



Library Indian Institute of Science Education and Research Mohali



DSpace@IISERMohali (/jspui/)

/ Publications of IISER Mohali (/jspui/handle/123456789/4)

/ Research Articles (/jspui/handle/123456789/9)

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/2277>

Title: Tropospheric Ozone Assessment Report: Present-day tropospheric ozone distribution and trends relevant to vegetation

Authors: Sinha, B. (/jspui/browse?type=author&value=Sinha%2C+B.)
Sinha, V. (/jspui/browse?type=author&value=Sinha%2C+V.)

Keywords: Ozone
Vegetation
Metrics
Crops
Perennials
Global

Issue Date: 2018

Publisher: University of California Press

Citation: Elementa, 6

Abstract: This Tropospheric Ozone Assessment Report (TOAR) on the current state of knowledge of ozone metrics of relevance to vegetation (TOAR-Vegetation) reports on present-day global distribution of ozone at over 3300 vegetated sites and the long-term trends at nearly 1200 sites. TOAR-Vegetation focusses on three metrics over vegetation-relevant time-periods across major world climatic zones: M12, the mean ozone during 08:00-19:59; AOT40, the accumulation of hourly mean ozone values over 40 ppb during daylight hours, and W126 with stronger weighting to higher hourly mean values, accumulated during 08:00-19:59. Although the density of measurement stations is highly variable across regions, in general, the highest ozone values (mean, 2010-14) are in mid-latitudes of the northern hemisphere, including southern USA, the Mediterranean basin, northern India, north, north-west and east China, the Republic of Korea and Japan. The lowest metric values reported are in Australia, New Zealand, southern parts of South America and some northern parts of Europe, Canada and the USA. Regional-scale assessments showed, for example, significantly higher AOT40 and W126 values in East Asia (EAS) than Europe (EUR) in wheat growing areas ($p < 0.05$), but not in rice growing areas. In NAM, the dominant trend during 1995-2014 was a significant decrease in ozone, whilst in EUR it was no change and in EAS it was a significant increase. TOAR-Vegetation provides recommendations to facilitate a more complete global assessment of ozone impacts on vegetation in the future, including: an increase in monitoring of ozone and collation of field evidence of the damaging effects on vegetation; an investigation of the effects on peri-urban agriculture and in mountain/upland areas; inclusion of additional pollutant, meteorological and inlet height data in the TOAR dataset; where not already in existence, establishing new region-specific thresholds for vegetation damage and an innovative integration of observations and modelling including stomatal uptake of the pollutant

Description: Only IISERM authors are available in the record.

URI: <https://online.ucpress.edu/elementa/article/doi/10.1525/elementa.302/112843/Tropospheric-Ozone-Assessment-Report-Present-day#F6>
(<https://online.ucpress.edu/elementa/article/doi/10.1525/elementa.302/112843/Tropospheric-Ozone-Assessment-Report-Present-day#F6>)
<http://hdl.handle.net/123456789/2277> (<http://hdl.handle.net/123456789/2277>)

Appears in Collections: Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format	
Need to add pdf.odt (/jspui/bitstream/123456789/2277/1/Need%20to%20add%20pdf.odt)		8.63 kB	OpenDocument Text	View/Open (/jspui/bitstream/123456789/2277/1/Need%20to%20add%20pdf.odt)

[Show full item record \(/jspui/handle/123456789/2277?mode=full\)](#)

[📊 \(/jspui/handle/123456789/2277/statistics\)](#)

Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.