

Brief Annual Report of International Space Weather Initiative (ISWI) Year 2016 – Indonesia

by

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In Indonesia, solar physical activities and space weather monitoring have been established by two institutions at Bosscha Observatory, Bandung Institute of Technology (ITB) and Indonesian National Institute of Aeronautics and Space (LAPAN). Although they have different organizational history, vision, mission, goals, and funding, space weather becomes a focal point to be addressed and collaborated. ITB is a prominent university in Indonesia which provides, the only one, undergraduate and graduate programs in astronomy and astrophysics, since October 18, 1951. LAPAN is a research government institution, established on November 27, 1963. We pointed some activities for both institutions as follow

Students

1. Providing courses in Space Weather, Solar Physics, and Astrophysical Plasma since 2003 for advanced undergraduate and graduate students with more than 160 participants and 10 participants/course/semester on average. Distinguished guests are needed to give more insight for space weather and related courses (solar physics, space plasma physics, space-climate relations, etc.).
2. Providing mobility program for undergraduate and graduate students to attend workshop, summer-school, and seminar abroad. Some collaborations should be maintained to give more opportunity for students.

International, National Seminars and Workshop

1. The 1st International Seminar on Sun, Earth, and Life (ISSEL), 3-4 June 2016 at ITB with Prof. Nat Gopalswamy, as a main keynote speaker, and 4 distinguished scientists as invited speakers. This seminar was dedicated for Total Solar Eclipse March 9, 2016. All contributed papers have been published in IoP Journal of Physics: Conference Series Volume 771, 2016 (<http://iopscience.iop.org/issue/1742-6596/771/1>).
2. The 6th International Conference on Mathematics and Natural Sciences 2016 (ICMNS 2016), 2-3 November 2016 at ITB with Prof. Gerard't Hoof, the 1999 Nobel Laureate in Physics, as a keynote speaker, and 15 distinguished scientists as invited speakers. All contributed papers will be published in IoP Journal of Physics: Conference Series. See <http://www.chem.itb.ac.id/icmns/>
3. National Institute of Aeronautics and Space (LAPAN) collaborating with ISMB (Istituto Superiore Mario Boella) Italy, BELS (European Building Link toward South East Asia in the field of GNSS) Europe, NAVIS Vietnam hosted the "Workshop on Multi-GNSS in Indonesia" on 18 April 2016. See <http://pussainsa.sains.lapan.go.id/multignss2016/>
4. National Seminar on Space Sciences, 22 November 2016 at LAPAN with Prof. T. Djameluddin, Head of LAPAN, as a keynote speaker, and 4 distinguished scientists as invited speakers. See <http://pussainsa.lapan.go.id/snsa2016/>

Solar activity, ionosphere, radio propagation and geomagnetic monitoring

1. In Bosscha Observatory, JOVE radio telescope and Callisto radio spectrometer have been installed. There were three other Callisto instruments operated by LAPAN at Sumedang (West Java), Tomohon (North Sulawesi), and Biak (Northern West Irian). So, we need more Callisto instruments at different islands in Indonesia. Solar Radiospectrograph SN4000 has also been operated by LAPAN at Sumedang station. See <http://adsabs.harvard.edu/abs/2016ASPC..504..331M>
2. Solar activities have been monitored in H-alpha (double stack, 0.5A), Ca II K, and white-light simultaneously with 60mm Coronado telescopes at Bosscha Observatory. Sunspot sketch and H-alpha observations have also performed at Sumedang and Watukosek of LAPAN stations.
3. At LAPAN, several types of ionosonda, HF antenna, magnetometer, and GPS for TEC works together to derive ionosphere, radio signal, and geomagnetic fluctuations.
4. Space Weather Information and Forecast Services (SWIFtS) is a web-based services made by LAPAN to accommodate results from all related space weather instruments. ITB will also make web-based services for solar activity monitoring. See <http://swifts.sains.lapan.go.id/>.