

Version 4 DMSP-OLS Nighttime Lights Time Series

The files are cloud-free composites made using all the available archived DMSP-OLS smooth resolution data for calendar years. In cases where two satellites were collecting data - two composites were produced. The products are 30 arc second grids, spanning -180 to 180 degrees longitude and -65 to 75 degrees latitude. A number of constraints are used to select the highest quality data for entry into the composites:

- * Data are from the center half of the 3000 km wide OLS swaths. Lights in the center half have better geolocation, are smaller, and have more consistent radiometry.
- * Sunlit data are excluded based on the solar elevation angle.
- * Glare is excluded based on solar elevation angle.
- * Moonlit data are excluded based on a calculation of lunar illuminance.
- * Observations with clouds are excluded based on clouds identified with the OLS thermal band data and NCEP surface temperature grids.
- * Lighting features from the aurora have been excluded in the northern hemisphere on an orbit-by-orbit manner using visual inspection.

Each composite set is named with the satellite and the year (F121995 is from DMSP satellite number F12 for the year 1995). Three image types are available as geotiffs for download from the version 4 composites:

F1?YYYY_v4b_cf_cvg.tif: Cloud-free coverages tally the total number of observations that went into each 30 arc second grid cell. This image can be used to identify areas with low numbers of observations where the quality is reduced. In some years there are areas with zero cloud-free observations in certain locations.

F1?YYYY_v4b_avg_vis.tif: Raw avg_vis contains the average of the visible-band digital number values with no further filtering. Data values range from 0-63. Areas with zero cloud-free observations are represented by the value 255.

F1?YYYY_v4b_stable_lights.avg_vis.tif: The cleaned up avg_vis contains the lights from cities, towns, and other sites with persistent lighting, including gas flares. Ephemeral events, such as fires have been discarded. Then the background noise was identified and replaced with values of zero. Data values range from 1-63. Areas with zero cloud-free observations are represented by the value 255.

Global composites are available for the satellite years below:

F101992
F101993
F101994
F121994
F121995
F121996
F121997
F121998
F121999
F141997
F141998
F141999
F142000
F142001
F142002
F142003
F152000
F152001
F152002
F152003
F152004
F152005
F152006
F152007

F152008
F162004
F162005
F162006
F162007
F162008

Each tar ball contains the raw average visible band, cleaned up average visible band, cloud free coverage data, and a readme file. The data files have been compressed with gzip.

For information on tar and gzip see our link located at:
http://www.ngdc.noaa.gov/dmsp/tar_zip.html

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