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Satellite observation of anomalous phytoplankton blooms in the Black Sea

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AVHRR, MODIS, MERIS, ASAR, ETM+ data were used for bloom detection in the Black Sea and investigation of phytoplankton impact on the water properties.
Intensive blooms of the blue green algae were observed last years by satellite data in the north-western part of the Black Sea in summer season. Well detected in optical data blue - green algae affected on thermal properties of the sea upper layer too. Possible reason of the bloom occurrence and development are discussed. Summer coccolithophore bloom is typical for the Black Sea event, but duration and intensity of the bloom in May-July 2012 were unique and not observed earlier. Intercomparison of the satellite data with in situ biological measurements gave Emiliania huxleyi concentration more than 20*106 cells per liter in zones of the maximum bloom. Estimations of the coccolith concentration in water gave 4*10-3 g/liter.
Total mass of the coccolith and related sediments during bloom period was higher than integral for the previous 15 years.