



The Sun Sets After One Long Summer Day; South Pole, March 22, 2007

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Global Monitoring Division - ESRL-GMD

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Two NOAA/ESRL personnel are wintering over at the U.S.

Amundsen-Scott South Pole Station and will soon watch the final glimmer of the sun sink below the horizon as the polar plateau settles into 6 months of darkness. Atmospheric refraction makes it difficult to predict the exact time the sun will set at South Pole Station each season. The time of the equinox and official sunset time is 00:07 EST (04:07 GMT) on March 21, 2007. However, the best guess is that the sun will visibly set approximately two days later and will remain below the horizon until approximately September 21, 2007 when it will rise again for 6 months. For the 2007 austral winter two NOAA/ESRL personnel will work at the South Pole Baseline Atmospheric Research Observatory, Johan Booth (who is spending his second consecutive winter at South Pole for NOAA) and Emrys Hall. During the winter months temperatures will dip as low as -75C (-100 F). These cold winter temperatures make it impossible for the 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 at South Pole 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 dwindling twilight at South Pole, go the live NOAA/ESRL web camera at

<http://www.esrl.noaa.gov/gmd/obop/spo/livencamera.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 years), surface ozone measurements began in 1975 (30 years), and balloon borne ozonesonde profiles have been flown weekly since 1986 (21 years and over 1,200 flights). These continuous measurements have provided valuable data for studying the annual chlorofluorocarbon mediated South Pole "Ozone Hole." In addition, the longest atmospheric carbon dioxide greenhouse gas record on earth (started in 1957) has been collected at the South Pole and pre-dates the better known Mauna Loa 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 Atmospheric Research Observatory will remain in operation for countless sunsets into the future.

More information:

<http://www.esrl.noaa.gov/gmd/obop/spo/index.html>

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