

A Berkeley Ph.D student in the [Energy and Resources](#) program writes:

Day 2's blog will be brief, since it's already after midnight Denmark time. It's been a very good day, and my brain is once again full, and ready for bed. Today started with three plenary speakers, including our ERG's own [Dan Kammen](#) plus Prof. Bill Nordhaus (Yale) and Prof. Nebojsa Nakicenovic (IIASA, Vienna U., author of SRES). Bill Nordhaus made the political expediency case for global carbon taxes (vs. a cap), Dan stressed the need for multiple complementary policy approaches and the need for a frequent report-out of regional emission reduction experiments, and "Naki" emphasized the need for complete decarbonization of the global energy system.

Most of the rest of the day was spent in parallel sessions – once again, 24 sessions were held with many speakers in each. Today, I stayed put in the session on non-CO2 pollutants, an area of particular interest for my research. The most interesting talk was by David Fowler (UK Royal Society), who reported that ground-level ozone produces not only direct forcing, but also indirect forcing via its detrimental impact on plant growth (and hence a reduction of the terrestrial carbon sink). This effect is also felt in agriculture, and recent results suggest that over Asia, ground-level ozone represents as great a threat to food security as climate change itself due to reduced crop yields. While regulations have been somewhat effective in limiting peak summer ozone levels, background ozone levels have increased 3x in the industrial era.

Overviews of non-CO2 pollutants were provided by Jim Hansen (NASA), John Van Aardenne (Italy/EU assessment), and Michael MacCracken (Climate Institute). Ole John Nielsen (Univ. of Copenhagen) discussed the physical chemistry of 2nd generation CFC replacements and Thomas Blunier (Univ. of Copenhagen) reported on the methane & nitrous oxide variations in the ice core record.

After the parallel sessions, the crowd of ~2000 researchers gathered again in the plenary hall to listen to Dr. Balgis Osman-Elasha (Sudan) describe the impacts that Africa faces from climate change and to Prof. Amanda Lynch (Monash Univ., Australia) discuss the role of democracy and adaptive governance in responding to climate change.

The day ended with a reception, conference dinner, and a final speaker. Prof. Johan Rockstrom (Stockholm Environmental Institute) emphasized the need for a global agreement that addresses not just climate change, but sustainable development. He pointed out nine interwoven "planetary boundaries" that we are approaching and must consider as linked in policy decisions: climate change, stratospheric ozone depletion, atmospheric aerosol loading, ocean acidification, global freshwater, chemical pollution, land use change, biodiversity loss, and biogeochemical loading (nitrogen & phosphorus cycles).