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months of radioxenon detections by the SPALAX New Generation system near Paris in 2019

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As part of its qualification process by the PTS, the SPALAX-NG - noble gas - New Generation system was operated from October 2018 to April 2019 on the CEA/DAM premises near Paris (France). The new generation system's high performances contribute significantly to increase the number of detections and to improve the knowledge of the radioxenon background. Indeed, in this study, a major dataset including numerous isotopic ratios is established for Western Europe that enables to refine the characterization of the background sources and the discrimination criteria. In addition, a full Atmospheric Transport Modelling study has been performed from this full dataset, that allows to 1/ reconsider the radioxenon source terms of the main emitter in Western Europe (IRE, Fleurus, Belgium), and to 2/ detect for the first time some very local and non-traditional sources that can influence the categorization of a detection.

Promotional text

Major improvement in radioxenon detection capacity and background knowledge in Europe

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