



Monitoring reservoir sedimentation for management policy definition

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Reservoirs sedimentation is an important problem as it affects the water storage capacity, if adequate sediments management policies are not applied. Many researchers in this field estimate the reduction of the current reservoirs capacity up to 50% in few years, with obvious social, environmental and economic impacts, strongly related with the growing water demand and in general with the water resources management. In the framework of reservoirs sedimentation management and control, the possibility to use remote sensing data to estimate the reservoir sedimentation, has been investigated. Particularly, high - resolution data from QuickBird sensors of La Penna reservoir, on the Arno River in Italy, have been used to evaluate the bathymetry of the lake. The multispectral images from QuickBird satellite have been used, in Italy, with good results for estimating the bathymetry of Venice lagoon. The depth of penetration zone method proposed by Jupp, which has applied here for La Penna reservoir is, at the same time, well established for bathymetric mapping in shallow coastal waters. The depth of penetration zone method applied on high-resolution multispectral QuickBird data seems to be able to correctly assess the spatial extension of the sediment deposit. The preliminary comparative analysis among the estimated volume of deposit, using remote sensing data and the bathymetric survey of the lake floor, are also giving encouraging results.