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Global Monitoring Division Hot Items**The Sun Sets After One Long Summer Day; South Pole, March 20, 2008****Global Monitoring Division - ESRL-GMD**

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Two NOAA/ESRL personnel wintering over at the U.S. Amundsen-Scott South Pole Station are watching the final glimmer of the sun sink below the horizon as the polar plateau settles into 6 months of darkness. The time of the equinox and official sunset time was 00:48 EST (05:48 GMT) on March 20, 2008. However, due to atmospheric refraction, the sun will visibly set approximately two days later and will remain below the horizon until approximately September 21, 2008 when it will rise again for 6 months. For the 2008 austral winter Johan Booth (who is spending his third consecutive winter at South Pole for NOAA) and NOAA Corps Officer Amy Cox will work at the South Pole Baseline Atmospheric Research Observatory conducting a wide range of climate related measurements. During the winter, temperatures will dip as low as -75C (-100 F). These cold winter temperatures make it impossible for ski-equipped C-130 aircraft to land at South Pole isolating the winter "polie" population from the rest of the world for 8 months. Only when the surface air temperatures reach -50C (-58F) next October will the planes be able to safely land again. Staff venturing outside during the winter at South Pole are often treated to brilliant auroras (known as Aurora Australis in the southern hemisphere) and some of the most brilliant night sky star views on the planet due to the high altitude 9,305 ft. (2,837 m), low moisture, and few clouds at the South Pole. To view the twilight at South Pole, go to the live NOAA/ESRL web camera at <http://www.esrl.noaa.gov/gmd/obop/spo/livecamera.html>

Background: NOAA/ESRL and its predecessor organizations have conducted a wide range of baseline atmospheric measurements at the South Pole since 1957. In 1962 total ozone profiles were initiated with Dobson spectrophotometers (45 year record), surface ozone measurements began in 1975 (32 years), and balloon borne ozonesonde profiles have been flown weekly since 1986 (22 years and 1,300 flights). These continuous measurements have provided valuable data for studying the annual chlorofluorocarbon mediated South Pole "Ozone Hole." This year, additional measurements of total column ozone are being conducted with a Brewer Ozone Spectrophotometer in a joint program with Environment Canada; the instrument was installed by a scientist from Environment Canada two weeks before the last flight out of the Pole for this season. The Brewer has the ability of making accurate ozone column measurements using the light of the moon and will enhance the amount of stratospheric ozone data collected at the Pole during the winter. Unknown to most people, the longest atmospheric carbon dioxide greenhouse gas record on earth (started with flask sampling in 1957) has been collected at the South Pole and pre-dates the better known Mauna Loa continuous carbon dioxide record by one year as shown in, <http://www.esrl.noaa.gov/gmd/obop/spo/observatory.html>

Significance: Continuous long term records of a wide range of atmospheric variables measured at the South Pole, where the mantra is "the cleanest air on earth", have documented a wide range of changes in the composition, chemistry, and radiative balance of the atmosphere over the Antarctic continent since the inception of the measurements. Many of these changes are related to mankind's combustion of fossil fuels, the effluents of which can collect in the atmosphere, and from the release of industrial and household chemicals into the atmosphere. It is expected the NOAA/ESRL South Pole Atmospheric Research Observatory will remain in operation for countless sunsets into the future.

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