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# Measurement Campaign RACLET -Exploring the Composition and Reactivity of Organic Matter in Cloud Conditions

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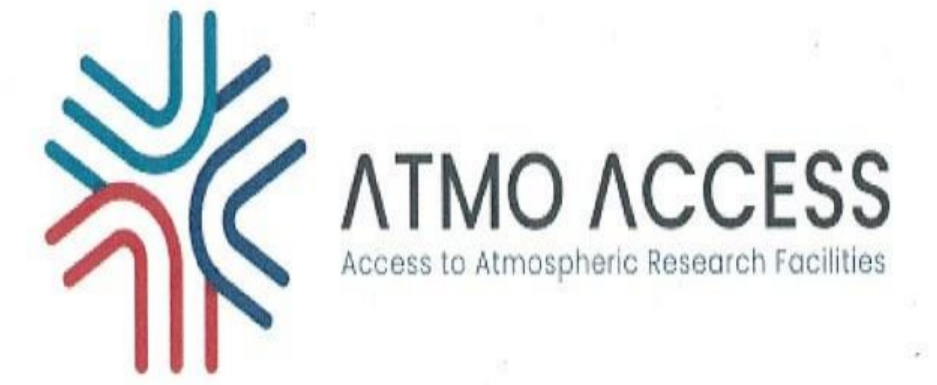
# Measurement Campaign RACLET – Exploring the Composition and Reactivity of Organic Matter in Cloud Conditions

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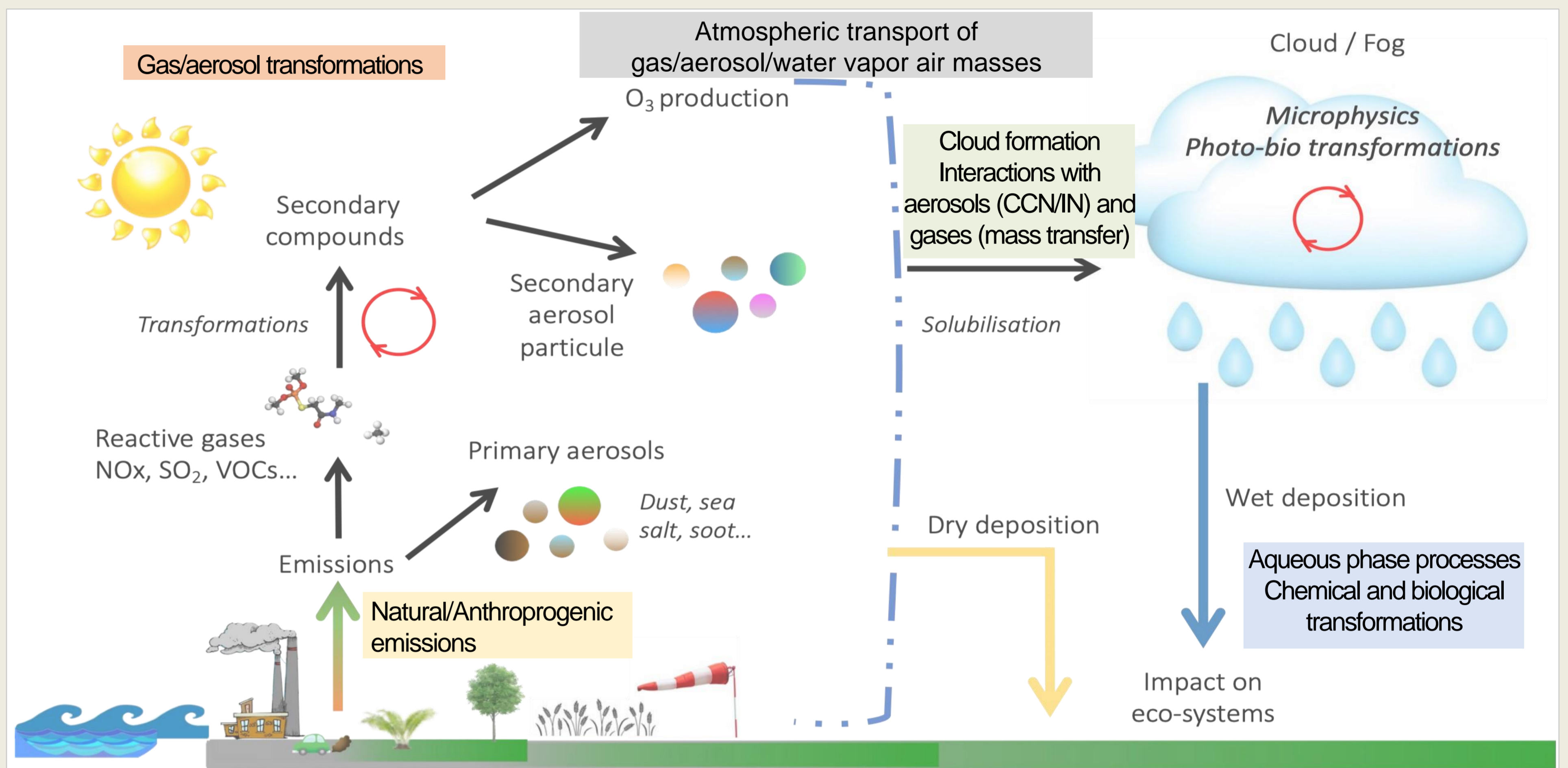
## Objectives of the project

### RACLET: Reactive gases, Aerosols and Clouds: Exploring organic matter Transformations

From 1<sup>st</sup> April to 30<sup>th</sup> April 2024

- follow atmospheric organic matter in all its forms and to analyze its environmental variability over the duration of the measurement campaign
- better understand how organic matter is distributed between the different phases during a cloud event (gas, aerosol, aqueous phase) and how these compounds are modified in this multiphase environment

## Scientific Contexts



## Implementations

### The Cézéaux-Opme Puy De Dôme instrumented site

<b>Aerosols</b> Granulometries Chemistry Radiative In-situ, remote sensing	<b>Clouds</b> Microphysics Chemistry Microbiology
<b>Gases</b> Reactive gas Greenhouse gas	<b>Meteorology</b> Precipitations Dynamic Radiation
<b>Wind tunnel</b> Natural condition test center PDD train set	<b>Radioactivity</b> Aerosols/gases Clouds/rains

**PDD (1465 m)**  
 Station météo  
 Particules d'aérosols  
 Gaz réactifs et à effet de serre  
 Nuages  
 Radionucléides  
 Hygroscopicité  
 GPS

**Cézéaux(410 m)**  
 Radar X pluie et pluvio.  
 GPS  
 station météo  
 photomètre  
 Lidar

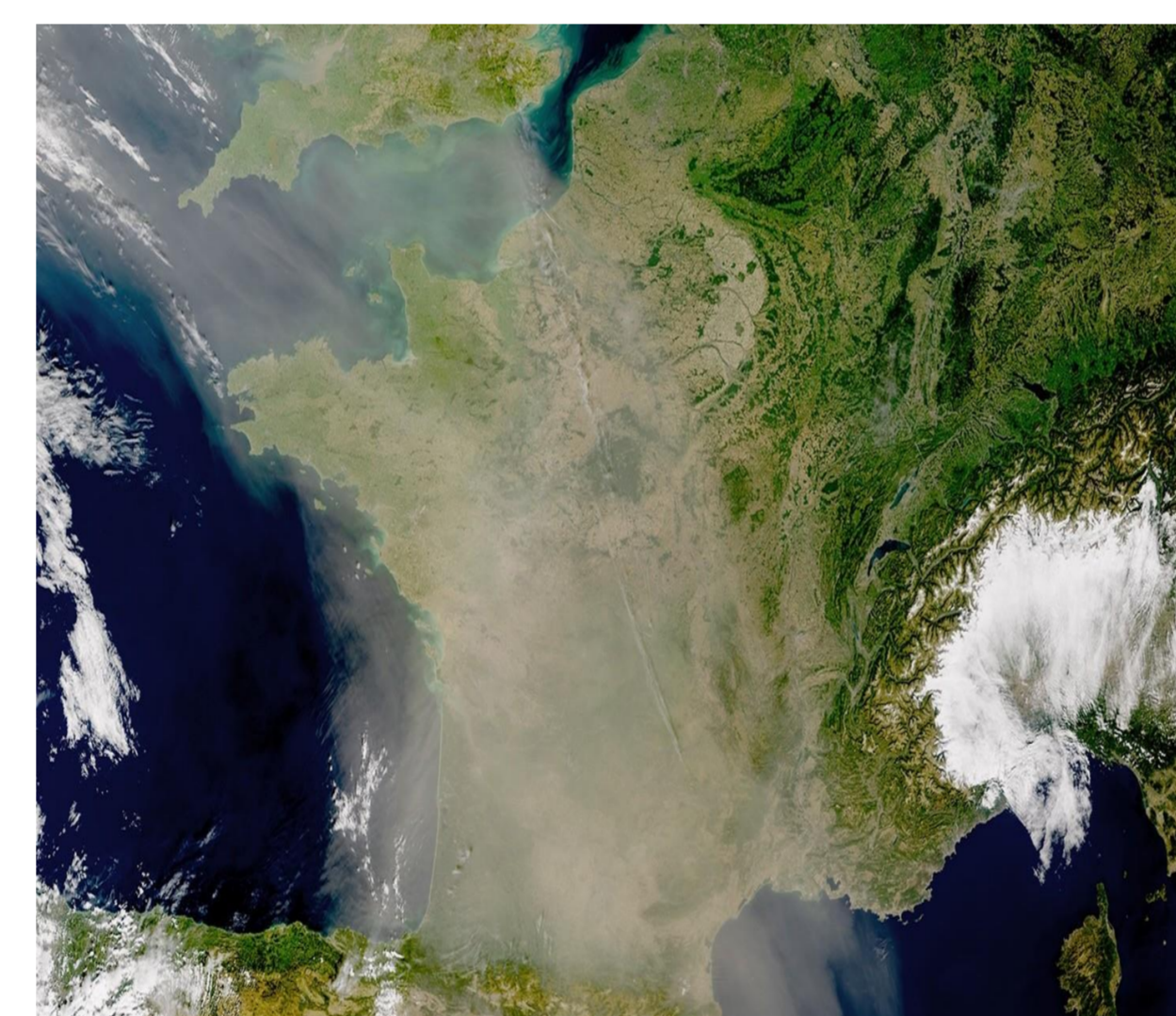
**Opme (680 m)**  
 Radar Vent, MRR  
 Radar Nuage,  
 Pluviomètre,  
 disdromètre,  
 Radionucléides  
 station météo, GPS

### Open Trans National Access via ATMO ACCESS

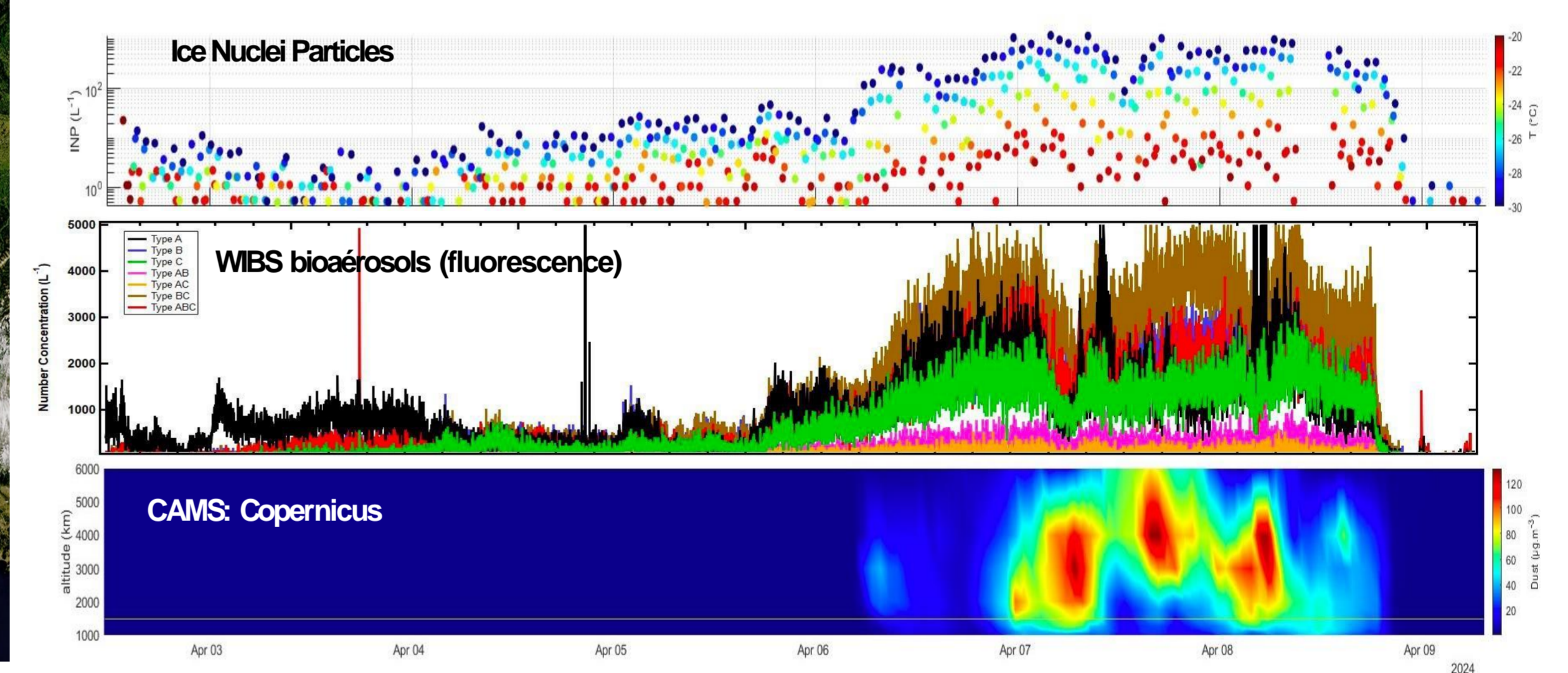
<https://www.atmo-access.eu/current-access-opportunities/>

## Primary Results

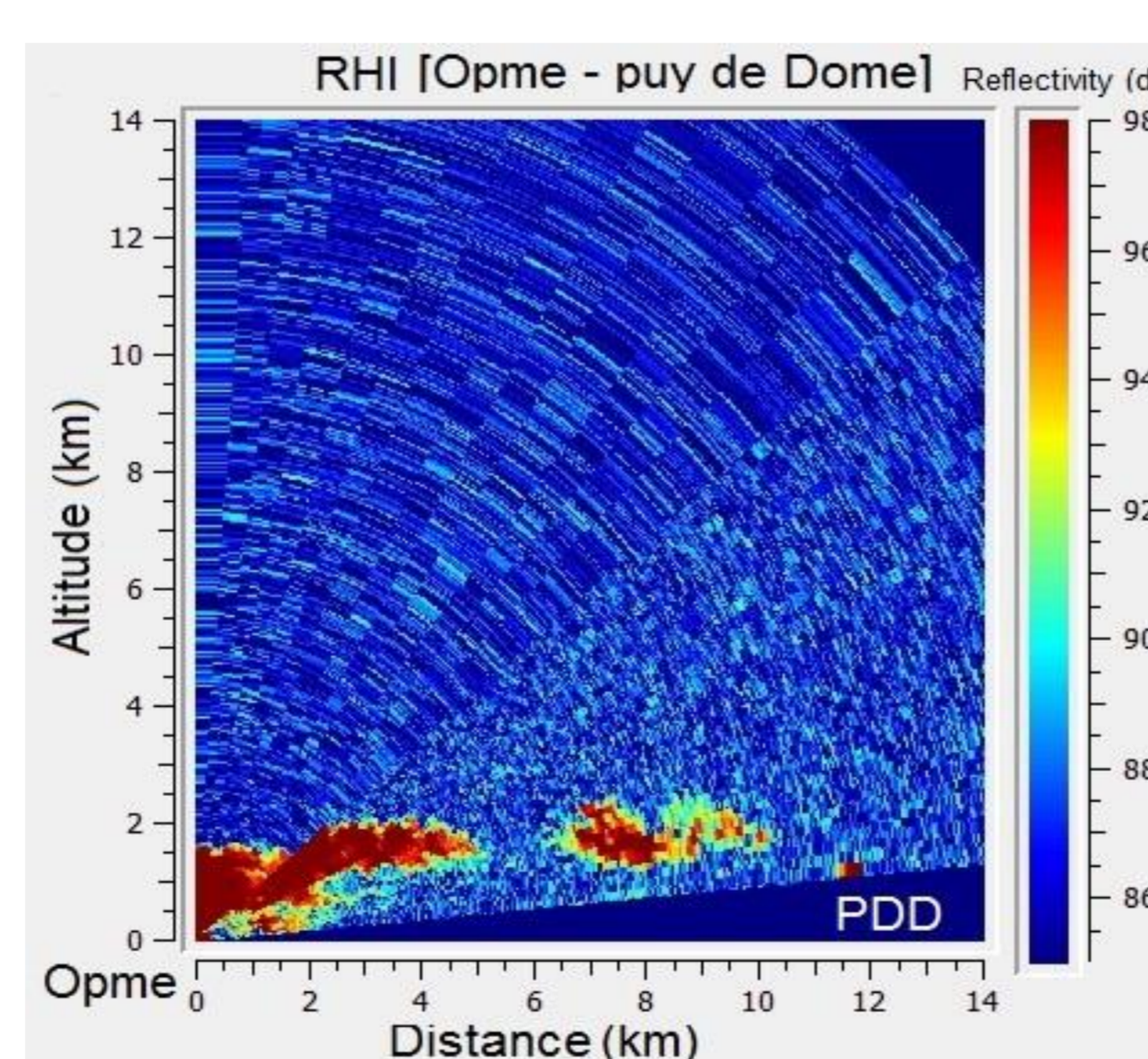
### Dust event



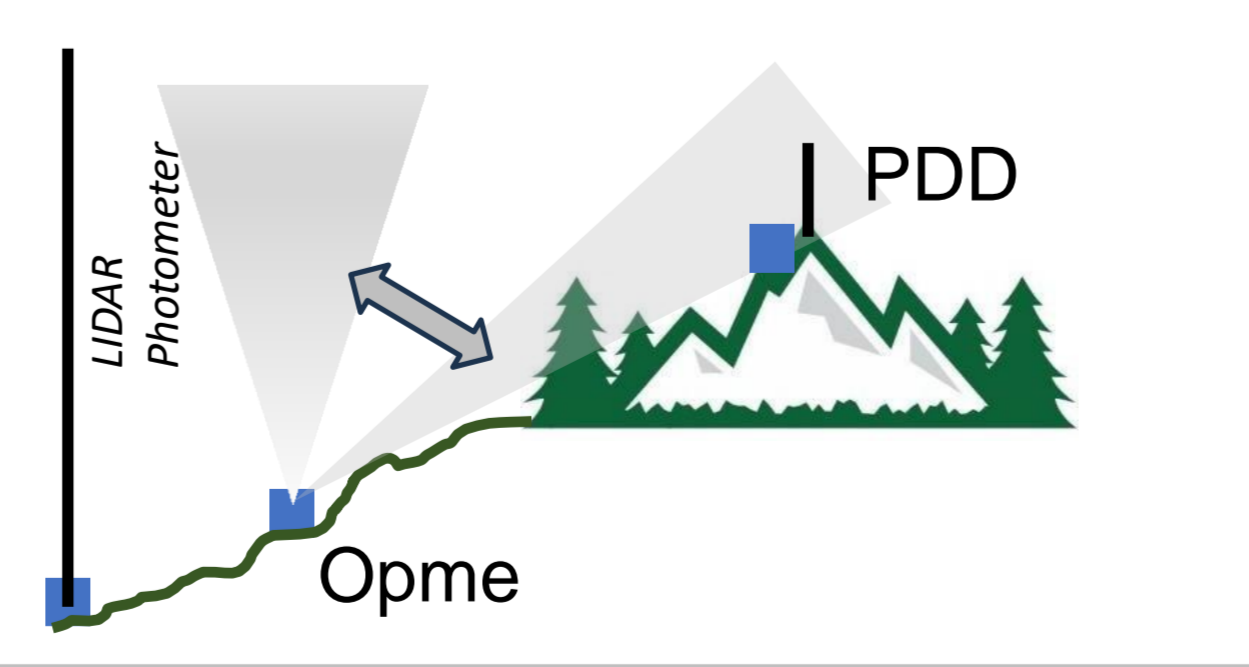
### How "atmospheric aging" modifies the INP properties of dust particles? Are dust particles good vectors for biological aerosols? Link between biological aerosols and INP properties



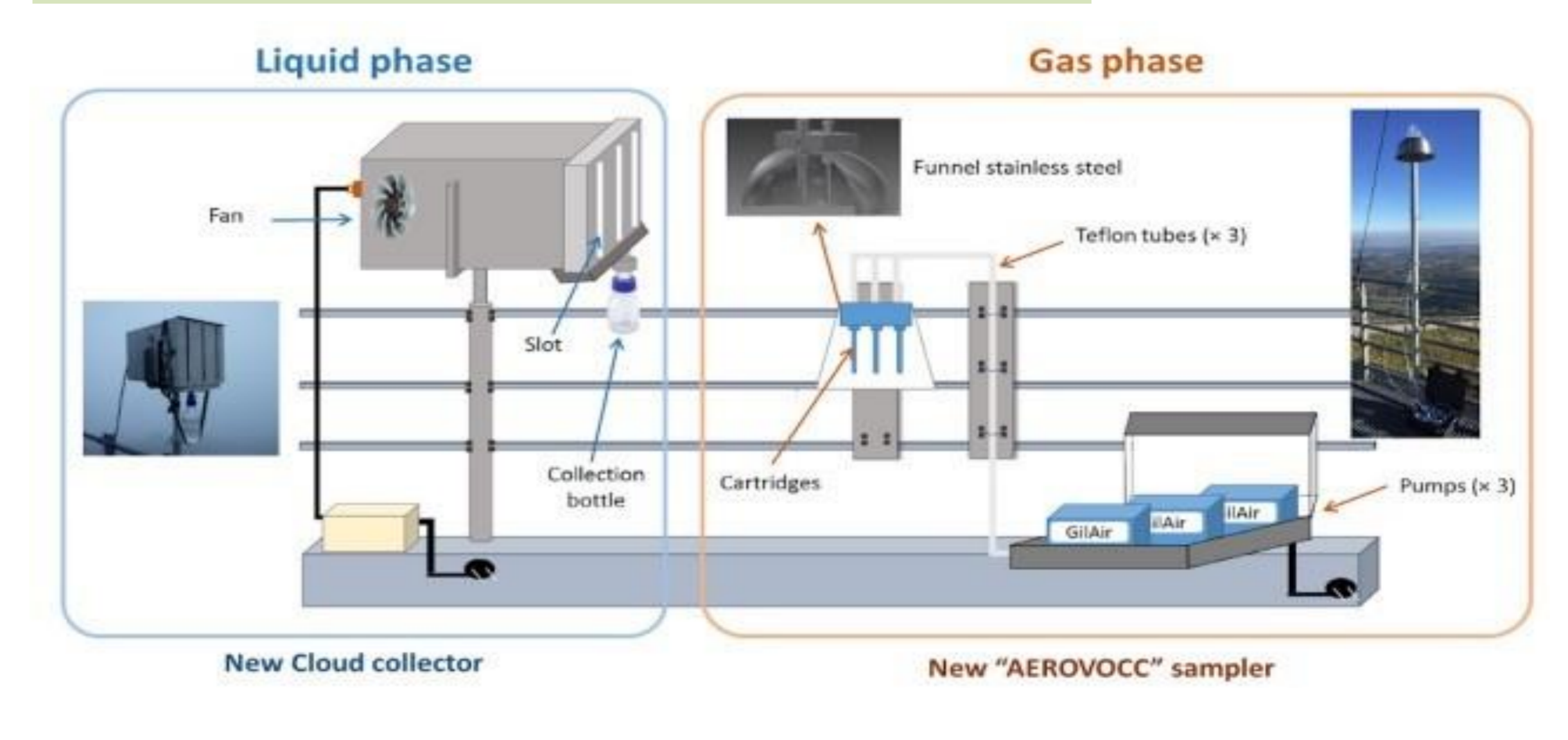
### Cloudy events and cloud collections



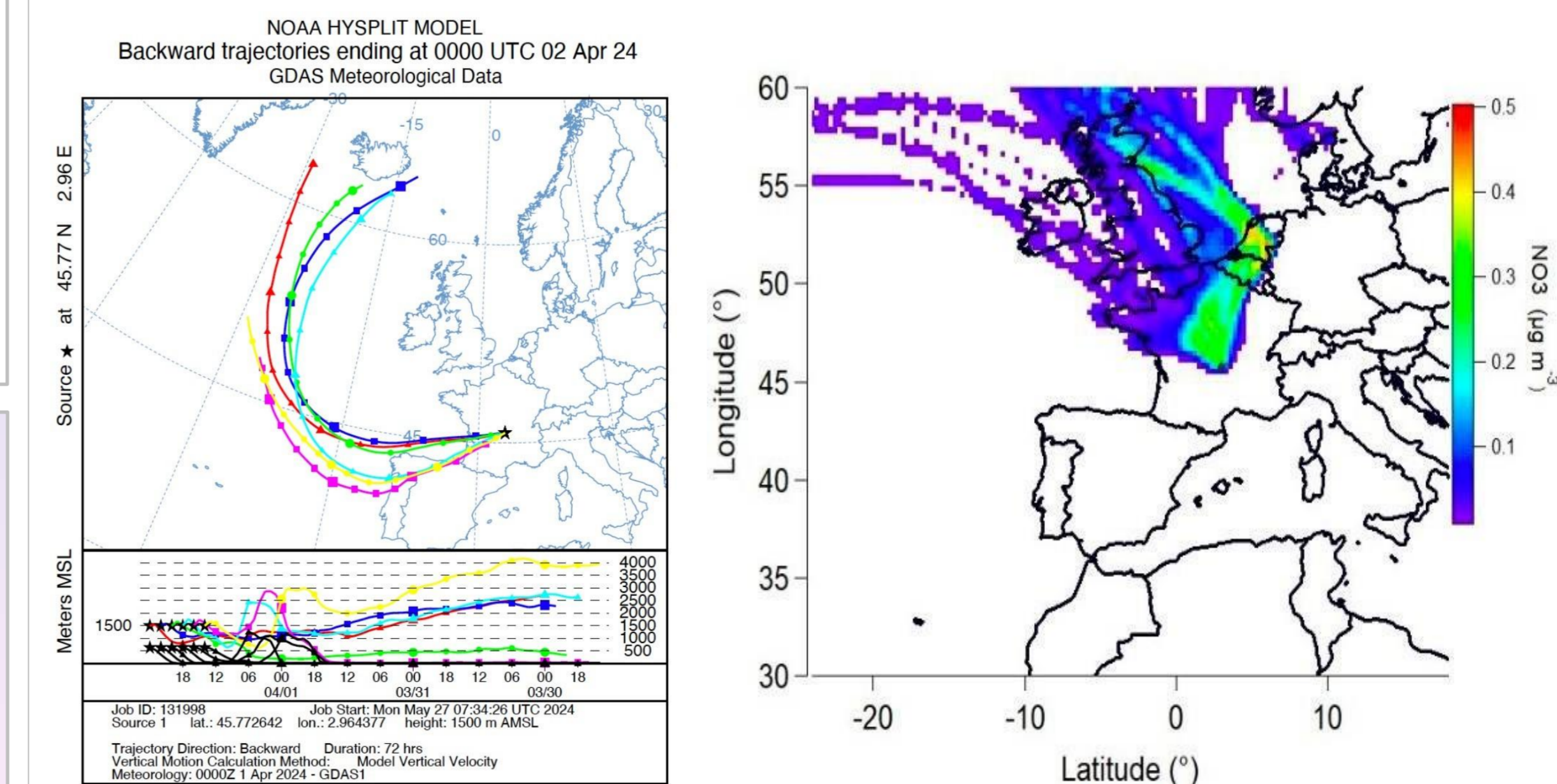
### RADAR Cloud – MIRA & VOLDORAT + RADAR raining



### STUDY OF MULTIPHASIC ORGANIC MATTER



### Marine/continental origin air masses



## References

[1] Baray, J.-L. *et al.* Cézéaux-Aulnat-Opme-Puy De Dôme: a multi-site for the long-term survey of the tropospheric composition and climate change. *Atmospheric Meas. Tech.* 13, 3413–3445 (2020).

## Acknowledgments

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8<sup>th</sup> Sino-French Joint Workshop on Atmospheric Environment  
November 6<sup>th</sup>-10<sup>th</sup>, 2024 - BORDEAUX - FRANCE

60  
FRANCE CHINE  
1964 - 2024

NOAA HYSPLIT MODEL  
Backward trajectories ending at 0000 UTC 02 Apr 24  
GDAS Meteorological Data