Global carbon modeling using GOSAT observations

*Makoto Saito[1], Yukio Yoshida[1], Hibiki Noda[1], Isamu Morino[1], Osamu Uchino[1], Tsuneo Matsunaga[1], Tatsuya Yokota[1], Shamil Maksyutov[1]

1.National Institute for Environmental Studies

The Greenhouse gases Observing SATellite (GOSAT) was launched on January 2009 to measure spatiotemporal variations of column carbon dioxide ($CO_2$) and methane ($CH_4$) concentrations from space. The GOSAT measurements provide uniform global coverage and thus show a standardized distribution and $CO_2$ and $CH_4$ concentrations over the globe, allowing an assessment of potential impact of climate change on the $CO_2$ and $CH_4$ budgets. Here we show how drought events influence $CH_4$ emission in the Amazon region by using the GOSAT observation, as a case study to examine utilizationof of earth explore satellites for advancing our understanding of the global carbon cycle and for distinguishing emission sources from the atmospheric concentrations.The GOSAT mission can be considered as a demonstrator for discussing future missions of greenhouse gas observing satellites.

Keywords: satellite observations, global carbon budget, greenhouse gases