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20 YEARS AFTER THE NAKHODKA OIL SPILL ACCIDENT IN THE SEA OF JAPAN

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On January 2, 1997, the Nakhodka, a Russian tanker loaded with 19,000 kl of C-type heavy oil, was broken up into sections and submerged off Oki Island, Shimane Prefecture, Japan, which yielded serious environmental problems throughout the shores of Hokuriku district. We report the characterization of C-type heavy oil, 20 years after the Nakhodka oil spill accident, based on observations in the field on January 18 in 2017. We studied the microstructure, mineralogy, chemical composition, and radioactivity associated with the microorganisms in soils contaminated with C-type heavy oil with fishing net and rope, using a combination of microtechniques, analytical data. The fish gears that had buried in a beach show high concentration of Na, P, S, Cl, Sr, and Pb, which is predominantly indigenous to the spilled C-type heavy oil, whereas Na, Al, Si, P, S, Ca, Fe, and Sr are detected on the fin whale skeletons that has stored in a museum after being collected. X-ray powder diffraction (XRD) of the contaminated soils after 20 years showed consistent with paraffin, graphite and calcite. Many kinds of hydrocarbon-degrading bacteria, such as *Micrococcus bacillus* and filamentous fungus were found in oil-contaminated soils after 20 years in the coast of Wajima, Ishikawa Prefecture, Japan. To date, no report has described the results of electron microscopy observations and in this research; such observations are introduced, including the real-life occurrence of bioremediation by hydrocarbon-degrading bacteria, graphite, and paraffin wax. These observations could lead to simple methods of removing C-type heavy oil from the environment.

Biography

Tazaki Kazue has completed her PhD in Doctor of Science (Geology, Mineralogy), Tokyo Kyoiku University, Japan. She has worked as Post Doctorate Visiting Fellow at Geological Survey of Canada, ISPG in Calgary, Research Associate at McGill University in Montreal, and Senior Research Associate at The University of Western Ontario, London, Ontario, Canada. She has worked as Associate Professor, at Shimane University, and as Professor, at Kanazawa University, Japan. She was a Visiting Professor at Lac Hong University, in Vietnam and Visiting Professor at the University of Dodoma, Tanzania. She has published more than 500 papers of Environmental Sciences. She got many awards from the Geological Society of Japan, Natural Sciences and Engineering Research Council of Canada, Mineralogical Society of Japan, Clay Mineralogical Association of Japan, Ishikawa TV, the Earth Science Award of Chigaku Dantai Kenkyu-Kai, and the award of International Solopetitmist Society Contribution.

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