

Importance of Reliable Continuous Records of Earth System Parameters

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Back in the 1970s we began to focus on questions involving carbon dioxide and climate change, in particular: (1) Is atmospheric carbon dioxide concentration increasing? (2) If so, is it anthropogenic? (3) Is the tropospheric near-surface air temperature increasing? and (4) Is the carbon dioxide influence on temperature strong in the context of other influences? Only reliable, consistent, long-term monitoring can provide answers to these questions as well as to others that have since arisen. Some of these other questions address radiatively active gases other than carbon dioxide, identifying sources and sinks of carbon at increasingly finer scales, social consequences of climate change, and mitigation strategies for greenhouse gas emissions. In this context, the Carbon Dioxide Information Analysis Center and other data monitoring and archiving groups continue to evolve. This presentation touches on monitoring and archiving of global temperature and anthropogenic carbon emissions to provide examples of the importance of (1) redundant measurements, (2) archiving, (3) record keeping, and (4) analysis.

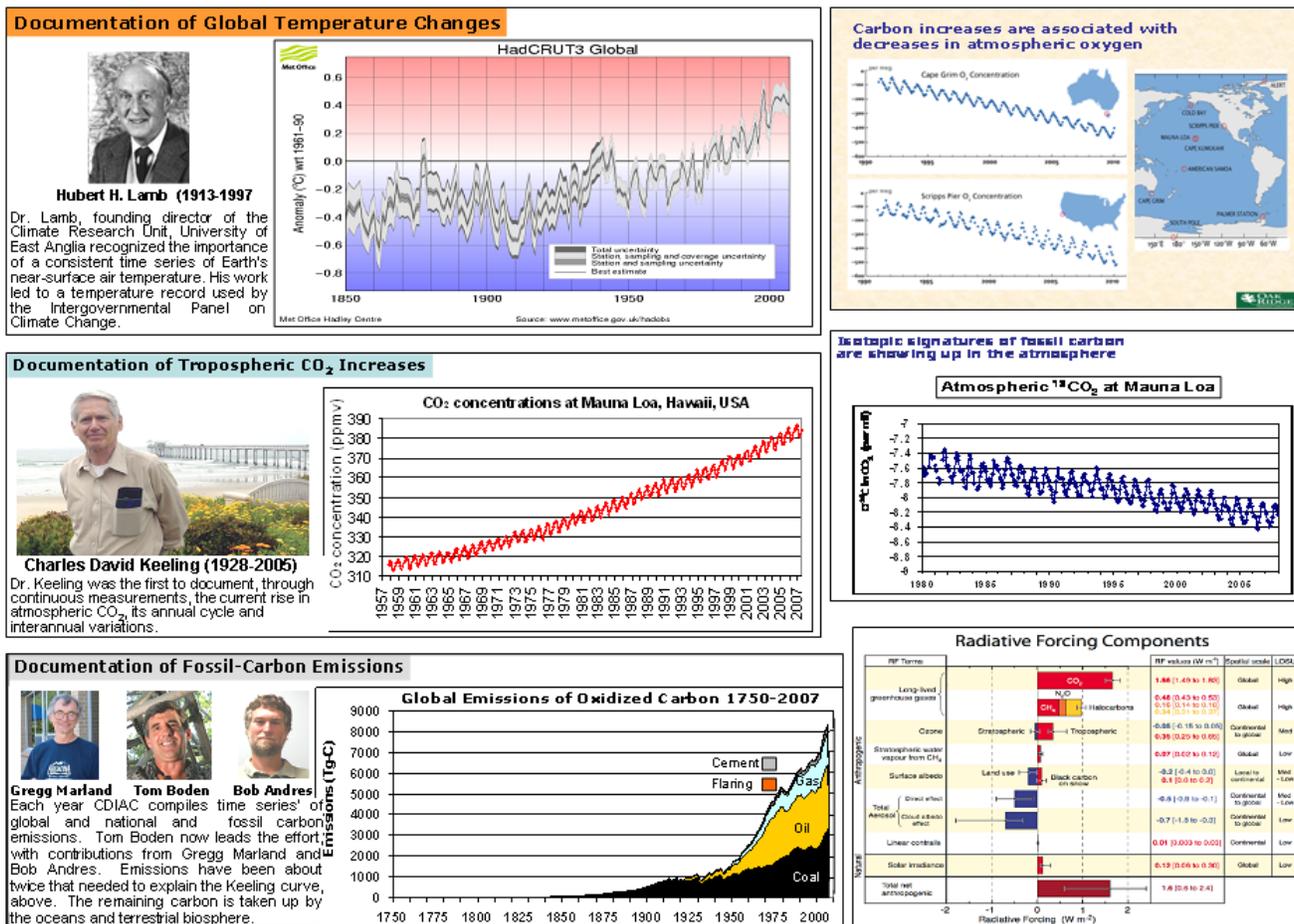


Figure 1. Selected scientists and data addressing the monitoring of temperature, carbon dioxide and associated phenomena that provide clues as to: (1) causes of the CO₂ increase, (2) anthropogenic emissions of CO₂ and (3) the relative influences of CO₂, and other greenhouse gases on global tropospheric temperature.