

iLEAPS studies on hydrologic - biogeochemical cycles under the Future Earth initiative

HIYAMA, Tetsuya^{1*} ; SAIGUSA, Nobuko²

¹Hydrospheric Atmospheric Research Center, Nagoya University, ²National Institute for Environmental Studies

The iLEAPS (integrated Land Ecosystem - Atmosphere Processes Study), a core project of the IGBP (International Geosphere - Biosphere Programme), focuses on the interdisciplinary science of hydrologic - biogeochemical processes that link land - atmosphere exchange, climate, and tropospheric chemistry. Eight initiatives in the iLEAPS are 1) aerosols, clouds, precipitation and climate (ACPC), 2) climatic impacts of adaptation measures, 3) biosphere - atmosphere - society index, 4) emission, exchange, and processes of reactive compounds, 5) extreme events and environments (EEE), 6) bridging the gap between iLEAPS and GEWEX (Global Energy and Water Cycle Experiment) land - surface modelling, 7) interdisciplinary biomass burning initiative (IBBI), and 8) interactions among managed ecosystems, climate, and societies (IMECS). Indeed, humans modify the land surface in many ways that influence the fluxes of water, energy, and trace gases between land and the atmosphere. Their emissions change the chemical composition of the atmosphere and anthropogenic aerosols change the radiative balance of the globe directly by scattering sunlight back to space and indirectly by changing the properties of clouds. Feedback loops among all these processes, land, atmosphere, hydrologic, and biogeochemical cycles extend the human influence. Thus iLEAPS activities will strongly relate to the Future Earth initiatives. In this presentation we will introduce several iLEAPS activities and discuss on how the iLEAPS collaborate with the other Future Earth activities.

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