

ELDONET—A Decade of Monitoring Solar Radiation on Five Continents

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ABSTRACT

The European light dosimeter network (ELDONET) comprises more than 40 stations in 24 countries on 5 continents. The present report compares solar radiation data in the photosynthetic active radiation, UV-A (315–400 nm) and UV-B (280–315 nm) wavelength ranges for 17 stations at different latitudes on the northern and southern hemispheres for up to 10 years of monitoring. While the maximal irradiances on clear days follow a latitudinal gradient due to the cosine dependence on the solar angle, the total doses strongly depend on the local climate and atmospheric conditions as well as the day-length distribution over the year. UV-B irradiances and doses are strongly influenced by the total column ozone, which is recorded for all covered stations.

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