Appendix 2

EU/ESA funded R&D projects including estimates of satellite-derived bathymetry

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| **Project** | **Participants** | **Objective/Results** |
| **H2020-EU, “BASE-Platform”**  (2015 - 2017)  <https://cordis.europa.eu/project/id/687323> | DLR (Germany)  EOMAP (Germany)  isardSAT (Spain)  Deltares (Netherlands)  MarineFIND (UK)  MARIS (Netherlands) | Provide a commercial service platform for bathymetric data, offering free data from the use cases as well as over 1800 tiles (1° by 1° each) of off-the-shelf data.  Four sources of data were combined: altimetry satellites, SAR satellites (Sentinel-1, TerraSAR-X), optical satellite (Sentinel-2, Landsat-8) and crowd-sourced bathymetry.  The project website is no longer accessible.  (Wiehle et al., 2016) |
| **H2020-EU, “Co-ReSyF”**  (2016 - 2018)  <https://cordis.europa.eu/project/id/687289> | Deimos Engenharia (Portugal)  Terradue (Italy)  Argans (UK, France)  Instituto Hidrográfico (Portugal)  LNEC (Portugal)  University College Cork (Ireland)  National Oceanography Centre (UK) | The main objective was to facilitate the access to EO data and pre-processing tools to the research community. A set of coastal Research Applications were implemented within the Co-ReSyF platform, including bathymetry determination from optical and SAR imagery.  The SAR-Bathymetry application is based on the detection of the swell wave pattern from Sentinel-1 and TerraSAR-X SAR images (Sancho et al., 2018) |
| **H2020-EU, “CEASELESS”**  (2016 - 2019)  <https://cordis.europa.eu/project/id/730030> | Universitat Politecnica de Catalunya (Spain)  Danmarks Tekniske Universitet (Denmark)  Helmholtz-Zentrum Hereon GmbH (Germany)  DHI A/S (Denmark) | The CEASELESS project focuses on coastal sea dynamics using Sentinel satellite data from Copernicus programme, in-situ coastal observations and met-ocean numerical models that consider explicitly the land boundary condition. This project contributes to support the extension of CMEMS to the coast. It demonstrates, in various coastal areas, the use of processing tools, such as SDB, to retrieve more reliable local and regional fields of metocean variables. Such advances will further bound error levels in most coastal applications, enhancing multiple services to coastal stakeholders that incorporate all relevant coastal processes in forecasting and analysis, from storm-induced risks to aquaculture, from renewable energy to water quality (Sánchez-Arcilla et al., 2021) |
| **ESA, “International Satellite Derived Shallow Water Bathymetry Service demonstration project”**  (2016 - 2017)  <https://business.esa.int/projects/international-satellite-derived-shallow-water-bathymetry-service> | TCarta (UK - formerly)  DHI A/S (Denmark) | Creation of a web-based service to provide immediate, off-the-shelf, online access to bathymetry utilising WorldView-2 and WorldView-3 imagery to create depth values for every 2 metres, to water depths of 20 metres, where conditions allow. |
| **ESA, “BathySent”**  (2018 - 2019)  <https://eo4society.esa.int/projects/an-innovative-method-to-retrieve-global-coastal-bathymetry-from-sentinel-2/> | BRGM (France)  HCMR (Greece)  CloudFerro (Poland) | The BathySent project aims at developing an automated method for deriving coastal bathymetry on wide areas (National/European scale) based on Sentinel-2 data and at assessing its performances.  The method preferably applies to the zone between the coast and an area of depth less than or equal to half the wavelength of the waves (typically up to a hundred meters deep), with the exception of the wave breaking zone, generating DTM at ~80 m resolution (Raucoules et al., 2019) |
| **ESA, “Coastal Erosion project”**  (2019 - 2021)  <http://spaceforshore.eu/>  <https://coastalerosion.argans.co.uk/> | i-Sea (France)  ARGANS (UK - France) | The scope of the Coastal Erosion project is the development and demonstration of innovative EO products that will be used by user communities responsible to monitor and control this process. To analyse coastal dynamics, a bathymetry-topography terrain model was developed, thereby including nearshore bathymetry |
| **H2020-EU, “4S Satellite Seafloor Survey Suite”**  (2020 - 2023)  <https://cordis.europa.eu/project/id/101004221> | EOMAP (Germany)  Fugro (Germany)  HCMR (Greece)  Länsstyrelsen Västerbotten (Sweden)  Instituto Hidrográfico (Portugal)  CNR ISMAR (Italy)  QPS (Netherlands)  Smith Warner International Ltd. (Jamaica) | The objective is to develop an online cloud-based solution that will use highly automated EO algorithms and workflows to remotely map and monitor seafloor habitats, morphology and shallow water bathymetry. |