

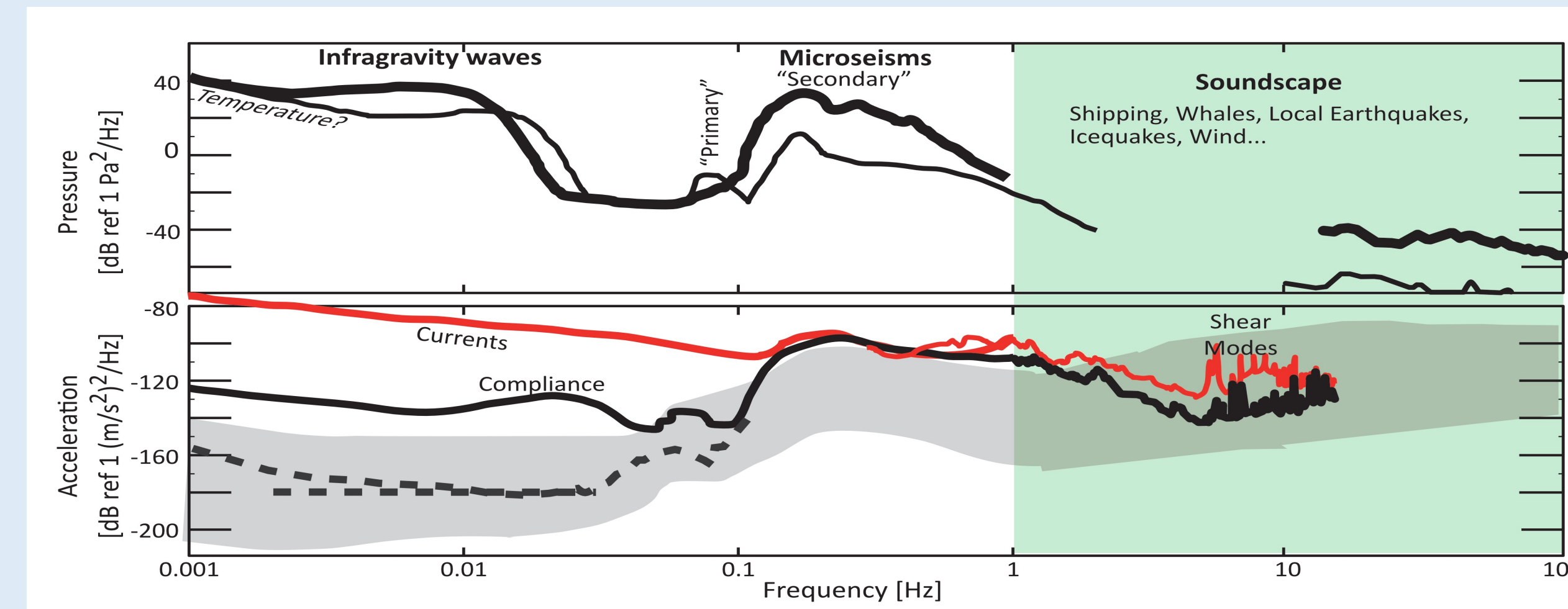
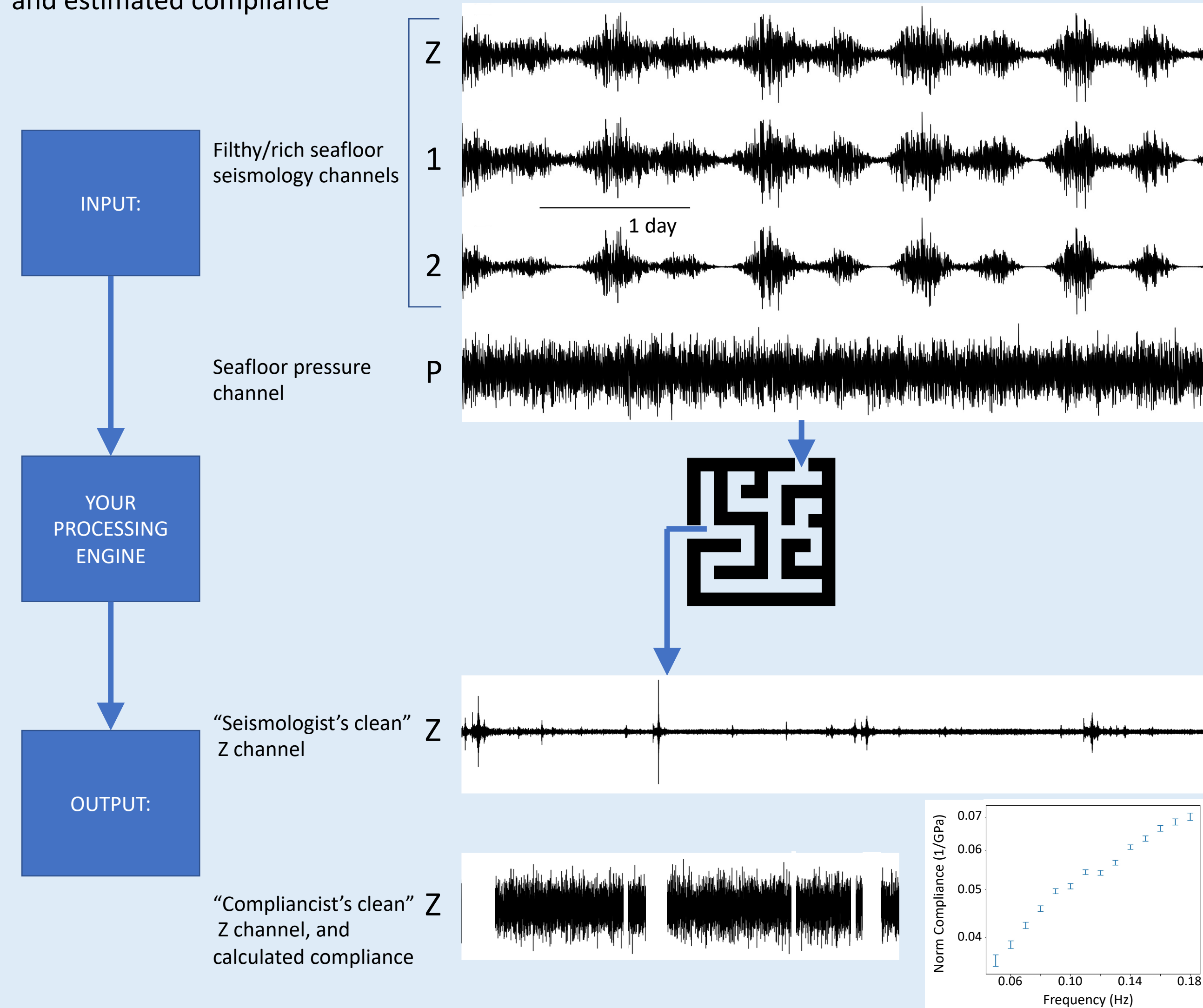
The BRUIT-FM project studies seafloor signals and noise from 0.001 to 100 Hz. Our goal is to identify, quantify and separate seismological, environmental, biological and anthropomorphic signals.

One Work Package is to reduce environmental noise between 0.001 and 0.1 Hz in order to better study seismological signals such as the earth's normal modes and ambient noise, earthquake surface waves, and seafloor compliance.

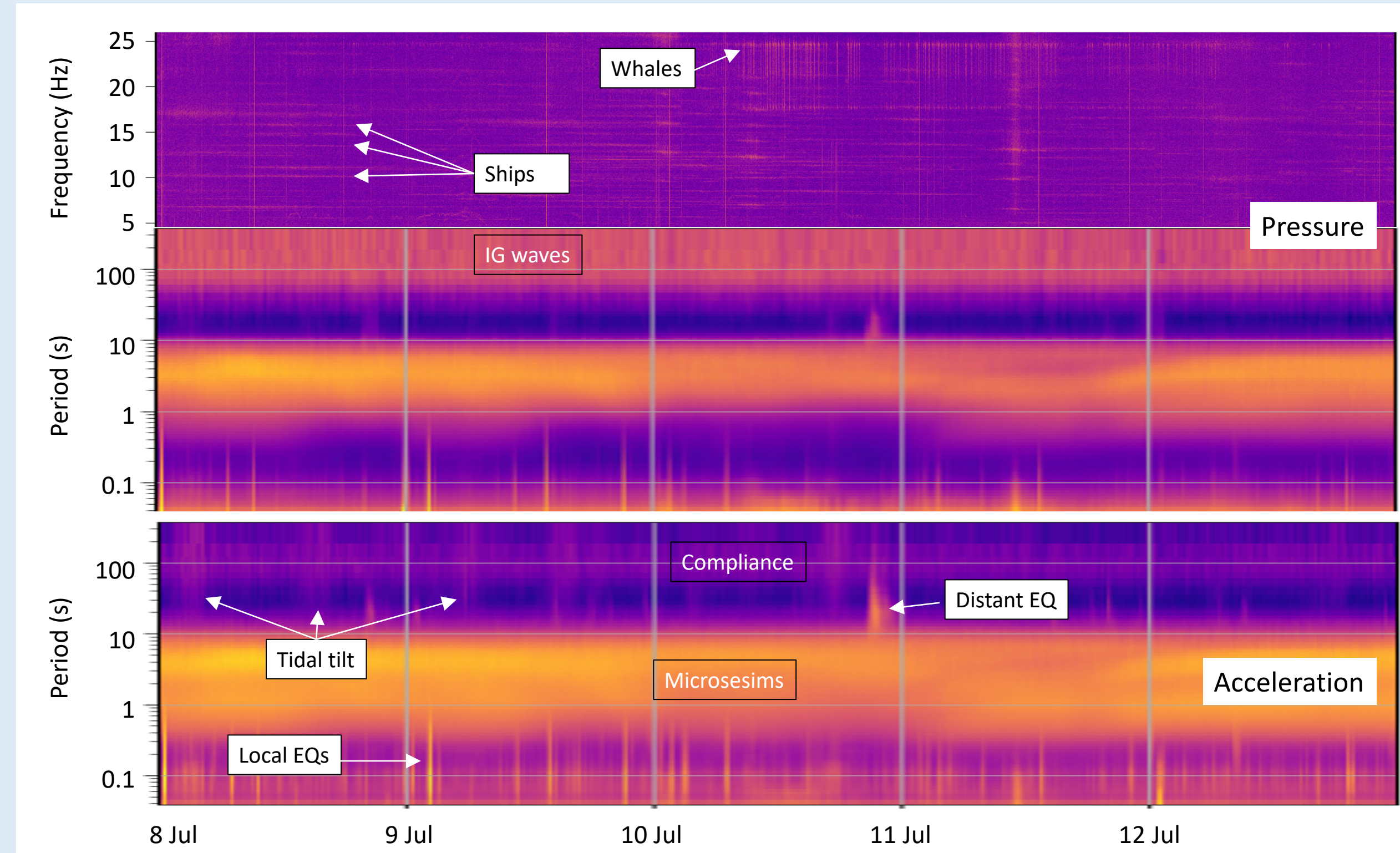
The BRUIT-FM Seafloor Noise Reduction Challenge asks you to apply your own processing tools to two sample seafloor datasets. We will write a community paper on the results, with all participants who share their codes/methods as co-authors.

THE CHALLENGE

Take the challenge's seafloor data and extract a seismological signal, and/or a compliance signal and estimated compliance

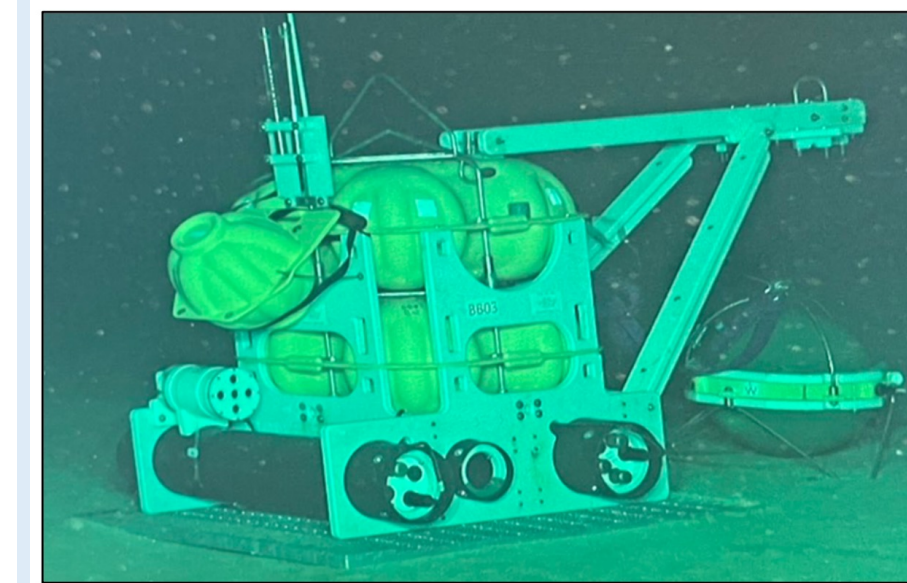
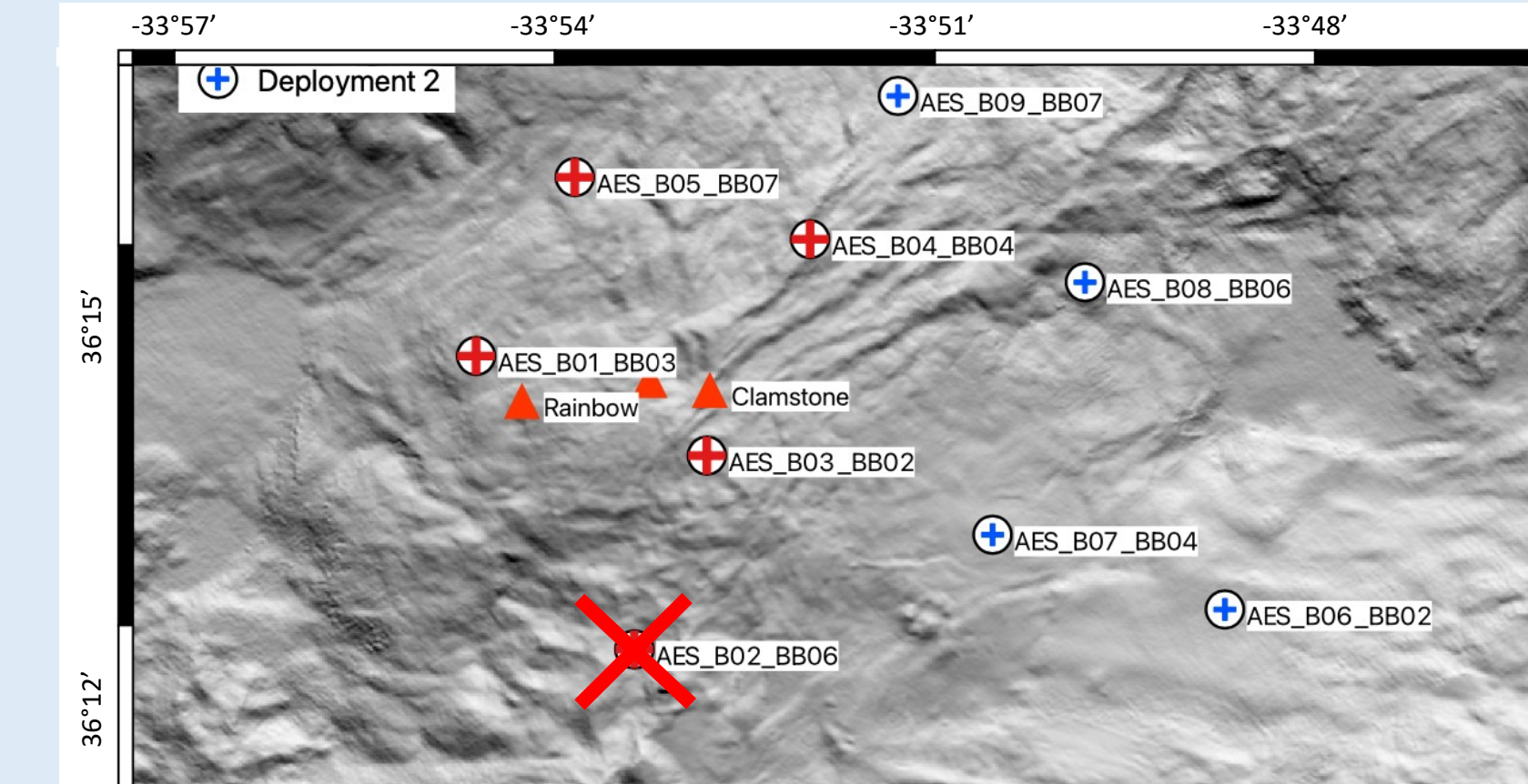


Seafloor seismological data contains a rich variety of signals. Above: Schematic seafloor pressure and acceleration spectra. Below: Spectrograms showing microseisms, compliance, earthquakes, whales, ships and tides.



DATA SET 1: RAINBOW HYDROTHERMAL FIELD

From an 8-day BBOBS deployment near the RAINBOW hydrothermal field on the Mid-Atlantic ridge. The data is full of local earthquakes, has significant seafloor currents and a small compliance signal. We have obtained 80% coherence between the pressure and acceleration data: can you do better?



Rainbow hydrothermal field, with the measurement site marked by the X. A seafloor measurement (seismometer on the right, pressure gauge on the left).

DATA SET 2: SYNTHETIC

Built from models of infragravity waves and the different noise sources, plus earthquake measurements from a low-noise continental site.

STEP 1 (Dec 2024-July 2025): challenge responses

- Go to the Challenge Web Page ([left link/QR code](#))
- Download the datasets and, if you want, the example codes
- Apply your codes to the data.
- Send us your results ([right link/QR code](#)).

Your tools don't have to be built for seismology data. We've set up the data and how to respond so that you can easily apply your tools and send your results.

STEP 2 (August-Dec 2025)

- We will:
- Compile and compare the results
 - Organize a meeting to analyze the experience and results with all participants
 - Write a community paper presenting each method, their advantages and their inconveniences



Datasets, workflow & format descriptions
<http://www.bruit-fm.org/challenge.html>

LINKS



Email
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