

Perspectives for the last year

- AERIS website : **complete the database** and projet information
- Final report – final meeting in Toulouse May/June 2023
- 20-m LES runs Meso-NH (task 3) : POI-14, 11 and 6.
- Publications :
 - already on-line published / in review :
 - Bell et al. amt-2022-30, Vishwakarma et al. amt-2022-3 : synergy MWR/radar
 - Marquet, P., Martinet, P., et al. : conservative thermodynamic variables in data assimilation: a case study using ground-based MWR measurements, AMT-15-2021-2022.
 - submitted / In review
 - Martinet et al. : MWR data paper : Database of temperature, humidity and LWP retrievals from a fog dedicated network of ground-based MWR" Bull. of Atmos. Sci. and Technology,
 - Antoine et al. : AROME-500m / microphysical parameterizations (WAF-D-22-0071)
 - in preparation :
 - Presentation of the campaign + main highlights : F. Burnet / all PI
=> submission end of 2021 (?) => March 2023
 - MWR retrieval inter-comparison : P. Martinet + Univ. Cologne
 - Impact of MWR assimilation AROME : G. Thomas / P. Martinet
 - Microphysics vertical profile + thin / thick transition : T. Costabloz / F. Burnet / ...
 - LES Meso-NH POI-14 + heterogeneity : M. Taufour / C. Lac



Overview paper outline draft / ACP

■ 1. Intro. + scientific questions => ANR proposal

■ 2. instrumental strategy and setup

- site maps, instrument tables, remote sensing / in situ synergy
- 3 nested domains for AROME-500 validation => high resolution LES
- Contrast forest / open fields for heterogeneities study
- MWR network for impact of assimilation

■ 3. Observations :

- Climatology + table of fog events + retrotraj
- Aerosol and droplets microphysical properties (ground) (Denjean, Costaboz, Burnet)
- Turbulence (Canut, Price) ? LWC deposition (Price) ? UAV (Roberts / Cayez)
- Radar : scanning (Delanoë), LWC retrieval POI-11 (Vishwakarma / Delanoë – paper)
- MWR / radar synergy (POI-14) (Martinet / Bell - paper)

■ 4. Process studies :

- Microphysics vertical profile from tethered balloon, POI-14 & contrast thin /thick (Costaboz / Burnet)
- Conceptual model Toledo et al. 2021 (Dione / Haeffelin)

■ 5. NWP model :

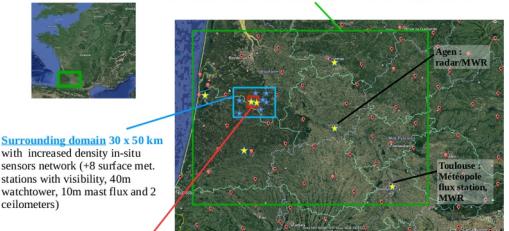
- AROME-500m (Antoine / Seity/ Honnert – paper), PEARO (Martinet / PFE Mathias), MWR assimilation (Martinet / Thomas)
- UM Deterministic model vs observations (Thornton / Price), ensemble (McCabe)

■ 6. High resolution LES Meso-NH + impact of heterogeneities POI-14 (Taufour / Lac)

■ Number of case studies ? : POI-14, POI-11, 28 Oct. 2019

■ **Time line** : draft for October 2022 => contributions from PI for Dec 2022 => **submission March 2023**

Larger domain 300 x 200 km (AROME-500m model) with in-situ sensors (~50 surface met. stations) and MWR (6 sites) networks



Surrounding domain 30 x 50 km
with increased density in-situ
sensors network (+8 surface met.
stations with visibility, 40m
watchtower, 10m mast flux and 2
ceilometers)

Super-site 6 x 10 km
- tethered balloon, UAVs and RS operations,
- 2 cloud radars, 3 MWR, aerosol and wind lidars and 3 ceilometers,
- aerosol shelter, cloud microphysics, 9 surface met. stations, 10m and 50m masts and 40m watchtower

