Contribution ID: **261** Contribution code: **P2.4-261** Type: **e-Poster**

Non-parametric study of the radioxenon data distribution, measured at the noble gas stations of the International Monitoring System of the CTBTO

Wednesday, 30 June 2021 10:45 (15 minutes)

The aim of this work is to apply a non-parametric statistical methodology to the radioxenon activity concentrations measured at noble gas stations of the International Monitoring System of the CTBTO, in order to investigate the radioxenon atmospheric background and the radioxenon anomalous values. The proposed non-parametric statistical methodology does not require any assumption on the underlying probability distribution of the raw data. The suggested method, based on Recursive Segmentation and Permutation (RS/P), allows to detect single or multiple mean and/or scale shifts.

Promotional text

Radioxenon is useful to potentially reveal underground nuclear explosions (UNEs) but it is also emitted by civil sources. To discriminate signals, advanced statistical methods are used to understand the background and the anomalous values that could be reasonably related to UNEs.

Primary authors: Mr OTTAVIANO, Giuseppe (Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Italy); Mr SCAGLIARINI, Michele (Department of Statistical Sciences, University of Bologna, Italy); Ms RIZZO, Antonietta (Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Italy); Ms GUALDI, Rosanna (Department of Statistical Sciences, University of Bologna, Italy); Ms PADOANI, Franca (Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Italy)

Presenter: Mr OTTAVIANO, Giuseppe (Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Italy)

Session Classification: T2.4 e-poster session

Track Classification: Theme 2. Events and Nuclear Test Sites: T2.4 - Atmospheric and Subsurface Radionuclide Background and Dispersion