

Mapping of Siltations of AlKhod Dam, Muscat, Sultanate of Oman Using Low-Cost Multispectral Satellite Data

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Abstract : Remote sensing plays a vital role in mapping of resources and monitoring of environments of the earth. In the present research study, mapping and monitoring of clay siltations occurred in the Alkhod Dam of Muscat, Sultanate of Oman are carried out using low-cost multispectral Landsat and ASTER data. The dam is constructed across the Wadi Samail catchment for ground water recharge. The occurrence and spatial distribution of siltations in the dam are studied with five years of interval from the year 1987 of construction to 2014. The deposits are mainly due to the clay, sand, and silt occurrences derived from the weathering rocks of ophiolite sequences occurred in the Wadi Samail catchment. The occurrences of clays are confirmed by minerals identification using ASTER VNIR-SWIR spectral bands and Spectral Angle Mapper supervised image processing method. The presence of clays and their spatial distribution are verified in the field. The study recommends the technique and the low-cost satellite data to similar region of the world.

Keywords : Alkhod Dam, ASTER siltation, Landsat, remote sensing, Oman

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020