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Title: Large boulder accumulations by extreme waves along the Adriatic coast of southern Apulia (Italy)

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Abstract (English): The Adriatic coast of southern Apulia (Italy) is marked by the presence of large boulder accumulations. Boulders are up to 8 t in weight and arranged either in small groups or rows composed of a few imbricated elements. The lower surface of some of the boulders is covered by biogenic encrustation which suggests that they were possibly carved from the mid or sublittoral zone and that they capsized during their transport. Other boulders, detached from the supratidal zone, have their surface affected by tilted rock pools. New horizontal solution pans are continually forming.

A detailed survey of a large boulder accumulation was carried out at Torre Santa Sabina. Direct observations were also made concerning the carving out and transportation of one single boulder during the severe storms in that area on January 4th, 2002 and on January 12th, 2003. Collated data from both the survey and the direct observations including some radiocarbon age determinations and hydrodynamic calculations suggest that the studied accumulation was due to the superimposed effects of one or two tsunamis as well as of storm waves. Tsunami would be responsible for the detachment and transportation of the largest boulders, while storm waves may have been responsible for the carving out and transportation of the newer, smaller blocks and for moving once again the largest boulders. It was in this way that a typical boulder accumulation was produced.

The collated data suggest that two tsunamis may have recently struck the Adriatic coast of southern Apulia. The first possibly took place on the Dalmatian coast as a result of the earthquake on April 6, 1667 which destroyed Ragusa (modern day Dubrovnik). The second tsunami would have accompanied the strong earthquake which took place in southern Apulia on February 20, 1743.