

# Infrasound Signatures of Mediterranean Hurricanes

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Infrasound technology has been employed to investigate acoustic signatures of severe weather events in the past and this study aims at characterizing, for the first time, the infrasound detections that can be related to Mediterranean hurricanes (Medicanes). These mesocyclones pose a serious threat to coastal infrastructures and lives because of their strong winds and intense rainfalls. This work contributes to infrasound source discrimination efforts in the context of the Comprehensive Nuclear-Test-Ban Treaty. We use data from the infrasound station IS48 of the International Monitoring System, in Tunisia, to investigate infrasound signatures of medicanes using a multichannel correlation algorithm. We corroborate the detections by considering satellite observations, a surface lightning detection network, and products mapping the simulated intensity of the swell. Detections are evidenced at distances ranging between 250 and 1100 km, between 0.1 Hz and 8 Hz. Deep convective systems, and mostly lightning within those, seem to be the main source of detections above 1 Hz. Hotspots of swell (microbarom) related to the medicanes are evidenced between 0.1 and 0.5 Hz. Multisource situations are highlighted, stressing the need for more resilient detection estimation algorithms.

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## Promotional text

Mediterranean hurricanes are investigated for the first time using infrasound technology with the help of the IMS station IS48. Independent data sets and modelling are used to discuss infrasound detections.

## Oral preference format

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