

# Compilation of IRAN Solar Energy Maps Based on NRI Method

Arash Haghparast Kashani, Hamid Reza Lari, Farrokh Amini  
Renewable Energy Department, Energy & Environment Research Center, Niroo Research Institute  
End of Dadman Blvd., Shahrak-e-Ghods., P.O. Box: 14665/517, Tehran, IRAN

## Abstract

In this research, based on NRI<sup>1</sup> irradiation model, solar radiation energy for the whole of IRAN was calculated and prepared in form of GIS maps. Since NRI Solar Irradiation model requires some of the meteorological information, so a database containing related meteorological data of 217 synoptic stations have been prepared. In this study, the calculations of irradiation were carried out by NRI model for 217 stations. Also data interpolations have been done at 81 complementary points in Iran. Then 595 Data Banks related to calculated data were generated for 298 points of Iran in monthly, seasonal and annual time scale as bellow:

A) Irradiation on the ground surface. B) Meteorological data (consisting sunshine hours, average of air temperature, minimum air temperature, maximum air temperature, relative humidity, precipitation, wind speed at 10m aboveground) C) Received solar global energy by flat plate (Including photovoltaic & solar water heater plates). D) Extracted thermal energy by typical solar water heater at optimum angle. E) Received and extracted energy by typical photovoltaic panel in different tracking situations. F) Received and extracted energy by typical concentrating system (including parabolic troughs and dish) in different tracking situations.

At the next step, Iran GIS maps related to calculated solar energy and meteorological data were developed. In this research, 595 GIS layers maps were generated in forms of Vector and Raster modes.

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<sup>1</sup> Niroo Research Institute