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REMOTE SENSING FOR MAPPING OF THE BURGAS BAY (BULGARIAN BLACK SEA COASTAL ZONE)

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SUMMARY

Mapping the seabed with various technologies is essential to improve our understanding of the dynamics of modern geological processes, ecosystems and the links between biota and physical habitats. The rapid development of hydrographic methods in recent years has made it possible to map large areas of the continental shelf relatively quickly and efficiently. This requires complex and systematic study of the Bulgarian sector of the Black Sea, as the morphological and geological mapping of the seabed is a necessity for national development. This report presents the first stage of the most detailed study of Burgas Bay under the project „Multidisciplinary study of Burgas Bay – MidBay (Composition of a detailed digital model of the bottom relief with analysis of modern geomorphological conditions and archaeological forecasting modeling)". The main scientific goal is to create a composite digital model of the Burgas Bay, which will allow us to interpret and identify the modern morphological forms and processes of the seabed. A geospatial database with bathymetric surveys from different years and equipment was created for this study. The data used combine sonar mosaics, single-beam and multi-beam bathymetric data, and raster satellite and drone-based images processed in PDS 2000, SonarWiz, Agisoft Metashape, and GIS environments. The data are equated in the Baltic elevation system, which allows accurate construction of a digital relief model. The density and range of bathymetric data allowed the generation of a digital bathymetric model of the seabed relief with a horizontal resolution of 14 m. A bathymetric map with an interval of 1 m with high accuracy has been created. Such a high-resolution model is a significant advance in high-resolution mapping of the Bulgarian Black Sea bottom.

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