

Preface

This report is one of a series of operation reports written for the United States National Science Foundation (NSF) Division of Polar Programs, Ultraviolet Spectroradiometer Network, now in its 11th year of operation. Although it bears resemblance to its predecessors, there are several important changes. These advancements reflect an increase in our knowledge in production of data sets, operation of the network, and discoveries of discrepancies and errors in previously published data. We would like to express our gratitude to the scientists who contributed knowledge and insight to these issues.

Of the most significant changes to this report, Chapter 3 has been thoroughly revised and updated with the latest SUV-100 operating specifications and calibration information. Chapter 4 contains a presentation and discussion of “Daily Doses”—a more statistical means of showing the differences of various sites and years. Also new to this report, and the accompanying Volume 7.0 CD-ROM data products, is the application of wavelength calibration based on a correlation method utilizing solar spectrum Fraunhofer lines.

Volume 7.0 data also marks other milestones, including the first complete season where all the spectra are presented as “Composite” scans and in 15-minute intervals. It is the first year in which raw data files are processed into data products via databases. There are a few new data products presented and data formats have been changed slightly to enhance compatibility with different computer platforms.

The SUV-150, developed in 1997, continues to be evaluated at San Diego in order to further the understanding of its long-term stability and reliability. Developed to take advantage of 10 years of advancements in optical, electronic, data acquisition, and computer technologies, the SUV-150 was first employed at the European Union (EU) SUSPEN Campaign, an international instrumentation and standards intercomparison, in Thessaloniki, Greece (July 1997). After several engineering improvements following the experience at SUSPEN, the SUV-150 was then deployed at the NOAA/NIST North American Intercomparison at Boulder, Colorado (September 1997), the fourth in a series of annual NOAA/NIST North American Intercomparisons of Ultraviolet Monitoring Spectroradiometers (Thompson et al., 1995, 1996, 1997).

These intercomparisons have culminated in reductions of uncertainties in measurements and standards, and have led to the development of standards and apparatus for the purpose of “field” characterizations of this type of instrumentation. We extend our gratitude to Patrick Disterhoft of NOAA’s Central Ultraviolet Calibration Facility (CUCF) and the University of Colorado, Boulder, for bringing CUCF’s “Field Calibrator” to San Diego for a comparison of Standards of Spectral Irradiance provided by CUCF/NIST and those used for our network.

Earth Probe TOMS data is again provided on our CD-ROMs, courtesy of Dr. Richard McPeters. Weather data was obtained from the National Climatic Data Center (NCDC), a division of NOAA, and is also included on the CD-ROMs.

We would again like to express our appreciation to all researchers that have utilized and published data from the NSF UV Network (see Appendix Section A1. “References”). We are always looking for publication references in which the network’s data has been used. These references are included in the reference sections of these reports and on our web site.

We are especially grateful to those who offered feedback on methods, algorithms, and data products, and those who have contributed to Section 6 entitled “Errata and Data Quality Issues.” We continue to encourage this input and welcome suggestions on how we can further meet the needs of the scientific community.