



PLEASE POST

2018 SEMINAR SERIES

Oceanography among the clouds and terrestrial ecology a thousand miles from land: The power of global-scale airborne observations

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Over the past decade, measurements of atmospheric CO₂, O₂, and related tracers on a series of airborne research campaigns have enabled new insights into fundamental properties of the global carbon cycle. The HIAPER Pole-to-Pole Observations (HIPPO, 2009-2011), O₂/N₂ Ratio and Airborne Southern Ocean (ORCAS, 2016), and Atmospheric Tomography (ATom, 2016-2018) campaigns are supporting new estimates of 1) the growing season net flux (GSNF) of CO₂ with the Northern Hemisphere land biome, 2) the partitioning between northern extratropical and tropical forest carbon sinks, 3) the seasonal net outgassing (SNO) of O₂ by the ocean in both hemispheres, and 4) the Southern Ocean CO₂ sink. These estimates show that GSNF has increased by > 50% over the past 60 years, that intact tropical forests are a major sink for anthropogenic carbon, that SNO is surprisingly balanced between the hemispheres, and that the seasonal variability in Southern Ocean CO₂ exchange is much greater than previously thought. I will present these results and discuss new opportunities for making global-scale aircraft observations a more routine part of the future climate observing system.

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Refreshments 3:15 PM

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Bldg 2 Large Auditorium (Rm1022)

Webcast: <https://ucarconnect.ucar.edu/live> (Room 2: FL2-1022)

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