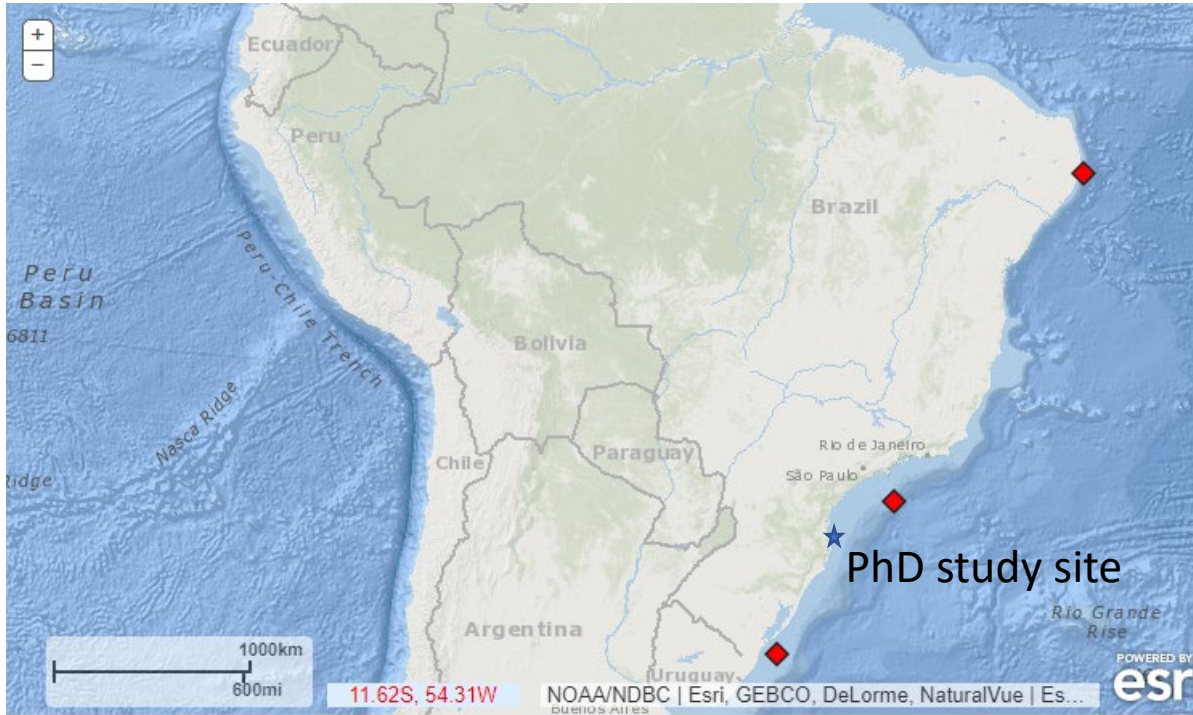


Wave measurements in Gulf Saint Vincent: SAwaves

Assoc. Prof. Graziela Miot da Silva (Flinders University)



Brazil

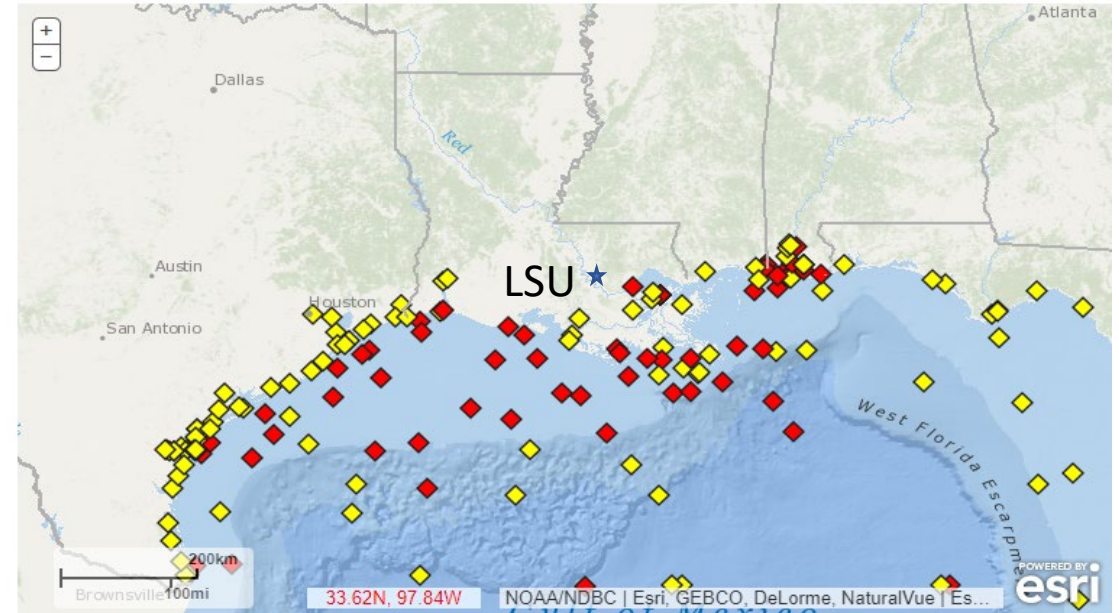


Brazilian Navy Hydrographic Center



<https://www.wavcis.lsu.edu/>

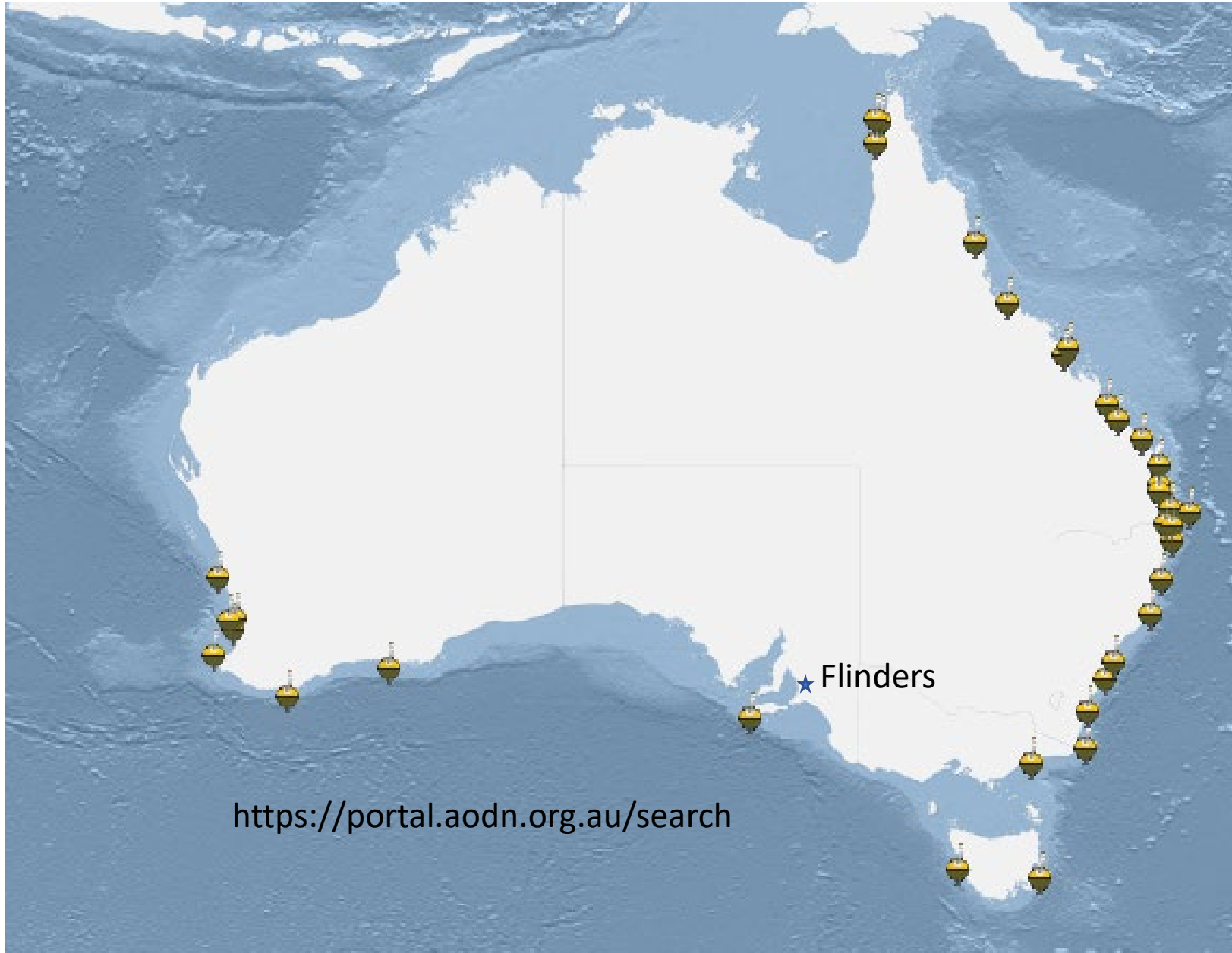
Gulf of Mexico



National Data Buoy Center/NOAA
(<https://www.ndbc.noaa.gov/>)

A screenshot of the WAVCIS (Wave-Current-surge Information System) website. The website has a blue header with the WAVCIS logo and the text 'Wave-Current-surge Information System'. Below the header is a navigation menu with links for HOME, STATIONS, ABOUT, WAVCISERS, MODELING, PUBLICATIONS, STEM, and BILL GIBSON. The main content area features a large image of a boat with people on deck. Below the image is a 'Quick Links' section with links for REAL TIME STATIONS, OFFLINE STATIONS, and VESSEL SURVEYS. At the bottom, there is a map of the Gulf of Mexico with several red and yellow markers indicating buoy locations. The text 'For development purposes only' is repeated across the bottom of the map area.

Australia

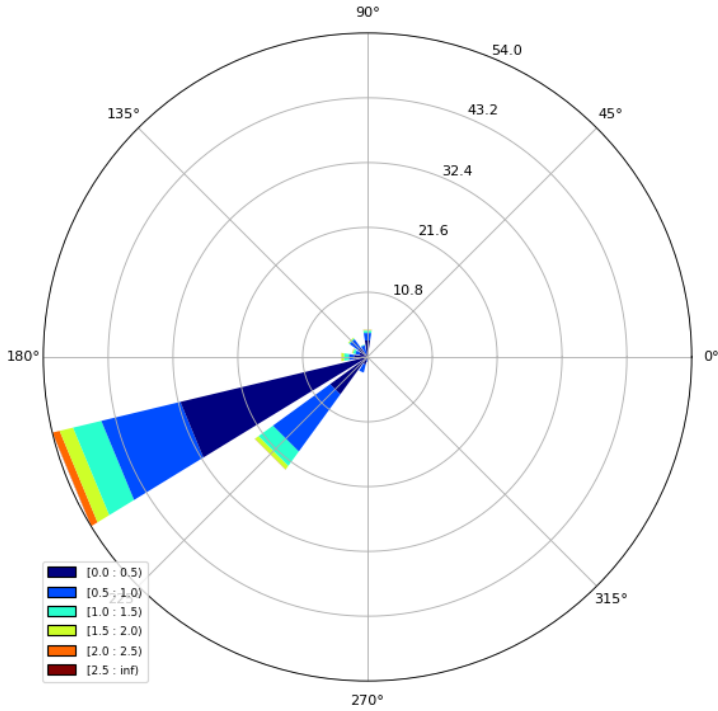


<https://portal.aodn.org.au/search>

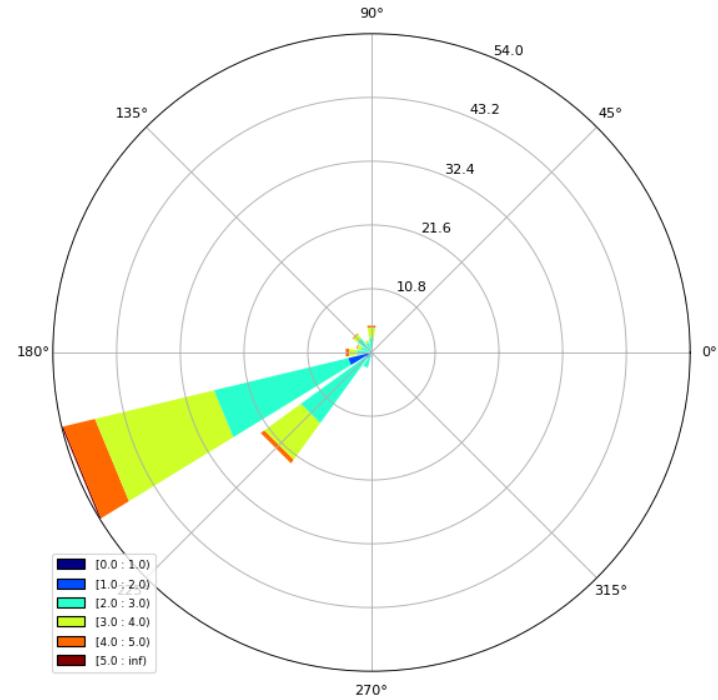
Hydrodynamic measurements

WAVES AND NEARSHORE CURRENTS

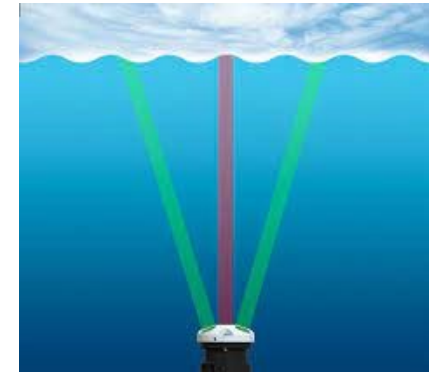
Nortek Sig1000 ADCP (current profiler) with directional wave measurement capability (~ 5km west of Brighton Jetty).



Hs (m)



T (s)



Significant wave height (Hs) and wave period (T)
Jan 2019 to October 2020

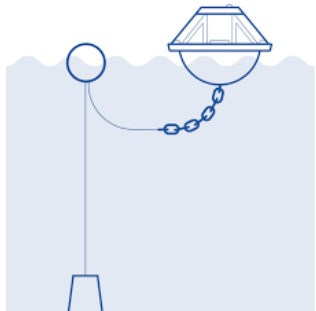
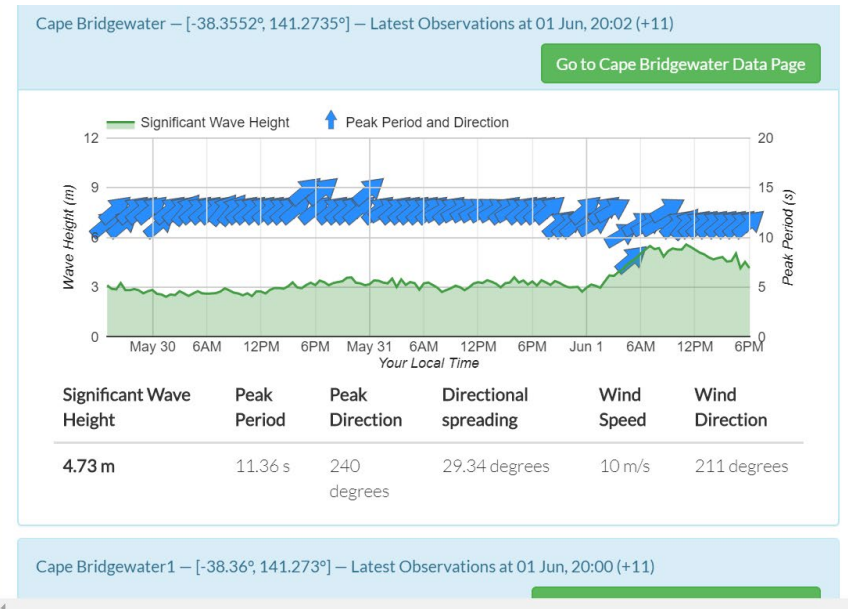
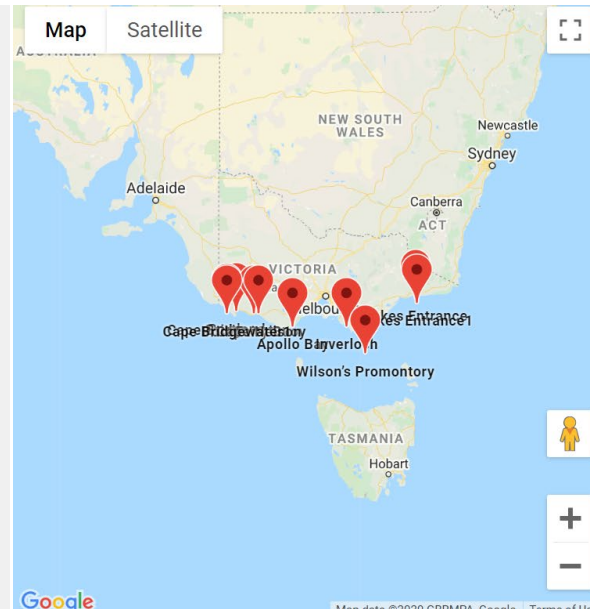
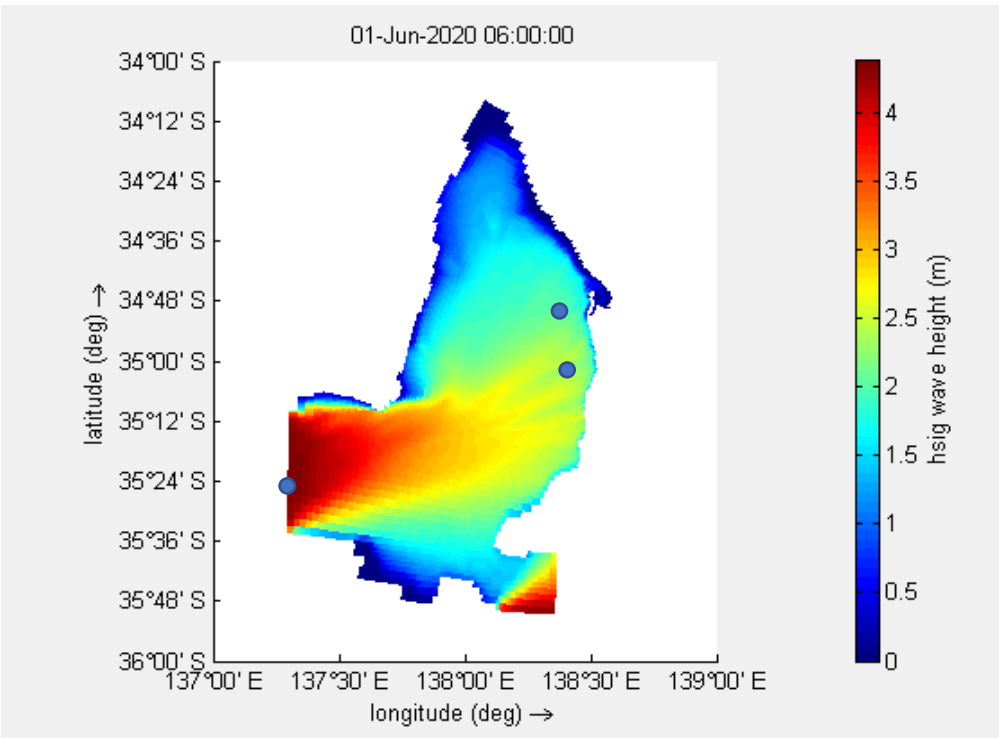
New funding from National Collaborative Research Infrastructure Strategy (NCRIS)/IMOS
in 2019 to establish SAMGSV site (with SARDI, EPA and SA Water)

SAwaves

SAwaves is a wave monitoring program for South Australia (maintained by Flinders University and SARDI)

Array of wave buoys (Spotter) that provide real-time wave and SST data

DEW Coastal R&D grant (2020)



Government of South Australia
Department for Environment and Water



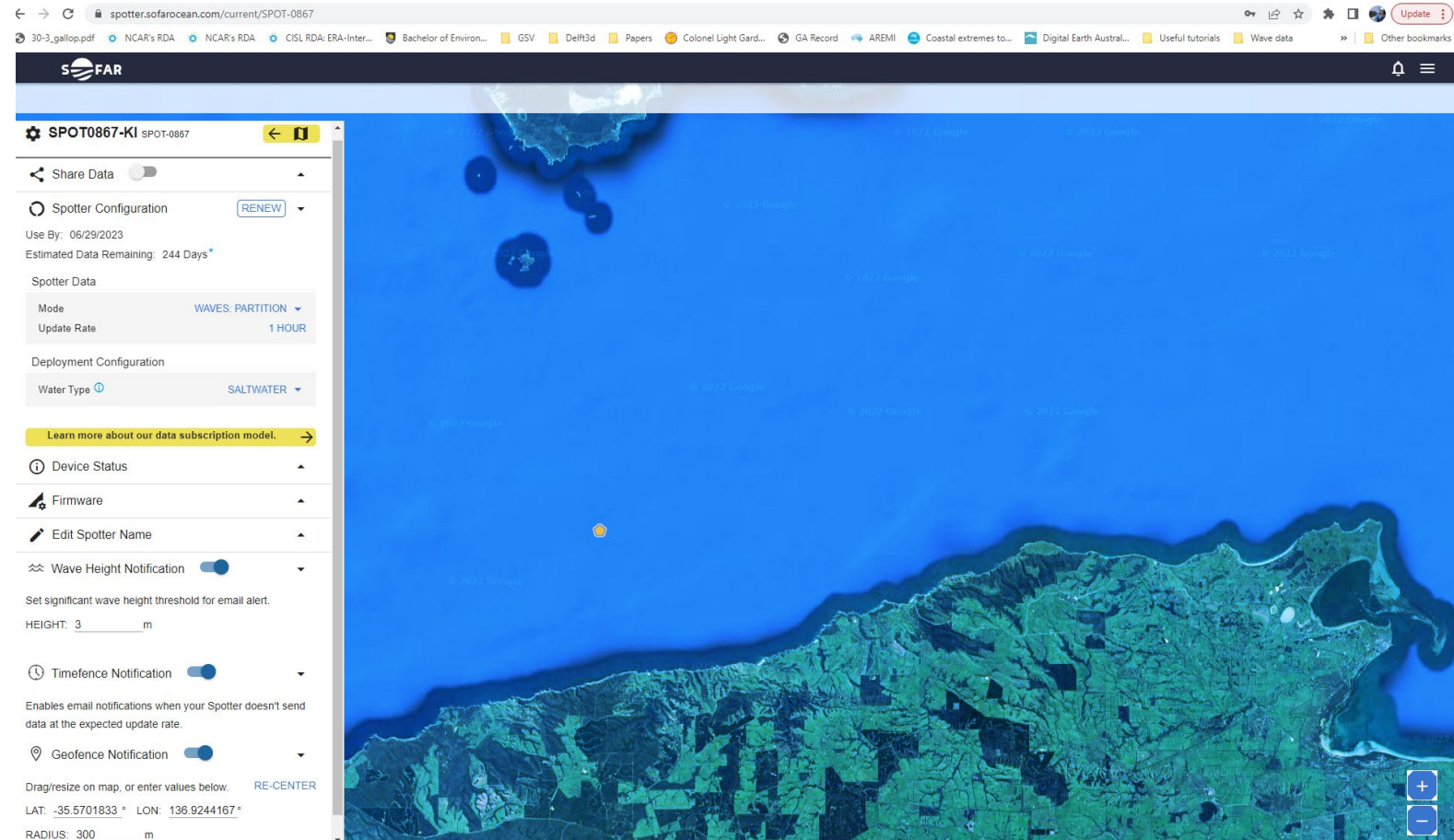
Government of South Australia
Primary Industries and Regions SA

SARDI



The South Australia wave buoy network (SAwaves) is currently made up of moored SOFAR Spotter buoys which have been deployed for ~two years (1 year in Robe). The data provided by the buoys and displayed in this site are:

- Time (ACST), position (latitude and longitude);
- Significant wave height (Hm0);
- Peak period (Tp) and Peak direction (Dp) – period and direction associated with the most energetic waves in the total wave spectrum. The Dp is measured clockwise from North and indicates the direction the waves come from;
- Sea surface temperature via a thermistor mounted to the wave buoy hull;
- Wind speed and direction, estimated from the buoy's measurements of the short period waves.



Government of South Australia
Primary Industries and Regions SA

SARDI



Government of South Australia
Department for Environment and Water



Real-time wave data:
www.sawaves.org

- Bulk wave parameters (significant wave height, period and direction)
- Sea and swell wave partitions
- Full spectrum

www.sawaves.org

Map | Satellite

Historical Data
 Live Data

SPOT0867-KI

SPOT0867-KI

Expand | Centre | Export Data | 30/11/2023 - 05/12/2023

Click legend labels to toggle their appearance

- Peak Wave Period & Direction (s & deg)
- Sea Surface Temperature (°C)
- Significant Wave Height (m)

Wave height (m)

Temp (Deg C)

Peak period (s)

30 Nov 17:11 | 1 Dec 10:12 | 2 Dec 03:12 | 2 Dec 20:12 | 3 Dec 13:12 | 4 Dec 06:12 | 4 Dec 23:12

30 Nov 2023 5:30PM — 05 Dec 2023 4:30PM

Latest Observations 5 Dec 2023 3:13PM

Significant Wave Height (m)	Peak Wave Period (s)	Mean Wave Period (s)	Peak Wave Direction (deg)
1.21	17.06	9.1	261.606
Mean Wave Direction (deg)	Sea Surface Temperature (degC)	Wind Speed (knots)	
260.388	17.92	10.8	
Wind Direction (deg)			
251			

Google

Keyboard shortcuts | Map data ©2023 Google | Terms

~4k views over the last year

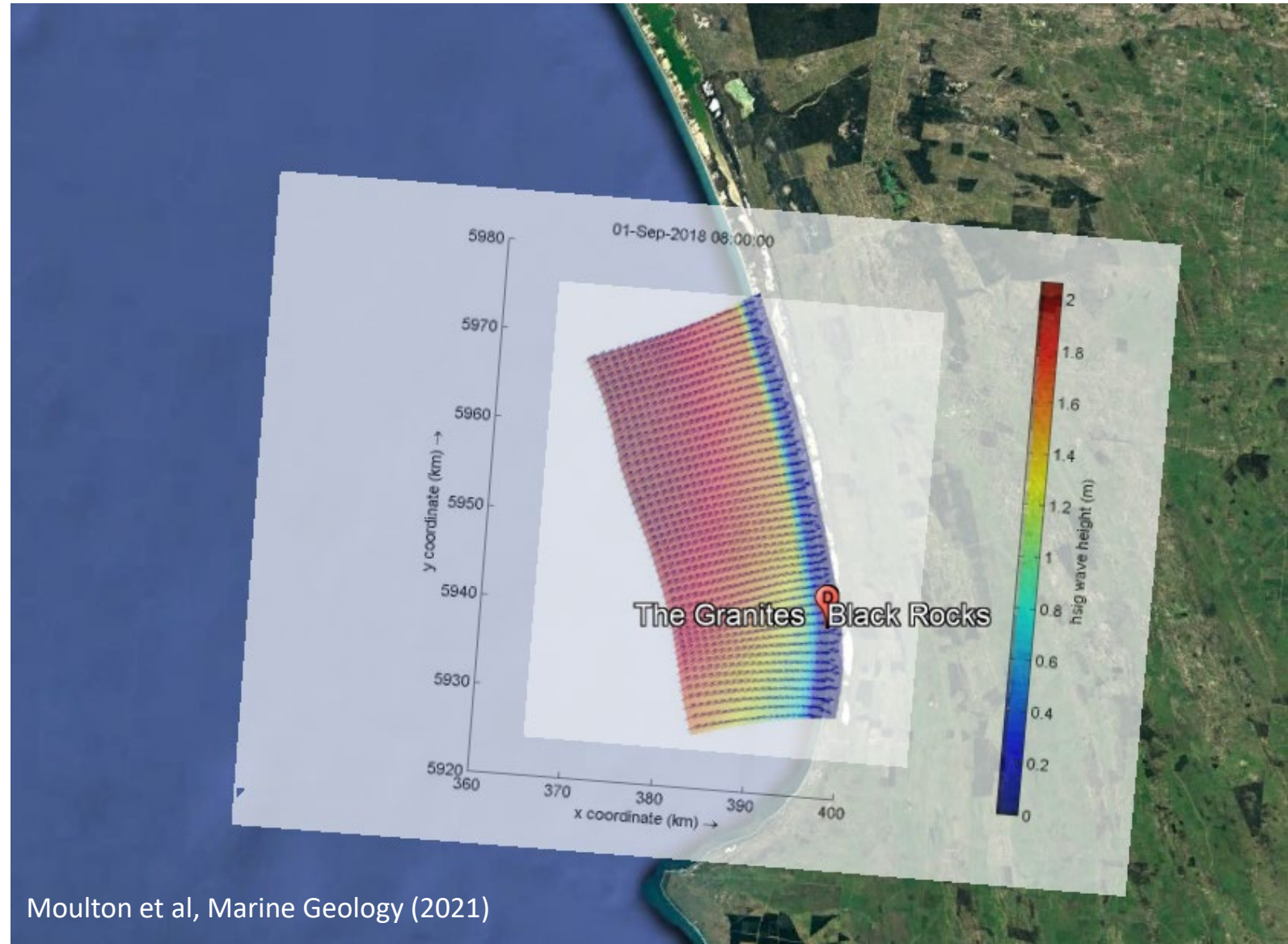


Why do we need data?

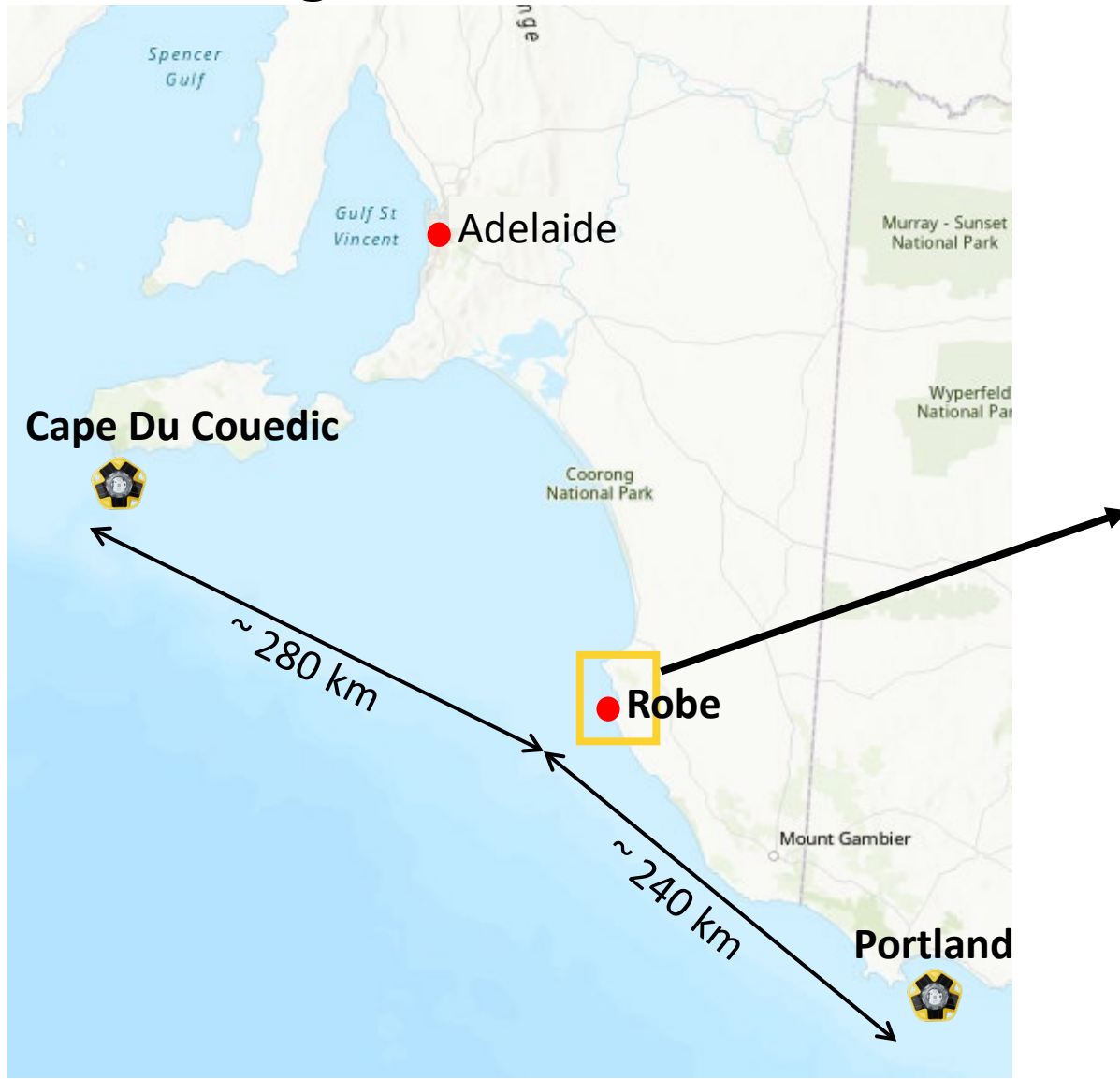
We need data to validate numerical models that inform:

- Longshore currents, tidal propagation
- Sediment transport (bedload and suspended)
- Coastal erosion
- Storm impacts, changes in morphology (coasts, inlets, estuaries, lakes and rivers)
- Water quality, circulation of nutrients

Current research with colleagues from Adelaide Uni, SA Water, TU Delft and Deltares in various projects.



Wave heights in Robe

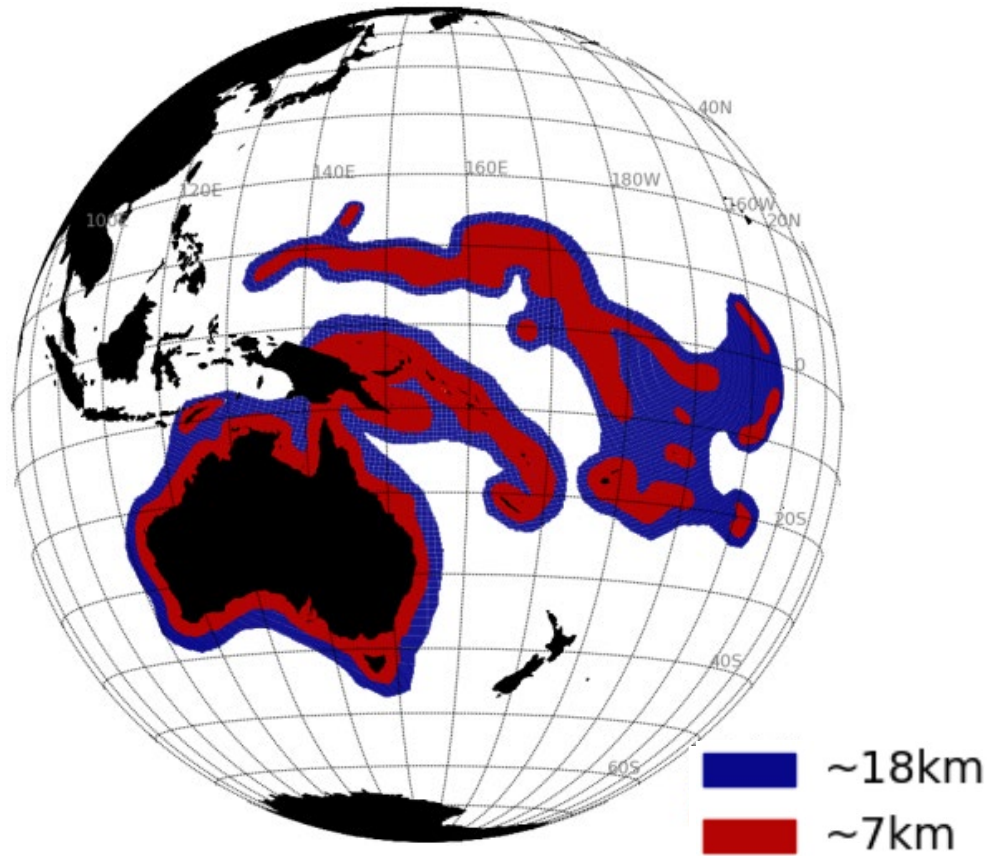


Charlotte Uphues– PhD student at Flinders University (BEADS lab)

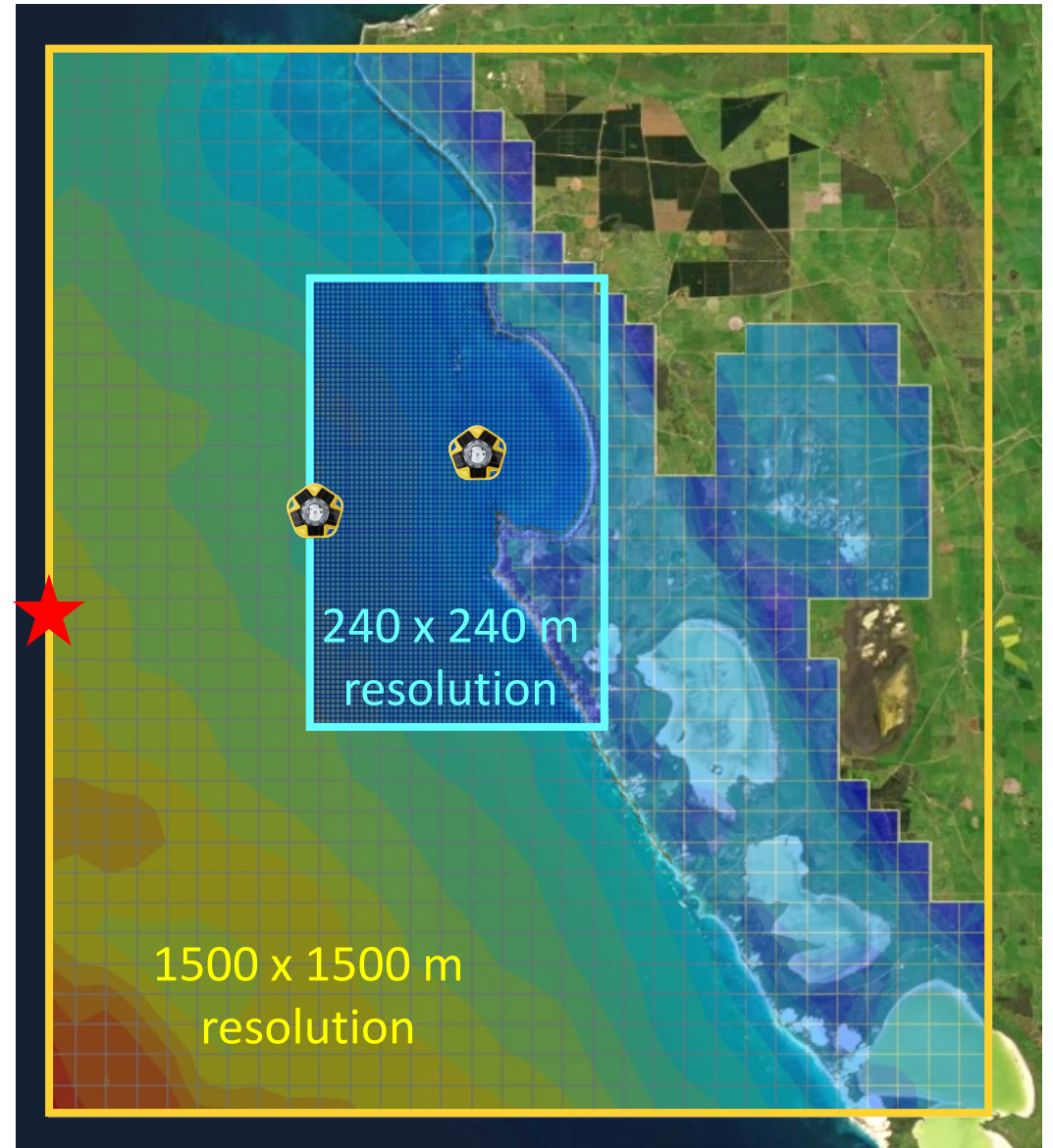
Wave measurements and models

CAWCR* wave hindcast model

*Centre of Australian Weather and Climate Research - CSIRO



CAWCR
wave model ★
Hs = 3 m
Tp = 14.5 s
Dir = 225°



Future of the network

SA Climate Ready Coasts (CRC) Program

Monitoring buoys are part of the stage one of the project (July 2023 to June 2024) - DEW

The priorities for the next quarter focus on purchase of buoys and engagement with stakeholders on:

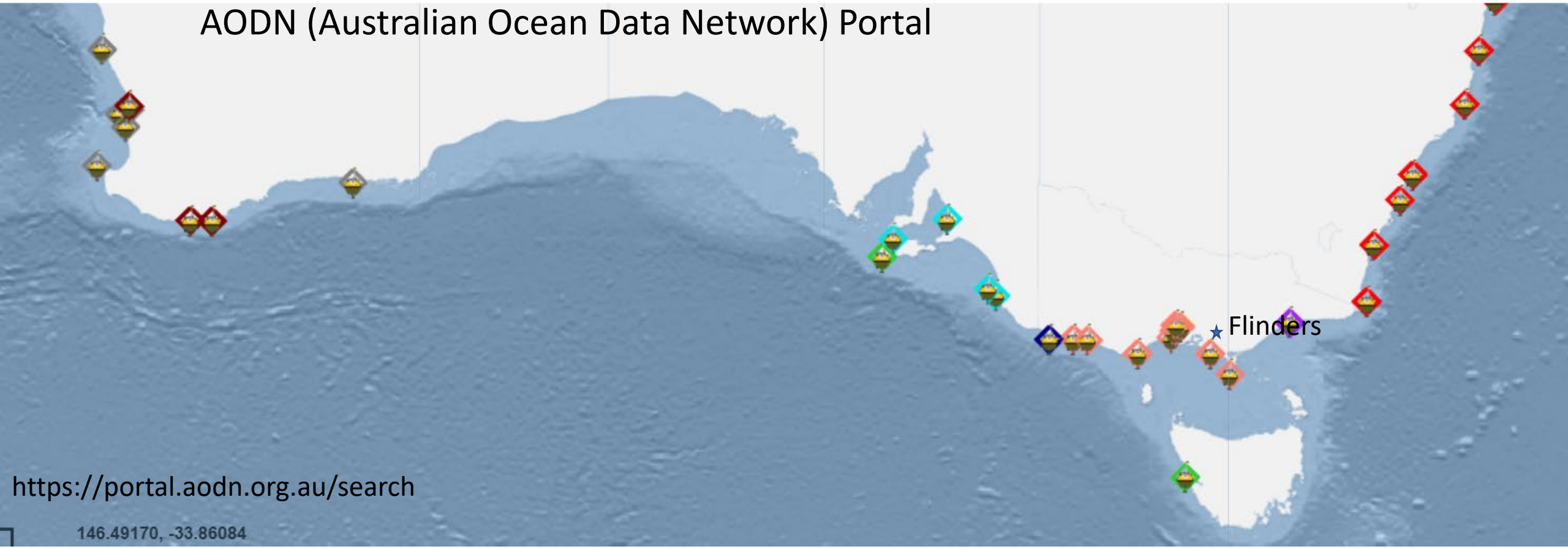
1. Interest in data,
2. Location of buoys,
3. Deployment and maintenance.

If anyone is interested in being involved, please contact nicole.pelton@sa.gov.au

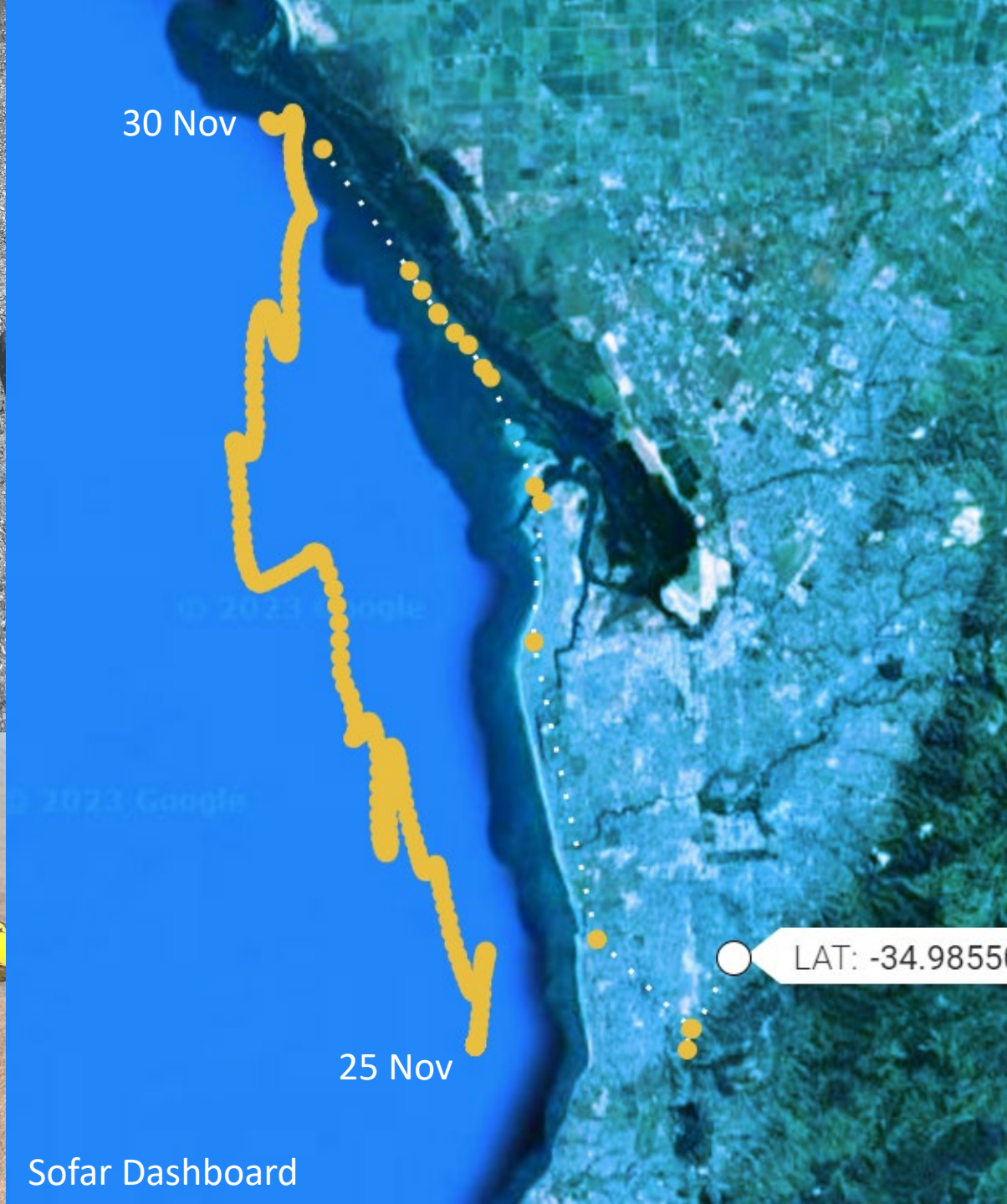
IMOS (Integrated Marine Observing System) - Coastal Research Infrastructure (CoastRI)

“developed to provide a national-scale coastal observing and modelling capability for Australia, including establishing partnerships with First Nations people, to collect and deliver valuable coastal data” (<https://www.coastri.org.au/>)

AODN (Australian Ocean Data Network) Portal

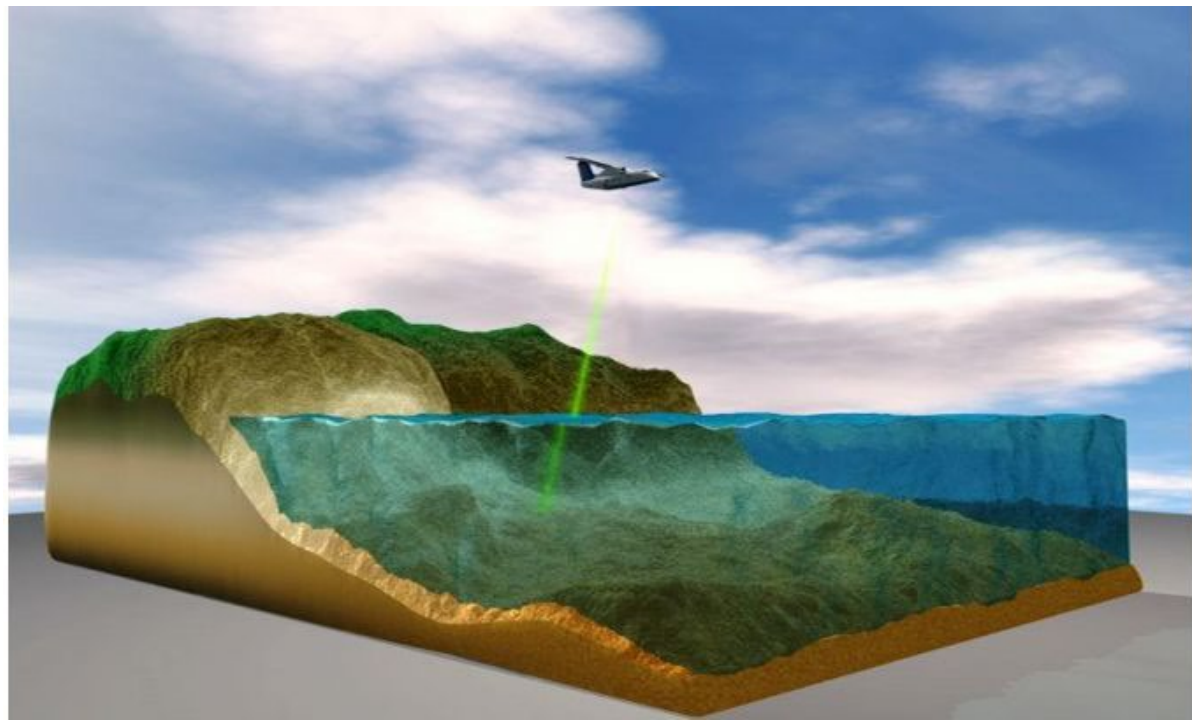


<https://portal.aodn.org.au/search>



A High-Resolution Coastal Bathymetry Facility with Advanced Technologies (CoastBAT)

Provide high resolution bathymetry in nearshore and inland waters, where information is currently limited due to high cost and/or difficult access by traditional surveying operations.



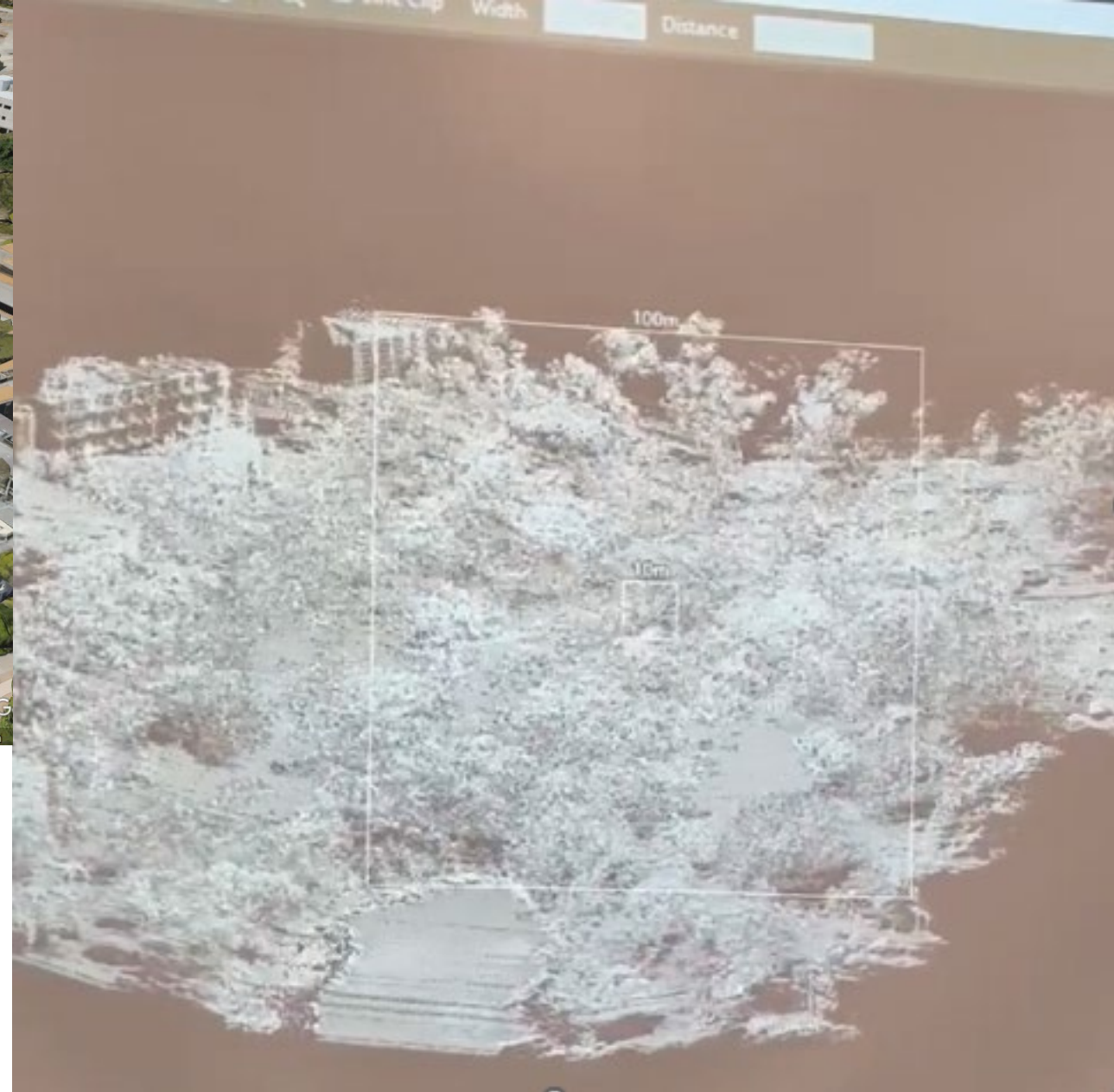
<https://www.gim-international.com/content/article/technology-in-focus-bathymetric-lidar-2>

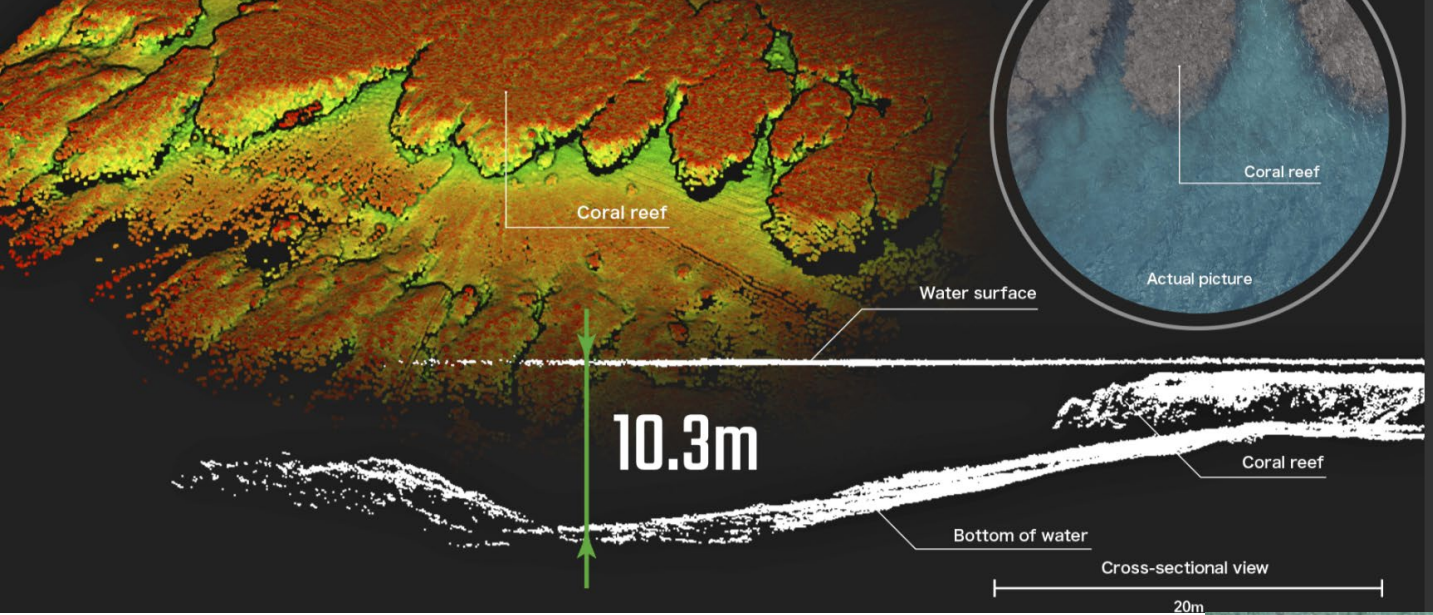
TDOT (Amuse Oneself Inc., Japan)





Training at Flinders University (22 to 24 November)





The CoastBAT facility will be operational from early 2024. Data obtained will be shared with the community via AusSeabed.

This project is funded by the Australian Research Council (LE230100038), led by Flinders University in partnership with the SA Department for Environment and Water (DEW), SA Water, Deakin University, District Council of Robe and Monash University.

