

International Conference on

Coastal Zones

May 16-18, 2016 Osaka, Japan

Detection of shoreline changes in Buenaventura, Colombian Pacific using digital shoreline analysis system

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The study focused on identification of shoreline changes in the District of Buenaventura and the surrounding areas in the Colombian Pacific, a coast where the geomorphology includes beaches, cliffs, estuaries, deltas and marshes. Taking into account the importance of coastal management strategies in this region we studied the magnitude and tendency of changes in the shoreline. Multidate satellite Landsat imagery (1986, 2001 and 2015) were used to extract the shorelines. Shoreline changes were estimated by statistical methods like Net Shoreline Movement (SNM), End Point Rate (EPR), Linear Regression Rate (LRR), among others using DSAS (Digital Shoreline analysis System) developed by USGS. The 409km study area was divided into 5 zones, covering Landsat Path/Row 10/57 and 10/58. Preliminary results indicate that areas with more advanced processes of accretion correspond to zones near Pichima in the Department of Chocó in the northern part and areas with most advanced processes of erosion are around the mouth of Charambirá. In areas of Juanchaco, Buenaventura and Bahía Malaga bays, accretion or gain of land processes were identified. The analysis showed along the shoreline highest EPR of 47.68 m indicating accretion and a lowest EPR (-) 26.88 m indicating coastal erosion while some parts of the shoreline remain unchanged. This study was presented as an alternative analysis that aimed towards having coastal management strategies in this region.

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