Progress toward an Integrated Global Greenhouse Gas Information System (IG^{3}IS)

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Accurate and precise measurements show the inexorable rise of atmospheric greenhouse gas (GHG) concentrations from human socioeconomic activity. As the negative impacts of rising global temperatures are becoming increasingly evident, nations, states, cities and private enterprises are accelerating efforts to reduce emissions of GHGs.

Atmospheric measurements and models are already being used to provide emissions information on a global and continental scale through existing networks, but these efforts currently provide insufficient information at the human-dimensions to inform valuable and additional actions for reducing GHG emissions.

The UNFCCC process and the resulting Paris Agreement stand upon the bedrock of sound scientific research and observations. Likewise, the successful management and evaluation of GHG emissions reduction policies will also depend on GHG concentration measurements and our ability to follow their changes over a range of temporal and spatial scales.

Based upon the recent advances in GHG observation technologies, the means of acquiring socioeconomic activity data, and the computational models used to merge these data, WMO and its partners are developing a plan for an Integrated Global Greenhouse Gas Information System (IG^{3}IS) able to evaluate the efficacy of policy, reduce emission inventory uncertainty, inform additional mitigation actions, and support the planning and management of Intended Nationally Determined Contribution (INDC) mitigation efforts by nations as part of the Paris Agreement.

To work effectively, IG^{3}IS must deliver useful information at national and sub-national, policy-relevant scales. Existing surface-based networks, emerging networks in developing countries, and new aircraft-based measurements and satellite observations make a difference, but additional observations and improved transport modeling are critical. This presentation will look at what is available, what the gaps are, and how IG^{3}IS intends to address them.