



**COLLEGE OF SCIENCE AND TECHNOLOGY**



## **Research Seminar Event**

The College of Science and Technology is organizing a research seminar event titled:

### ***"Estimation of Solar Resource Potential in South Sudan Using Heliosat-4 Method"***

**Time:** Wednesday, 14 November 2018, from 3:00 to 4:00pm

**Venue:** ACE-ESD Board Room, FAED building.

#### **Abstract**

South Sudan is experiencing serious shortage in electricity supply with only 1% of the population having access to electricity. The country has plenty of renewable energy resources which can possibly be exploited to generate electricity. In spite of the abundance in resources, renewable energy resources are not popular or commonly used in South Sudan. Solar energy has shown success in the domain of electric power generation. Light from the sun, or solar radiation, is the “fuel” which powers solar energy technologies. Therefore, knowing the potential of solar radiation at a location, an exercise known as solar resource assessment (SRA), is very important for the selection, design and accurate economic analysis of solar energy technologies for power generation. The research work presented in this paper aims at investigating solar energy resource potential in South Sudan, to help identify potential sites for future solar power plants. Radiation data for 20 locations, covering the period from 2005 to 2018, are requested through Copernicus Atmospheric Monitoring Service Radiation (CAMS-RAD) Service user interface. CAMS-RAD Service uses Heliosat-4 method to calculate solar energy radiation at the earth’s surface from Meteosat satellite images. Output data are evaluated and analyzed and annual daily average global (G) and direct (B) solar irradiation calculated for each of the 20 locations together with long term average

monthly global irradiance. Results show that 99% of locations receive annual average global irradiation above 5.0 kWh/m<sup>2</sup>. The solar resource in South Sudan is considered favorable for the development of photovoltaic solar power plants. However, it might not be economically viable or only marginally so for concentrated solar power systems.

**Biography: Mrs. Aban Ayik, PhD Student, Renewable Energy, ACE-ESD**



Aban has B.Sc. in Mechanical Engineering and M.Sc. in Electrical Power Engineering from the University of Khartoum, Sudan. Her research interests include renewable energy for electricity generation: technologies and economics (solar, wind and small hydro-power), micro-grids and distributed generation. Aban is a Consultant Engineer with Engineering Council for South Sudan, Diploma Member with The Chartered Institute of Purchasing and Supply (CIPS- UK) and an IEEE student member. She also lectures at the College of Engineering and Architecture, University of Juba, South Sudan.