

# Agenda for GCE2 (2<sup>nd</sup> Regional GEOS-Chem Europe User's Meeting) 14-16 August 2023

<https://geoschem.github.io/gce2.html>

**FINAL (updated 10 August 2023)**

## Time allocation of talks:

GEOS-Chem overview talks: 20 min (15-16 min talk; 4-5 min Q&A)

Keynote talks: 30 min (25 min talk, 5 min Q&A)

Science talks: 15 min (12 min talk, 3 min Q&A)

Poster summaries: 1 min

## **Day 1, Monday 14 August**

**Location: Room G22, North-West Wing building**

### **Day 1 Afternoon Session 1: Meeting and Model Overview**

Session Chair: Karn Vohra, UCL

Slides loaded by Eleanor Gershenson-Smith

13:30-14:00 Registration

14:00-14:20 Welcome and meeting overview, Eloise Marais, UCL

14:20-14:40 GEOS-Chem Model Overview, Randall Martin, WUSTL

14:40-15:00 GEOS-Chem Technical Overview, Melissa Sulprizio, Harvard

15:00-15:20 GCHP Demonstration, Killian Murphy, York

### **15:20-15:50 Tea/Coffee Break**

### **Day 1 Afternoon Session 2: Emissions**

Session Chair: Matthew Rowlinson, York

Slides loaded by Eleanor Gershenson-Smith

15:50-16:10 European Emissions for GEOS-Chem, Mat Evans, York

16:10-16:25 Assessing HTAP NO<sub>x</sub> Emissions in Cities in South and Southeast Asia using TROPOMI, Gongda Lu, UCL

16:25-16:40 Implementing an improved parameterisation for inorganic iodine emissions in GEOS-Chem, Ryan Pound, York

16:40-16:55 An inverse modelling framework to estimate the GHG emissions for the UK, Alex Kurganskiy, Edinburgh.

16:55 Adjourn for the day

## **Day 2, Tuesday 15 August**

**Location: Jeremy Bentham Room, Portico building**

### **Day 2 Morning Session 1: Models to Motivate Action**

**08:30-09:00 Tea/Coffee available**

Session Chair: Alex Kurganskiy, Edinburgh

Slides loaded by Gongda Lu

9:00-9:30 **KEYNOTE:** The use of atmospheric chemistry models in air pollution activism, Jamie Kelly, Centre for Research on Energy and Clean Air (CREA)

- 9:30-9:45 Investigating climate co-benefits using GEOS-Chem adjoint sensitivities, Omar Nawaz, GWU
- 09:45-10:00 Early deaths, asthma exacerbation and cancer risks linked to air pollution from each major oil and gas lifecycle stage in the US, Karn Vohra, UCL
- 10:00-10:15 Evaluation of the atmospheric impact of supersonic emissions from the SCENIC project on a 2050 atmosphere, Jurriaan van 't Hoff, TU Delft
- 10:15-10:30 Impacts of megaconstellation satellite launches and end-of-life satellite disposal on stratospheric ozone and climate, Connor Barker, UCL
- 10:30-10:40 Poster summaries (1 min each):
- Modeling biomass burning impacts on air quality in Canada, Samaneh Ashraf, UdeM
  - Spatio-temporal variability of atmospheric mercury over India by using ground-based observations and GEOS-Chem model simulations, M.Chakradhar Reddy, IIT-Madras
  - Using GEOS-Chem for retrieval of vertical profiles of atmospheric composition over Central London, Eleanor Gershenson-Smith, UCL
  - Exploring the impact of biogenic and pyrogenic emissions in South America with GEOS-Chem and satellite data, Susie Shihan Sun, Edinburgh

### 10:40-11:10 Tea/Coffee break [with GCST Helpdesk]

### Day 2 Morning Session 2: Particles Great and Small

Session Chair: Hansen Cao, York

Slides loaded by Nana Wei

- 11:10-11:30 **KEYNOTE:** Plastic aerosols - what do we know?, Stephanie Wright, Imperial College London
- 11:30-11:45 Advances in Simulating the Global Spatial Heterogeneity of Air Quality using GCHP and Its Implications for the Relation of AOD with PM<sub>2.5</sub>, Dandan Zhang, WUSTL
- 11:45-12:05 Porting GEOS-Chem Chemistry to External Models, Lizzie Lundgren, Harvard
- 12:05-12:15 Poster summaries (1 min each):
- Exploring marine boundary layer halogen chemistry using GEOS-Chem, Amy Lees, York
  - Global simulation of tropospheric halogen multiphase chemistry, Hansen Cao, York
  - Development of versatile Python software to retrieve tropospheric vertical profiles of NO<sub>2</sub> and ozone from satellite observations, Gongda Lu, UCL
  - The impact of diurnal variation in African wildfires on atmospheric chemistry, Haolin Wang, Sun Yat-sen U.
  - Climate effect of biomass burning aerosol from key biomass burning regions, Shuaiyi Shi, Edinburgh

### 12:15-13:50: Lunch break.

### Day 2 Afternoon Session 1: Modelling to Inform Environmental Policy

Session Chair: Connor Barker, UCL

Slides loaded by Gongda Lu

- 13:50-14:10 **KEYNOTE:** How the UK Department for the Environment, Food and Rural Affairs (DEFRA) uses air quality models to inform policy, Alison Davies, DEFRA
- 14:20-14:35 Emerging capabilities for GEOS-Chem Meteorological datasets, Saptarshi Sinha, WUSTL
- 14:35-14:50 Sensitivity of Air Quality (AQ) in Eastern Canada to Transboundary Pollution and Meteorology: Understanding Potential Climate-AQ Feedbacks, Robin Stevens, UdeM.
- 14:50-15:15 Present-day and next mid-century estimates of global aviation impacts on air quality, Flávio, TU Delft

- 15:05-15:20 Effects of model resolution on simulated air quality impacts from aviation, Seb Eastham, MIT
- 15:20-15:35 UK public health and ecosystem benefits from adopting technically feasible emissions controls throughout Europe, Eloise Marais, UCL

## Day 2 Afternoon Session 2: Posters and Networking

- 15:35-18:00 Poster session and networking with drinks and snacks

## Day 3, Wednesday 16 August

**Location: Jeremy Bentham Room, Portico building**

### Day 3 Morning Session 1: Tropospheric composition (mostly ozone) part 1

**08:30-09:00 Tea/Coffee available**

Session Chair: Susie Shihan Sun, Edinburgh

Slides loaded by Connor Barker

- 9:00-9:30 **KEYNOTE:** The role of atmospheric non-linearities in understanding aviation emissions' impacts, Irene Dedoussi, TU Delft
- 9:30-9:45 Why is tropospheric ozone around 40 ppbv?, Mat Evans, York
- 9:45-10:00 Why is background ozone over East Asia so high?, Nadia Kathryn Colombi, Harvard
- 10:00-10:15 Evaluation of GEOS-Chem vertical profiles of nitrogen dioxide (NO<sub>2</sub>) and ozone (O<sub>3</sub>) using cloud-sliced TROPOMI columns, Bex Horner, UCL
- 10:15-10:35 Meeting photo

**10:35-11:00 Tea/Coffee break [with GCST Helpdesk]**

### Day 3 Morning Session 2: Tropospheric composition (mostly ozone) part 2

Session Chair: Gongda Lu, UCL

Slides loaded by Connor Barker

- 11:00-11:15 The rise and rise of atmospheric methane: an unfolding story about hotspots and wet spots, Paul Palmer, Edinburgh
- 11:15-11:30 Implementation of an observationally-constrained nitrate photolysis parameterisation and the impact on tropospheric ozone, Mathew Rowlinson, York
- 11:30-11:45 Reactive nitrogen and ozone in the global upper troposphere: Insights from historic DC8 aircraft campaigns and GEOS-Chem, Nana Wei, UCL
- 11:45-11:55 Closing remarks, Eloise Marais, UCL
- 11:55 Meeting Adjourns