National Oceanic and Atmospheric Administration (NOAA) Oceanic and Atmospheric Research (OAR) Earth Systems Research Laboratory (ESRL) Global Monitoring Division (GMD): Dobson Ozone Spectrophotometer Measurements

Data Disclaimer

The data files referenced by this document were produced by NOAA Global Monitoring Division and are made available to the public and scientific community. The data is available with the understanding that the data providers will be acknowledged when the data are used in a presentation or publication. For publication or presentations which make significant use of the data for important conclusions co-authorship may be appropriate and should be discussed/offered during the early stages of the analysis. The data in the files have undergone quality control and evaluation, however, there exists the potential for revision and reprocessing at the discretion of NOAA/OAR/ESRL/GMD. Contact the data providers with any questions regarding processing or versioning of the data files.

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Consult the following resources for information on the data set:

Komhyr, W. D.: Operations Handbook – Ozone Observations with a Dobson Spectrophotometer, WMO Global Ozone Research and Monitoring Project, Report No. 6, 1980. Report 183 2008 revision

Komhyr, W. D., Grass, R. D. and Leonard, R. K.: Dobson spectrophotometer 83: A standard for total ozone measurements, J. Geophys. Res., 94, 9847–9861, 1989.

Evans, R. D., et al. (2017). "Technical note: The US Dobson station network data record prior to 2015, re-evaluation of NDACC and WOUDC archived records with WinDobson processing software." Atmospheric Chemistry and Physics 17(19): 12051-12070.

Data Format:

yyyy = year mm=month dd=day hh=hour mm=minute
Local_Date: Local Date yyyy/mm/dd
Time: Local Time hh:mm
DOY: Local Day of Year
UTC_Date: UTC Date yyyy/mm/dd
Time: UTC Time hh:mm
DOY: UTC Day of Year
Total_Ozone: Reported in Dobson Units (DU)

Mu: Ratio of the actual and vertical paths of solar radiation through the ozone layer
INS: Instrument Number (###)
LS: Observation Code

Code	Wavelength Pairs	Observation Technique
00	AD	Direct sun using ground quartz plate
20	CD	Direct sun using ground quartz plate
40	AD	Direct sun focused image
60	CD	Direct sun focused image
02	AD	Zenith with blue Sky
22	CD	Zenith with blue Sky
32	CC’	Zenith with blue Sky
03-06	AD	Zenith with cloudy sky
23-26	CD	Zenith with cloudy sky
33-36	CC’	Zenith with cloudy sky
41	AD	Reflected moon focused image
61	CD	Reflected moon focused image
90	AD	Direct sun using ground quartz plate (made through thin cloud)

Wavelength: Measurement pairs used to derive total column ozone values
AD
CD
CC
Kind_of_Obs.: Measurement technique used
Zenith_Blue – Observing atmosphere directly above instrument location with a blue (cloudless) sky
Zenith_Cloud – Observing atmosphere directly above instrument location with a cloudy sky
Direct_Sun – Measurement made observing atmosphere directly in line with the sun

Station Information:

Site Code	Location	Latitude	Longitude
AMS	South Pole, Antarctica	89.99 S	24.8 W
BDR	Boulder, Colorado	40.01667 N	105.25 W
BIS	Bismarck, North Dakota	46.7667 N	100.75 W
BNA	Nashville, Tennesee	36.2469 N	86.561 W
BRW	Barrow, Alaska	71.323 N	156.606 W
CAR	Caribou, Maine	46.5667 N	68.01667 W
FBK	Fairbanks, Alaska	64.859 N	147.847 W
HNX	Hanford, California	36.31 N	119.632 W
LAU	Lauder, New Zealand	45.04278 S	169.68 E
MLO	Mauna Loa, Hawaii	19.533 N	155.578 W
OHP	Haute Provence, France	43.931 N	5.71 E
PTH	Perth, Australia	31.9222 S	115.9598 E
SMO	American Samoa	14.25022 S	170.56278 W
WAI	Wallops Island, Virgina	37.8594 N	75.51 W