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Infrasound Signatures of Mediterranean Hurricanes

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Mediterranean hurricanes, or medicanes, are tropical-like cyclones forming once or twice per year essentially over the waters of Mediterranean Sea. These mesocyclones pose a serious threat to coastal infrastructures and lives, because of their strong winds and intense rainfalls. Infrasound technology has already been employed to investigate acoustic signatures of severe weather events. In order to characterize medicane infrasound detections, we use data from the International Monitoring System (IS48 infrasound station, Tunisia), processed with a multi-channel correlation algorithm. For four different medicanes, high and/or low frequency detections are corresponding to these events, and non-detected cases are also discussed. These detections are discussed by considering other datasets such as satellite observations, a surface lightning detection network, and products mapping the intensity of the swell. While convective systems and lightning seem to be the main sources of detections above 1 Hz, hotspots of swell related to the medicanes are evidenced in the 0.1-0.5 Hz range.