Please note special date and time

Special Seminar

John P. Burrows

Institute of Environmental Physics, University of Bremen, Germany

Assessing the impact of the Anthropocene on atmospheric composition using remote sensing from aircraft and space based instrumentation: the SCIAMACHY Project and its legacy

Hosted by A.R. Ravishankara

Monday, October 3, 2016

ATS room 101; Discussion will begin at 1:30pm
Refreshments will be served at 1:15pm in the weather lab

Between the dawn of the Neolithic revolution and the start industrial revolution the population rose from ~ 4 million to 1 billion using power provided predominantly from natural sources and biomass burning. Since the industrial revolution, world population has risen to over 7 billion, and now 50% are dwelling in urban areas. This has been accompanied by an equivalent rapid increase in the standard of living. This has been possible using the energy provided by fossil fuel combustion and food generated in large part using man-made fertilizers and pesticides. This anthropogenic activity has resulted large scale changes in the fluxes of species to the atmosphere and land use change. This has led to air pollution spanning local to global scales, the catalytic destruction of the stratospheric ozone layer, environmental and climate change. The world has recently entered a new geological epoch, the Anthropocene.

Global knowledge of atmospheric composition provides an early warning of change. In the past three decades, pioneering efforts have been made to develop global measurements of key short lived climate pollutants, long lived greenhouse gases and surface parameters from space, utilizing ground and aircraft measurements as pathfinders. These passive remote sensing measurements of the up welling electromagnetic radiation began with the SCIAMACHY project. This has resulted in the following instruments: GOME on ERS-2 (1995-2011), SCIAMACHY on ENVISAT (2002 to 2012), and GOME-2 on Metop (A 2006 to present, B 2012 to present C planned for launch in 2018), as well as spin offs and planned follow on missions. This talk will explain the measurements, data products and highlight some important results obtained.

Link to colloquium videos and announcement page: http://www.atmos.colostate.edu/dept/colloquia.php