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The U.S. has laid out an ambitious federal strategy to limit the impacts of climate change and to advance provision of high quality Greenhouse Gas (GHG) monitoring data. This includes establishment of a U.S. GHG Center charged with coordinating delivery of GHG information to improve its quality, accessibility, and transparency. NASA, along with EPA, NOAA, and NIST, are the GHG Center's founding partners during a 2-year pilot phase with plans to expand to include other agencies and partners over time.

In this presentation, we provide an overview of NASA's Goddard Space Flight Center (GSFC) contributions to the GHG Center through the lens of NASA's new Earth Action Strategy, highlighting how technical innovations in GHG observations can inform models and data system initiatives aimed at increasing the reach and visibility of information. First, we highlight ongoing work in expanding ground-based remote sensing in support of satellite calibration and validation through deployment of 18 EM27/Sun instruments. GSFC is working with federal government partners to deploy a subset of these instruments in critical under-observed areas like the U.S. East Coast. In addition, 10 instruments will be deployed through an expansion of NASA's Increasing Participation of Minority Serving Institutions in Earth Science Division Surface-Based Measurement Networks, helping to train a more diverse future workforce. We also discuss in situ aircraft sampling efforts using the CARbon Atmospheric Flux Experiment (CARAFE) payload to provide independent validation of surface-atmosphere fluxes using an airborne eddy flux technique.

Next we highlight ongoing work on quasi-operational modeling and assimilation of GHG fluxes and concentrations centered around NASA's Goddard Earth Observing System (GEOS). This includes regular delivery of a suite of land-atmosphere flux estimates from data-driven vegetation models, with coordinated benchmarking and intercomparison tools. These data are integrated with the GEOS atmospheric general circulation model and concentrations refined through assimilation of OCO-2 and TROPOMI data, creating gap-filled level 3 products that support evaluation of differences between satellite retrievals and ability to track recent changes in emissions with a latency of ~2 months. We highlight next steps for these modeling systems, emphasizing opportunities to support regional modeling efforts and to contribute to WMO's Global Greenhouse Gas Watch.

We conclude by highlighting the current and planned evolution of some of these datasets on the GHG Center data portal (http://earth.gov/ghgcenter), an end-user focused system which leverages NASA investments in

cloud-based data distribution and discovery to enable interactive analysis of GHG datasets.
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