**Potential Bias in Preliminary Estimates of Global LLGHG Trends**

E.J. Dlugokencky, K. Thoning, and M. Crotwell

NOAA’s greenhouse gas trend web pages are very popular, receiving tens of thousands of hits per month. On these pages, users can currently find recent global trends for CO2 and CH4 based on weekly air samples collected as part of our cooperative global air sampling network, each updated monthly. There has been particular interest in the estimates of CO2 and CH4 global annual means and annual increase at the start of each new year, despite their susceptibility to potential bias. When the first estimates of annual means and annual increases for the previous year are reported in March, the calculation is limited by available data from our air sampling network. In early-March, because many air sampling sites are remote, many samples from the previous year have not yet been received and analyzed. This is especially important for calculating the annual increase. We’ve looked in detail at potential sources of bias in these preliminary estimates. As an example, compared to successive months of refinement, our initial estimate of CH4 annual increase can be in error by up to ~±3 ppb yr-1, which is significant given that CH4 has had an average increase of 7.2 ppb yr-1 over the past 10 years. In this presentation, we will explore potential contributors to errors in preliminary globally averaged monthly means, annual means, and annual increases for key LLGHGs.