



Dataset

Files

Supplement to: The New World Atlas of Artificial Night Sky Brightness



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Falchi, Fabio; Cinzano, Pierantonio; Duriscoe, Dan; Kyba, Christopher C. M.; Elvidge, Christopher D.; Baugh, Kimberly; Portnov, Boris; Rybnikova, Nataliya A.; Furgoni, Riccardo (2016): Supplement to: The New World Atlas of Artificial Night Sky Brightness. V. 1.1. GFZ Data Services. https://doi.org/10.5880/GFZ.1.4.2016.001

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Dataset Description

Supplement to

* - required

Falchi, F., Cinzano, P., Duriscoe, D., Kyba, C. C. M., Elvidge, C. D., Baugh, K., ... Furgoni, R. (2016). The new world atlas of artificial night sky brightness. Science Advances, 2(6), e1600377–e1600377. doi:10.1126/sciadv.1600377

Related Work

HasMetadata

Light Pollution Science and Technology Institute (ISTIL), http://www.inquinamentoluminoso.it/dms p/index.html

New Version of

Cinzano, P., Falchi, F., & Elvidge, C. D. (2001). The first World Atlas of the artificial night sky brightness. Monthly Notices of the Royal Astronomical Society, 328(3), 689–707. doi:10.1046/j.1365-8711.2 001.04882.x

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http://bib.telegrafenberg.de/finden/datenbanken/forschungsdaten/

Abstract

These are maps of artificial night sky radiance that were produced by the Light Pollution Science and Technology Institute (ISTIL), and described in the paper "The New World Atlas of Artificial Night Sky Brightness" (Falchi et al. 2016).

The data are stored in a 2.9 Gb geotiff file, on a 30 arcsecond grid. The map reports simulated zenith radiance data in [mcd/m^2]. The map is based on data from the VIIRS Day Night Band (DNB, MIller et al. 2013), which has been propagated through the atmosphere using the radiative transfer code reported in (Cinzano and Falchi, 2012). The upward emission function and the radiance calibration were obtained using data from Sky Quality Meters (including data from Duriscoe et al. 2007; Falchi 2010; Kyba et al 2013, 2015 and Zamorano et al. 2016).

Note that the maps report artificial light only! The zenith radiance from natural sources such as stars and the Milky Way are not included, and must be added in order to match the data that would be obtained from an actual outdoor measurement.

A kmz file for quick view of the data is also provided. Access to the FTP site to download the data can be requested via the data request form on the landing page.

Version History:

13 November 2019: change of the licence to CC BY NC 4.0 (after end of embargo period).

Additional Information

Artificial lights raise the night sky luminance, creating the most visible effect of light pollution, artificial sky glow. Despite the increasing interest among scientists in fields such as ecology, astronomy, healthcare, land use planning, light pollution lacks a current quantification of its magnitude on a global scale. To overcome this, here we present the World atlas of the artificial sky luminance, computed with our light pollution propagation software using new high resolution satellite data and new precision sky brightness measurements. This atlas shows that more than 80% of the World and more than 99% of the U.S.A. and Europe populations live under light polluted skies. The Milky Way is hidden for more than one third of humanity, including 60% of Europeans and nearly 80% of North Americans. Moreover, 23% of World's lands between 75°N and 60°S, 88% of Europe and almost half of U.S.A. experience light polluted nights.

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Keywords

artificial light, ALAN, skyglow, light pollution, atlas, night, radiative transfer, Suomi NPP, Sky Quality Meter

GCMD Science Keywords

EARTH SCIENCE SERVICES > DATA ANALYSIS AND VISUALIZATION > VISUALIZATION/IMAGE PROCESSING

More Metadata

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