



CICLO DI SEMINARI

Giovedì 31 Marzo 2016

Sala riunioni terzo piano - ore 11:00
Via Gobetti 101, Bologna

(NON-) TECTONIC DEFORMATIONS: MESSINIAN-PLIOCENE POLYGONAL NORMAL FAULTS FROM NORTHERN APENNINES AND PLEISTOCENE ENTEROLITHIC FOLDS FROM SOUTHERN TUSCANY

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Tectonic meso- and micro-scale deformations are normally used for regional-scale tectonic reconstructions and for many other reasons in the geo-disciplines and not only. For this reason, recognizing and understanding non-tectonic deformations of rocks can be relevant for many geologists. An overlooked field of structural geology is, in fact, the one dealing with non-tectonic deformations. If unrecognized, these structures could be misinterpreted as tectonic structures or even primary sedimentary features, thus leading to their misuse in the geosciences. In this seminar, two case histories of (non)-tectonic structures are reported: namely, a set of polygonal normal faults from the crest of the Cingoli anticline (Messinian-Pliocene) in the northern Apennines and a set of enterolithic folds in the thermogene travertine deposits (Pleistocene) of the Albegna Valley, Tuscany. Polygonal faults are structural features widespread in the North Sea basin and in most present offshore basins worldwide. They have impact on basinal hydrocarbon reserves. The main problem with these faults is that, except for a couple of recently-discovered outcrops, they are substantially unknown onshore. For this reason, the Cingoli exposures of polygonal normal faults constitute almost a unique opportunity to directly study this type of structures. Thermogene travertines are frequently used as proxy for paleoclimate, neotectonic, paleoseismic, paleohydrological, and hydrocarbon/CO₂ storage studies. For this reason, understanding not only the deposition, but also the diagenetic (porosity vs. cementation) history of these non-marine carbonates can be relevant for many geologists. In this seminar, the first record of syn-diagenetic non-tectonic contractional deformations in thermogene travertines is presented and explained. The occurrence of similar structures in other thermogene travertine deposits as well as in other sedimentary (i.e., diagenetic) environments corroborates the relevance of the presented results and the fact that those reported in this seminar from southern Tuscany may be travertine structures more common than previously thought. In conclusion, in this seminar, a set of means and criteria to discriminate between tectonic and non-tectonic structures is proposed.