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ERMES-WORLD: Environmental Radioactivity Monitoring for Earth Sciences-World Reference Laboratory and New Developments

The Environmental Sciences are approaching an important crossroad for understanding complex processes such as Climate Change, Earth's interior and its heat budget, global geodynamic processes. The phenomenological study needs a comprehensive characterization for connecting past-present processes, which can be performed only through time-space markers such as radionuclides. The numerical modeling of complex systems such as those mentioned need, a growing number of experimental data with the highest possible accuracy for the scientific validation. This fundamental synergy requires an ultra-low level background environment as only found underground and ERMES-WORLD has been designed to achieve it. ERMES-WORLD will also promote and support other synergies providing to the scientific community the best reference facility. ERMES-WORLD delivers a high quality and innovative research program and will, as well, open new research opportunities for Environmental and Nuclear Sciences increasing the synergy between these fields and contributing to the development and monitoring of peaceful nuclear applications in other fields of interest for Science and the International Community: Astroparticle Phyiscs, Non-proliferation, Nuclear Safety, Safeguards. The synergy proposed by ERMES-WORLD also combines the study of environmental radioactivity, using the most powerful technology in the best ultra-low level background environment around the world (INFN-Gran Sasso National Laboratory, Italy).

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