

Solar energy related EO data for Greece through the GEOSS portal

Panagiotis Kosmopoulos^{1*}, Stelios Kazadzis^{2,1}, Charalampos Kontoes³, Ioannis Papoutsis³, Anestis Trypitsidis³, Alexia Tsouni³, Dimitris Vallianatos³

1 Institute for Environmental Research and Sustainable Development, National Observatory of Athens (IERSD/NOA), Greece

2 Physicalisch-Meteorologisches Observatorium Davos, World Radiation Center (PMOD/WRC), Switzerland

3 Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing, National Observatory of Athens (IAASARS/NOA), Greece

* corresponding author email: pkosmo@meteo.noa.gr

Abstract. The continuous monitoring of solar energy from space through Earth observation (EO)-based systems and relevant services is critical for the sustainable yield of renewable resources, as well as in human-health-related emerging technologies. In the framework of GEO initiatives and networking platforms (e.g. H2020 GEO-CRADLE), we exploited and produced added value solar energy related products and services with direct links to the GEOSS portal. The provided data are based on the synergy of Copernicus data and the Solar Energy Nowcasting SystEm (SENSE) pilot. To this direction, we introduce long-term (15 years) databases of solar power and energy in terms of global horizontal (GHI) and direct normal irradiance (DNI) and in high spatial resolution (3 km) for the region of Greece. These climatological outputs are complemented by an operational and real-time monitoring service of the solar energy potential in high temporal frequency (5-15 min). Simultaneously, we present agricultural-related databases of the photosynthetically active radiation (PAR), in support to the local decision makers and relevant public authorities. Therefore, such EO data will be able to assist various scientific communities dealing with crop production, efficient solar energy exploitation and control of the electricity balancing and distribution.

Acknowledgments. This study has been implemented in the framework of the GEO-CRADLE project (<http://geocradle.eu/>) which has received funding from the EU's Horizon 2020 research and innovation programme under grant agreement No 690133.