Operational Forecast System Wave4Us

Powered by Oceanography and Coastal Engineering Group, School of Civil Engineering, Aristo…

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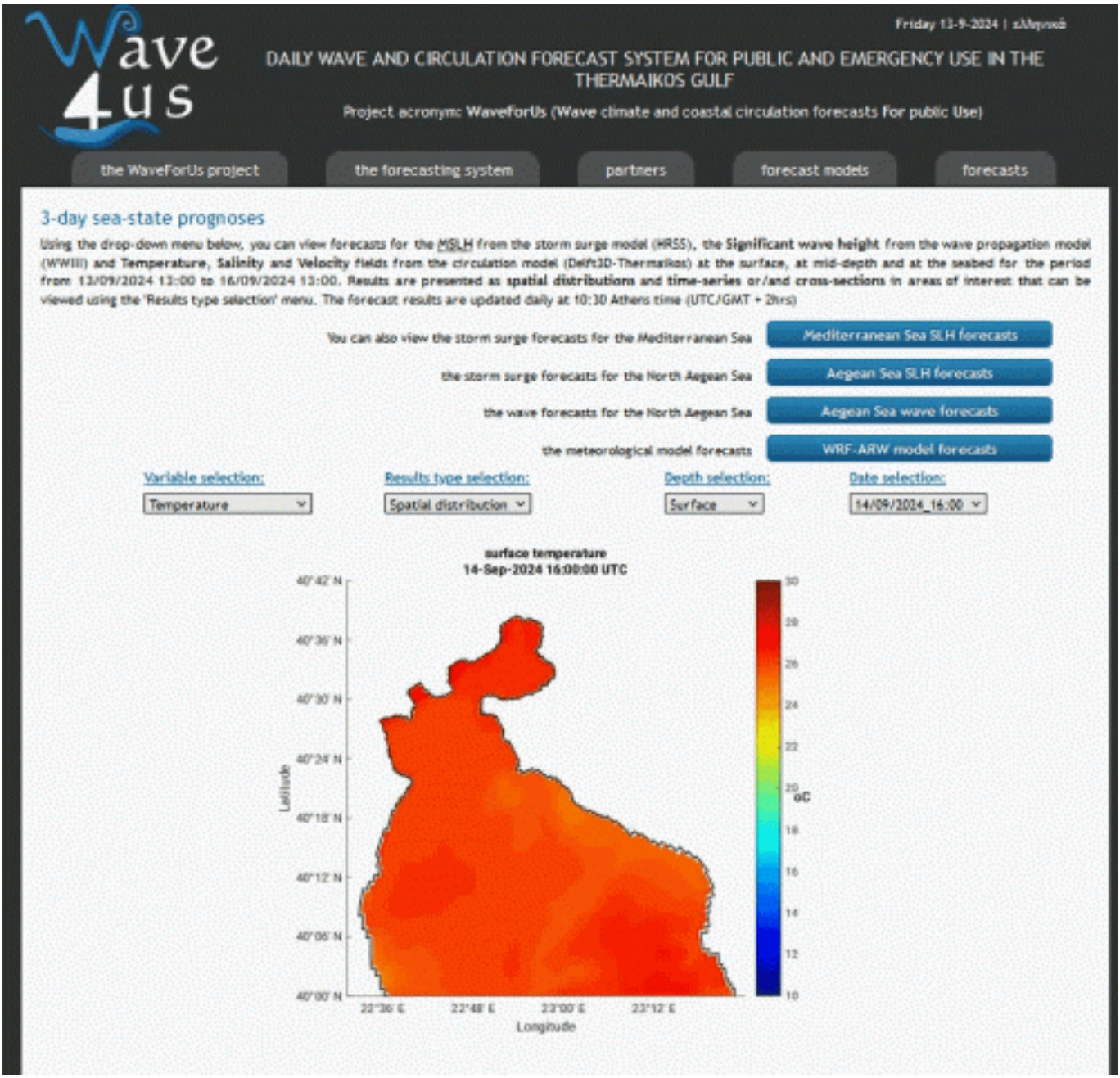
Overview

The Wave4Us is an operational, high-resolution forecasting system that provides environmental services for Thermaikos Gulf, located in the north-eastern Mediterranean Sea facing several anthropogenic and natural pressures. With ecologically protected areas over its western shores and a significant population over its northern and eastern coasts, there is need for reliable met-ocean forecasting products related to weather conditions, ocean

circulation, sea levels and waves, as well as hazard predictions (transport of pollutants, coastal floods and nutrient-rich freshwater discharges). The Wave4Us operational platform answers this need by providing daily high-resolution and specialized forecasting products that are accessible to local authorities, research community and public. Additional on-demand predictions concerning marine pollution, coastal inundation and marine heatwaves, can offer invaluable real-time insights to first-level emergency responders and coastal managers during hazardous events that jeopardize both the environmental quality of the region and public safety. Wave4Us provides 3-day forecasts, updated daily at 08:30 UTC, with products uploaded on the Wave4Us website as spatial distributions and timeseries and/or cross-sections in areas of interest. On-demand services, such as tracers of pollutants due to accidents (e.g. oil spills) and connectivity pathways to assist search-and-rescue actions, are also provided after direct (e-mail or telephone) requests. Wave4Us also provides forecasts of meteorological, sea level, and wave conditions at two broader regions: Aegean Sea and Mediterranean Sea.



Products used

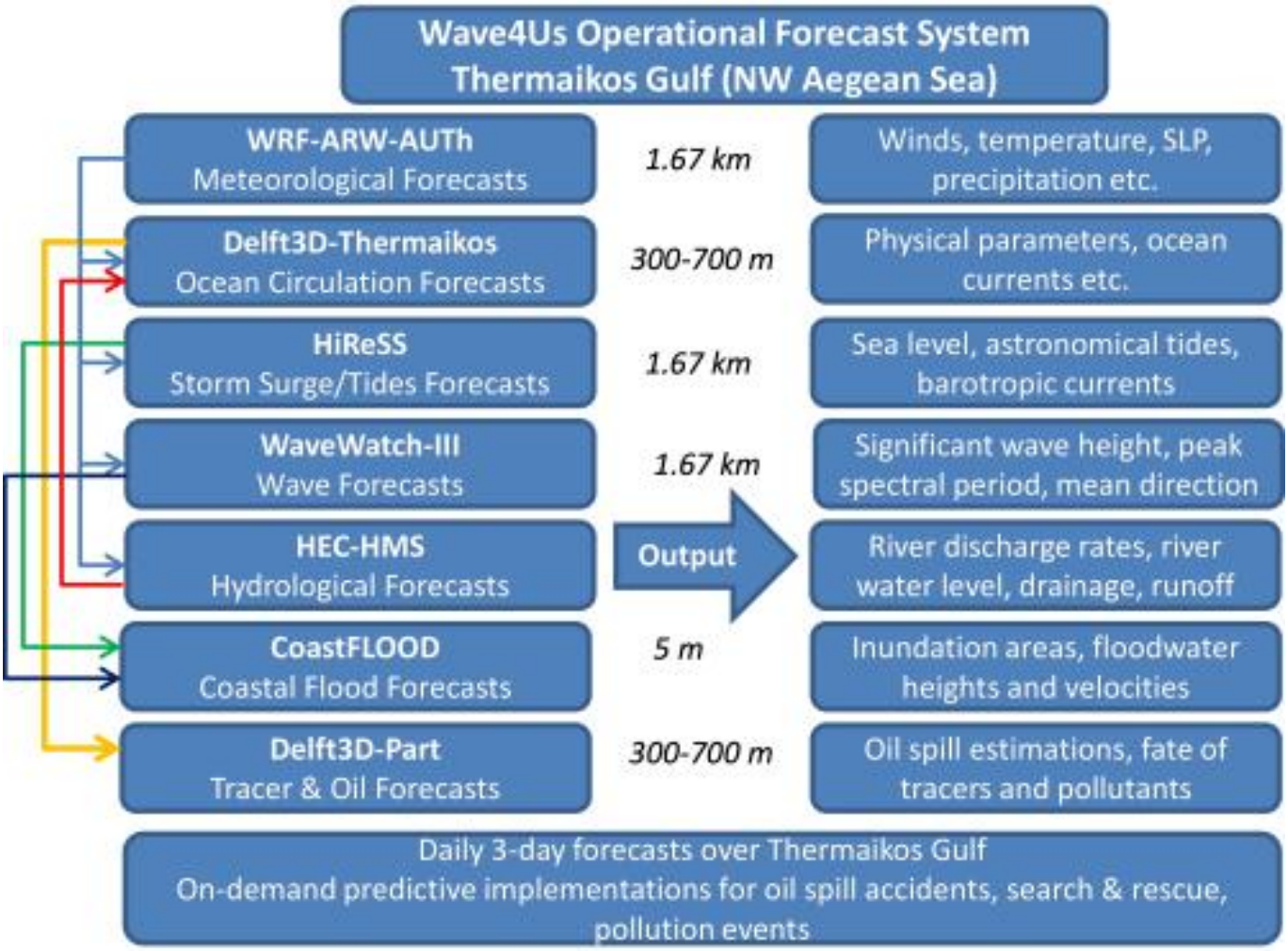
Copernicus Marine data used:

- Mediterranean Sea Physics Analysis and Forecast
- Mediterranean Sea High Resolution and Ultra High Resolution Sea Surface Temperature Analysis

- European Seas Gridded L 4 Sea Surface Heights And Derived Variables Reprocessed 1993 Ongoing

Other data used:

- Digital Elevation Map: EEA-10 by the Copernicus platform
- Soil Data: 3-D Soil Hydraulic Database of Europe (European Soil Data Centre)



Benefits for users

- Support for the safety of navigation and access to the port of Thessaloniki and other port facilities in the Gulf
- Protection of the coastal zone. Impact assessment of coastal flooding and coastal erosion in extreme weather events

- Prediction of marine conditions in aquaculture areas
- Support of fishing and maritime activities
- Useful sea conditions information for touristic activities (temperature and waves in coastal areas
- Investigation of the spread of pollutants in the case of environmental accidents
- Contribution to search and rescue activities in cases of loss in the marine environment

Useful links

Wave4Us website

Department of Meteorology and Climatology of the Aristotle University of Thessaloniki

Mediterranean - Sea level

Scientific references:

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