

## **Celebrating 50 years of the Wallops Island, VA, USA Ozone Program**

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The NASA Wallops Flight Facility (WFF) Upper Air Instrumentation Research Program has been launching weekly electrochemical concentration cell (ECC) ozonesondes and taking Dobson (D038) ozone readings at Wallops Island (37.9N, 75.5E) since the late 1960s. WFF has been a contributing member of NDACC (Network for the Detection of Atmospheric Composition Change) since the network began in 1991. June 23, 2017, marked the 50<sup>th</sup> anniversary of Dobson measurements. WFF is the longest continuously operating ozonesonde station in the continental US; the first scheduled launch was on May 6, 1970. We celebrate on-going WFF commitment to providing high-quality, high-resolution vertical ozone profiles, as well as Dobson ozone column measurements. WFF well-established ozonesonde system comprises a Science Pump Corporation ECC sensor, with a 1% full buffer sensing solution type (SST), interfaced with a Lockheed Martin Sippican radiosonde that provides winds, GPS coordinates, and PTU. A major milestone has been the reprocessing of the ozone profiles during the digital measurement era (since 1995) based on WMO guidelines to remove known biases and improve overall accuracy. We present an overview of the reprocessing methods applied to the WFF ozone records and examine annual and seasonal patterns of ozone typical of that region. WFF has a legacy of evaluating ozonesonde performance with dual sonde launches that have tested operating procedures, radiosonde/ozonesonde systems, and various combinations of ECC sensors and SST formulae. We take advantage of the rich dataset of dual launches to illustrate the dependence of various ECC/SST combinations on the ozone measurement. Intercomparisons show small differences can significantly influence sonde performance. For example, different ozone readings are obtained when the same ECC is operated with different SST. Offsets can be  $\pm 5\%$  or more.

Key words: Ozone, Ozonesonde, Dobson, NDACC, Homogenization