Muon Radiography with nuclear emulsions: Stromboli and other projects

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Italy is a country with a high volcanic and seismic activity similar to Japan. Application of Muon Radiography technique for geophysical studies pioneered by Japanese scientists is of a great interest here.

INFN and Italian groups were major contributors for OPERA experiment - the biggest nuclear emulsionbased detector in the world. A great emulsion scanning potential was developed in the Italian laboratories for the analysis of OPERA data. This makes easy and natural application of the emulsion technique for muon radiography. For some Muon radiography applications emulsions-based detectors has a number of advantaged in respect to other particle trackers: they are easy to install, do not require electricity, has high angular resolution.

Since 2010 Italian groups participating in the projects dedicated to muon radiography studies as Unzen, Stromboli, Teide, La Palma exposures and in the developing of the method in general.

Stromboli is a first Italian volcano where Muon Radiography was applied. An emulsion-based tracking detector was taking data for 5 months since 22-Dec-2011. Details of the detector preparation, exposure, data analysis and results discussed here.