Contribution ID: **44** Type: **Oral**

Revisiting Radiocesium Retention in Japanese Cedar: Implications for Post-Accident Forest Recovery

The long-term management of contaminated forest landscapes depends not only on declining environmental inventories of radiocesium (137Cs), but also on how this radionuclide is retained within commercially important tree species. Japanese cedar (Cryptomeria japonica), which underpins much of Japan's plantation forestry, exhibits an unusual internal distribution of 137Cs within wood (stem), marked by preferential accumulation in heartwood rather than sapwood. This pattern challenges conventional assumptions about radionuclide behavior in woody tissues and raises questions about the processes controlling internal redistribution and retention. This study synthesizes current knowledge and ongoing works on radial radiocesium dynamics in Japanese cedar, focusing on anatomical, physiological, and environmental factors that may drive these observations. Key uncertainties are identified, and directions for future research are outlined to improve predictive capability and inform risk-based decisions on the utilization of forest timber in post-accident environments.

Keywords: Japanese cedar, Radiocesium, Forest ecosystems, Fukushima.

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Track Classification: Environmental Measurements