PERMAFROST MAP IN RUSSIA USING COMMUNITY-BASED PERMAFROST AND ACTIVE LAYER MONITORING NETWORK

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In 2008, an approach to mapping permafrost based on thermal conditions was introduced during the Ninth International Conference on Permafrost (Jorgensen et al., 2008). This approach maps permafrost distribution using the annual mean air temperature model (PRISM) and surficial geology (the GIS platform). A thermal offset or gap occurs between air and ground surface temperatures mainly because of snow cover or other thermal effects. Use of the annual mean ground temperature model instead of air temperature will produce better results. Our community-based permafrost and active layer monitoring network measures ground temperature year-round at hundreds of locations. These data are useful for calibration or verification of the new model. The original objective of this network was to establish long-term permafrost monitoring sites near communities and schools so that students and teachers could be involved in installation of the monitoring equipment and data gathering. Permafrost condition is an important indicator of climate change, since permafrost is directly influenced by climate. Permafrost affects local ecosystems and hydrological regimes, and is a factor in natural disasters related to ground stability. Once we develop a station, data are available to the public for science, engineering, and education purposes. An important project related to the permafrost monitoring stations is the mapping/modeling of permafrost. Our community-based monitoring system will contribute to the production of a more-accurate permafrost map. With improved mapping/modeling in mind, we plan to finish the Alaska permafrost map, then develop the same method in Russia as in Alaska by establishing monitoring stations in Sakha Republic and other parts of Russia. To begin with, however, we will focus on establishing this network over the next several years.

ISAR-3

PROGRAM and ABSTRACTS

Third International Symposium on the Arctic Research

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January 14 – 17, 2013

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Organized by

National Committee of IASC, Subcommittee for International Affairs, Committee on Earth and Planetary Sciences, Science Council of Japan

Japan Consortium for Arctic Environmental Research (JCAR)

Co-Organized by

IFES-GCOE, Hokkaido University

International Arctic Research Center (IARC)

Japan Agency for Marine-Earth Science and Technology (JAMSTEC)

National Institute of Polar Research (NIPR)

Supported by

Center for Computational Sciences (CCS), University of Tsukuba

Climate and Cryosphere Project (CliC), World Climate Research Programme (WCRP)

International Arctic Science Committee (IASC)

Research Institute for Humanity and Nature (RIHN)