Monitoring of the concentration of radioactive cesium in river water of Abukuma River

Radioactive materials were released into the atmosphere and deposited over wide areas due to the accident at the Tokyo Electric Power Fukushima Daiichi Nuclear Power Plant. Elevated levels of ^{134}Cs and ^{137}Cs have been detected in these areas. It is important to clarify the level of dissolved and total radioactive Cs in environmental water for forecasting the discharge of radioactive Cs from forests and watersheds and assessing the effect of dissolved and particulate radioactive Cs. In this research, we monitored the levels of dissolved and particulate radioactive Cs in river water of Abukuma River using a conventional evaporative concentration method. By monitoring the river waters since September 2012, it was estimated that the levels of dissolved radioactive Cs were less than 0.128 Bq/L and those of total radioactive Cs were less than 0.274 Bq/L in the main stream and branches of Abukuma River in the low suspended solid condition.

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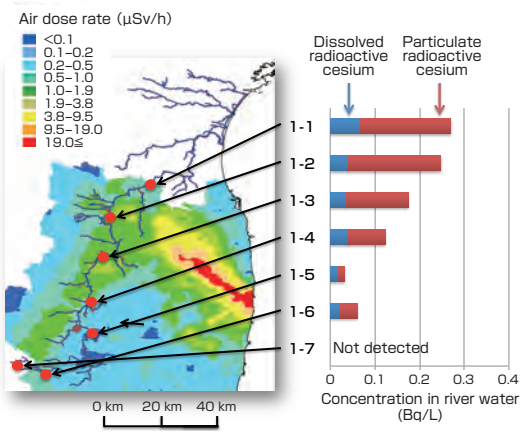

Dissolved and particulate radioactive cesium in the main stream of Abukuma River

Underground permeation of seawater in the 2011 Tsunami disaster areas

Estimation by a helicopter-borne electromagnetic survey

We conducted a helicopter-borne electromagnetic survey over the 2011 tsunami disaster areas in June 2012 to investigate the underground permeation of seawater. This survey revealed that low apparent resistivity layers with resistivity below 20 Ωm, are widely distributed in the shallow underground (depth of approximately 0 to 5 m) over several kilometers from the coastline toward inland areas and that the boundary of the distribution zone almost matches the edge of the tsunami flooding zone. In the deep underground of the distribution zone (depth of 10 m or more), low-resistivity layers resulting from the penetration of seawater from the coast were frequently observed. However, layers of relatively high resistivity were also observed. There is a possibility that fresh groundwater exists near these high-resistivity layers, and this is expected to contribute to the selection of candidate sites for drilling new groundwater wells.

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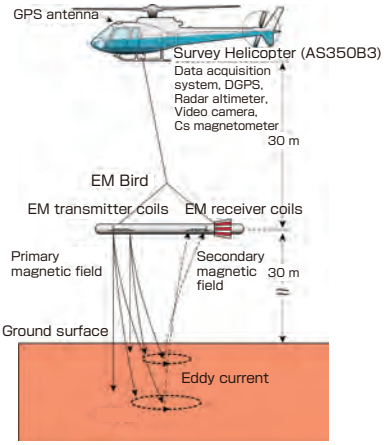

Schematic diagram of the helicopter-borne electromagnetic survey