

Space Base Information to Support Forest Management in Indonesia

National Institute of Aeronautics and Space (LAPAN)
Indonesia

The 49th Session of the UN Committee on the Peaceful Uses of Outer Space (COPUOS)
Vienna, 7-16 June 2006

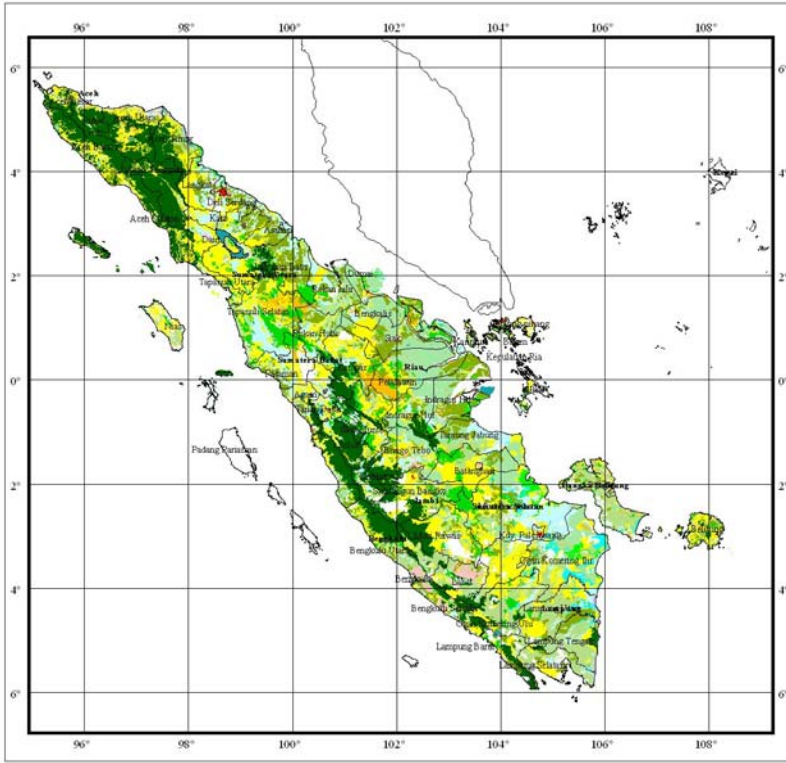


Space Base Information Delivered a.o.:



- **Land Cover** (Landsat ETM, 1:100.000)
- **Forest Concession Map** (Landsat ETM, 1:100.000)
- **Hotspot and Smoke Monitoring**
(NOAA/AVHRR, Terra/Aqua MODIS)
- **Vegetation Index Monitoring**
(NOAA/AVHRR, Terra/Aqua MODIS)
- **Burned Scar Mapping** (Terra/Aqua MODIS)
- **Fire Danger Rating System Monitoring** (NOAA/AVHRR, Terra/Aqua MODIS)
- **Rainfall Estimation Monitoring**
(GOES, NOAA/AVHRR, and Feng Yun)
- **Rainfall Prediction** (Outgoing Longwave Radiation)

Land Cover



**INFORMASI SPASIAL
PENUTUP/PENGGUNAAN LAHAN
SUMATERA**

Proyeksi : Geodetic
Sistem Grid : Grid Geografis
Datum : WGS 84

LEGENDA :

- Hutan Primer
- Hutan Sekunder
- Hutan Mangrove
- Hutan Gambut
- Hutan Rawa
- Perkebunan
- Ladang
- Semak Belukar
- Tanah Lahan Terbuka
- Sawah
- Waduk
- Rawa
- Tambak
- Kota
- Kampung
- Awan

General information on the type, area, and location of certain land cover to define specific land use.



**CITRA LANDSAT 7 - ETM RGB 542
KABUPATEN NUNUKAN
PROVINSI KALIMANTAN TIMUR**

SKALA 1 : 50.000
NO. INDEX 1920-01

Sistem Proyeksi : UTM
Sistem Grid : Grid UTM
Datum : WGS 84

LEGENDA

A. Batas Administrasi	B. Kota / Perumahan
Batas Kabupaten	Kota Kalimantan
Batas Kecamatan	Kota Nunukan
Batas Desa	Kota Perumahan
C. Infrastruktur	D. Vegetasi
Jalan	Hutan Primer
Rel	Hutan Sekunder
E. Tanah Air	Hutan Mangrove
Hutan Lahan Basah	Hutan Gambut
Hutan Lahan Kering	Hutan Rawa
Perkebunan	Ladang
Sawah	Semak Belukar
Tanah Lahan Terbuka	Tanah Lahan Basah
Waduk	Tanah Lahan Kering
Tambak	Tanah Lahan Gambut
F. Rawa	
Rawa	
G. Awan	
Awan	

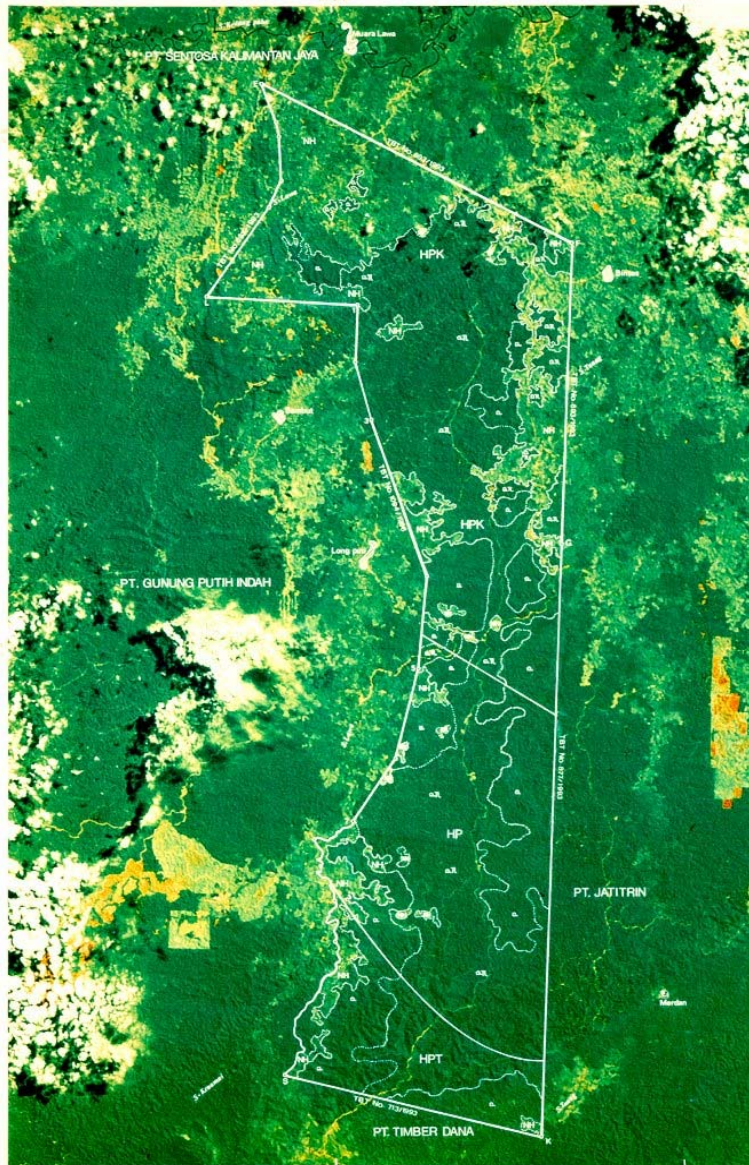
**KEGIATAN PENATAAN RUANG
BERBASIS DATA SPASIAL
WILAYAH PERBATASAN KALIMANTAN - SABAH**

DEPARTEMEN PERENCANAAN, PERTANIAN
PUSAT PENGEMBANGAN & PEMANFAATAN
TEKNOLOGI PENGELOMPOKAN SUMBER
LAPANGAN (LAPAN)
TAHUN 2004

Forest Concession Map



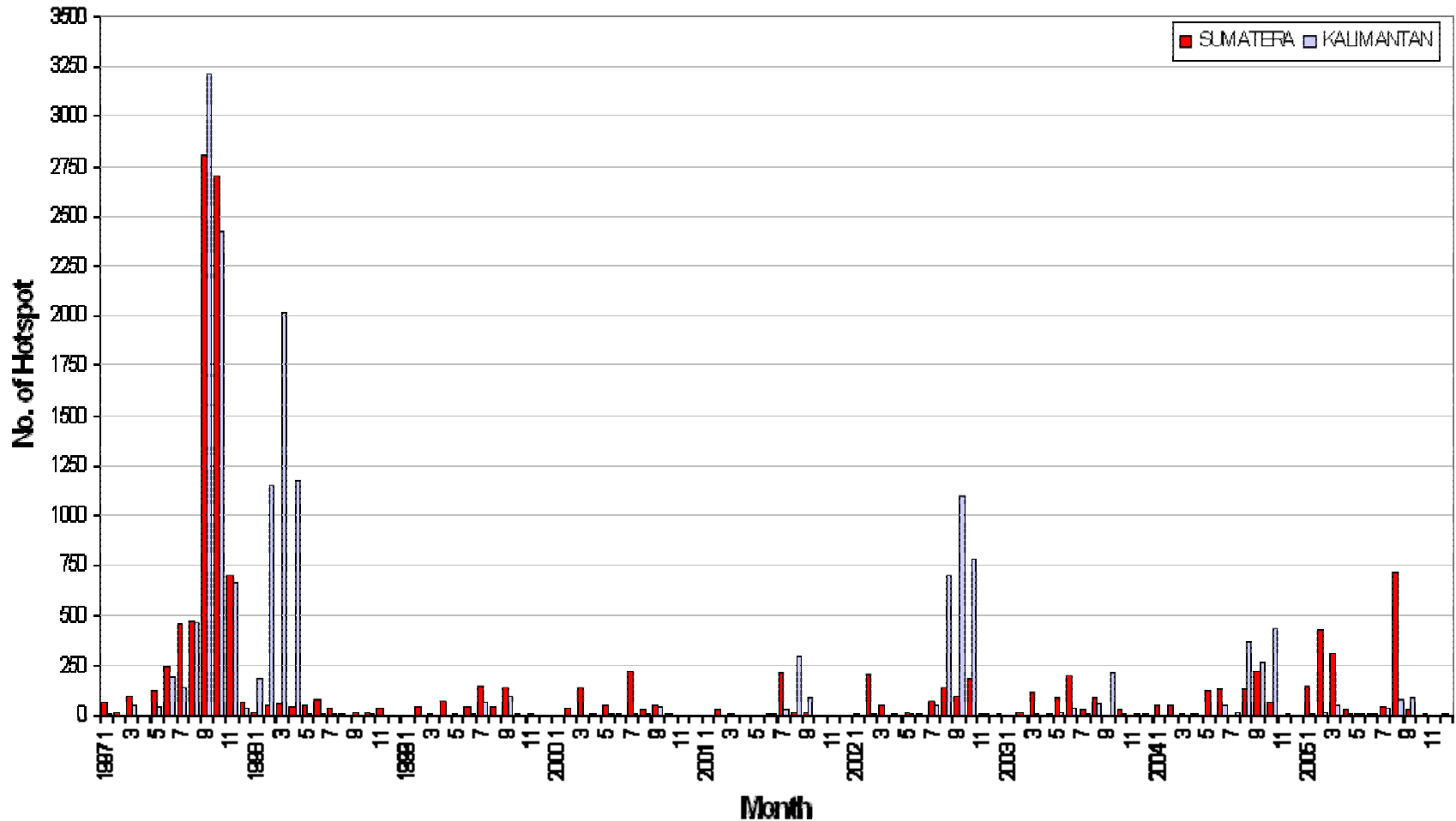
To extend their concession permit, the company has to submit the results of their timber operation in the form of satellite imagery (a.o. Landsat scale 1:100.000) which shows the compliance to the selective cutting program allowed by the regulation.



Forest/Land Fires in Indonesia



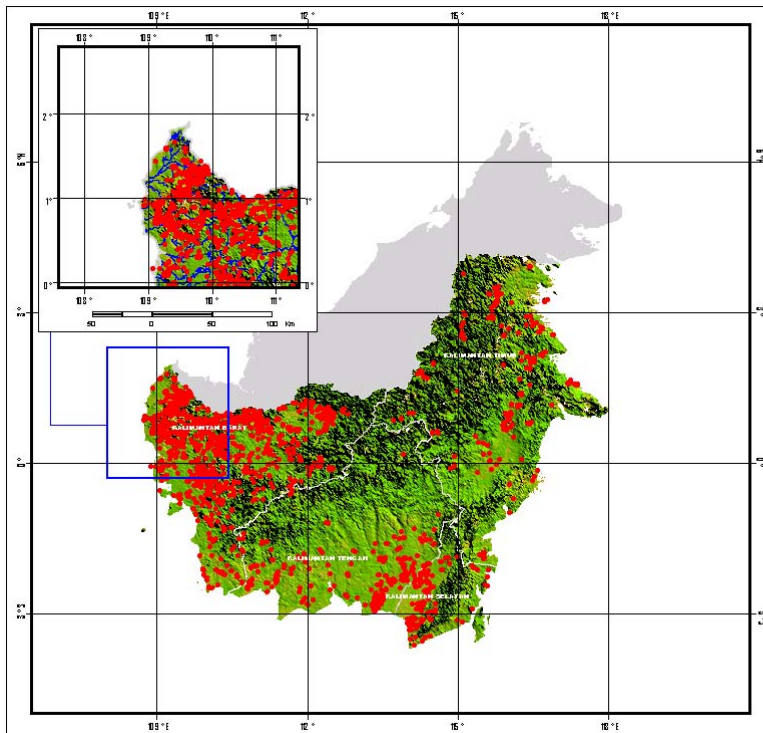
NUMBER OF HOTSPOT IN SUMATERA AND KALIMANTAN 1997-2005
(Source: ERS Along Track Scanning Radiometer)



Vegetation Index and Hotspot Monitoring



Information produced and delivered daily, weekly, and monthly



SPATIAL INFORMATION
 NORMALIZED DIFFERENCE VEGETATION INDEX AND HOTSPOT DISTRIBUTION
KALIMANTAN
 AUGUST 2005
 Total Hotspot : 2087

Projection : Geodetic
 Grid System : Grid Geographi
 Datum : WGS 84

LEGEND :

VEGETATION INDEX
 -0.5 0 0.5 +1

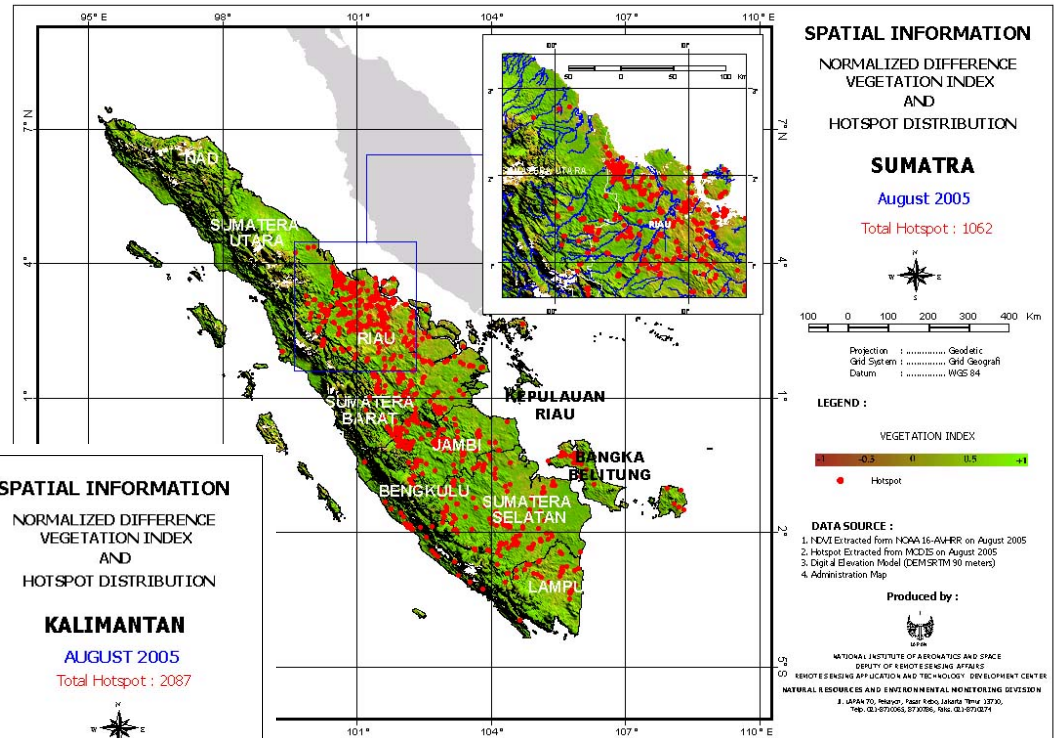
Hotspot

DATA SOURCE :

1. NDVI Extracted from NOAA 16-AVHRR on August 2005
2. Hotspot Extracted from MCDIS on August 2005
3. Digital Elevation Model (DEM SRTM 90 meters)
4. Administration Map

Produced by :

NATIONAL INSTITUTE OF AERONAUTICS AND SPACE
 DEPT. OF REMOTE SENSING AFFAIRS
 REMOTE SENSING APPLICATION AND TECHNOLOGY DEVELOPMENT CENTER
 NATURAL RESOURCES AND ENVIRONMENTAL MONITORING DIVISION
 J. LAPAN 70, Medan, Pasar Kito, Jakarta Timur 13770,
 Telp. 021-6791063, 674086, Fax. 021-6791274



SPATIAL INFORMATION
 NORMALIZED DIFFERENCE VEGETATION INDEX AND HOTSPOT DISTRIBUTION
SUMATRA
 August 2005
 Total Hotspot : 1062

Projection : Geodetic
 Grid System : Grid Geographi
 Datum : WGS 84

LEGEND :

VEGETATION INDEX
 -0.5 0 0.5 +1

Hotspot

DATA SOURCE :

1. NDVI Extracted from NOAA 16-AVHRR on August 2005
2. Hotspot Extracted from MCDIS on August 2005
3. Digital Elevation Model (DEM SRTM 90 meters)
4. Administration Map

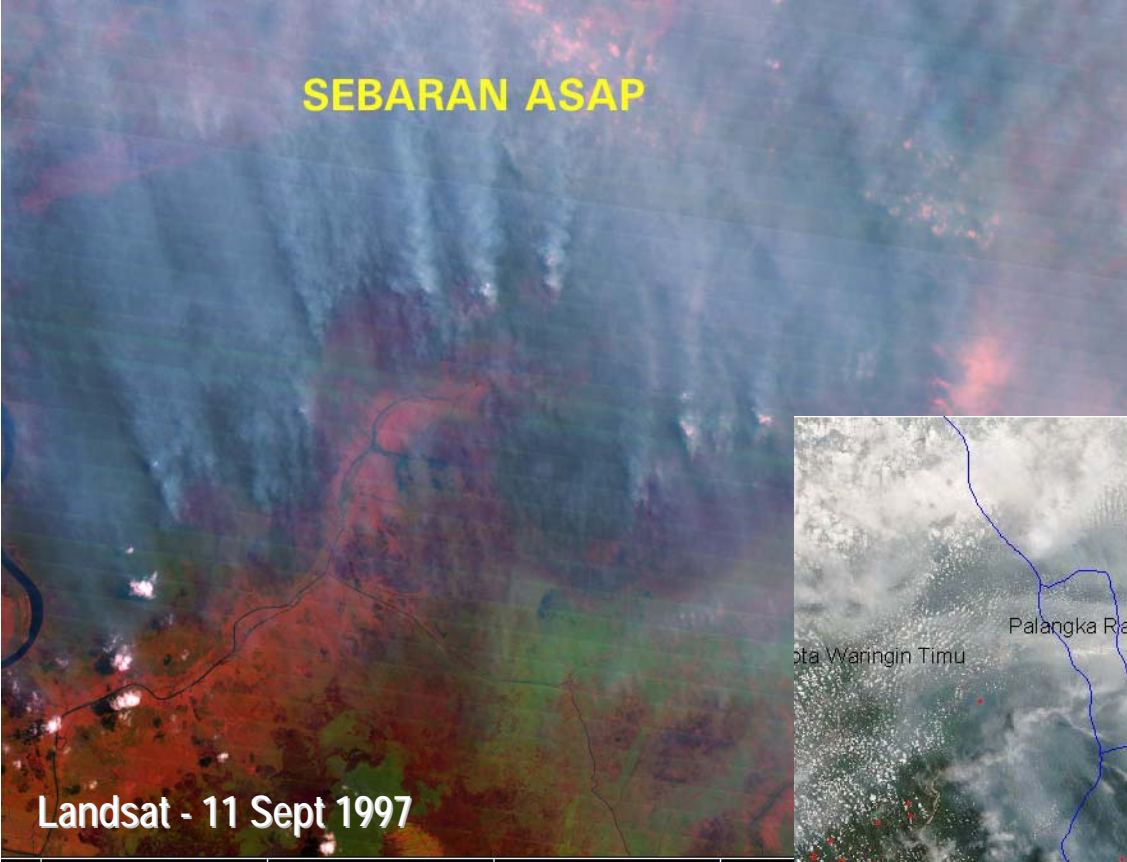
Produced by :

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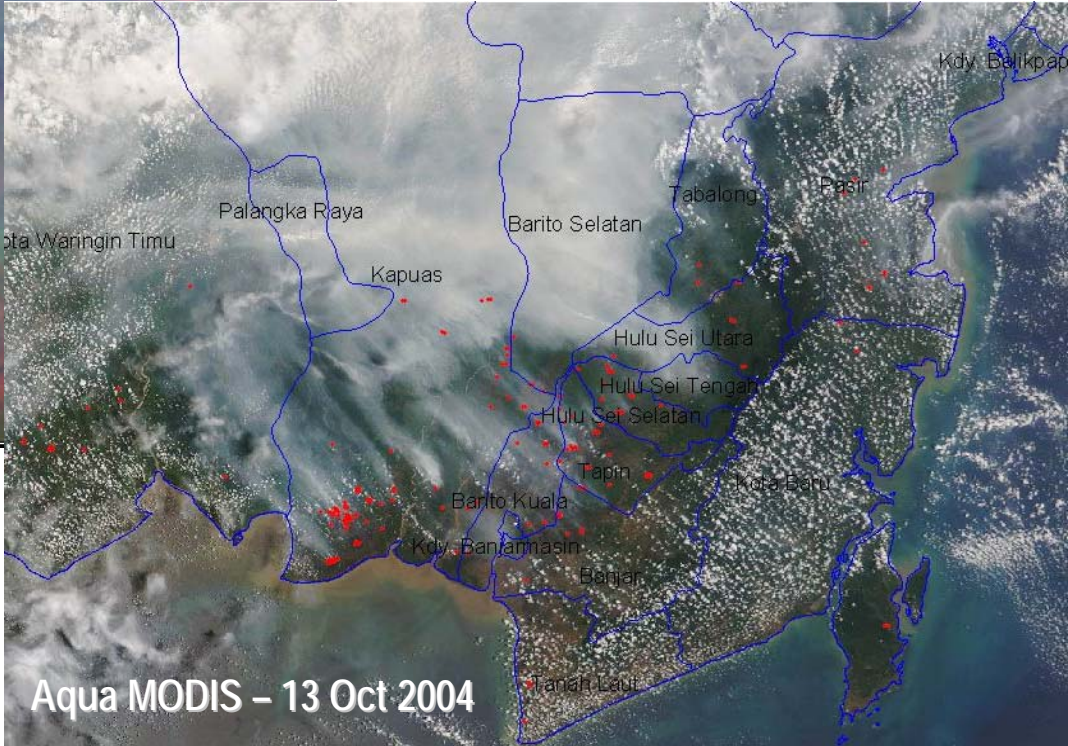
Smoke Dispersion and Transport Detection



SEBARAN ASAP

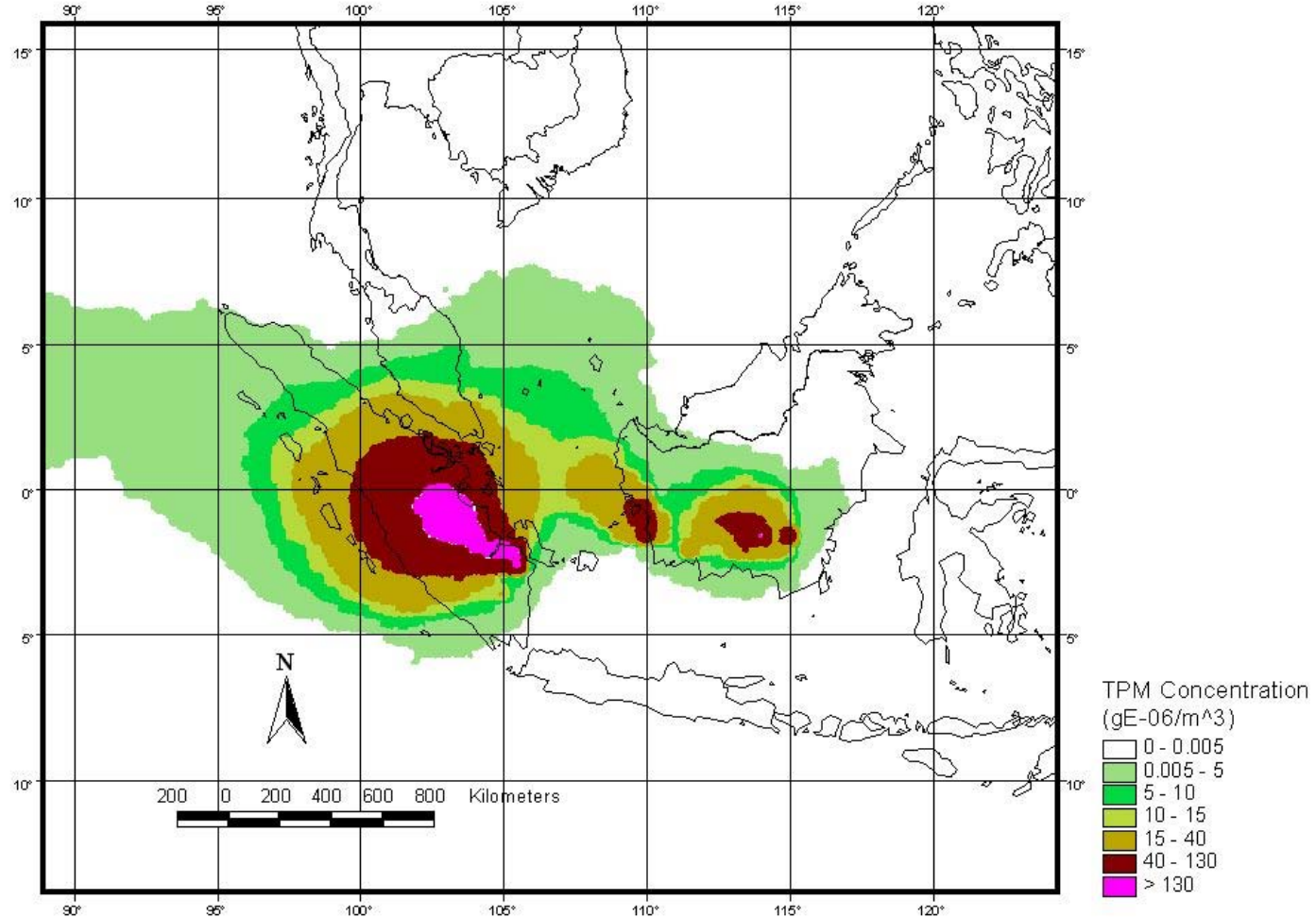


Landsat - 11 Sept 1997



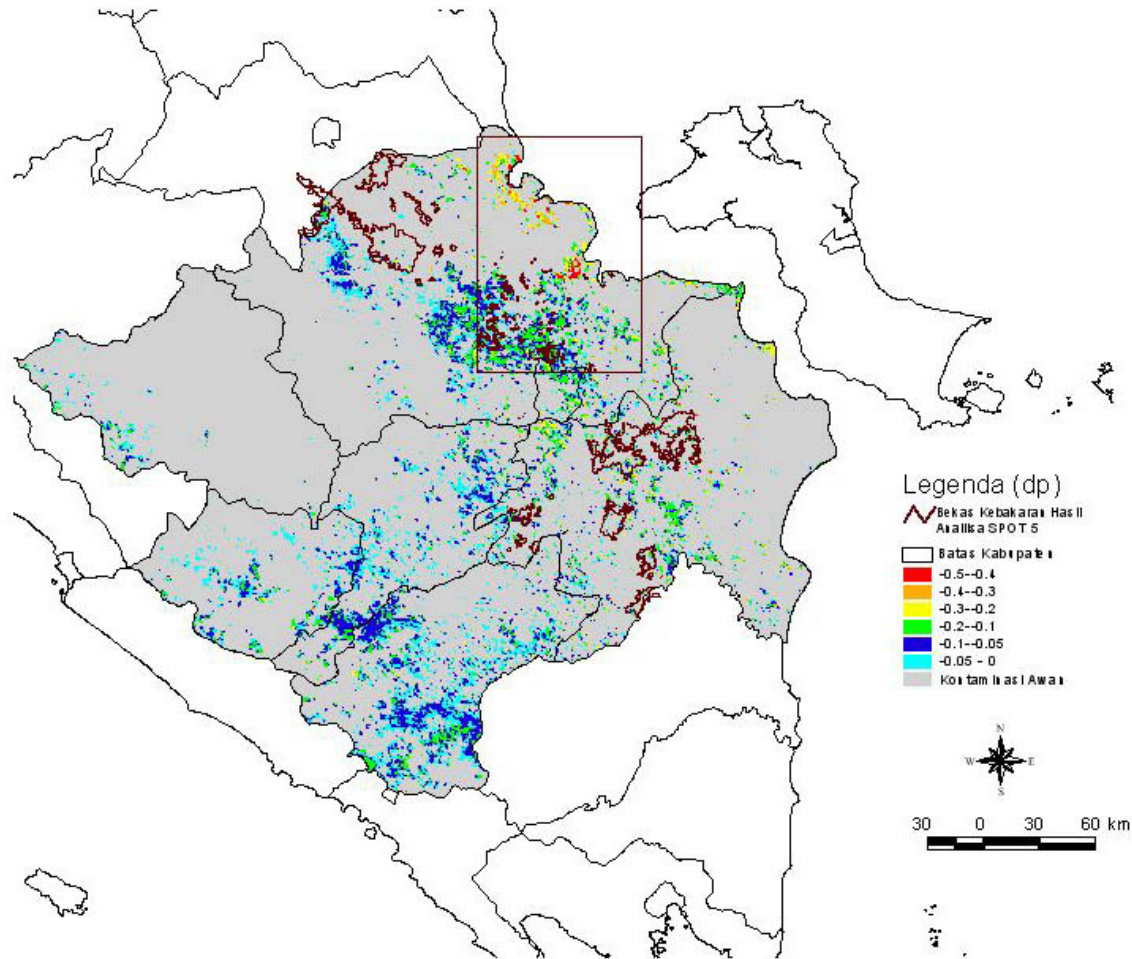
Aqua MODIS - 13 Oct 2004

Mean 12-hour Concentration - Re-Analysis 19970927 00 UTC



Burned Scar Mapping

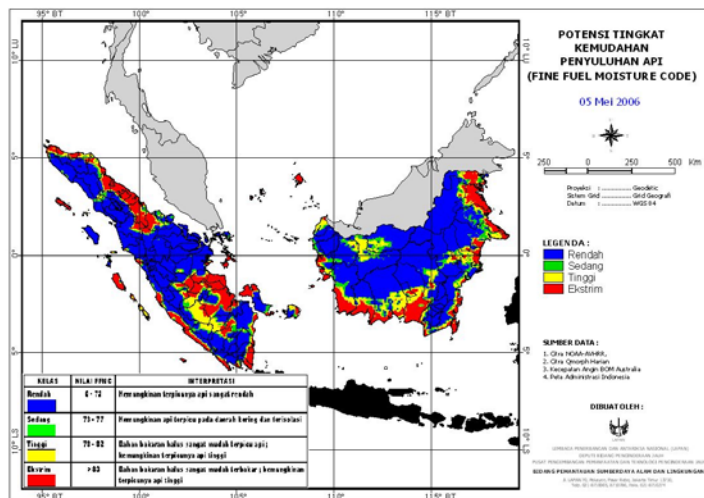
PERBEDAAN REFLEKTANSI DATA SEBELUM (2 SEPT 2004) DAN SESUDAH KEBAKARAN (7 SEPT 2004) (Hasil Perhitungan Persamaan 1)



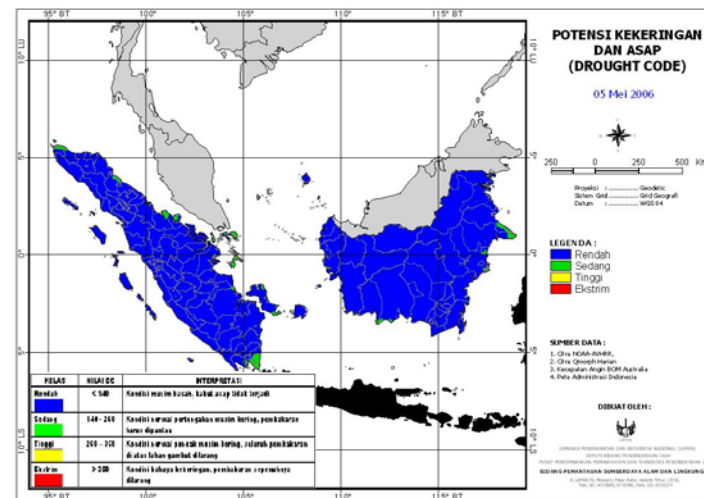
Fire Danger Rating System Monitoring



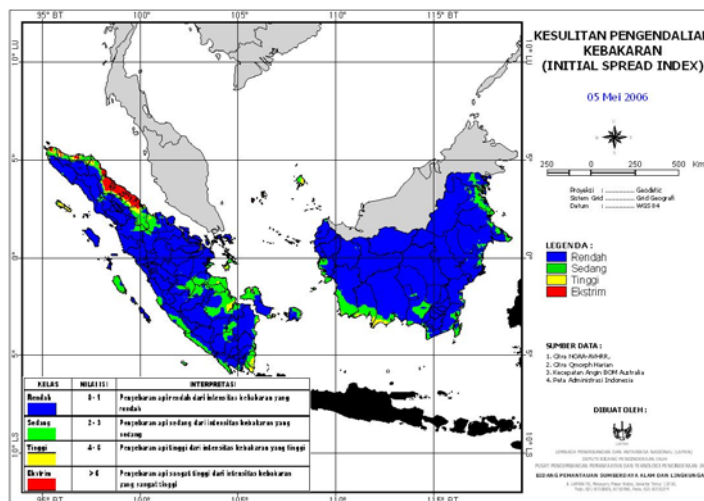
IGNITION POTENTIAL



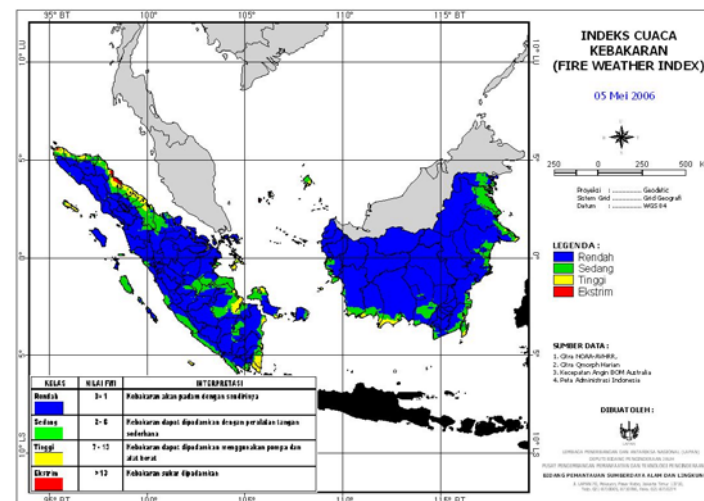
DROUGHT AND SMOKE POTENTIAL



DIFFICULTY OF CONTROL



FIRE WEATHER INDEX

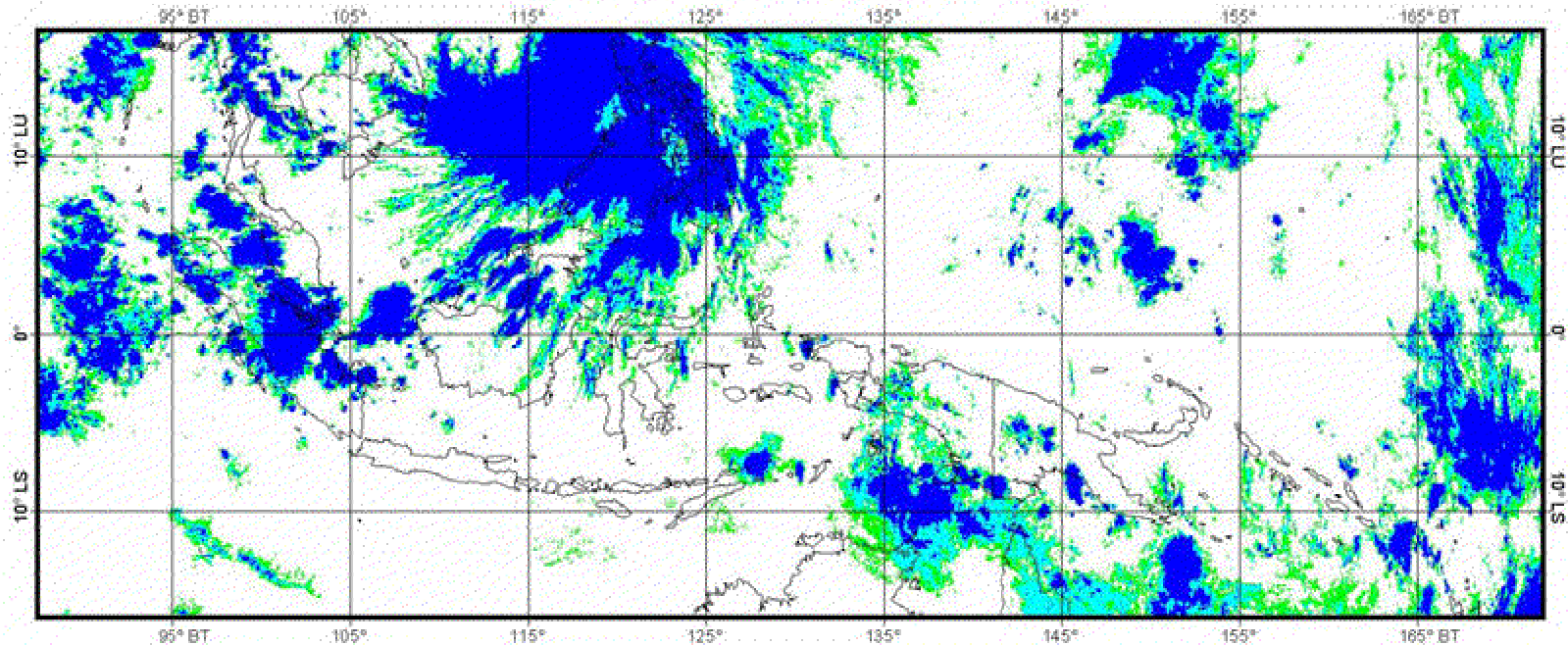


Rainfall Estimation Monitoring







INFORMASI SPASIAL LIPUTAN AWAN DAN PELUANG HUJAN

Tanggal 13 Mei 2006, Pkl. 16.00 WIB



LEGENDA :

Peluang Hujan :

-  Hujan Lebat
-  Hujan Sedang
-  Hujan Gerimis
-  Cerah

SUMBER DATA :

1. Data Inderaja : GOES-9
2. Atlas Dunia



Proyeksi : Geodetic
Sistem Grid : Grid Geografi
Datum : WGS 84

DIBUAT OLEH :



LEMBAGA PENERBANGAN DAN ANTARIKSA NASIONAL (LAPAN)

DEPUTI BIDANG PENGINDERAAN JALH

PUSAT PENGEMBANGAN PEMANFAATAN DAN TEKNOLOGI PENGINDERAAN JALH

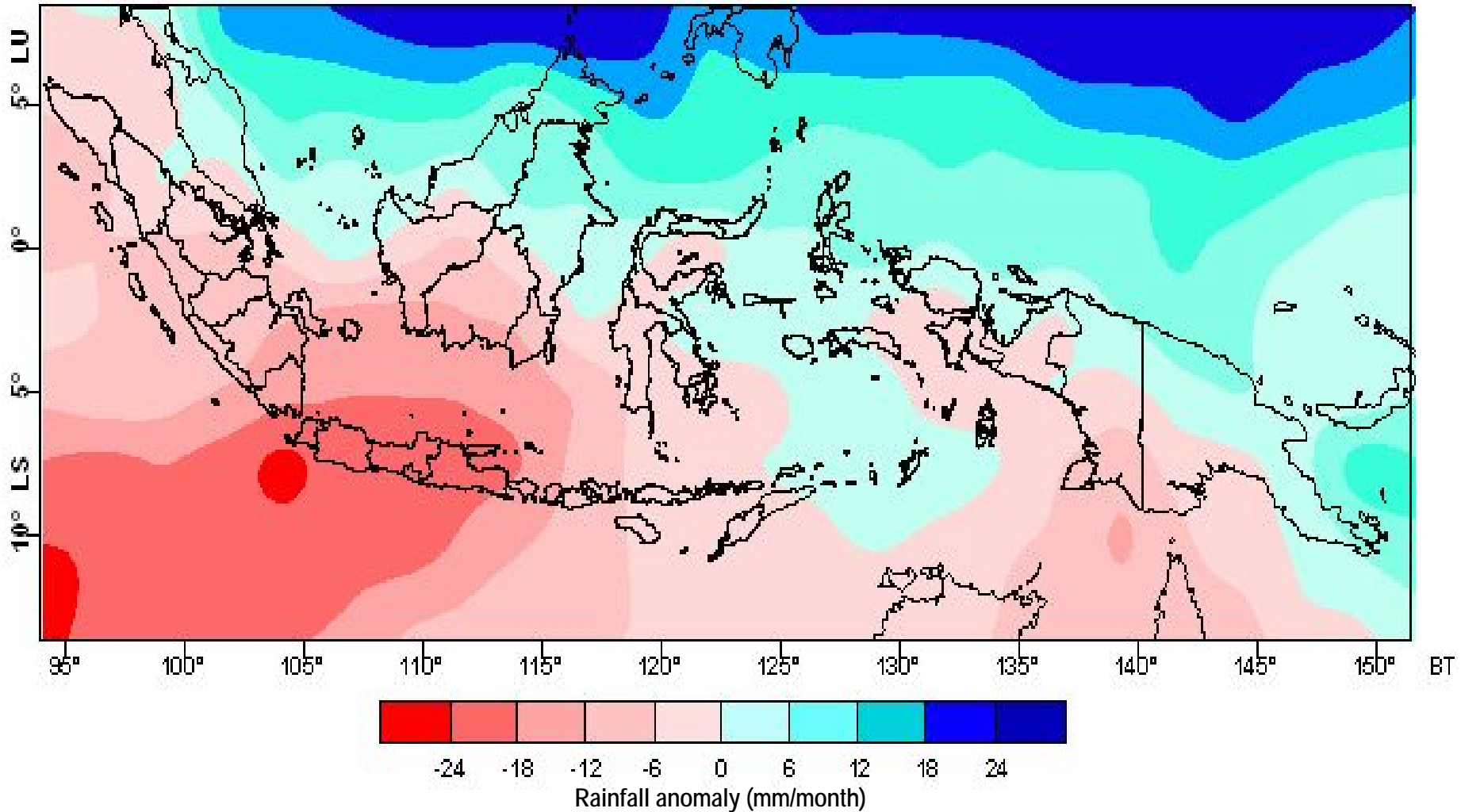
BIDANG PEMANTAUAN SUMBERDAYA ALAM DAN LINGKUNGAN

Jl. LAPAN 70, Pekayon, Pasar Rebo, Jakarta Timur 13710, Telp.: 021-8710065, 8710786, Faks.: 021-8710274

Rainfall Estimation Prediction



Rainfall Anomaly Prediction – May 2006



REPORT SEND TO:

- Ministry of Forestry
- Ministry of Environment
- Ministry of Agriculture
- Ministry of Research and Technology
- Meteorology and Geophysics Agency
- Coordinating Agency for Disaster Management
- Provinces and Districts
- NGOs
- Timber Company
- Other related agencies

<http://www.rs.lapan.go.id/SIMBA>



Bahasa Indonesia

Cuaca & Iklim | Bencana Alam | Ketersediaan Pangan | Bencana Alam Lainnya | Basis Data | 19:01:43

Sabtu, 06 Mei 2006

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Titik Panas (Hot Spot)
Daerah Potensi Banjir
Informasi Bulanan:
Cuaca dan Iklim
Sistem Peringkat Bahaya Kebakaran
Titik Panas (Hot Spot)
Tingkat Kehijauan Vegetasi
Daerah Potensi Banjir
Ketersediaan Pangan Padi
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Sistem Informasi untuk Mitigasi Bencana Alam Menggunakan Data Penginderaan Jauh (SIMBA - LAPAN)



- News**
- Merapi, Citra Landsat dan SPOT selengkapnya [New](#)
 - Gunungapi Merapi selengkapnya
 - Banjir dan Longsor di Trenggalek selengkapnya
 - Banjir di Jombang selengkapnya
 - Banjir di Jember dan Banjarnegara selengkapnya
 - Tsunami & Gempa Bumi di Aceh selengkapnya
 - Sebaran Kabut Asap selengkapnya
 - Tanah Longsor selengkapnya
 - Gunung Api selengkapnya

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Concluding Remarks



- Space remote sensing technology has been and will always be applied to support the forest management in Indonesia.
- Taking into account the large extent of the country, space remote sensing technology is considered the most cost effective method.
- Further development of capability in the country to enhance the application of the technology especially for forest management is continuously carried out. International cooperation in this regard is highly appreciated
- However, Indonesia is willing to share its experiences a.o. in the form of training for other developing countries for such applications.

Thank You