Session: C23 Poster: T231A

Constructing an ozone long term climate data set (1970-2010) from v8.6 SBUV/2 profiles

Craig Long[†]; Jeannette Wild; Stacey Frith; Richard McPeters; Richard Stolarski
[†] NOAA, USA
Leading author: Craig.Long@noaa.gov

Understanding past and anticipating future ozone changes requires consistently calibrated long-term ozone climate data records (CDR). Updated retrievals of total and profile ozone from the SBUV(/2) series of instruments derived using a new version (v8.6) of the retrieval algorithm was released in the summer of 2011. The SBUV/2 series of instruments covers the period from 1970-present using data from Nimbus 4 and 7 SBUV, and NOAAs 9, 11, 14, 16, 17, 18, and 19 SBUV/2. The new algorithm includes updated calibrations for each of the instruments optimized to produce consistent satellite records that can be easily combined into an ozone CDR. We have evaluated the SBUV(/2) v8.6 individual satellite data sets, concentrating on the overlap periods between successive satellites. We used various statistical methods, including the method developed by Wild and Long (in press), to investigate the variability between instruments and evaluate the need for additional external offsets when constructing the climate record. The result is a merged monthly zonal mean CDR for total column ozone and the ozone vertical distribution. The final merged CDR has been compared with other long term ozone observational data sets from satellite-based SAGE II, MLS, and MIPAS measurements, and from NDACC ground-based lidar and microwave measurements.