MichiganTech
Atmospheric Sciences Program

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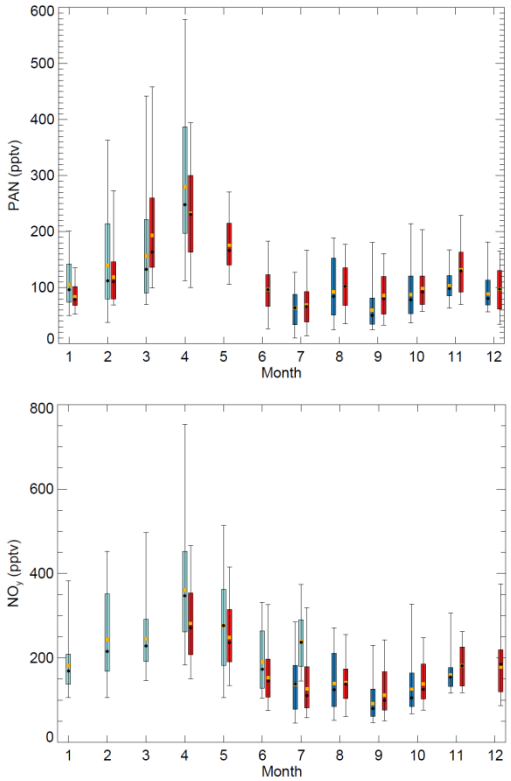
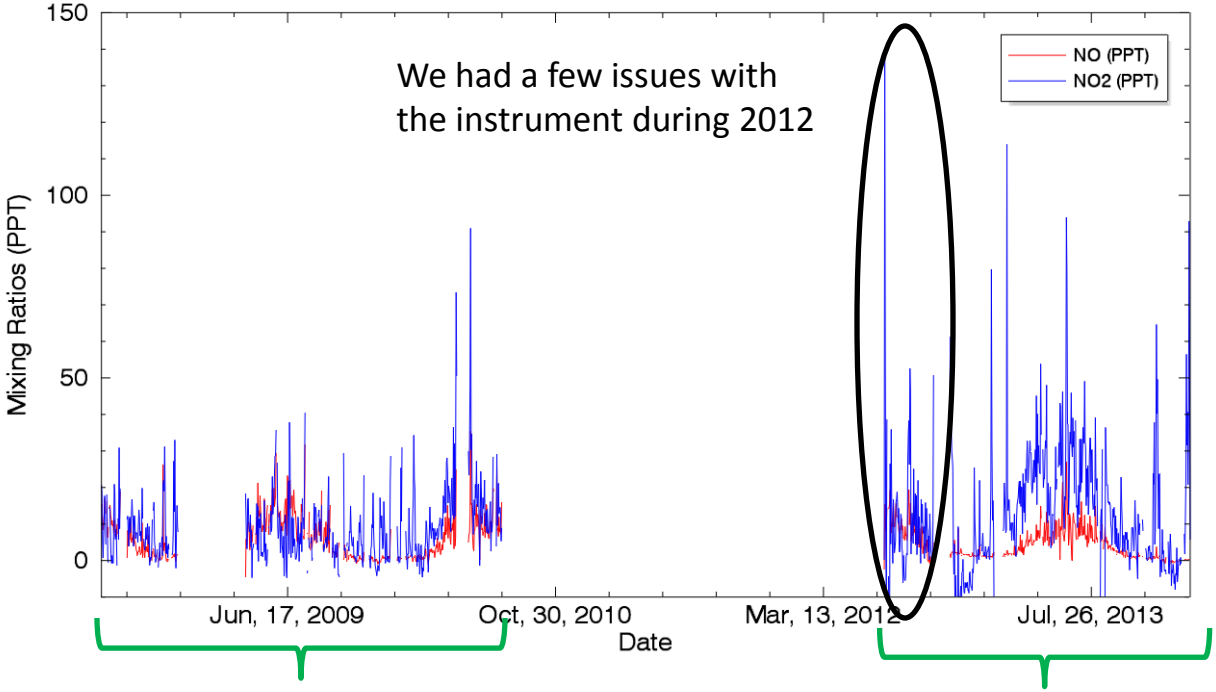
Long-term measurements of NO_x at the GEOSummit Station, Greenland (NSF, AON)

PAN and NO_y data from 2008-2010
(NASA, POLARCAT)

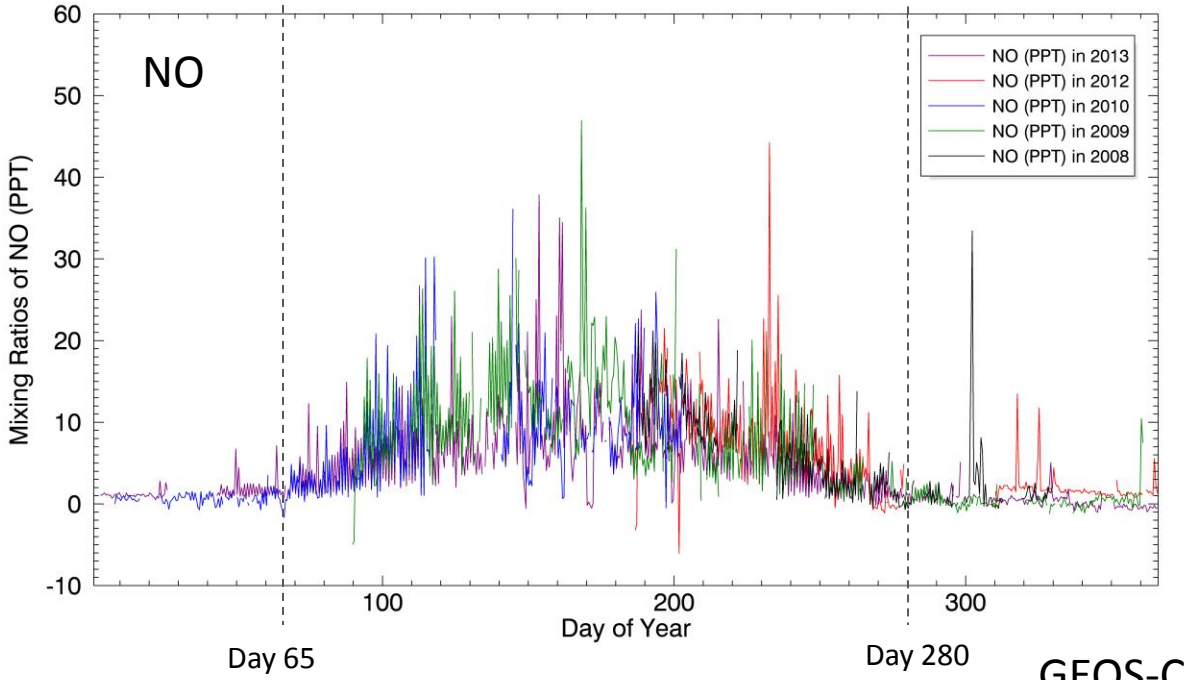


NO and NO_2 data from 2008-2010, 2012-2013
- To continue through Summer 2016



NO/NO_2(10 min), July 2008 – July 2010

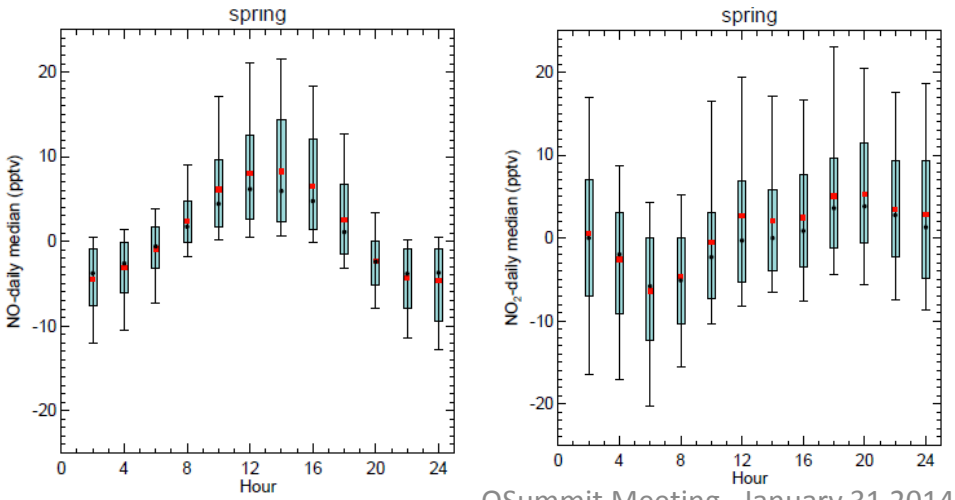
NO/NO_2 (6 min), Aug 2012 - Date



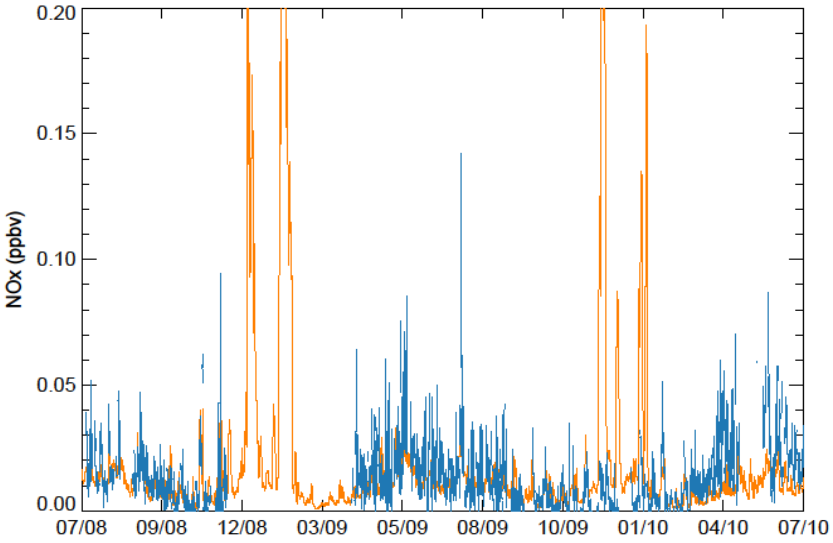
Clear seasonal cycle observed each year in NO and NO_2

Short term variability observed on top of background.

Diurnal cycles suggest we sample emissions of NO_x from the snowpack



GEOS-Chem model simulates large NO_x impacts from long range transport



Future plans

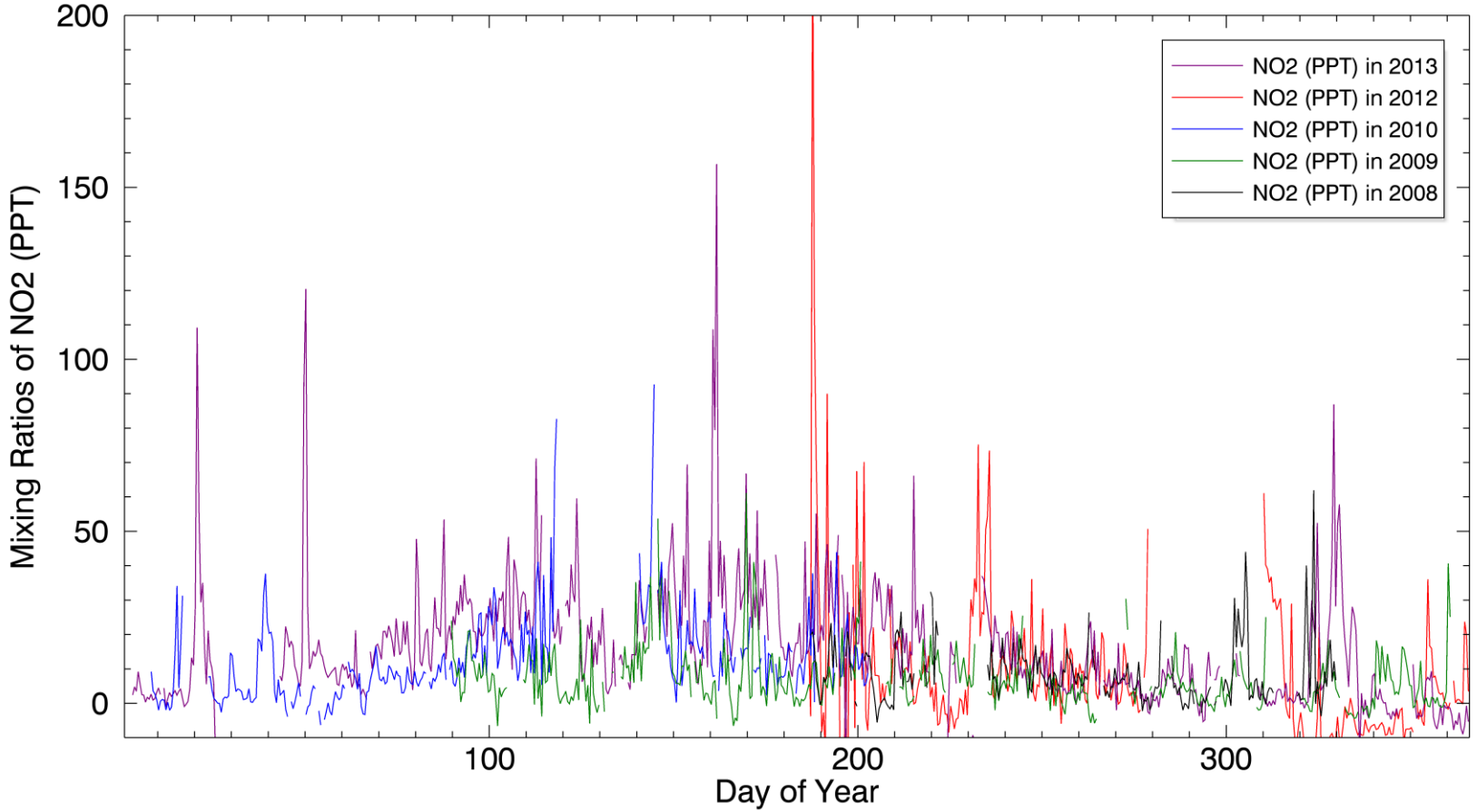
Publications in preparation:

- ***Seasonal variability of nitrogen oxides and hydrocarbons measured at the GEOSummit station, Greenland (ACP, February submission)***
- ***Biomass-burning and anthropogenic impacts on nitrogen oxides in the arctic tropospheric assessed using measurements at Summit, Greenland (ACP, March)***
- ***Diurnal variability of NO_x above the Greenland ice sheet (summer 2014)***

Future activities:

- Data to be archived on ACADIS site. Both 2008-2010 and 2012-2013 data will be uploaded by the summer.
- Continue NO_x measurements past 2016? Add NOy, PAN?
- Investigate the impact of long range transport on the snowpack

GEOSummit Meeting, January 31 2014
NASA Goddard, Greenbelt, MD


200
150
100
50
0
Mixing Ratios of NO2 (PPT)
100
200
300
Day of Year
NO2 (PPT) in 2013
NO2 (PPT) in 2012
NO2 (PPT) in 2010
NO2 (PPT) in 2009
NO2 (PPT) in 2008