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Author

Dr. Jean-Marc Bertho

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L'Autorité de sûreté nucléaire et de radioprotection (ASNR) - Fontenay-aux-Roses cedex, France

Title

OpenRadiation, a collaborative network of ambient dose rate measurements by and for the citizen

Abstract

Citizen measurements of radioactivity first appeared in the aftermath of the Chernobyl accident supporting the development of a practical radiation protection culture. Rapidly after the Fukushima accident, citizen led measurements developed strongly, thanks to the availability of internet and social media. Such measurements have two major interests, to enable everyone to assess his own risk and to provide “real time” data from the field at various locations.

OpenRadiation offers the public the opportunity to perform dose-rate measurements in the environment. It is constituted of i) an open access database centralizing measurement results, ii) a website providing dose-rate maps and offering dedicated areas for exchanges about data and iii) a dedicated smartphone app using a connected dosimeter.

The challenge is to operate such a system on a sustainable basis in normal situations and being useful in a nuclear emergency situation. In normal situations, this network provides complementary data to the existing official environmental monitoring networks, consolidate the knowledge about radiation background levels, generate alerts in case of atypical measurement, and provide a practical tool for pedagogical approaches about radioactivity. In case of a nuclear emergency, data will be available spontaneously from the field in “real time”. Recently, several scientific projects (Cosmic on Air, Corale, CITHARE, ORION) are using data from the OpenRadiation database, showing the interest of these citizen-led radioactivity measurement data for the scientific community.

This project is conducted with a consortium of five entities representative of the scientific community and non-governmental organizations. The website is available since October 2017. Currently, more than 1,500,000 measurements were published on the interactive map by about 390 users. The number of measurements and the number of users is continuously increasing since the beginning of this project, demonstrating the interest of the public for such initiatives of citizen science.