Geophysical Research Abstracts, Vol. 9, 10178, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-10178

The effect of the daily distribution of the sunshine hours to the total daily solar radiation

V. Ampas (1) and E. Baltas (2)

(1) Prefecture of Florina, (2) Aristotle University of Thessaloniki (ambasv@agro.auth.gr / Fax +302385054478)

This research examines the effect of the daily distribution of the sunshine hours to the total daily solar radiation. A number of scientists have dealt with the estimation of the monthly global solar radiation using the Angstrom equation, some of them tried to relate and other meteorological or topographic parameters. The main factor for the solar radiation estimation is the sunshine duration recorded by Campbell-Stocks sunshine recorders. Daily values of sunshine duration didn't take into account the distribution of sunshine hours during day. Distribution of sunshine hours during day effects the total daily solar radiation. In this work weighting factors were used for the contribution of each hourly value to the daily amount of the solar radiation. Hourly extraterrestrial radiation is calculated from analytical equations. Hourly data of sunshine duration and solar radiation are taken from two automatic meteorological stations operate at the prefecture of Florina in Western Macedonia, Greece. The use of weighting factors, give better results than the simple Angstrom equation. The differences between the two methods are presented