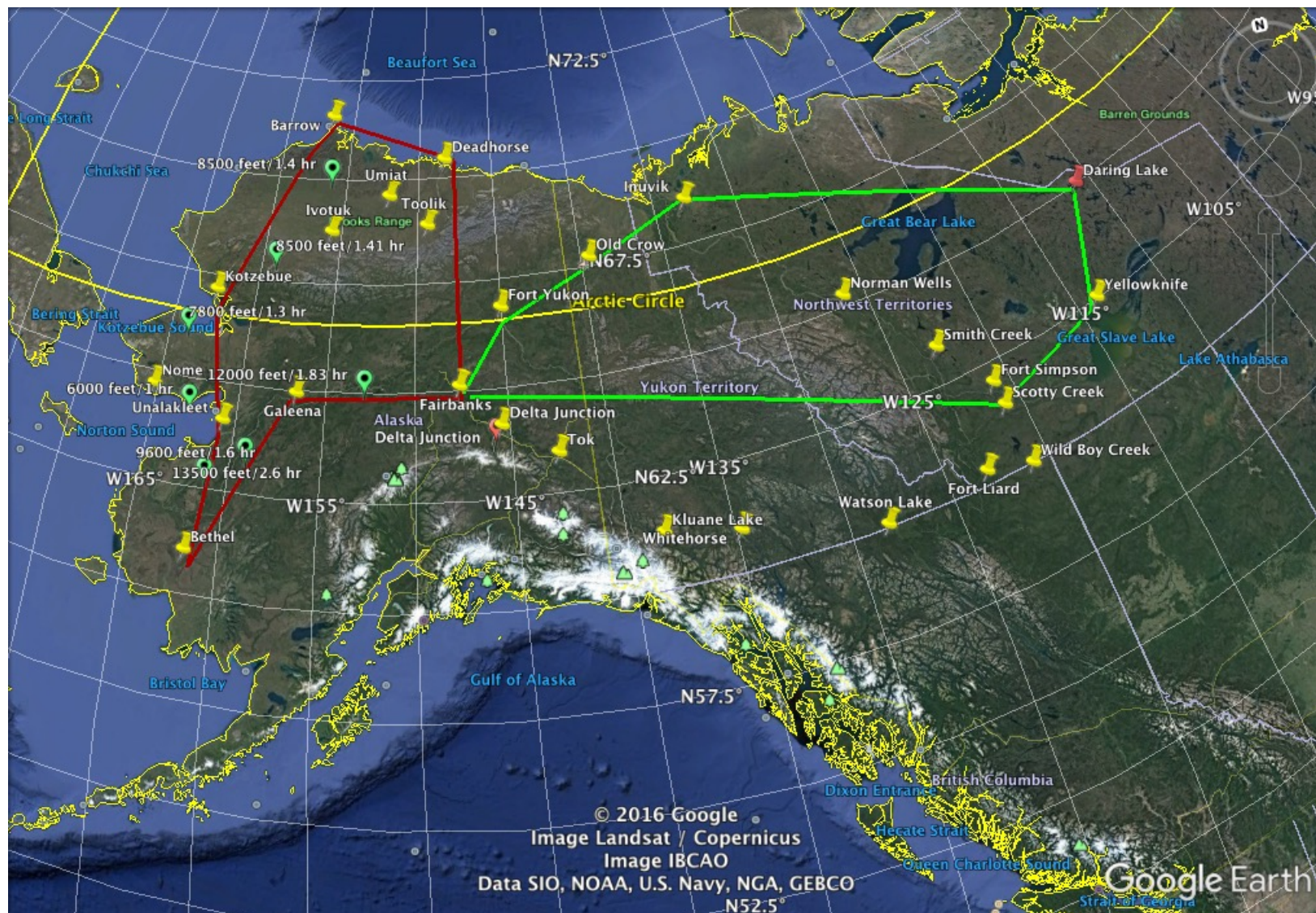


Airborne seasonal survey of CO₂ and CH₄ across the ABoVE domain

Colm Sweeney
Kathryn McKain
Steve Conley
Steve Wofsy
Roisin Commane
Charles Miller
Sabastian Biraud

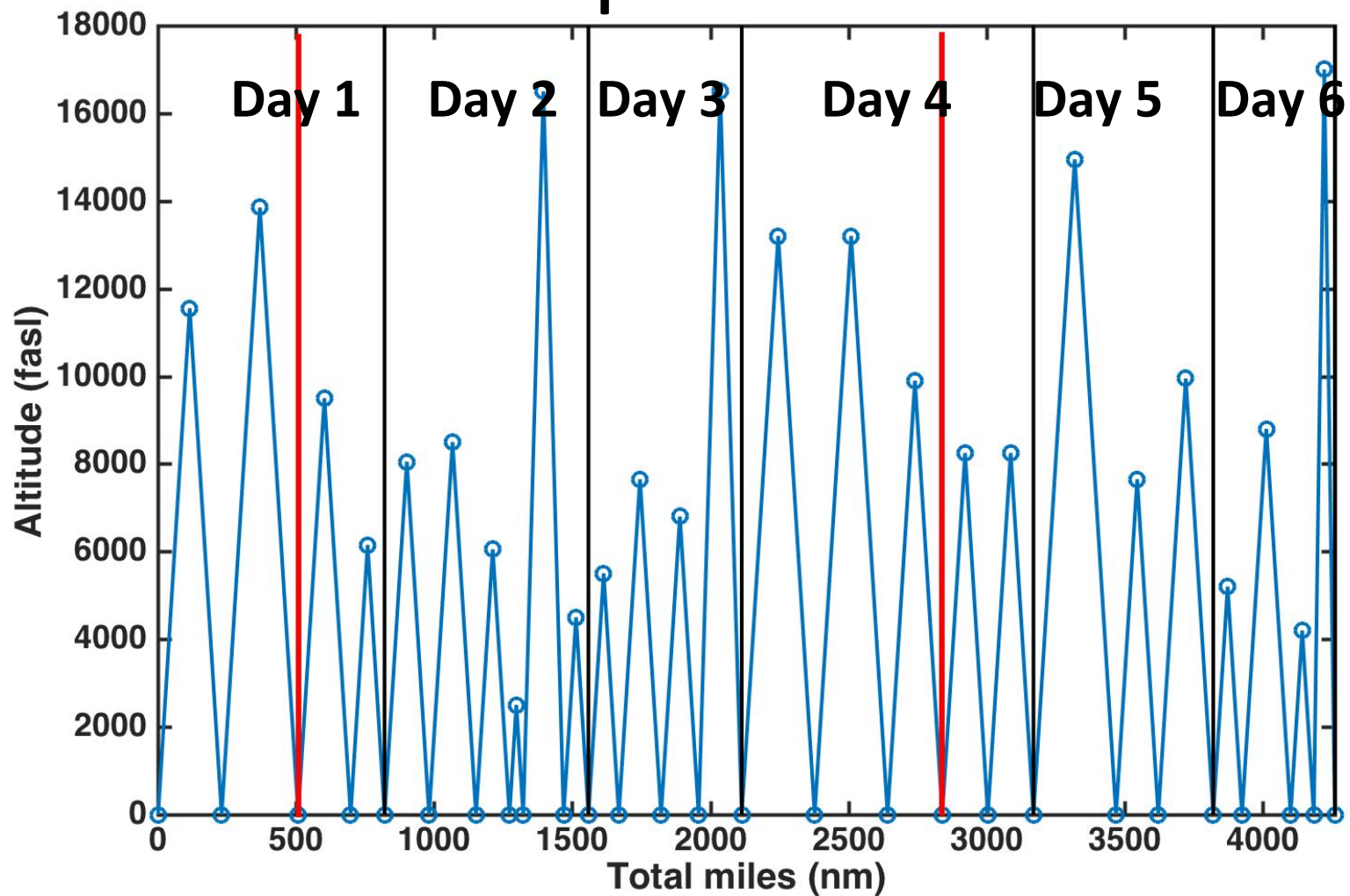
Flight Lines



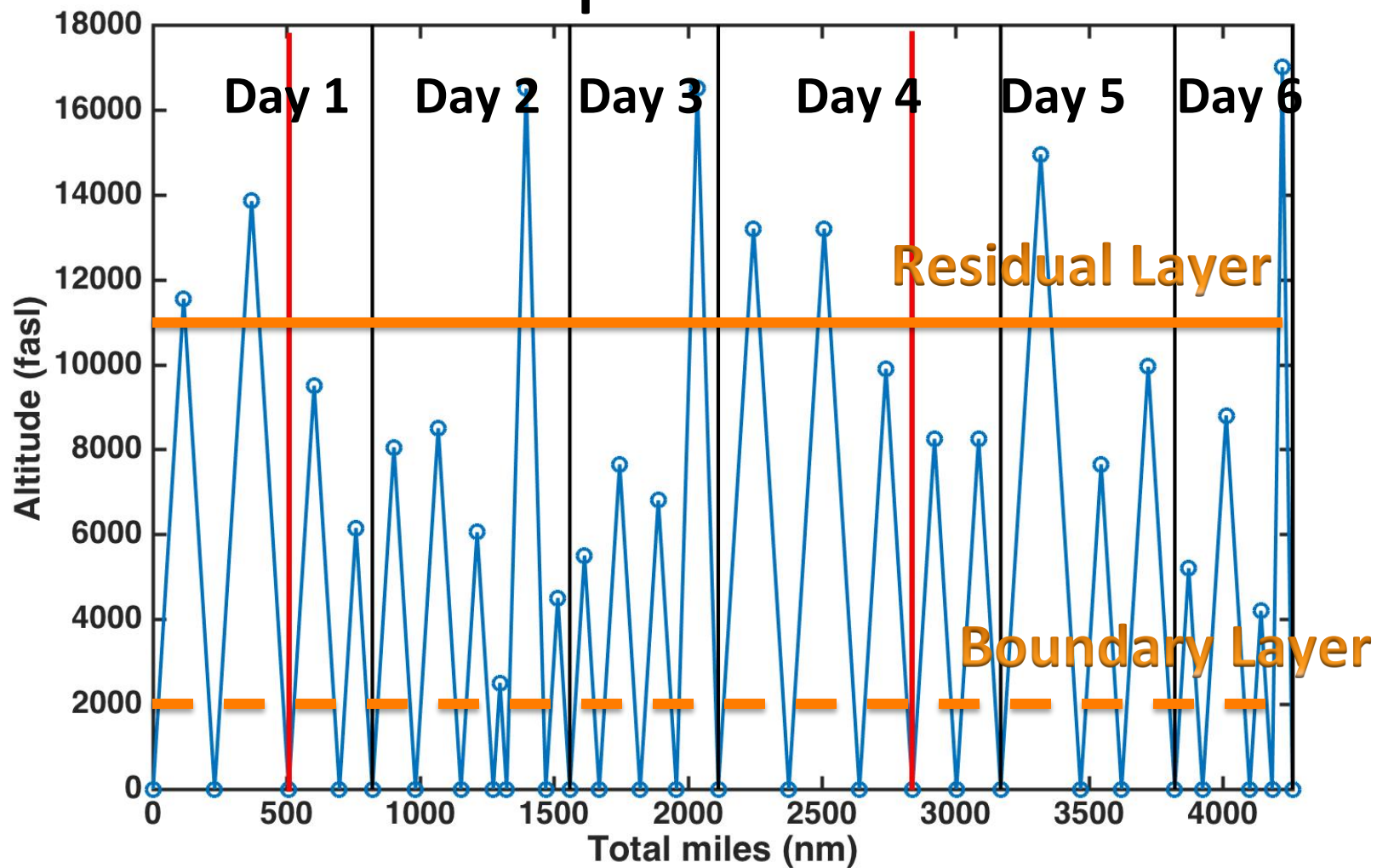
Flight Lines



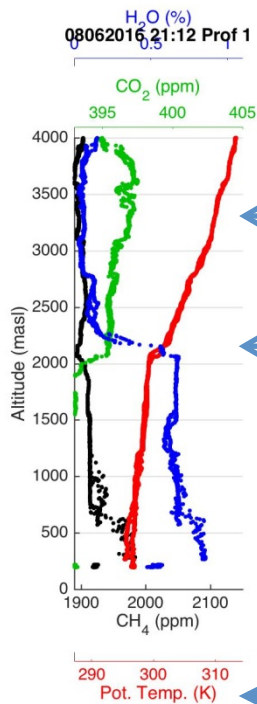
Loop Profile



Loop Profile



Typical Flight Plan



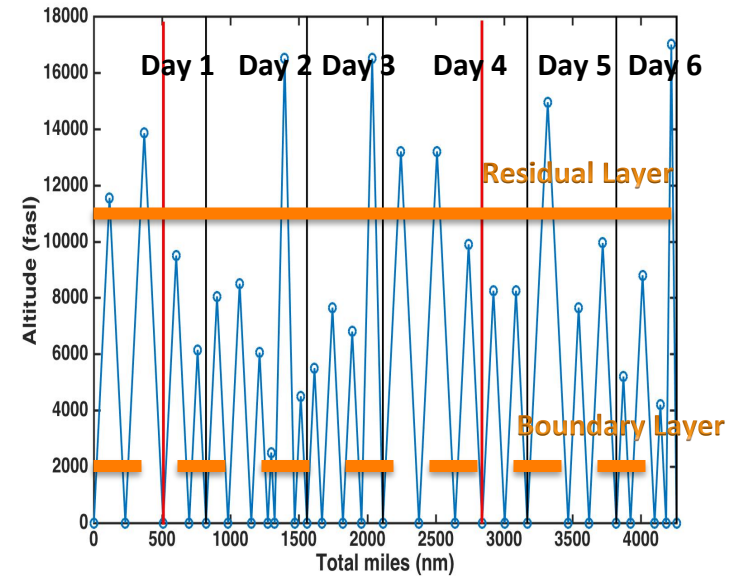
Free Troposphere

Residual layer

- Accumulation of a few days covering large areas

Boundary layer

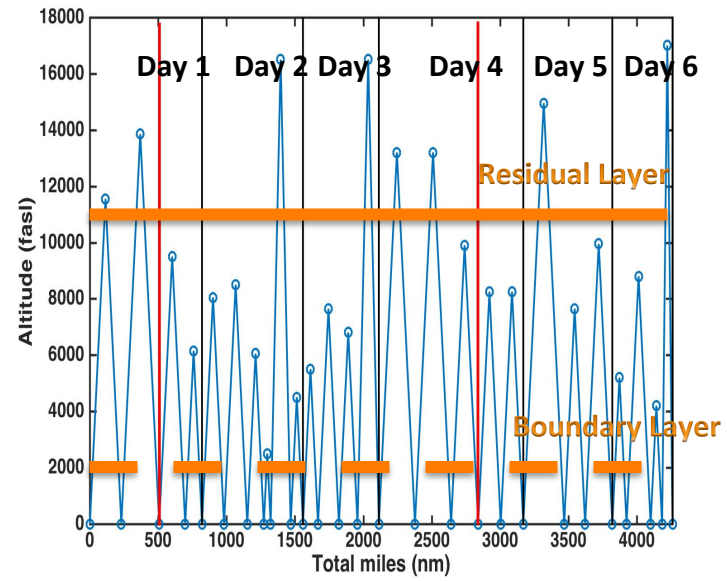
- Flux from day 1



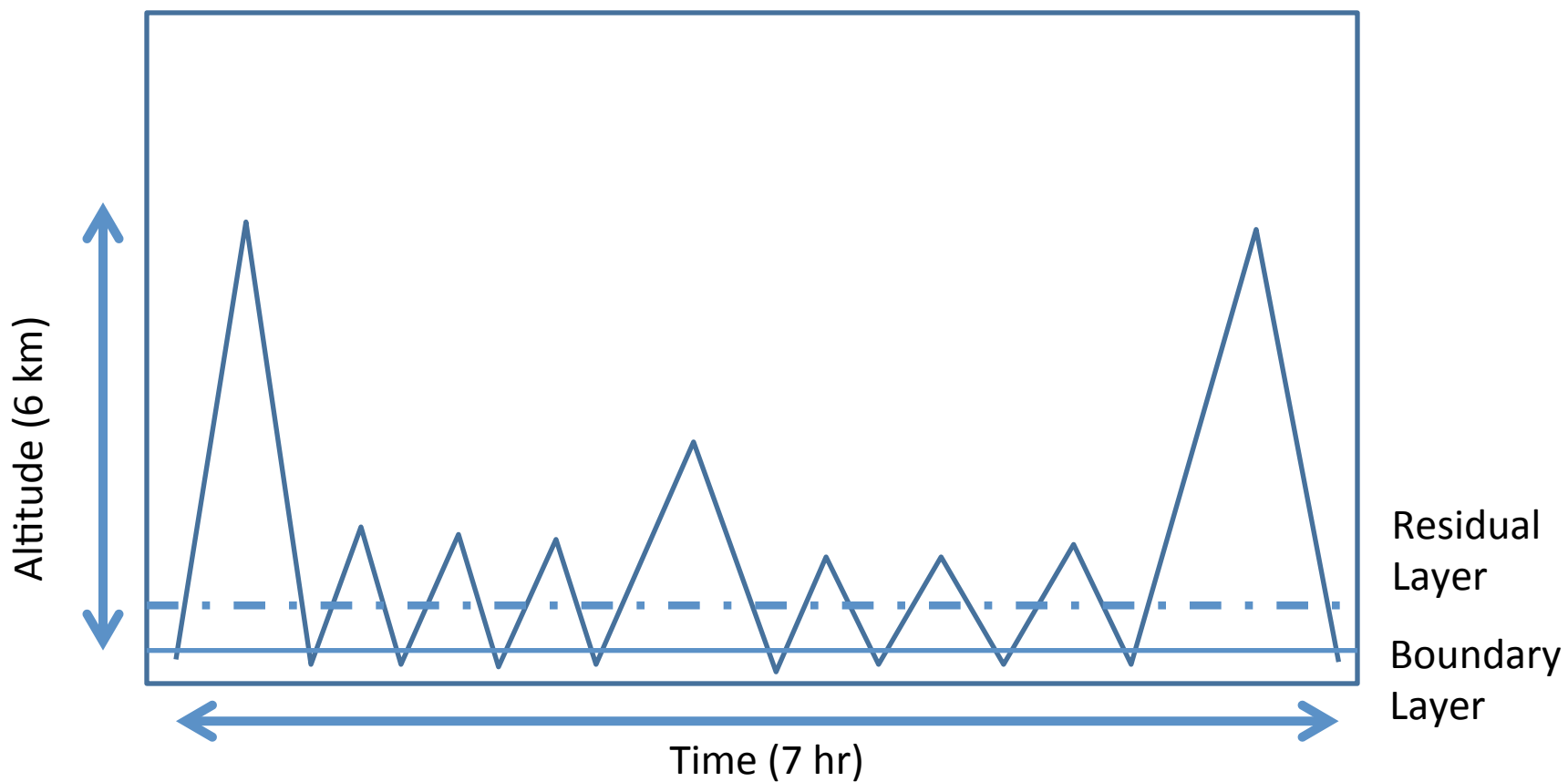
Day 3

Day 2

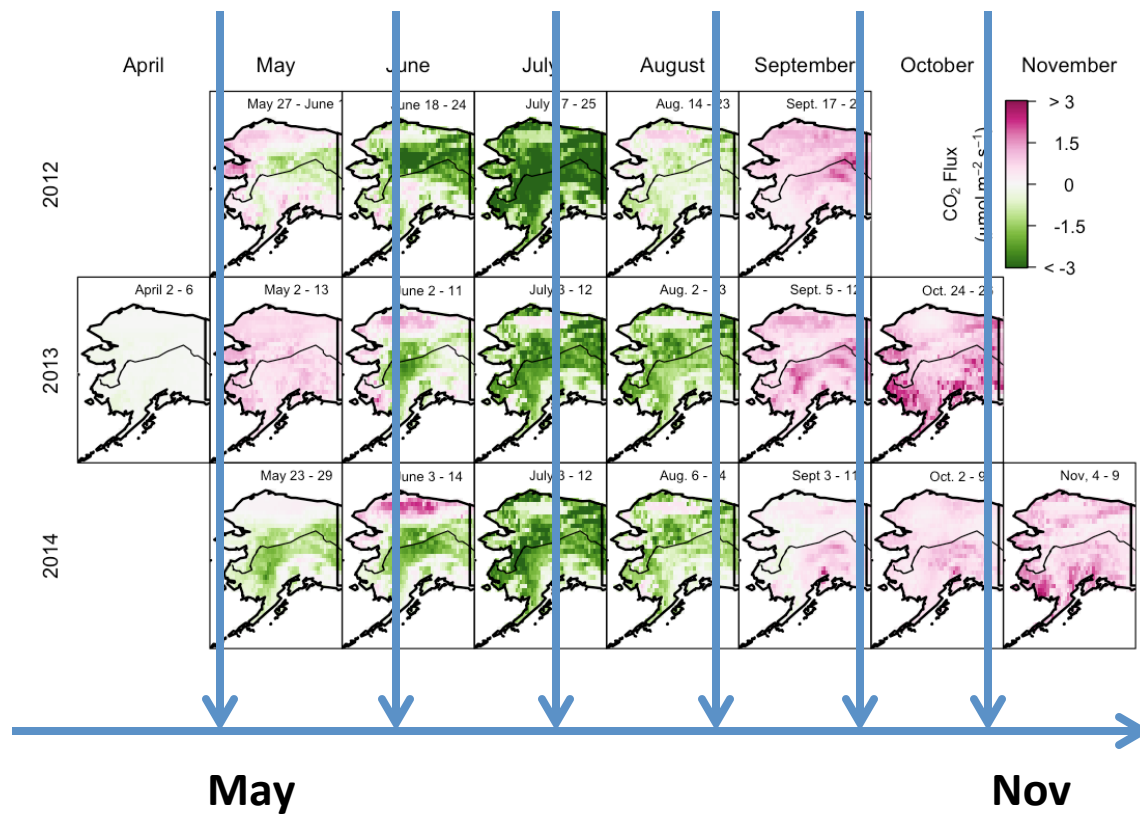
Day 1



Fight Plan

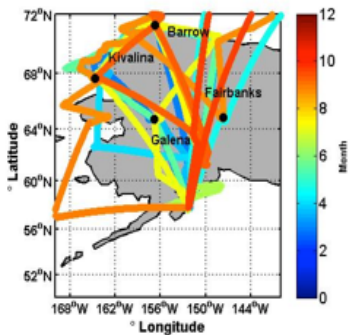


Timeline

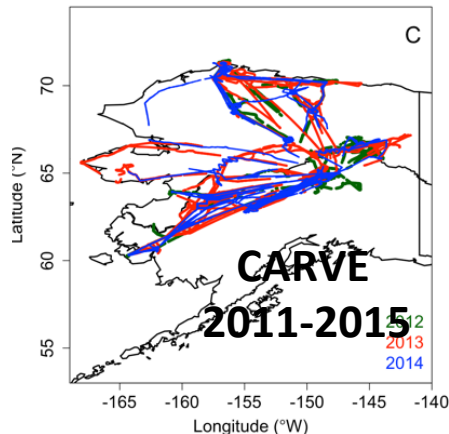


Science Objectives

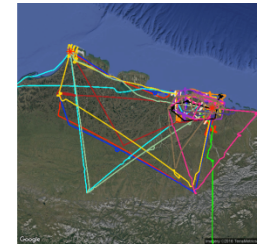
- **Objective 1) Quantify and compare seasonal and regional emissions of CH_4 and CO_2 throughout the ABoVE domain for 2017.**



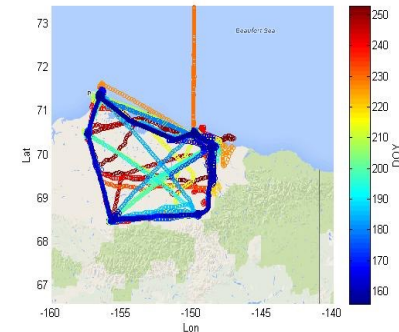
**US Coast Guard flights
2009 - 2015**



Cooperative Network



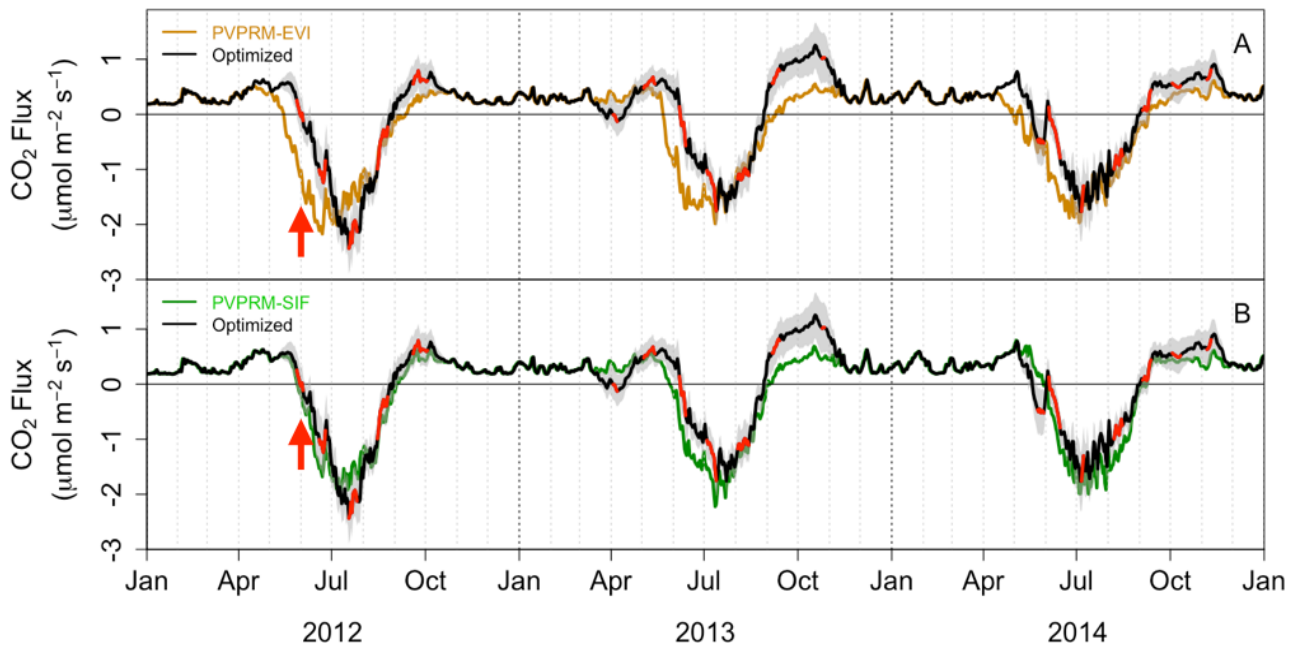
**NOAA North Slope
2016**



**DOE North Slope
2015**

Science Objectives

- **Objective 2) Evaluate models used to predict emissions of CO₂ and CH₄ in future climates in the ABoVE domain.**



Science Objectives

- ***Objective 3)*** Provide a temporal and spatial bridge between the large-scale remote sensing measurements made from satellites and foundational aircraft flights and the small-scale, site-level measurements made during Phase I of the ABoVE field program

