



## Did “dimmed” global radiation occur in Central Europe already 100 years ago?

K. Behrens

Deutscher Wetterdienst, Meteorologisches Observatorium Lindenberg –  
Richard-Aßmann-Observatorium, Am Observatorium 12, D-15848 Tauche OT Lindenberg,  
Germany (klaus.behrens@dwd.de / Fax: +49-33677-60-280 / Phone: +49-33677-60-151)

In the last years in literature many authors (e. g. Ohmura and Lang, Stanhill and More-shet, Liepert et al., Wild et al.) reported about the “Global Dimming” in the 80ies of the last century. These papers are related to data, covering the period from about 1950 to 2000.

The mentioned effect of the global dimming is also good visible in the time series of the global radiation from Potsdam (Germany). But, similar low values of annual totals of global radiation as measured in the 80ies were observed in Potsdam already around 1900. It arises the question: Is this a special Potsdam phenomena or did “dimmed” global radiation occur in a larger area in Central Europe already 100 years ago?

Long time series of global radiation at several stations, from Schleswig ( $\varphi=54,5^\circ$  N) in the north to Hohenpeissenberg ( $\varphi=47,8^\circ$  N) in the south of Germany, were investigated to get an answer of the above question. Because global radiation was not measured 100 years ago, the solar radiation time series were prolonged using regression relations between global radiation and sunshine duration. The regression coefficients were derived from at least 25 years time series on the basis of monthly totals. So, the begin of the new time series of solar radiation, which are available for the analysis, is around 1890.

The times series of the solar radiation will be analysed together with the corresponding series of total cloud amount.

In the second half of the 20<sup>th</sup> century all investigated stations show a very similar picture, which is markedly influenced by the “Global Dimming”. From the begin of

the observation up to the middle of the last century the analysed time series do not show a structure like the “Global Dimming”, but there is a common dip in the course around 1940.

References:

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