

CITIES ARE THE KEY TO THE CLIMATE SOLUTION

Meeting Global Greenhouse Gases and Air Quality Targets Through Real-Time Measurement



A Combined In-Person and Online Summit
3 November 2021

Description

The Global Environmental Measurement and Monitoring (GEMM) Initiative, an international project of Optica (formerly OSA) and the American Geophysical Union (AGU), is convening elected officials, scientists, technology developers and economic, legal and public policy experts from around the world to discuss ways new low-cost dense network of greenhouse gas (GHG) and air quality sensors can help guide climate and environmental decisions in urban environments. This summit is part of the GEMM Initiative's larger commitment to innovative environmental technologies that can be deployed locally and provide needed information for regional decision-making.

The GEMM Scottish Centre at the University of Strathclyde, in collaboration with the City of Glasgow, University of California, Berkeley, Stanford University, the Met Office and the National Physical Laboratory (NPL), is hosting a combined in-person and online summit as part of the City of Glasgow's program of events for the United Nations Climate Change Conference of Parties (COP) 26 scheduled in Glasgow 31 October - 12 November 2021. This summit will illustrate how a dense network of GHGs and air quality sensors such as the ones deployed in the City of Glasgow can help provide critical evidenced-based information for cities to meet GHG and air pollution reduction targets.

Cities account for more than 70% of all GHG emissions. Recent deployments of low-cost, high-density GHG sensors in several cities are demonstrating the utility of mapping GHG and air pollution levels in real time. Analyses of COVID-19 emissions reductions during government stay-at-home orders show that determining the emission contributions from various source sectors with detailed mapping and timing across the full diurnal cycle are possible and can provide invaluable information on governmental policies affecting GHG emission levels.

COP 26 is a critical conference for countries to align their domestic climate plans with the 2015 Paris Agreement. The UK-Italy COP26 Presidency Partnership is striving to advance international action in four COP26 goals:

- A step change in commitments to emissions reduction;
- Strengthening adaptation to climate change impacts;
- Getting finance flowing for climate action; and
- Enhancing international collaboration, including for COP26 campaigns on energy, transition, clean road transport and nature.



UN CLIMATE
CHANGE
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UK 2021
IN PARTNERSHIP WITH ITALY

OPTICA
Advancing Optics and Photonics Worldwide

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OSA

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ADVANCING EARTH
AND SPACE SCIENCE



University of
Strathclyde
Glasgow

Berkeley
UNIVERSITY OF CALIFORNIA

Stanford
University



NPL
National Physical Laboratory

An integrated system of observations and modeling based on a new observing paradigm of localized, high density GHG sensors is an essential component to assess the impacts of governments policies to date and help frame future policies that support emissions reduction commitments.

At this summit we will explore aspects of this vision for the future including the following:

- Demonstrate new capabilities through the San Francisco Bay Area and Glasgow network of lower-cost GHG and pollution gas sensor technologies;
- Illustrate the ability to integrate dense ground-based monitoring networks into existing measurement capabilities;
- Present how GHG sensing information can help guide urban policies and initiatives; and
- Present economic models that include GHG and air quality information and the links to disparate urban demographics and environmental justice considerations.

Targeted Audience

- Municipal and other subnational leaders
- Scientists and technology developers
- Industry officials

Desired Outcomes

- Introduce the GEMM Initiative and urban air pilot project to municipalities around the world during COP26;
- Demonstrate the need for real-time GHG monitoring for effective decision-making;
- Demonstrate the value of combining GHG and air pollution monitoring at the neighborhood scale;
- Identify information required for making effective emission reduction decisions in cities;
- Determine the information cities need to justify the investments;
- Facilitate ongoing discussions about municipal and regional priorities among a multidisciplinary group of technical experts, industry leaders and policy makers; and
- Engage with key cities interested in joining the urban air pilot project.

Attachment - DRAFT Programme

**Cities are the Key to the Climate Solution:
Meeting Global Greenhouse Gases and Air Quality Targets
Through Real-Time Measurement**

3 November 2021 - DRAFT PROGRAMME

Coffee, tea, and light fare will be available throughout the event.

1:30 p.m GMT - Venue and registration open for in-person attendees with tea and coffee

2:00 - 7:30 p.m. GMT

I. Host Introduction

- *Allister Ferguson, University of Strathclyde*

II. Welcome and COP26 Symposium Overview

- *Sir Jim McDonald, University of Strathclyde*

III. Policy Plenary (45 min total)

Speakers:

- *Susan Aitken, City of Glasgow Council Leader*
- *Samuel Assefa, Director of the California Governor's Office of Planning and Research*
- *Donna Hume, C40 Cities Head of Campaigns*
- *Donna Strickland, 2018 Nobel Laureate in Physics and University of Waterloo*
- *Janene Tuniz, United Nations Human Settlement Programme*

VI. GEMM Initiative Overview (15 min total)

- *Tom Baer, Stanford University & Chair, GEMM Initiative (Optica)*
- *Guy Brasseur, Max Planck Institute for Meteorology (AGU)*

3:25 p.m. Break

3:55 p.m.

VII. New Technologies & Methodologies for Monitoring GHG Emissions and Air Pollutants in Cities (50 min total)

Moderator: *Craig Michie, University of Strathclyde*

Panelists:

- *Alistair Manning, the Met Office*
- *Tom Gardiner, National Physical Laboratory (NPL)*
- *Ron Cohen, University of California, Berkeley*
- *Lucy Hutyra, Boston University*
- *Karina Cucchi, Origins.earth*

Panel Discussion

4:45 p.m.

VIII. **Economic and Legal Perspectives** (60 min total)

Moderator: *Mairi Spowage, University of Strathclyde*

Panelists:

- *Jolene Lin, National University of Singapore / Asia-Pacific Center for Environmental Law*
- *Grant Allan, University of Strathclyde, Fraser of Allander Institute*
- *Michael Mehling, Massachusetts Institute of Technology, Center for Energy and Environmental Policy Research*
- *Francesco Sindico, University of Strathclyde, Strathclyde Centre for Environmental Law & Governance*
- *Ken Alex, University of California Berkeley Law, Project Climate*

Panel Discussion

5:45 p.m. Break

6:15 p.m.

IX. **Address by Carol Monaghan, Member of Parliament for Glasgow North West**

X. **Summit Roundtable** (60 min total)

Moderator: *Allister Ferguson, University of Strathclyde*

Panelists:

- *Carol Monaghan, MP for Glasgow North West*
- *Dom Callaghan, City of Glasgow*
- *Sean Khan, United Nations Environment Programme (UNEP)*
- *Louise Bedsworth, University of California Berkeley Center for Climate, Law, Energy and the Environment*
- *Ron Cohen, University of California, Berkeley*
- *Randy Fiser, American Geophysical Union*
- *David Lang, Optica*

Q&A

7:15 p.m.

X. **Conclusion** - *Tom Baer* (5 min total)

7:20 p.m. **Reception & Networking** (parallel online and in-person events)

Buffet dinner and refreshments will be provided for in-person attendees.

End 9:00 p.m.