Title: Extending Ozone Climate Data Records (CDRs) into the Ozone Mapping and Profiler Suite (OMPS) Era

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The NOAA operational satellite ozone monitoring program will be transitioning from the SBUV/2 instruments on the NOAA POES to the OMPS instruments on the NPOESS beginning with the launch of the NPP satellite in 2010. This project will create a system at NOAA/NESDIS to generate ozone CDRs from the OMPS measurements to continue existing records.

There are three main objectives for this proposed project. The first is to prepare and initiate the machinery and materials to seamlessly continue the Total Ozone Climate Data Records produced from measurements made by the SBUV(/2), TOMS, and OMI with those from the OMPS Nadir Mapper. The second is to take similar steps for the OMPS Nadir Profiler for the Ozone Profile Climate Data Records from the SBUV(/2) instruments. The third objective is to develop a capability to validate, refine, and reprocess OMPS Limb Profiler measurements to create high vertical resolution ozone profile products with good long-term stability to continue the record from limb and occultation instruments.

To achieve these objectives, we propose to do the following: develop OMPS-specific analysis and characterization tools, implement OMPS SDR and heritage ozone retrieval algorithms for reprocessing, implement newly developed ozone profile algorithms for the OMPS LP, and adapt the measurement and ozone product validation processes for OMPS records. We will leverage support under existing NESDIS programs including SBUV/2 CDR activities, IPO OMPS Calibration/Validation activities, and NDE OMPS preparations to jump start this work. There is already joint work with the NASA OMPS NPP Science Team as they develop the OMPS LP SDR and ozone profile retrieval algorithms.

The proposal request support to create a system with capabilities to track and refine the OMPS instruments’ calibration and trending in the SDR reprocessing, to implement algorithm improvements and corrections in the EDR/CDR algorithm reprocessing, to perform validation and internal consistency analysis and intercomparisons, and to iteratively exercise these steps to generate stable long-term OMPS SDRs and ozone CDRs consistent with earlier records.

The work in this proposal will concentrate on producing good SDRs because they are source of good CDRs but it also includes the development of reprocessing capabilities for the ozone CDRs for two important reasons; The validation of the ozone CDRs implicitly validates the SDRs, and The applications for monitoring the ozone layers expected recovery over the next two decades will use the ozone CDRs.