

Information for Plenary Speakers
First International Greenhouse Gas Measurement Symposium
Offered by A&WMA
March 22-25, 2009
San Francisco, California

Symposium Purpose, Intended Outcome and Long-term Goals

Until now, greenhouse gas assessments have been the focus of two very different groups: climate scientists who study biogeochemical cycles and the effects of changing atmospheric GHG concentrations on the Earth's climate, and policy analysts designing GHG reduction programs involving treaties, regulations, voluntary reductions, and cap and trade schemes. The policy community currently assesses GHG emissions through an audit process based on the "account and extrapolate" strategy. The long-term success of GHG management policy will ultimately depend upon the adoption of a defensible, scientifically consistent and rigorous tracking scheme for GHG emissions. As with emissions affecting air quality, the defensibility, scientific consistency and rigor of this accounting method will depend upon universally accepted measurement methods and standards.

The implementation of GHG mitigation policy will be founded upon a legal structure, in the form of regulations, treaties, legislation, or financial transactions. Measurements will be needed to support this legal framework, in addition to supporting the further advancement of our scientific understanding of the natural exchange of GHG within the environment and the impacts of climate change. Thoughtful development of measurement protocols should allow use of measurements for both purposes.

The shared expertise of GHG research scientists, engineers engaged in advancing the techniques and instruments used for GHG measurements, and the GHG policy community is needed for devising the protocols and standards of practice that must ultimately be applied to GHG emissions verification.

The **purpose** of this conference is to begin defining the scope of the technical problem of measuring GHG emissions from multiple, diverse sources – at the multiple spatial scales of relevance.

A **primary outcome** of this conference will be a greater understanding of relevant GHG measurement issues that can be used to better define future GHG measurement needs.

The **long term goal** of these meetings will be to contribute to the development of a set of "best practices" for policy-relevant GHG measurements.

Operative Assumptions

- Regardless of the form in which GHG management strategies take, trustworthy measurements of sources, sinks and ambient GHG concentrations will be needed to assure their success.
- A number of GHG sources exist for which emissions are highly uncertain – particularly non-combustion, fugitive sources
- Monitoring will eventually play a role in determinations of the success of regulations
- Verification by measurement will be needed to evaluate the success of offset and carbon capture and sequestration projects
- Measurements across geospatial scales should be compatible and limitations/uncertainties associated with each measurement type should be well resolved and documented.
- All data should be catalogued and accessible in a manner that facilitates its use for inventory development, and other scientific and regulatory applications.
- The perspectives of scientific contributors and stakeholders working across a range of different geospatial scales, sectors (public and private), and source types are needed to develop recommended "best practices" for GHG monitoring and measurements to support effective GHG management.

Specific Meeting Goals

- Introduce participants to methods, instrumentation, other technical considerations as well as the uncertainties associated with GHG measurements at various scales and for various sources
- Facilitate the crystallization of the measurements community -- connecting scientists who are measuring GHGs from the large scale down to those doing single source measurements.
- Begin identifying the critical components of a scientifically defensible source measurement/ambient monitoring program to support GHG regulation and off-set verification
- Begin identifying the critical uncertainties introduced by current measurement methods that need to be addressed in order to achieve a defensible program
- Identify topics about which future specialty conferences and working groups should be convened in support of developing "best practice" guidance for policy/offset-driven GHG measurements and monitoring

Symposium Plan

Plenary speakers have been chosen for their expertise in important aspects of the GHG measurements and management problem. Topics include:

- GHG measurements for understanding regional and global carbon cycles
- Emissions from Carbon Capture and Sequestration projects
- Fugitive emissions from oil refineries
- Verification of offsets claimed by participants in the Chicago Climate Exchange
- US EPA's strategies for managing GHG emissions by sector
- California's effort to improve its GHG inventory

A series of "mini-plenaries" were selected from amongst the submitted abstracts that survey the range of relevant issues of interest to the collective symposium participant group.

A group discussion will take place at the end of the day, during which the larger context and relationships between the topics will be discussed. This discussion will be lead by the meeting rapporteur.

Each session chair will be asked to report to the meeting rapporteur on the three (3) most important messages concerning missing measurements and other uncertainties that arose from the talks and discussion that took place in his/her session. The meeting rapporteur and the symposium planning committee will use this information to formulate a meeting synthesis to be presented at the close of the symposium.

Along with the presentation of the meeting synthesis in the closing session, the meeting participants will discuss and formulate a strategy for refining the formulation of the critical science issues discussed during the symposium, with the goal of preparing assessment reports for use by science funding agencies in research priority decision-making. This strategy could involve further technical symposia or workshops, and the creation of issue-specific working groups.

Symposium Background

At the 2008 A&WMA Annual Conference in Portland (OR), the A&WMA Technical Council on Optical Sensing concluded that a need existed for a special technical symposium on issues related to the measurement of fugitive area GHG emissions and CO₂ sequestration field monitoring. Following discussions with other experts in the GHG measurement community, the group recognized the need for a broader discussion of GHG measurement techniques and practices. In late fall of 2008, the A&WMA offered to host the symposium in the only available slot in its 2009 calendar -- March 2009. In order to take advantage of this opportunity, the symposium organizational activities have been occurring at an accelerated pace.