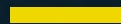# Developing an Acoustic-based measurement tool for Infragravity waves

Nery Contti Neto
Senior Oceanography Advisor
nery.neto@nortekgroup.com
support@nortekgroup.com

NORTEK

Nery Contti Neto, Cristobal Molina

Nortek AS, Norway.

Nicolás Enrique Buono, Juan Pablo Mosquera
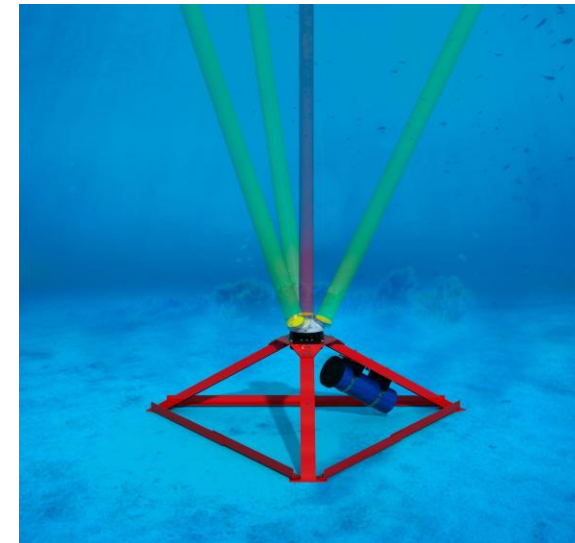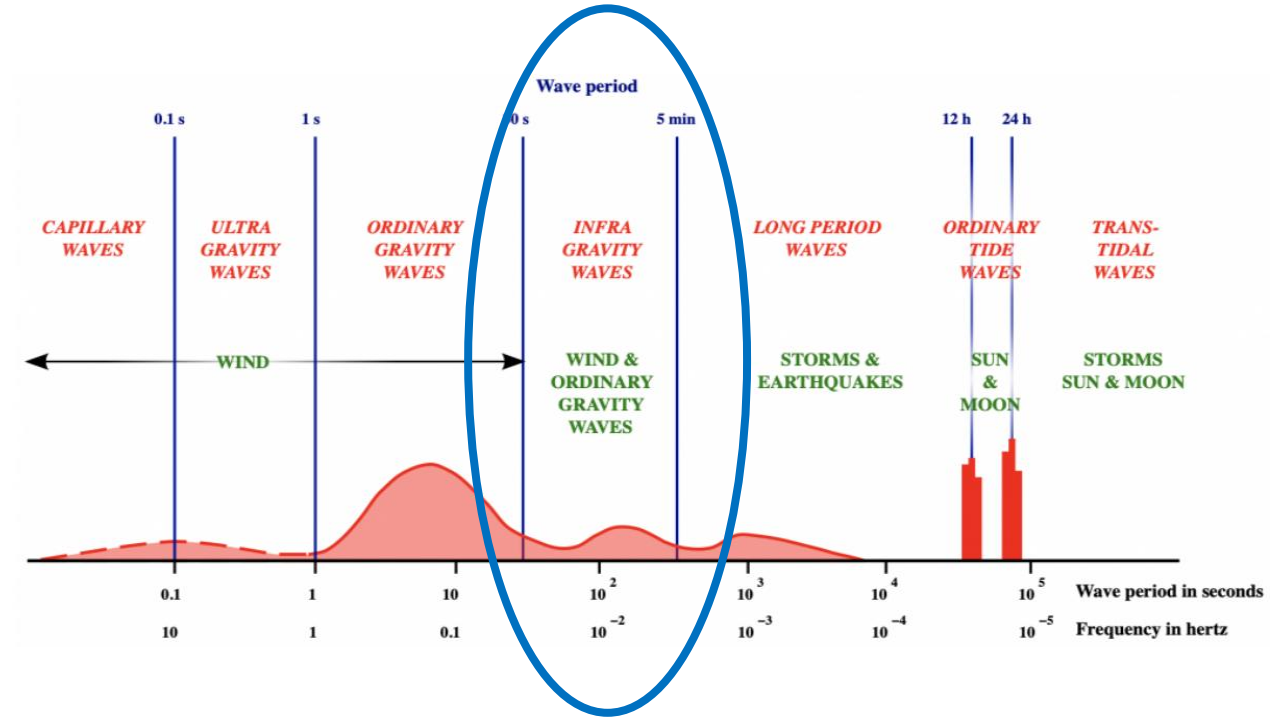
Serman&Asociados, Argentina.

Peter McComb
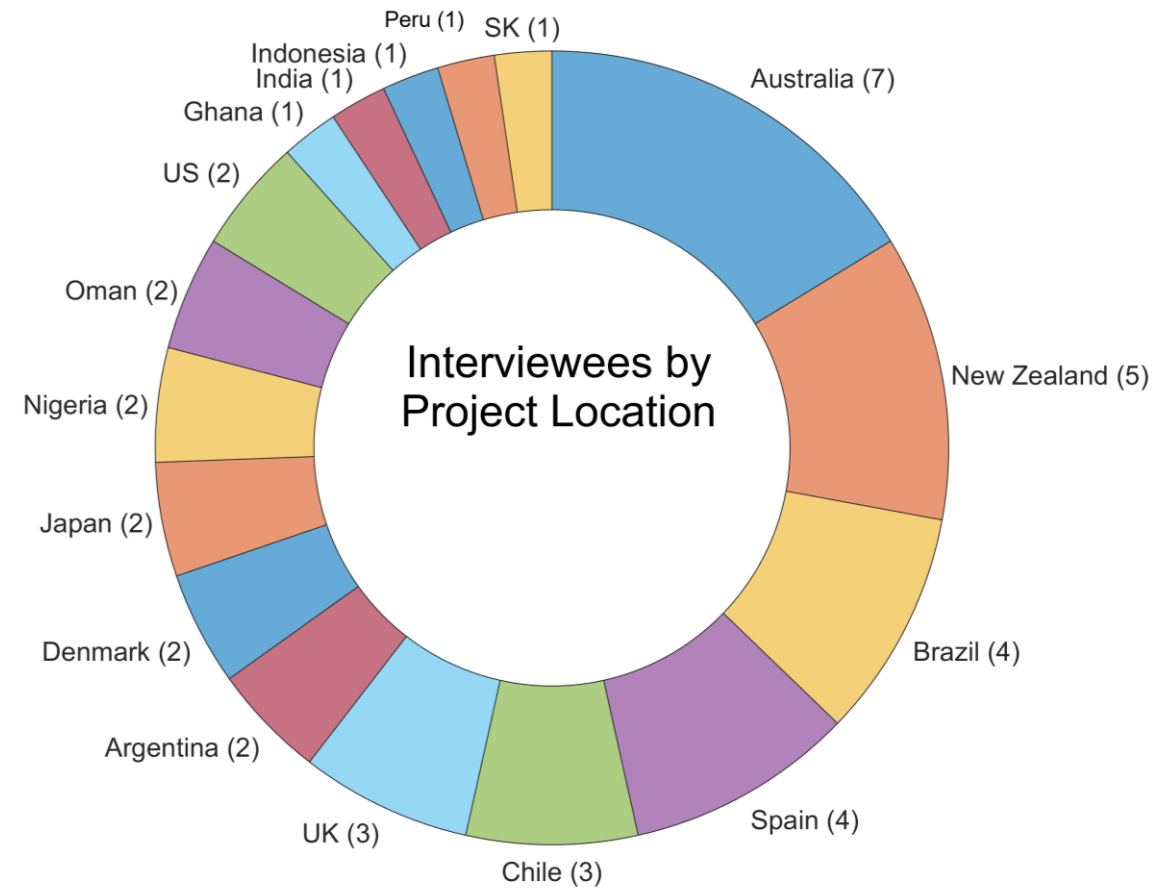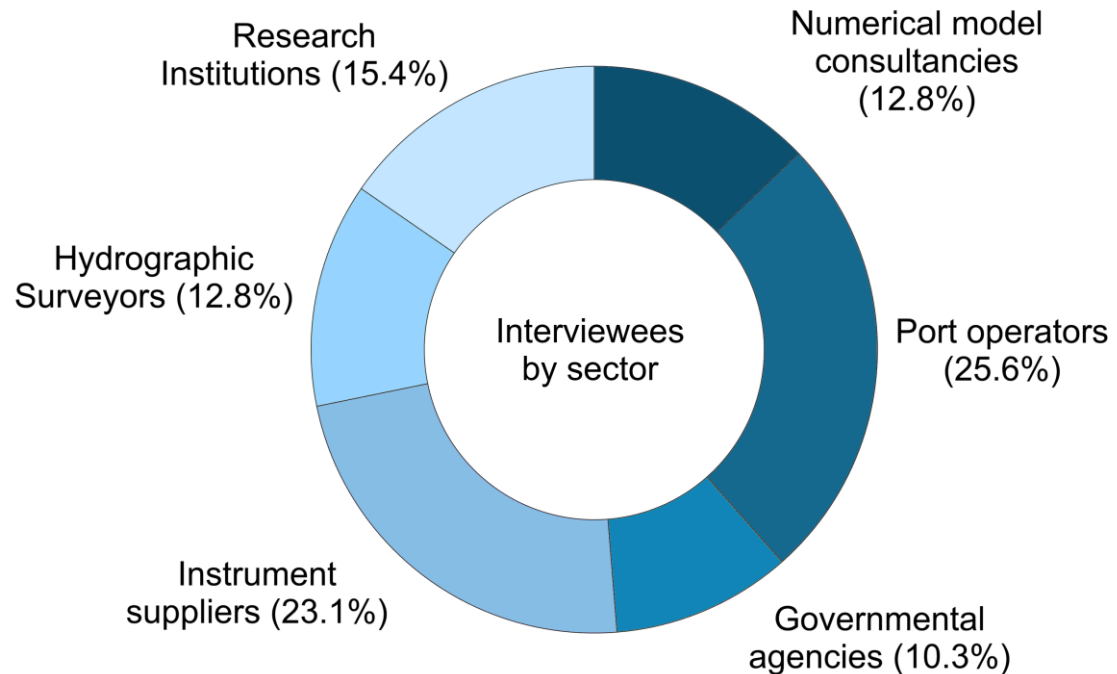
Oceanum, New Zealand

Definitions

- Measuring efforts have focused on Ordinary gravity waves

- Pressure sensors are indirect measurement but continuous

- AST is direct, but not continuous

- Increasing number of inquiries over the years

Identifying interviewees

Interviewees by sector

- Numerical model consultancies (12.8%)
- Port operators (25.6%)
- Governmental agencies (10.3%)
- Instrument suppliers (23.1%)
- Hydrographic Surveyors (12.8%)
- Research Institutions (15.4%)

Interviewees by Project Location

- Australia (7)
- New Zealand (5)
- Brazil (4)
- Spain (4)
- Chile (3)
- UK (3)
- Argentina (2)
- Denmark (2)
- Japan (2)
- Nigeria (2)
- Oman (2)
- US (2)
- Ghana (1)
- India (1)
- Indonesia (1)
- Peru (1)
- SK (1)

NORTEK

Interview results

- *Identification of IG waves*
    - **How have you identified IG waves as being an issue?**

- *Monitoring and measurement approaches:*
    - **How do you deal with IG waves (measurements, preventive measures)?**
    - **What solutions are you currently using if any?**

- *Instrumentation and data analysis practices*
    - **How many instruments are you currently using?**
    - **How do you configure the instruments? Frequency sample?**

    - **What's the current data analysis process?**
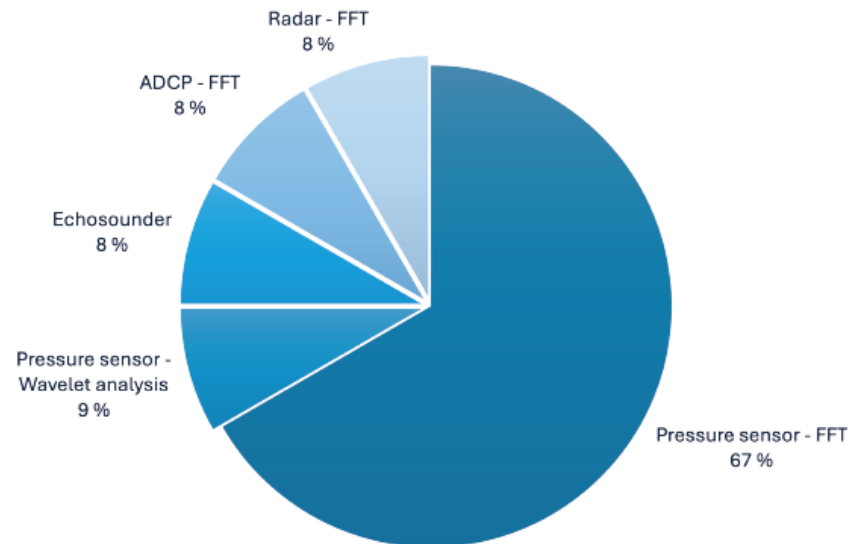
Interview results

- *Future implementation needs*

  - **Do they provide you with the information you are looking for in an ideal format/way?**

Issues with pressure sensor

- Drifts over time
- Non-directional
- Not in real time
- Hard to recover
- Indirect measurement

Issues with radar

- Needs a physical structure
- Non-directional
- High number of bad data
- Expensive

NORTEK

Interview results

What would you like from us?

What we can offer

1. **Sensor:** non-drifting, reliable, cost effective, low-maintenance

   > **Direct measurement of water elevation (η)**

2. **Software:** Fully processed data, visualisation tools

   > **Storm/Ocean Contour**

3. **Hardware:** Real-time data

   > **Prolog**

4. **Processing methods:** Time-series analysis, FFT and wavelet analysis

   > **Processing methods**

5. **Others:**
   1. Strain analysis on mooring lines
   2. Directionality

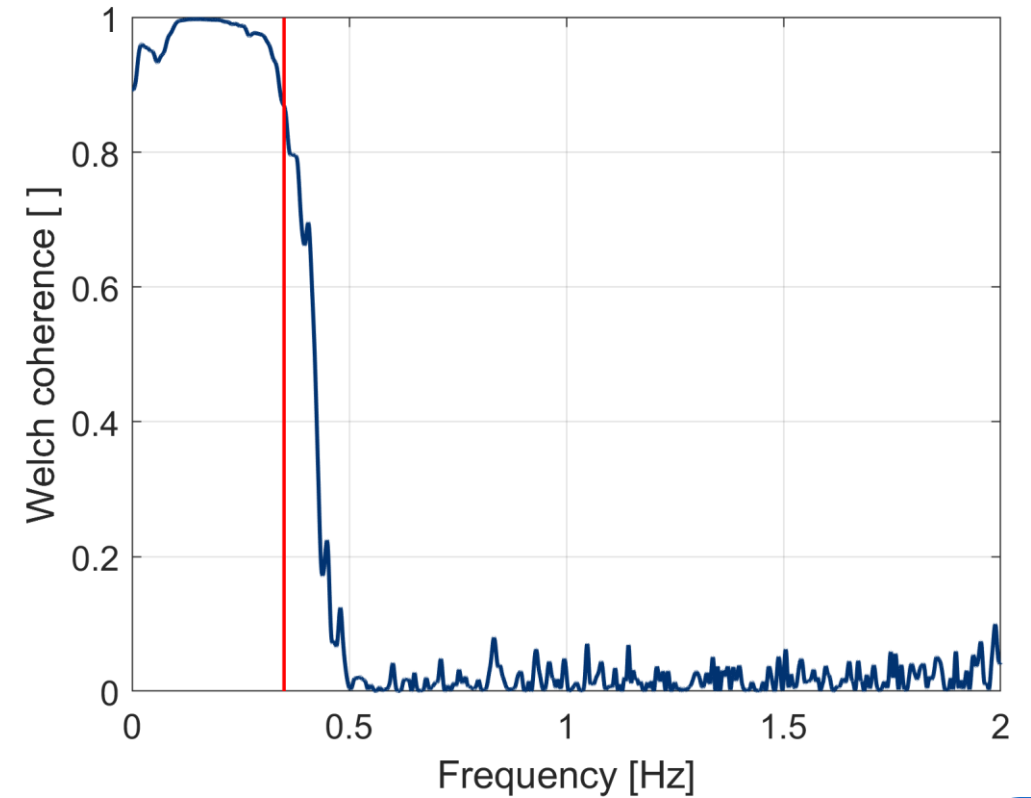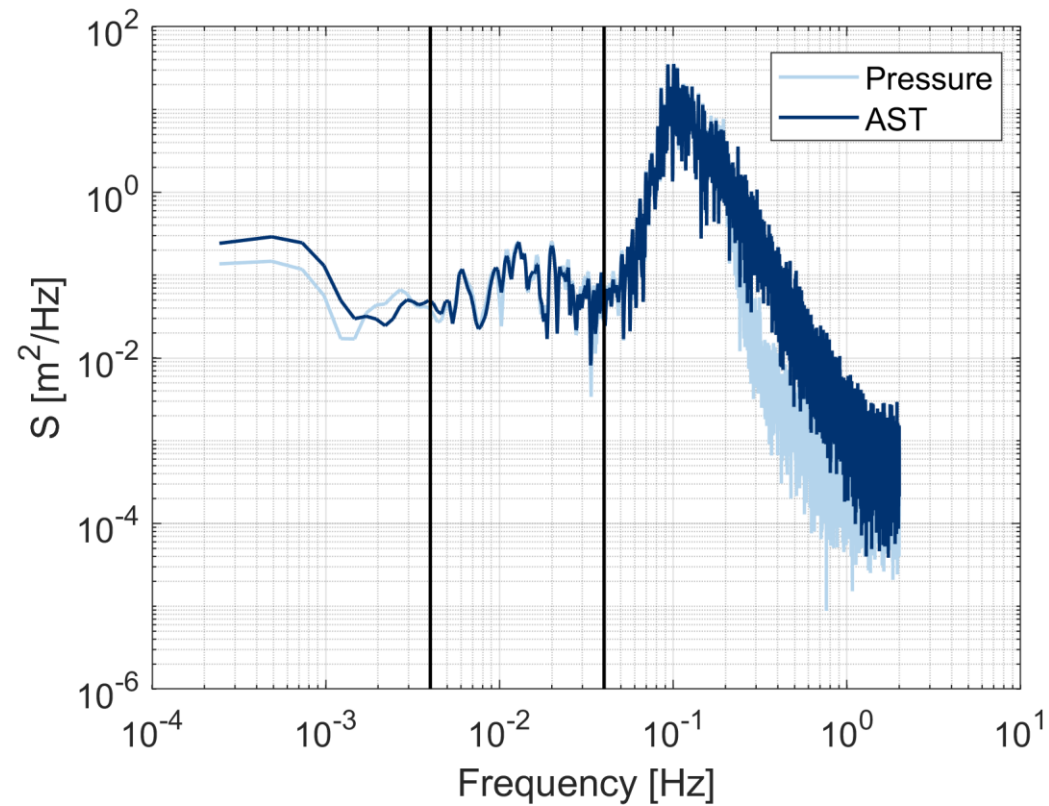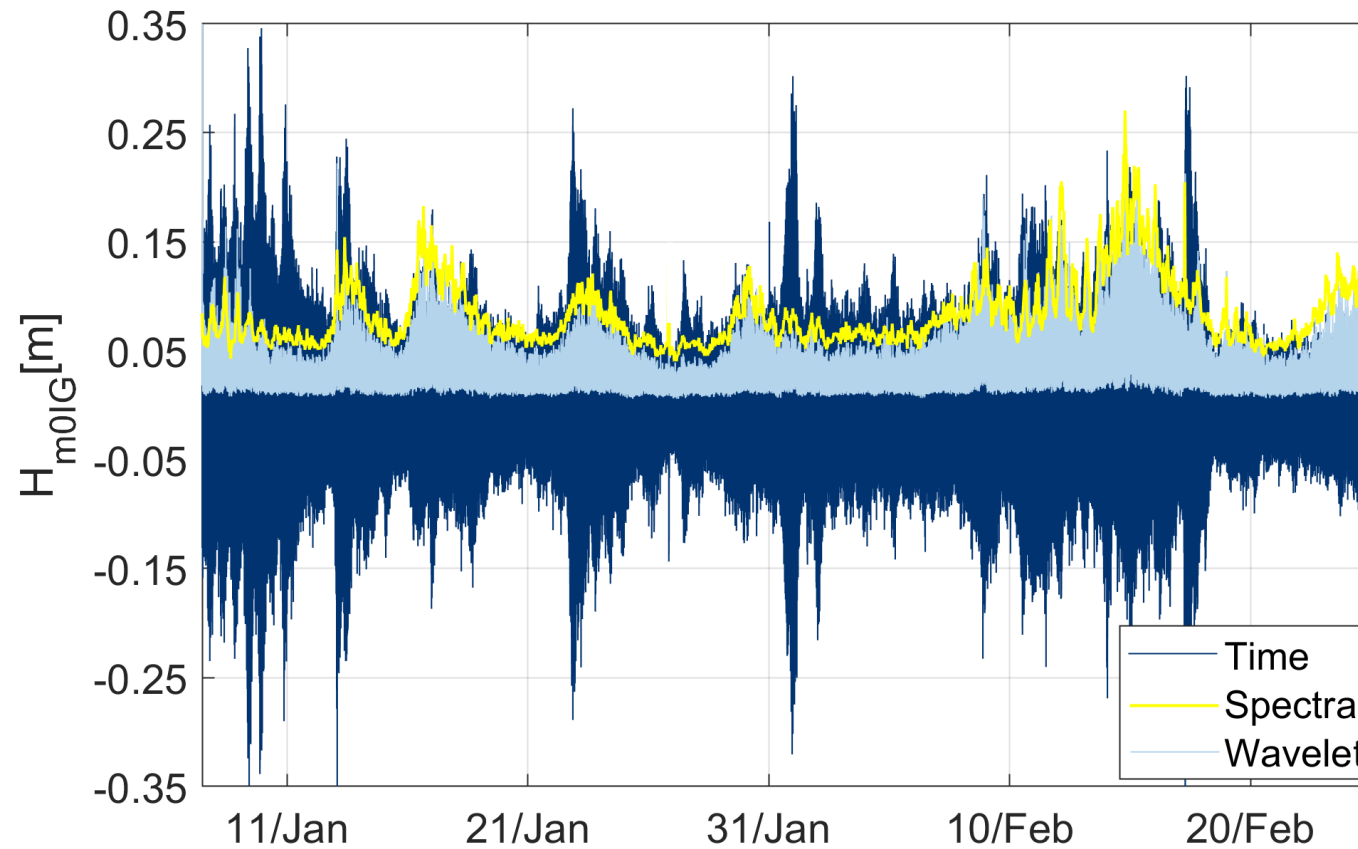NORTEK

Implementing the tool – Dataset 1
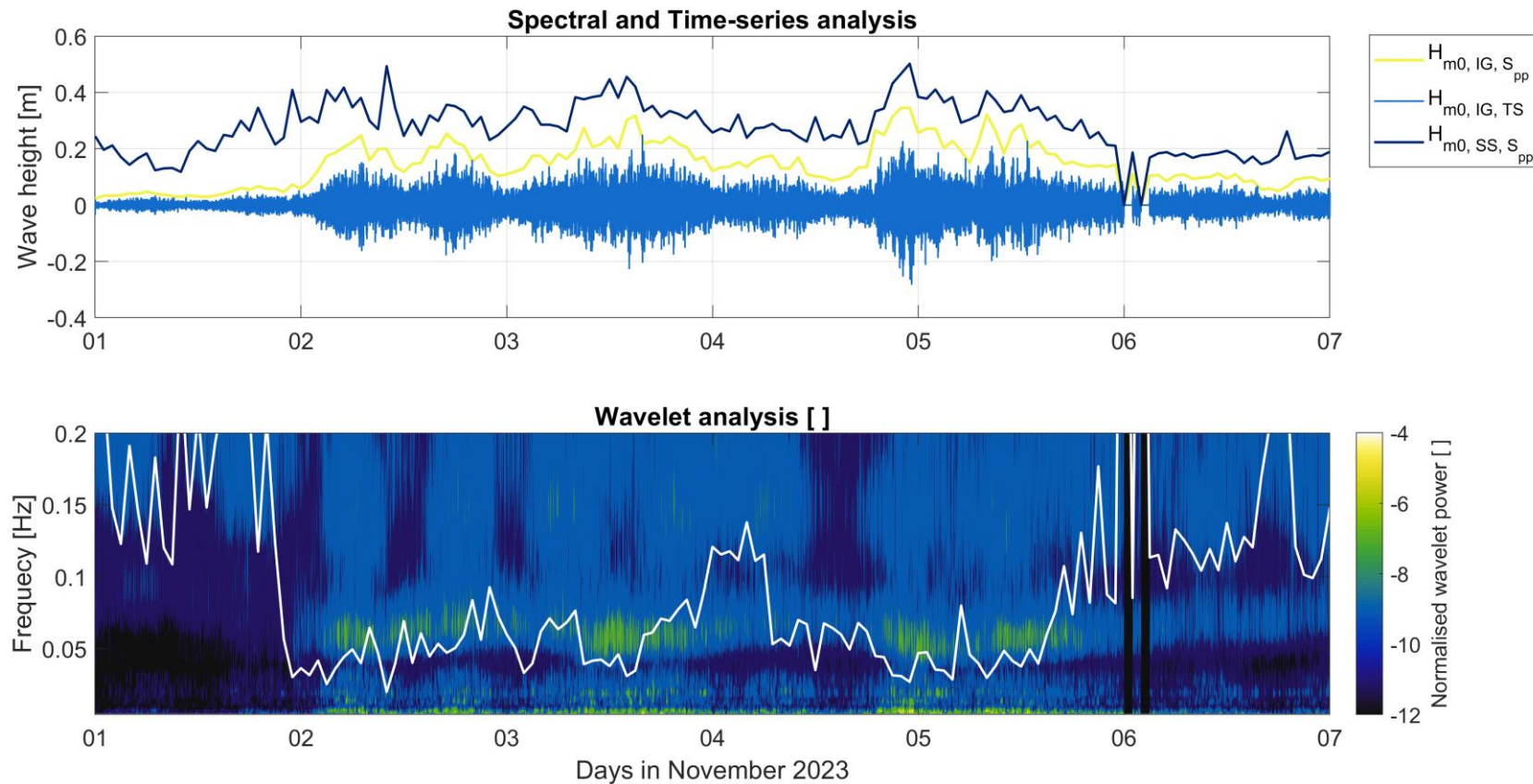
Implementing the tool – Dataset 2

Implementing the tool – Dataset 3

Thank you!

nery.neto@nortekgroup.com

support@nortekgroup.com

Long Period Waves code

nery.neto@nortekgroup.com
support@nortekgroup.com