PCOA: Platform CORSiCA for Observation of the Atmosphere

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Platform CORSiCA for Observation of the Atmosphere:

• CORSiCA: Corsican Observatory for Research and Studies on Climate and Atmosphere - ocean environment.
• Scientific platform dedicated to the observation of the physics and chemistry of the atmosphere.
• Located on the island of Corsica.
• In operation since 2007.
• Combines several measuring sites on Corsica for atmospheric chemistry (gases and aerosols), dynamics, microphysics, and atmospheric electrical activities.
• Has a twofold mission: firstly, to serve as a permanent structure for the climate change studies, and secondly, to provide a platform for measurement campaigns.

CORSiCA has funded ten state-of-the-art instruments installed on multiple sites in Corsica, their operation and maintenance, and a technical local in Ersa.

From 2012 to 2014, Corsica has hosted more than one hundred researchers involved in measurement campaigns, mainly HyMeX and ChArMEx Special Observation Periods.

Support of the PCOA to HyMeX activities and more specifically to the ST-Lightning activities, mainly around the SAETTA network for hosting additional instrumentation (for example BLESKA from Institute of Atmospheric Physics, Prague) and for the EXAEDRE campaign and CNES-SOLID project.

EXAEDRE: EXploiting new Atmospheric Electricity Data for Research and the Environment

• https://www.hyemex.org/EXAEDRE/
• Funded by ANR with the additional support of the French program MISTRALS/HyMeX
• Contribution to the 10-year HyMeX project
• Start / Duration: 01 October 2016 / 3 years
• Partners: LA, CNRM, LaMP, Météorage, ISSI, LATMOS, CIELE, ONERA, SAFIRE

Scientific Objectives:
• Observational and modeling-based characterization of the electrical activity
• Better operational thunderstorm monitoring using lightning observations

Technical Objectives:
• New instrumentation: observation and modeling of lightning activity: very short range forecast tool; lightning data assimilation
• One dedicated airborne field campaign over Corsica in Sept. – Oct. 2018

Ground based instruments:
• VHF interferometer (ONERA)
• Slow antenna (LA)
• Acoustic microphone array (CEA)
• 2 cloud radars BASTA (LATMOS)
• Rain radar ROXI (LATMOS) & MRR (LA)
• Micro-ldar (LATMOS)
• Photometer (LOA)
• Flux and weather stations (LA)
• Disdrometers (LA, ISEG)
• Radio soundings (LA)
• Webcams (LA)
• BLESKA (IAP)

EXAEDRE WEB Site: http://exaedre.obs-mip.fr

Corsica Island:
• 80 km × 180 km island in the western Mediterranean basin.
• Located downstream of the most intense precipitation event affecting the continental South-Eastern France and the Northern Italy South of the Alps; near the Gulf of Genoa, the most Western Mediterranean cyclogenesis area.
• The highest of any Med. Island: top at 2710 m and ~20 mountains higher than 2000 m.
• Regularly affected by intense meteorological events: windstorms, heavy precipitation, Saharan dust events, waves and coastal erosion, droughts, forest fires, lightning...

Acknowledgements

Observation of the HyMeX: Météo France: Atmospheric chemistry, lightning, waves, Saharan dust, climate change.

In addition, a number of teams have also contributed to the HyMeX: Météo France: French and Corsican researchers. Several hundred meteorological and environmental activities were performed, as well as additional activities by lasers and lightning instruments installed on multiple sites in Corsica, their operation and maintenance, and a technical local in Ersa.

The efforts of the Corsican engineers and technicians have been essential in the success of the HyMeX project.

CNES SOLID project:

Scientific Objectives:
• Contribution to validation and operational activities in support to up-coming low orbit (ISS LUS, TARANIS) and geostationary (MTG-LI) space-based missions.
• Scientific exploitation of the lightning space-based observations concurrently with PCOA observations and modeling (meteorology, atmospheric physics and chemistry, climate).

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