In the most recent sector of Cottian Alps

In the work structural analysis, morphotectonics and seismic data were coupled in order to evaluate the seismic risk of the area: a deep-deck method was applied to identify potential seismic sources and related stress fields and pathways. The seismic hazard assessment was based on the seismic microzonation maps and the seismological data available for the area. Furthermore, the analysis of the morphotectonic evolution of the area allowed to determine the location and the geometry of potential seismic sources and the stress fields related to them. The results of this analysis were used to assess the seismic risk and to design the appropriate mitigation measures. The structural analysis of the Cottian Alps indicates that the seismic risk is mainly related to the faulting activity of the NNW-SSE and N-S faults. The NNW-SSE faults are characterized by high slip rates and are associated with the development of extensional structures. The N-S faults are characterized by low slip rates and are associated with the development of contractional structures. The seismic risk is also related to the presence of deep-seated gravitational deformations, such as landslides and river capture phenomena, which may increase the seismic hazard in the area. Therefore, the mitigation measures should be focused on the identification and the monitoring of these gravitational deformations and on the implementation of appropriate protective measures.