•JAXA REDD+ project and relationship to KC-3 project

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Background of JAXA REDD+ project

- JAXA developed the highly speed global SAR imaging and mosaicking processor using the multi core processors and the parallel disk controlling system on May 2010.

- After the fine tuning of the hardware and software routines, JAXA started the production of the 10m-resolution SAR mosaic and forest/non-forest dataset on June 2010.
- JAXA generated the first 10m resolution global mosaic of 2009 on Oct. 21, 2010.
- JAXA will continue to produce the global 10m resolution PALSAR and JERS-1 SAR mosaic after 2009 Dec.

JAXA’s goal of the REDD+ activity

Japanese Government initiate the REDD+ project using the satellite data.

Following to this,

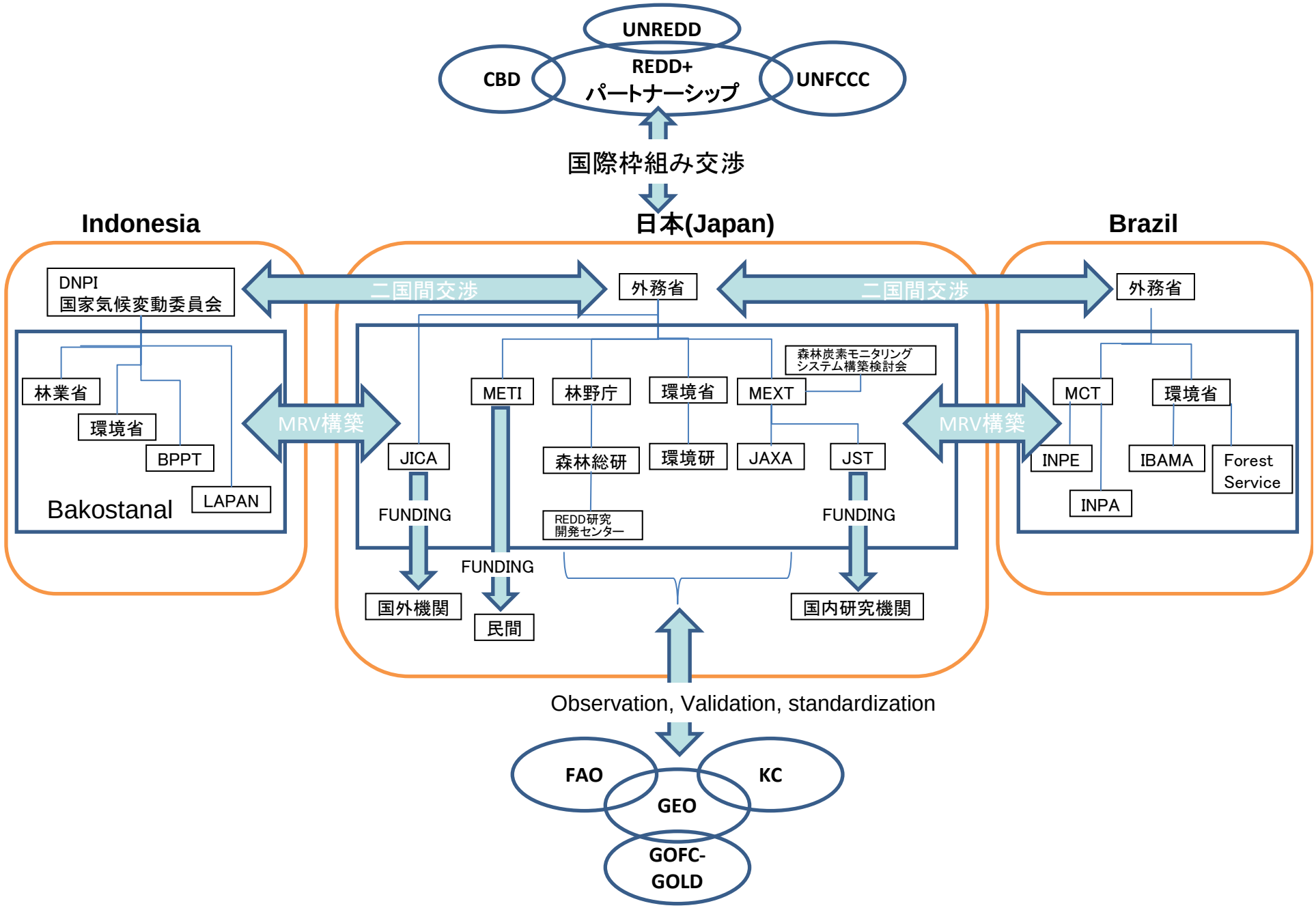
- Establishment of MRV system using L-band SAR and its validation at Indonesia and Brazil mainly. Establishment of the monitoring system for the global earth.

- Experimental application of the REDD+ as the bilateral relation.

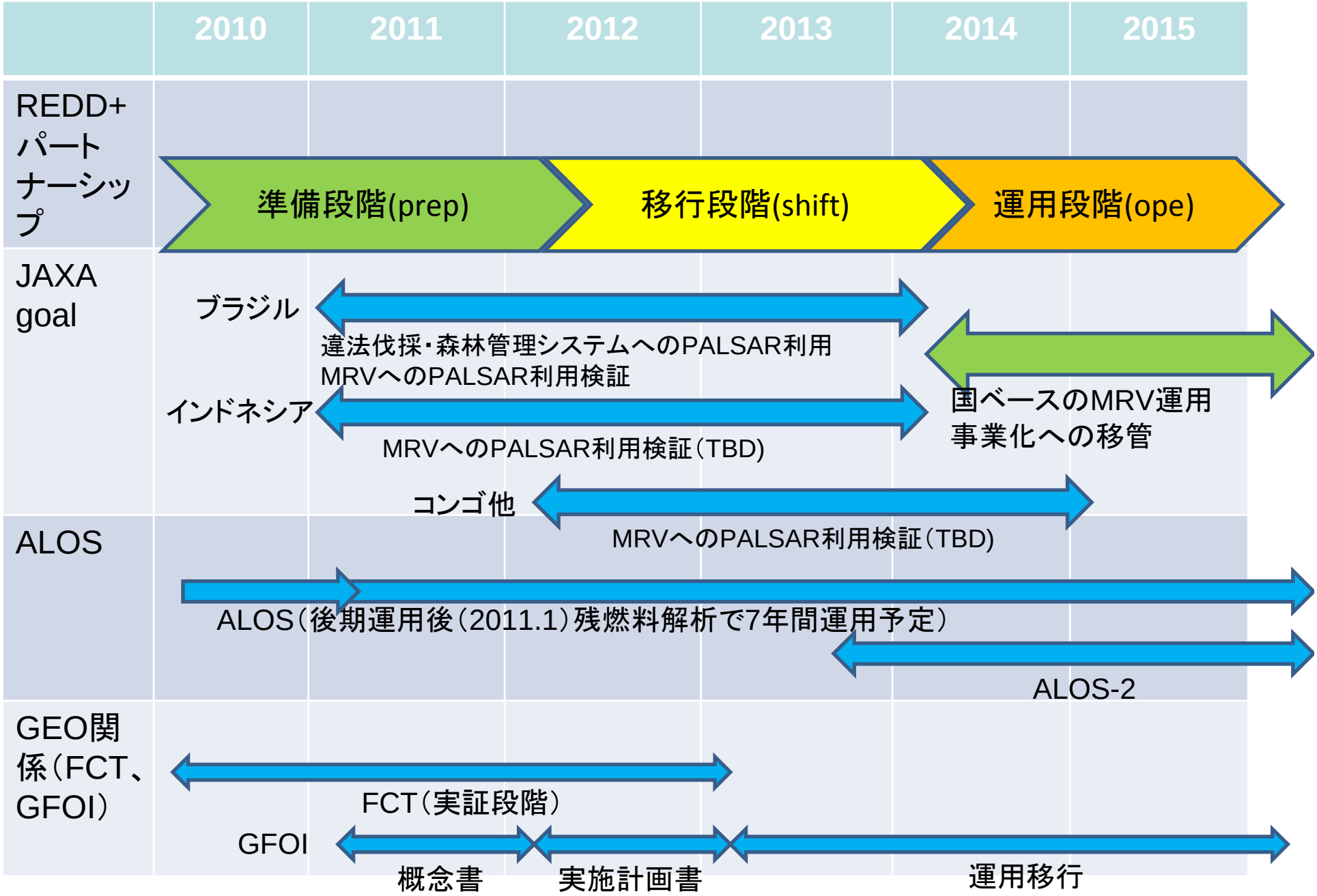
Objectives

- Generation of the global SAR mosaics (25m and 10m for partial areas) from 1990s.
- Development of geophysical parameter estimation algorithms (forest/non-forest, forest classification, biomasmap and their annual changes)
- Ground truth dataset for validation and algorithm development. To be collected by JAXA and collaborators (WWF, INPE, KC members, agreement holders). The data are LULUCF, biomass, tree height, breat height etc.
- Generation of the geophysical

Relationships among REDD+



Milestone


2010
2011
2012
2013
2014
2015
REDD+ パートナーシップ
準備段階(prep)
移行段階(shift)
運用段階(ope)
JAXA goal
ブラジル
違法伐採・森林管理システムへのPALSAR利用
MRVへのPALSAR利用検証
国ベースのMRV運用
事業化への移管
インドネシア
MRVへのPALSAR利用検証（TBD)
コンゴ他
MRVへのPALSAR利用検証（TBD)
ALOS
ALOS（後期運用後（2011.1）残燃料解析で7年間運用予定）
ALOS-2
GEO関係（FCT、GFOI）
FCT（実証段階）
GFOI
概念書
実施計画書
運用移行

Product list and the target accuracy

	Accuracy (current)	Accuracy (goal)
Forest/Non-forest	84%	90%
LULUCF	85%	90??
BIOMASS	40%	30%

Algorithm development

We will continue to develop the following algorithms for this purposes

Forest/Non-forest	eCognition: Use multi year SAR mosaics	Pol?
Forest classification	Improve SVM, Least square method	
Biomass	Forest classification and ground truth-> Ground truth (laser)	PolInSAR Pol ?

Basic Product list (PALSAR Mosaic data)

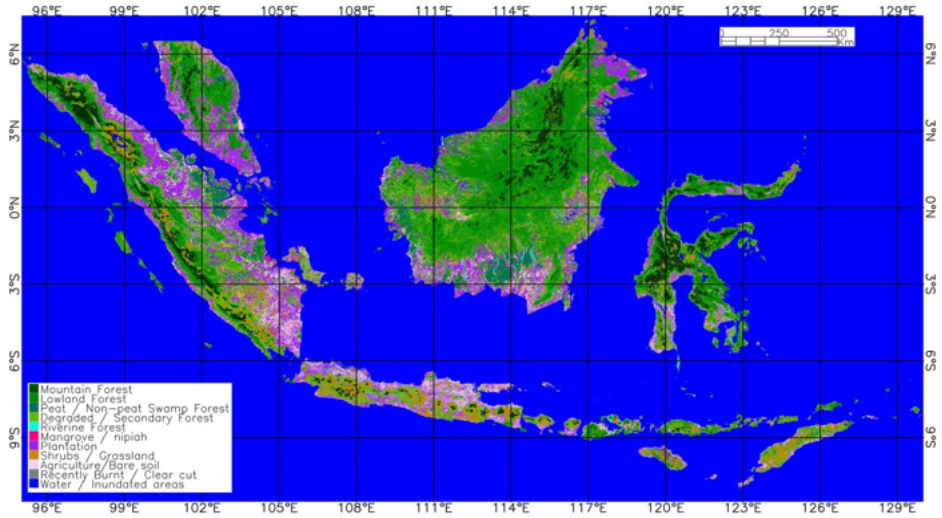
Global mosaic	25 m resolution using the summer season HH-HV-HH/HV Global +- 90 degrees	1/year
Regional mosaic	25 m Tropical belt regions of +-30 degrees for latitudes	Several times/year
Regional mosaic	10m for limited area (Indonesia and Brazil)	1/year

All data are slope-corrected and ortho-rectified gamma-naught data

JFY22	10m global mosaic generation for 1995, 2007, and 2009. Forest/Non-forest map, area change, forest area for each country Switch to 25m resolution mosaic and forest information from 10m data (problem:10m data is too big:30TB per year)
JFY23	25m global mosaic generation for all the years. Forest/Non-forest map, area change, forest area for each country, biomass
JFY24	Update the forest information (version up of the products)

Forest classification
: 83%

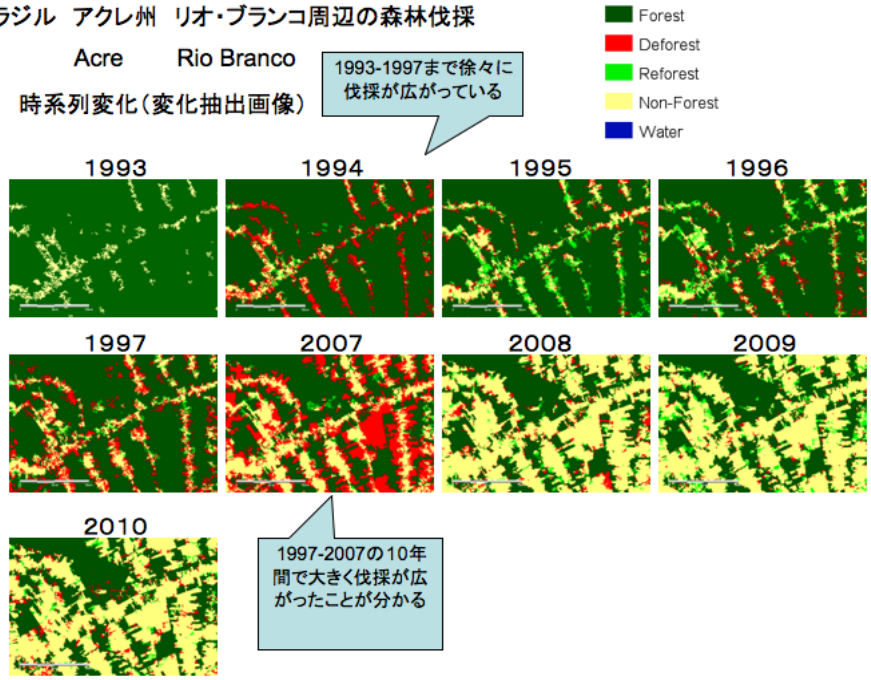
Land cover classification at 50m resolution across the entire Borneo
- Based on FBD PALSAR mosaic available on the internet (2007, 2008, and 2009)
- Methodology based on the Support Vector Machines
- 11 classes discriminated



ブラジル アクレ州 リオ・ブランコ周辺の森林伐採

Acre Rio Branco

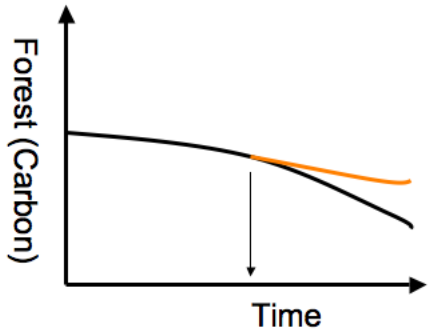
時系列変化（変化抽出画像）



REDD: Reducing the emission from deforestation and the forest degradation.

- Estimation of Forest/Non-forest areas
- Estimation of carbon (CO_2)
- Temporal variation of the above parameters

-> Carbon Credit



Product Validation

•Validate the forest/non-forest product (JAXA needs accuracy assessment of the product)

•Exchanging the PALSAR data (forest product) and ground truth data (and/or evaluated information) between JAXA and the collaborators.

•Potential Collaborators
•KC members (contract is necessary)

- Required Ground truth dataset

- Land cover map
- Biomass
- Tree height information
- Breast height info
- Lidar data
- High resolution satellite Images
- Test site information (lat/lon, land cover map)
- Surface condition
- DEM
- Pictures

Relationship between KC-3

Collaboration with the KC-3 members for improving the JAXA product accuracy.