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Cyclones in the Mozambique Channel: Insights from Microbarom Recordings of the International Monitoring System

The Mozambique Channel (MC), which lies within the South West Indian Ocean (SWIO) Basin, experiences significant tropical cyclone activity every year, mostly during austral summer. These tropical cyclones (TCs) are known to generate strong microbaroms in their wake which are recorded at the International Monitoring System (IMS) infrasound stations. In this study, we use the microbaroms recordings from two IMS stations, namely: IS33-Madagascar and IS47-South Africa, and TCs data from the Joint Typhoon Warning Center (JTWC) Archive Catalogue to characterize the ocean ambient noise environment over the MC during the 2018/2019 tropical cyclone season. With both the IS33 and the IS47 infrasound datasets used in our analyses being extracted from the microbarom low-frequency data products of the IMS infrasound stations bulletin, i.e. the infrasound _mb_lf_product (netCDF), covering the dominant frequency range of microbaroms (0.15 - 0.35 Hz) (Hupe et al. 2021). Using the methodology by Lande's (2012), we use the back azimuths from the derived infrasound-datasets to determine the microbarom dominant source regions. Finally, we then utilize ArcGIS Geoanalytics tools to visualize the spatial-temporal variations of the microbarom recordings against the TCs track locations over the MC during the 2018/2019 tropical cyclone season.

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