

Visco-elasto-plastic deformation and hydration of oceanic plates at trench-rise systems

*Manuele Faccenda¹

1.Dipartimento di Geoscienze, University of Padova

Over the last decade, bending-related normal faulting and hydration of the incoming oceanic plates has been widely observed at trench-rise systems by geophysical surveys. Along with these observations, 2D numerical models of spontaneously bending oceanic plates have contributed to investigate the dynamical evolution of visco-elasto-plastic deformation patterns and the mechanisms of plate hydration by downward seawater percolation along normal faults. In this contribution, I will discuss the main tectonic processes occurring at the trench-rise system within the incoming plate on the basis of the principal geophysical and numerical experiments conducted so far.

Keywords: slab hydration, plate bending, numerical modelling