

Potential for paleodetector studies at the LMV and the LPCA

Wednesday, April 15, 2026 9:45 AM (30 minutes)

The LMV and the LPCA are two French research laboratories focusing on the study of volcanology, petrology, and geochemistry (LMV) and of particle physics, cosmology and their applications (LPCA). They have been collaborating since many years at the interface between geosciences, nuclear and particle physics on a variety of topics. Two platforms are of particular interest for paleodetector studies: the LMV CarMa experimental platform, dedicated to the characterization, 2D & 3D imaging and chemical analysis of materials; the LPCA PAVIRMA platform, equipped with instruments dedicated to nuclear spectrometry and/or counting (alphas, betas) as well as thermoluminescence dosimetry and dating. Moreover, the LPCA has a long-standing expertise in the development of numerical libraries to describe the transport of particles through matter.

LMV and LPCA are located in the center of France in close proximity to the Chaîne des Puys, a dense, 40 km-long, north-south oriented alignment of approximately 80 monogenetic volcanoes, all formed within the last 95,000 years. The volcanic activity is characterized by relatively small, discrete eruptions of magmas in which crystals form (e.g. olivine). Crystals in the eruptive products of a volcanic chronosequence could be used as a time-resolved paleo-detector array to study the cosmic-ray flux in the Late Pleistocene and Holocene.

In this talk we will describe LMV and LPCA capabilities and discuss their relevance for paleodetector studies.

Do you plan to give the talk in person?

Yes

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