



## The climate in the Venetian and North Adriatic region: variability, trends and change

workshop

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### TOPIC T3. Land motions and relative sea level

#### Land-sea relative movements in Northern Adriatic sea

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#### *Short abstract:*

Sea-level change is the sum of eustatic, isostatic, and tectonic factors. The first is global and time-dependent, while the latter two vary with location. In NE Adriatic sea (Venetian Plain, Trieste gulf and Istria) the isostatic component of post-glacial sea-level rise has been recently predicted and compared with field data at several geomorphological and archaeological coastal sites (Lambeck et al., 2004; Antonioli et al., 2007) and thus a frame for calculating vertical tectonic motions is available.

The long term tectonic contribution for Venetian area was evaluated by Kent et al., 2001 using a long core, at about 0.35 mm/a as a mean of the last 0.6 Ma. Carminati et al., 2003 and Barbieri et al., 2007 published values of about 0.7-1.0 mm/a. The use of the elevation of MIS (Marine Isotope Stratigraphy) 5.5 (last interglacial, 125 ka BP) shoreline-markers, allowed Ferranti et al., 2006 to establish a values of 0.69 using the same core "Venice" of Kent et al 2001. We produced new tectonic subsidence data using the MIS 5.5 transgression founded in cores drilled for CARG Italian Geological Map, and evaluated a mean of 0.5 mm/a in Venetian Plain and surrounding. We also calculated tectonic subsidence using Holocene data from cores: values are compraised between 1.4 and 0.2 mm/a. The higher Holocene tectonic subsidence with respect to the MIS 5.5 may be partly attributed to sediment compaction, which does not contribute to the long-term rate. East of Venice, Holocene lagoonal sediments older than 6 ka show tectonic rates at about 0.6 mm/a, similar to the long term subsidence after an initial compaction.

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