Space Weather Research & Activities in Malaysia: From Research to Operational

Zahira M. Radzi
National Space Agency of Malaysia (ANGKASA)

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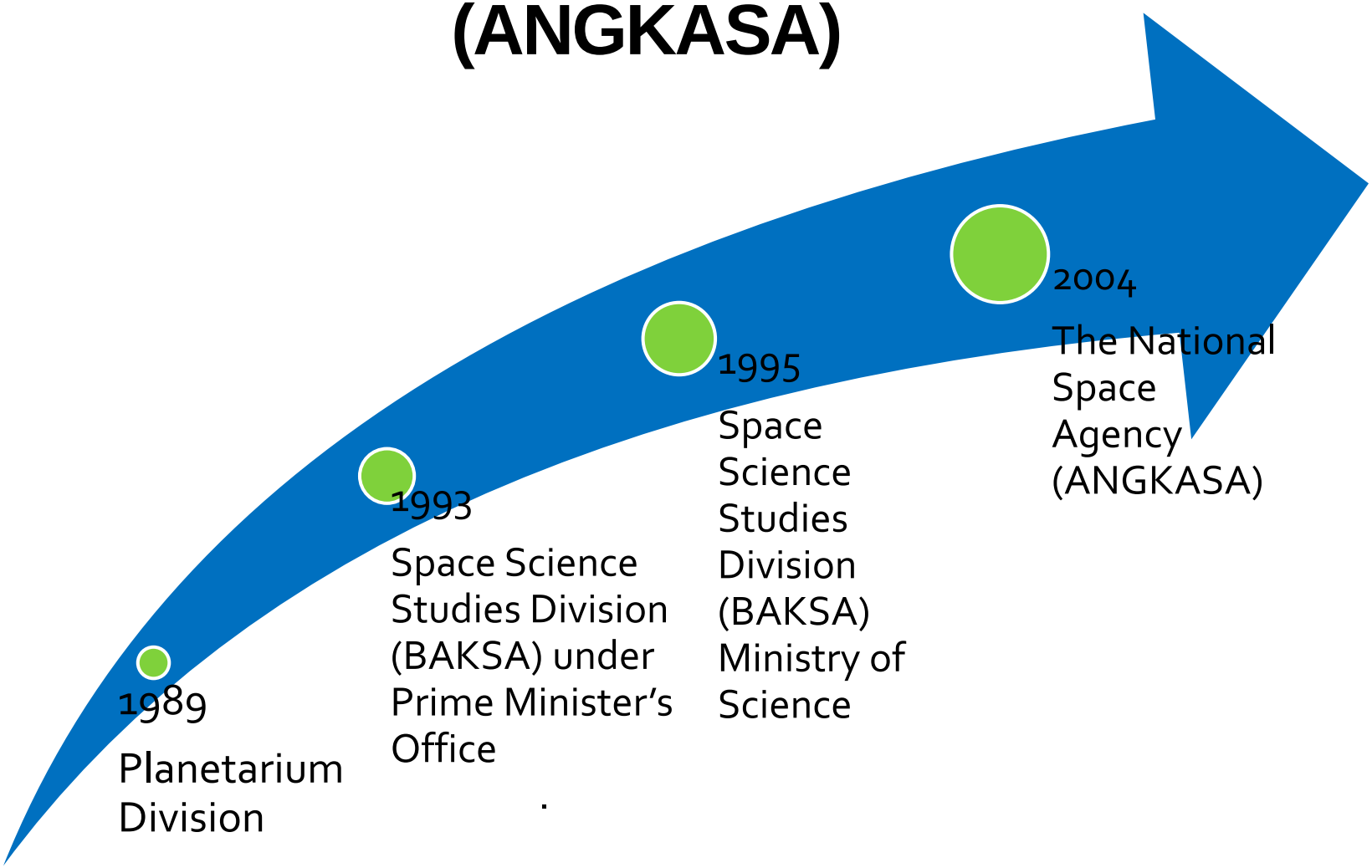
Presentation Outline

- Introduction to ANGKASA
  - Research Field
  - Space Weather Research
  - Research Approach
- Facilities and Activities
- Conclusion

The National Space Agency of Malaysia (ANGKASA)



Research Field

- **Space Sciences** → **Space Weather**
- Space Systems
- Space infrastructures
- Space industry and commercialization
- Space Law & Policy
- Education and awareness

Space weather research in ANGKASA

-2006 - 2008
Langkawi National Observatory Completely operational
- Solar Telescope System

2007
International Heliophysical Year
- Installation of MAGDAS

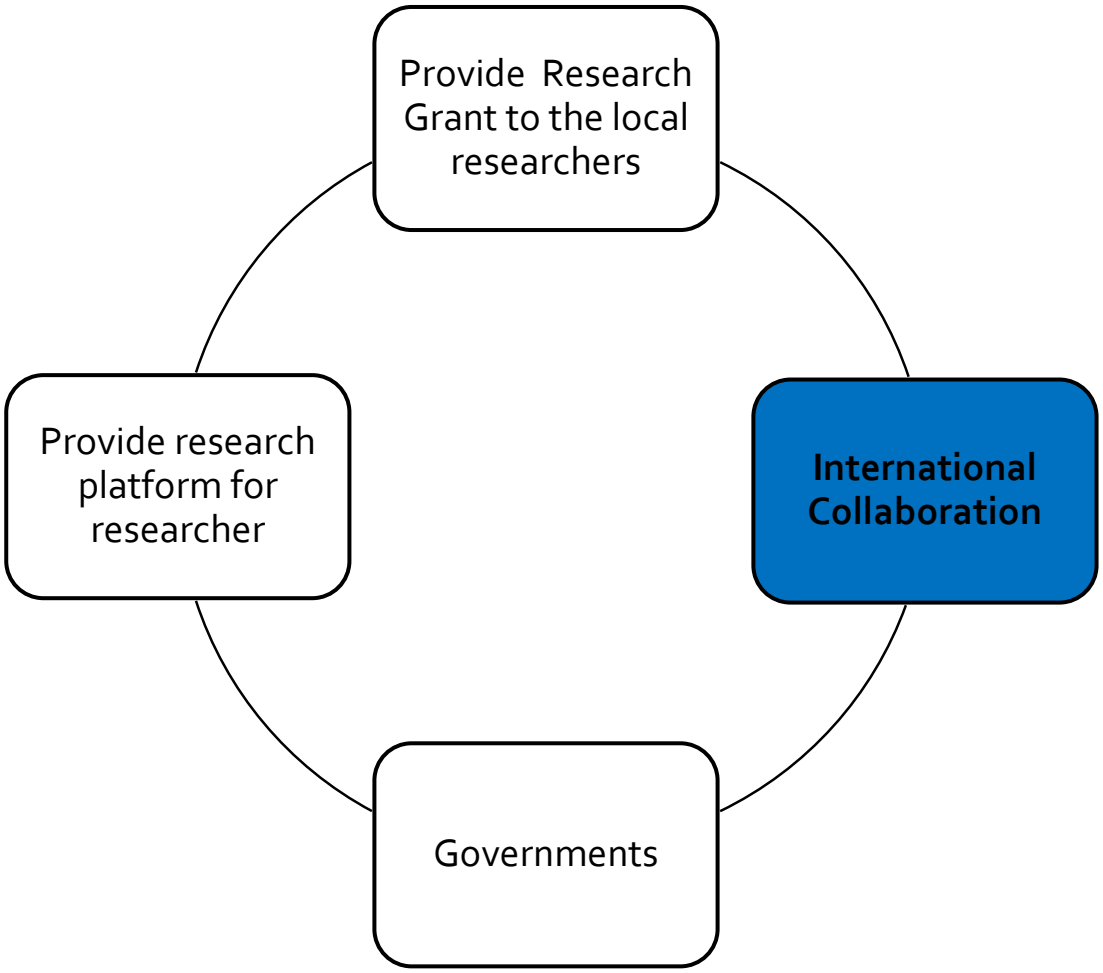
International Centre for Space Weather Science & Education (ICSWSE)

2012
ISWI
- Hosting instrumentation
Callisto, MAGDAS-9, SID device, AGRESS

2013-2015
- GPS-Corr network
Aiming for ionospheric research

Target:
Space Weather Data Centre
- Operational of Space Weather Data Services
- Automated sunspots calculation

Research Approach



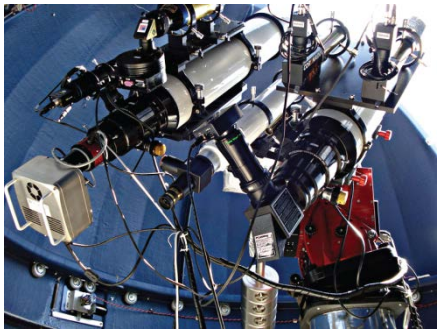
FACILITIES AND ACTIVITIES

1. Langkawi National Observatory (LNO)

- To provide research facility for solar and stellar observation
- To increase science, technology and innovation awareness and to contribute towards building a creative and innovative culture; and
- To make LNO a part of the international network in the field of astronomy and solar physics research.

Solar observatory






1. Fully Operational (daily observation)

Morning : 9.00 – 11.00am

Afternoon : 2.30 – 4.30pm

2.Description

Solar Observatory equipped with seven (7) telescopes inside a 3 meter-dome in diameter as enclosure. In particular, the set-up function for monitoring Solar activities in the wavelength of white light, h-alpha and calcium lines.

In addition, the LNO also equipped with an automatic weather station, cloud and rain sensors and an all-sky camera to monitor the weather condition and the upper sky of the observatory.

Service Provided

- Sunspot observation and solar activity monitoring continuously and consistently;
- Provide accurate data to user (data has been compared with several established bodies i.e. Watukosek Solar Observatory, SIDC);
- Type of data:

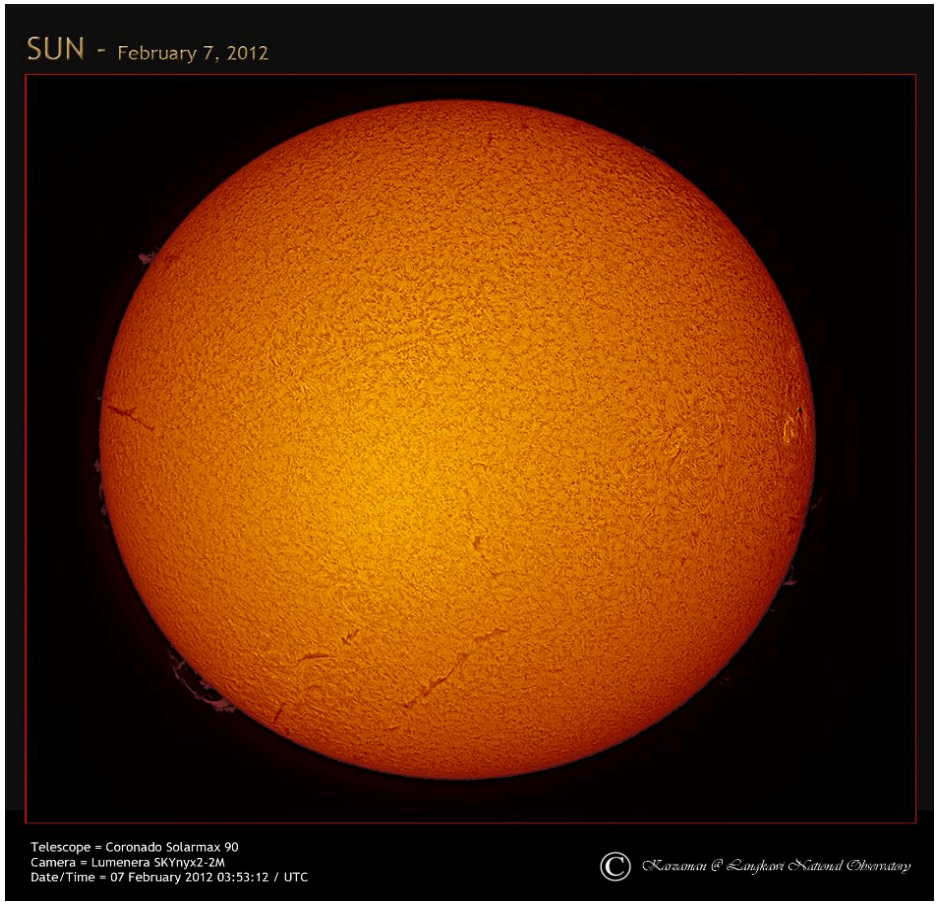
a) Full Disk Solar Images - .FIT format (using three different filter: continuum whitelight, H-alpha, Ca-K)

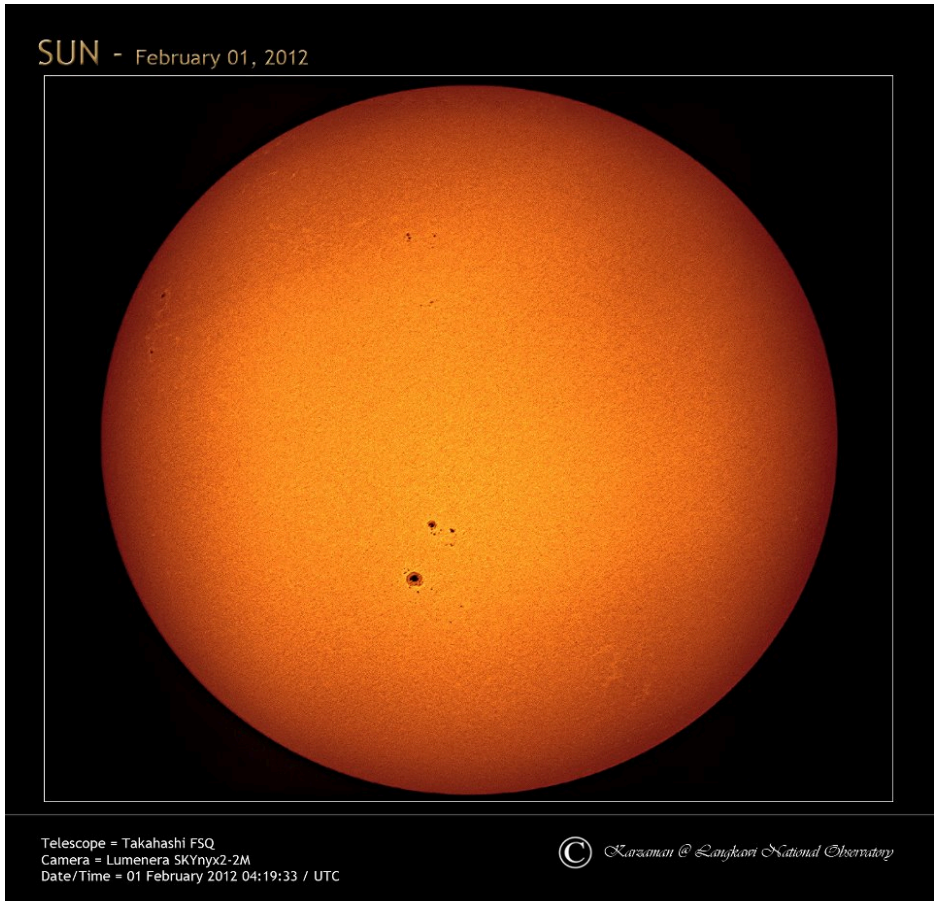
b) Sunspot Sketch (Orientation of Sun's magnetic pole, Sunspot position and RSN)

c) RSN updates

TELESCOPE DESIGNATION

LNO SOLAR IMAGE GALLERY





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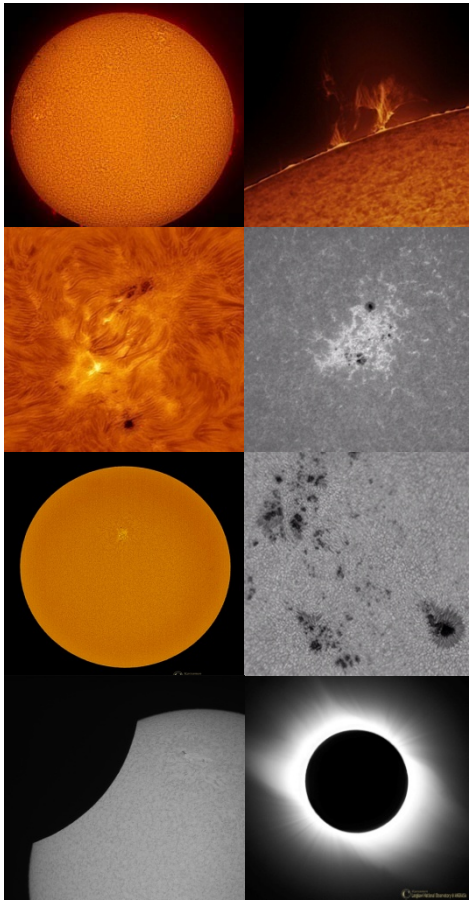
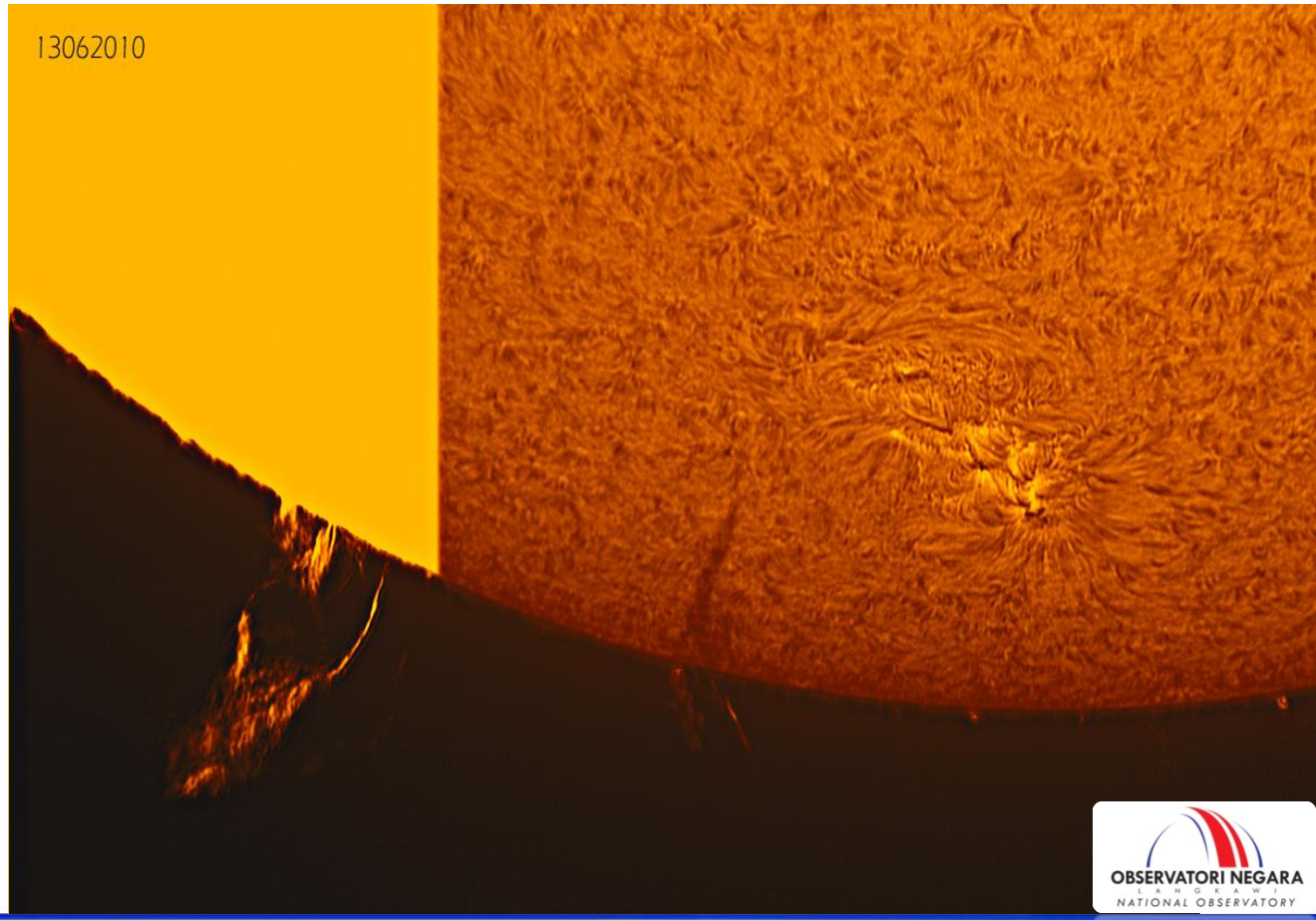
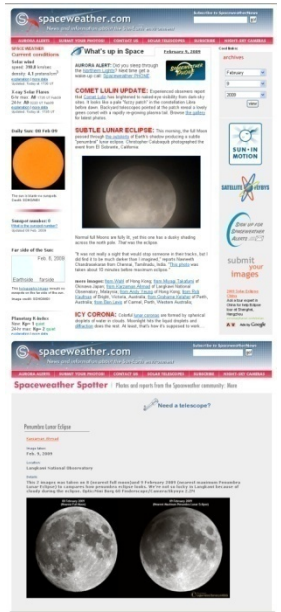
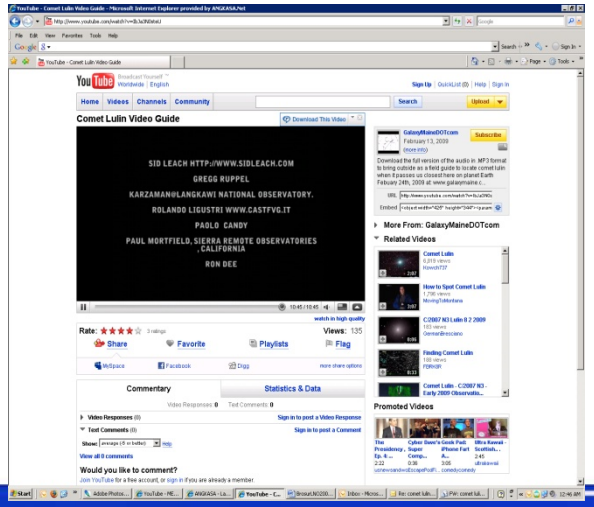
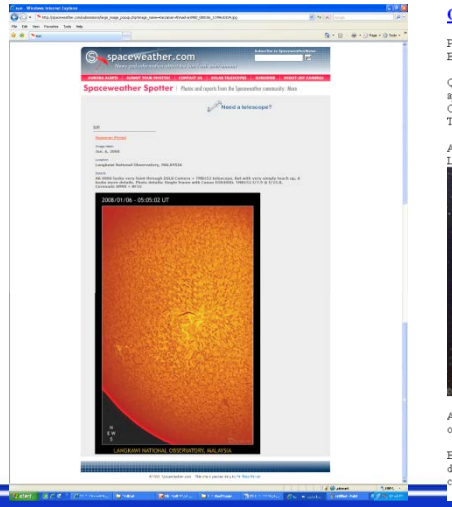




PUBLISHED IMAGES







Cometa Lulin em aproximação

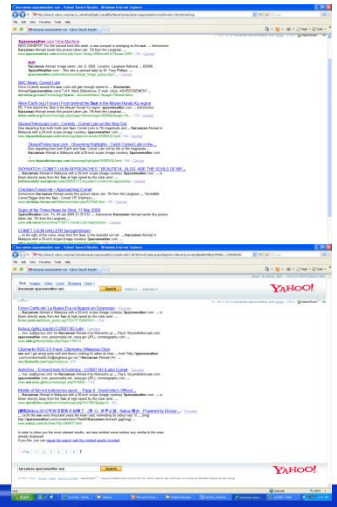
Publicado em 11 Jan 2009 às 9:23 pm. Nenhum comentario
Em Astronomia

Quem sabe poderemos ter em breve uma surpresa astronômica tão agradável quanto a aproximação do Cometa McNaugh, em janeiro de 2007.
O Cometa Lulin (C/2007 N3) descoberto em 2007 por um grupo de astrônomos de Taiwan e China está orbitando o Sol e se aproximando da Terra.

A imagem abaixo foi obtida por Karzaman Ahmad no dia 7 de janeiro no observatório Langkawi National Observatory da Malásia.

A posição do cometa no hemisfério sul é na região da constelação de Libra. No momento o brilho é fraco e impossível de ser observado a olho nu.

Esta é a primeira aproximação, e o momento de maior proximidade (0,41 UA) ocorre no dia 24 de fevereiro. Ninguém sabe ao certo como será o comportamento de brilho do cometa.



Space Weather Web

*2015- under maintenance

2. Development of Space Weather Centre

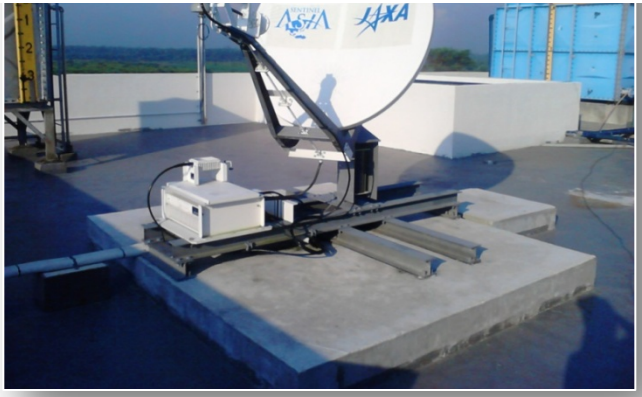
- Initiate by ANGKASA with collaboration few local universities
- To centralized space weather data for monitoring and forecasting space weather activities

3. GPS-CORS FOR R&D & MULTIPLE APPLICATION

Program/Activity Status/Updates:

- Image processing training
- Emergency Observation Request – when needed
- Monthly Data Transmission

Sentinel Asia



Summary

Data:

- Sunspots (images, numbers)
- Magnetometer (with permission)
- GPS-Data (process data)
- ISWI instrumentations- with permission from related local universities

Conclusion

Seeds	Needs	Want
• Ionospheric Model (in the process of development) • Human Resources • Hosting instrumentation	• GPS & Ionosonde Data • ISELION network • More training from experts	• Robust observation system, monitoring & forecasting ionospheric system • Equatorial Ionospheric Model

Looking forward for collaboration from experts all over the world!!

Thank You!

Arrigato!