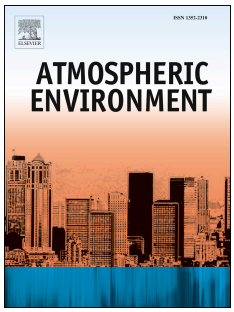
# Accepted Manuscript




OMI/Aura UV product validation using NILU-UV ground-based measurements in Thessaloniki, Greece

Melina-Maria Zempila, Maria-Elissavet Koukouli, Alkiviadis Bais, Ilias Fountoulakis, Antti Arola, Kouremeti Natalia, Dimitris Balis

PII: S1352-2310(16)30441-1

DOI: 10.1016/j.atmosenv.2016.06.009

Reference: AEA 14659

To appear in: *Atmospheric Environment*

Received Date: 22 February 2016

Revised Date: 31 May 2016

Accepted Date: 6 June 2016

Please cite this article as: Zempila, M.-M., Koukouli, M.-E., Bais, A., Fountoulakis, I., Arola, A., Natalia, K., Balis, D., OMI/Aura UV product validation using NILU-UV ground-based measurements in Thessaloniki, Greece, *Atmospheric Environment* (2016), doi: 10.1016/j.atmosenv.2016.06.009.

# OMI/AURA UV PRODUCT VALIDATION USING NILU-UV GROUND-BASED MEASUREMENTS IN THESSALONIKI, GREECE.

**Melina-Maria Zempila[a,b,*], Maria-Elissavet Koukouli[b], Alkiviadis Bais[b], Ilias Fountoulakis[b], Antti Arola[c], Kouremeti Natalia[d] and Dimitris Balis[b].**

[a]Laboratory of Atmospheric Physics, Aristotle University of Thessaloniki, PO Box 149, 54124, Thessaloniki, Greece

[b]UV-B Monitoring and Research Program, Natural Resource Ecology Laboratory, Colorado State University, Fort Collins, Colorado

[c]Finnish Meteorological Institute, P.O. Box 1627, FI-70211 Kuopio, Finland

[d]Physikalisch-Meteorologisches Observatorium Davos, World Radiation Center, Dorfstrasse 33, 7260 Davos Dorf, Switzerland

[*]Correspondence author. Email: melina.zempila@colostate.edu (Dr. M.M. Zempila), Tel: (+1) 970 491 3614

**Abstract**

The main aim of this work is to evaluate the NASA EOS AURA Ozone Monitoring Instrument (OMI) UV irradiance estimates through ground-based measurements performed by a NILU-UV multichannel radiometer (NILU-UV) operating in Thessaloniki, Greece, for the time period between January 2005 and December 2014. NILU-UV multi-filter radiometers can provide measurements at 5 UV wavelength bands with full width at half maximum (FWHM) of 10 nm approximately and a time analysis of 1 minute. An additional channel measuring the Photosynthetically Active Radiation (PAR) is also incorporated to the instrument and is used for the stringent characterization of the cloud free instances. The OMI instrument estimates solar UV irradiances at four wavelengths close to those of the NILU-UV in Thessaloniki. Clear and all-sky overpass-time, as well as solar local-noon time, UV estimates are provided by the NASA Aura Data Validation Center. Spectra measured from a collocated MKIII Brewer spectrophotometer with serial number 086 (Brewer #086) were