

Contribution ID: 24 Type: Plenary talk

Conference introduction. The LSBB, above- and underground based low background noise interdisciplinary research laboratory.

Tuesday 7 June 2022 14:30 (20 minutes)

Created in 1997, the LSBB is located in the heart of the Luberon Regional Nature Park in the Vaucluse. Initially a military facility, the LSBB has been converted into a research laboratory whose activities have been contributing to the development of knowledge and know-how in many scientific fields for nearly 25 years. A Support and Research Unit under the supervision of Avignon University and the CNRS, the LSBB is a remarkable infrastructure with exceptional physical and environmental characteristics listed as a 20th century architectural heritage site.

Located in the heart of the largest karstic aquifer in Europe, the LSBB enables the in-situ study of the effects of global changes on underground water resources. Inherited from its military history, its physical environment with very low anthropogenic noise offers unique conditions for carrying out high quality measurements and observations and for developing and implementing extremely sensitive sensors and experimental techniques.

Key dimensions of the LSBB interdisciplinary research facility:

Carbonate geological reservoirs and karst water resources - The LSBB opens up major fields of investigation, the challenges of which concern, for example, the sustainable management of groundwater resources in all peri-Mediterranean countries, the modelling of carbonate reservoir dynamics, and the understanding of multiphysical and multi-scale physical processes in the critical zone.

Experimentation in a low noise underground and on the surface environment - The LSBB benefits from an environment with very low anthropic, electromagnetic and pollution disturbances, a rare combination of qualities favourable to scientific and technological activities whose stakes concern (i) the experimentation of physical processes, the Earth and near Universe observation, and the measurement of very low amplitude signals, and (ii) the R&D activities including the development and the characterization of sensors, and the implementation of innovative measurements or imaging protocols aiming at ultimate sensitivities and resolutions.

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