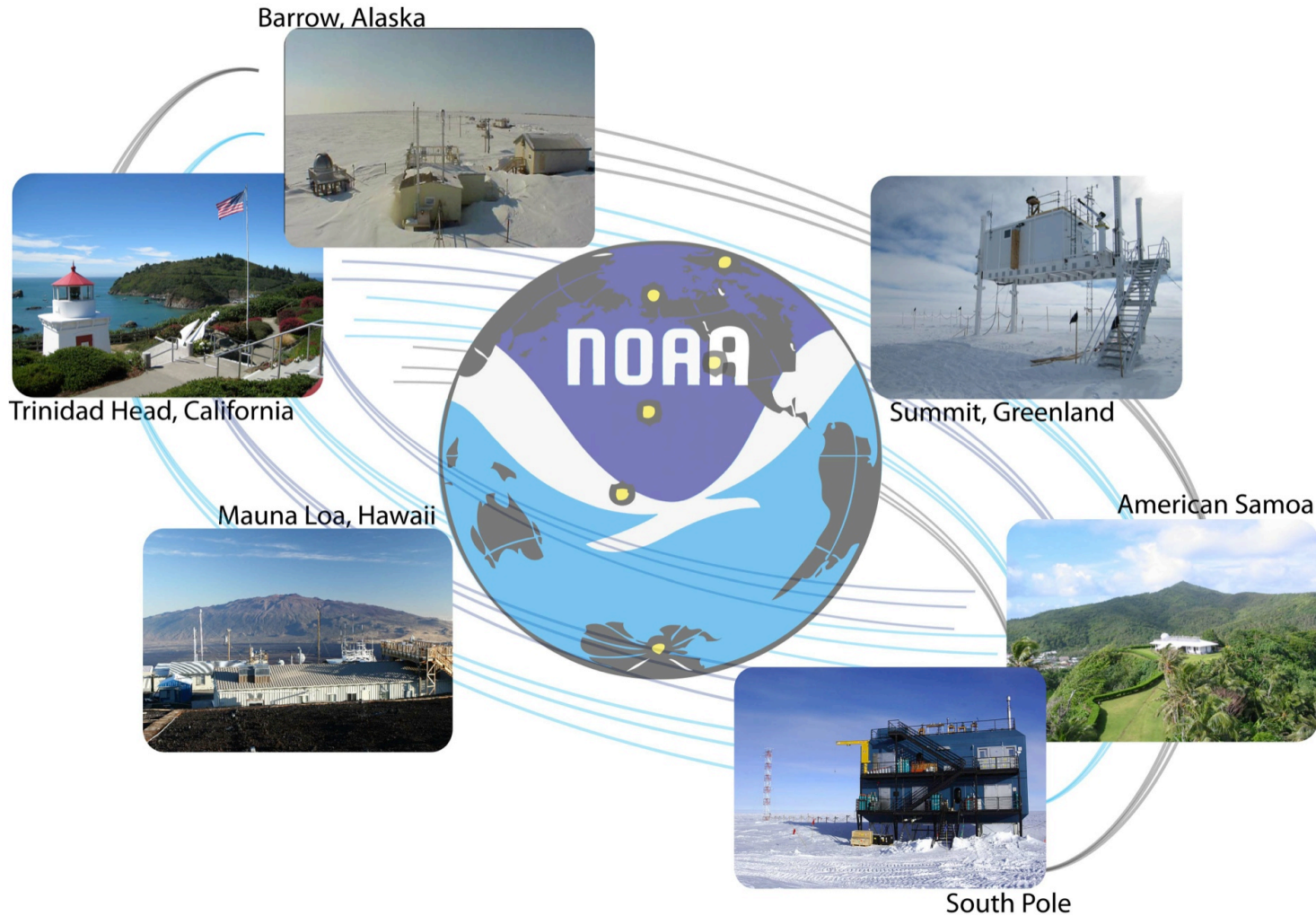


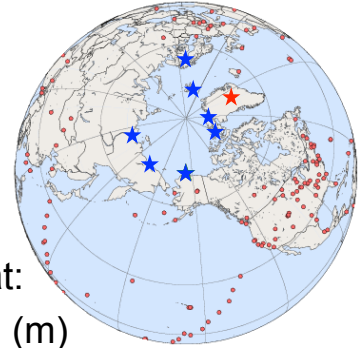
# NOAA Atmospheric Baseline Observatories



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# Summit Data



- **Aerosols**

- Collaboration with Georgia Tech (Bergin)
- Black carbon (in situ)

- **Carbon Cycle Greenhouse Gases**

- CO<sub>2</sub>, CH<sub>4</sub>, CO, H<sub>2</sub>, N<sub>2</sub>O, <sup>13</sup>CO<sub>2</sub>, C<sup>18</sup>O<sup>16</sup>O, CH<sub>3</sub>D, <sup>13</sup>CH<sub>4</sub> (flasks)
- Numerous VOCs and isotopes (flasks)

- **Halocarbons and Trace Species**

- N<sub>2</sub>O, SF<sub>6</sub>, CFC-11, CFC-12, CFC-113, H1211, CH<sub>3</sub>CCL<sub>3</sub>, CCL<sub>4</sub> (in situ)
- CFCs-11,-12,-113, CH<sub>3</sub>CCl<sub>3</sub>, CCl<sub>4</sub>, HCFC's-142b,-141b,-22,HFCs-134a,152a, CH<sub>3</sub>Br, CH<sub>3</sub>Cl, CH<sub>3</sub>I, CHCl<sub>3</sub>, C<sub>2</sub>Cl<sub>4</sub>, H-1211,-1301,-2402, CHBr<sub>3</sub>, CH<sub>2</sub>Br<sub>2</sub>, C<sub>6</sub>H<sub>6</sub>, COS, CS<sub>2</sub> (flasks)

- **Ozone**

- Surface (continuous)
- Ozonesonde vertical profiles (weekly)

- **Surface Radiation Budget**

- Downwelling and albedo (long & short-wave)
- Collaboration with Swiss WSL (Steffen)

- **Meteorology**

- Temp, relative humidity, wind speed, wind direction, surface pressure

- **Firn Sampling**

- Few samples to date
- Tubing installed (2010) at:  
70, 50, 30, 15, 10, 5, 1 (m)

- **Future Plans...**

- Upgrade met suite
- In situ CO<sub>2</sub>, CH<sub>4</sub>, and CO systems
- Expand NOAA aerosols & radiation capabilities

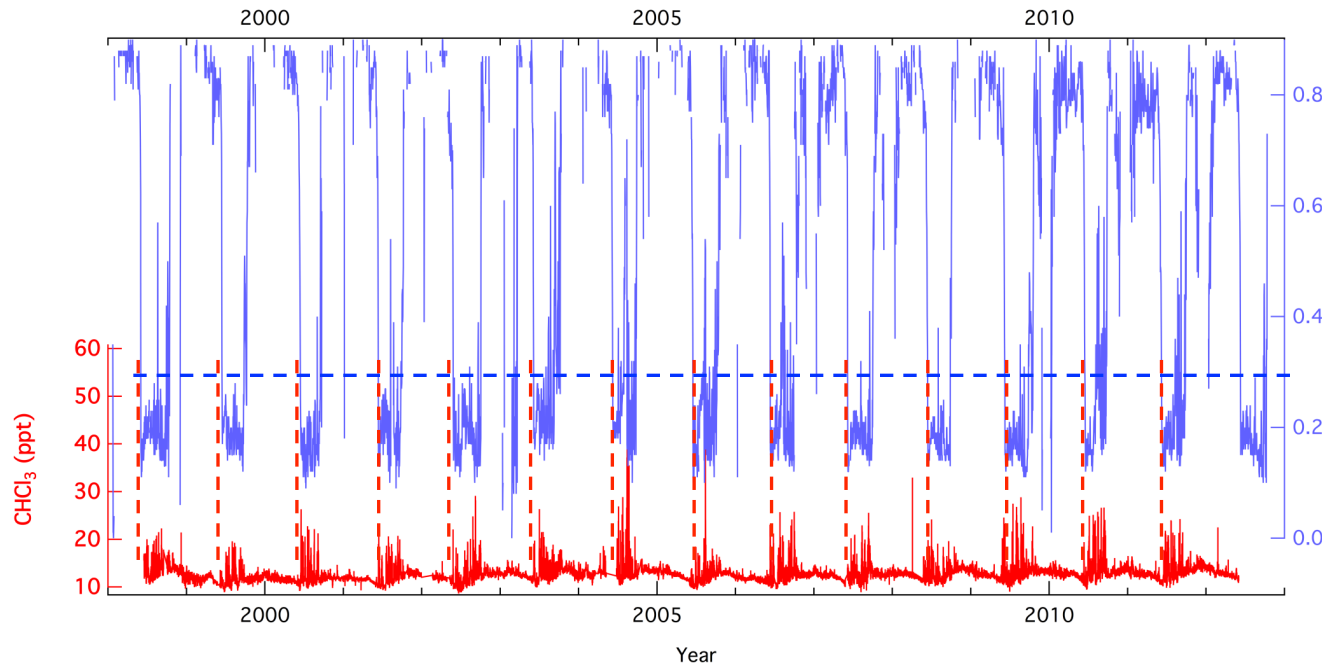
- **Other notes**

- Global networks (GMD, GAW, IASOA)
- Calibrations & Standards
- CarbonTracker, AGGI, etc.

- **Here to support you**

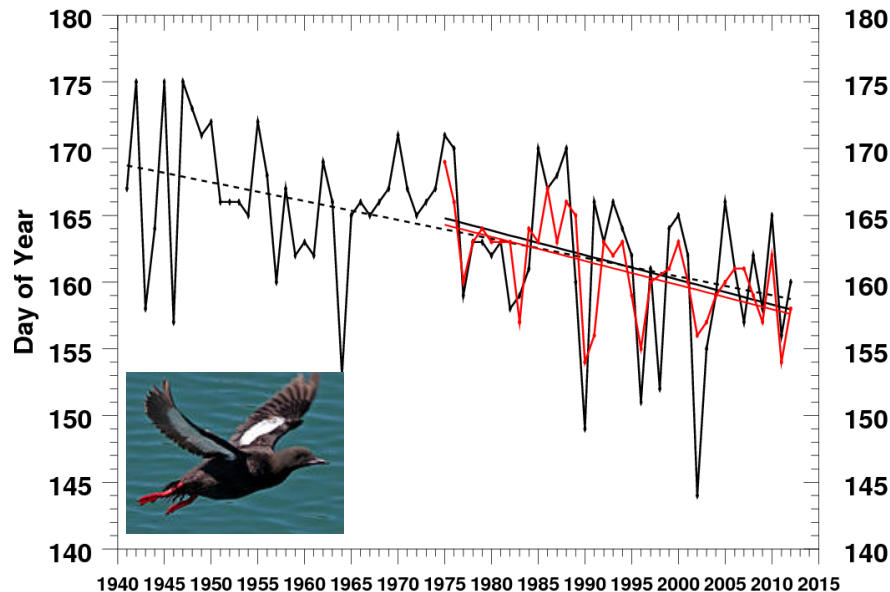
- *We get a lot from our data...  
we get much more with partners!*

# Albedo – Snowmelt – Guillemot



As snow melts,  
albedo drops...

at albedo < 0.3,  
Chloroform is  
released!



## Snowmelt:

**trend (1941-2012) -1.41d (0.60)/decade**  
**trend (1975-2012) -1.85d (1.66)/decade**

## First Egg (-12 days):

**trend (1975-2012) -1.81d (0.91)/decade**

**X-Correlation = 0.71 (excluding 1998)**