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# of a processing toolkit for in-depth radionuclide data analysis: Case study for the period of 2017-2020 IMS detections

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IMS radionuclide concentration data is accessible through the CRTooL. It contains detected concentrations for all kinds of radionuclides, categorized as noble gas (Xenon) and particulates, standing for natural, activation and fission-products.

The ultimate role of these data is to find and then identify any event that is related to the verification regime of the CTBT. Identification of events demands data visualization to look for different aspects of data.

Here, we obtained offline CSV files for the period of 2017-2020 taken from CRTool, with appropriate tags declaring detection location, country, region and the kind of radionuclide. Then, a toolkit has been developed for parametric study of these data. There are several types of graphics produced for the in-depth analysis of data: a bar chart to show the concentration of all radionuclides for any single station and a bar chart to show the concentration of a radionuclide for all stations, probably within a region/country. It also is possible to produce animated graphics, for a daily, weekly or monthly variation of concentrations. This may be displayed by bubble chart graphics over a geographic map for any single radionuclide.

## Promotional text

Currently, CRTool is limited to very simple data visualization and graphics capabilities. This work helps to renew the design of CRTool data analysis and visualization graphics, and brings several ideas for still and animated graphical representations of data.

**Primary authors:** Mr SAFARI, Mohammad Javad (Amirkabir University of Technology (AUT), Tehran, Iran); Ms MASJEDI, Fatemeh (Amirkabir University of Technology (AUT), Tehran, Iran)

**Presenter:** Mr SAFARI, Mohammad Javad (Amirkabir University of Technology (AUT), Tehran, Iran)

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