ?	Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green
Acquisition software	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green
Human	Green	Yellow	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Red ?	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Data	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Green

■ => No unhooking (3 => 15%)

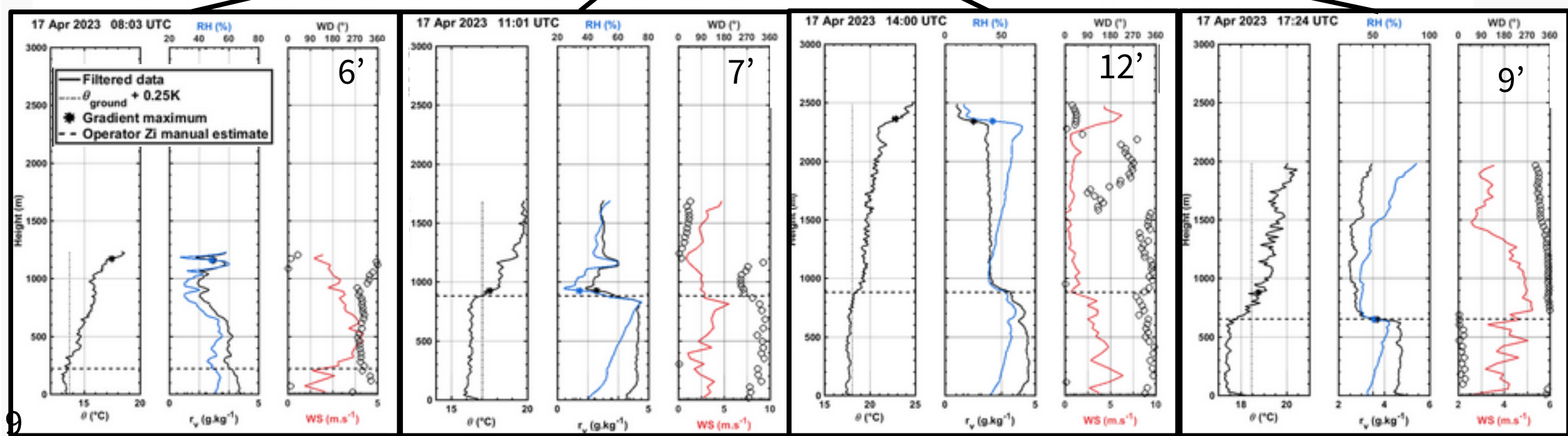
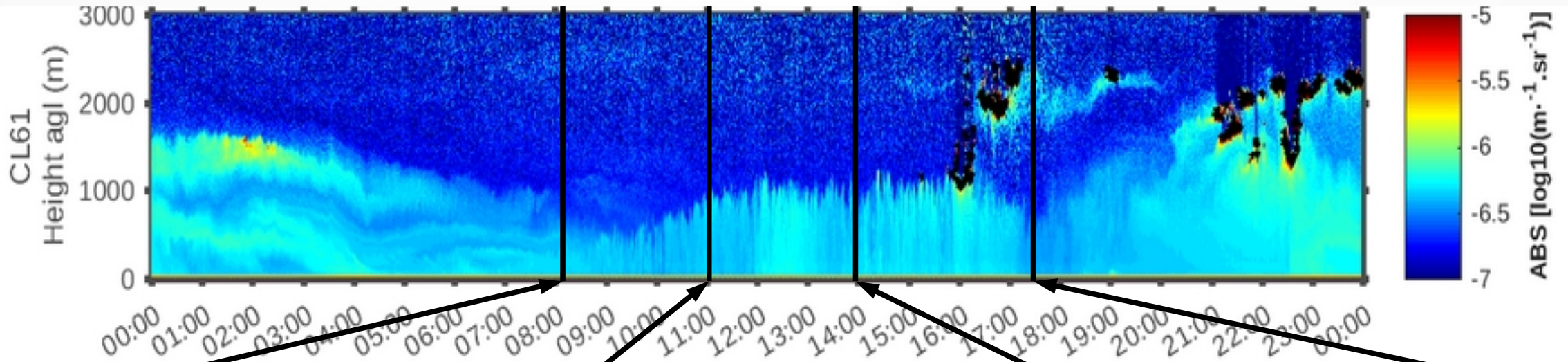
X => lost probes (2-3 => 10-15 %)

Trapped in a tree

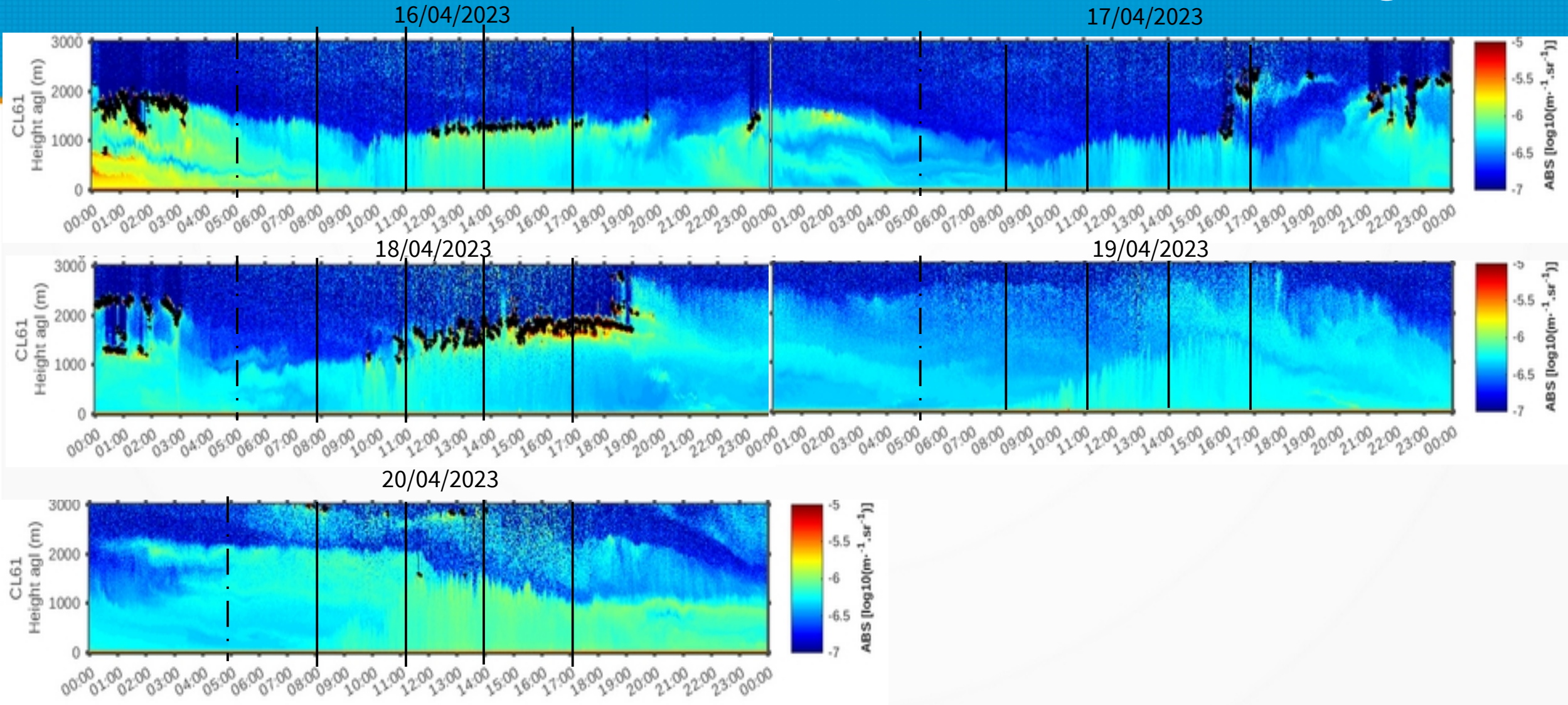
- Station change
- Landing prediction soft take into account Zi

- Material : no way around (1 probe temporarily lost )
- Acquisition : Spare station used, no problem afterwards
- Human : 3 mistakes that were never repeated (**2 probes definitively lost** )
- Landing Forecast : successful improvements along the way, not perfect, doing our best
- **Data: only one impacted profile**, but we have the descent close to CRA!

# Profile examples: 17/04/2023

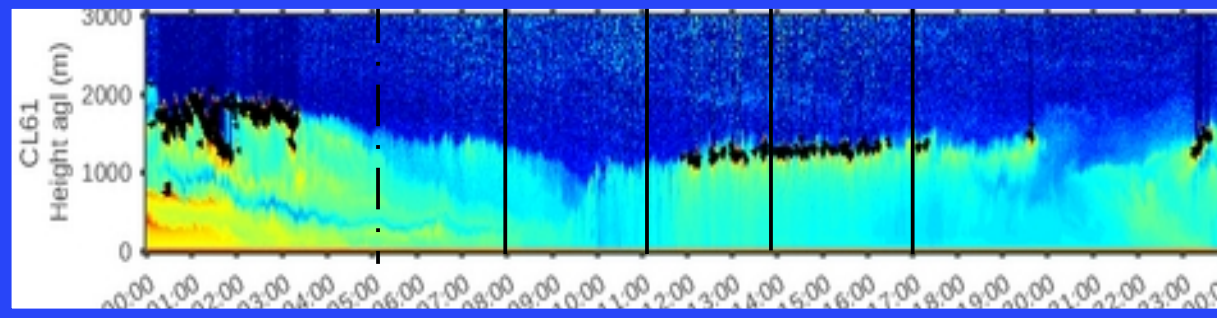


# Comparison between boundary layer and launching time

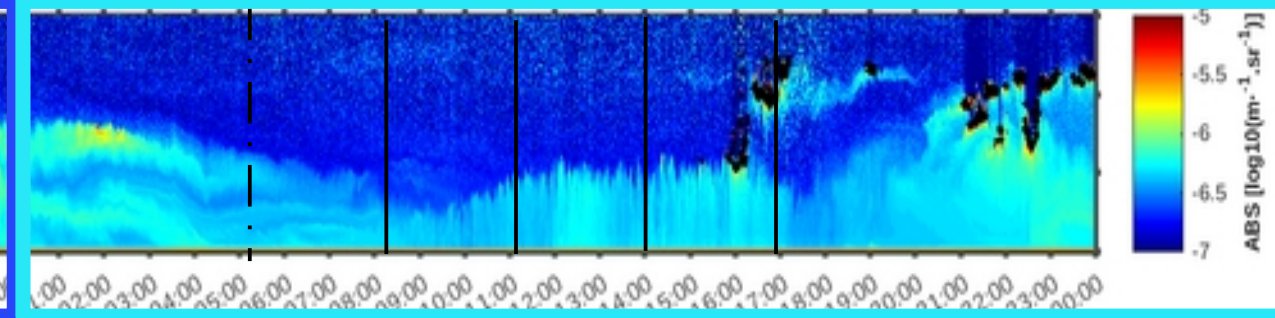


# Comparison between boundary layer and launching time

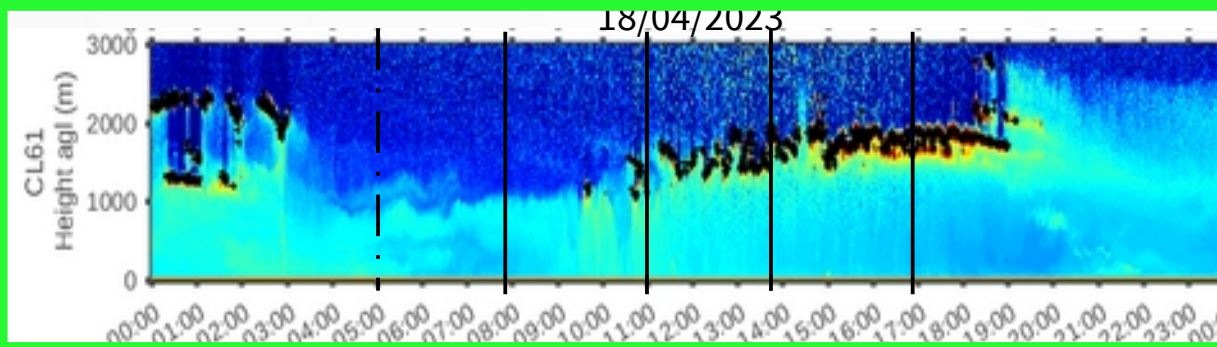
16/04/2023



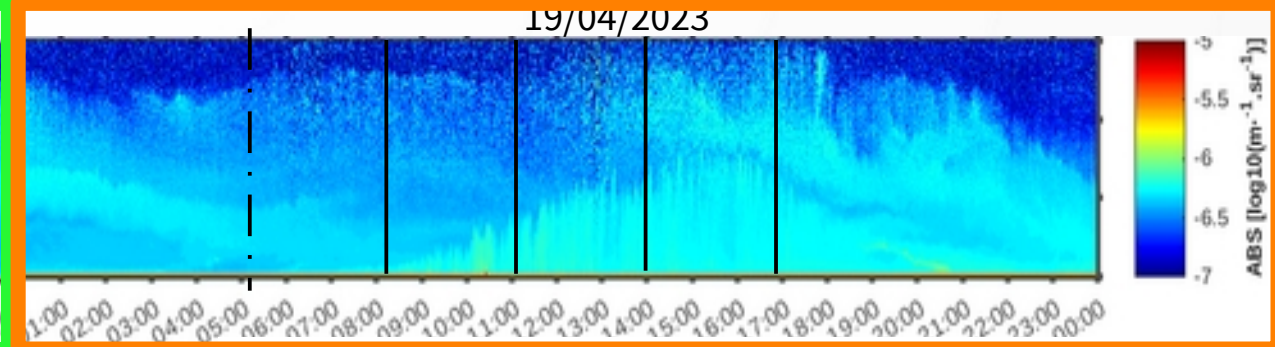
17/04/2023



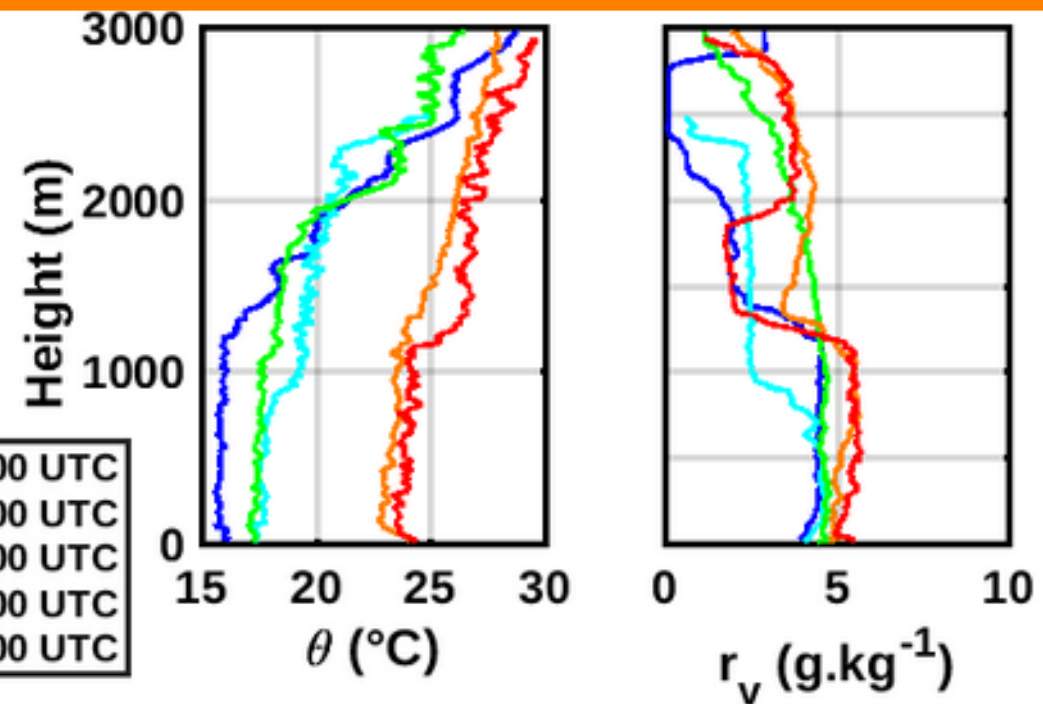
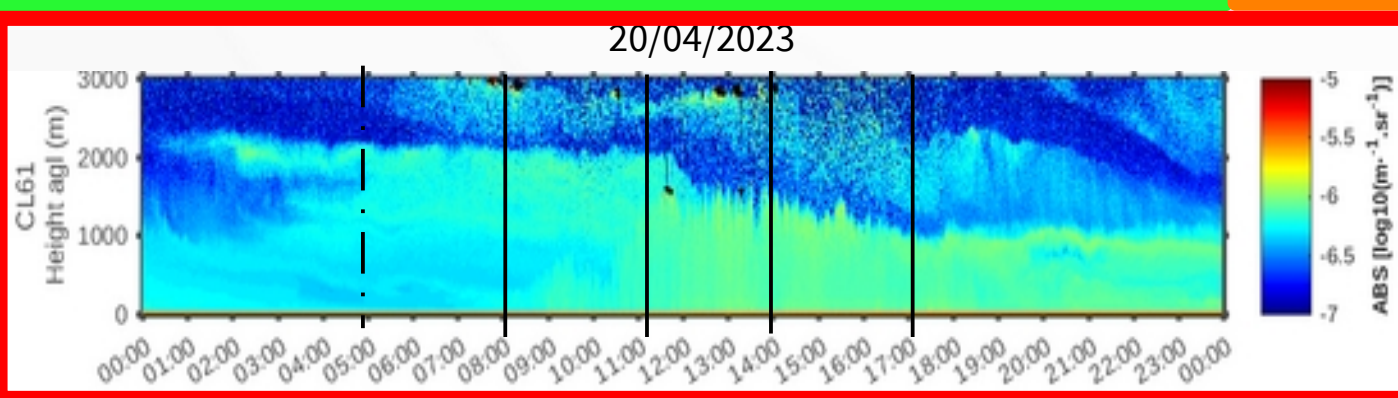
18/04/2023



19/04/2023







20/04/2023



- 16/04/2023 14:00 UTC
- 17/04/2023 14:00 UTC
- 18/04/2023 14:00 UTC
- 19/04/2023 14:00 UTC
- 20/04/2023 14:00 UTC

# Conclusion

- **No lost data, 2 lost probes**
- Good times to launch, for August SOP too
- Landing forecast works but depends on wind variability
- Some technical problems mostly solved:
  - Human error 
  - Aquisition software problem 
  - Radio problem to watch out for at the August SOP 

=> Objective: no losses ! 



**Thanks to the team**