

The ALOS logo is displayed in a large, white, serif font against a background of a satellite image showing a river delta and surrounding land.

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K&C Phase 3 – Brief project essentials

Use of ALOS PALSAR data for supporting forest carbon tracking in Sumatra island: Collaborative research between LAPAN and JAXA

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Science Team meeting #17 – Phase 3 Kick-off
JAXA TKSC/RESTEC HQ, Tsukuba/Tokyo, March 27-29, 2012

Project objectives

To conduct the collaborative research on the use of ALOS PALSAR archives and the verification dataset in Sumatra island through:

- the development of forest carbon tracking modellings
- capacity building
- data sharing
- ground-truth experiments
- information production
- workshop/seminar

The objective of this activity would synchronize with that of the **Group on Earth Observations Forest Carbon Tracking (GEO FCT)** initiative, particularly to support **forest carbon Measurement, Reporting, and Verification (MRV) system** for national REDD+ implementation.

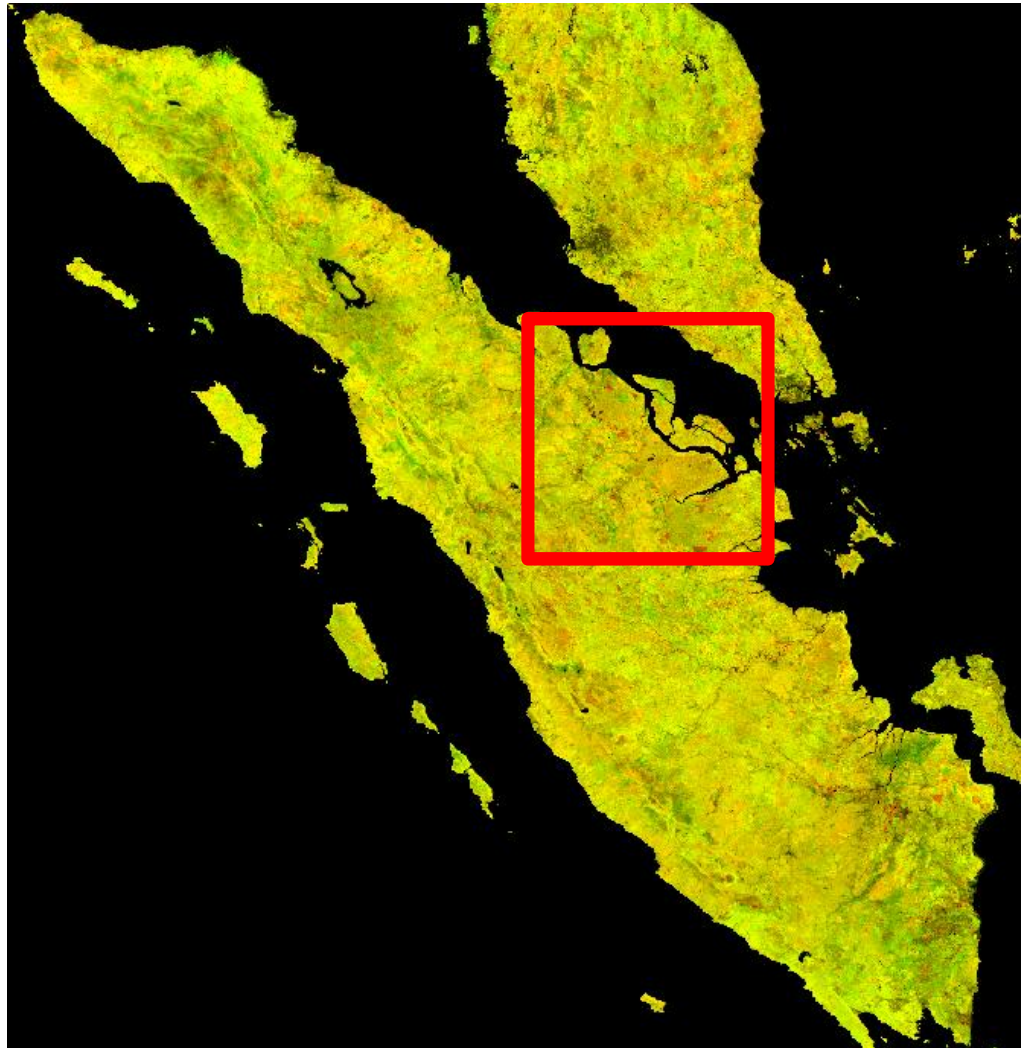
Area of Interest



- Geographic location: Sumatra island
- Local site(s):
 - Riau Pelalawan (0.0N, 102.00E)

DEFORESTATION IN SUMATERA 2009-2010

Using EVI MODIS



EVI Composite :

-Red : EVI 08-2009

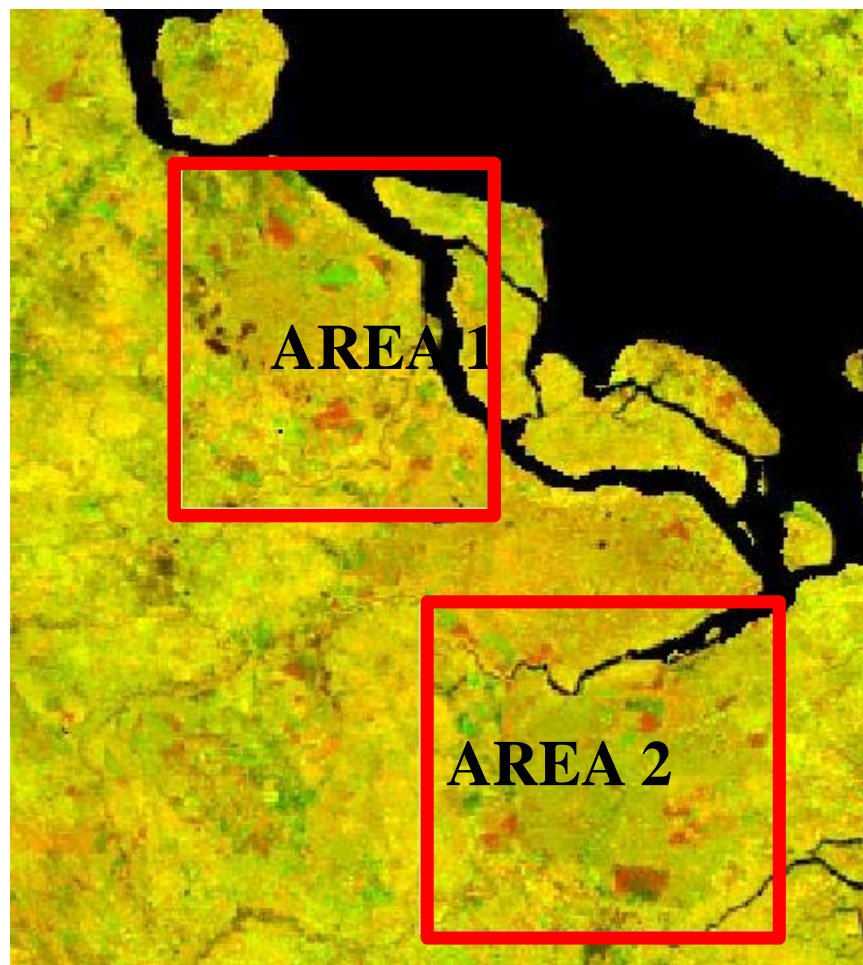
-Gre : EVI 08-2010



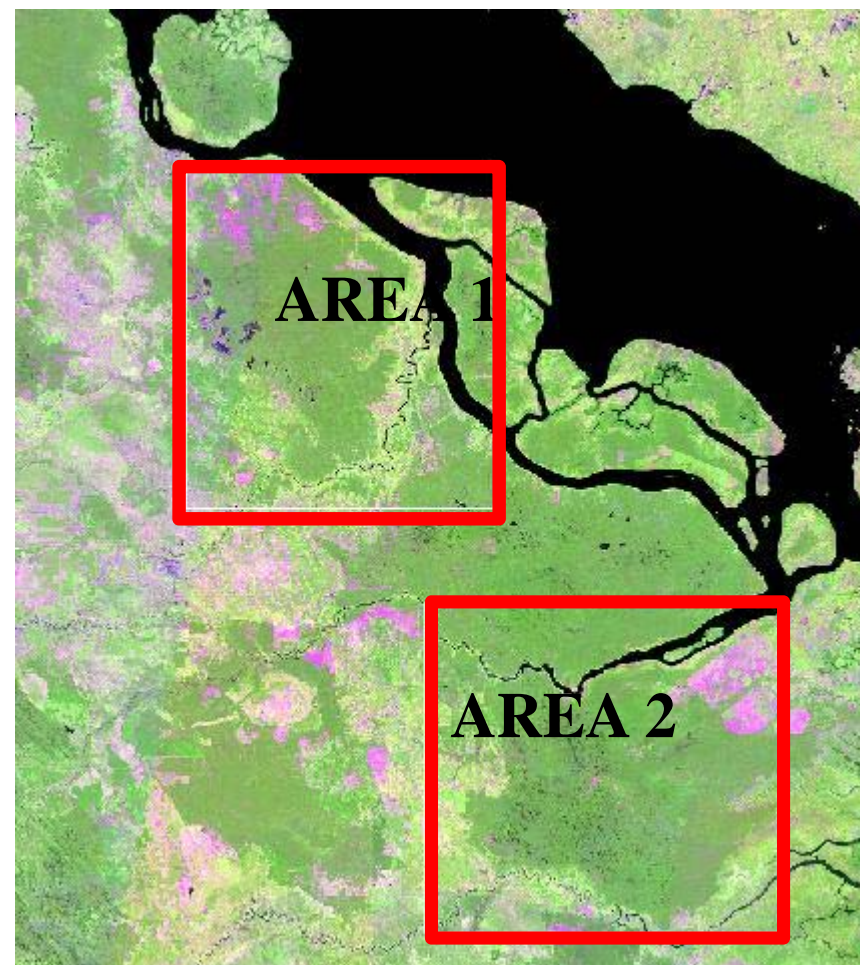
Area with biggest
Deforestation in 2009-2010

Note:

**Red indicate Deforestation
(Decrease of EVI)**



AREA 1 : 101.49,1.64 -102.35, 0.68,



AREA 2 : 102.15,0.41 -103.15,-0.51

Note : FIRST PRIORITY FOR TERRASAR-X DATA IS AREA 1 → Deforestation area

Project schedule

- **June-December 2011:** the preparation phase, which covers the coordination meetings, data inventories, software development and improvements, and hardware preparation.
- **January-December 2012:** the implementation phase-1, which covers the trainings, operational for ALOS PALSAR processing and classification, and ground-truth experiments.
- **January-December 2013:** the implementation phase-2, which covers result analysis and interpretation, accuracy assessment, and workshop/seminar.

Implementation of phase-1 (Preparation)

1. Training Classification of ALOS Palsar Data using Subspace Method

- Location: RESTEC, Japan
- Time: March 26th, 2012

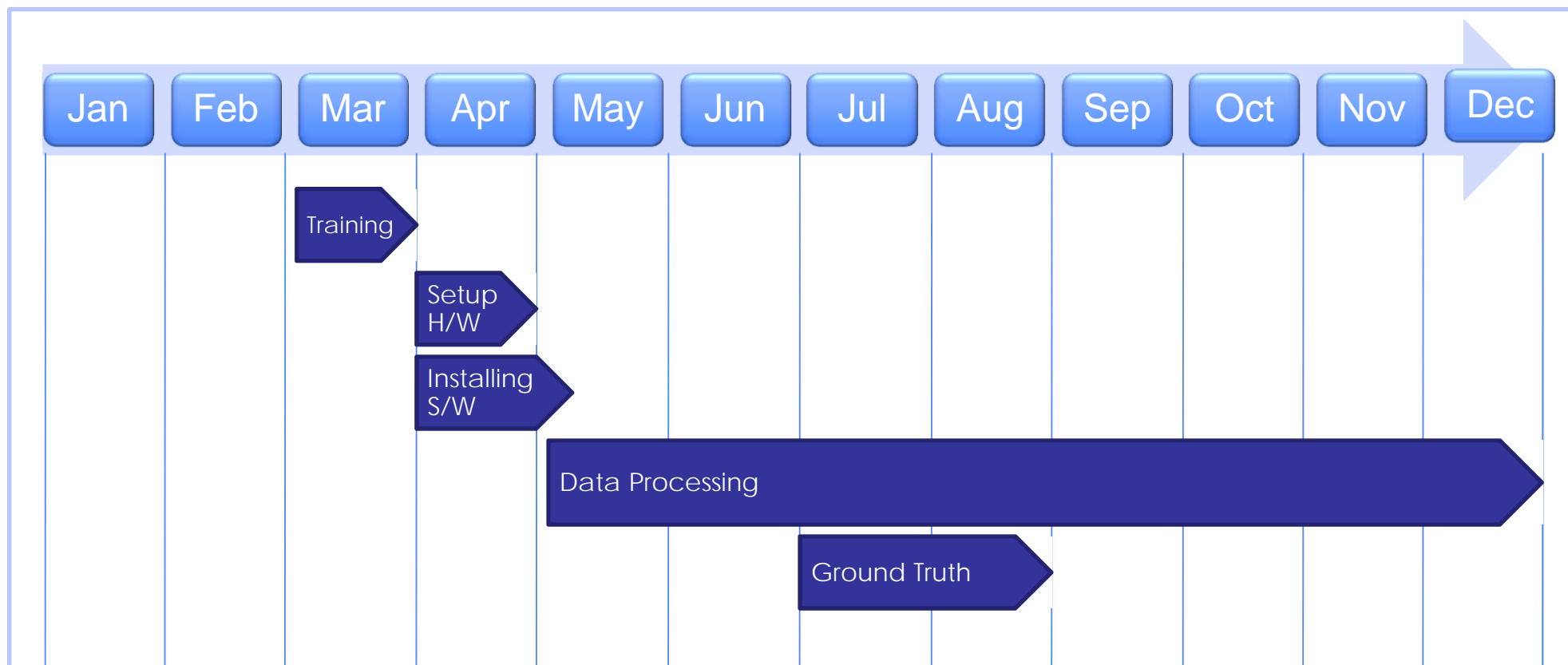
2. Operational ALOS PALSAR Process & Classification

- Obtaining Data: ALOS PALSAR
- Obtaining Classification Software
- Preparation in LAPAN
 - Setup Hardware (April)
 - Installing Software Classification (April)

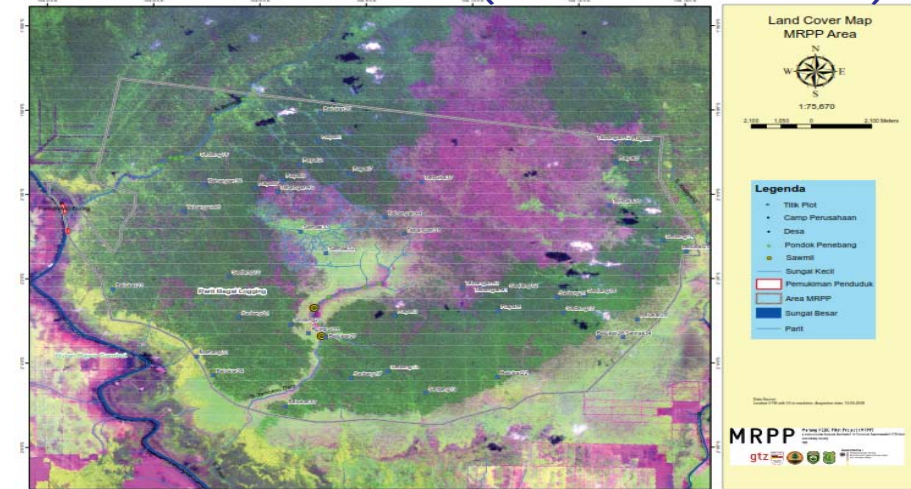
3. Ground Truth

Propose on dry season (July-August), adjusting to JAXA-schedule (?)

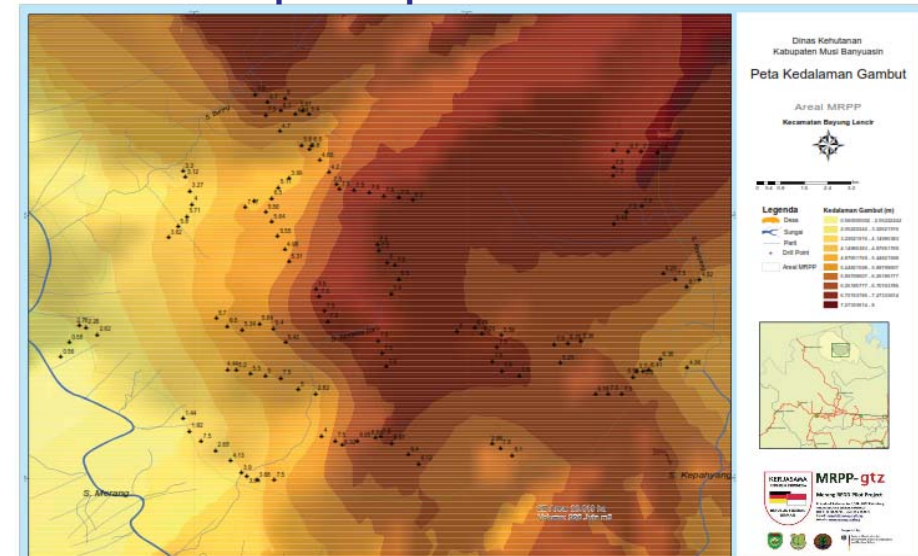
Schedule 2012



Land cover of MRPP area (source: Landsat 2008)



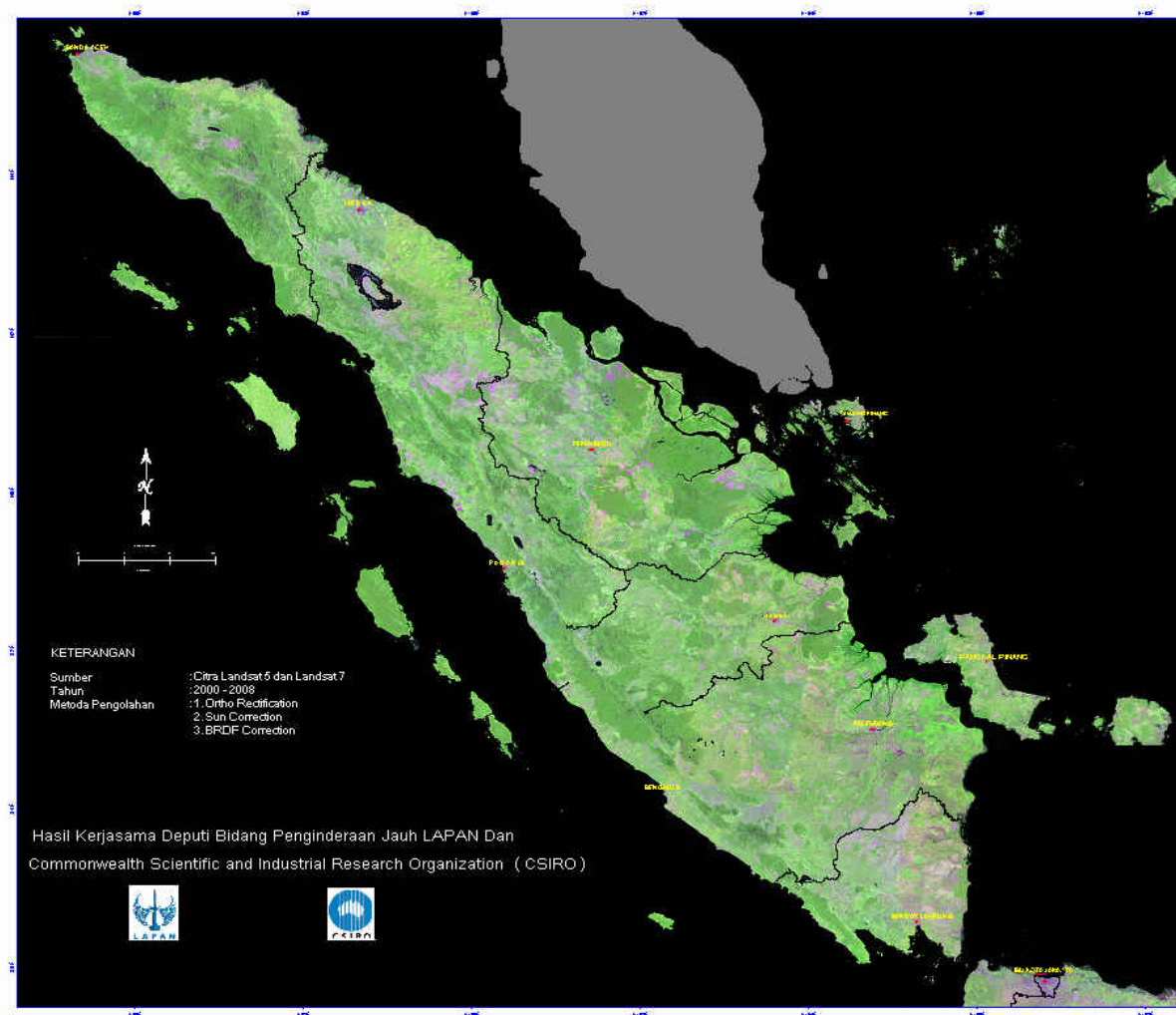
Depth of peat of MRPP area



The ground-based data that will be shared with JAXA are expected to be obtained from the local government offices in Sumatra and the Merang REDD Pilot Project (MRPP) activity in South Sumatra.

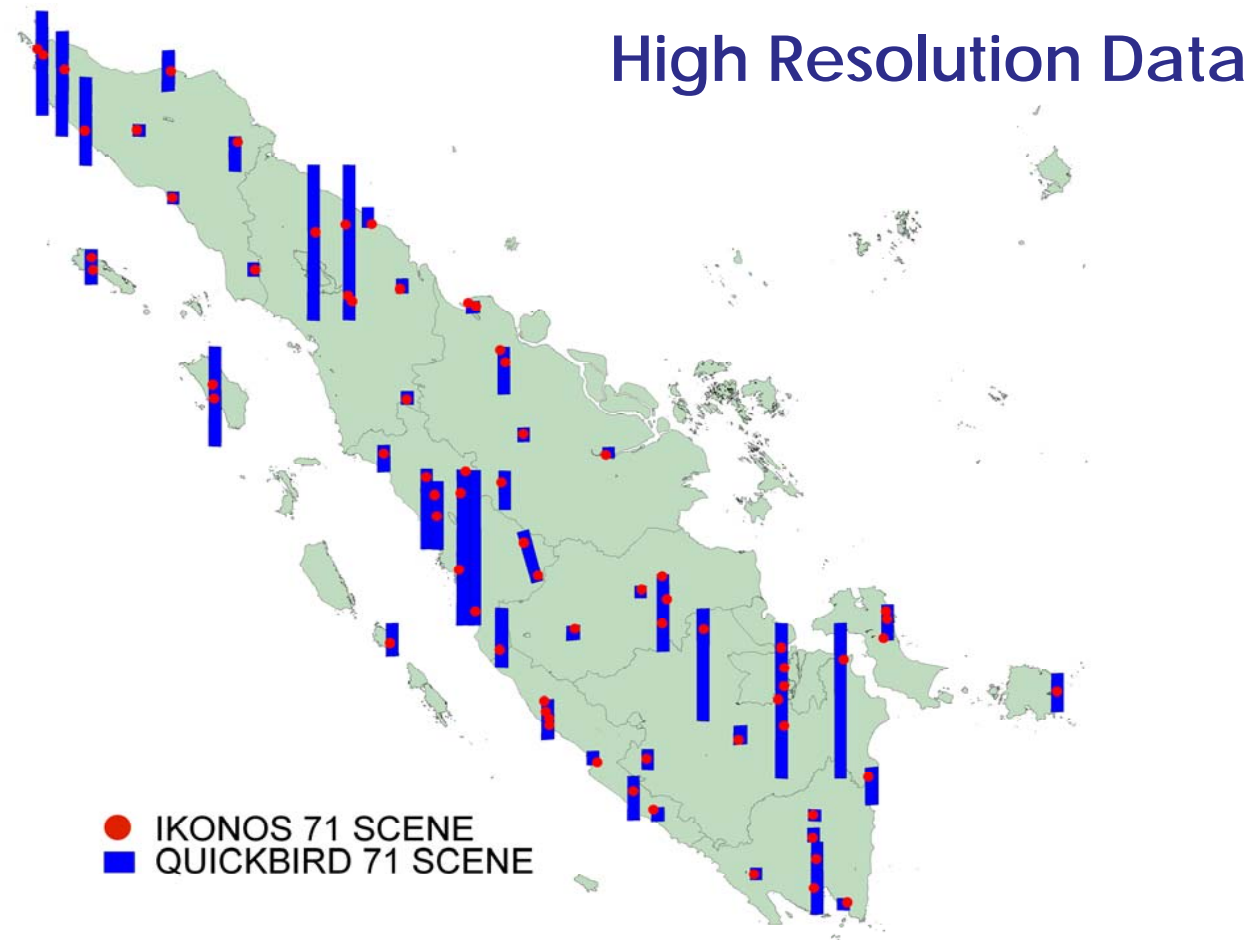
Reference data for training sample selection & validation (1)

MOSAİK CITRA LANDSAT SUMATERA



- INCAS data classification of Sumatra area is available with two classes (forest & non-forest), can it be used as references?
- Specification: Landsat-5 and 7, 25m resolution, 2000 – 2009, Landsat Global Land Survey (GLS 2000) geo-referenced
- Processing: Ortho-rectification, Radiometric correction, Cloud-masking, Mosaic

Reference data for training sample selection & validation (2)



Acquisition year of data : 2006- 2009

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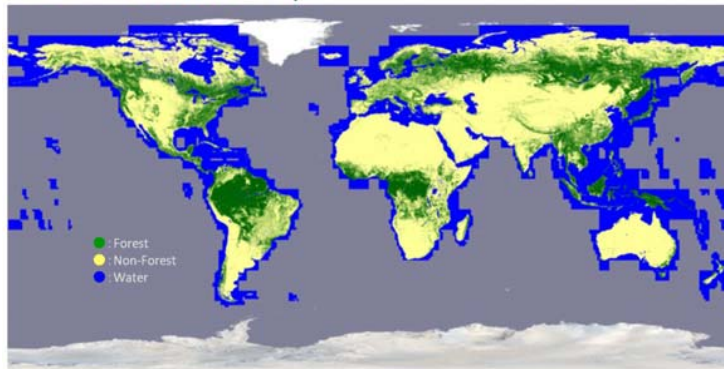
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Reference data for training sample selection & validation (3)

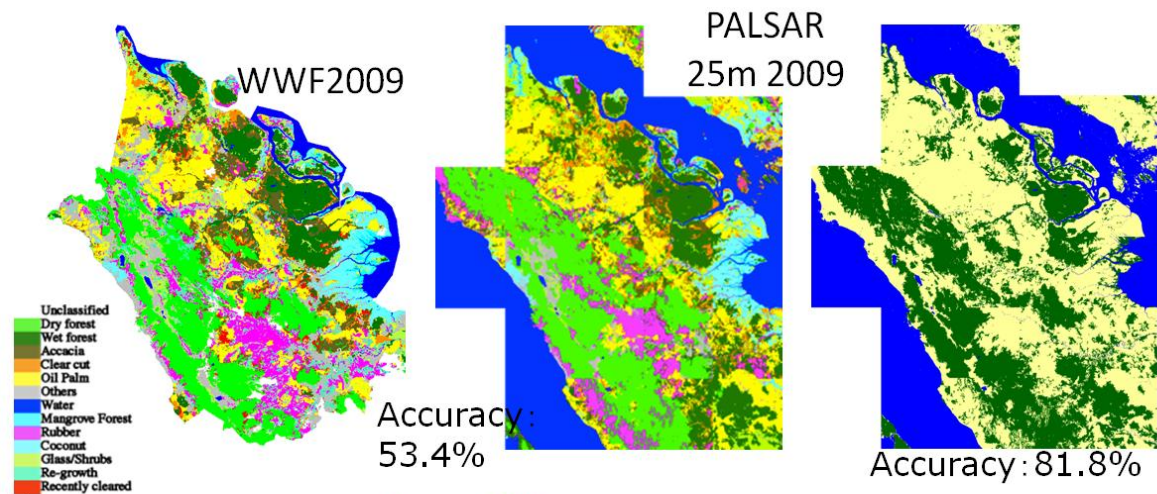
LULC WWF Data for evaluating the classification result (?)

Classification Result WWF x PALSAR: Level slicing

PALSAR 10m Mosaic 2009
Forest/Non-Forest Map



Source: JAXA EORC



	PALSAR												
	Dry forest	Wet forest	Acacia	Clear cut	Oil Palm	Others	Water	Mangrove Forest	Rubber	Coconut	Glass/Shrubs	Re-growth	Recently cleared
Unclassified	48068215	1267173	758838	271861	519161	700425	4215	0	3956484	20731	267852	72796	0
Dry forest	187814	25158965	1169816	331465	308130	95511	25039	59890	827290	541034	1321873	48557	0
Wet forest	1157100	1437906	5192970	2551845	2541855	401995	374	3485	318866	213257	618357	231043	0
Acacia	542877	595152	2257746	3001140	3844018	392105	3410	53091	129453	262936	1354661	93338	0
Clear cut	993079	716068	2747387	2228010	26605482	1386181	7263	44026	854332	1669949	1464807	332114	0
Oil Palm	4047207	2432744	2768740	2540739	7359604	6674494	116048	337363	2183528	1386101	1871929	212234	0
Others	30069	66688	77751	341857	157403	98893	15759487	158943	33694	49975	67257	15861	0
Water	3760	99812	132928	97974	208843	64017	78918	132021	9390561	379010	889242	103716	0
Mangrove Forest	7641452	3107459	1551545	1041891	2037924	1227893	30614	854110	74803	8011141	460408	0	0
Rubber	18020	195909	71349	443061	1023019	211561	31876	488996	660829	1516446	4004802	123155	0
Coconut	3778262	2192830	1615517	2516370	2922684	1407768	65847	164653	2252211	261170	600778	73506	0
Glass/Shrubs	4920780	2779398	994716	959781	1214252	610292	29156	18158	359325	320398	583149	35973	0
Re-growth	1297462	642036	783490	727178	1517900	811738	26270	4498%	44.58%	50.93%	29.02%	5.48%	0.00%
Recently cleared	66.13%	61.83%	25.81%	17.00%	52.41%	47.40%	97.41%	44.98%	44.58%	50.93%	29.02%	5.48%	0.00%

Deliverables

- Validated products of the annual forest/non-forest change of Sumatra island.
- Annual Land Use/Land Use Change and Forestry (LULUCF) of Sumatra island for 2007-2010.

A horizontal banner at the top of the slide featuring satellite imagery of a river delta. The word "ALOS" is written in white serif font on the left side of the banner.

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THANK YOU

The banner features a satellite image of a river delta or coastal region, with land in shades of green and yellow and water in blue. The word "ALOS" is written in large, white, serif capital letters on the left side.

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Overview of QA process conducted by INCAS in LAPAN

