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### **Solar Monitoring in Australia**

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Solar power is a rapidly expanding industry in Australia, the solar capacity of Australia is amongst the highest in the world and solar energy now accounts for over 10% of Australia's total electrical energy production. Increased solar capacity is pushing demand for accurate high resolution surface solar irradiance (SSI) measurements. The measurements are used to aid with siting of new solar plants and monitor the output. Nowcasts are becoming essential to estimate demand and control the network. At the Bureau of Meteorology (BoM), we have recently implemented the surface solar irradiance Heliosat-4 algorithm for Himawari-AHI. A regional bias correction was developed using machine learning techniques. The data has been processed from the beginning of the Himawari AHI-8 mission in 2015 to the present. The new SSI measurements provide better temporal and spatial resolution and now extend to coastal regions of Australia, so the diurnal cycle of solar insolation can now be studied for sensitive marine regions such as the Great Barrier Reef. The results have been validated over land using the BoM surface network and over the ocean using ship measurements from the Integrated Marine Observing System (IMOS). In this presentation we will outline the applications for solar irradiance data, present some validation results and some key statistics for the Australian region.