



Department of Atmospheric &
Oceanic Sciences (ATOC)
University of Colorado Boulder



Prof. William Collins
UC Berkeley

ATOC Distinguished Lecture Series

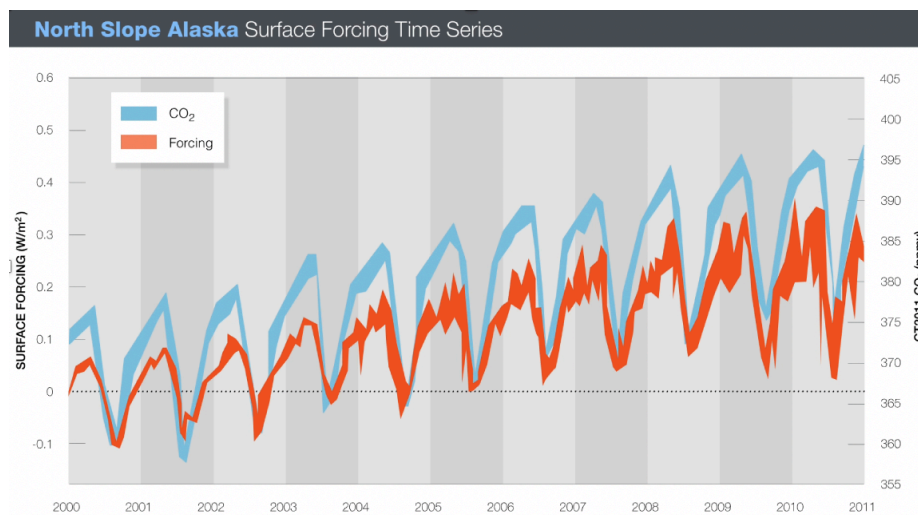
Wednesday, September 26, 2018, 10:30 AM
SEEC Sievers Conference Room (S228)
CU Boulder East Campus

The Radiative Drivers of Climate Change: Known Knowns and Known Unknowns

We present four new findings regarding the state of knowledge and remaining uncertainties concerning the anthropogenic agents of climate change. These agents include the long-lived greenhouse gases such as carbon dioxide and the short-lived climate forcers including methane. The findings are:

1. Using modern laboratory spectroscopy, we show that we can calculate the radiative forcing by carbon dioxide to sub-percent relative accuracies despite claims to the contrary by some prominent members of the physics community.
2. We show that these calculations are verified by the first and second-ever measured time series of the CO₂ greenhouse effect, confirming both its expected rate of increase and its prediction by climate models.
3. We present the first and second-ever measured times series of the CH₄ greenhouse effect, comparing and contrasting the seasonality of this effect in the central US and over Greenland.
4. We present novel observed time series of the greenhouse effect of methane and global calculations of its heating of the climate system by absorbing sunlight, confirming the importance of methane as a target for near-term climate mitigation efforts.

The last finding represents an important addition to the upcoming Sixth Assessment by the Intergovernmental Panel on Climate Change.



For more information, visit www.colorado.edu/atoc/events