



## **Study of the 29 October 2018 severe storm in Corsica**

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The Mediterranean basin is known to present one of the highest concentration of cyclones in the world. The Genoa region is the area where the concentration of cyclones is maximal. The continental topography around the Mediterranean Sea forces many cyclonic developments. French island of Corsica is a mountain surrounded by the sea at the middle of the occidental Mediterranean basin. It is 2710 metres at its highest point. It has twenty other mountains of over two thousand metres and the average altitude is 568 m. Corsica has the highest mountains and the most rivers of any Mediterranean island.

On October 29 2018, storm Adrian hit Corsica with winds of up to 230 km/h, torrential and concentrated rains, rising sea level, submersive waves. The storm was quite well forecast and it had put Corsica on red alert weather warning. For more than twenty-four hours, the island has been literally cut off from the world. Ports and airports were closed, railway traffic was interrupted and public transport was stopped all day. Minitornades have caused extensive damage to the eastern plain and the far south of the island. Four Aleria firefighter response vehicles were decommissioned and the barracks itself was damaged by high winds. Several campsites and residences had to be evacuated due to floods in Porto-Vecchio, Folelli and north of Ajaccio.

In this study, we present the meteorological synoptic environment and specific ingredients that can explain the severity of this episode.

MesoNH (<http://mesonh.aero.obs-mip.fr>) simulations and research data from the Plateforme CORSiCA d'Observations Atmosphériques (<https://corsica.obs-mip.fr/>) are used to better understand the meteorological context of this event.

This work lies within the scope of the HyMEX (<https://www.hymex.org/>), ANR MUSIC (<https://www.hymex.org/music/>) and ANR EXAEDRE (<https://www.hymex.org/exaedre/>) projects.