CTBTO IMS Contribution to SDG: 14 Life Below Water « extended »

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OBJECTIVES

• Hydro-acoustic data processing and analysis from June 2018 to July 2019 in the Indian Ocean;

• Identify the source of events in the studied area;

• Interpret the result as a contribution to SDG:14 Life below water.
How the IMS of the CTBTO can contribute on SDG14 in the Indian Ocean?
- 12 months of non-stop data from H01W, H08S, H04N and H04S were processed.
- PMCC method was used for hydroacoustic signal detections.
- For each stations we separated the detections in 2 main categories:
  - The first category is the detections which remains present during the entire processing period.
  - The second category is detections that requires further investigations such as Volcanos, land slide, ice breaking, cyclones and life below water.
- Constant detection was respectively observed at station H01W, H08S, H04N between azimuth 140 and 250; azimuth 27 to 35 and 150 to 200; azimuth 0 to 100. We observed that those signals may come from tectonic event and ice breaking.
- For life below water it is still hard to say if we have detected any but this is included in NDC Madagascar’s perspective.
INTRODUCTION

- Hydroacoustic Data (waveform) are collected from the secure web portal of the CTBTO swp.ctbto.org.
- H01, H08, H04 are located in the Indian Ocean (White triangle).
- Water is a very good sound conductor so 11 stations are enough to monitor underwater explosions.
- At least three stations (white) are needed in order to locate an event, it is then necessary to combine the arrival from Hydroacoustic stations with Seismic stations (red).
PUTTING AN END TO NUCLEAR EXPLOSIONS

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Underwater earthquake on 27th Mars 2019
Lat: -33.9184
Long: 81.5669
Depth: -1 km

Underwater earthquake on
27th March 2019
Lat: -11.9185
Long: 66.2836
Depth: -1 km
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![Image of scatter plot with annotations]

- Title: H01W - 16/6/2018 00:09:59 (20) → 19/6/2019 21:41:03 (20), 25499 detections
- Mean Time

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Discussion

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CONCLUSIONS

- CTBTO hydroacoustic and seismic data used during this research;
- Volcano, Earthquakes and explosion signals identified and differentiated in the Indian Ocean;
- The next step is to find signals from whales and other species under water;
- Once the whale signals are found the detailed CTBTO IMS SDG:14 «Life below water» contribution strategy can be delivered.