

# PCOA: Platform CORSiCA for Observation of the Atmosphere

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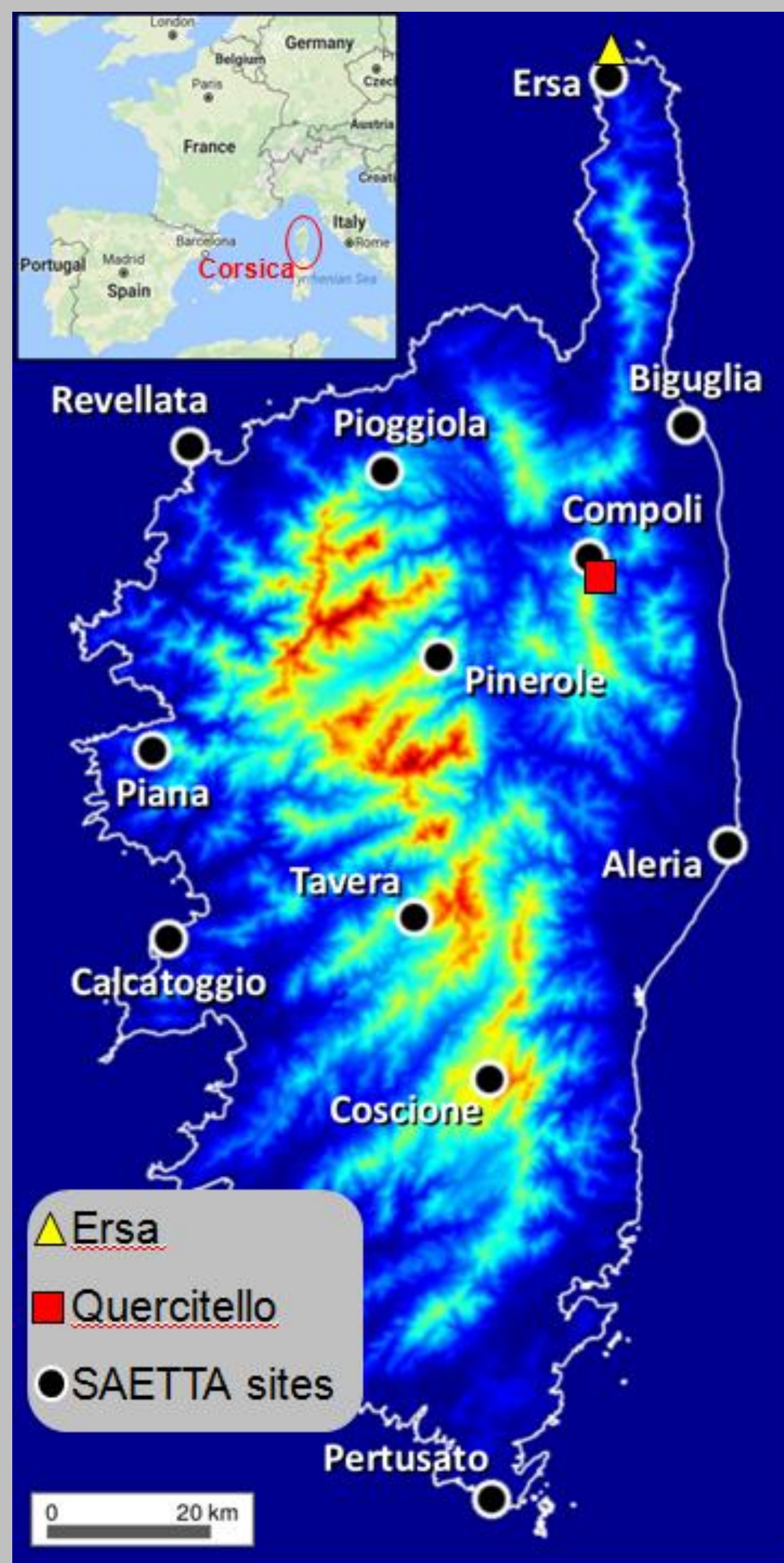
## Platform CORSiCA for Observation of the Atmosphere:

- **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 observing the atmosphere particularly suited to the climate change studies, and secondly, to provide a platform for measurement campaigns.



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

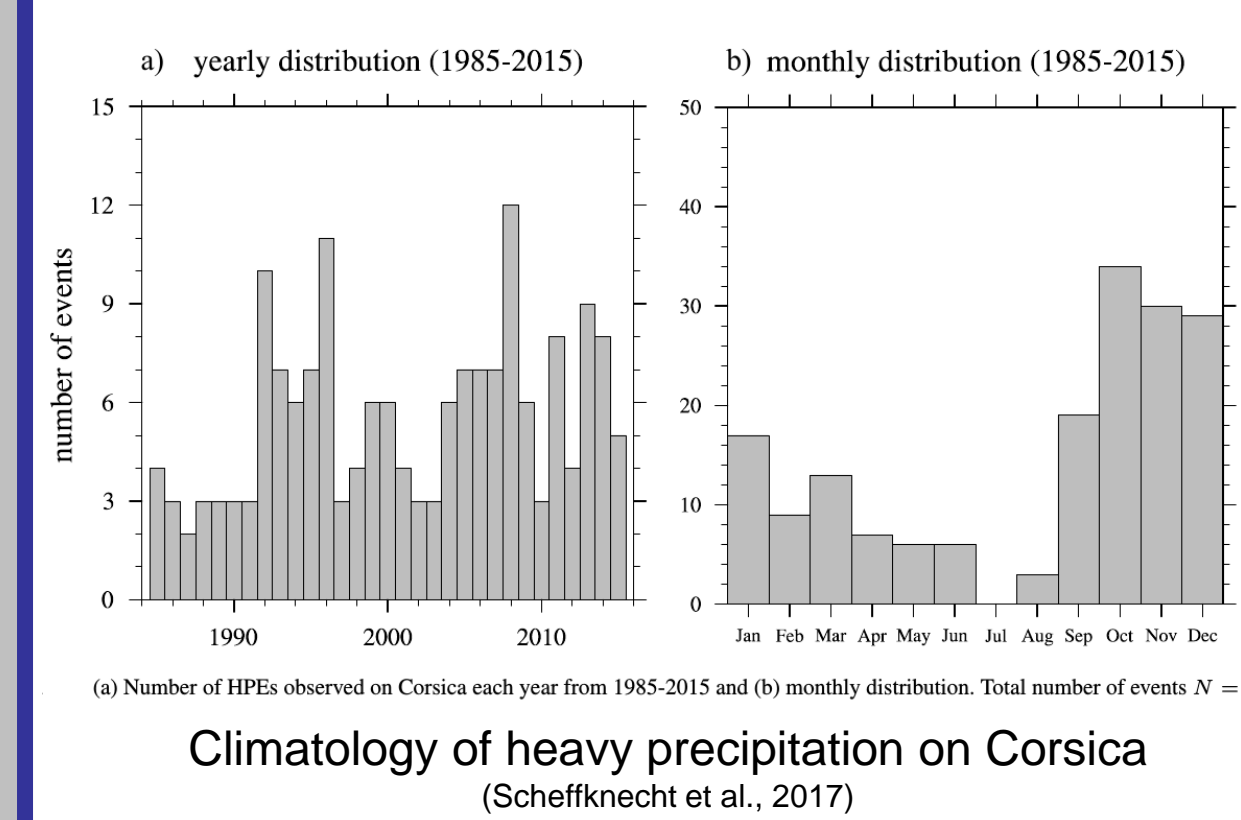
Web site: <http://corsica.obs-mip.fr/>



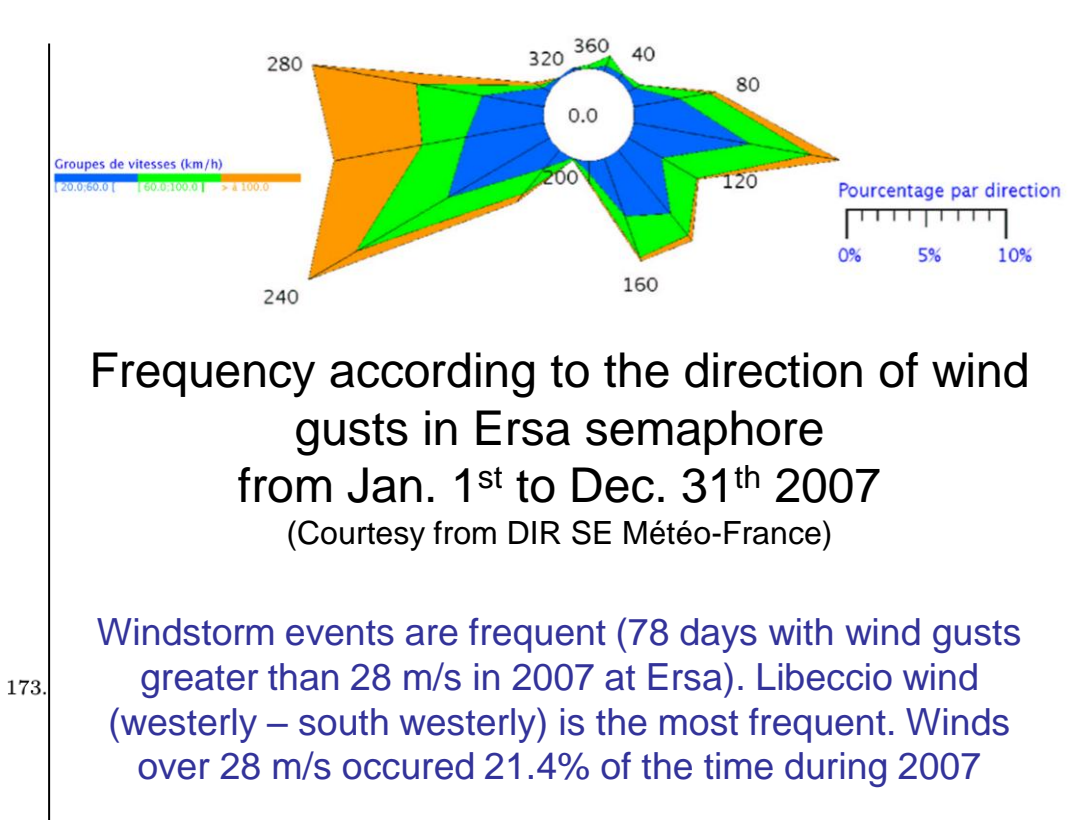
Ersa: Experimental room equipped for hosting campaigns.

## Corsica Island:

- 80 km × 180 km island in the western Mediterranean basin.
- Located ①upstream of the most intense precipitation event affecting the continental South-Eastern France and the Northern Italy South of the Alps; ②near 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...



Climatology of heavy precipitation on Corsica (Scheffknecht et al., 2017)

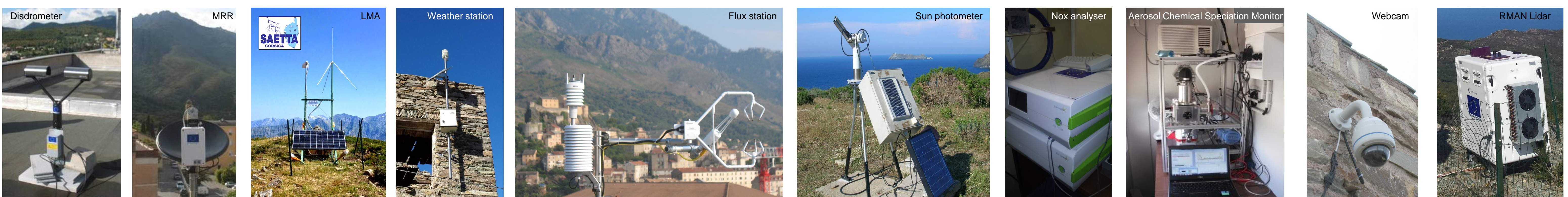


Frequency according to the direction of wind gusts in Ersa semaphore from Jan. 1<sup>st</sup> to Dec. 31<sup>st</sup> 2007 (Courtesy from DIR SE Météo-France)

Windstorm events are frequent (78 days with wind gusts greater than 28 m/s in 2007 at Ersa). Libeccio wind (westerly – south westerly) is the most frequent. Winds over 28 m/s occurred 21.4% of the time during 2007



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.



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.hymex.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, IIS<sup>2</sup>, 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-lidar (LATMOS)
- Photometer (LOA)
- Flux and weather stations (LA)
- Disdrometers (LA, IGE)
- Radio soundings (LA)
- Webcams (LA)
- BLESKA (IAP)



## CNES SOLID project:



### Scientific Objectives :

- Contribution to validation and operational activities in support to up-coming low orbit (ISS-LIS, 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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