Activity report for the Pianoforte travel grant with deadline 31st December 2022

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I applied for a Pianoforte travel grant to attend the workshop "*7èmes journées scientifiques francophones: Codes de calcul en radioprotection, radiophysique et dosimétrie … et l'apport de l'intelligence artificielle*" in Paris, which took place on 9 and 10 March 2023. The workshop focused on computing codes applied to radiation protection in the broad sense (including reactor physics, dosimetry and biology). Additionally, the workshop brought together not only researchers but also representatives from health and industry.

The reason for my participation to this workshop was twofold:

1. I wanted to inform colleagues in radiation protection on the existence and capabilities of *FREAR* (*Forensic Radionuclide Event Analysis and Reconstruction*, a new open-source tool to perform inverse atmospheric transport modelling), and to get feedback from a (potential) user's perspective on how to further improve the code for radiation protection.
2. Additionally, the conference provided an overview of computational tools developed in the framework of radiation protection and I hoped to learn from some of the common challenges that face these codes, and their solutions, in order to improve the FREAR code.

Unfortunately, the day before departure I had to cancel my travel plans due to a series of strikes in France which made travel by train from Belgium impossible. Luckily the organisation was able to set up a MS Teams meeting which allowed me to follow the oral presentations and which also allowed me to present my work. I gave an oral presentation titled "Inverse atmospheric transport modelling using FREAR" where I described the capabilities of the tool, and presented a few case studies: the anomalous release of Se-75 at the BR2 of SCK CEN in May 2019, the undeclared release of Ru-106 in autumn 2017 and the release of Cs-137 following severe wildfires in the Chernobyl Exclusion Zone in April 2020. The presentation was well received and I got a couple of questions regarding my presentation.

The remote attendance of this workshop inevitably limited the impact of my participation. Nevertheless, I was able to follow the presentations of other presenters and obtained a good overview of the current state-of-the-art on computing codes in various domains. Some of these presentations focused specifically on artificial intelligence, which is of particular interest since it will likely also play an important role in the future of radiation protection.