Geophysical Research Abstracts
Vol. 14, EGU2012-2263, 2012
EGU General Assembly 2012

A didactical geological path in Val Rosandra valley (Trieste – Italy)

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Introduction: the presented field work is aimed to involve a group of 15-17 years old students in building a simplified geomorphological and geological model of Val Rosandra valley, by means of guided observations and data collection.
The didactical path may be changed according to age, skills or particular needs of students and meteorological conditions; at best, 4-5 hours are needed for the complete field trip.
Some ideas about sedimentary rocks, folding and faulting, and the principle of superposition could be useful as pre-concepts, but "could" also be learnt during the experience.
Organization: students will be divided into small groups (3-4 students each), possibly with different roles within the group (topographer, photographer, draftsman, geologist, geomorphologist,...).
Needed materials for each group: notebook, paper, pencil, rubber, photo camera, ruler, compass, scale 10.000 topographic map, stratigraphic chart, altimeter, diluted hydrochloric acid.
Observation points:
1. Bagnoli spring, marl outcrop
2. Bagnoli village, towards the "heart-shaped quarry"
3. By the river, in the lower part of the valley
4. Moccò lookout
5. Marl outcrop, from Moccò to the old railway
6. From the old railway, above the valley
7. By the river, in the upper part of the valley
The field work: at first, students will be guided to observe and take notes of the main morphological characteristics, so that the different "observation points" will be drawn on the map, with the help of compass.
An easily recognizable system of faults cuts the valley; a "V" profile is visible in the lower part of the valley (a small amount of sediment is present), while a calcareous gorge is evident in the upper valley, where there are no sediments (observation points 3, 4, 6 and 7).
The morphology is asymmetric, due to the different arrangement of strata in the left and right side of the valley: right side shows big "steps" (horizontal arrangement of strata), left side is rich in slopes (tilted strata) and gravel (observation points 4 and 6).
The second step is to take into account lithology. Limestone can be characterized for the presence of foraminifera fossils (eocenic limestone in the stratigraphic chart); in some locations marl and sandstone can be found in small strata, and the altitude of these outcrops must be recorded, because useful to the final discussion of the geological structure; this data, taken with the altimeter must be written on the map (observation points 1 and 5).
The last and most important activity is to draw from different position the arrangement of strata in both sides of the valley, taking into account the position of "younger" marl and sandstone (observation points 1, 2, 4 and 6).
At the end, students will arrange the different ideas, concepts and drafted outcrops into final drawings of the strata considering both sides of the valley; with the help of the stratighraphic chart, and discussing among them and with the teacher, they will "discover" thrustfaults in the right side of the valley and a big overturned fold in their left side.