



Involving high school students in early warning system validation

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Validating Natural Hazard (NH) early-warning system (EWS) requires the continuous monitoring of the occurrences of natural hazards, their collection in a data structure and their confrontation with the forecasts produced by the system.

Social media streaming is an emerging technology to collect data on landslides occurrence. In particular, the use of the Twitter API is consolidating among all the other social media APIs. Continuous data on the occurrence of landslide events can be collected and recorded in a database. Visualization tools can be really useful for EWS validation to display, at the same time, the temporal evolution of the landslide EWS forecasts and the occurrence of the slope failures.

The collaboration project between Research Institute for Geo-Hydrological Protection (IRPI), a research institute active in the field of geo-hydrological hazards and the ITTS A. Volta secondary schools aims to increase the perception and knowledge that students and teachers have on geo-hydrological risk. This is achieved through the development of tools and analysis which allow them to become aware of the phenomenological characteristics of landslides and floods, their impact on the population/environment and the rules of conducts to be followed before, during and after the disasters. The project allows students to work with IRPI data and tools and leads them to develop software applications that can be accessed from the communication devices (personal computers, tablets, smartphones) for the dissemination of content and for understanding the phenomena.

The present contribution describes the recent achievements, carried out entirely by six high school students, on the development of: (i) an automatic system for the detection, filtering, classification, storage and visualization on a web map of the tweets containing information about landslide occurrences, and (ii) a web service for the contemporary visualization of the time streaming of the EWS forecasts and of the landslides occurrences.

The work was carried out independently by three groups of students with the supervision of the researchers, and carried out according to the following steps: (i) analysis of the state of the art, (ii) identification of the method for tracking the work done, (iii) identification of the points of contact between the activities of the different groups in order to promote the exchange of knowledge and transversal work. Finally, during a specific divulgation workshop organized at their school, the students presented their work to the colleagues and professors, while the IRPI researchers presented their research activities and disseminated information about geo-hydrological hazards.