



MiniCarb: a CubeSat for measuring greenhouse gases



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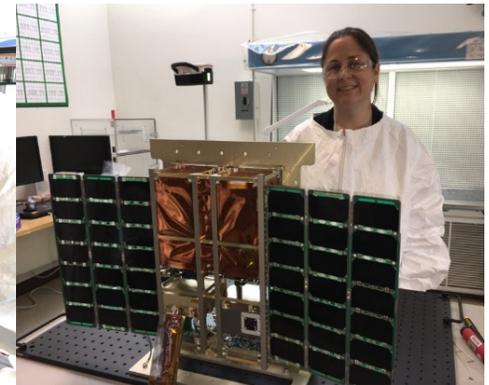
Science Question: How does stratospheric circulation respond to increasing greenhouse gas concentrations and what is the affect on stratospheric ozone?

Achievements:

- Deployed from ISS Cygnus cargo on Feb. 1, 2019.
- Lawrence Livermore National Laboratory (LLNL) partnership.
- Developed 1st laser heterodyne radiometer for flight.
- Demonstrated solar panel release mechanism on orbit.
- Successful crosslinking to the Iridium constellation on orbit.

Impact: Low-cost CubeSats can be a fast turn-around platform for science observations. Our partnership with LLNL has led to additional GSFC opportunities (Astrophysics Mission of Opportunity proposal, Pandora, submitted August 2019).

Why it matters: Greenhouse gas emissions impact climate change, wildlife, water resources, forests, food security, and human health. Gaps in monitoring could be filled with low-cost rebuilds of this CubeSat.



Clockwise from above:
Integration of the GSFC instrument into the LLNL bus, MiniCarb with solar panels extended, Mini-Carb on board the ISS prior to deployment via Cygnus.