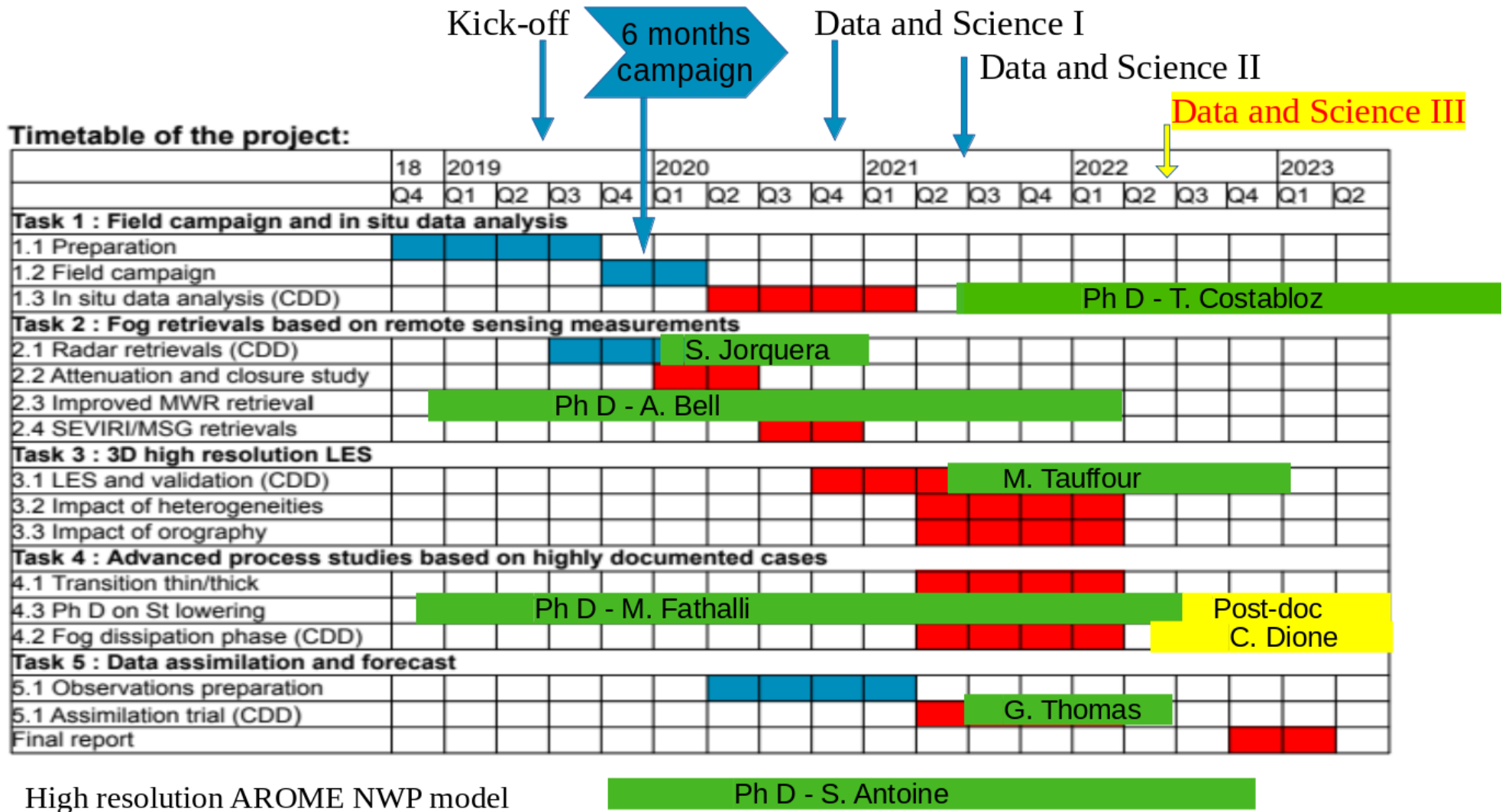# SOFOG3D Data and Science Meeting III : Agenda

Main objective : review on-going work and share the latest results to plan future work.
=> who is doing what and how for the last year of the project

- 9h30 : Intro – update on the project - F. Burnet
  Update on the AERIS database – round table of data providers if needed
- 9h45 : In situ microphysics and tethered balloon measurements - PhD T. Costabloz
- 10h15 : Aerosols measurements – M2 I. Vongpaseut
- 10h30 : Observations of fog droplet deposition at Le Couye - J. Price
- 10h50 : Observations at two 50m-mast sites over two radiation fog cases in Oct. 2019 - J. Thornton
- 11h10 : Radar measurements – Task2 – J. Delanoë / PhD P. Vishwakarma
- 11h40 : Synergy MWR/radar – P. Martinet / PhD A. Bell
- 12h00 : MWR network & assimilation - Task 5 - P. Martinet
- 12h10 : MWR assimilation trial - G. Thomas

  12h40 : (Lunch break)

- 14h00 : AROME forecast – PhD S. Antoine / Y Seity
- 14h30 : UKMO – Comparison between the deterministic model output and observations. J. Thornton
- 14h50 : 3D LES Meso-NH and impact of heterogeneities – Task 3 – M. Taufour
- 15h20 : Formation of fog due to stratus lowering – Task 4.2 – PhD M. Fathalli
- 15h50 : Fog dissipation phase process studies – Task 4.3 – C. Dione
- 16h20 : General discussion (40') : data analysis, collaborations, papers, final meeting, etc...

https://bluejeans.com/881176795/2109

ANR SOFOG3D – 5 years (01/10/2018-30/09/2023)

Kick-off   6 months campaign   Data and Science I

Data and Science II

Data and Science III

Timetable of the project:

	18	2019				2020				2021				2022				2023	
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Task 1 : Field campaign and in situ data analysis																			
1.1 Preparation																			
1.2 Field campaign																			
1.3 In situ data analysis (CDD)										Ph D - T. Costabloz									
Task 2 : Fog retrievals based on remote sensing measurements																			
2.1 Radar retrievals (CDD)						S. Jorquera													
2.2 Attenuation and closure study																			
2.3 Improved MWR retrieval		Ph D - A. Bell																	
2.4 SEVIRI/MSG retrievals																			
Task 3 : 3D high resolution LES																			
3.1 LES and validation (CDD)											M. Tauffour								
3.2 Impact of heterogeneities																			
3.3 Impact of orography																			
Task 4 : Advanced process studies based on highly documented cases																			
4.1 Transition thin/thick																			
4.3 Ph D on St lowering		Ph D - M. Fathalli												Post-doc					
4.2 Fog dissipation phase (CDD)														C. Dione					
Task 5 : Data assimilation and forecast																			
5.1 Observations preparation																			
5.1 Assimilation trial (CDD)											G. Thomas								
Final report																			

High resolution AROME NWP model   Ph D - S. Antoine

SOFOG3D Data and Science Meeting III

- **Last Data and Science meeting II - 07/06/2021**
  - 12 presentations ~ 35 people with ACCORD participants => see **http://www.umr-cnrm.fr/spip.php?article1086**
  - Data analysis : MWR network, Radar, Turbulence and flux, microphysics measurements, in situ at the MO site.
  - Evaluation of AROME and UM models, 3D LES and heterogeneities, Parafog and Toledo et al. model.
- **3 PhD defense** : Alistair Bell, Pragya Vishwakarma and Maroua Fathalli – **congratulations !!**
  - ▸ Bell et al. AMTD 2022 An Optimal Estimation Algorithm for the Retrieval of Fog and Low Cloud Thermodynamic and Micro-physical Properties
  - ▸ Vishwakarma et al. AMTD 2022 Climatology of estimated LWC and scaling factor for warm clouds using radar - microwave radiometer synergy
  - ▸ Fathalli et al. QJRMS 2022 Formation of fog due to stratus lowering: an observational and modelling case study
- **2 PhD in progress** : Salomé (AROME-500m) and Théophane (microphysics)
  - ▸ Antoine et al submitted WAF-D-22-0071 Influence of microphysical parameterizations on high resolution forecast of fog events.
- **Post doc positions**
  - G. Thomas (05/2022) : assimilation of MWR network (P. Martinet) - **thanks Guillaume**
  - M. Taufour (12/2022) : 3D high-resolution LES with Meso-NH (C. Lac)
  - C. Dione (03/2023) : fog dissipation processes studies (M. Haeffelin) - **welcome to Cheick**
  - M. Fathalli (06/2023) : St lowering fog (obs and simu) (F. Burnet / C. Lac/ P. Martinet)
- **Master internship** I. Vongpaseut impact of aerosols (F. Burnet / C. Denjean)
- new position of W. Maurel at Papeete (Tahiti island) => **welcome to J.-C. Etienne**
- **Conferences** : (please send me relevant info if any)
  - P. Martinet EMS (09/21), A. Bell ECMWF Annual Seminar (09/21)
  - J. Thornton et al. AMS (01/22), Martinet et al., Thomas et al. EGU (05/22), others ??

The database on AERIS

- https://sofog3d.aeris-data.fr/catalogue/

- AERIS contact : Damien Boulanger (damien.boulanger@obs-mip.fr)

- Data policy added

Dataset status - AERIS

Type of measurements	Datasets
Core surface meteorological data	CNRM stations (11 datasets) Météo-France network (3 datasets)
Visibility	CNRM stations (16 datasets) Météo-France network (1 dataset)
Present weather	CNRM stations (8 datasets)
Turbulence measurements	CNRM tethered Ballon (1 dataset) CNRM surface stations (2 datasets)
Sounding	CNRM tethered Ballon (1 dataset) CNRM radiosounding (2 datasets) Météo-France network radiosounding (2 datasets)
Cloud radar BASTA	LATMOS and CNRM BASTA (8 datasets for 3 sites) Vertical and scan
Microwave radiometer	RPG, MeteoSwiss, RPG, LAERO, UKMO, ONERA, CNRM Radiometers (52 datasets for 7 sites)

- **New datasets :**

  — MPL lidar at Charboniere (DSO)

  — Ceilometers : Moustey, Noaillan, Tuzan (B. Gaillard)

  — Wind cube V2 : wind and TKE (V. Hunger / G. Canut)

- UKMO data uploading in progess (J. Thornton and J. Price)

- Still missing / Data (re)-processing :

  Page 4   SOFOG3D database status - W. Maurel 07/06/2021

  — tethered balloon :

    ‣ thermodynamics (J. C. Etienne, G. Canut)

      => **temperature bias must be corrected (T. Costabloz talk)**

    ‣ cloud droplets and aerosols CDP + OPC + CCN (T. Costabloz, T. Bourrianne, C. Denjean)

      => **Validation still in progress** but CDP data provided for POI 11 and 14 for PhD studies

  — microphysics network : FM100/120, WELAS, PVM-100 (T. Costabloz, F. Burnet)

    and aerosols at JACHERE site (T. Bourrianne, C. Denjean)

      => **Validation still in progress** : T. Costabloz and M2 Ines.

  — UAV data (new positions of J. Viviand and G. Cayez) => M. Goret will arrive in September

  — Lidar LB100 (V. Hunger)

- MWR network : LWP baseline (P. Martinet)