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NOAA Annual greenhouse gas index (AGGI)– 2007 update

J.H. Butler, D.J. Hofmann, T.J. Conway, E.J. Dlugokencky, J.W. Elkins, K. Masarie, S.A. Montzka, R.C. Schnell, and P.P. Tans

NOAA Earth System Research Laboratory, 325 Broadway, Boulder, Colorado, USA 80305
(James.H.Butler@noaa.gov)

For the past 30 years, the U.S. National Oceanic and Atmospheric Administration (NOAA) has monitored all the long-lived atmospheric greenhouse gases. These global measurements have provided input to climate assessments (e.g., the quadrennial IPCC Climate Reports). Recently, efforts to make these data more useful and available have been undertaken through release of the NOAA Annual Greenhouse Gas Index (AGGI), <http://www.esrl.noaa.gov/gmd/aggi>. This index, based on the climate forcing properties of the long-lived greenhouse gases, was designed to enhance the connection between scientists and society by providing a normalized standard that can be easily understood and followed. Continuous greenhouse gas measurements are made at baseline climate observatories (Pt. Barrow, Alaska; Mauna Loa, Hawaii; American Samoa; and the South Pole) and weekly flask air samples are collected through a global network, including an international cooperative program for carbon gases. The gas samples are analyzed in the Boulder (NOAA/ESRL) laboratory using WMO standard reference gases prepared by ESRL. The AGGI is normalized to 1.00 in 1990, the Kyoto Climate Protocol baseline year. For the year 2006, the AGGI was 1.23, i.e. global radiative forcing by long-lived greenhouse gases has increased 23% since 1990. The increase in carbon dioxide (CO₂) alone was about 32% over this time interval. Reductions in the growth rates of methane and the CFCs have effectively tempered the increase of CO₂ since 1990. During the 1980s CO₂ accounted for about 50-60% of the annual increase in radiative forcing by long-lived greenhouse gases while today it accounts for 94% of this increase. Preliminary values for 2007 will be included in this

presentation.