

UPDATE ON MALAYSIA SPACE RELATED ACTIVITIES 2010

**MASZLAN ISMAIL
MALAYSIA NATIONAL SPACE AGENCY
(ANGKASA)**

APRSAF 17
Melbourne, Australia
25TH NOVEMBER, 2010



CONTENT

➤ SPACE TECHNOLOGY

➤ SPACE APPLICATION

➤ SPACE EDUCATION

➤ SPACE POLICY & LAW

SPACE TECHNOLOGY

- Remote sensing & communication satellite
- Satellite/spacecraft assembly, integration & testing
- Optical payload calibration & characterization
- Ground station X & S band antenna system
- Robotic telescope
- R&D on space application

SPACE INFRASTRUCTURE

Administration, Education Center

- National Planetarium, Kuala Lumpur

Operation, Research & Development Center

- National Space Centre, Sg. Lang, Banting, Selangor

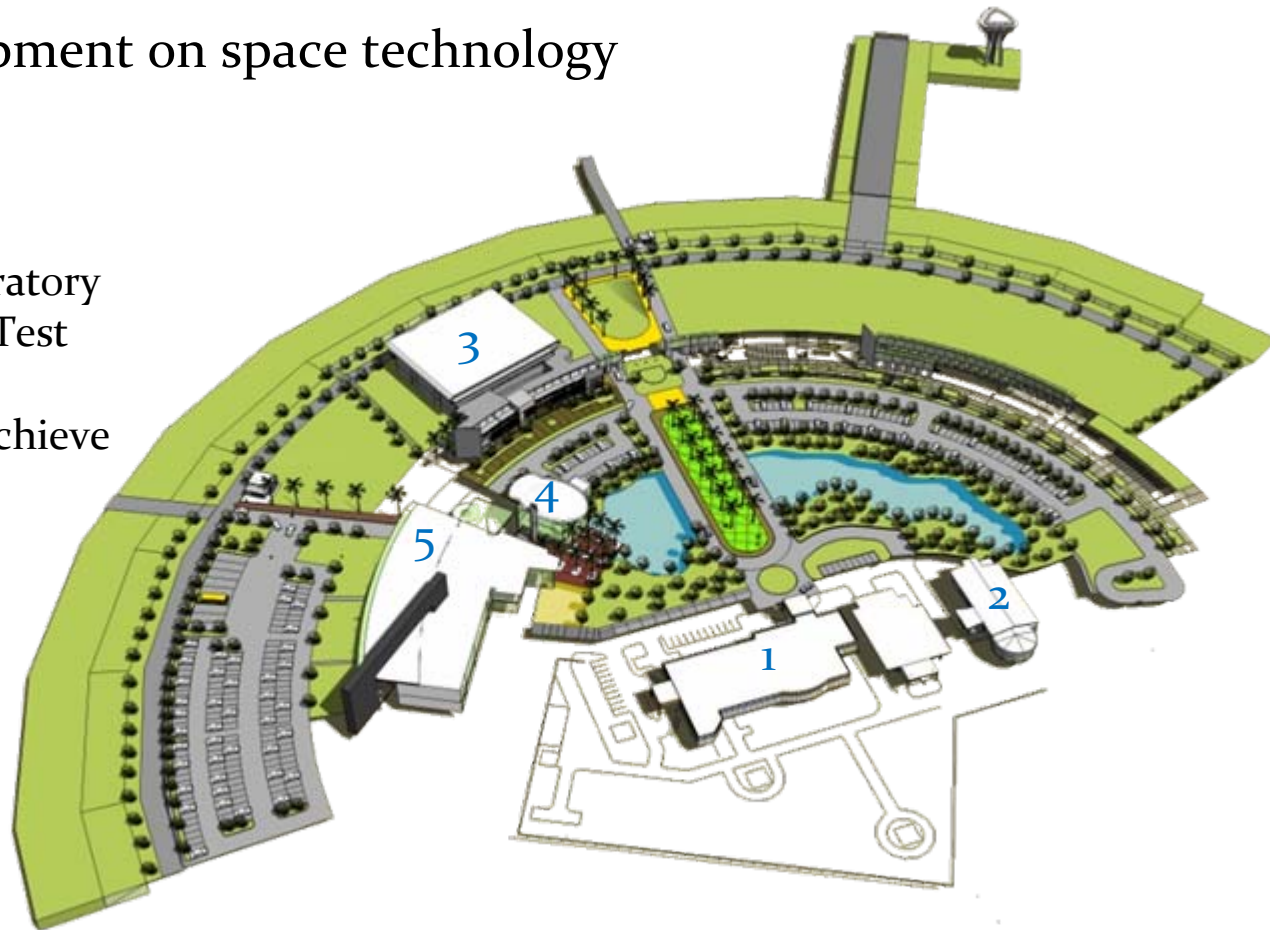
Astronomy & Observatory Center

- National Observatory, Langkawi

National Space Centre, Sg. Lang, Banting

- Satellite operation & communication
- Research & development on space technology

1. Mission Control Facility
2. Optical Calibration Laboratory
3. Assembly, Integration & Test
4. Auditorium & Cafeteria
5. Administration & Data Achieve



Mission Control Facility

S-Band Antenna System (5 m)

- ❖ Tracking, Telemetry & Tele-command (TT&C)
- ❖ Supported Mission:
 - RazakSAT
 - GIOVE-A (European Space Agency)

X-Band Antenna System (7.3 m)

- ❖ Image/data receiving
- ❖ Supported Mission:
 - RazakSAT
 - Terra & Aqua



Optical Calibration Laboratory



- ❖ Identifying capability of optical imaging system
- ❖ Preflight calibration of RazakSAT



Clean Room Laboratory

● Class 10,000

(monitored temperature & humidity)

Equipments :

- Integrating Sphere
- Spectroradiometer
- Turn-Table

Assembly, Integration & Test

- On construction – expected to finish, April 2011
- Environmentally controlled laboratory of Class 100,000
- Accommodate testing requirements of both ground-based instruments and fully qualified space-flight hardware
- Designed to permit the assembly, integration and test or verification of spacecraft components, equipment, instruments, satellite modules and systems



Test Equipments

- Thermal Vacuum Chamber
- Vibration Test System
- Reverberation Acoustic Test
- Electromagnetic Chamber
- Mass Properties Measurement System

Assembly, Integration Equipment

- Alignment Measurement System

Test Equipment Specifications

Test Equipment	Specifications
Vibration Test System (250 kN)	<ul style="list-style-type: none"> • Max Sine Thrust: 289 kN • Max Random Thrust: 267 kN • Max Velocity: 2.0 m/s • Useful Frequency: 5 Hz - 1700 Hz
Vibration Test System (80 kN)	<ul style="list-style-type: none"> • Max Sine Thrust: 105 kN • Max Random Thrust: 105 kN • Max Velocity: 3.0 m/s • Useful Frequency: 5 Hz - 2700 Hz
Reverberation Acoustic Test Facility	<ul style="list-style-type: none"> • Chamber Volume: $\cong 999.5 \text{ m}^3$ • Chamber Dimension: 9.79 m (D) x 7.54 m (W) x 13.54 m (H) • Frequency Range: 20 Hz - 10,000 Hz • Overall Sound Pressure Level: 155 dB • Noise Measurement: 16 microphones
Thermal Vacuum Chamber	<ul style="list-style-type: none"> • Operational Volume: 4 m (\varnothing) • Ultimate Pressure: 10^{-7} mbar • Pumping Rate: 10^{-6} mbar within 5 hours • Temperature Range: -180°C to 150°C
Electromagnetic Compatibility Test	<ul style="list-style-type: none"> • Operation Area: 5m Compliance Chamber • Door Size: 5m (W) x 3m (H) • Frequency Range: 20 Hz ~ 40 Hz
Mass Property Measurement System	<ul style="list-style-type: none"> • Max Test Weight: 1000 lbs • Range of Spin Speeds: 30 -300 rpm

Offered Services

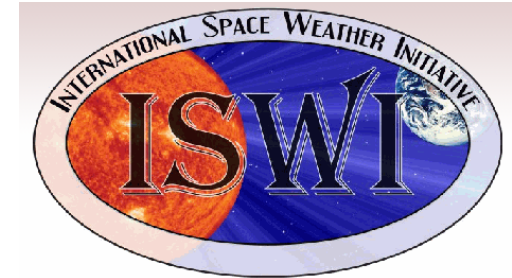
- Testing And Verifying Space Items
- Pre and Post Launch Activities
- Testing For Commercial Industry
- Venue for Seminars, Conferences at the Auditorium

SPACE APPLICATION

- Global Navigation Satellite System (GNSS) Application
 - MyRTKnet (JUPEM)
 - SISPELSAT (Marine Department)
 - IskandarNet (UTM)
- Geographic information systems (GIS)
 - mapping, remote sensing
- Communication Satellite
 - Very Small Aperture Terminal (VSAT)

International Space Weather Initiative, ISWI

- An international program to advance the space weather science by a combination of instrument deployment, analysis and interpretation of space weather data
- A follow-up activity to the successful IHY 2007 - focusing exclusively on space weather
- The goal is to develop the scientific insight necessary to understand the science, and to reconstruct and forecast near-Earth space weather.
- Includes instrumentation, data analysis, modeling, education, training, and public outreach
- Malaysia one of the host of equipments



SPACE EDUCATION

Malaysia Innovation 2010, MI2010



- Officiated by Malaysia Prime Minister, Najib Mohammad on January, 2010
- Raising awareness and fostering a culture of innovation among Malaysian towards wealth creation, knowledge creation and welfare
- “Creativity Celebration”

Microgravity Innovative Research Scientific Award 2010

- Conjunction with Malaysia Innovative 2010 (MI2010) and the Japanese Experiment Module (KIBO) – International Space Station (ISS) Project Strives
- To promote greater awareness on the utilization of the space environment and to develop human resources for future space related development activities
- Support from Ministry of Higher Education (MOHE)





Angkasawan Challenge Program

- To establish the continuity of the government's aspiration to implementation of the National Space Program
- Be a yardstick of the effectiveness of public awareness programs have been implemented
- Foster interest in young people on the aspects needed to become an astronaut

World Space Week (WSW) 2010

- “Space for education”
- To educate public on the benefit of space and initiate interest in future achievement among teens and children
- To nurture global cooperation in space education and outreach

SPACE POLICY & LAW

- Working toward on National Space Policy – final process
- Vision : to capitalize space as a strategic sector for national well-being

A large, white, cylindrical spacecraft component with several circular ports is mounted on a white support structure. Several workers in dark uniforms and hard hats are visible in the background, working on the component. The scene is set in an industrial or laboratory environment.

**Thank you for your
attention.**