

File Revision Date:

September 3, 2020

Data Set Description:

PI: Glen McConville
Instrument: Dobson Ozone Spectrophotometer
Site(s): Boulder, Colorado USA (39.991 N, 105.261 W)
Measurement Quantities: Total Column Ozone

Contact Information:

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Reference Articles:

The instrument is described in numerous publications, the most commonly used reference is "Operations handbook - ozone observations with a Dobson spectrophotometer", W.D. Komhyr, Global Ozone Research and Monitoring Project. Report 183, World Meteorological Organization, Geneva, 2008.

Evans, R.D., Petropavlovskikh, I., McClure-Begley, A., McConville G., Quincy, D., and Miyagawa, K., The US Dobson Station network Data Record Prior to 2015, Re-evaluation of NDACC and WOUDC archived records with WinDobson Processing Software, Atmos. Chem. Phys., <https://doi.org/10.5194/acp-2017-383>, 2017.

Instrument Description:

Dobson Ozone Spectrophotometer number 61 (automated)

Algorithm Description:

Uses algorithm described in "Operations handbook - ozone observations with a Dobson spectrophotometer", W.D. Komhyr, Global Ozone Research and Monitoring Project. Report 183, World Meteorological Organization, Geneva, 2008.

www.esrl.noaa.gov/gmd/ozwv/dobson/GAW183-Dobson-WEB.pdf

Uses Bass/Paur ozone absorption coefficients, as defined in www.esrl.noaa.gov/gmd/ozwv/dobson/papers/coeffs.html

Expected Precision/Accuracy of Instrument:

There is a paper; "Review of the Dobson spectrophotometer and its accuracy", Reid E. Basher, Global Ozone Research and Monitoring Project. Report 13, World Meteorological Organization, Geneva, 1982, describing the precision and accuracy.

In general, the precision is considered to be from +/-1% (direct sun observations) to +/-5% (Observations on cloud zenith) for total ozone. Accuracy is part of an ongoing debate, but is considered in the 5% range.

Instrument History:

1966.01.01-1969.05.06 ;D091
1969.05.07-1969.05.07 ;D083
1969.05.08-1969.05.08 ;D091
1969.05.09-1969.05.09 ;D083
1969.05.10-1969.05.26 ;D091
1969.05.27-1969.05.27 ;D083
1969.05.28-1971.03.25 ;D091
1971.03.26-1971.03.26 ;D083
1971.03.27-1971.04.07 ;D091
1971.04.08-1971.04.09 ;D083
1971.04.10-1971.04.29 ;D091
1971.04.30-1971.04.30 ;D083
1971.05.01-1971.12.31 ;D091
1972.01.01-1972.02.03 ;D080
1972.02.04-1972.02.04 ;D083
1972.02.05-1972.10.31 ;D080
1972.11.01-1973.05.31 ;D076
1973.06.01-1979.04.09 ;D082
1979.04.10-1979.05.11 ;D083
1979.05.12-1979.08.23 ;D038
1979.08.24-1979.09.10 ;D083
1979.09.11-1979.10.01 ;D038
1979.10.02-1980.05.18 ;D091
1980.05.19-1980.05.23 ;D083
1980.05.24-1980.05.31 ;D091
1980.06.01-1980.06.03 ;D083
1980.06.04-1980.06.09 ;D091
1980.06.10-1980.08.05 ;D082
1980.08.06-1980.08.07 ;D094
1980.08.08-1982.01.07 ;D082
1982.01.08-1982.03.18 ;D061
1982.03.19-1982.03.31 ;D065
1982.04.01-1983.01.11 ;D061
1983.01.12-1983.01.12 ;D083
1983.01.13-1983.07.12 ;D061
1983.07.13-1983.08.09 ;D083
1983.08.10-1984.04.22 ;D061
1984.04.23-1984.05.08 ;D083
1984.05.09-1985.04.15 ;D061

1985.04.16-1985.05.22 ;D087
1985.05.23-1994.05.12 ;D061
1994.05.13-1994.05.20 ;D065
1994.05.21-1998.05.13 ;D061
1998.05.14-1998.05.19 ;D065
1998.05.20-1998.09.30 ;D061
1998.10.01-1998.10.09 ;D063
1998.10.10-1998.11.22 ;D061
1998.11.23-1999.01.27 ;D065
1999.01.28-1999.03.04 ;D061
1999.03.05-1999.03.31 ;D083
1999.04.01-2002.04.16 ;D061
2002.04.17-2002.04.29 ;D065
2002.04.30-2003.02.05 ;D061
2003.02.06-2003.04.24 ;D065
2003.04.25-2004.12.31 ;D061
2005.01.01-2005.01.31 ;D065
2005.02.01-2009.04.12 ;D061
2009.04.13-2009.05.31 ;D065
2009.06.01-9999.99.99 ;D061