



## **Impact of flood discharges of small rivers on delivery and fate of fluvial water and sediments at the northeastern coast of the Black Sea**

Alexander Osadchiev, Peter Zavialov, and Alexander Izhitskiy

Shirshov Institute of Oceanology, Physical Oceanography, Moscow, Russian Federation (osadchiev@ocean.ru)

This study is focused on influence of discharge of small rivers during flooding conditions on coastal water quality at the northeastern coast of the Black Sea. More than 50 rivers and watercourses are inflowing into the sea at the considered area between the city of Novorossiysk and the city of Sochi, while only 8 of them have annual discharge greater than 10 m<sup>3</sup>/s. All these rain-fed mountainous rivers with relatively small basins (below 900 km<sup>2</sup>) and steep slopes are characterized by very quick response of the discharge to precipitation events. For example, during a heavy rain on September 4-7, 2013 the discharge of the Sochi River increased from 3 m<sup>3</sup>/s to 230 m<sup>3</sup>/s, and these 4 days provided about 13% of average annual discharge of the Sochi River. The same processes are regularly registered for the majority of the considered rivers, except a few largest ones.

Basing on satellite imagery and numerical modeling we evaluated influence of discharges of small rivers characterized by elevated delivery of terrigenous and anthropogenic pollutants during flooding conditions on coastal water quality. We showed that point-source spread of continental discharge dominated by large rivers under normal conditions switches to line-source spread from numerous small rivers situated along the coast which dramatically transforms transport pathways of suspended and dissolved constituents discharged with river waters.