



Sofar Spotter

The ocean weather platform to **collect data anywhere.**

Observational data from the ocean is tragically sparse and notoriously hard to collect. Spotter is out to change that with radically better design, outstanding data quality and a modern feature set. Through the Spotter Dashboard, you can access data from anywhere, change its settings, set alerts and notifications, and integrate with other tools via the API. Spotter lets you collect ocean data where you need it and access real-time updates on the go.

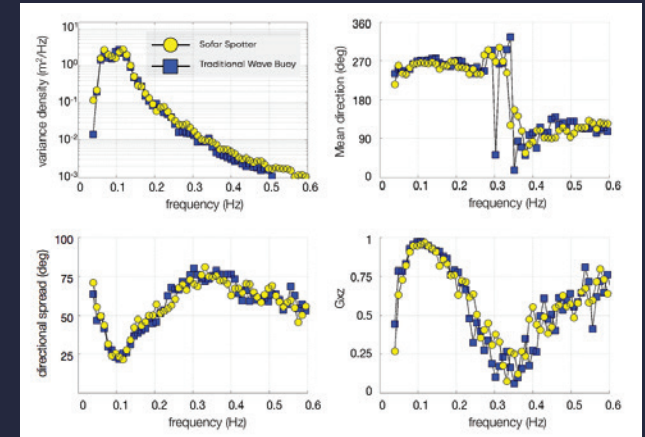


Real-time Data, Sharing and API.

24/7 satellite connectivity gives you real-time weather data and system updates at any time. You can share the data through the included dashboard and mobile app or use the API to forward your data wherever you need it.

Compact & Portable

Roughly the size of a basketball, Spotter can be shipped anywhere around the world, carried by hand, and deployed without any special equipment.



Comparison of spectral variables estimated from data recorded on 4/19/17, 15:00(UTC): variance spectrum (top left), mean direction (top right), directional spread (bottom left), and cross-coherence G_{xz} (bottom right). Full study available on our blog: <https://www.sofarocan.com/community/posts>

Wind + Wave Data

Spotter collects 3D displacement time series, and calculates the wave spectrum, which is stored onboard and can be transmitted through the dashboard. In addition, you receive updates for :

- Position/ time
- Wave mean/ peak period
- Wind speed/ direction
- Wave mean/ peak directional spread
- Significant wave height
- Wave mean/ peak direction
- Wave mean directional spread

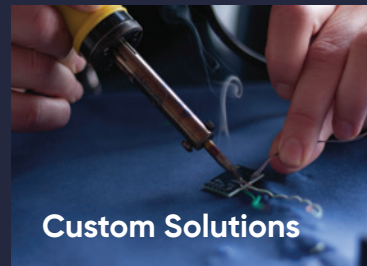
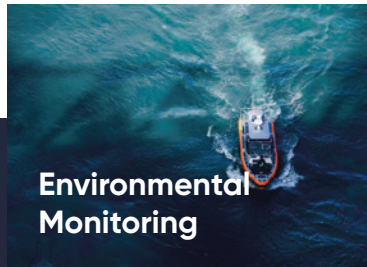
Sea Surface Temperature Data

Spotter comes equipped with a compact, digital temperature sensor to provide high-fidelity Sea Surface Temperature (SST) measurements. The sensor is mounted in an insulated stainless steel penetrator to provide excellent thermal contact with the water and is rated for 0.1°C absolute accuracy and 0.02°C resolution.

Data Partitioning

In addition to the standard bulk parameters, Spotter can now provide the same parameters over 'sea' and 'swell' wave partitions.

Sofar Spotter Use Cases



"These buoys are surprisingly easy to deploy, very light and easy to handle, and can be lowered in the water by hand using a line. As a result, you can deploy them in almost any kind of conditions."

- Dr. Aitana Forcén-Vázquez, Principal Investigator

Solar-Powered

The combination of solar panels and rechargeable battery means that you never have to worry about running out of power. Spotter is self contained, low maintenance and always ready to go.

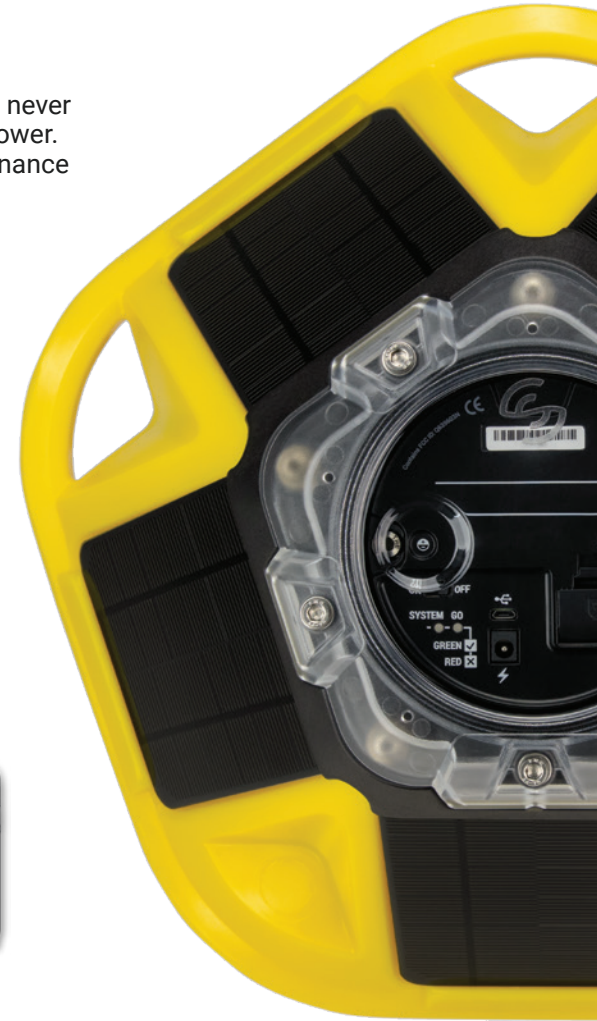
Rugged Design

The ocean is a rough place. Every part of Spotter is built to withstand the harshest ocean elements in any weather condition, anywhere on our planet.



Spotter Dashboard & Mobile App

The Spotter dashboard and API provide access to real-time and historical data. The dashboard enables you to change your Spotters' settings from anywhere in the world. You can set up alerts for weather conditions or get notified if your Spotter is outside of its geofence, or share your data with the Spotter mobile App.



Spotter Technical Specifications

EXTERNAL DIMENSIONS [W X H]	42cm x 31cm (16.4in x 12.2in)
WEIGHT	5.3kg /11.6lbs (7.4kg /16.3lbs with external ballast chain)
CONNECTIVITY	Iridium SBD (satellite)
PRIMARY POWER SOURCE	Solar Powered, 5x 2 Watt, 6 Volt solar panels
BATTERY	Lithium-ion, capacity 11,200 mAh, 3.7v (rechargeable)
MOTION DATA FORMAT:	x (easting), y (northing), z (vertical, positive up), latitude (deg), longitude (deg)
WAVE FREQUENCY RANGE:	0.03-1 Hz (30s to 1s)
WAVE DIRECTION RESOLUTION:	0 - 360 degrees (full circle)
SAMPLING RATE:	2.5 Hz (Nyquist @ 1.25Hz)
WAVE DISPLACEMENT ACCURACY:	Approximately +/- 2cm accuracy depends on field of view, weather conditions, and GPS system status.
SEA SURFACE TEMPERATURE (SST):	±0.1°C absolute accuracy ±0.02°C resolution
CALIBRATION:	Not needed, ever.
ON-BOARD (SD CARD)	Records time series of 3D displacement data, ships with 16GB (256GB MAX capacity), FAT16 or FAT32 Format required
CLOUD STORAGE (ONLINE DASHBOARD)	Real-time and historical data outputs, Spotter configurations, alerts, maps and two-way communication. Access to online account that includes:

DATA OUTPUTS:

* Can derive from SD card data.

 standard mode
  spectrum mode
  on device

	standard mode	spectrum mode	on device
SIGNIFICANT WAVE HEIGHT	X	X	X *
PEAK PERIOD	X	X	X *
MEAN PERIOD	X	X	X *
PEAK DIRECTION	X	X	X *
MEAN DIRECTION	X	X	X *
PEAK DIRECTIONAL SPREAD	X	X	X *
MEAN DIRECTIONAL SPREAD	X	X	X *
VARIANCE DENSITY SPECTRUM		X	X
DIRECTIONAL MOMENTS (a1, b1, a2, b2)		X	X
3D DISPLACEMENT TIME SERIES @ 2.5 Hz (x,y,z)			X
SEA SURFACE TEMPERATURE	X	X	X
WIND SPEED	X	X	
WIND DIRECTION	X	X	
DRIFT SPEED			X *
DRIFT DIRECTION			X *
GEOGRAPHICAL COORDINATES (lat, lon)	X	X	X *

OTHER

SYSTEM MONITORING	Battery power status
ADVISED MOORING DEPTH	Any depth
Visibility LED	1 flash every 2.5 seconds, at least 1 mile visibility under normal conditions.
FIRMWARE UPGRADE	Standard micro-USB (cable included)
USABILITY	Magnetic on/off switch, Run/Idle mode, user LED's and grab handles.

