



Forest cover, spatio temporal marker of the activity of a landslide.

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Unlike avalanche or flood, for example, identifying and recording historical landslides are very sketchy. However, several methods exist such as radiocarbon dating, lichenometry and dendrogeomorphology which offer dating landslides. For the latter, the potential for the analysis of tree rings in the interpretation of geomorphologic processes were described by Alestalo (1971), Schroeder (1980), Heikkinen (1994) and Schweingruber (1996). Therefore this offers many new perspectives to assess the functioning of mountain slopes and in particular the changes that affect them. Trees record, from a certain threshold of intensity, duration or recurrence, the geomorphologic and hydrological processes that lead to disturbances in their natural habitat or direct mechanical damage to their trunks. Any phenomenon sufficiently disturbing for the tree leaves a trace which can be observed in the characteristics of its annual growth rings or visible morphological anomalies. The identification of the reactions of trees supplies markers disturbance to the reconstruction of geomorphologic and hydrological events in time, in space (depending on the distribution of responses) and intensity (threshold of response to stress). For the dating of mass movements, the principles are based on the identification phase on reaction wood (wood compression on conifers, wood tension on leafy species), or asymmetries growth rings. The use of trees, a bio-marker or indicator of the unstable slope, is an effective and innovative solution regarding technological advances. Therefore it offers real perspectives for understanding and preventing natural hazards. As part of our presentation, we reconstruct the activity of a landslide in the region of Barcelonnette (Alpes de Haute Provence, France) using the forest as a silent witness of the past.