



## Development of the Bulgarian Sea Level Service

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Systematic sea level measurements have been started in Bulgaria in the beginning of 20th century and nowadays there are 16 coastal sea level stations in operation. Operators of sea level stations are: National Institute of Meteorology and Hydrology, Bulgarian Academy of Sciences (NIMH) – 6 stations, Cadastre Agency, Ministry of Regional Development and Public Works (CA) – 4 stations, Port Infrastructure (PI) – 5 stations and Institute of Oceanology, Bulgarian Academy of Sciences (IO-BAS) – 1 station. Six of them are able to provide real time data. The sea level observations in the network of NIMH, performed at six main Bulgarian ports using standard poles, started in 1910. The program, implemented on the NIMH stations, includes daily measurements of the sea level with water gauges (poles). The position of a zero mark of the water gauge is checked once per year. The sea level network of the CA consists of 4 stations: Varna and Burgas (operational since 1928), Irakly and Ahtopol (since 1971). These stations are equipped with stilling-well tide gauges and with mechanical writing devices which draws sea level changes on paper. A mechanical paper writing instruments were installed in Varna and Burgas during 1928 and in 1971, a new paper writing instruments of type SUM (Russian) were installed in the stations of Irakly and Ahtopol.

A set of five sea level stations in the ports of Balchik, Varna west, Pomorie, Burgas and Oil port Burgas was build during 2009 in the frame of Port Operational Marine Observing System (POMOS), equipped with high accuracy microwave instruments and operated by PI. In 2010 a new sea level station was set up in the IO-BAS coastal research base Shkorpoltvtci. The station is equipped with high accuracy microwave instrument. These six stations are providing real time data.

According to the decision of the Council of Ministers in 2012 sea level stations in Varna, Irakly, Burgas and Ahtopol will be operated jointly by Bulgarian Academy of Sciences and CA. Total modernization is planned to make this stations able to produce real time data.