MOSAI SOP1
Radiosounding

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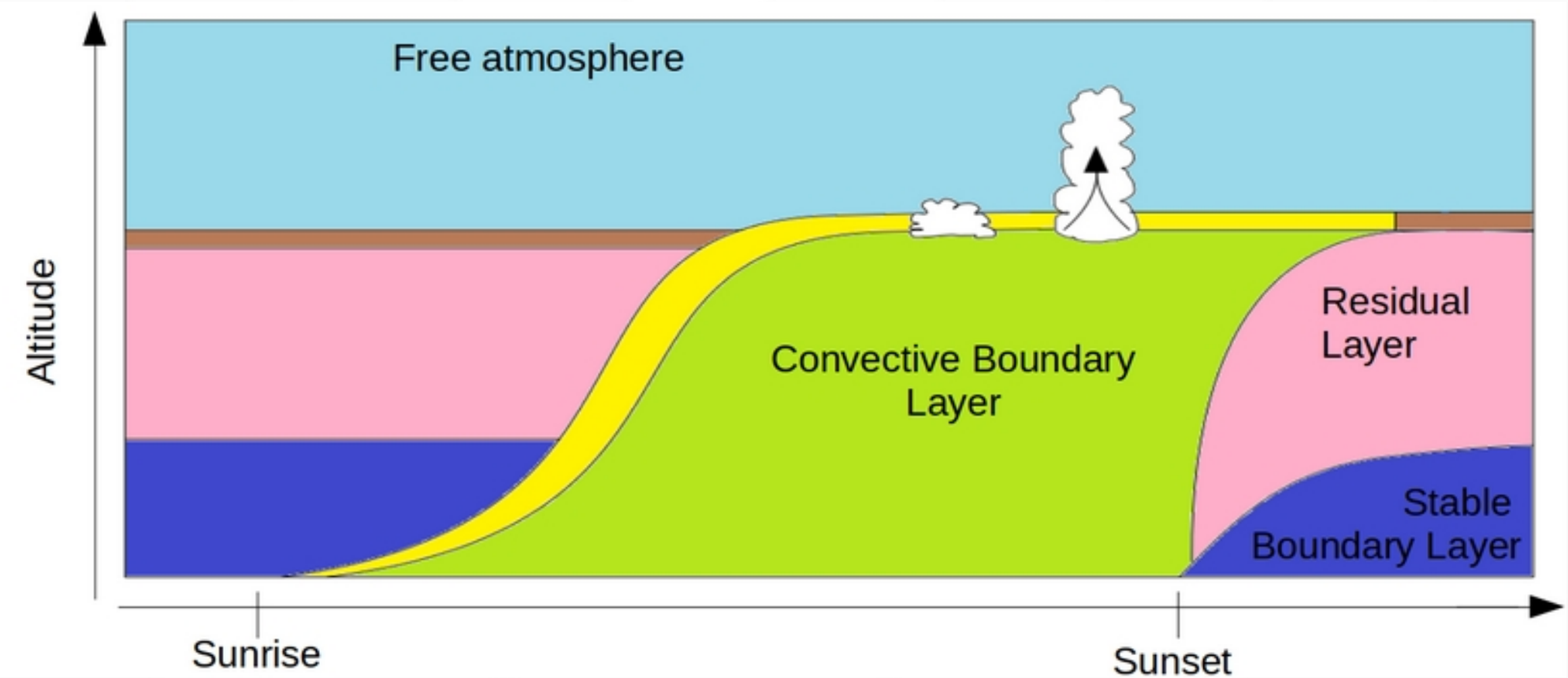
Aim:
Description of the boundary layer evolution during each IOP



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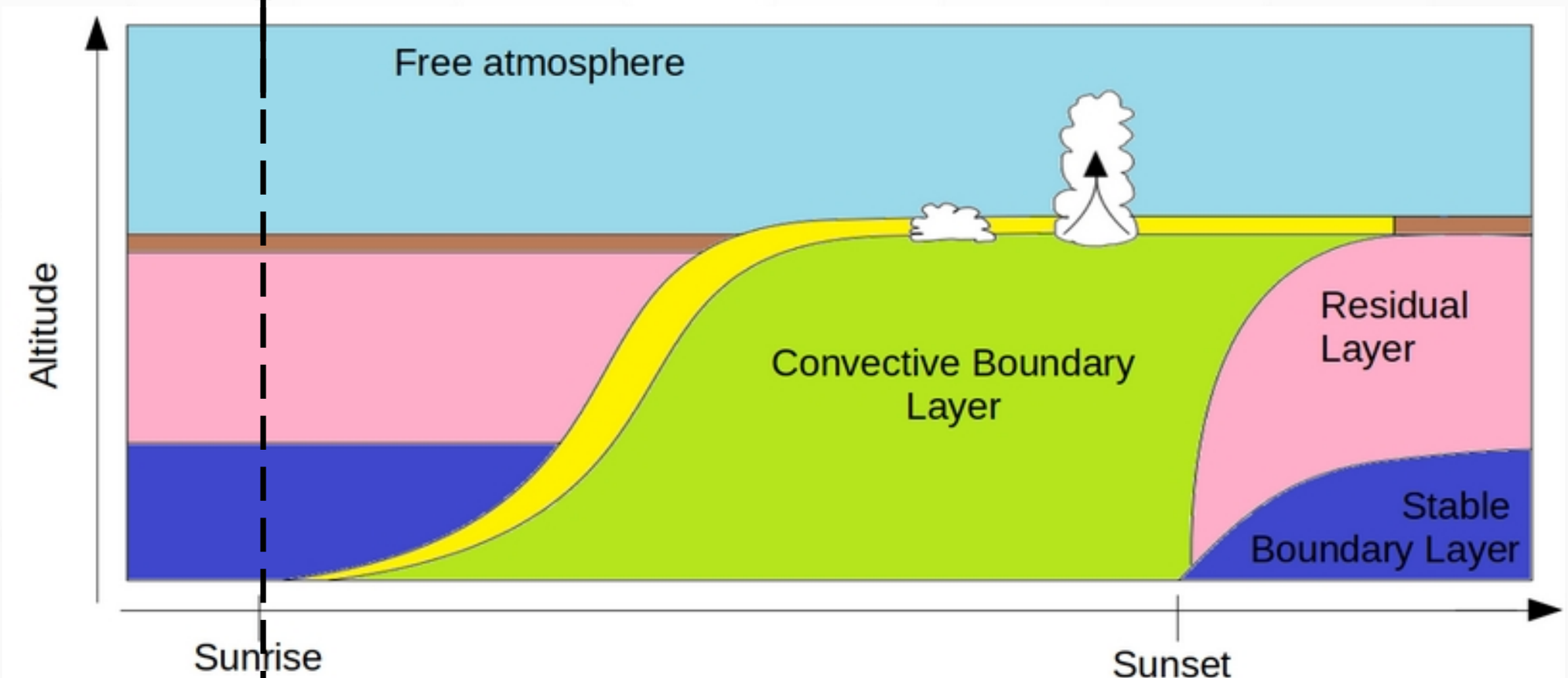

1 standard radiosonde
(~14 000 m agl) **5 UTC**

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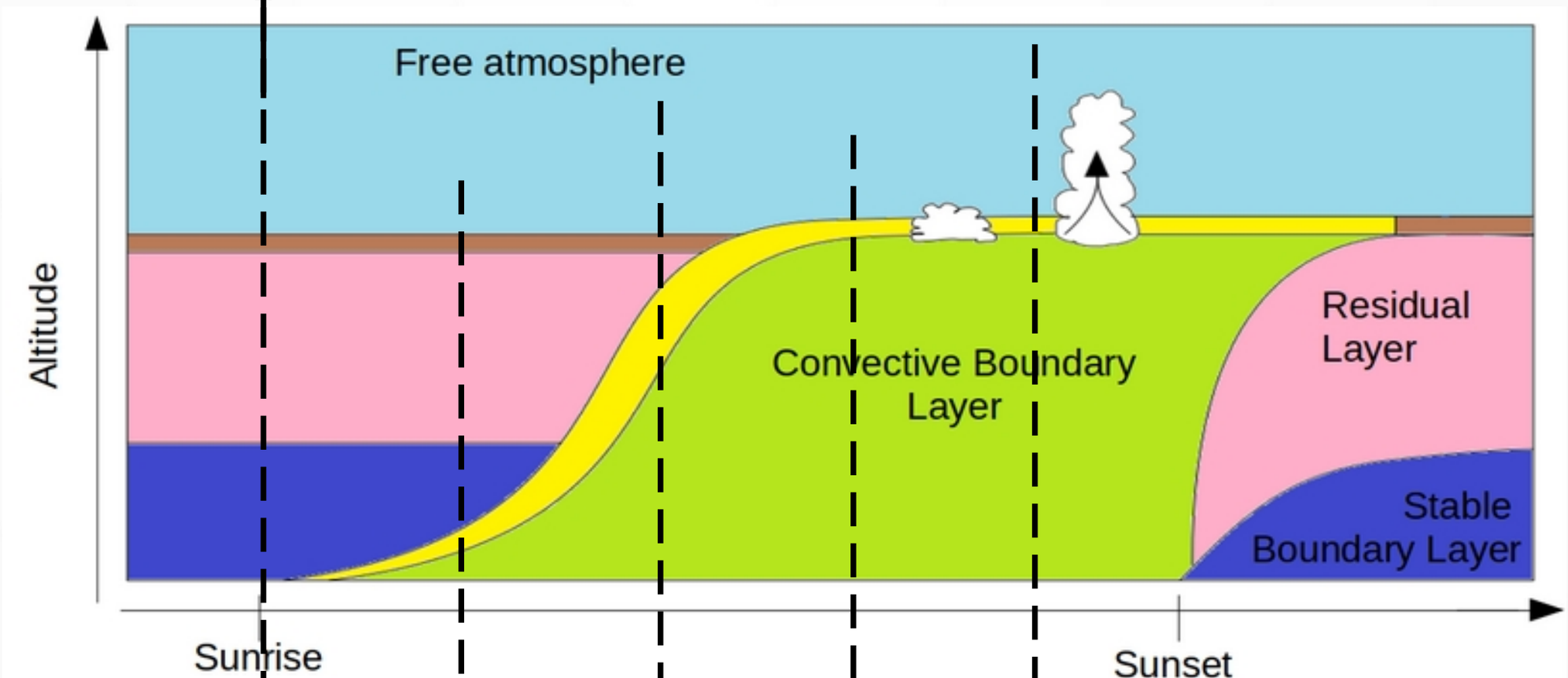
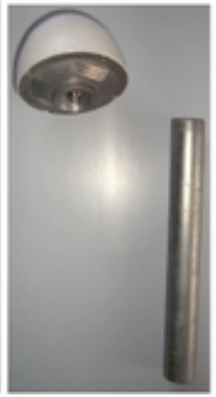


1 standard radiosonde (~14 000 m agl) **5 UTC**

8 UTC **11 UTC** **14 UTC** **17 UTC**

4 re-usable radiosondes (~2 000 m agl)

Material : hardware



2 Modem Stations (Acquisition)

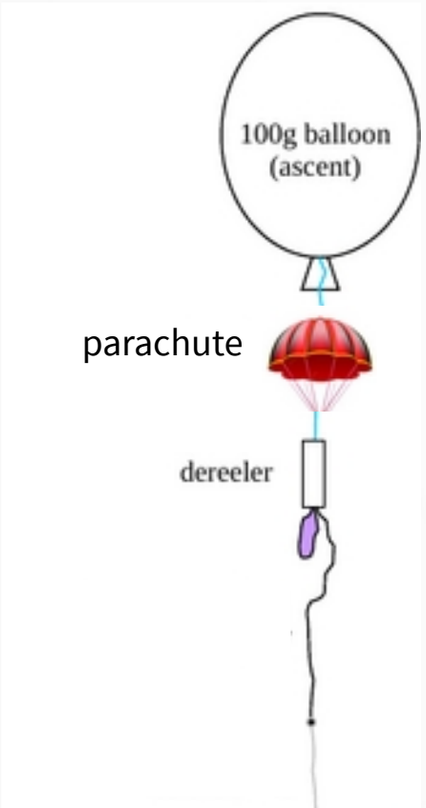
Antennas (Radio & GPS)

GroundCheck (calibration)

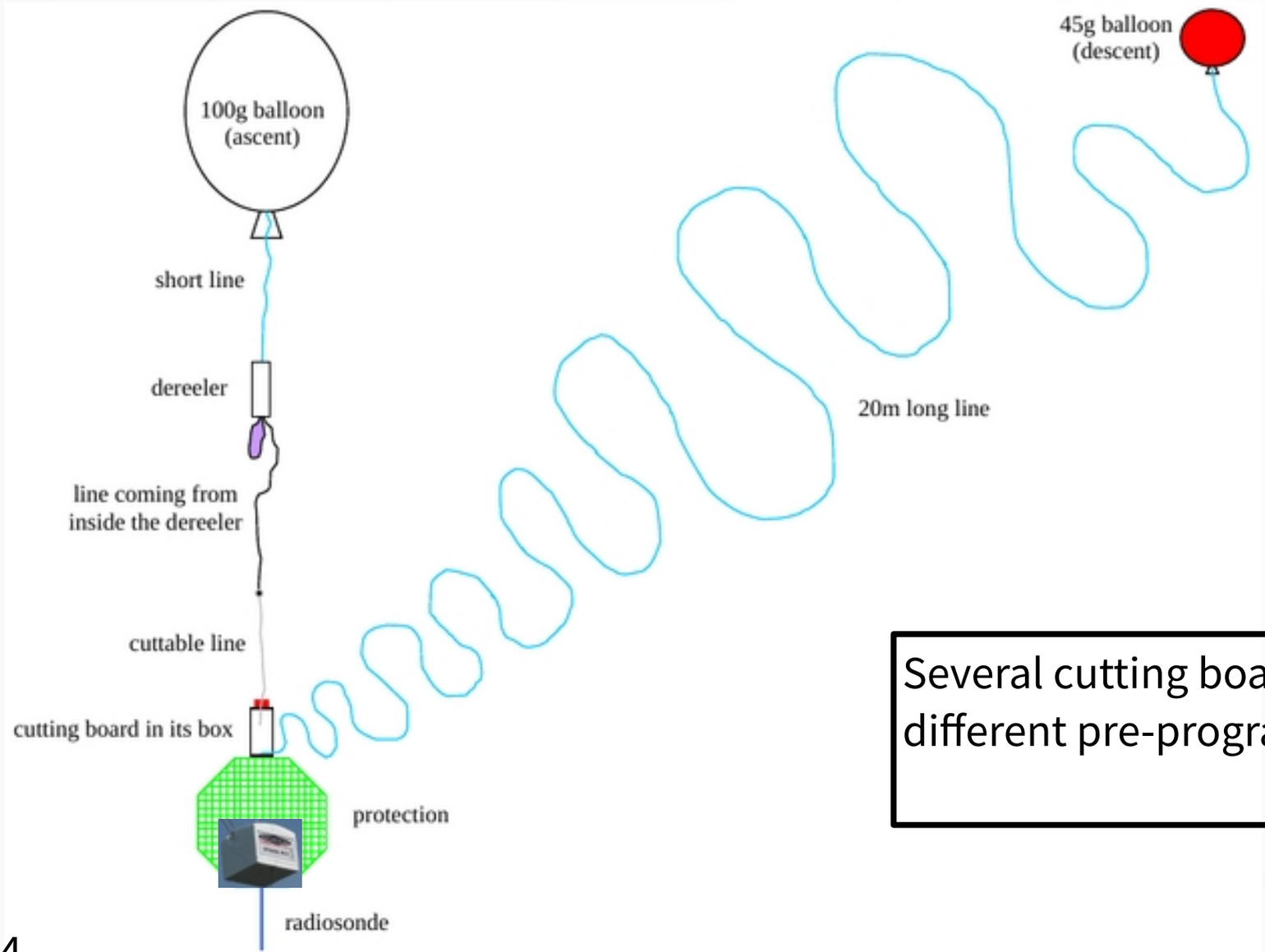
- Altitude
- Wind

- Pressure derived from altitude and temperature

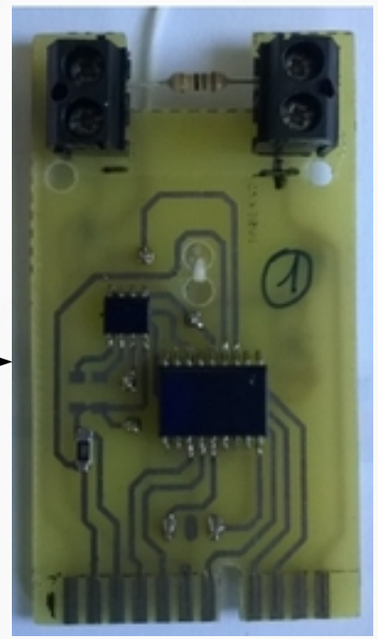
Material : Flying chain (standard)



Material : Flying chain (re-usable)



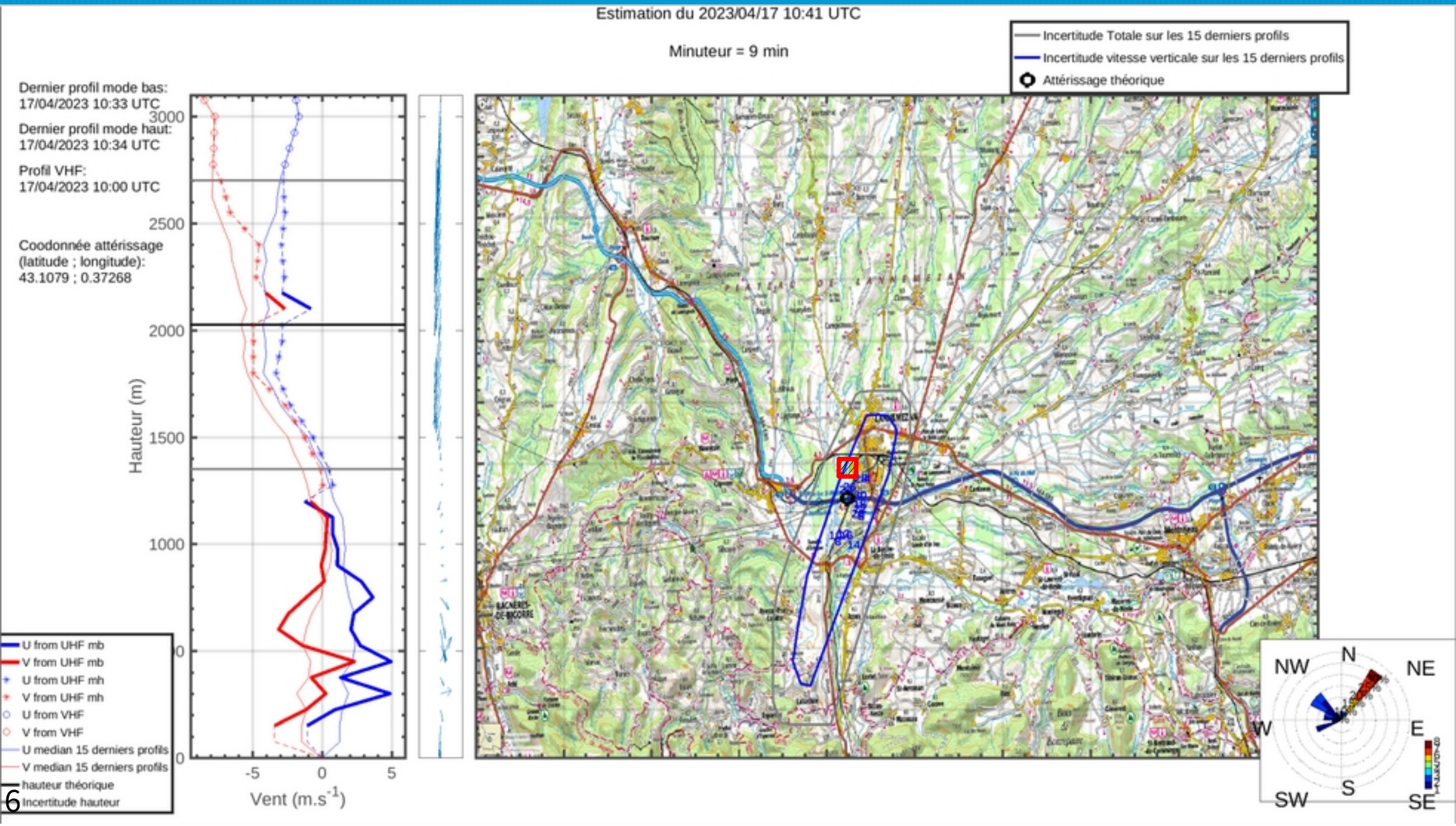
Several cutting boards with different pre-programmed times



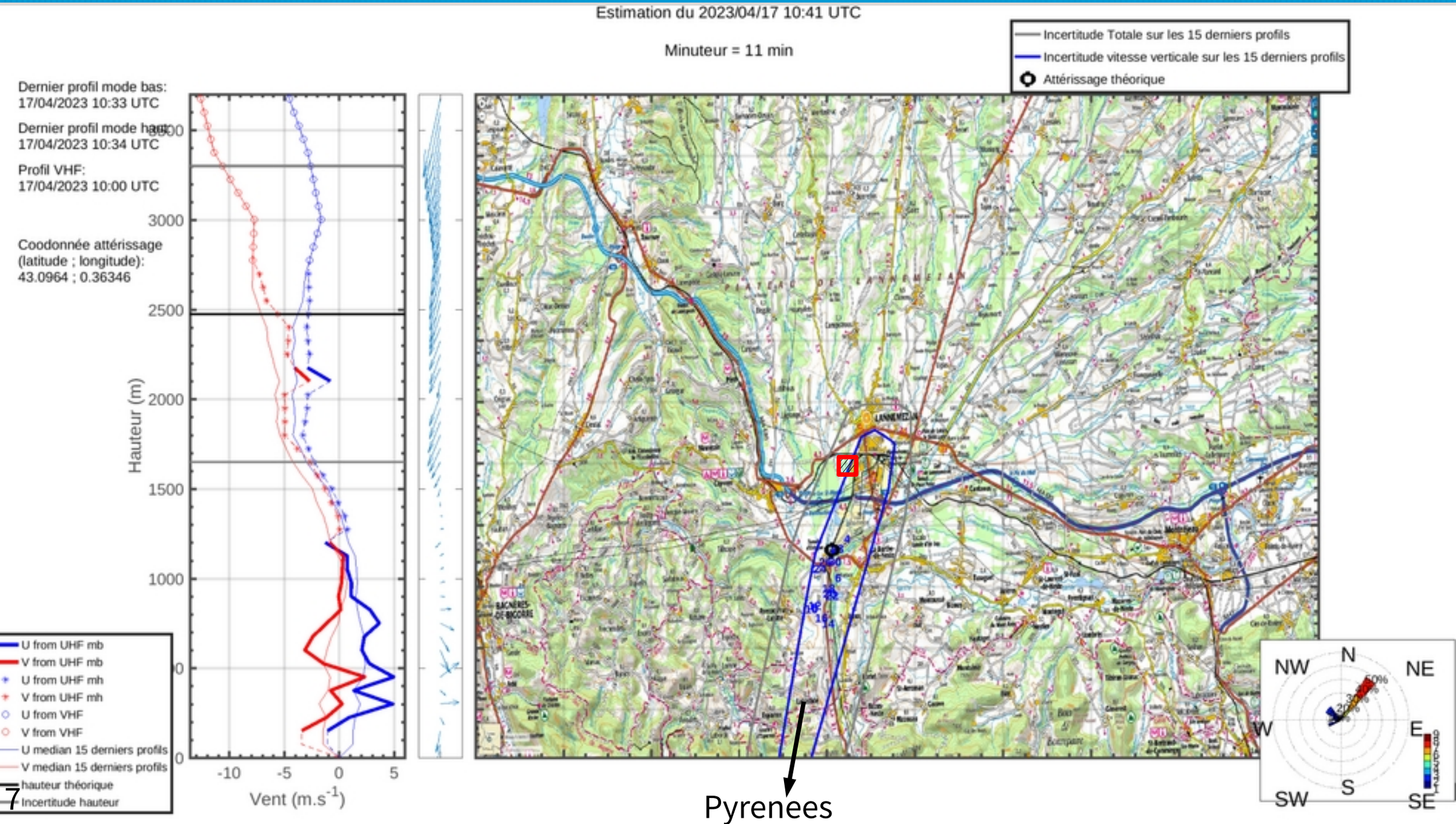
Softwares

- 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



Landing forecast: 11 min



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				X						X			X												
Material													?												
Acquisition software																									
Human													?												
Data																									

Trapped in a tree

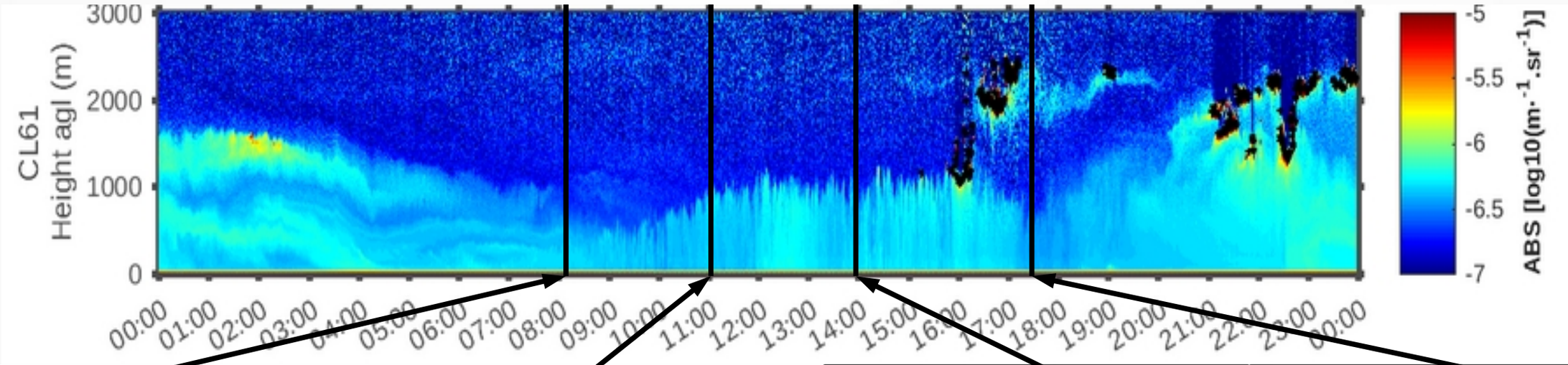
■ => No unhooking (3 => 15%)

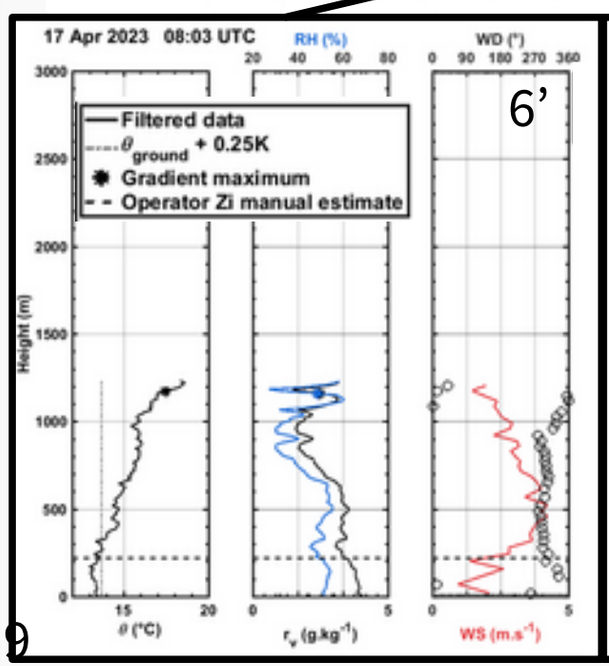
X => lost probes (2-3 => 10-15 %)

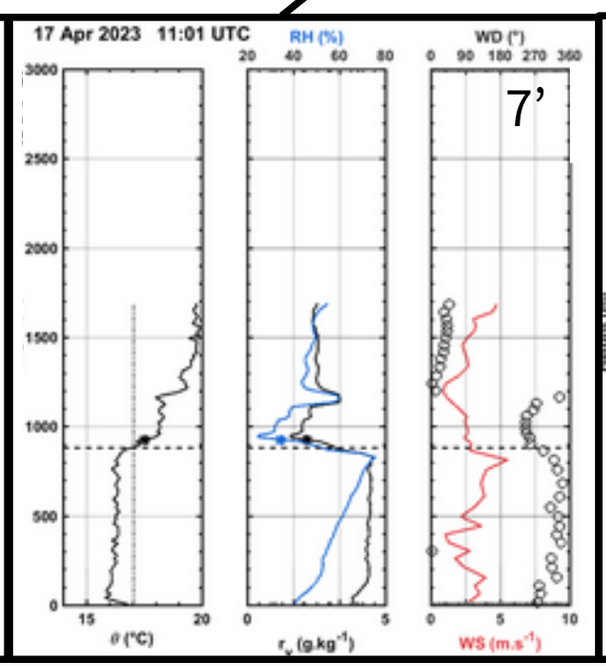
- Station change
- Landing prediction soft take into account Zi

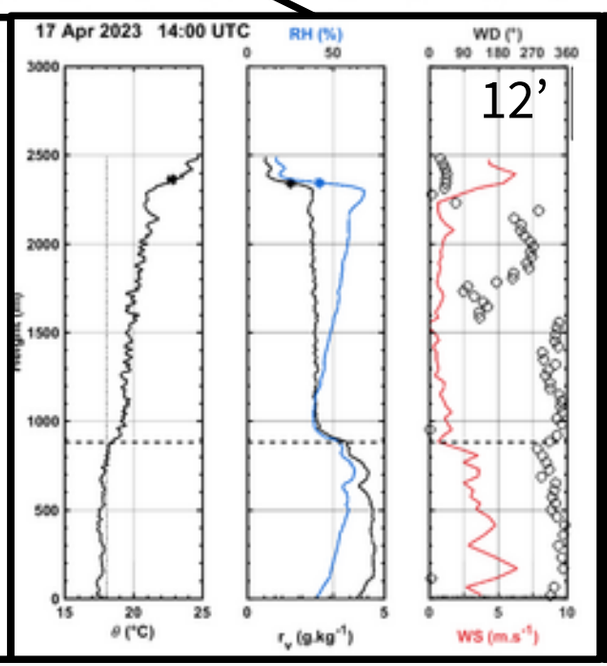
- Material : no way around (1 probe temporarily lost)
- Acquisition : Spare station used, no problem afterwards
- Human : 3 mistakes that were never repeated (**2 probes definitively lost**)
- Landing Forecast : successful improvements along the way, not perfect, doing our best
- **Data: only one impacted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

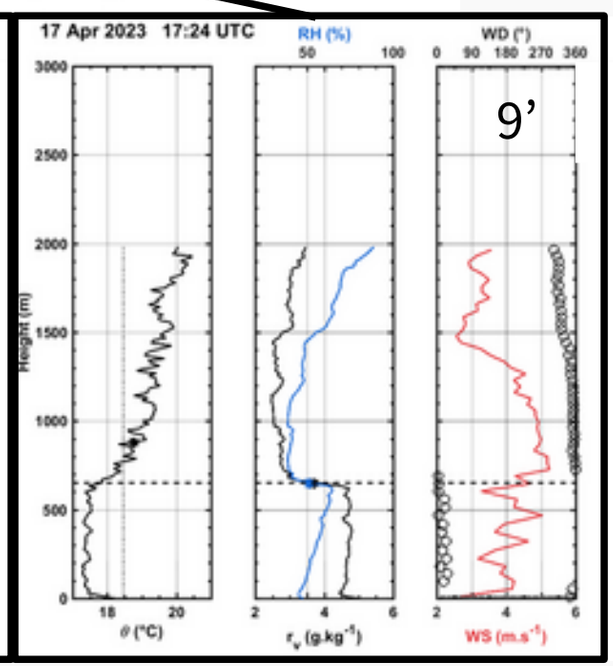
Profile examples: 17/04/2023



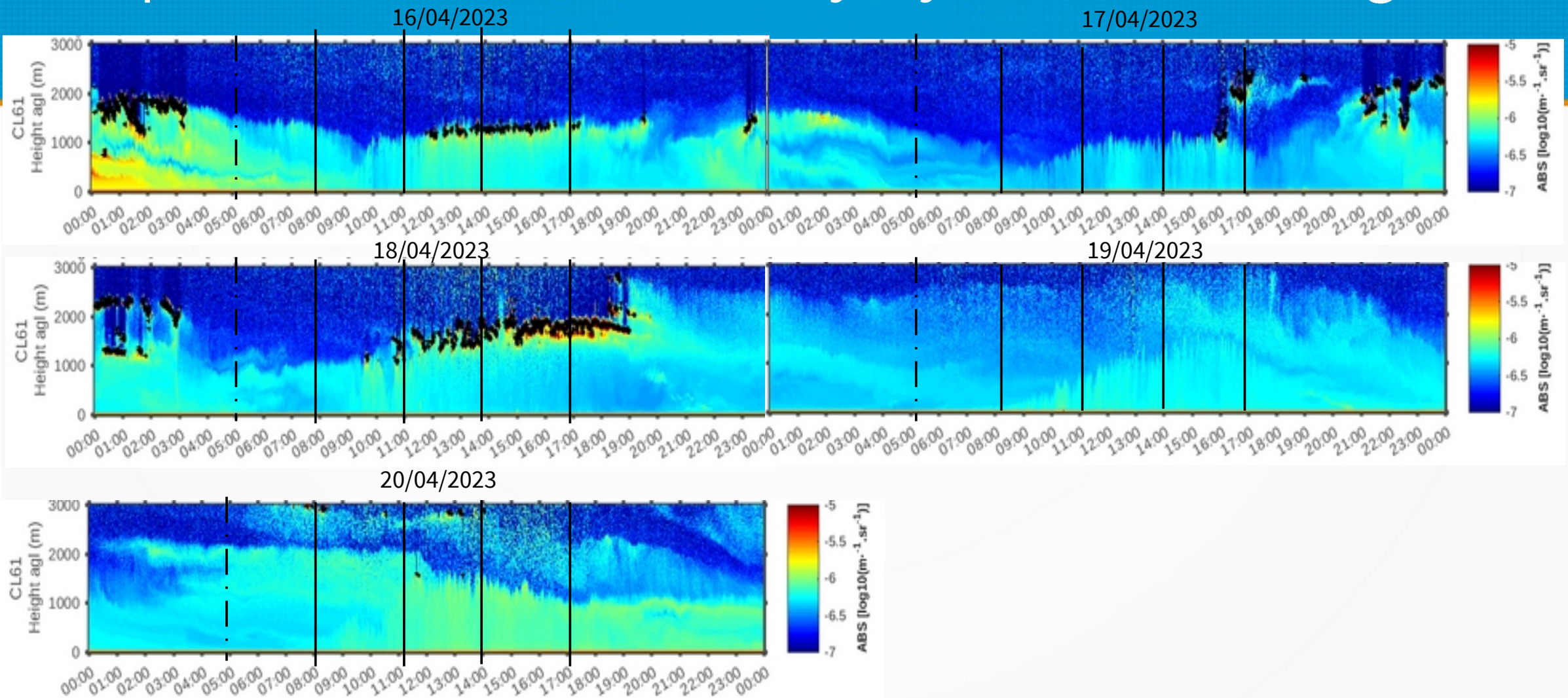






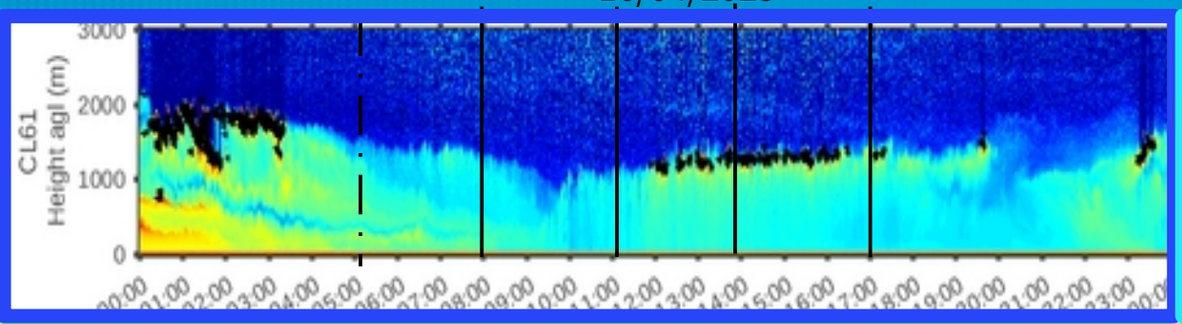


Comparison between boundary layer and launching time

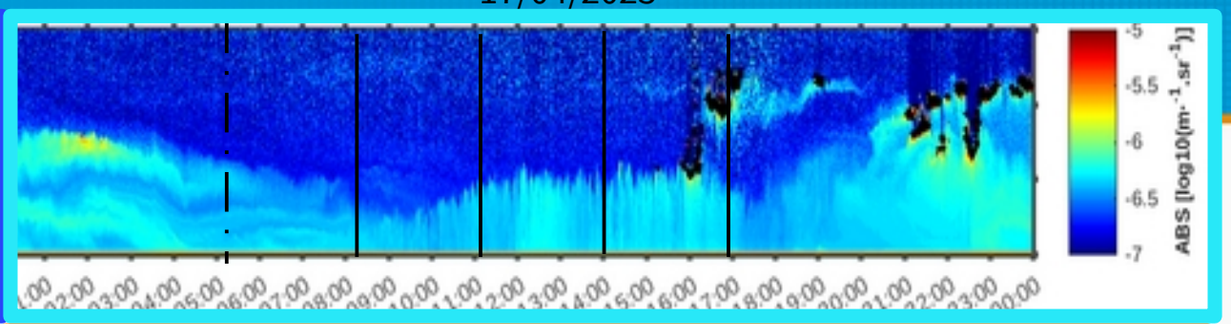


Comparison between boundary layer and launching time

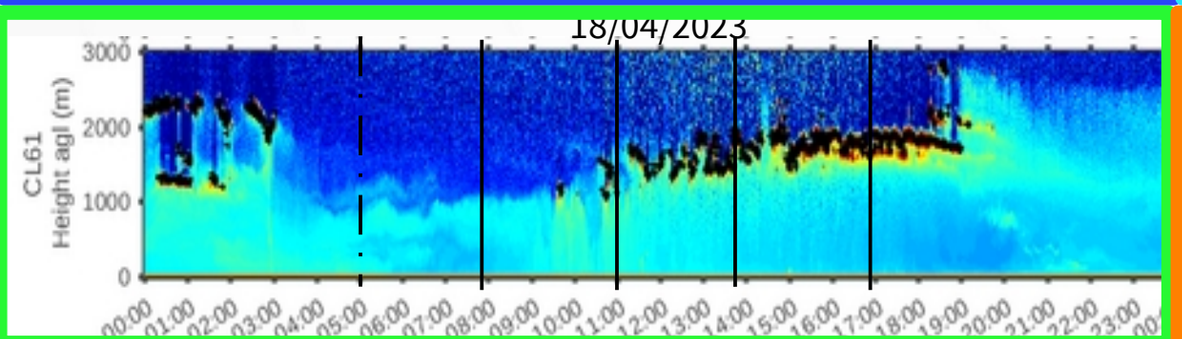
16/04/2023



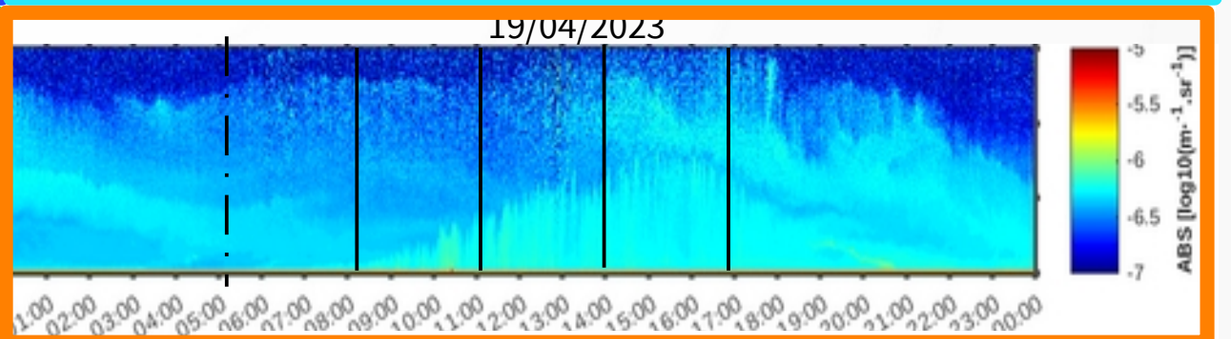
17/04/2023



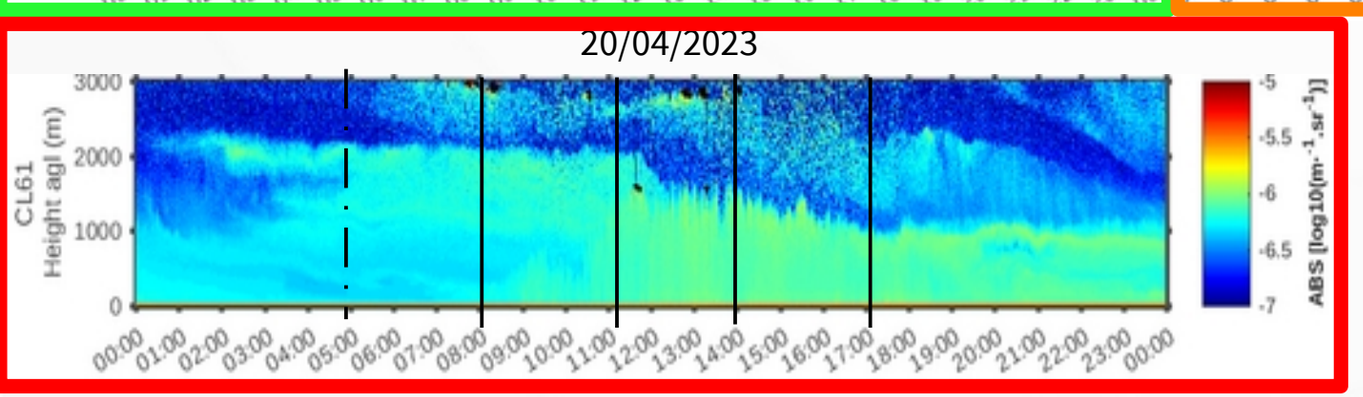
18/04/2023

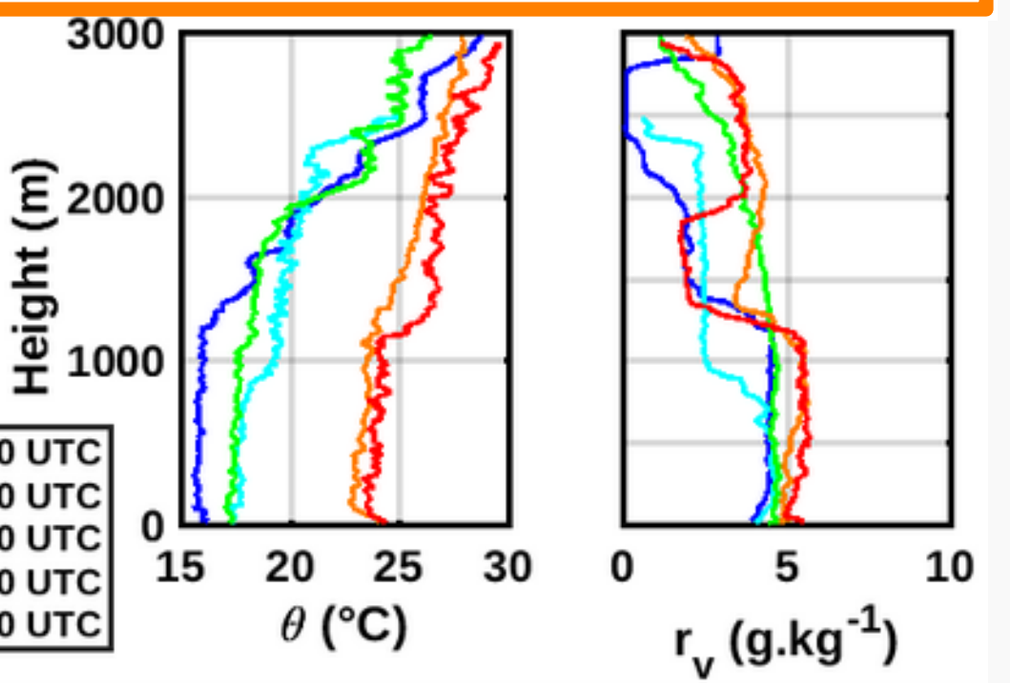


19/04/2023



20/04/2023

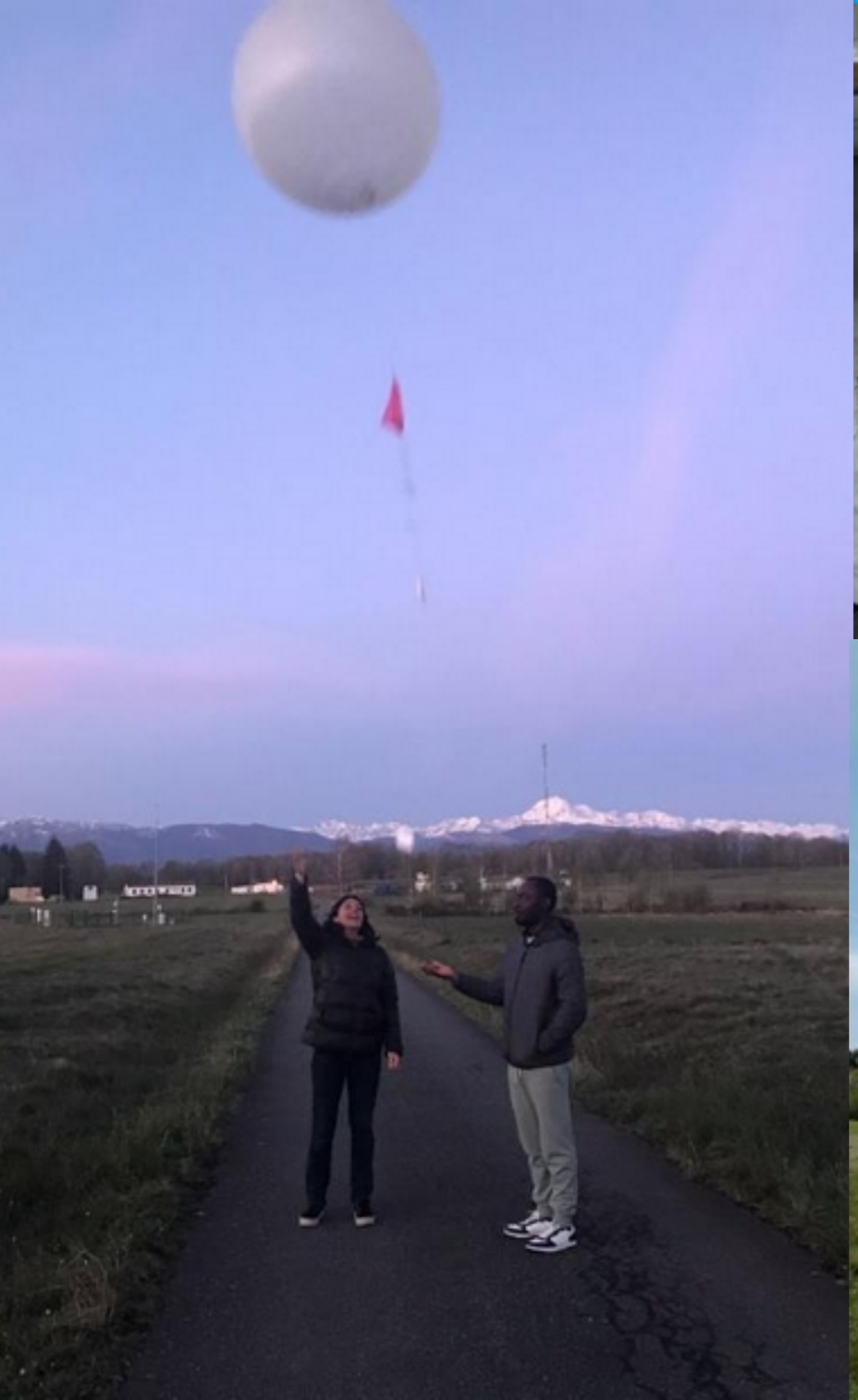




Conclusion

- **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