ID de Contribution: **80** Type: **Oral**

Progress of the collaboration T2DM2

jeudi 19 avril 2012 16:30 (20 minutes)

T2DM2 SUMMARY OF OBJECTIVES AND SCIENTIFIC

The aim of this project is to develop a new field of study in the geosciences, using a detector very promising and innovative coming from particle physics, applied to the temporal tomography of subsurface a few hundred meters thickness of rock. The field of applications concerns the stability of rocks, the monitoring of rheological properties, as for example: monitoring of landslides, collapse of a tunnel or a cliff, or the evolution of a volcanic cone. We propose to develop the methodology (measurement instrumentation, measurement protocol, forward modeling and tomographic inversion) needed to achieve:

• The density map of the rock mass geological objects, with a lateral extension mileage under a blanket multi hectometric.
• Measurement of density variations related to spatial and temporal changes in the fluid saturation or the evolution of the rock porosity along its state of stress.

T2DM2 (Temporal Tomography Densitometric by the Measure of Muons), we propose to develop a range of 80 muon telescopes to measure the density and extent of variations in density, in order to have a new operational tool for the characterization and monitoring of basements. This tool will complement innovative exploration geophysics (eg, seismic, electrical and electromagnetic imaging of the basement), in the various fields of application:

• Monitoring of water resources and reserves,
• Monitoring the stability of volcanoes,
• Monitoring of oil fields, gas storage CO2 or active reserve,
• Monitoring the stability of tunnels and underground cavities,
• Monitoring of rock mass instabilities in the context of the cliff and monitoring of landslides.

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Classification de Session: Technical developments for muon and neutrino imaging

Classification de thématique: Technical developments for muon and neutrino imaging