



BRIN
BADAN RISET
DAN INOVASI NASIONAL



INASA
INDONESIAN SPACE AGENCY

Space Weather Studies in Indonesia

**United Nations Workshop on the International Space Weather
Initiative: The Way Forward**
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organized by The United Nations Office for Outer Space Affairs

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PRESIDEN
REPUBLIK INDONESIA

SALINAN

PERATURAN PRESIDEN REPUBLIK INDONESIA

NOMOR 45 TAHUN 2017

TENTANG

RENCANA INDUK PENYELENGGARAAN KEANTARIKSAAN

TAHUN 2016-2040

DENGAN RAHMAT TUHAN YANG MAHA ESA

PRESIDEN REPUBLIK INDONESIA,

Menimbang : bahwa untuk melaksanakan ketentuan Pasal 40 Undang-Undang Nomor 21 Tahun 2013 tentang Keantariksaan perlu menetapkan Peraturan Presiden tentang Rencana Induk Penyelenggaraan Keantariksaan Tahun 2016-2040;

Mengingat : 1. Pasal 4 ayat (1) Undang-Undang Dasar Negara Republik Indonesia Tahun 1945;
2. Undang-Undang Nomor 21 Tahun 2013 tentang Keantariksaan (Lembaran Negara Republik Indonesia Tahun 2013 Nomor 133, Tambahan Lembaran Negara Republik Indonesia Nomor 5435);

MEMUTUSKAN:

Menetapkan : PERATURAN PRESIDEN TENTANG RENCANA INDUK PENYELENGGARAAN KEANTARIKSAAN TAHUN 2016-2040.

Pasal 1 ...

Indonesia issued Presidential Regulation on Space Activities Master Plan in 2017



- Space Science become one of five focuses of Indonesian Space Activities

Space science development in Indonesia



- run since the establishment of Indonesian Space Agency in 1963 (called LAPAN – National Institute of Aeronautics and Space)
- Space Science Center
- Modelling
- Decision Support System
- Satellite for experimentation of magnetosphere monitoring



No	Kegiatan	Target Tahunan				
		2016	2017	2018	2019	2020
		pengamatan cuaca antariksa serta sistem pendukungnya	pengamatan antariksa c. Tersedianya sistem informasi dan prediksi cuaca antariksa dalam skala regional	c. Inisiasi laboratorium terbang pengamatan atmosfer d. Terbangnya sistem komputasi kinerja tinggi nasional untuk informasi	b. Operasi awal observatorium nasional c. Laboratorium terbang pengamatan atmosfer yang operasional d. Sistem informasi peringatan dini	ekstrem benua maritim Indonesia nasional b. Operasionalisasi observatorium nasional c. Pengamatan antariksa dan atmosfer secara terintegrasi seperti radar, pesawat terbang, dan satelit d. Sistem asimilasi data dan prediksi antariksa dan atmosfer yang

B. Jangka Menengah 2016-2030

No	Kegiatan	Target Lima Tahunan		
		2016-2020	Jangka Menengah I 2021-2025	Jangka II 2026-2030
1.	Sains antariksa	a. DSS sains antariksa dan sains atmosfer yang terintegrasi b. Beroperasinya observatorium nasional dan jaringan pengamatan cuaca antariksa dan astronomi c. Pengamatan antariksa dan kopling antariksa-atmosfer yang terintegrasi menggunakan radar, pesawat terbang, dan satelit	a. DSS sains antariksa dan sains atmosfer yang terintegrasi dengan satelit penginderaan jauh nasional b. Penguatan jaringan pengamatan cuaca antariksa dan astronomi c. Observatorium nasional dan astronomi berbasis teknologi antariksa d. Penguatan pengamatan antariksa dan kopling antariksa-atmosfer terintegrasi menggunakan radar, pesawat terbang, dan satelit	a. Penguatan DSS kopling antariksa-atmosfer b. Terintegrasinya pe- atmosfer ekstrem b dalam jaringan dat c. Observatorium nasional dan atmosfer yang terintegrasi

No	Kegiatan	Target Lima Tahunan				
		2016-2020	2021-2025	2026-2030	2031-2035	2036-2040
1.	Sains antariksa	a. DSS sains antariksa dan sains atmosfer yang terintegrasi b. Beroperasinya observatorium nasional dan jaringan pengamatan cuaca antariksa dan astronomi c. Pengamatan antariksa dan kopling antariksa-atmosfer yang terintegrasi	a. DSS sains antariksa dan sains atmosfer yang terintegrasi dengan satelit penginderaan jauh nasional b. Penguatan jaringan pengamatan cuaca antariksa dan astronomi c. Pengamatan antariksa dan kopling antariksa-atmosfer yang terintegrasi	a. Penguatan DSS kopling antariksa-atmosfer b. Terintegrasinya jaringan pengamatan antariksa dan atmosfer ekstrem benua maritim Indonesia dalam jaringan data internasional	a. Penguatan DSS kopling antariksa-atmosfer b. Penguatan jaringan pengamatan antariksa dan pengamatan atmosfer ekstrem benua maritim Indonesia secara internasional	a. DSS berbasis sains antariksa dan atmosfer yang terintegrasi dan standar serta menjadi rujukan dalam pembangunan nasional b. Partisipasi aktif pada kegiatan internasional berbasis antariksa

No	Kegiatan	Target Lima Tahunan				
		2016-2020	2021-2025	2026-2030	2031-2035	2036-2040
		d. Sistem informasi dan prediksi cuaca antariksa regional e. Sistem informasi peringatan dini atmosfer ekstrem benua maritim Indonesia f. Sistem asimilasi data dan prediksi antariksa dan atmosfer yang terintegrasi	e. Peningkatan kapasitas dan jaringan pengamatan antariksa atmosfer landas bumi dan landas antariksa secara mandiri f. Penguatan sistem asimilasi data dan prediksi antariksa dan atmosfer yang terintegrasi	c. Observatorium nasional telah siap untuk pengamatan secara internasional d. Sistem asimilasi data dan prediksi antariksa dan atmosfer yang terintegrasi menggunakan radar, pesawat terbang, dan satelit	c. Penguatan observatorium nasional dalam dunia internasional d. Partisipasi aktif pada kegiatan internasional berbasis antariksa	

No	Kegiatan	Target Lima Tahunan		
		2016-2020	Jangka Menengah I 2021-2025	Jangka II 2026-2030
		d. Sistem informasi dan prediksi cuaca antariksa regional e. Sistem informasi peringatan dini atmosfer ekstrem benua maritim Indonesia f. Sistem asimilasi data dan prediksi antariksa dan atmosfer yang terintegrasi	e. Peningkatan kapasitas dan jaringan pengamatan antariksa atmosfer landas bumi dan landas antariksa secara mandiri f. Penguatan sistem asimilasi data dan prediksi antariksa dan atmosfer yang terintegrasi	

Indonesia Vision on Space Weather

Short Term (2016-2020)

- Space Weather monitoring and support system
- Providing information and prediction system on space weather in regional scale

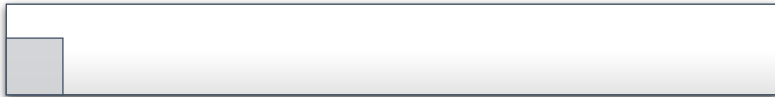
Medium Term (2016-2030)

- Operating The National Observatory and network of space weather and astronomy
- Strengthening information systems and the space weather forecast regionally

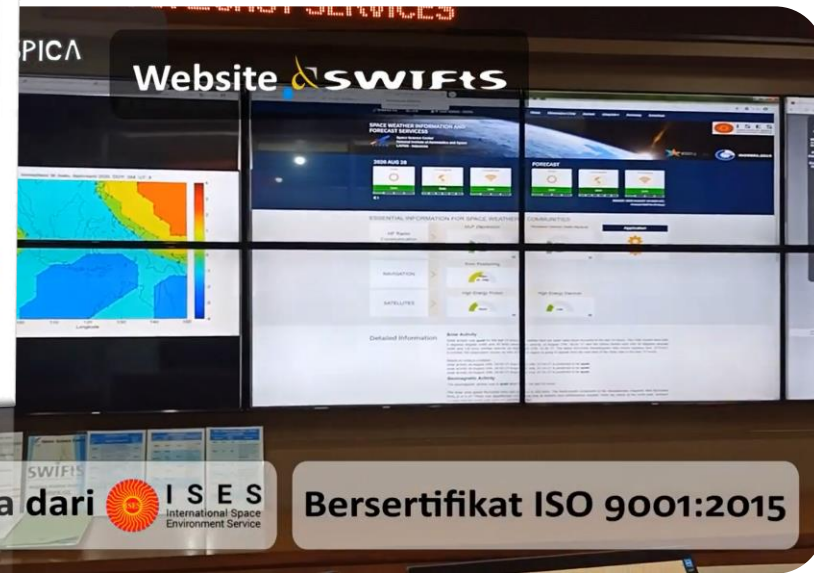
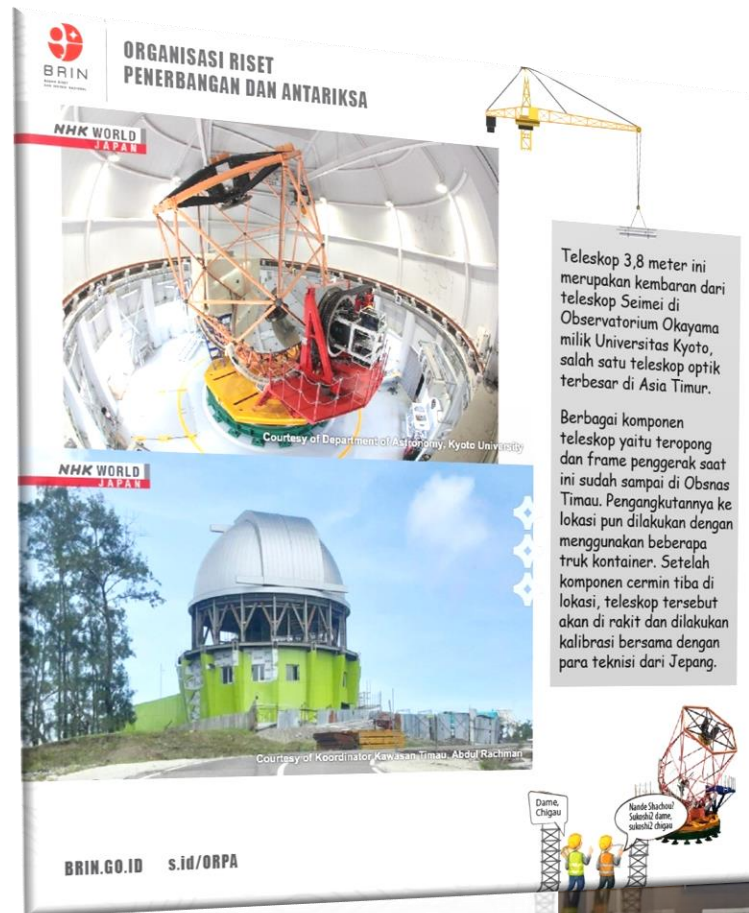
Long term (2016-2040)

- Advancing the space weather monitoring network and astronomy
- Active participation in international space-based activities

Space weather is an important issue in space activities



- Space activities are not limited to space technology alone, but also extend to activities related to space-based technology.
- Contributes to human life in the areas of technological applications and health.
- Due to its great impacts on human life and technology.



Indonesia contributes and collaborates in Space Weather

Since 2020 LAPAN provides supervision to institutions that still use radio communication in their operations. Among other things, AirNav Indonesia, Indonesian National Armed Forces, Indonesian National Police, local governments in remote areas, and the Directorate General of Customs and Excise. This supervision is aimed at increasing human resources who carry out radio communication in their institutions. Henceforth, LAPAN will endeavor to conduct studies and research on the impact of the weather in the world of civil aviation. LAPAN will collaborate with National Nuclear Energy Agency (BATAN) to find out the possible radiation dose received by civil aircraft.

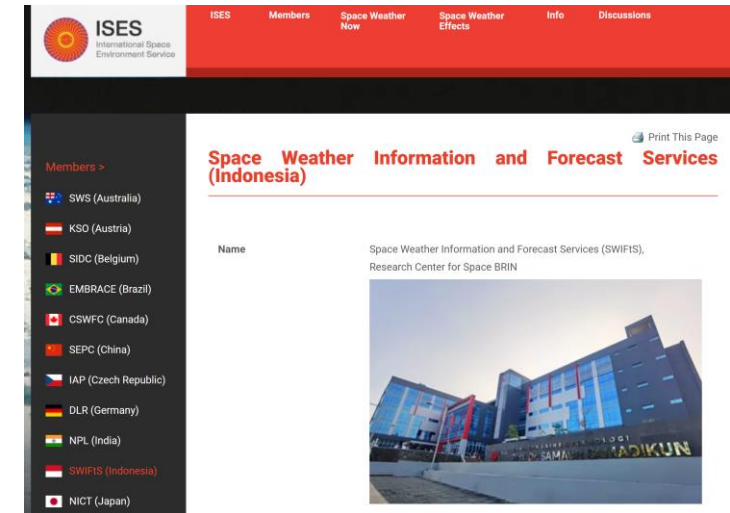
Indonesia annually provide national position on space weather in UNCOPUOS session

Indonesia as a member of the expert group of space weather supports the recommendations of the report of the Expert Group on Space Weather at the 57th session of the Subcommittee UNCOPUOS, as well as continues to encourage the implementation of LTS guidelines mainly, B.6 (Share operational space weather data and forecasts), and B.7 (Develop space weather models and tools and collect established practices on the mitigation of space weather effects) and Working Group LTS 2.0.

Since 2016 LAPAN is actively involved in the International Space Environment Services (ISES), by specifically conducting research and application of SWx in Indonesia, to support the operation of space weather (as mandated by ICAO Annex 3 Amendment 78).

LAPAN in 2021 already coordinated with the Directorate Navigation of Aviation to supply SWx information to the aviation entities, in partnership with the Meteorological, Climatological, and Geophysical Agency (BMKG). Indonesia is also actively involved in SWx Expert Meeting.

Indonesia also contributes on space weather data as member of WMO, AOSWA, dan SCOSTEP. Indonesia also has collaboration on space weather research with NICT at Agam facility; BOM Australia, IGG CAS China at Pontianak facility, Indonesia would like to continue collaboration with SCOSTEP on capacity building and research in space weather for scientist and young generation in the region.





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