Geophysical Research Abstracts
Vol. 16, EGU2014-8873, 2014
EGU General Assembly 2014

Mapping the spatial and temporal extent of suspended sediments distribution in the Dead Sea using satellite remote sensing methods

Agustin Pimstein (1), Revital Bookman (1), Gideon Tibor (1,2)

(1) The Dr. Moses Strauss Department of Marine Geosciences, Leon H. Charney School of Marine Sciences, Haifa University, Mt. Carmel, Haifa 31905, Israel, (2) . Israel Oceanographic & Limnological Research Ltd., Tel-Shikmona, P.O.Box 8030, Haifa 31080, Israel

Laminated sediments found in lacustrine environments are natural archives of paleo-climate and paleo-environmental records. They represent a high temporal resolution record, but at the same time pose the challenge of how to extract and interpret the buried information. Together with the use of meteorological information, satellite time-series images provides valuable information for understanding transport and deposition processes in lakes. The current research analyzes the use of satellite images for estimating the extent of sediment dispersal in the Dead Sea in order to add more spatial information for our understanding of the transport and deposition processes associated with Late Quaternary laminated sequences. Specifically, determine the spatial extent and distribution of the suspended sediments from their initial outflow to the sea, their subsequent offshore deposition, and their connection to shore erosion and/or sporadic flashfloods. Between 2002 and 2012, a total of 73 flash-flood events that reach the Dead Sea main water body have been registered by different local sources of information. More than 300 MERIS FR images were acquire during this study period over the Dead Sea and processed into Total Suspended Matter (TSM) and Turbidity products using the Case II waters algorithm. Spatial anomalies were computed in order to characterize the sediment distribution along the year and during specific flashflood events. These products were analyzed together with available meteorological data. The highest spatial variability was observed during winter months, the wet season, while during the summer months the water is almost completely homogeneous. In addition, it can be clearly observed that most of the sediment contribution comes from the rivers outflow, reaching about 5 kilometers from the shore. These are the preliminary results of this project, which are intended to be validated during a future field campaign after the next flash-flood event, collecting TSM samples among different depths within the flash flood plumes.