



Supplementary material: Initial results from a hydroacoustic network to monitor submarine lava flows near Mayotte Island

Document complémentaire : Premiers résultats d'un réseau hydroacoustique pour surveiller les coulées de lave sous-marines près de l'île de Mayotte

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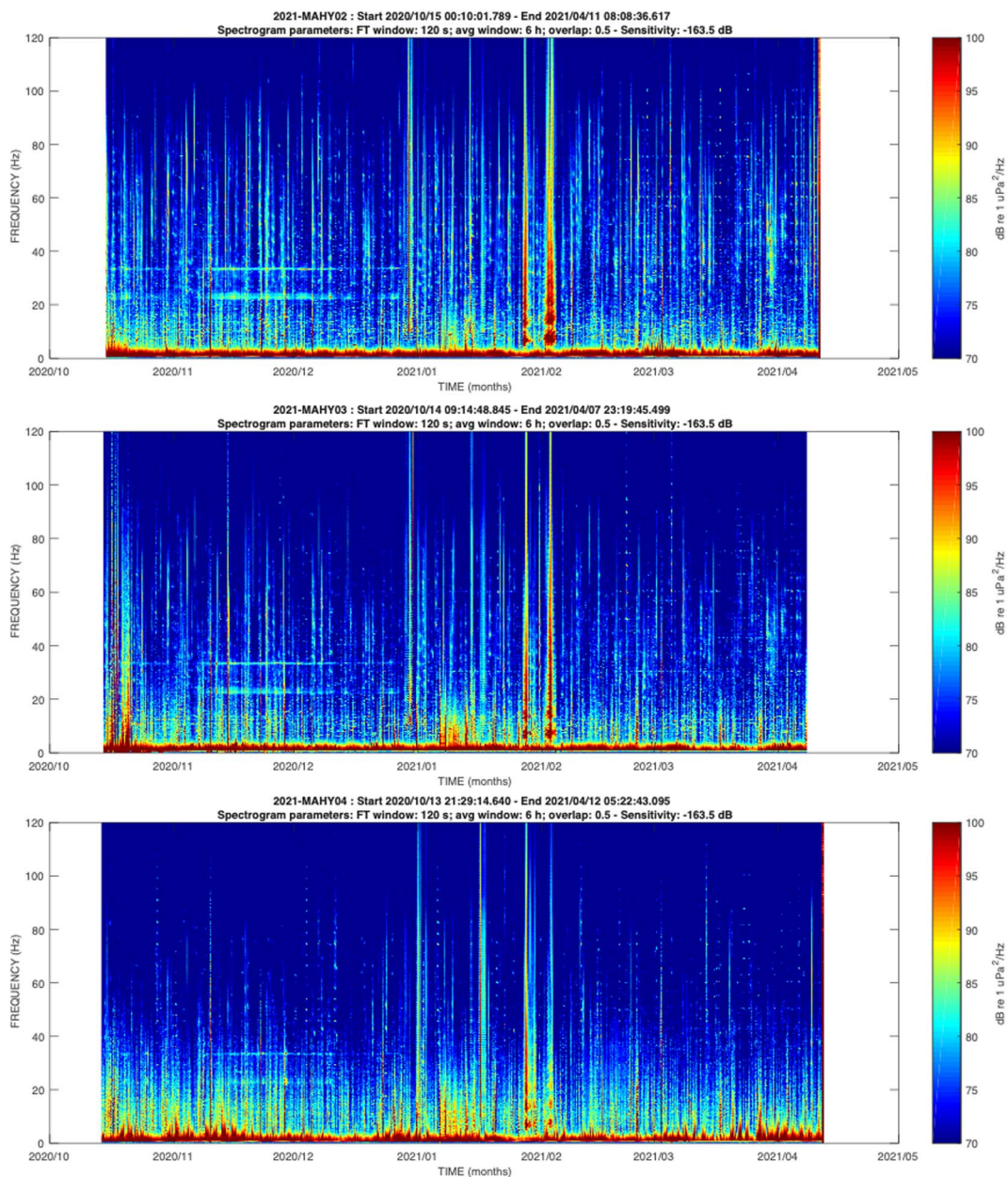
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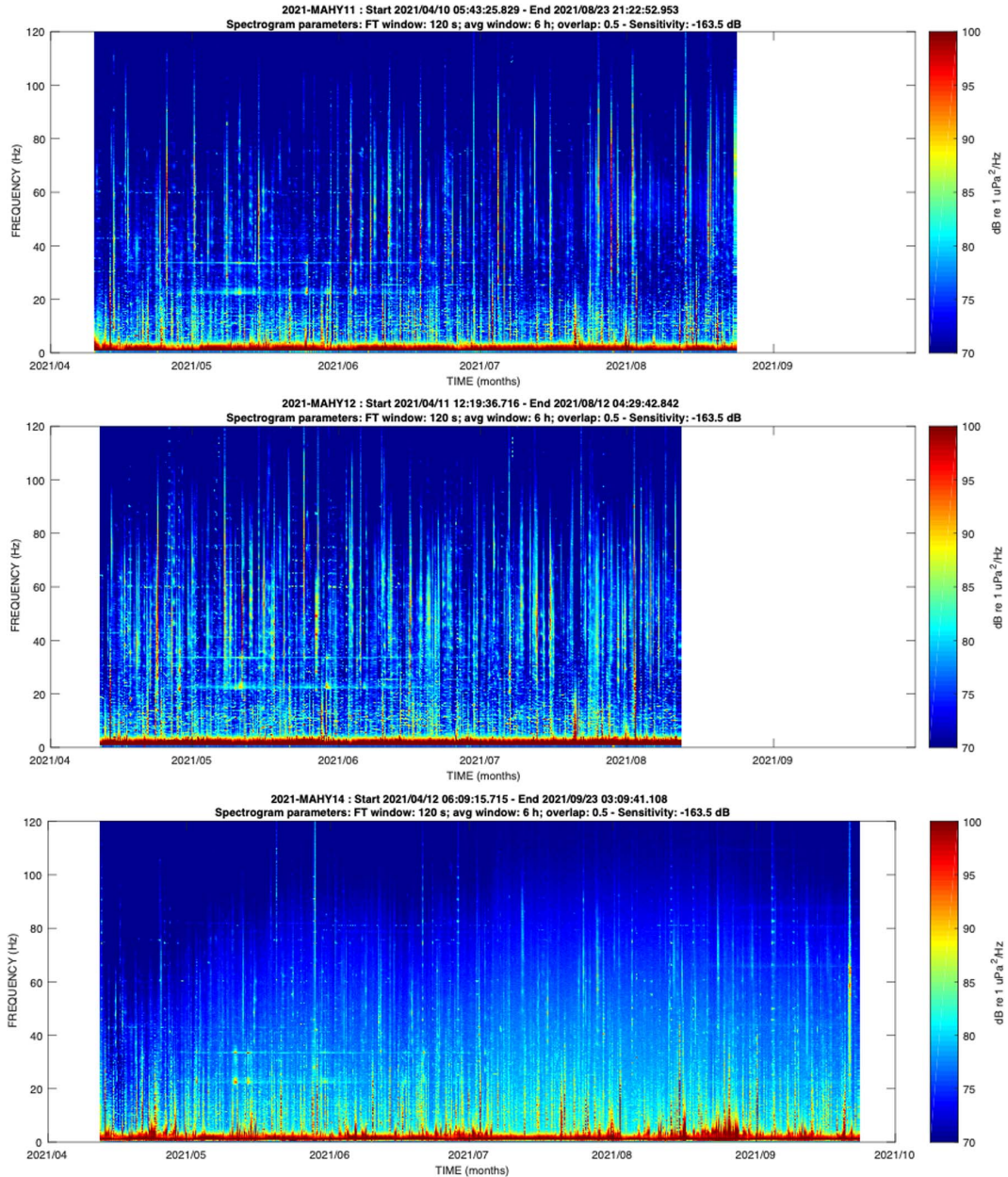
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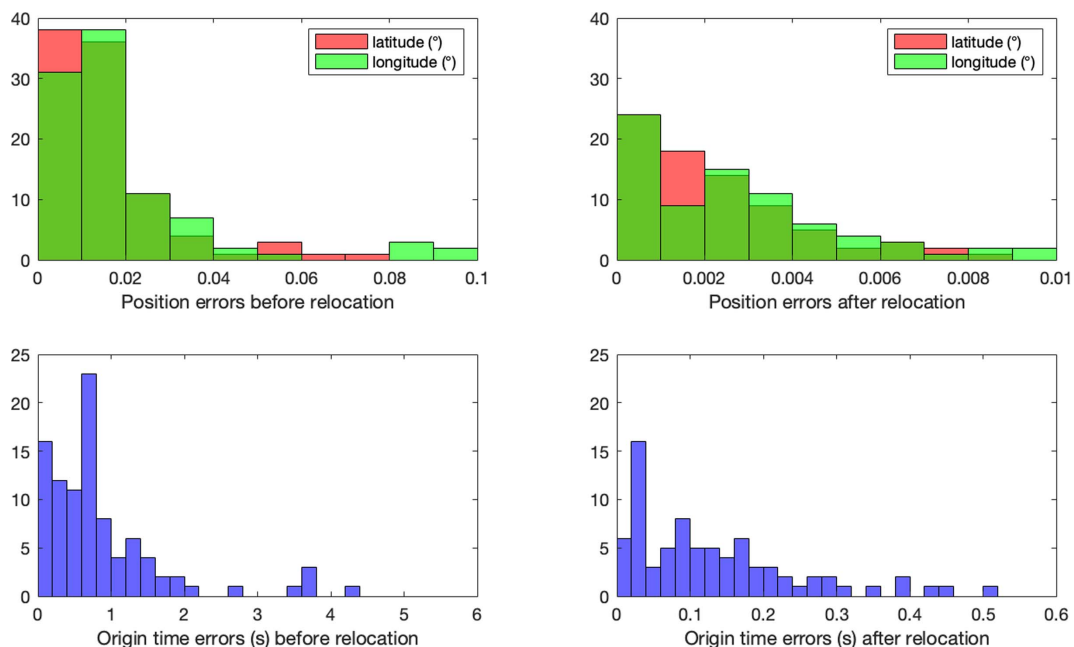
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Supplementary Figure S1. Spectrograms over the first 6 months from the three other hydrophones (October 2020 to April 2021), from top to bottom: MAHY02, MAHY03, and MAHY04. Notice the similarity of the hydroacoustic activity. Some moorings are more sensitive to ship traffic (MAHY02 and MAHY03 are located near the Madagascar–Mayotte route).



Supplementary Figure S2. Spectrogram of the following 5 months from the three other hydrophones (April to September 2021), from top to bottom: MAHY11, MAHY12, MAHY14. These three hydrophones did not record during the entire campaign.



Supplementary Figure S3. Distribution of errors in the location (i.e., latitude and longitude) and origin time for the 81 impulsive events on 15/11/2020. The initial hand-picking uncertainty is on the order of 6 s. The computed mean uncertainty is 0.015° in latitude, and 0.019° in longitude, leading to a position uncertainty of 1654 m on average (the median is 1307 m). The mean error in origin time of the source is 0.87 s (the median is 0.67 s). Re-picking these 81 events by dilating the time axis for a better hand-picking reduced the computed mean uncertainties by ~ 6 -fold: 0.0023° in latitude, 0.0029° in longitude (the mean position error is 258 m, the median position error is 202 m) and to 0.13 s in origin time (the median error for the origin time is 0.10 s). For comparison, a ~ 10 -fold improvement in position and origin time errors is observed when re-picking hydroacoustic events recorded by the OHASISBIO network, with a final error of 420 m in position and 0.18 s in origin time, using a AuH network size of ~ 2000 km (Ingale *et al.*, 2021).