

Estimate of the coefficients of relation between sunshine duration and solar radiation

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This research work examines the relation of solar radiation with the sunshine duration for the Prefecture of Florina in Western Macedonia, Greece. A part of the extraterrestrial radiation called the solar radiation, reaches the surface of ground. The analytical equations for the calculation of the extraterrestrial radiation and the duration of sunlight are considered. The solar radiation is one of the meteorological parameters that is measured in four of the automatic meteorological stations that exists in the study area. Angstrom gave a linear equation, which needs to be calibrated. This equation relates the relative sunlight with the fraction of the solar to the extraterrestrial radiation. Using the measured data of the stations and the computed values of the extraterrestrial radiation and duration of sunlight from the equations, the coefficients in the linear relation are estimated with two ways. The first way is the linear regression of the data and the second way is the calculation of extreme values of the observed.