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ACG033-P10

Room:Convention Hall

Time:May 25 10:30-13:00

## Stable isotope ratios of water in permafrost and river

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Eastern Siberia is covered by permafrost which is the largest and the deepest in the world, and permafrost plays an important role for hydrologic cycles in the area. Degradation of permafrost system, therefore, may have a great impact on the hydrologic regime, consequently, on the material cycling including greenhouse gas emission, through vegetation changes. Isotopic composition of water is powerful tool for investigation of hydrological processes.

Observations on the water isotope ratios of soil moisture and permafrost ice were conducted near Yakutsk and Chokurdakh, Russia. Lena and Indigirka rivers and ground water at Yakutsk city were also sampled, in order to know the hydrological processes in both areas.

Lena river water and groundwater (well water) showed the same variation during the period from 2003-2005, whereas they showed the different trend in 2006 and 2007. This may be caused by the heavy rainfall in the summer of 2006. This means that runoff from this occurred during winter after heavy rainfall, although runoff from this area is not significant usually because of dry climate and permafrost condition.

Chokurdakha is a boundary area between taiga and tundra. Surface water and ice in hallow layer of permafrost showed evaporative isotope signature depending on the surface vegetation. Our observational results showed tight relationship among hydrologic regime, vegetation, and greenhouse emission.