



OBSCAPE
OBS-BUOY 400

OBS-BUOY400

Compact, portable and rugged.

The rugged Obscape **OBS-Buoy⁴⁰⁰** is the most affordable, lightweight and reliable metocean buoy that collects and transmits accurate real-time full wave and sea surface temperature data. Superior elliptical design for accurate wave tracking, and temperature measurements in all types of challenging conditions. Long lasting Easy-to-Replace lithium batteries and Easy-to-deploy wave buoy, complete with accurate real time wave and sea surface temperature measurements. Designed specifically for coastal and offshore deployments for the most affordable, convenient and easiest wave and temperature measurement buoy. Simply powerup, place in the water and log into your Data Portal.

The **OBS-Buoy⁴⁰⁰** will meet the observational needs for your project's location, environment and budget. A Global SIM card and €100 of data included Free of Charge. Accurate real-time wave and temperature measurements make their way to the free, easy to use and internet-based Data Portal via a robust cellular telemetry solution. The **OBS-Buoy⁴⁰⁰** is designed to make your life easy with a simple startup and easy to deploy solution.



KEY FEATURES

- Real-time data (4G with 2G fallback)
- Bulk wave parameters
- Directional wave spectrum
- Up to 12-month battery-powered lifespan
- GPS position & watch circle
- SST sensor
- Low purchase & operational costs
- Compact & light weight
- Easy to deploy & service
- Global SIM (incl. data)
- Versatile data portal included

MAIN APPLICATION AREAS

- Work compliance monitoring
- Marine & Coastal engineering
- Oceanographic research
- Environmental monitoring

ACCURATE, FULLY DIRECTIONAL WAVE DATA

The Wave Buoy uses a combination of motion sensors and an electronic compass to measure the directional wave field with high accuracy. This yields the directional wave spectrum and all parameters that can be derived from it, such as the 1-dimensional energy-density spectrum and a range of bulk wave parameters (significant wave height, peak wave period, peak wave direction, etc.).

REAL-TIME ACCESSIBILITY

Real-time Wave data is sent to the Obscape servers via a rugged and dependable telemetry solution. The secure Obscape Data Portal enables you to view and download the data or easily forward them to your own server. Key settings, such as the real-time output interval and the location of the GPS fence, can be adjusted on the fly. A GSM network offers low-cost data transfer in coastal waters. A FIFO queue is able to close connectivity gaps up to 50 days. API provides consistent access to wave and surface temp data collected by the Small Buoy via an HTTPS JSON API. (Data forwarding available).

RELIABLE

The 4G (with 2G fallback)GSM communication ensures a stable real-time data connection, whilst the use of GPS positioning combined with automated status notifications via email make the system reliable. The GPS position reported by the buoy is continuously compared to the user-specified deployment location. If the distance between the actual and intended position of the buoy exceeds a pre-defined threshold (the geofence/watch circle), an email notification is sent to the user. Similar notifications are sent in case of a data gap, low battery level or exceedance of a user-specified wave height threshold.

EASY TO DEPLOY

With an easy-to-handle elliptical design and a lightweight 7.5kg, deployment of the **OBS-Buoy⁴⁰⁰** is amazingly easy. Simply start up, place in the water from shore, or any floating vessel (even a canoe, kayak or paddle ski will suffice) and start collecting data. No specialist skills required!

TECHNICAL SPECIFICATIONS

DATA SPECIFICATIONS

WAVE SPECTRUM	Fully directional including height and period (Maximum Entropy Method)
BULK WAVE PARAMETERS AND SST	SST, Hm0, Hmax, Tp, Tm01, Tm02, Tm-10, Tmax, Dirp, Dirn, Op, Om
DIAGNOSTIC PARAMETERS	Latitude, Longitude, Battery voltage, Internal temperature, Signal strength
SAMPLE FREQUENCY	6.25 Hz
FILTERED FREQUENCY RANGE	0.05 Hz – 1.00 Hz (20 sec – 1 sec)
BURST DURATION	30 minutes
STORAGE	Data Portal
SEA SURFACE TEMP. SENSOR	-55°C to +125°C temperature range ±0.5°C accuracy from -10°C to +85°C

PHYSICAL CHARACTERISTICS

BUOY DIAMETER	372 mm
BUOY HEIGHT	225 mm
WEIGHT	7.5 kg (without batteries)
SAFETY SYSTEMS	GPS watch circle
UV HULL PROTECTION	UV 8 Stabiliser. Melting point: 110 - 125°C.
BUOY COLOUR	Highly visible marine standard yellow.

WEB-PORTAL SPECIFICATIONS

ONLINE GRAPHS	Bulk wave parameter, temperature graph & diagnostic parameters
DOWNLOADS	Bulk wave parameters, diagnostic parameters, 1D wave spectra, directional wave spectra (text files, png or pdf report)
FORWARDERS	JSON API or HTTP post
STATUS NOTIFICATION EMAILS	Online/offline, GPS watch circle, battery level, wave height threshold

TELEMETRY SPECIFICATIONS

COMMUNICATION MODES	GSM (4G with 2G fallback)
REAL-TIME DATA INTERVAL	30 minutes – 24 hours (user selectable)
REAL-TIME WAVE & TEMP DATA	Sea surface temperature, bulk wave parameters and compressed directional wave spectrum. interior humidity and atmospheric pressure.
GSM DATA LOAD	8 kB per message (bulk parameters only) or 14 kB per message (bulk parameters & spectra)

ELECTRICAL CHARACTERISTICS

REPACKABLE BATTERY	8 x Lithium D Cell batteries incl.
BATTERY TYPE	Lithium, primary or alkaline
BATTERY LIFE	Lithium 6 – 12 months / Alkaline 1 – 2 months

FACTORS ADVERSELY AFFECTING OPERATION

BREAKING WAVES	Reduced accuracy in impact conditions
STRONG CURRENTS > 1 M/S	All small-sized wave buoys suffer from mooring line tension in strong ambient currents. This disturbance will express itself as artificial energy in the low-frequency band and grows progressively stronger as the current gets stronger and mooring line tension increases. Use of the Obscape mooring design guideline , which includes the use of in-line floats and sinkers to give the mooring line of the wave buoy, can offer better resistance against background currents.
WATER DEPTH < 4 M	Reduced accuracy, risk of excessive mooring wear



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