京都府立大学・第61回 生命分子化学科セミナー
61th Seminar by Dept. Biomolecular Chemistry, Kyoto Prefectural University

≪講師≫

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（オリビエ・エブラール先生）

≪演題≫（The National Center for Scientific Research, France）

Effectiveness of landscape decontamination following the Fukushima nuclear accident

（福島原発事故後の陸域除染の効果と環境影響）

≪日時≫ 2022年 4月 27日（水）午後13時10分～14時20分
（April 27, 2022 – 13:10pm start）

≪場所≫ 歴彩館 小ホール（1階）
（Small Hall, Kyoto Insitutute, Library and Archives (1F)）

≪講演内容≫

2011年3月に発生した福島第一原子力発電所の事故は、放射性降下物による環境汚染を引き起こしました。そのため、日本政府は、計画的避難地域における住民の早期帰還を可能にするため、大規模な除染活動を実施しました。本発表では、除染戦略の概要とその有効性について説明します。また本セミナーではEvrard博士の研究室所属のThomas Chalaux氏（JSPS外国人特別研究員として10月から土壌化学研究室所属）の研究紹介も予定しています（発表は英語）。

参考資料

1) Evrard, O., Laceby, J.P., Nakao, A. 2019. Effectiveness of landscape decontamination following the Fukushima nuclear accident: a review. Soil, 5, 333–350.
2) Fukushima : bilan environnemental 8 ans après la catastrophe (https://youtu.be/8rkThsoNAY8) YouTube動画です。

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≪講演要旨①　Olivier Evrard博士≫

Effectiveness of landscape decontamination following the Fukushima nuclear accident: a review

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The Fukushima Dai-ichi Nuclear Power Plant (FDNPP) accident in March 2011 resulted in the contamination of Japanese landscapes with radioactive fallout. Accordingly, the Japanese authorities decided to conduct extensive remediation activities in the impacted region to allow for the relatively rapid return of the local population. The objective of this presentation is to provide an overview of the decontamination strategies and their potential effectiveness in Japan, focussing on particle-bound radiocesium. In the Fukushima Prefecture, the decision was taken to decontaminate the fallout-impacted landscapes in November 2011 for the 11 municipalities evacuated after the accident (Special Decontamination Zone – SDZ – 1117 km^2) and for the 40 non-evacuated municipalities affected by lower, although still significant, levels of radioactivity (Intensive Contamination Survey Areas, 7836 km^2). Decontamination activities predominantly targeted agricultural landscapes and residential areas. No decontamination activities are currently planned for the majority of forested areas, which cover ~75 % of the main fallout-impacted region. Research investigating the effectiveness of decontamination activities underlined the need to undertake concerted actions at the catchment scale to avoid renewed contamination from the catchment headwaters after the completion of remediation activities. Decontamination activities generated ~20 million m^3 of soil waste by early 2019. Most of this material will have to be stored for ~30 years at interim facilities opened in 2017 in the vicinity of the FDNPP before being potentially transported to final disposal sites outside of the Fukushima Prefecture. Further research is required to investigate the perennial contribution of radiocesium from forest sources. In addition, the re-cultivation of farmland after decontamination raises additional questions associated with the fertility of remediated soils and the potential transfer of residual radiocesium to the plants.

≪講演要旨②　Thomas Chalaux氏≫

Impact of (non-)decontamination and recultivation of agricultural soils on sédiment and radio-cesium transfert in Fukushima rivers.

Abstract : Significant quantities of radionuclides (mainly radio-cesium) were deposited on the soils of the northwest of the Fukushima Dai-ichi power plant in March 2011. Starting 2013, the Japanese authorities began decontamination work, which consists of stripping the surface layer of the soils concentrating the radiocesium (about 5 cm) and then replacing it with a saprolite layer. As recultivation of these soils begins, many questions were raised regarding the properties of these soils and their fertility. In addition to the characterisation of these soils, the sediment tracing approach will help to quantify sources of sediment and the residual radiocesium transiting these rivers, after this decontamiation and recultivation phase. In 2021 Japanese authorities announced that some area will never be decontaminated. The same finger printing approach will be lead in one of these watershed. Comparison between non-decontaminated and decontaminated watershed will help to see the impact of different political decisions (decontaminated or non-decontaminated) on sediment and radiocesium transfer.