



BEAMON Viewer

The SOCIB's Beach Monitoring Viewer App

USER'S MANUAL v1.0

Beach Monitoring Facility - ICTS SOCIB

June 2022



Balearic Islands
Coastal Observing
and Forecasting
System

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INTRODUCTION	5
MAIN PAGE	6
HOME PAGE	8
STATION MAP	9
LATEST IMAGES	10
HISTORICAL IMAGES	11
COMPARE IMAGES	12
DATA DISCOVERY	13
DOWNLOADS	16
ABOUT US	17

1. INTRODUCTION

This document is a hard copy of the online user's manual of the Beach Monitoring Viewer App (BEAMON Viewer) developed by SOCIB.

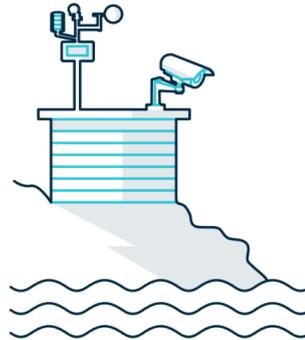
2. MAIN PAGE



BEAMON VIEWER USER MANUAL

Welcome to the BEAMON Viewer user manual

The SOCIB's **Beach Monitoring Viewer App**



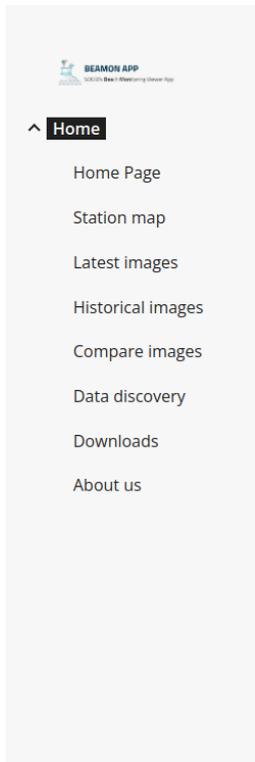
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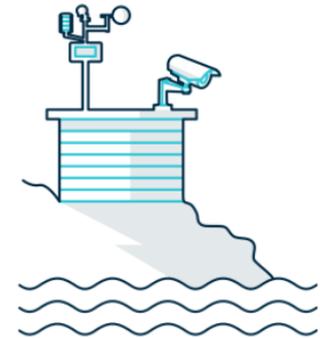
The panel on the left shows the different pages of the user's manual.



BEAMON VIEWER USER

Welcome to the BEAMON Viewer user n

The SOCIB's **Beach Monitoring Viewer App**

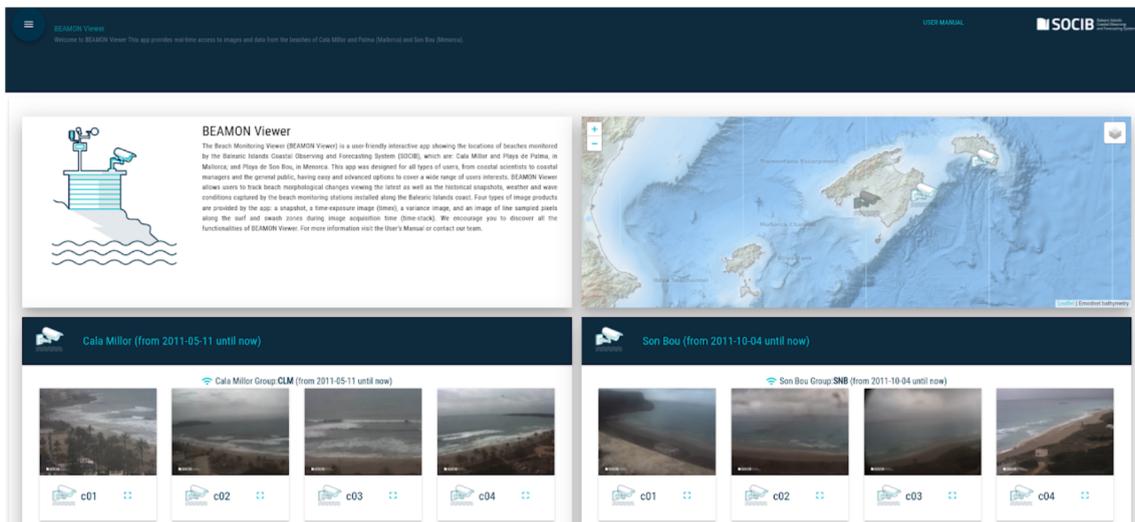


3. HOME PAGE



HOME PAGE

At the top of this page the user can find an introduction of the Beach Monitoring Facility and the locations of the video monitoring system stations. The latest snapshots captured by the monitoring system are also available.



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4. STATION MAP



STATION MAP



This page provides the location of each video monitoring system station. Clicking on the stations, a new window opens providing information about the date of the deployments of each group of cameras. From this window, the user has direct access to the historical data page of the selected station.

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5. LATEST IMAGES

LATEST IMAGES

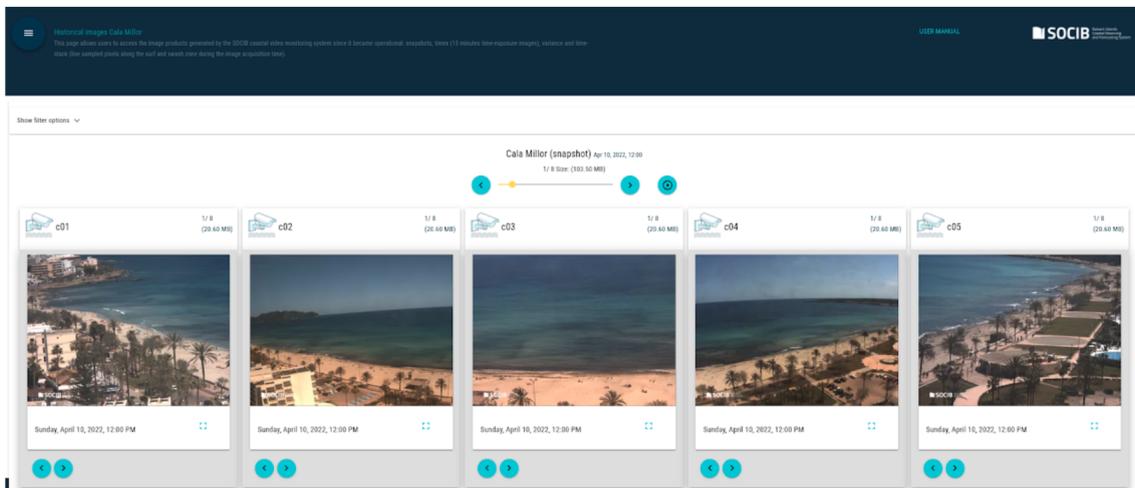
This page provides the latest images from all cameras of the SOCIB coastal video monitoring system installed along the Balearic Islands coast. By clicking on the image the user can enlarge it. To directly access the historical data page, the user has to click on the camera symbol or the name of the station, located on the top of each panel.

The screenshot displays the 'Latest Images from each camera' section of the SOCIB website. It features a dark blue header with a menu icon, the title 'Latest Images from each camera', and a 'USER MANUAL' link. Below the header, there are two main sections: 'Cala Millor (from 2011-05-11 until now)' and 'Cala Millor Group:CLM (from 2011-05-11 until now)'. The second section contains five camera panels, each with a live video feed, a camera icon, and a label (c01 to c05).

6. HISTORICAL IMAGES

HISTORICAL IMAGES

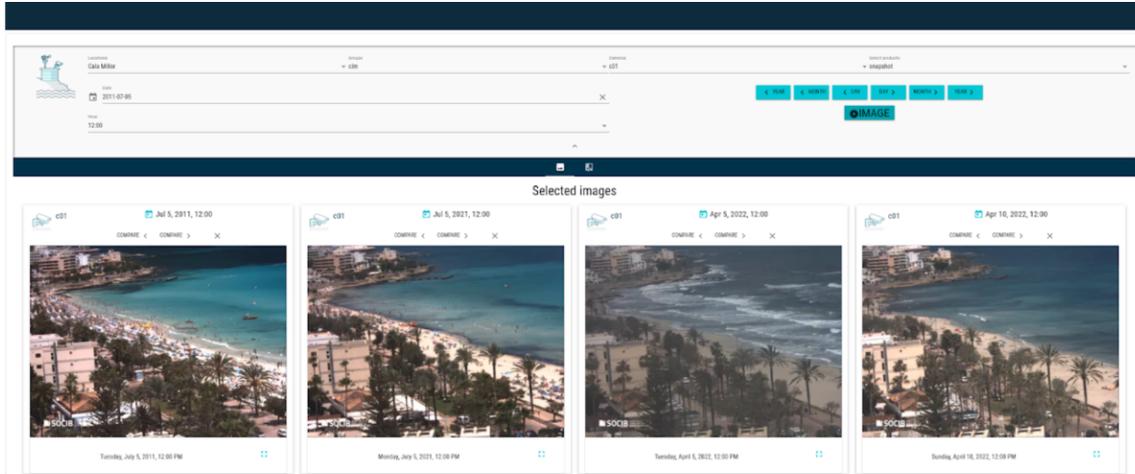
This page provides all the products generated by the SOCIB coastal video monitoring system since it became operational. Four types of image products are generated: a snapshot, a timex (10 minutes time-averaged images), a variance image, and a time-stack image (an image in which the intensity of an array of pixels is plotted against time). The user can select the station, the cameras, the product, and the period of time.



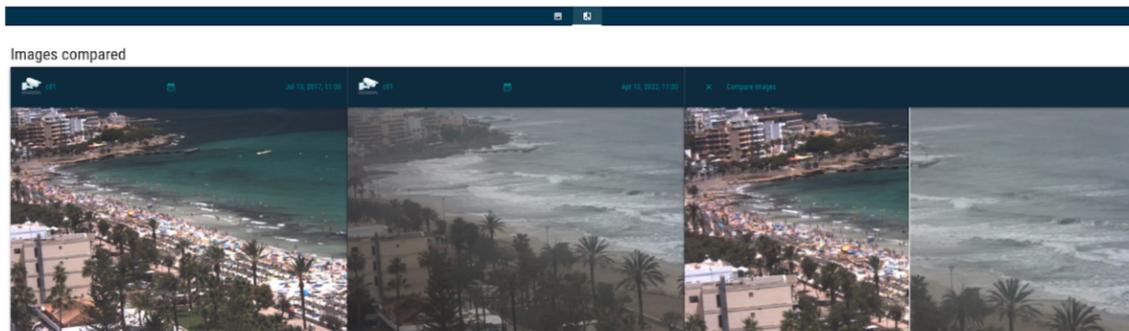
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7. COMPARE IMAGES



Once the images are in the basket, the user can select two of them to be compared and decide the position of each image by clicking on the left and right arrows.



8. DATA DISCOVERY



DATA DISCOVERY

This tool allows the user to easily get image products related to a particular wave or weather condition. The wave and weather data are *in situ* data measured by each station. These are the steps to be followed:

1. Station selection

The user can select the location, cameras, and products.

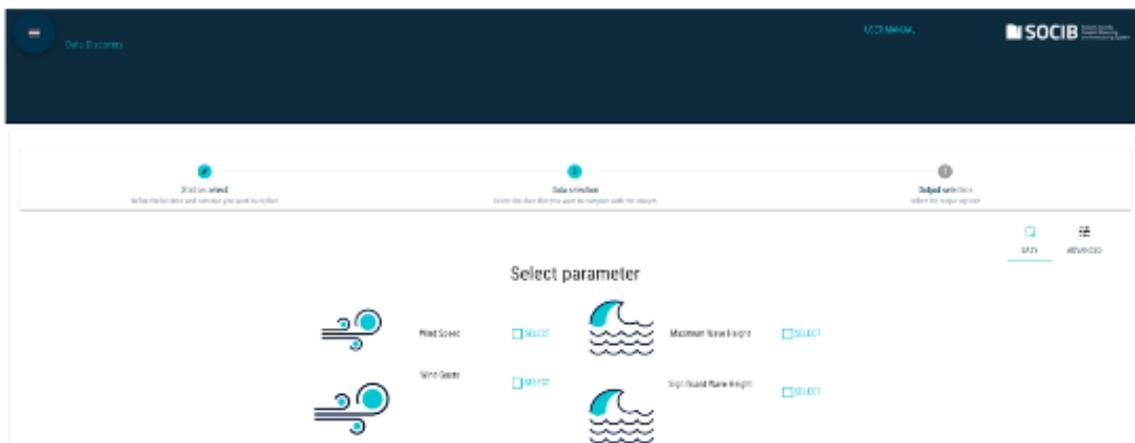


2. Data selection

The user can choose between easy and advanced options.

- **Easy:**

This option allows the user to select between four parameters (wind speed, wind speed gust, maximum wave height, and significant wave height) (Figure 8). Selecting one of these parameters the Output Selection page opens.



▪ **Advanced:**

This option allows the user to access all wave and weather parameters measured by the station. This page allows the user two possibilities:

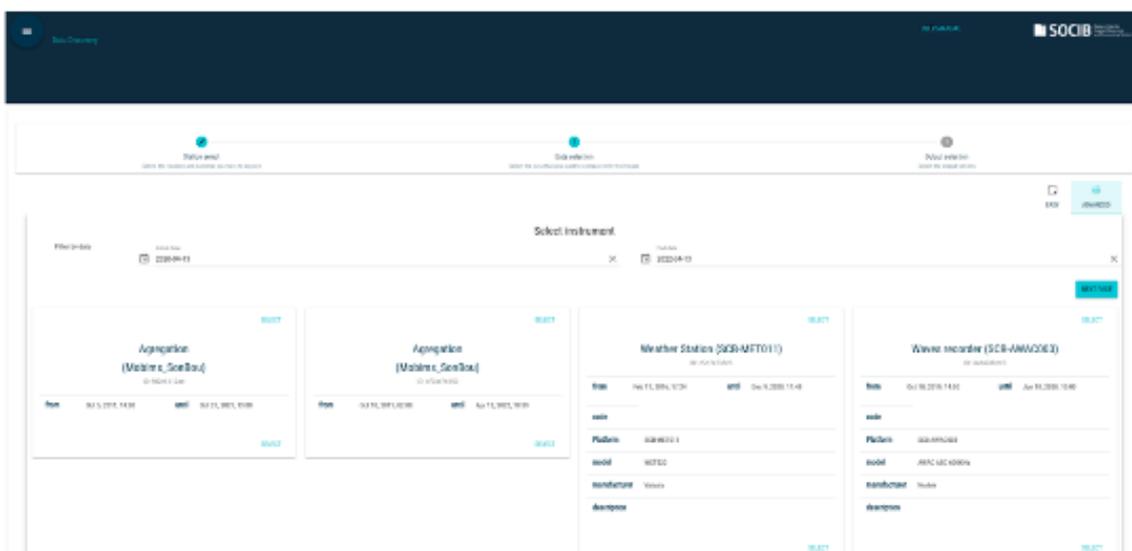
▪ **Aggregations:**

Here the complete time series can be accessed, and the user can select between the wind and wave aggregation or the wind aggregation. It should be noted that, on the one hand, wave data is loaded twice a year and, on the other hand, wind data is real-time data. Therefore, the wind and wave aggregation contains data up to the latest update of wave data and the wind aggregation contains real-time wind data.

The user can select one of the aggregations and on the next page select one parameter. Clicking on "NEXT" the Output Selection page opens.

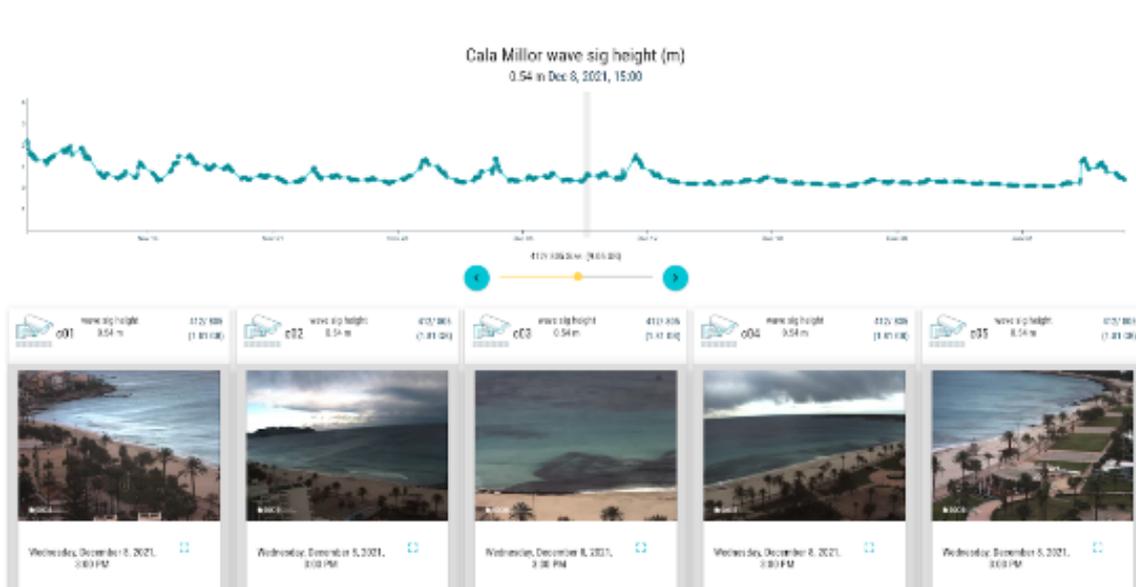
▪ **Instruments:**

Data from each instrument (the meteo-station or the acoustic wave and current profiler) can be accessed separately. At the top of the panel, the user can select the dates of interest, and automatically the page will refresh. If more than one AWAC is part of the time series in the selected period, only the first one appears on this page. Clicking on "NEXT PAGE" all AWACS that are part of the selected time period appear. The user can select one and on the next page select the parameter of interest. Clicking on "NEXT" the output selection page opens.



3. Output selection

Clicking 'NEXT' opens a new page where the user has the option to filter the data by a range of values. The time period can be changed again, but only between dates within the data series of the selected instrument. Clicking on 'UPDATE PLOT' the plot of the selected parameter and time period is generated (Figure 10). By moving the mouse along the graphic the selected image products are shown.



It should be noted that long series will need more time to load all images. In addition, wave data are loaded twice a year, so depending on the time series chosen, the wave parameters may not be available. If so, the user should choose an earlier date.

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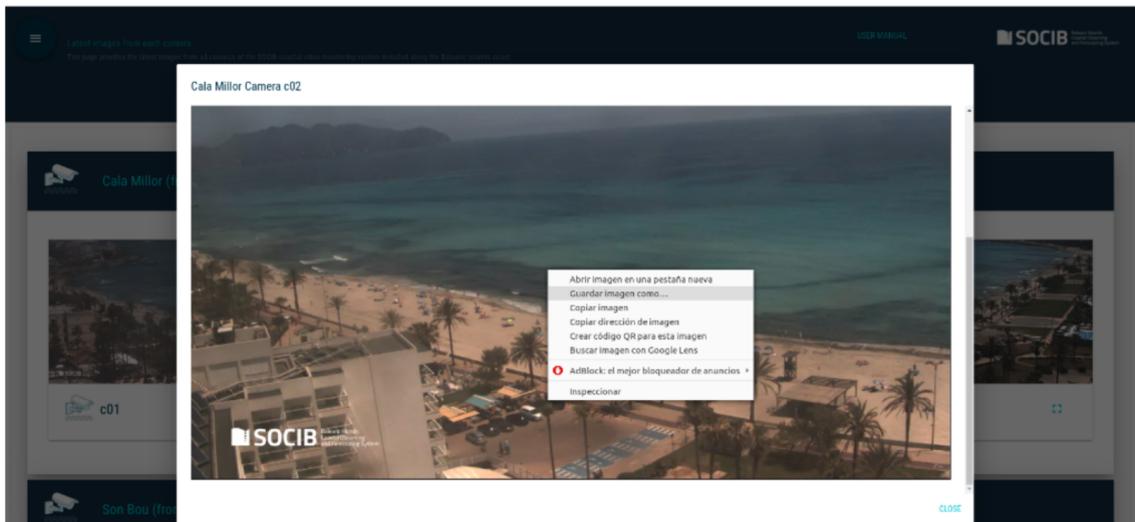
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9. DOWNLOADS

DOWNLOADS

To download the image products, select the desired image product, right-click on it and select 'save image as..', as shown in the figure below.



The image products are saved in .webp format. If users are interested in higher resolution image products, we encourage them to contact our team at mobims@socib.es.

SOCIB is currently working on creating a tool that will allow users to add desired image products to a basket and download all products with a single click. It will be available soon.

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10. ABOUT US



ABOUT US

This page provides a general description of SOCIB, SOCIB's Beach Monitoring Facility, and its modular beach integral monitoring system.

SOCIB

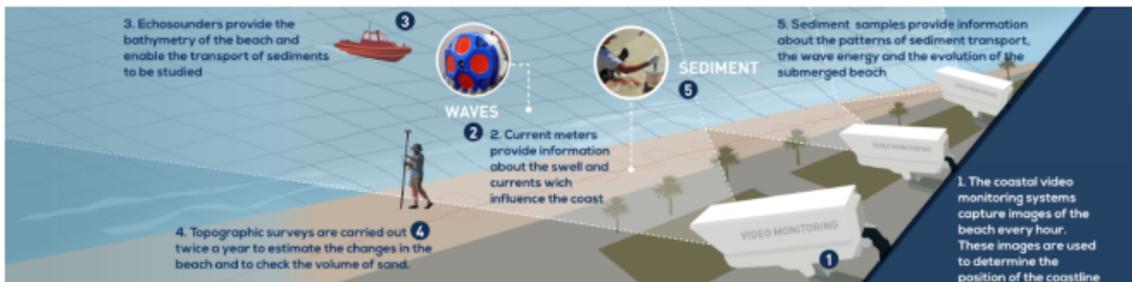
The Balearic Islands Coastal Observing and Forecasting System ([SOCIB](#) from the Spanish version, Sistema de Observación y Predicción Costero de las Illes Balears) is a Unique Scientific and Technical Infrastructure ([ICTS](#), in its Spanish acronym), managed by a Consortium created by the Spanish Ministry of Education and Science and the Autonomous Community of the Balearic Islands in 2007. In 2020, the CSIC was incorporated into the structure of the SOCIB Consortium. Located in Parc Bit, Palma, it has a multidisciplinary team of 50 people with a common goal: to monitor, observe and forecast the Mediterranean Sea and to advance in the knowledge, understanding, and sustainable management of the ocean in a context of global change. To this end, SOCIB operates an observing system that continuously monitors the the western Mediterranean, collecting data through multiple platforms including high-frequency coastal radars, comprehensive beach monitoring systems, ocean gliders, Lagrangian observation platforms (ARGO profilers and surface drifting buoys), oceanographic buoys, meteorological and sea-level stations, and the Research Vessel (R/V SOCIB). Modeling and forecasting systems complement the observing infrastructures to integrate multi-platform and multidisciplinary observations and generate predictions. The data obtained from observations and model predictions can be accessed in real-time and in open access through the SOCIB website (www.socib.es) in line with EU open data strategy. As ICTS, it offers competitive access to the R/V SOCIB and the glider fleet and also offers other specific oceanographic services. Furthermore, through its Responsible Research and Innovation (RRI) strategy, it encourages open access to its scientific and technical production and the transfer of knowledge, thus facilitating the application of its capabilities in R&D&I, connecting with researchers, marine and maritime end-users, decision-makers, companies, and citizens. To this effect,, it designs and implements viewers, early-warning and prediction systems, applications, among other ocean products, to promote science-based marine and coastal management and support the blue economy and mission oriented innovation towards a sustainable and inclusive productive model - on line with the green deal -. In addition, SOCIB works towards accelerating a shift in ocean literacy in Spanish culture, developing activities and resources for all audiences. Last but not least, SOCIB focuses its development, activities and institutional commitments in its Strategic Plan (2021-2024) in line with the United Nations scientific, environmental and societal priorities, the 2030 Agenda and the International Decade of Ocean Science for Sustainable Development (2021-2030).

SOCIB BEACH MONITORING FACILITY

The nearshore zone is a highly sensitive area that embraces several complex physical processes that interact at different spatiotemporal scales. Coastal areas are the first barrier in front of coastal extreme events and flooding, and particularly threatened by global warming and the resulting rise in sea level and changes of storm patterns. Furthermore, they are of special socio-economic relevance, and specially at the Balearic Islands, representing a key environmental, cultural, social and economic elements. A better understanding of nearshore processes and the response of coastal systems at all these scales is increasingly necessary and key to improve conceptual and forecast models, as well as to ensure an appropriate coastal management.



As a scientific facility, the SOCIB's Beach Monitoring Facility contributes to the state-of art of near-shore morphodynamics knowledge at different levels to monitorize and characterise near-shore processes by means of different methods and instruments, with the final goal of supporting near-shore morphodynamics research, deliver reliable and high quality data, and provide expert and scientific support and best-practices for a fully-sustainable management of coastal systems adaptation in front of climate change effects. Particularly, the Beach Monitoring Facility operates the Modular Beach Integral Monitoring System (MOBIMS), a hybrid system of field campaigns and remote sensing. MOBIMS is composed of a low-cost open-source video monitoring system (SIRENA, Nieto et al., 2010), an Acoustic Wave and Current Profiler (AWAC), and a weather station; coupled with bi-annual field campaigns during which high-resolution bathymetries and topographies, as well as sediment sampling, are performed. Beach Monitoring Facility products consist of real-time data on beach images and weather variables, as well as periodic information on waves, sediments, and beach morphology, freely available at the SOCIB's website www.socib.es and under demand. On this website Autonomous Wave Forecast System (SAPO) of Balearic Island, as well as, real time viewers (Seaboard Cala Millor and Son Bou) are also available.



Acknowledgement of Beamon Viewer data and images

Users of images or other products provided by BEAMON Viewer shall properly acknowledge the source by citing it as follows:

"Images and/or data obtained through the BEAMON Viewer app, developed by Balearic Islands Coastal Observing and Forecasting System (SOCIB). [year of data download], [Title], [URL to access the data/images], access [date of access]".

Related Publications:

Nieto, M.A., Garau, B., Balle, S., Simarro, G., Zarruk, G.A., Ortiz, A., Tintoré, J., Álvarez-Ellacuría, A., Gómez-Pujol, L. & Orfila, A. (2010). An open source, low cost video-based coastal monitoring system. *Earth Surf. Process. Landforms*, 35: 1712-1719. <https://doi.org/10.1002/esp.2025>

Tintoré, J., Vizoso, G., Casas, B., Heslop, E., Pascual, A., Orfila, A., Ruiz, S., Martínez-Ledesma, M., Torner, M., Cusi, S., Diedrich, A., Balaguer Huguet, P., Gómez-Pujol, L., Álvarez-Ellacuría, A., Gómara, S., Sebastian, K., Lora, S., Beltrán, J., Renault, L. & Manriquez, M. (2013). SOCIB: The Balearic Islands Coastal Ocean Observing and Forecasting System Responding to Science, Technology and Society Needs. *Marine Technology Society Journal*. 47. 101-117. 10.4031/MTSJ.47.1.10.

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