UNIVERSIDAD TECNOLÓGICA DE PANAMÁ

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Stream tidal energy assessment near the coast of Saboga Island, Panama: Data analysis

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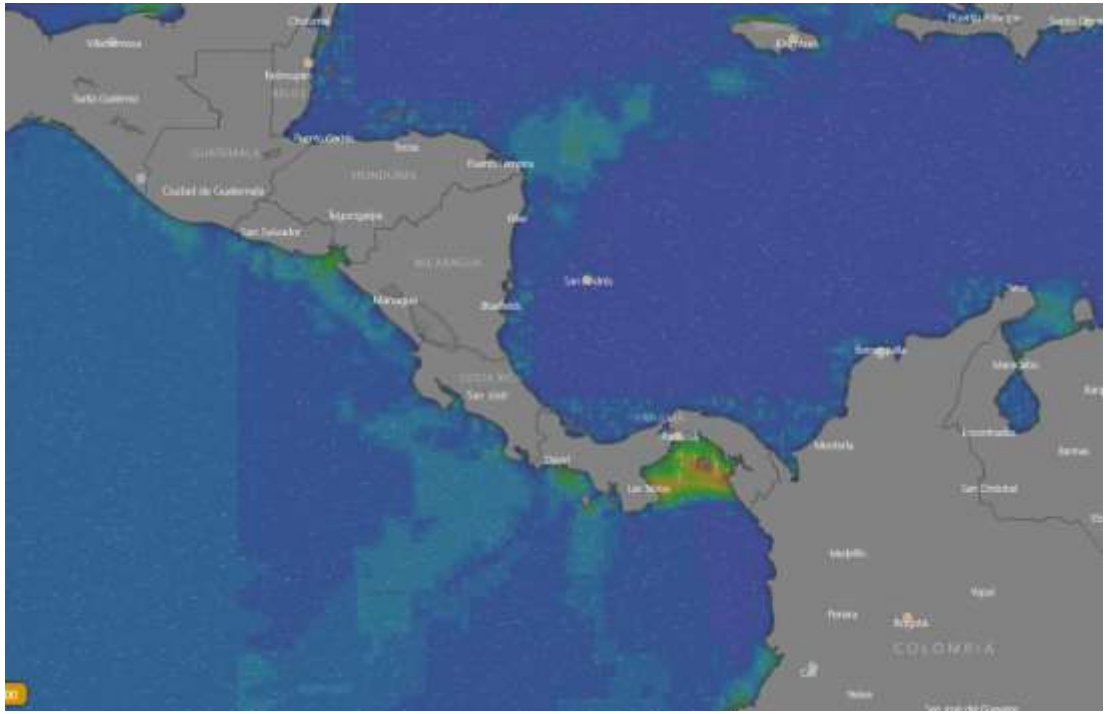
SENACYT
Secretaría Nacional de Ciencia, Tecnología e Innovación

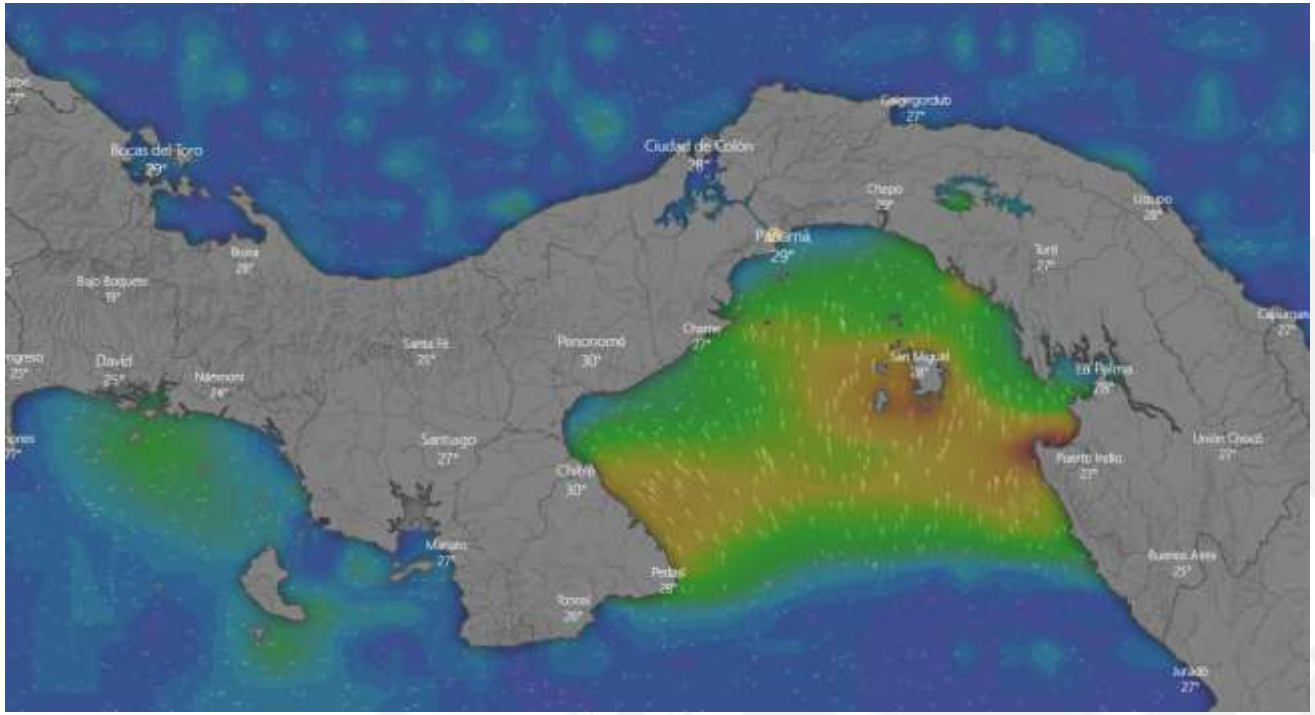
DASENCO

Agenda

Introduction
Objetives
Metodology
Results
Conclusions

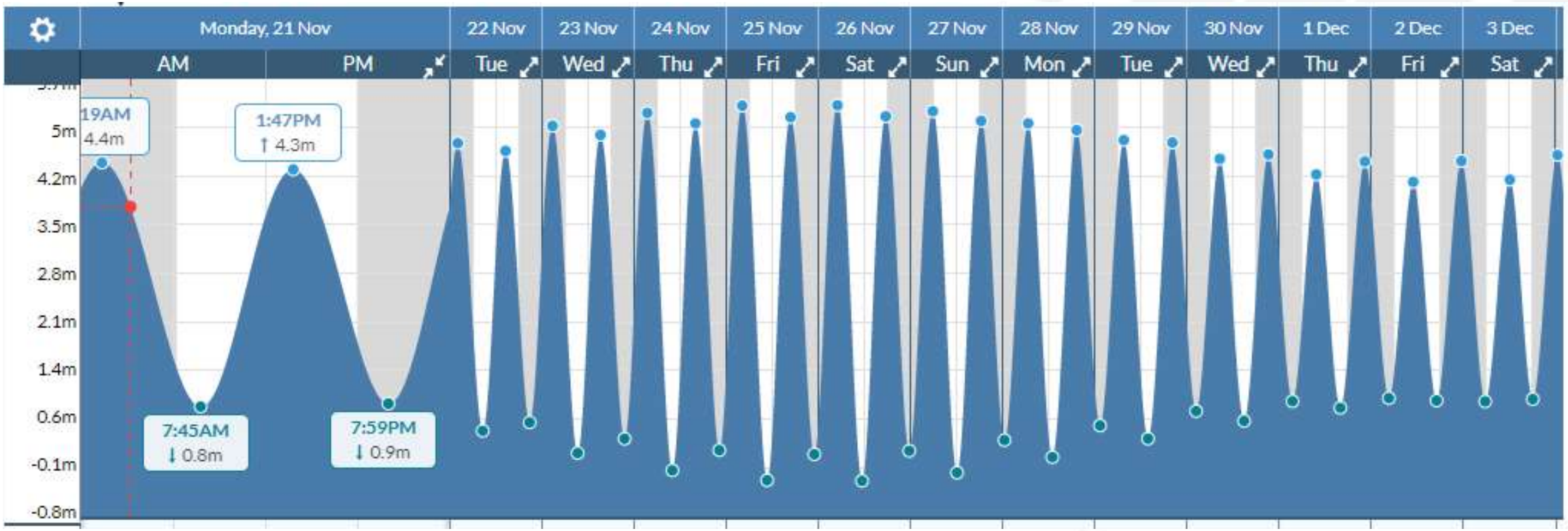
Regional and Local context: Tidal currets





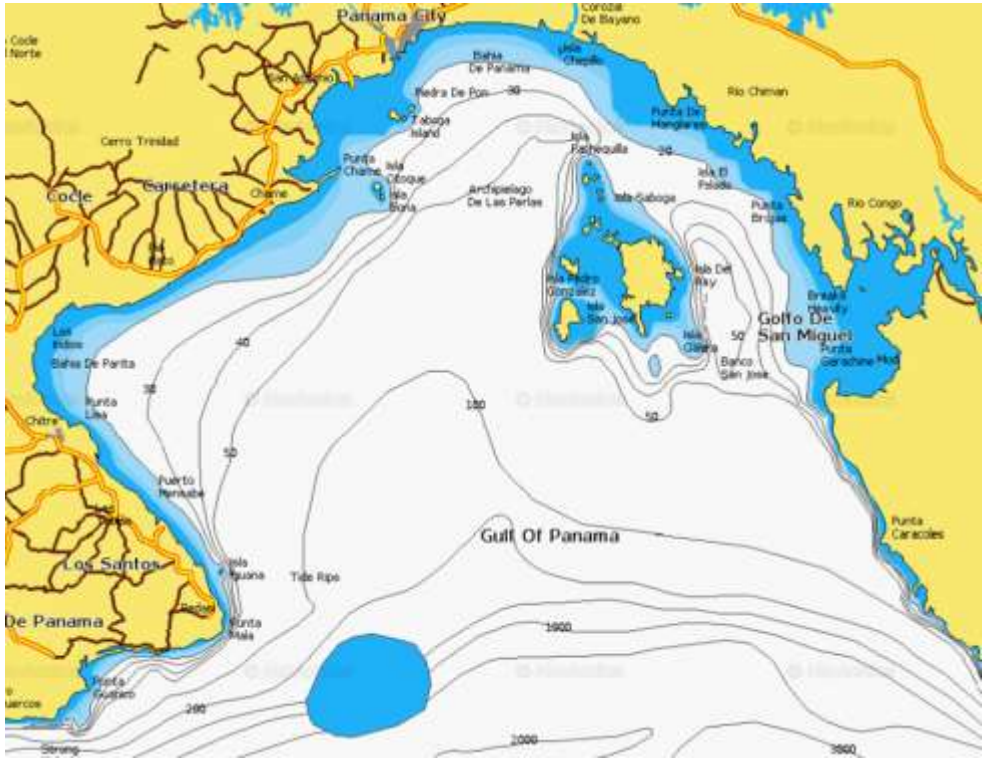
Datos satelitales: copernicus

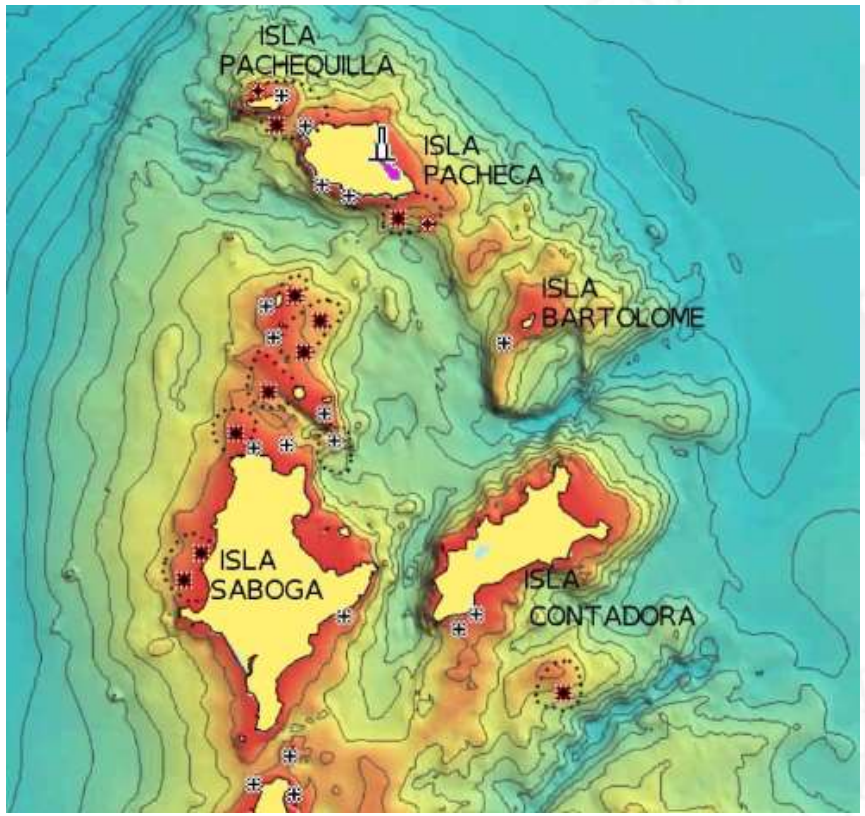
Tides

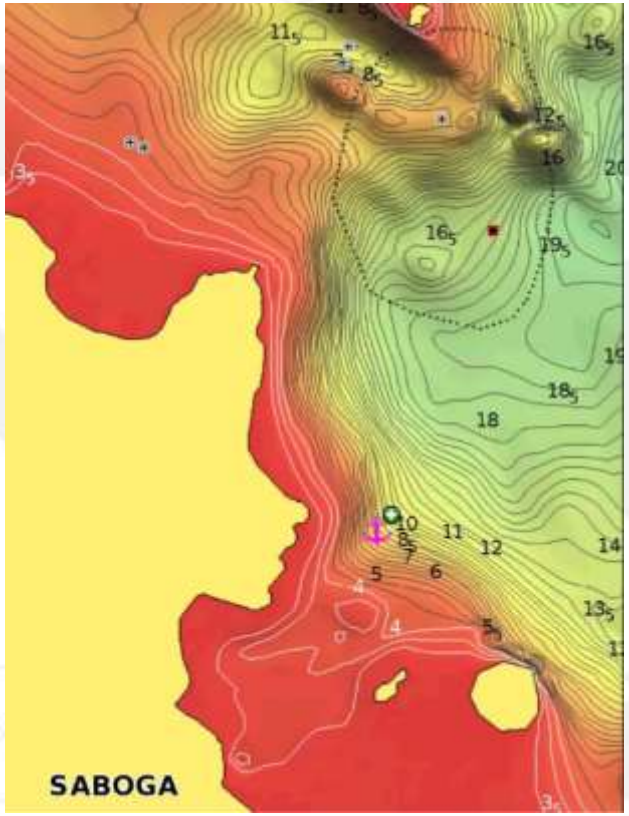


Fuente: NASA / GSFC.

Local geography



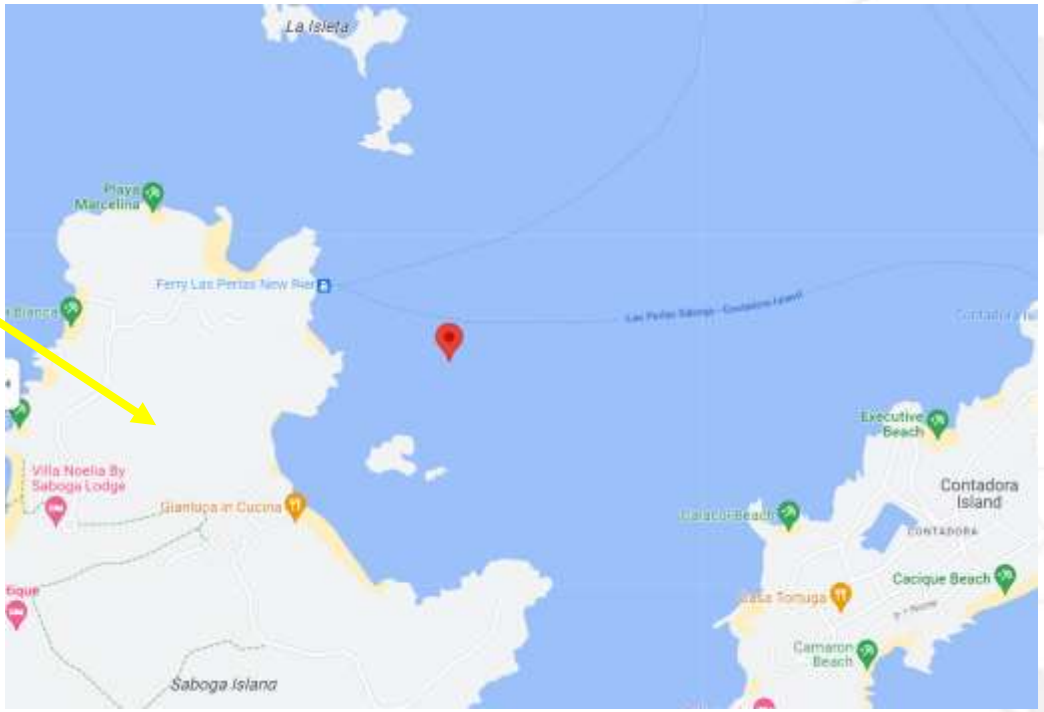




Source: navionics

Saboga, Panamá

Location



APY-NI-2021-18

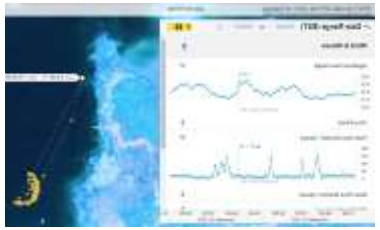
Metodology

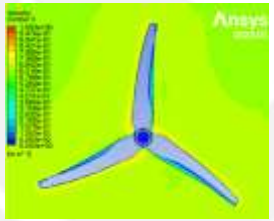
Instalación de Boya → Recolección de datos → Análisis de datos

Geometría y mallado

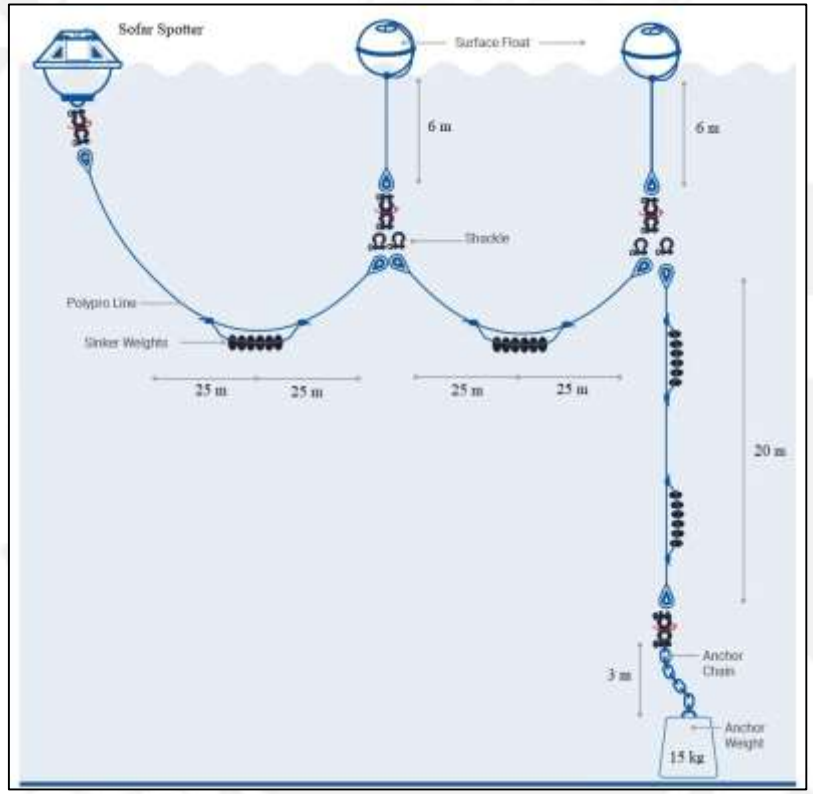
Pre-análisis del Modelo. (c. Frontera, c. iniciales)

→ Simulación y verificación → Resultados y validación

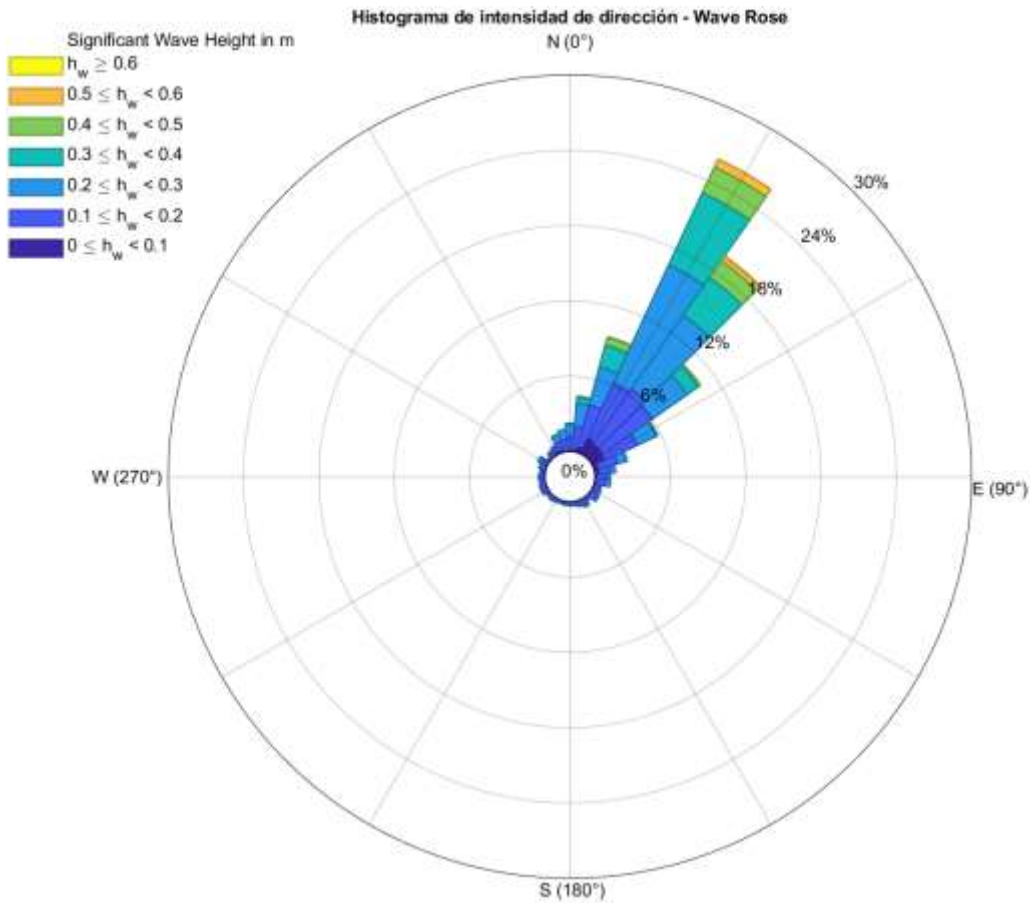


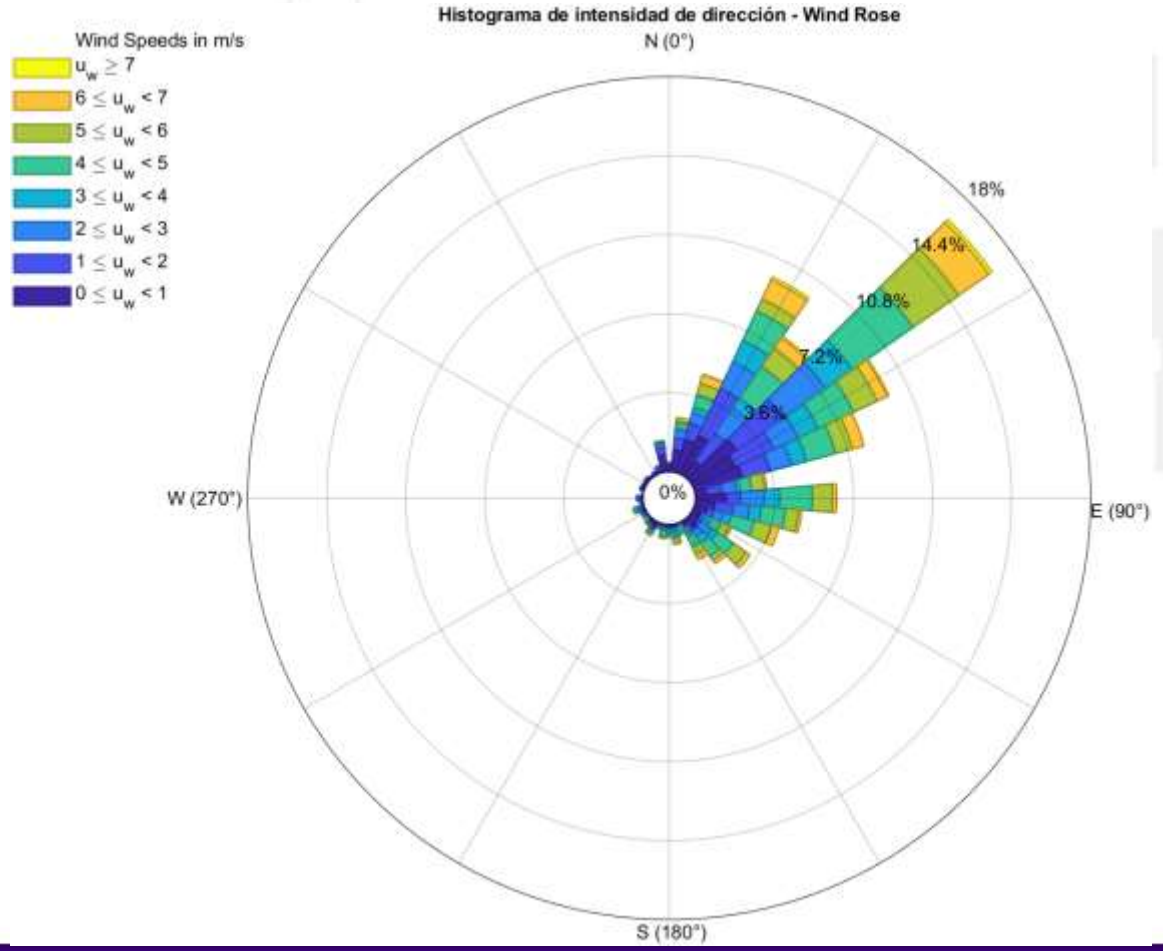


Sofar spotter buoy

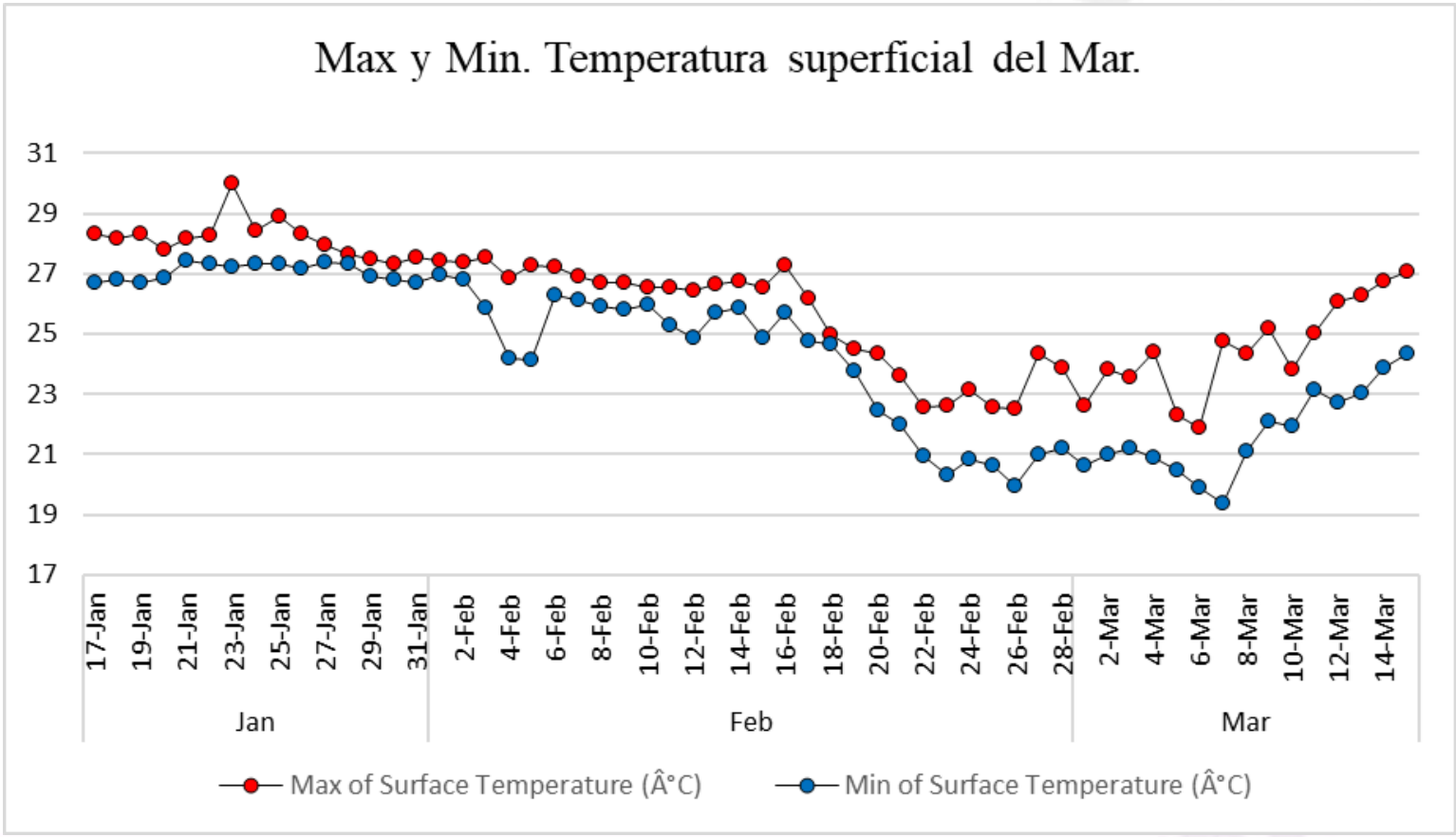


Significant wave height and wind speed

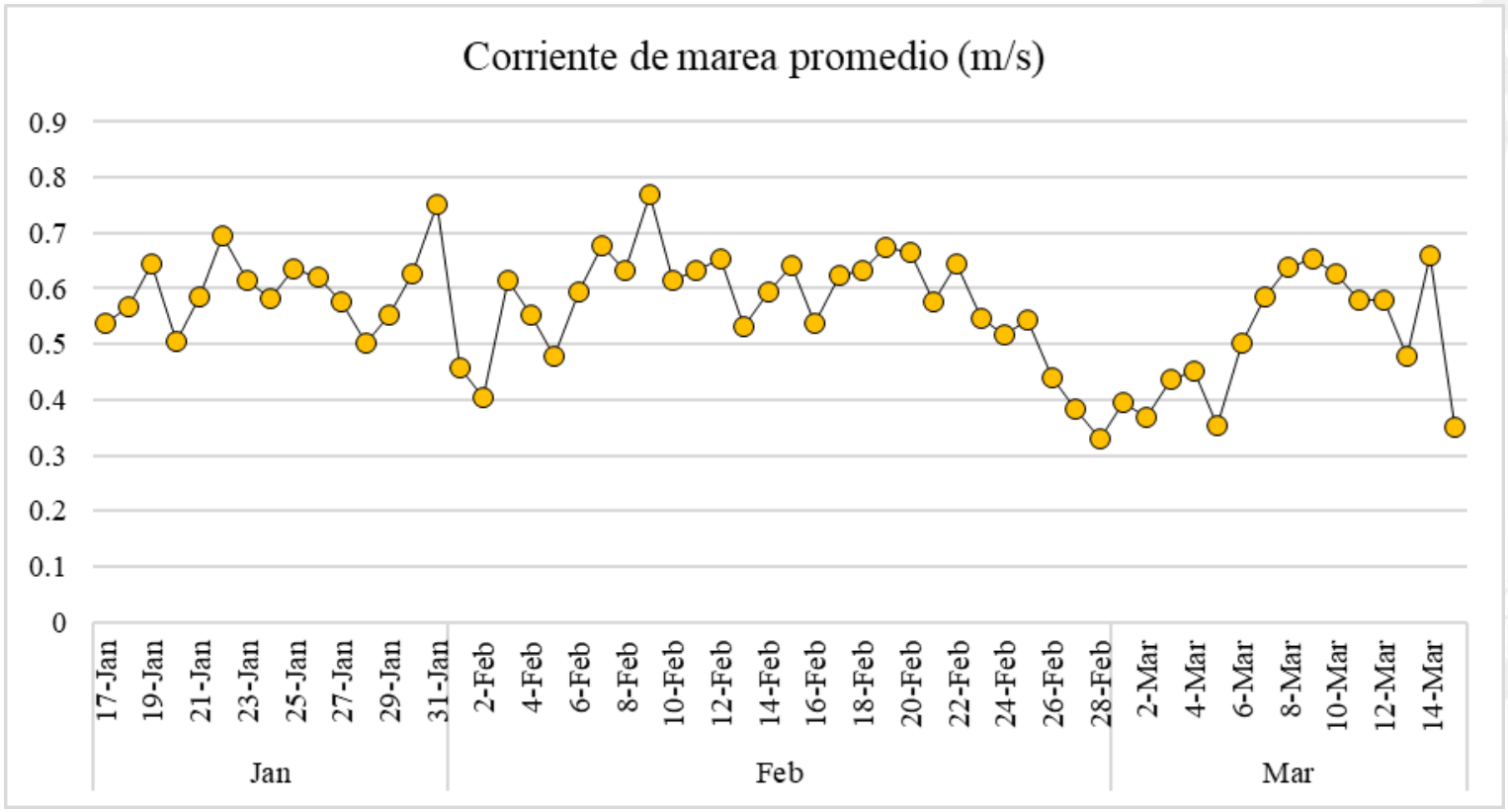


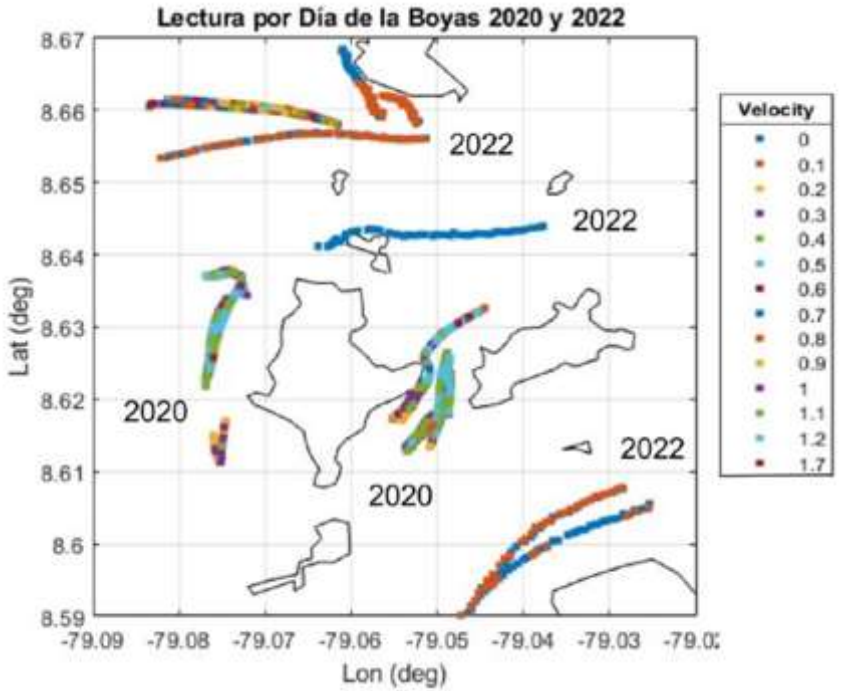


Sea surface temperature

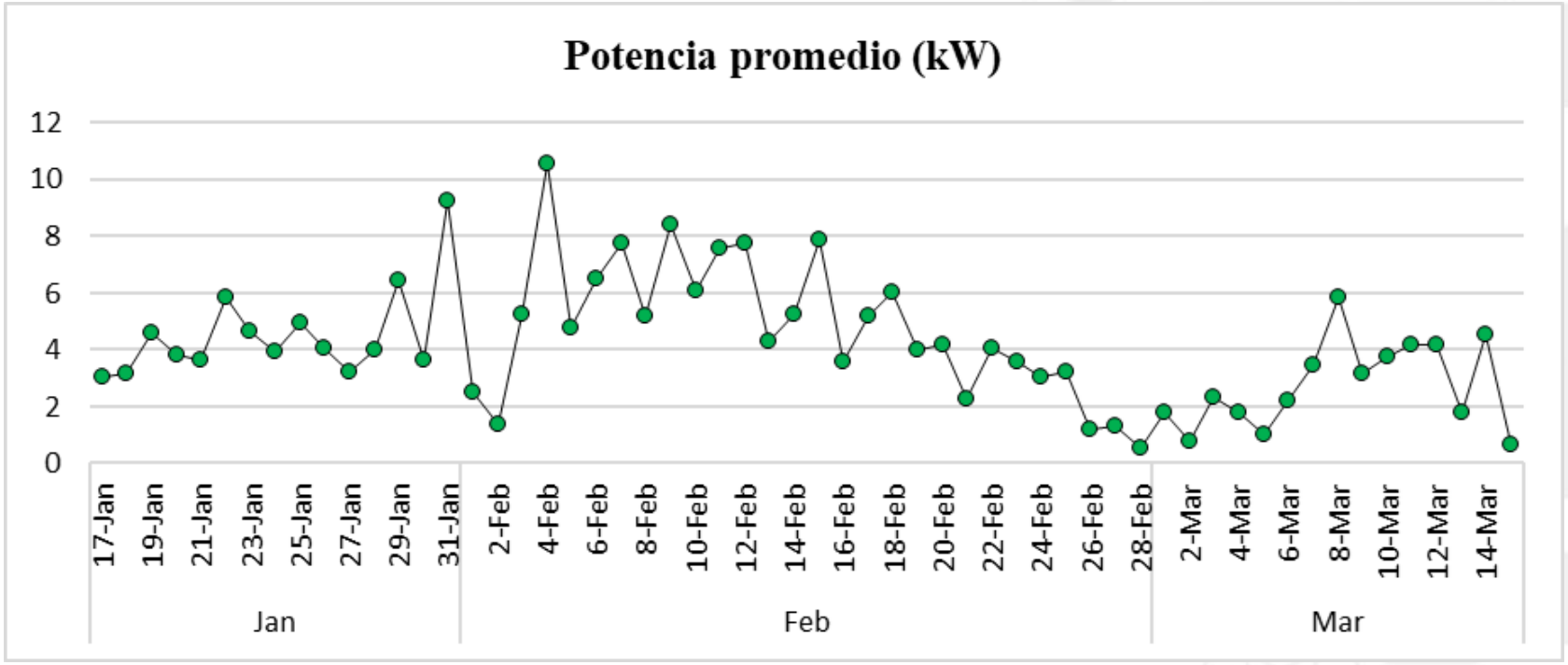


Tidal currets



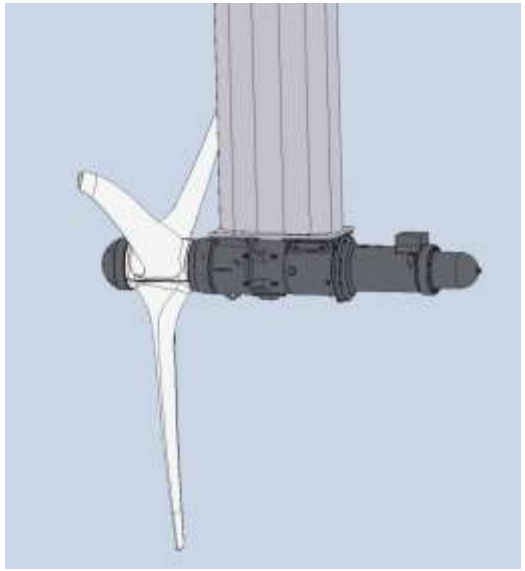


Power calculation

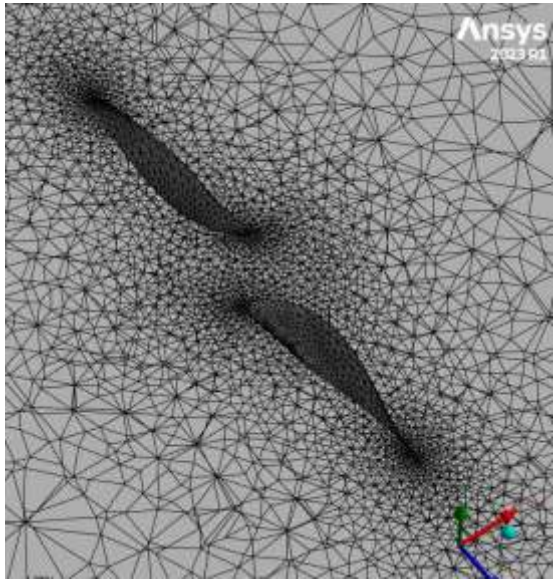


Simulation

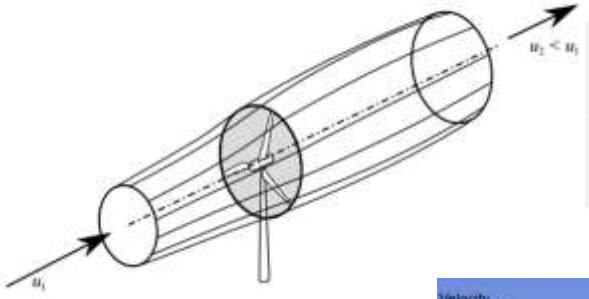
Geometry



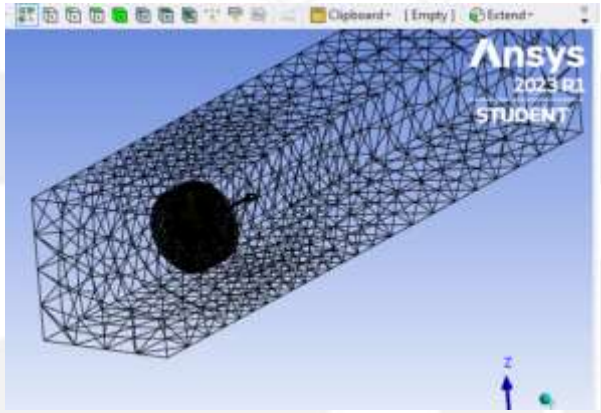
Mesh

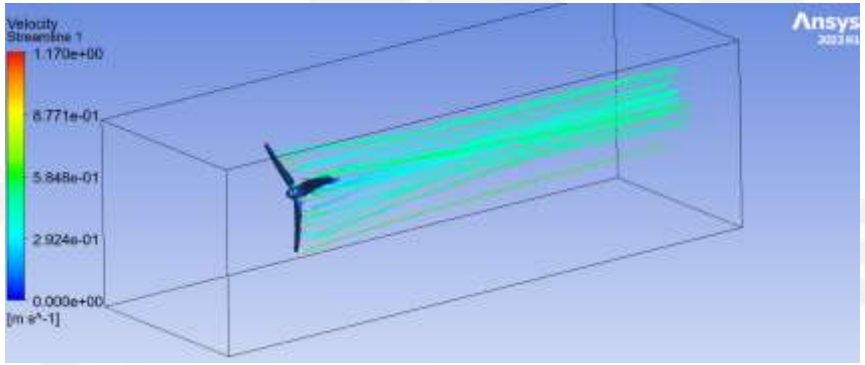


Model

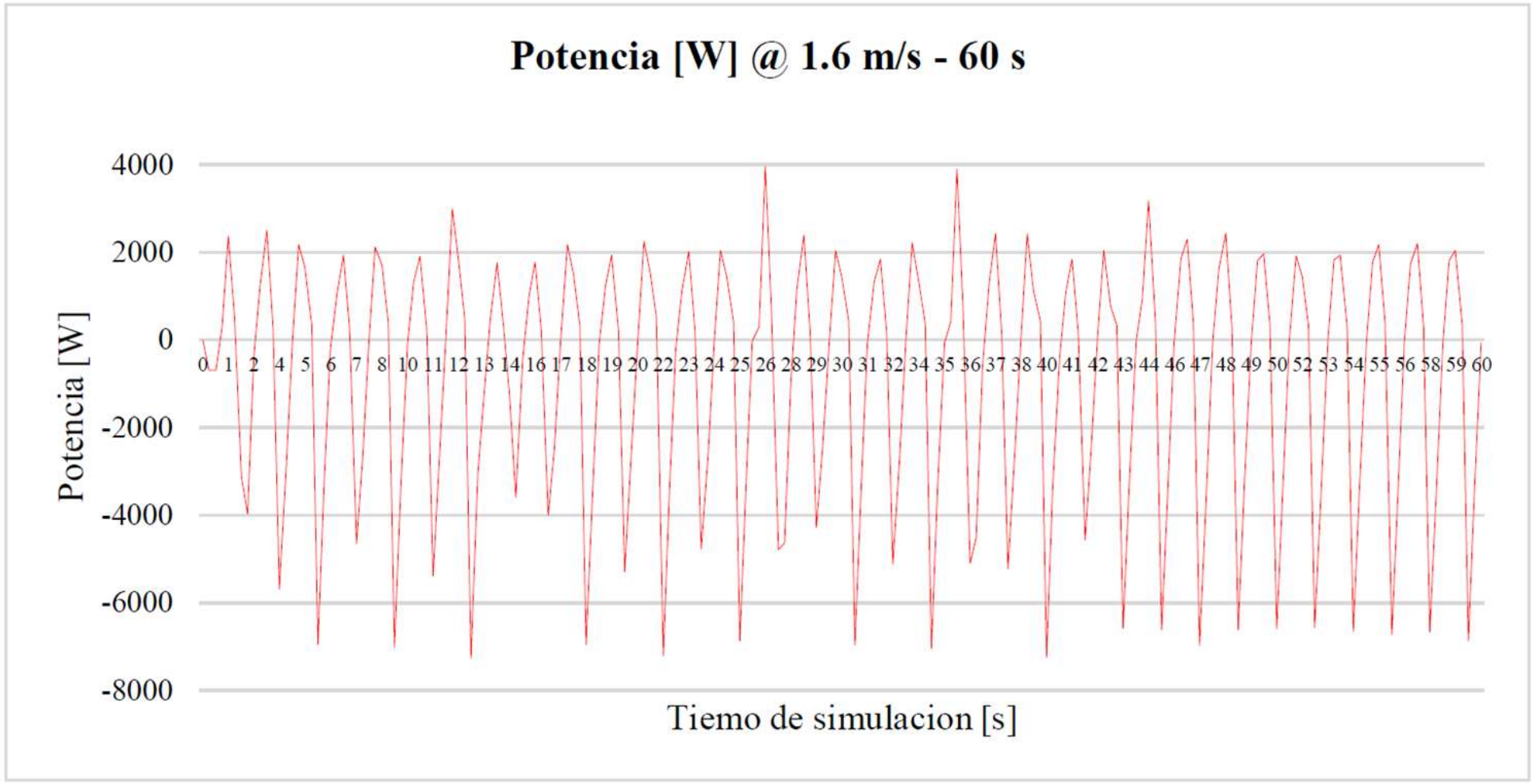


Domains





Power [W] @ 1.6 m/s for 60 seconds



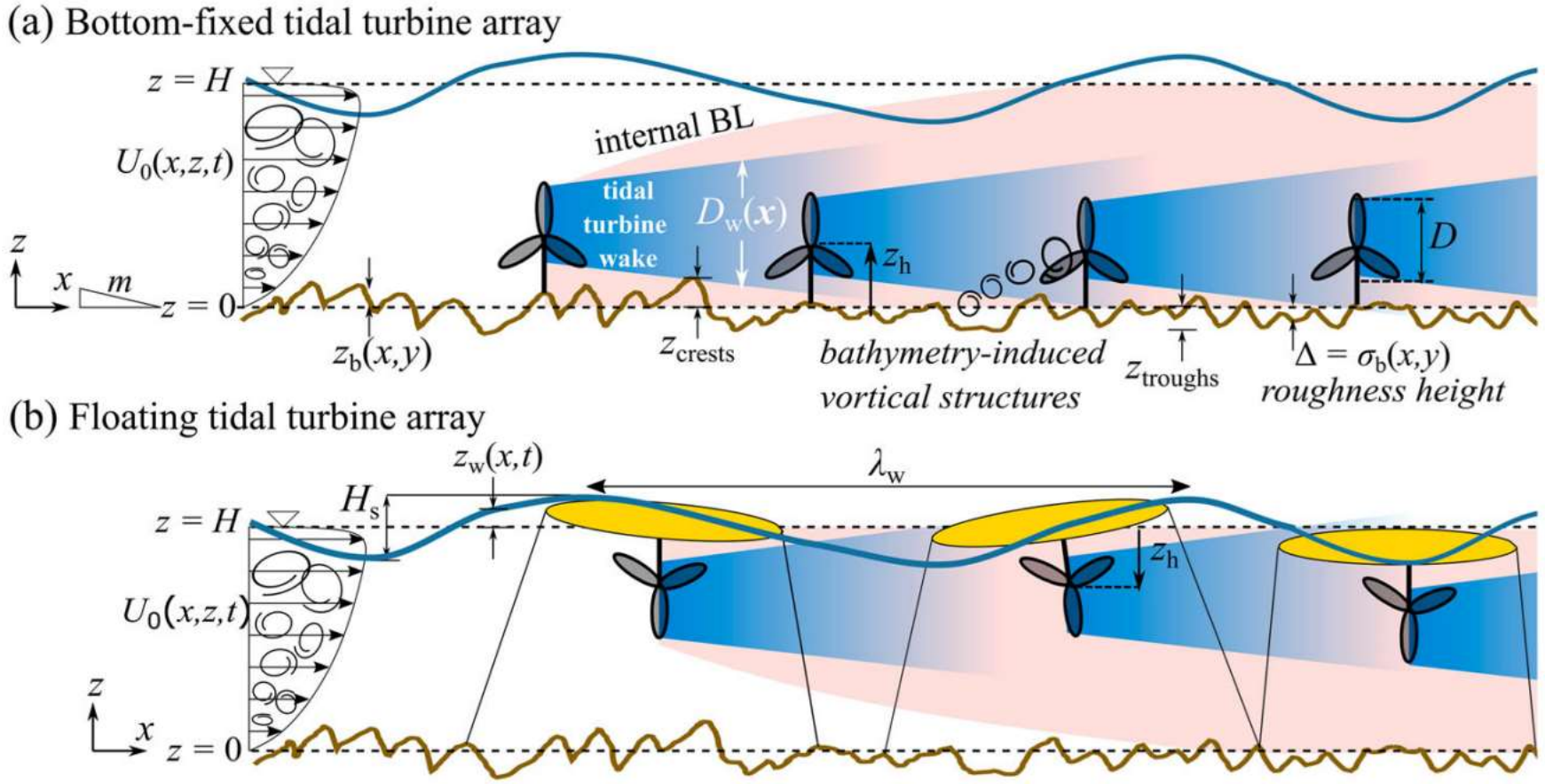
Global results

Tipo de calculo	Valor promedio
Simulación numérica	2 kW o 2,000 W
Calculo - modelo de disco actuador	4kW o 4,000 W

Conclusions

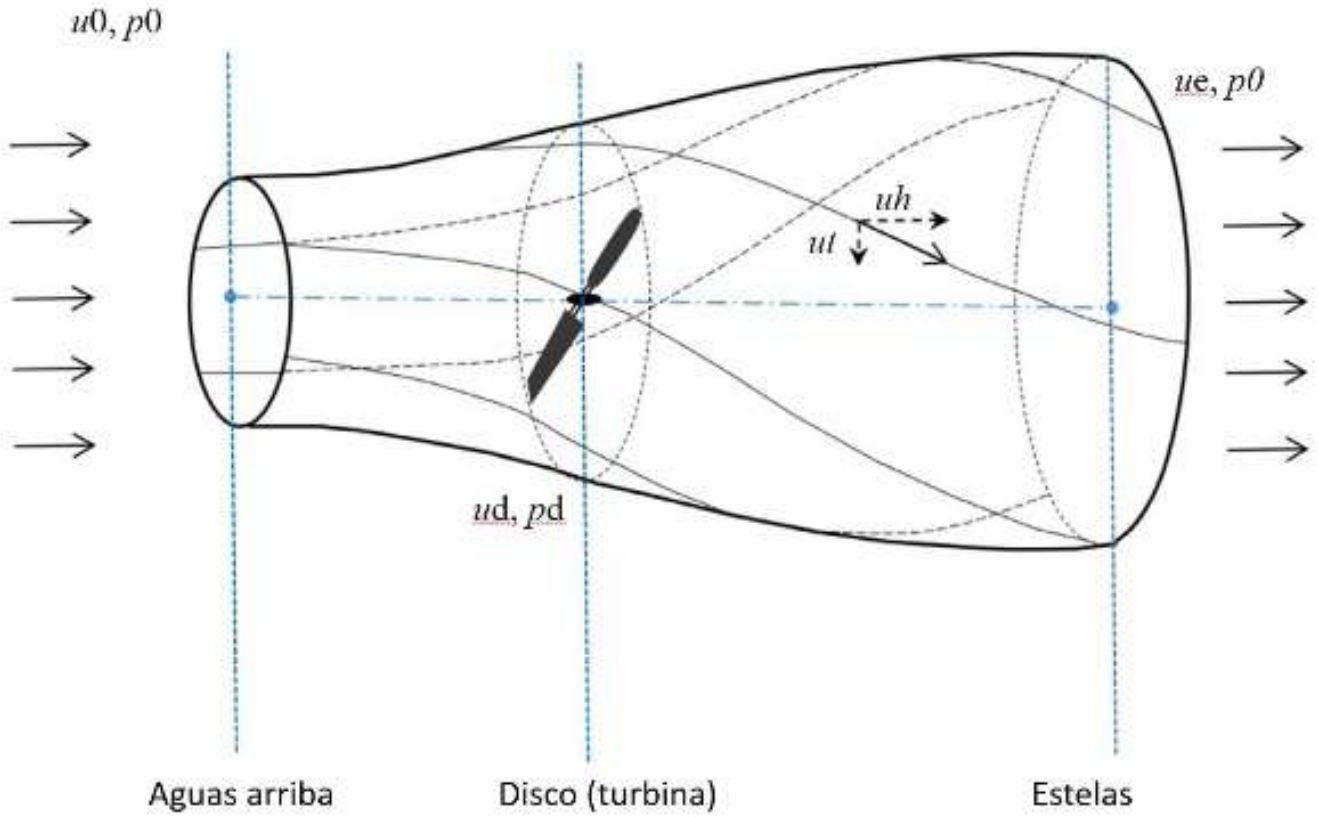
- Aprox. 2kw to 4 kw using a 4 m diameter turbine.
- A field data base for Saboga Island.
- Colaboration with a remote island community.

Model 1



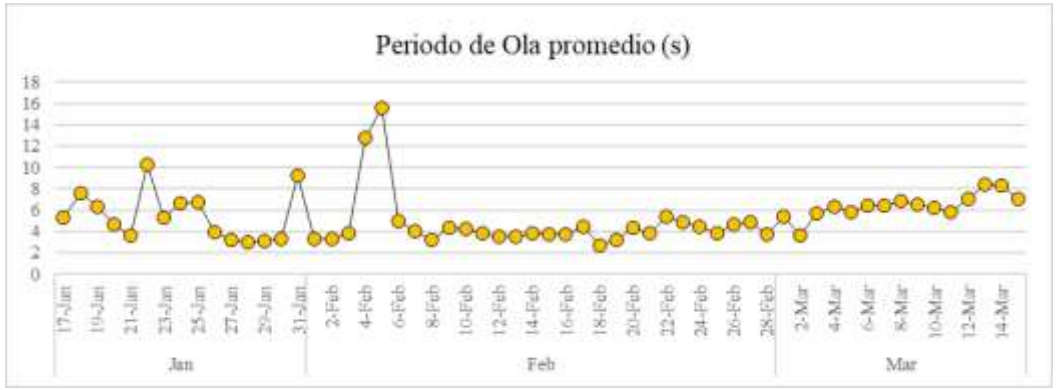
Fuente: P.K. Stansby and P. Ouro (2022)

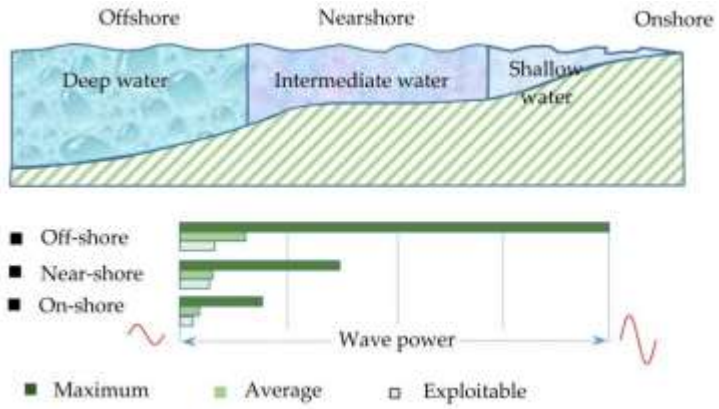
Modelo 2

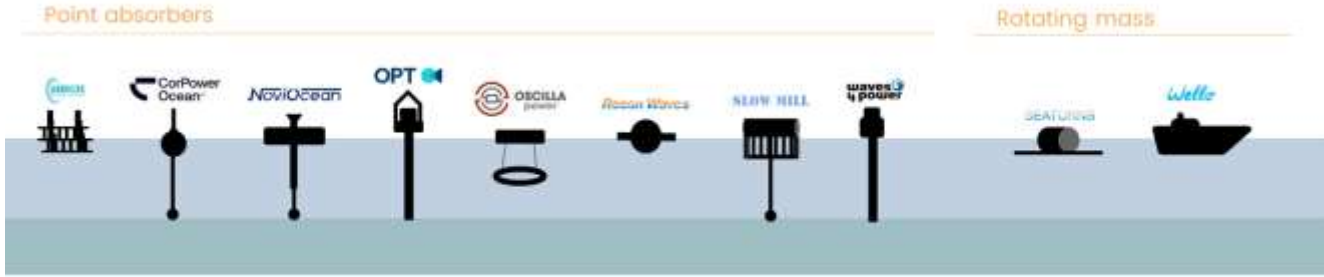


Fuente: S. P. Neill & Hashemi, 2018

Discusión: Olas (undimotriz)







$$P = \frac{\rho g^2}{64\pi} H_{m0}^2 T_e$$

Fuente/recopilación: etechmonkey

Jornada #5 – Mantenimiento y operación

Tareas de mantenimiento.

Cambio de ganchos

Búsqueda y recuperación