Current status of space weather program in national space agency of Malaysia (ANGKASA)

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The growth of technology has left the society exposed to higher risk from space weather. Investments by global community into space weather research and technologies are rapidly advancing the state of knowledge and shows promising result in improving space weather prediction capabilities. Space weather effects over Malaysian sector are largely unknown due to scarcity of data and lack of understanding on the ionosphere in the equatorial region. The National Space Agency of Malaysia (ANGKASA) is moving ahead to develop our capability in monitoring and forecasting the effects from space weather with the combination of various ground instruments located in Malaysia such as Global Navigation Satellite System (GNSS) Continuously Operating Reference Station (GNSS CORS Scientific Network), Solar Telescope System at Langkawi National Observatory (LNO), Magnetic Data Acquisition System (MAGDAS) at LNO, Compound Astronomical Low-cost Low-frequency Instrument for Spectroscopy and Transportable Observatory (CALLISTO) and related space based data provided by international entities. To better classify the ionosphere, a local ionosphere index has been developed to closely describe the ionospheric disturbances over Malaysia. For this purpose, the total electron content (TEC) which is a parameter of interest in ionosphere, is assimilated as a remarkable parameter for deriving ionospheric perturbation index based on the real time data obtained from the GNSS CORS Scientific Network. This ionospheric perturbation index is developed to support both scientific basis underlying space weather research and development of space weather monitoring service in Malaysia. ANGKASA is working on a strong commitment with collaboration from local and international research institution to set-up a joint Space Environment Monitoring Centre with the aim of operationalizing space weather monitoring and early warning system in the not too distant future.