Slow moving hazard hotspot from InSAR data: improving communication with decision makers

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Slow moving hazards are not always taken seriously in the management and governance of mountain risks. This is because of their relatively low threat to human lives compared to rapid mass movement. However, these kinds of slow processes can remain active for long period of time. Also, it could leave a great threat to properties and infrastructures. Hence, for an advanced risk management strategy, it is important to include slow moving hazards when dealing with long-term mountain risks.

Thanks to the rapid development of advanced InSAR processing, especially with the advent of long-term InSAR approaches, it is possible to detect ground motion with millimeter precision for a long period of spanning time. However, considering the complexity and ambiguity of the data processing, for those who are mainly dealing with risk management and governance, the technical part of InSAR processing is sometimes equivocal and difficult to understand. Providing an understandable hazard map might be more helpful for them. With this motive, we introduce an approach of producing slow moving hazard hotspot map from previous InSAR outcomes. Compared to traditional InSAR maps, the hotspot map is straightforward and easy to understand.

To present the usefulness of hotspot map, an example in the Arno river basin in central Italy is presented. Several landslides activities are confirmed as active from the hotspot map. Some of them are further investigated in order to evaluate the previous mitigation efforts. Also, the map provides an approach of detecting and mapping new landslides rapidly and accurately. Except for landslide hazards, subsidence dangers are identified in the Mugello Circuit which is the race track for Moto GP and the test track for Ferrari Formula 1 team. In all, the hotspot map is proven to be an efficient, effective and easily understandable communication approach between technicians and decision makers.