USAGE AND PLANS OF HOTSPOT INFORMATION IN INDONESIA

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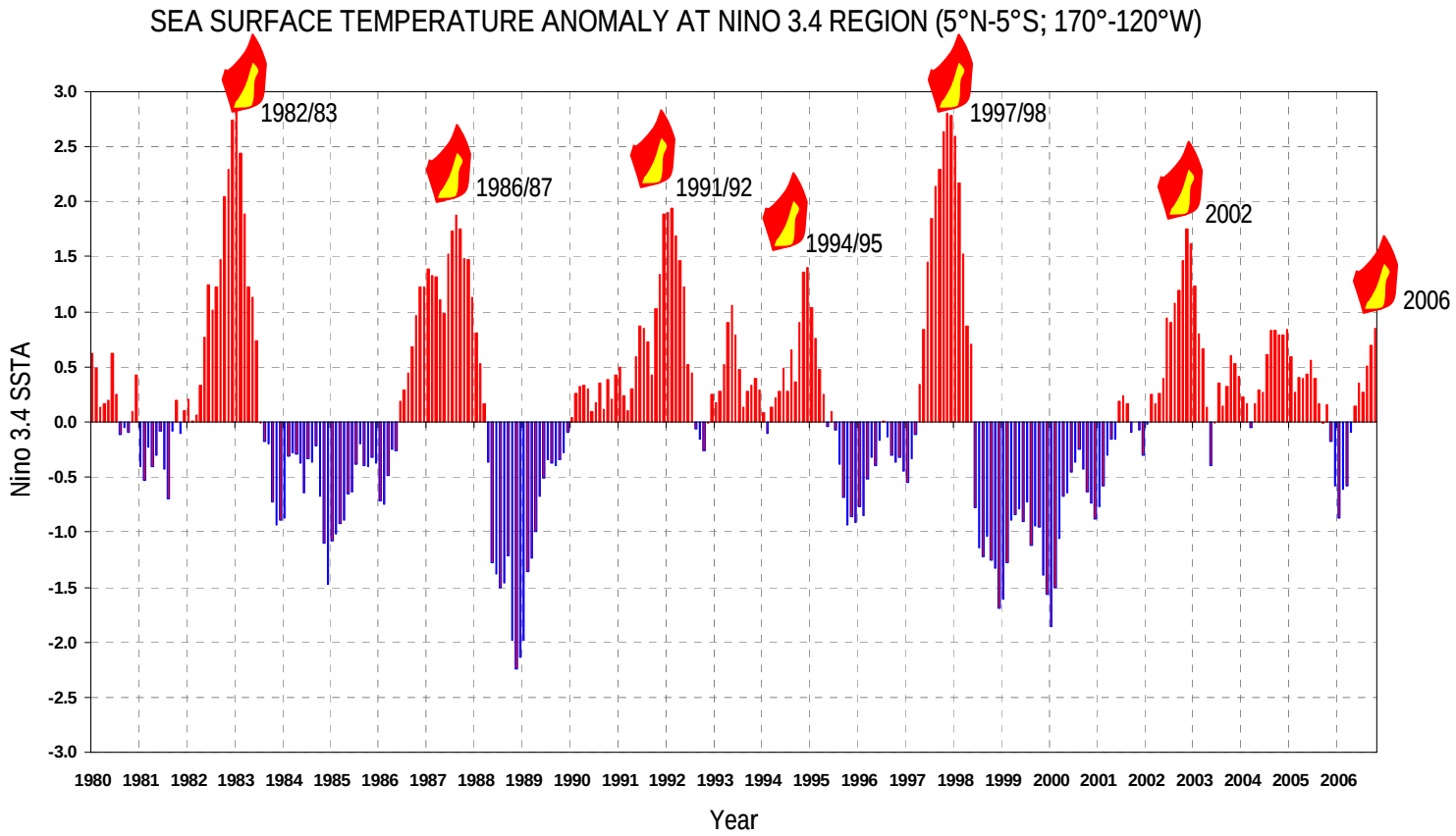
Background

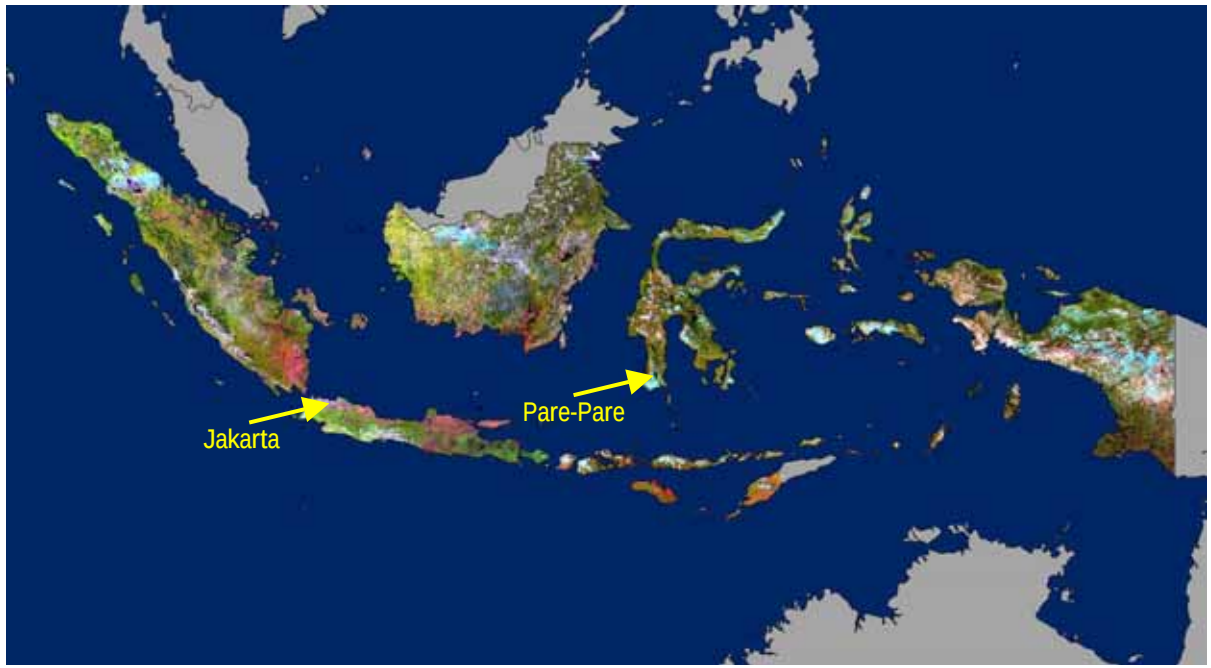
The forest/land fires in Indonesia occur **every year**, while the severe fires often associated with **El Niño/Southern Oscillation (ENSO) events.**



Usage of Hotspot Information - Past

Hotspot information as the fire potential information has been produced by LAPAN since 1987:

- Source: NOAA/AVHRR data
- Ground receiving station: Jakarta (West Java)
- Main user: Dep. of Forestry



Usage of Hotspot Information - Now

- Source: NOAA/AVHRR and Terra/Aqua MODIS data
- Ground receiving stations: Jakarta (West Java) and Pare-Pare (South Sulawesi)
- Users:
  - National Coordinating Board for Disaster Management
  - Dep. of Forestry
  - Dep. of Agriculture
  - Min. of Environment
  - Min. of Research and Technology
  - Dep. of Home Affairs
  - Statistics Indonesia
  - UN World Food Programme
  - ASEAN Secretariat
  - EU South Sumatera Forest Fire Management Project
  - WWF and CARE International – Central Kalimantan
  - Public through http://www.rs.lapan.go.id/SIMBA
  - etc.

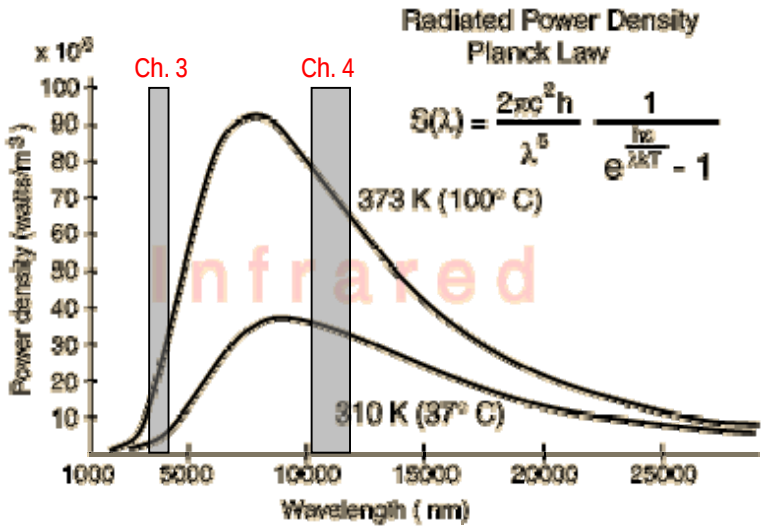
NOAA/AVHRR Algorithms

A pixel is classified as a hotspot if:

$Tb_3 \geq 320$ K (nighttime)

$Tb_3 \geq 330$ K (daytime)

$Tb_3 - Tb_4 \geq 20$ K



Tb_3: The brightness temperature of Ch. 3

Tb_4: The brightness temperature of Ch. 4

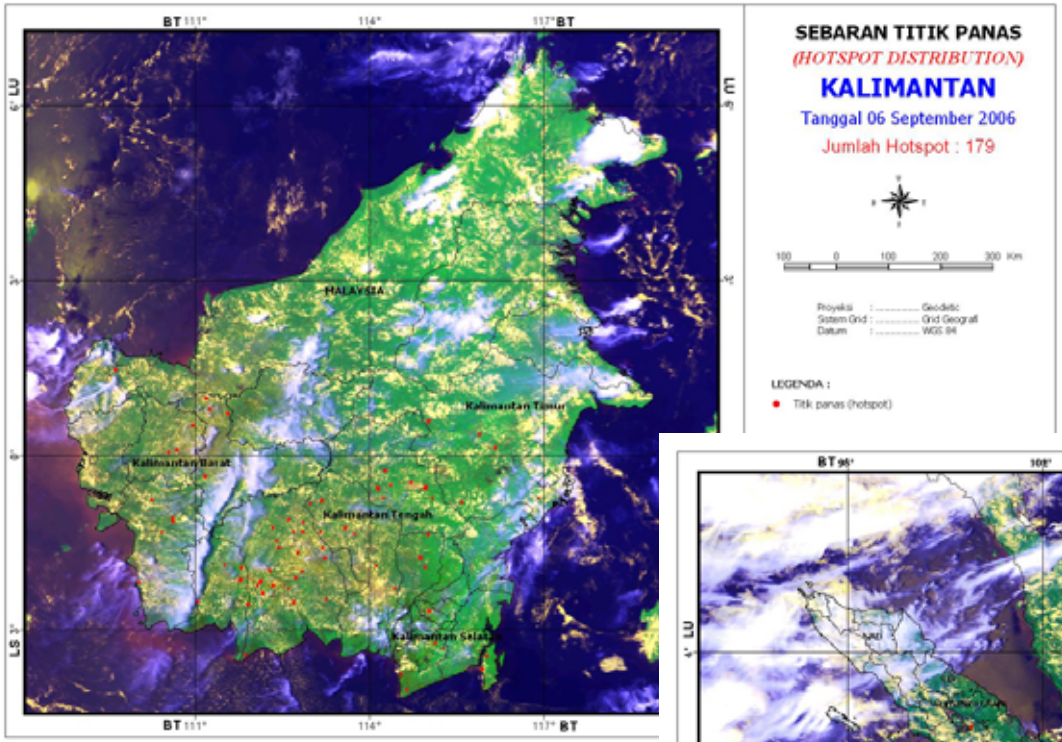
Terra/Aqua MODIS Algorithms

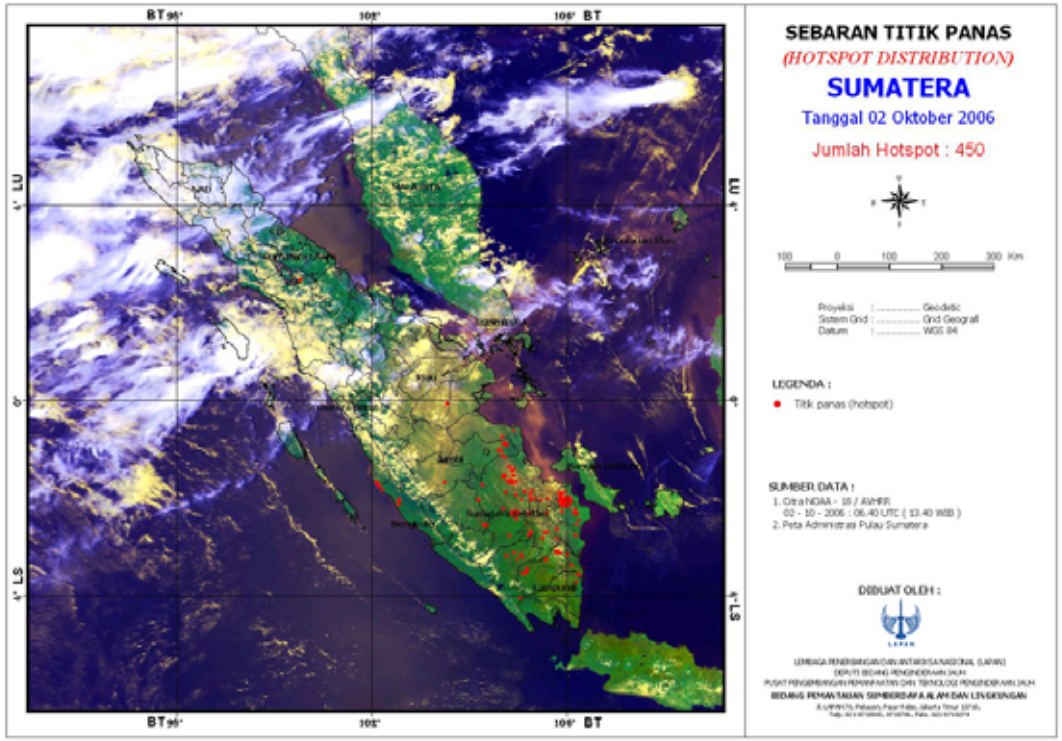
Fire (hotspot) and Vegetation Index algorithms are taken from the NASA Goddard Space Flight Center.

A detailed description of the algorithm may be found in:

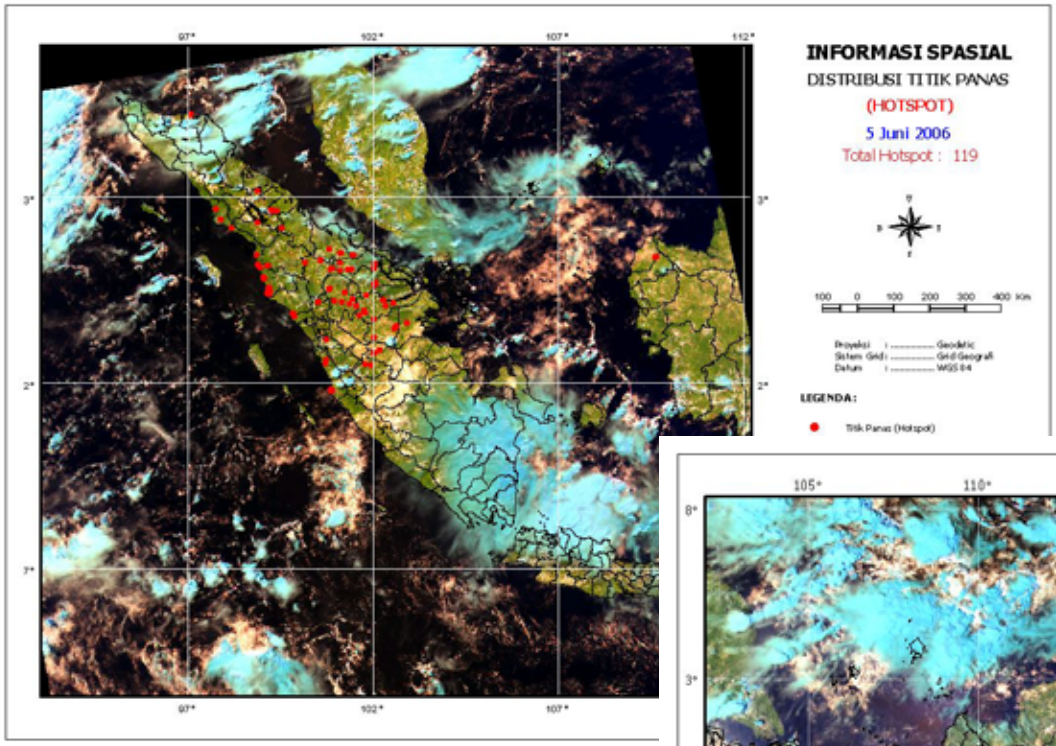
Giglio, L., J. Descloitres, C. O. Justice, and Y. J. Kaufman, 2003: An enhanced contextual fire detection algorithm for MODIS. *Remote Sensing of Environment*, 87, 273-282.

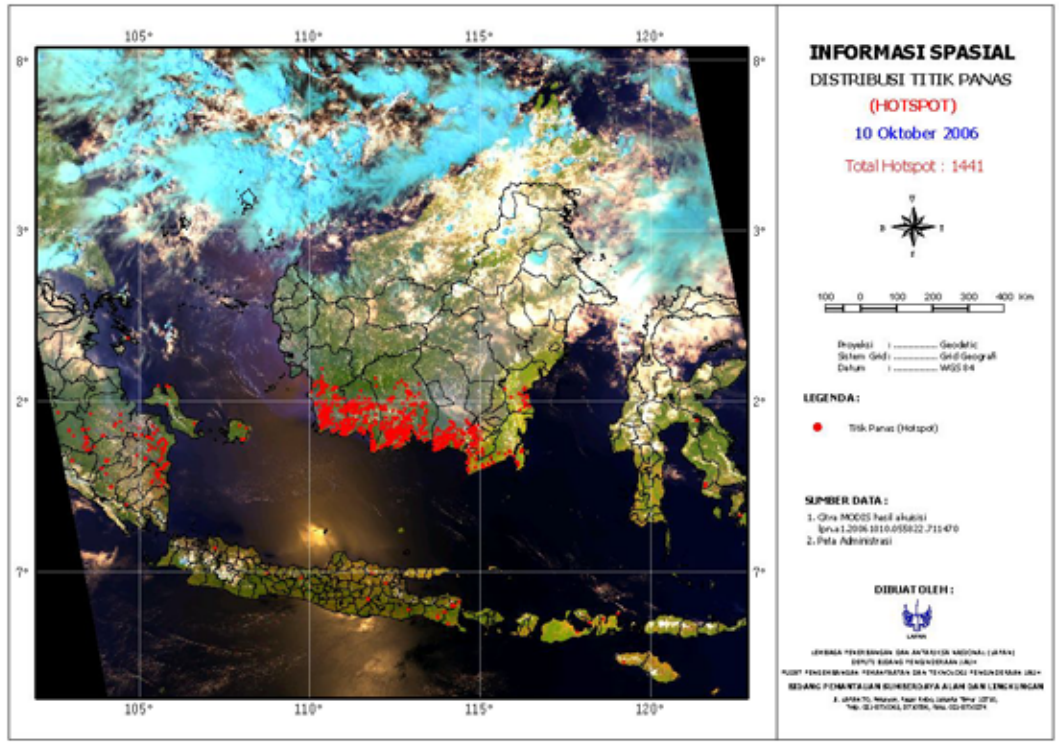
Hotspot from NOAA/AVHRR



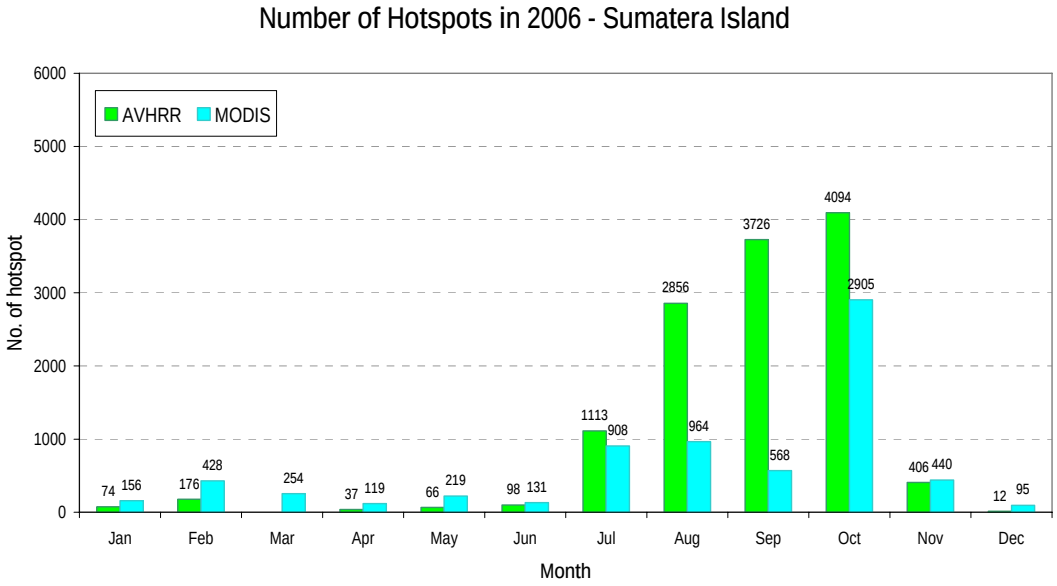


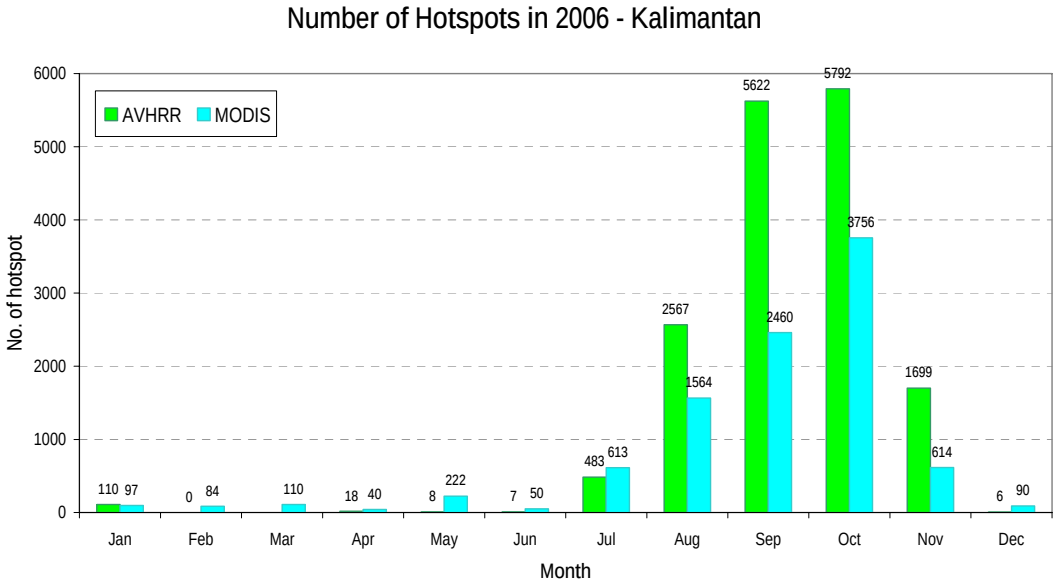
Hotspot from Terra/Aqua MODIS





Monthly Hotspot – Sumatera and Kalimantan



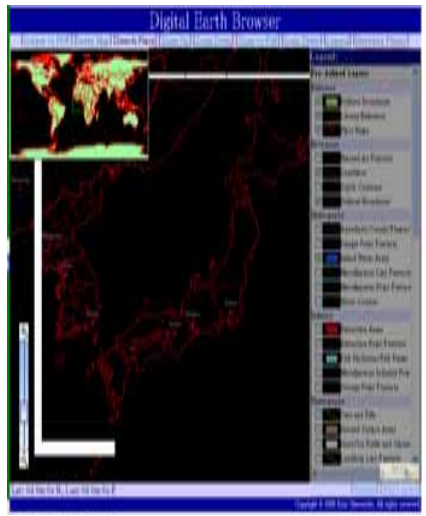


The difference between the no. of hotspots obtained by the AVHRR and MODIS could be caused by the different:

- acquisition time
- threshold
- method

Information Dissemination

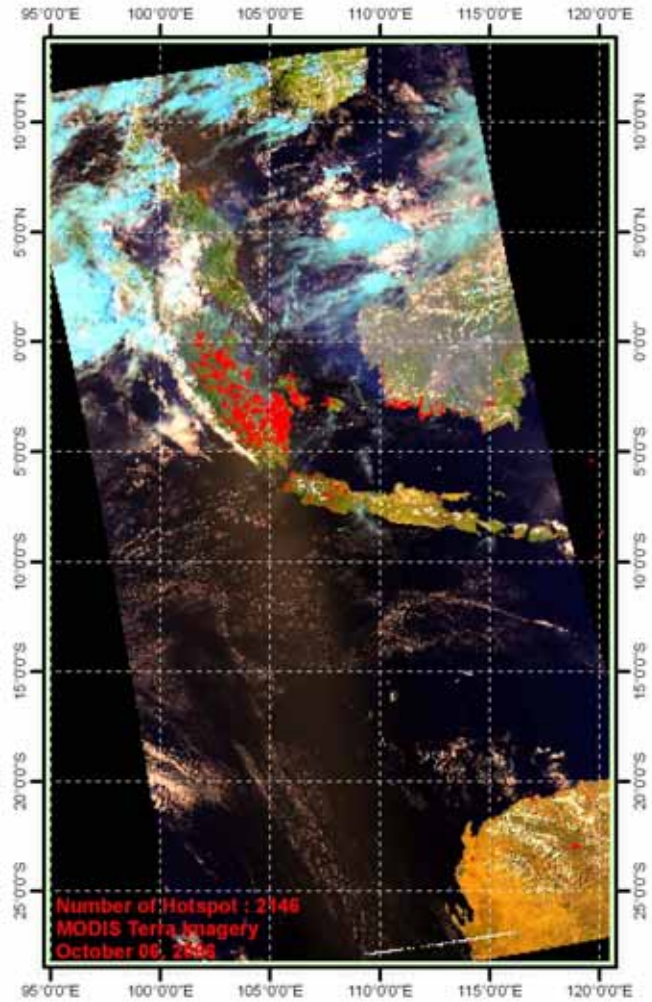
- Website http://www.rs.lapan.go.id/SIMBA
- Monthly report.
- Seminars, Workshops, Meetings, Trainings, etc.
- WFP-LAPAN “Indonesia Early Warning Bulletin on Natural Hazards”
- International links with:
  - Sentinel Asia – Disaster Management Support System in the Asia-Pacific Region
  - Digital Asia Network
  - ASEAN Secretariat
  - Global Observation of Forest and Land Cover Dynamics (GOFC-GOLD)



Link to Digital Asia Network

http://geoinfo1.scf.keio.ac.jp/MyMap/MyMap/DEBrowser/index.jsp?lang=eng

Month	No. of days	No. of hotspots
Jul 2006	16	4,490
Aug 2006	28	13,681
Sep 2006	27	18,313
Oct 2006	19	12,678
Nov 2006	25	5,014
Dec 2006	17	1,794
Jan 2007	2	124



Problems:

- Some technical problems related with MODIS receiving systems at LAPAN.
- Slow access to the Digital Asia Network server provider *(send and view)*.

Usage of Hotspot Information - Plans

- To upgrade the existing acquisition systems (receiving and processing systems)
- To process the hotspot information automatically
- To validate the hotspot algorithms:
  - Sentinel Asia:
    - Joint Project Team (JPT) activities
    - Results from “Hotspot Validation Campaign in Central Kalimantan (October 2006)”
- To extend national, regional, and international collaborations (e. g. GOFC/GOLD, GFMC, Department of Land Information - Gov. of Western Australia, etc)

Recommendation

To support the wildland fire prevention at the national and regional levels, the assistances from the regional and international institutions/organizations are needed, particularly in:

- The upgrade of the acquisition, monitoring, and information management systems.
- The improvement of climate prediction that are likely to results in fires.
- The methods of the validation.
- The implementation of the Global Wildland Fire Early Warning System.

Thank You