Geophysical Research Abstracts, Vol. 7, 04564, 2005
SRef-ID: 1607-7962/gra/EGU05-A-04564

Conformation of the global radiation in Hungary, modifying effect of the elevation

Sz. Bella (1,2), Á. Németh (1,3)

(1) Hungarian Meteorological Service (2) Eötvös University (3) University of Miskolc

Sunlight that reaches the surface of our planet is the most important element in the energy balance of the input side and the main motive power of life on Earth. It supplies us with energy that is used first of all in the life processes of the ecosystem and it governs the energy balance of the surface, the water cycle, air and ocean circulation.

The demand on exploitation of renewable energy rises, making research in this topic necessary. Due to the geographical position of Hungary, the southern part of the country is exposed to significant radiation a year. Measuring solar radiation in Hungary started relatively late if we compare it with other meteorological parameters. The first radiation maps were made around 1980 using rare and often scanty data of an observing network. According to available technology at that time, these were made by hand. In our work, we made nationwide maps using computers (SURFER8 by Golden Software Inc.) and new data. We examined how the long-range dataset of global radiation and sunshine duration changed. Because the relief modifies the radiation that arrives at the surface to a high degree, we made calculations on how it modified global radiation in case of different slopes and aspects. We tried to model the topographic solar radiation by using the digital elevation model and GIS.