# 1.057 Contribution of Natural Emissions to Air Quality in Korea.

Presenting Author:
**Louisa Emmons**, NCAR, ACOM, Boulder, CO, USA, emmons@ucar.edu

Co-Authors:
**Rebecca Schwantes**, NCAR, ACOM, Boulder, CO, USA
**John Orlando**, NCAR, ACOM, Boulder, CO, USA
**Alex Guenther**, University of California-Irvine, Department of Earth System Science, Irvine, CA, USA
**Saewung Kim**, University of California-Irvine, Department of Earth System Science, Irvine, CA, USA
**Daun Jeong**, University of California-Irvine, Department of Earth System Science, Irvine, CA, USA
**Dianne Sanchez**, University of California-Irvine, Department of Earth System Science, Irvine, CA, USA
**Roger Seco**, University of California-Irvine, Department of Earth System Science, Irvine, CA, USA

Abstract:

Measurements over Korea during May-June 2016 as part of the KORUS-AQ (Korea-U.S. Air Quality) campaign showed an increase in ozone mixing ratios from May into June, coincident with increasing biogenic emissions of isoprene and other compounds as temperatures increased. To quantify the impact of biogenic emissions on ozone pollution, model simulations at a range of scales have been used in combination with the airborne and ground-based measurements of the KORUS-AQ campaign. A global chemistry model (CESM/CAM-chem) has been run at different horizontal resolutions (1, 0.5, 0.25 degrees) with the standard chemical mechanism, as well as an expanded terpene oxidation scheme. The simulations are evaluated with the full suite of observed ozone precursors, including NOx, hydrocarbons and oxygenated volatile organic compounds (OVOCs). Evaluations of the online biogenic emissions model MEGAN in CAM-chem will be presented through comparisons with observations of isoprene and terpenes, as well as OVOCs, such as methanol and acetone. Sensitivity to updated landcover and emission factors in MEGAN are also being investigated. Box model calculations initialized with observations, along with sensitivity studies (e.g., zeroing isoprene) will be used to illustrate the impact of biogenic emissions on ozone amounts for a range of anthropogenic pollutant levels. The KORUS-AQ Science Team is acknowledged for contributions to this work.