



Testing numerical models for boulder transport due to high energy marine wave events: examples from the Saurashtra coast, Western India

Kushal Chavare (1), Nilesh Bhatt (1), and Siddharth Prizomwala (2)

(1) Maharaja Sayajirao University of Baroda, Department Of Geology, Vadodara, India., (2) Institute of Seismological Research, Raisan, Gandhinagar-382009 (India).

The boulder deposits on the coasts are interpreted and evaluated as high energy marine wave events like tsunami. Several numerical models are now available to estimate wave height and/or run up of the tsunami wave. The coast of Saurashtra, facing the Arabian Sea on its west hosts such deposits in younger (~ 1 and 6 ka) and older (~ 35 ka) coastal records. The dimensions, characteristics and morphology of these boulders were studied with different numeric models and were applied with reference to submerged, sub-aerial and joint bounded boulder scenarios which were combined with the local control variables like roughness coefficient, slope of platforms, fractures, shoaling effect, etc. The application of these models indicated a significant role of local control variables in boulder dislodgment, transport and final emplacement on shore platform. Examples from three different sites from the coast of Saurashtra, western India are reported and discussed in detail.