Australian Government

Geoscience Australia

Geoscience Australia Support for the International Forest Carbon Initiative (IFCI)

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GEOSCIENCE AUSTRALIA

Geoscience Australia

- Canberra
- Remote sensing
- National mapping
- Advice to government – energy and resources security
- Off-shore marine survey
- Others …

National Earth Observation Group (previously ACRES)

- National Earth Observation Group (NEO)
- Increased focus on scientific use of the data
- Tighter links within Australian government applications
- Reduced role as a ‘data retailer’

IFCI Project Overview

The $200 million International Forest Carbon Initiative (IFCI) is a key part of Australia's Contribution to REDD (Reducing Emissions from Deforestation and forest Degradation), a proposed key component of post 2012 global climate change framework. Supply and management of satellite data over SE Asia is a part of the IFCI project.

IFCI SE Asia Data Project Details

- Purpose: Department of Climate Change (DCC) funded project to support implementation of Global Carbon Monitoring System (GCAS) in SE Asia
- Duration: Feb 2009 - Dec 2010
- Scope: identify, source, purchase and manage EO data over SE Asia, and provide associated scientific / technical advice

IFCI partners #1

- Australian government
  - AusAID
  - Department of Climate Change
  - CSIRO
  - Geoscience Australia
- Clinton Foundation (USA)

IFCI partners #2

- Indonesian government
  - LAPAN
  - Ministry of Forests
  - BAKOSURTANAL
- Papua New Guinea government
- Data suppliers and supporters of REDD/GEOSS
  - GEO
  - CEOS
  - JAXA
  - GISTDA

IFCI / NCAS Approach

- Compares inter-annual and inter-decadal changes in land cover
- Relates this to changes in carbon emission
- Key input is consistently processed Landsat data covering entire countries on annual basis
- Initial emphasis 1997-2008, then 1990-1996
- Coverage gaps in optical data likely to be supplemented by PALSAR and other data

GA Role in IFCI

Negotiation with IGS

- access, pricing, use conditions

Inventory / data acquisition

- metadata, ordering

Data management

- QA, archive, distribute

Technical / scientific support

- workshops, application development

Negotiation with IGS

Achievements:

- Acquired the GLS 2000 data and associated GCP data from the USGS
- Access to GISTDA metadata and browse over Cambodia/Indonesia/Singapore courtesy GISTDA
- Meeting with GISTDA discussed data supply terms, formal agreement being finalised
- Acquired USGS metadata and browse over Indonesia/PNG
- Published GA metadata archive over Indonesia/PNG

Inventory / Data Acquisition

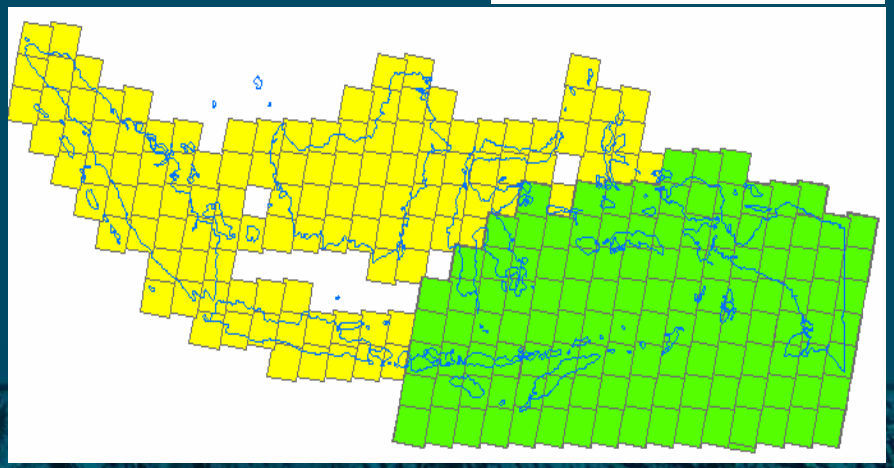
Achievements:

- **Procured L5/L7 browse from IGS archives for 99 to 132, Rows 49 to 69 over potential targets countries using the inventory web service – 153,332 scenes (1997-2008)**
- **GLS2000 data (713 path + ortho) and GCP chips (110,183) acquired from USGS**
- **Extraction of 1990-1996 GA and USGS metadata over PNG / Solomon Islands completed**
- **Procured PALSAR L0 data over AOI**

GA Landsat data over Indonesia (1997 – 2008)

Browse / metadata provided to support DCC / CSIRO workshop in Jakarta (green text in Table).

Pre-2000 browse / metadata (1997,1998 and 1999 TM and 1999 ETM+) delivered (purple text in Table).



Acquisition year	Available scenes	
	TM	ETM+
1997	1940	NA
1998	2124	NA
1999	1914	886
2000	34	2059
2001	No data	2171
2002	No data	2245
2003	1225	1722
2004	2271	2098
2005	2075	2147
2006	2186	2140
2007	1911	2117
2008	2425	2097
TOTAL (available scenes)	18,105	19,682

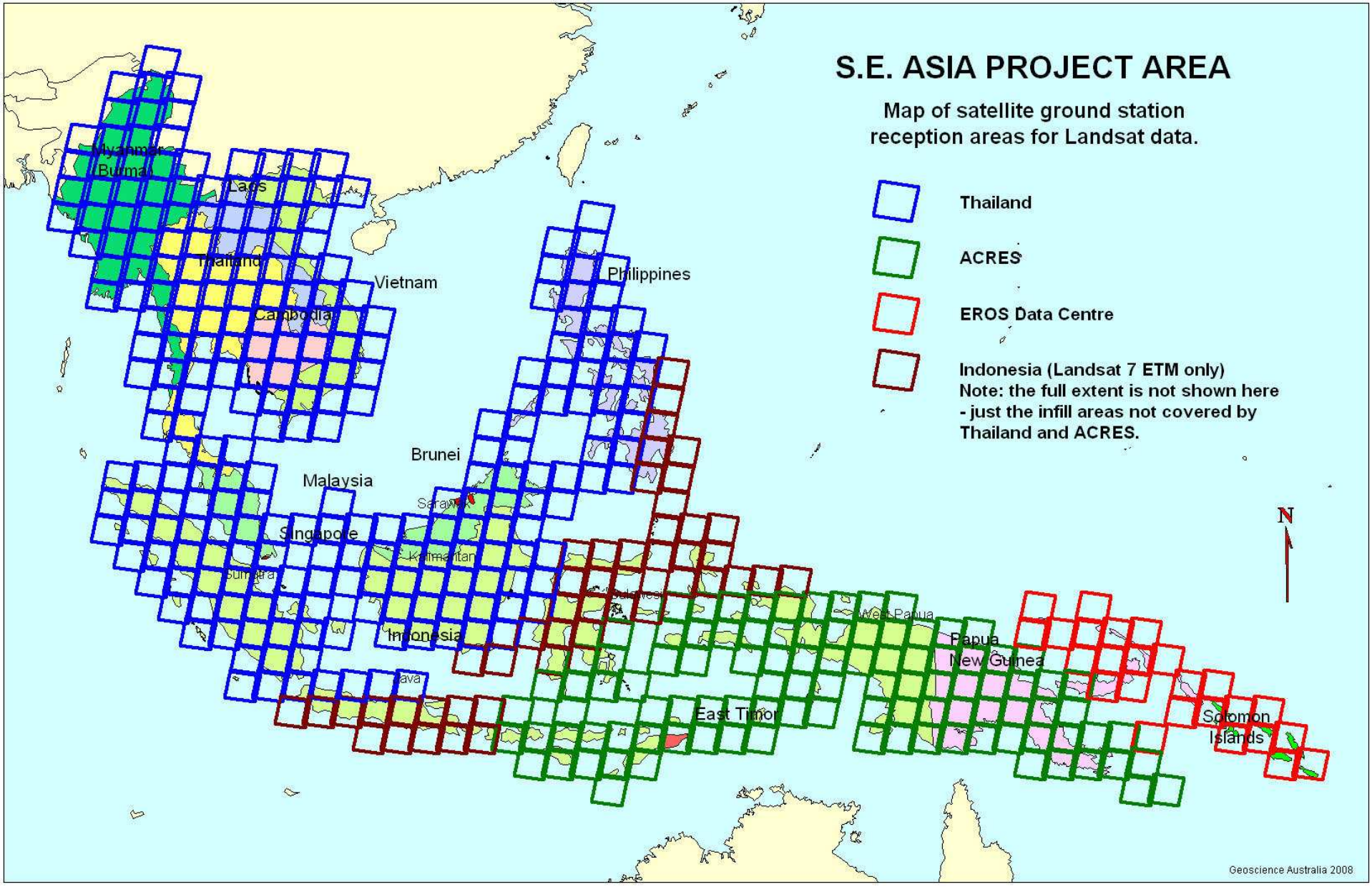
Status of Metadata Procurement

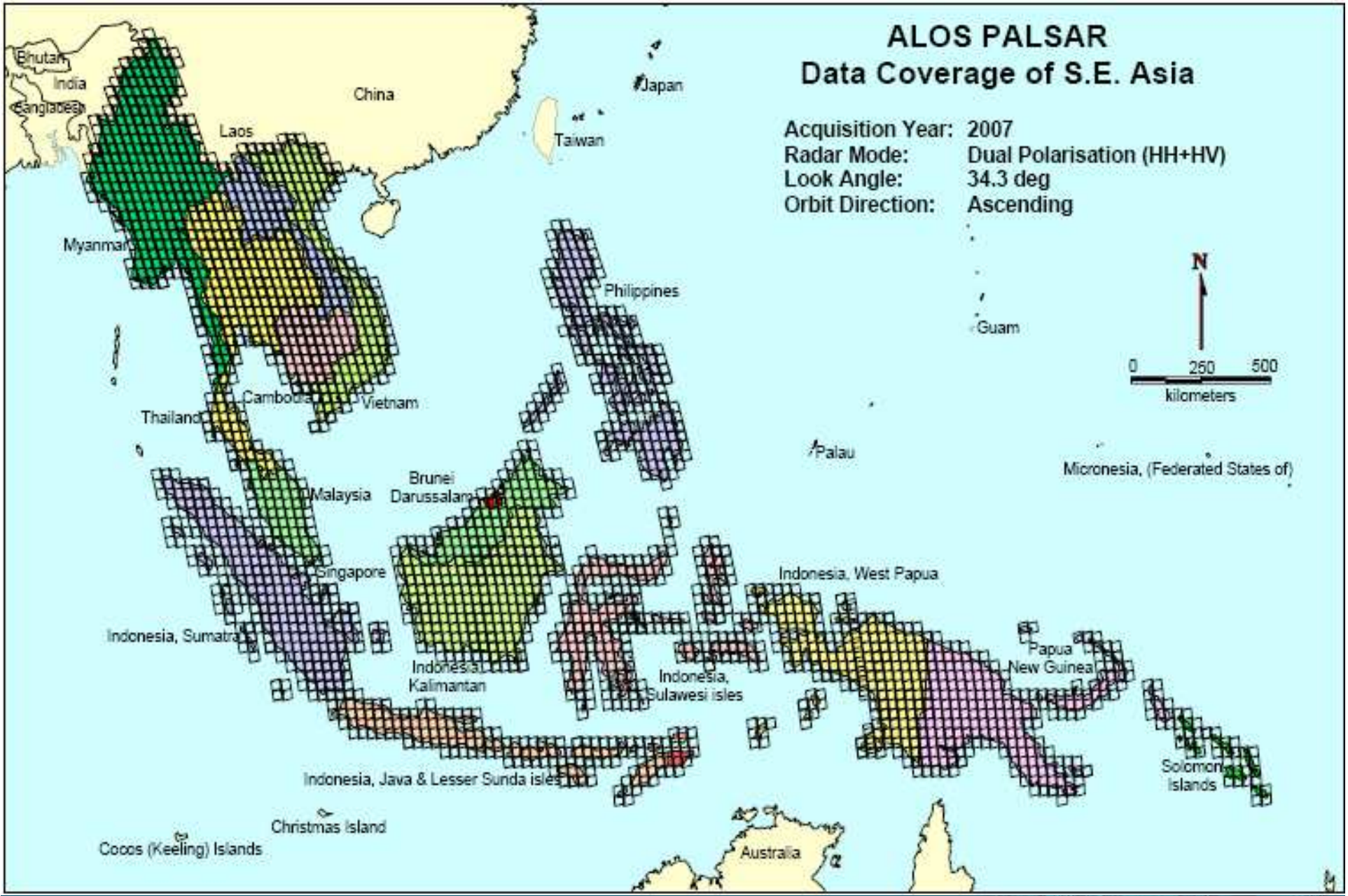
GA (2000 – 2008)	USGS (1997 – 2008)	GISTDA (1997 – 2008)
37,787 supplied to CSIRO + 7,153 (over PNG) to be supplied to CSIRO	15,481 subset over AOI supplied to CSIRO + 37,117 to be supplied to CSIRO	55, 794 subset over AOI supplied to CSIRO
TOTAL: 153,332		

Inventory / Data Acquisition

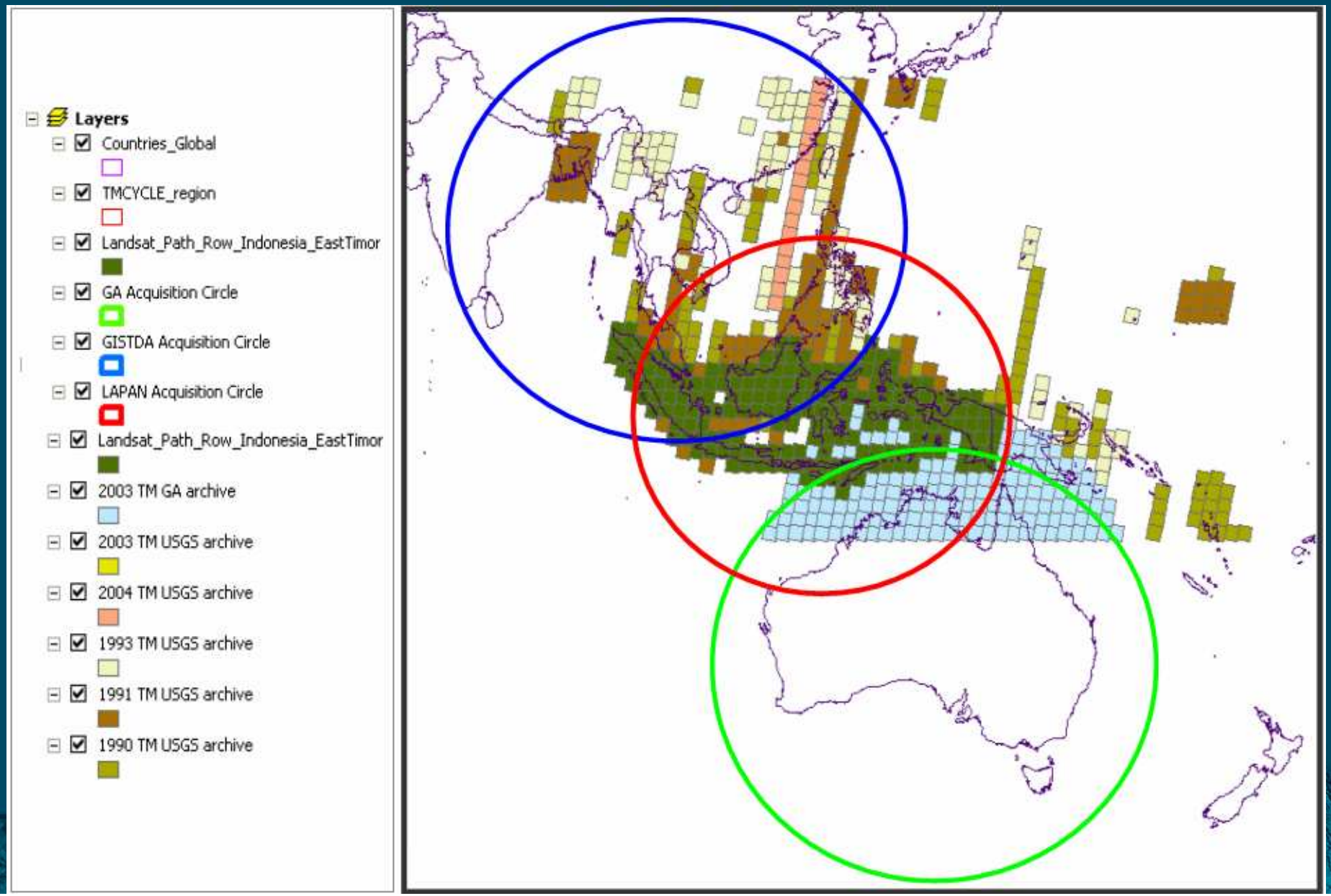
Challenges:

- **USGS inventory web service query returns no TM browse images 1997 to 2002**
- **GA archive has a data gap for TM 2001 and 2002 (stopped TM acquisition)**
- **Gap filling strategy ?**


S.E. ASIA PROJECT AREA
Map of satellite ground station reception areas for Landsat data.
Thailand
ACRES
EROS Data Centre
Indonesia (Landsat 7 ETM only)
Note: the full extent is not shown here - just the infill areas not covered by Thailand and ACRES.
N
Myanmar (Burma)
Laos
Thailand
Vietnam
Cambodia
Philippines
Brunei
Malaysia
Sarawak
Singapore
Kalimantan
Sumatra
Indonesia
Java
West Papua
Papua New Guinea
East Timor
Solomon Islands
Geoscience Australia 2008


ALOS PALSAR
Data Coverage of S.E. Asia
Acquisition Year: 2007
Radar Mode: Dual Polarisation (HH+HV)
Look Angle: 34.3 deg
Orbit Direction: Ascending
N
0 250 500
kilometers
Bhutan
India
Bangladesh
China
Japan
Taiwan
Laos
Myanmar
Philippines
Guam
Thailand
Cambodia
Vietnam
Palau
Micronesia, (Federated States of)
Brunei Darussalam
Malaysia
Singapore
Indonesia, West Papua
Indonesia, Sumatra
Indonesia, Kalimantan
Indonesia, Sulawesi isles
Papua New Guinea
Solomon Islands
Indonesia, Java & Lesser Sunda isles
Christmas Island
Cocos (Keeling) Islands
Australia

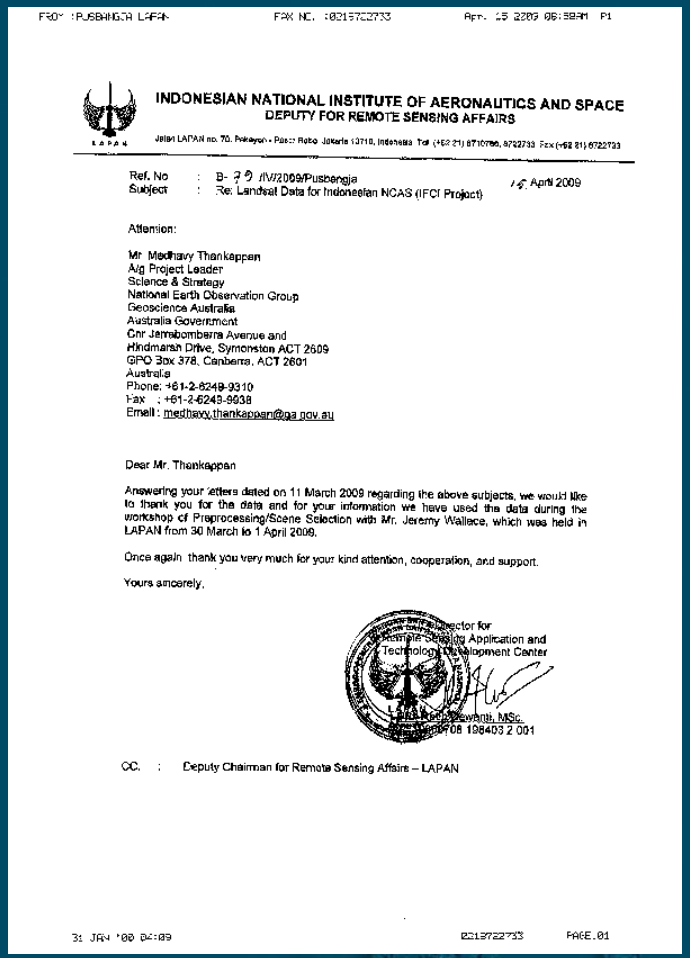
Acquisition Areas by GA LAPAN GISTDA



Data Management

Achievements:

- Creative Commons Licence developed for GA/USGS products
- GLS 2000 coverage [315 ortho and 398 path] delivered to LAPAN, Bakosurtanal, CSIRO
- 44 GLS 2000 ortho scenes delivered to Bakosurtanal and CSIRO (training w/shop)
- Fourth order from CSIRO received data supplied to LAPAN w/shop



FROM :PUSBINGSA LAPAN FAX NO. :0215722733 Apr. 15 2009 08:58AM P1

INDONESIAN NATIONAL INSTITUTE OF AERONAUTICS AND SPACE
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Ref. No : B- 29 /IM/2009/Pusbangja 15 April 2009
Subject : Re: Landsat Data for Indonesian NCAS (IFCI Project)

Attention:

Mr. Medhavy Thankappan
Alg Project Leader
Science & Strategy
National Earth Observation Group
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Dear Mr. Thankappan

Answering your letters dated on 11 March 2009 regarding the above subjects, we would like to thank you for the data and for your information we have used the data during the workshop of Preprocessing/Scene Selection with Mr. Jeremy Wallace, which was held in LAPAN from 30 March to 1 April 2009.

Once again thank you very much for your kind attention, cooperation, and support.

Yours sincerely,

[illegible]ector for
[illegible]Sensing Application and
Technology Development Center

[illegible]wanti, MSc.
NIP. 19[illegible]

CC. : Deputy Chairman for Remote Sensing Affairs – LAPAN

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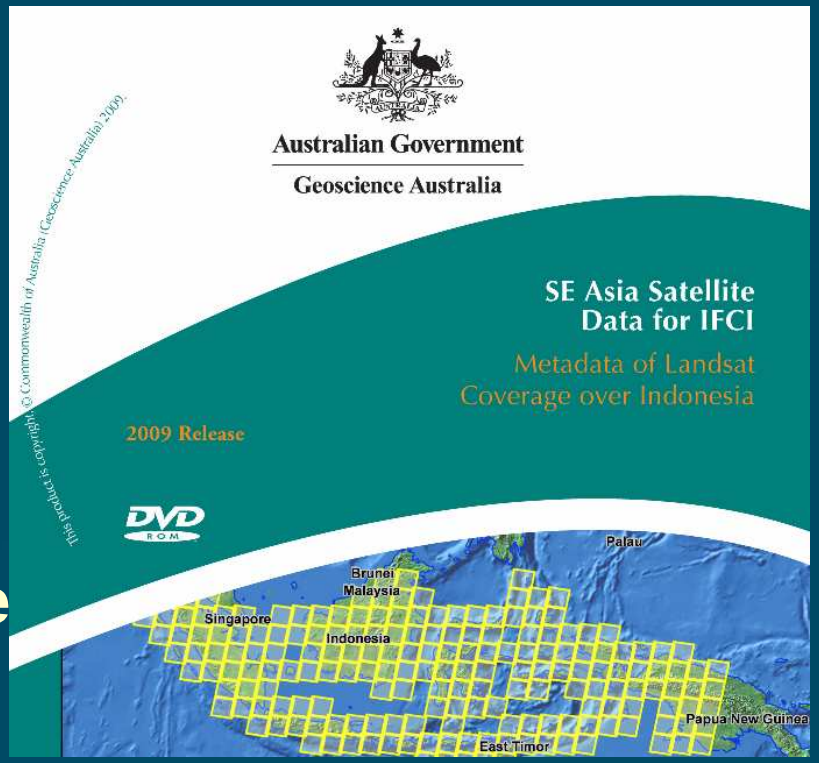
Technical / Scientific Support

Achievements:

- Methodology for creating consistent metadata (from different IGS) for input to GIS
- Automated search and extraction of browse and metadata from GA and USGS archives
- Scripts for GIS-enabled browse generation from IGS metadata
- QA process identified and corrected anomalies in GLS 2000 GCP chips



Future Opportunities

- Upcoming national coverages
  - Cambodia, Tanzania, PNG, Solomon Islands
- Automatic cloud cover assessment
- SAR related tasks


Thank you
Questions?