[JJ] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-CG Complex & General

[A-CG40]Material Circulations in Land Ecosystems

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Terrestrial ecosystem influences global climate through circulations of water, carbon, and nitrogen between land surface and atmosphere. For better understanding of those behaviors, a great effort has been paid for developing varieties of approaches and techniques such as biometric survey, eddy and chamber methods, near and satellite remote sensing, biosphere modeling and so on.

In particular, the JapanFlux, founded in 2006 as a researchers network of CO2, H2O and other trace gas flux measurement, has promoted the multi-disciplinal studies not only for flux measurement community, but also for remote sensing and biosphere modeling communities. Moreover, the Research-Group-on-Integrated-Land-Processes, which was founded in 2006, also has contributed to build networks between Japanese researchers to better understanding of physical and biological processes on interactions between terrestrial surface and atmosphere.

This session unites those multi-disciplinal activities, and promotes the oral and poster presentations on the role of terrestrial ecosystem in material circulations of water, carbon, nitrogen, energy and other substances by any approaches and technics. This session takes over the former session in last year: A-CG47.

[ACG40-P11]Plans for developing an Earth system model with CH_4 dynamics

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Methane (CH_4) is one of the important GHGs for climate prediction due to its relatively high radiative forcing next to that of CO_2, and now it is necessary to pay more attention to global CH_4 dynamics after Paris agreement. Under the control of CO_2 emission to keep a global temperature rise this century below 2 degrees Celsius above pre-industrial level, concentration of CH_4 in the atmosphere will be more influential to climate change. Furthermore, the atmospheric life time of CH_4 is around 9 years, it could be a good target for climate change mitigation. However, current Earth system models (ESMs) cannot project CH_4 concentration with fully coupled manner: some models can predict atmospheric CH_4 concentration but its predicted concentration is not based on the anthropogenic/natural CH_4 emission under climate interactions. In order to make climate projection with fully coupled CH_4 processes, we have started to couple CH_4 dynamics into our ESM, by introducing atmospheric chemistry model and the terrestrial CH_4 emission scheme into an ESM. In this presentation, brief introduction and the progress of our ESM development will be made, and plans for application of the ESM to CH_4-related simulations will be shown.