ALOS-2 Basic Observation Scenario
（First Edition Rev.E）

June 15, 2016
JAXA/ALOS-2 Project

Revision details

Rev.	Date	Page	Revision details
A	October 10, 2014	P13,P30	・Updated the date of Basic Observation Scenario
		P17	・Add to obs pattern of Stripmap 10m
B	January 30, 2015	P30	・Polar ice changed to observation cycle
C	January 15, 2016	P4,P5	・Updated the contents about the date of Basic Observation Scenario
		P16	・Renewal of the contents with a revision of P20,P23
		P20	・Quad-polarimetric changed to observation area
		P22	・Wetlands & Rapid deforestation monitoring changed to observation area
		P23	・Crustal Deformation changed observation frequency
		P30	・Crustal Deformation & Forest monitoring changed to order of observation beam No.（Cycle 44,46,47,49,70,72,73,75)
D	April 15, 2016	P6	・Updated the contents about the date of Basic Observation Scenario
		P13,P14	・Updated about Japan region of Basic Observation Scenario (Cycle60-68)
		P27	・Updated about IP requests (to represent the opinions of PI meeting)
		P17,P31	・Add to observation pattern of crustal movement monitoring (ScanSAR) (Cycle54 ,Ascending ,Once a yea)
E	June15,2016	P17,P26 P31	・Boreal and sub-Arctic of super site finish to observe in cycle 52

＜Contents＞

1. First edition
2. Purpose and Background
3. Concepts of the Basic Observation Scenario
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1. First edition

This document describes the first edition of the ALOS-2 Basic Observation Scenario (The date of Launch was May 24, 2014) .
ALOS-2 Basic observation scenario is reviewed periodically to meet user requests.

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2. Purpose and Background

The PALSAR-2 instrument onboard ALOS-2 has several observation modes (Spotlight, Stripmap, ScanSAR) and right-and-left looking function to fulfill the mission requirements. This flexibility may however also trigger conflicts among user request without adequate planning.

Implementation of a systematic observation is required to achieve consistent data periodically and geographically, therefore a Basic Observation Scenario (BOS) had been developed for ALOS-2 partially succeeding ALOS systematic observation. BOS is reviewed periodically to meet user requests.

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3. Concepts of the Basic Observation Scenario

- Repetition of global observations according to seasonality and geographical locations.
- BOS has the second priority. The first priority is emergency observation and cal/val observations.
- The scenario is designed to fulfill the following general acquisition concepts:
  - Spatial and temporal consistency at global scale with fine resolution;
  - Adequate revisit frequency (including accommodating InSAR) ;
  - Considering acquisition timing of target areas;
  - Considering sensor operability;
  - Long-term observation plan.
- The Scenario comprises separate plans for Japan and for the rest of the world.

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- The success rate for acquisitions within the BOS is 70-80%.

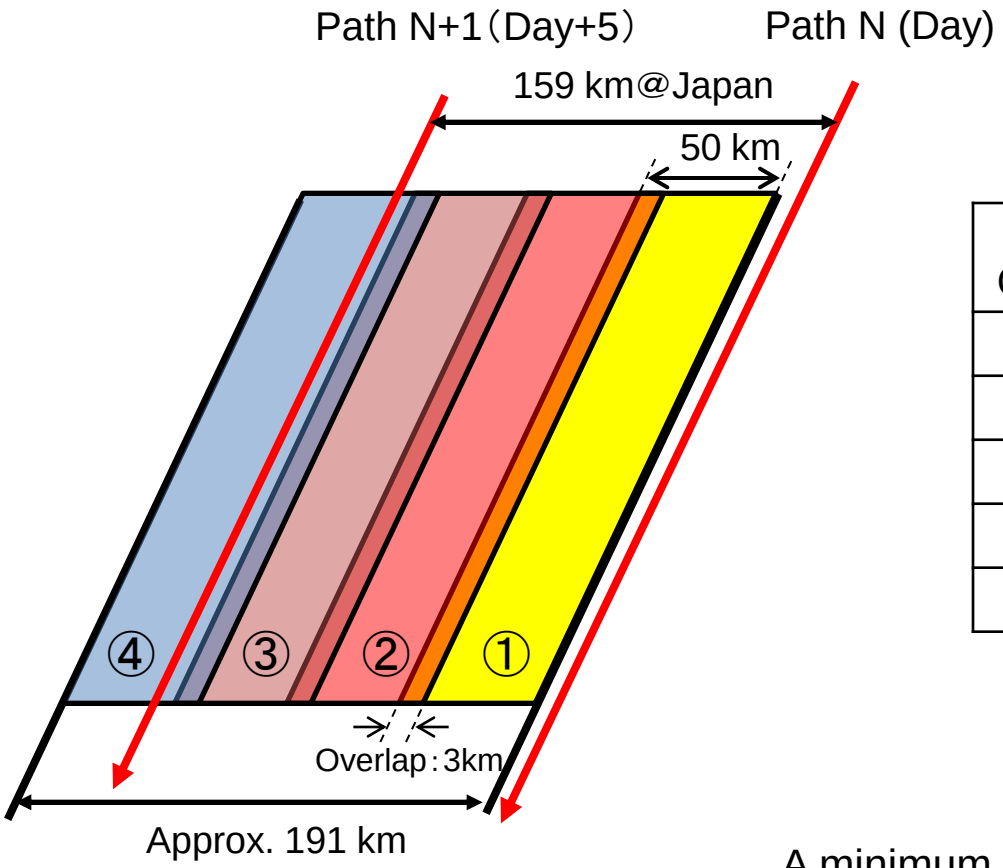
4. Basic Observation Scenario (Japan)

Baseline mapping

The Japan Base Map serves the objectives of “Disaster” and “Differential InSAR”. It is based on observations in two modes: Stripmap 3m and ScanSAR 350 km .

	contents
Base Map for disaster	Observations to collect data at various incidence angles, to accommodate interferometric analysis of pre- and post-disaster data.
Base Map for Differential InSAR	Observations for periodic collection of data for differential interferometry

Japan coverage in Stripmap Mode [3m]



Stripmap mode [3m]

Beam Group	Incidence Angle	Number of beams to cover
U1	8-30 deg.	5 beams
U2	30-44 deg.	4 beams
U3	44-56 deg.	5 beams
U4	56-64 deg.	5 beams
U5	64-70 deg.	5 beams

U2: Nominal

A minimum of 4 beams is required for gap-free coverage of Japan

⇒ Minimum: 14 days × 4 cycles = 56 days

Observation conditions for disaster base map

Items	Stripmap [3m]		ScanSAR [350km]
Satellite direction	Descending（toward south）and Ascending（toward north）	Descending only*	Descending and Ascending
Beam direction	Left and right		
Beam range (incidence angle)	U2 (30.2°～44.4°)	U3 (44.3°～55.8°)	W2 (19.7°～45.3°)
Polarisation	Single（HH）		Dual（HH+HV）
Frequency band	84 MHz		28 MHz

* U3 observations at descending only to allow ascending resources for periodic InSAR.

Observation conditions for Differential InSAR base map

Items	Stripmap [3m]	ScanSAR [350km]
Satellite direction	Descending（toward south) and Ascending （toward north）	
Beam direction	right	
Beam range (incidence angle)	U2 (30.2°～44.4°)	W2 (19.7°～45.3°)
Polarisation	Single（HH）	Dual（HH+HV）
Frequency band	84 MHz	28 MHz

Frequency of interference is a priority. Observations are carried out during the same times each year.

Conditions for the Basic Observation Scenario for Japan

(1) In the first year, observations for the base map for Disaster is a priority.

(2) Observation at U2 mode undertaken during six months from the start of the observations.

(3) Observation at W2 mode undertaken during five months from the start of the observations.

(4) Observation at U3 mode undertaken during six months from the start of the observations.

(5) The base map for disaster is updated every three years (1st, 4th year, etc.).

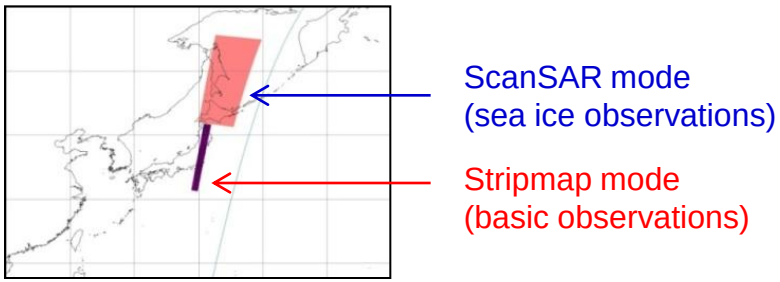
(6) In the second year, base map observations for Disaster are reduced and base map observations for Differential InSAR is priority.

(7) Open cycles without pre-set default observation modes are planned once every 6 cycles

(8) Make resources available for non-base map observations (mainly from year 2)

(9) Observations in ScanSAR mode for "sea ice observations" are planned over the Sea of Okhotsk during the winter (December to April).

(10) South of Hokkaido, observation are planned in stripmap mode.



(11) To accommodate "ship movement management", U3 and U2 observations extended from the land and coastal zones to also include sea areas.

(12) Observations in PLR(6m) mode for landslide disaster and land use start from the second year and will be repeated every year.

Conditions for the Basic Observation Scenario for Japan (Reconsidered for 3rd year)

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[Concerns]

- There are some gaps in the base maps using 3m strip map mode due to emergency observations. In order to fill the gaps quickly, more recovery cycles are needed.
- ScanSAR observation in Ascending mode is more desirable in summer rather than winter when coherence is reduced by snow.

[Improvements]

4 times of ScanSAR observation cycles are deleted which were originally planed between 3m-strip mode observation cycles in both Ascending and Descending orbits. Then, three cycles of them will be used for the base map recovery.

One ScanSAR observation cycle is added in Ascending during summer.

Basic Observation Scenario (Japan)

■1st Year

Cycle	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Year	2014														2015											
Month/Day	08/04	08/18	09/01	09/15	09/29	10/13	10/27	11/10	11/24	12/08	12/22	01/05	01/19	02/02	02/16	03/02	03/16	03/30	04/13	04/27	05/11	05/25	06/08	06/22	07/06	07/20
Descending	Disaster Base Map							Disaster Base Map							Disaster Base Map							Disaster Base Map				
	U2 (6)R	U2 (7)R		U2 (8)R	U2 (9)R	W2 (2)R		U2 (6)L	U2 (7)L	W2 (2)L	W2(2)L U2(8)L	W2(2)L U2(9)L	W2 (2)L	W2(2)R	W2(2)R U3(10)R	W2(2)R U3(11)R	W2(2)R U3(12)R	W2(2)R U3(13)R	W2(2)R U3(14)R	W2 (2)R		U3 (10)L	U3 (11)L	U3 (12)L	U3 (13)L	U3 (14)L
Ascending	Disaster Base Map							Disaster Base Map							Differential InSAR							Differential InSAR				
	U2 (6)R	U2 (7)R		U2 (8)R	U2 (9)R	W2 (2)R		U2 (6)L	U2 (7)L	W2 (2)L	U2 (8)L	U2 (9)L	W2 (2)L		U2 (6)R	U2 (7)R	W2 (2)R	U2 (8)R	U2 (9)R	W2 (2)R		U2 (6)R	U2 (7)R	U2 (8)R	U2 (9)R	

■2st Year

Cycle	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
Year	2015年														2016											
Month/Day	08/03	08/17	08/31	09/14	09/28	10/12	10/26	11/09	11/23	12/07	12/21	01/04	01/18	02/01	02/15	02/29	03/14	03/28	04/11	04/25	05/09	05/23	06/06	06/20	07/04	07/18
Descending		Differential InSAR						Differential InSAR							Differential InSAR							Differential InSAR				
	W2 (2)R	U2 (6)R	U2 (7)R	U2 (8)R	U2 (9)R		U2 (6)R	U2 (7)R	W2 (2)R	W2(2)R U2(8)R	W2(2)R U2(9)R	W2 (2)R	W2(2)R	W2(2)R U2(6)R	W2(2)R U2(7)R	W2 (2)R	W2(2)R U2(8)R	W2(2)R U2(9)R	W2 (2)R		U2 (6)R	U2 (7)R	U2 (8)R	U2 (9)R		
Ascending							Differential InSAR							Differential InSAR								Differential InSAR				
	FP (3)R	FP (4)R	FP (5)R	FP (6)R	FP (7)R		U2 (6)R	U2 (7)R	W2 (2)R	U2 (8)R	U2 (9)R	W2 (2)R		U2 (6)R	U2 (7)R	W2 (2)R	U2 (8)R	U2 (9)R	W2 (2)R			U2 (6)R	U2 (7)R	U2 (8)R	U2 (9)R	W2 (2)R

■3st Year

Cycle	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Year	2016											2017														
Month/Day	08/01	08/15	08/29	09/12	09/26	10/10	10/24	11/07	11/21	12/05	12/19	01/02	01/16	01/30	02/13	02/27	03/13	03/27	04/10	04/24	05/08	05/22	06/05	06/19	07/03	07/17
Descending		Differential InSAR					Differential InSAR＋Sea Ice					Sea Ice			Differential InSAR＋Sea Ice					Sea Ice		Differential InSAR				
	U2 (6)R	U2 (7)R	U2 (8)R	U2 (9)R	W2 (2)R		U2 (6)R	U2 (7)R	U2 (8)R	W2(2)R U2(9)R	W2 (2)R	W2(2)R	W2(2)R	W2(2)R	W2(2)R U2(6)R	W2(2)R U2(7)R	W2(2)R U2(8)R	W2(2)R U2(9)R	W2 (2)R	W2(2)R		U2 (6)R	U2 (7)R	U2 (8)R	U2 (9)R	
Ascending							Differential InSAR							Differential InSAR							Differential InSAR					
	FP (3)R	FP (4)R	FP (5)R	FP (6)R	FP (7)R		U2 (6)R	U2 (7)R	U2 (8)R	U2 (9)R	W2 (2)R			U2 (6)R	U2 (7)R	U2 (8)R	U2 (9)R	W2 (2)R			U2 (6)R	U2 (7)R	U2 (8)R	U2 (9)R	W2 (2)R	

D

White	ScanSAR[350km], Beam class: W2, Observation direction: Right, Beam Number: No.2
Black	ScanSAR[350km], Beam class: W2, Observation direction: Left, Beam Number: No.2
White	Stripmap[3m], Beam class: U2, Observation direction: Right, Beam Number: No.6 - 9
Black	Stripmap[3m], Beam class: U2, Observation direction: Left, Beam Number: No.6 - 9
White	Stripmap[3m], Beam class: U3, Observation direction: Right, Beam Number: No.10 - 14
Black	Stripmap[3m], Beam class: U3, Observation direction: Left, Beam Number: No.10 - 14
White	Stripmap[6m] Full Polarization, Beam Number: No.3 - 7

【Number system】

EX：U2(6)R

U2(6) R

- Beam direction（R：Right、L：Left）
- Beam Number
- Beam Class

Non-base map observations

Adjustment with other observations necessary

5. Basic Observation Scenario (Global)

Concept of the Basic Observation Scenario (Global)

(1) To avoid conflicts between observation requests.

(2) To ensure highest possible observation frequency.

(3) Observation requests with the same observation modes (beam mode, satellite flight direction, beam direction, polarisation) should as far as possible be observed during the same cycles.

- Observations for Forest and Crustal Deformation monitoring by stripmap [10m] mode
- Observations of Wetlands and for Deforestation monitoring and Crustal Deformation by ScanSAR [350km] mode

(4) Observations in right-looking mode nominal, except over Antarctica.

(5) Observation time windows are repeated annually for all regions

(6) In case a region is too large to be covered within one cycle, it is divided and observed during several cycles.

(7) Observations of polar regions mainly in ScanSAR mode.

(8) Observations of desert, snow and ice regions have lower priority

Basic Observation Scenario (Global)

- Descending acquisitions (noon, ~12:00)
  - Global observations in Stripmap (3m SP) mode once per three years
  - Observations of Wetlands, Rapid Deforestation and Crustal Deformation in ScanSAR (350km DP) mode
  - Observations of Crustal Deformation and Forests *in Stripmap (10m DP) mode* during two cycles for InSAR applications

  (Super Sites)
  - Observations of *Boreal and sub-Arctic in ScanSAR (490km DP) mode(Until cycle 52)*
  - InSAR observations of *Antarctica Glaciers in Stripmap (10m DP) mode*

- Ascending acquisitions (midnight, ~24:00)
  - Global observations in Stripmap (10m DP) mode twice per year
  - Observations of polar regions in ScanSAR (350km DP) mode three times per year to cover summer/winter seasons. Antarctica will be observed in left-looking mode to cover higher latitudes.
  - Global observations in Stripmap (6m QP) mode once per five years
  - Observations of special focus areas with Stripmap (6m QP) mode three times per five years
  - Observations of crustal movement monitoring (ScanSAR) once a time per 1 year

  (Super Sites)
  - InSAR observations of *Greenland Glaciers with Stripmap (10m DP) mode*

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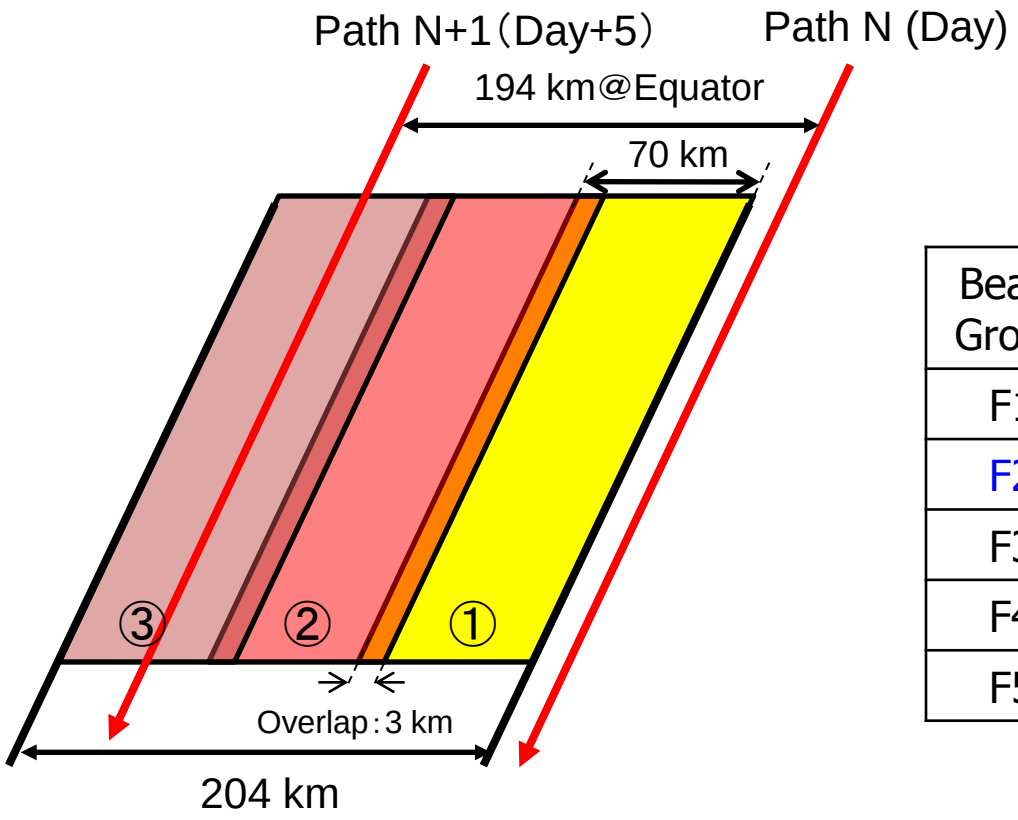
Global coverage by Fine Beam Mode [10m]



Fine Beam Mode [10m]

Beam Group	Incidence Angle	Number of beams to cover
F1	8-30 deg.	4 beams
F2	30-44 deg.	3 beams
F3	44-56 deg.	5 beams
F4	56-64 deg.	5 beams
F5	64-70 deg.	5 beams

F2: Nominal

A minimum of 3 beams is required for gap-free coverage
⇒ Minimum: 14 days × 3 cycles = 42 days

Basic Observation Scenario (Global)

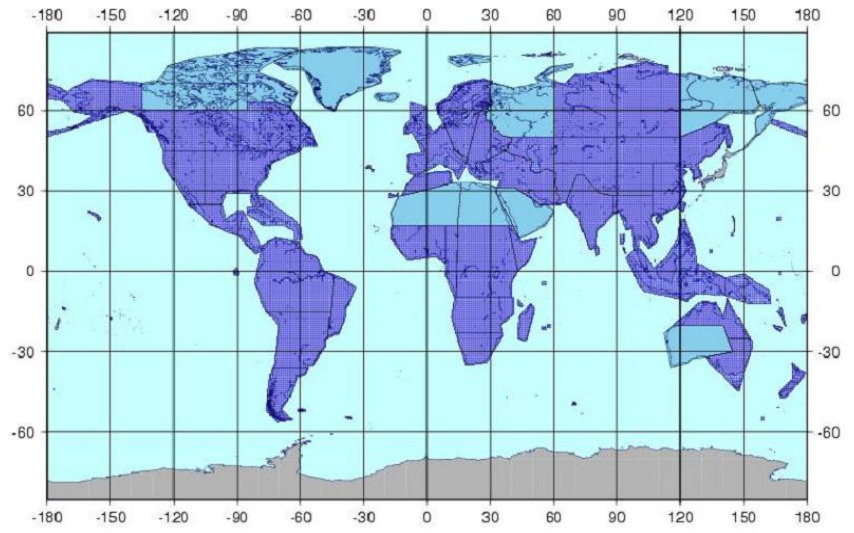
Global land areas – baseline mapping

Temporal repeat: 2 cov/year

GSD: 10 m (off-nadir 28.2° -36.2°)

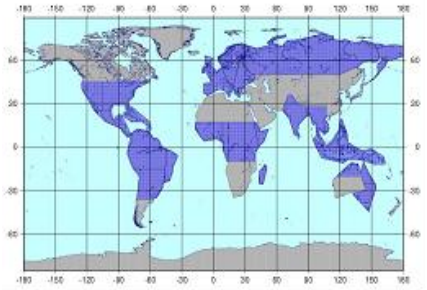
Mode: Stripmap Dual-pol (HH+HV/28MHz)

A

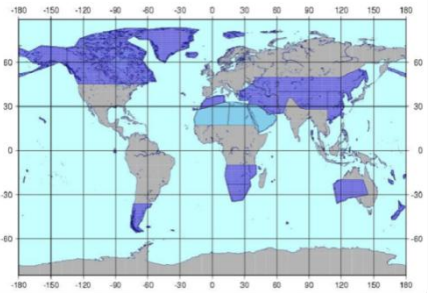


Prio 1

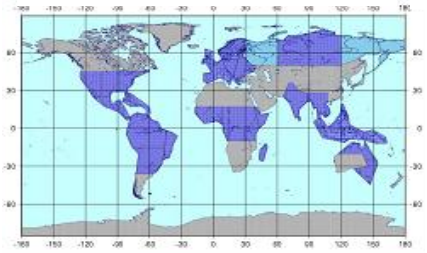
Prio 2



OBS Pattern①(World1-1)



OBS Pattern ②(World2-1)



OBS Pattern ①(World1-2)

OBS Pattern ②(World2-2)

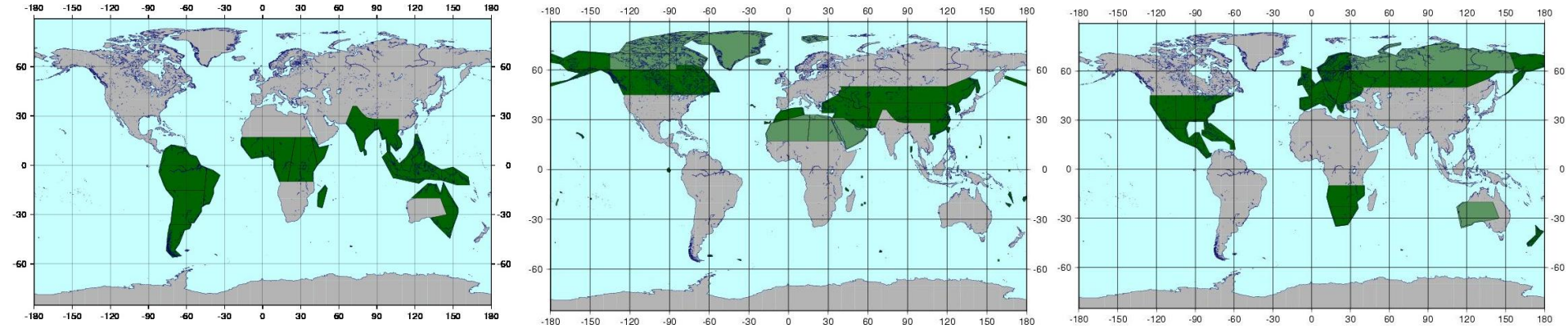
Basic Observation Scenario (Global)

Global land areas – VHR baseline mapping

Temporal repeat: 1 cov/ 3 years

GSD: 3 m (off-nadir 29.1°-38.2°)

Mode: Stripmap Single-pol（HH/84MHz）



1st year　　2nd year　　3rd year

Prio 1

Prio 2

* 3 years required for global coverage in 3m mode

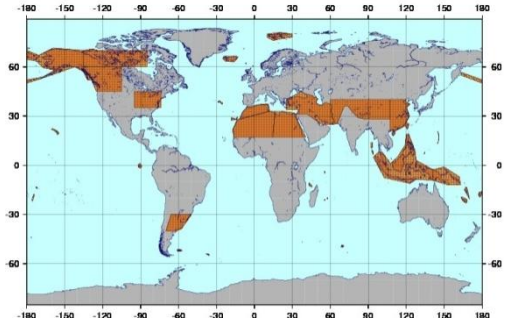
Basic Observation Scenario (Global)

Global land areas – Quad-polarimetric baseline

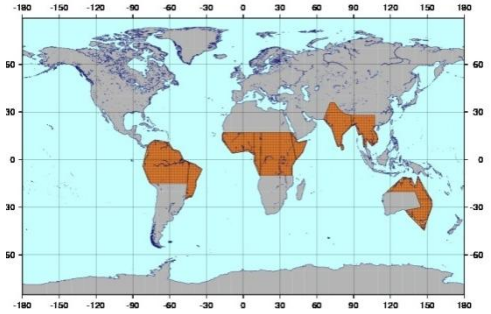
Temporal repeat: 1 cov/ 5 years

GSD: 6 m (off-nadir 25.0°-34.9°)

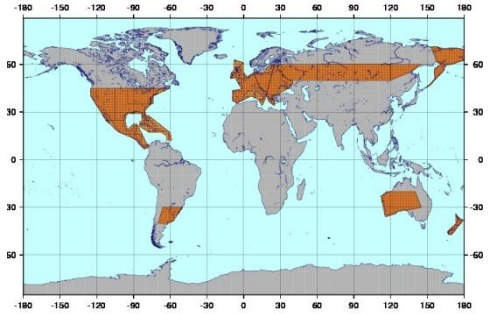
Mode: Stripmap Quad-pol (HH+HV+VV+VH/42MHz)



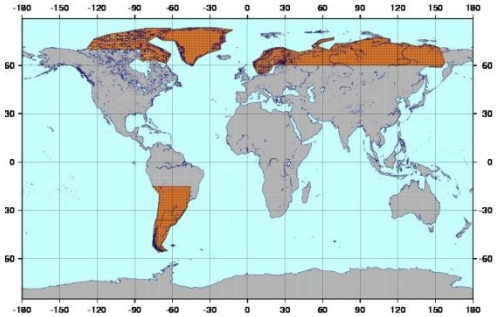
1st year



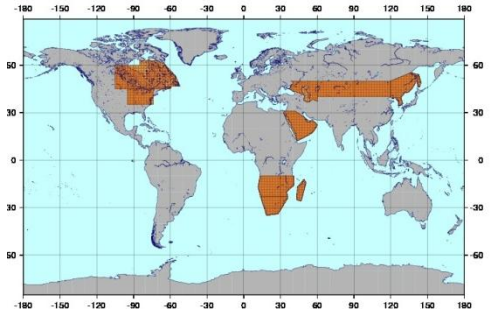
2nd year



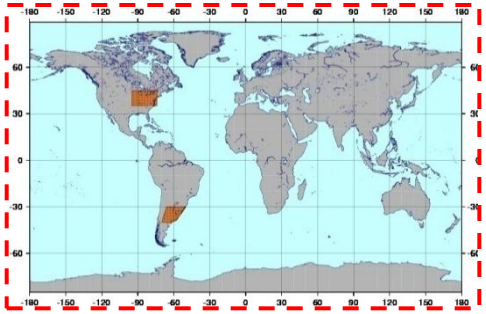
3rd year



4th year



5th year



2 areas 3 cov/5 years

* 5 years required for global coverage in 6m QP mode

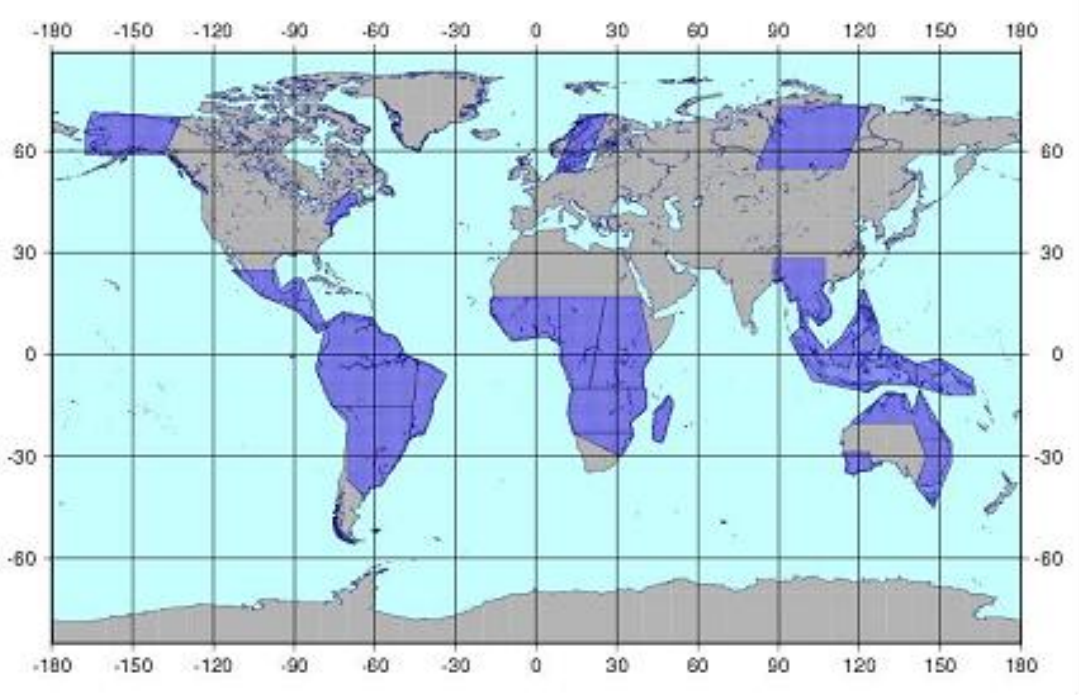
Basic Observation Scenario (Global)

Forest monitoring

Temporal repeat: 2-6 cov/year (tropics 6 cov)

GSD: 10 m (off-nadir 28.2° -36.2°)

Mode: Stripmap Dual-pol (HH+HV/28MHz)



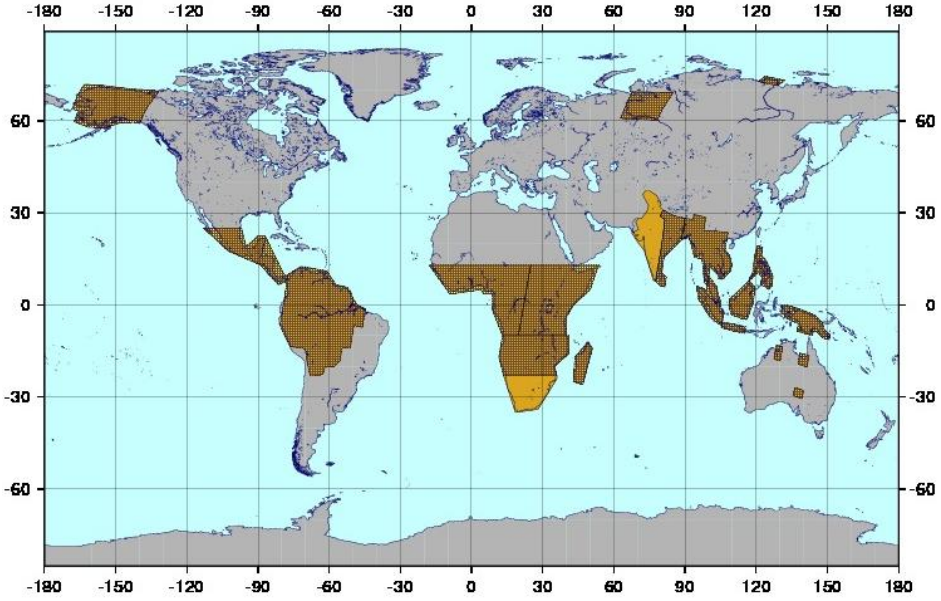
Basic Observation Scenario (Global)

Wetlands & Rapid deforestation monitoring

Temporal repeat: 9 cov/year

GSD: 100 m (off-nadir 26.2° -41.8°)

Mode: ScanSAR 350km Dual-pol (HH+HV/14MHz)



Prio 1

Prio 2

Wetlands & Rapid deforestation monitoring Area

C

Basic Observation Scenario (Global)

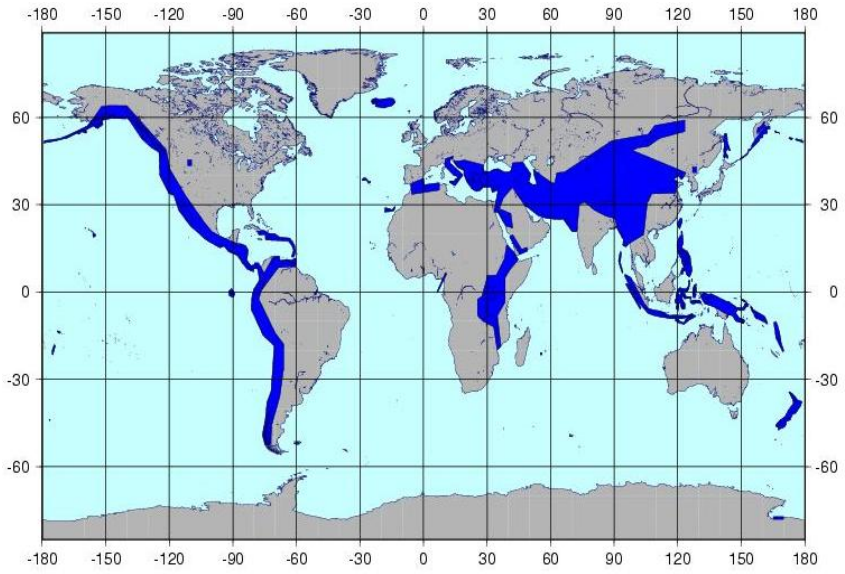
Crustal Deformation

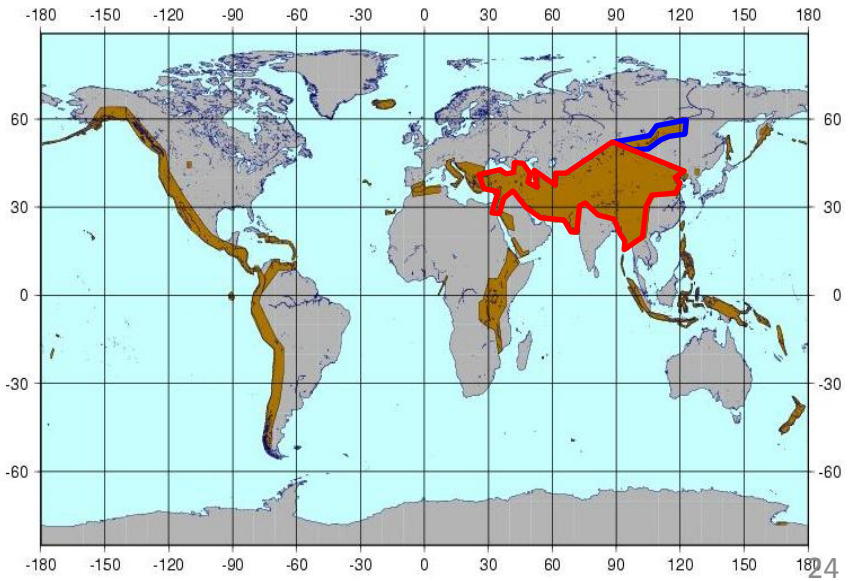
Temporal repeat: 2-6 cov/year & 9 cov/year

GSD: 10 m (off-nadir 28.2° – 36.2°)
& 100 m (off-nadir 26.2° – 41.8°)

Mode: Stripmap Dual-pol (HH+HV/28MHz)
& ScanSAR 350km (HH+HV/14MHz)

C





* Red Area（K1）7 cov./1 year, Blue Area（K46）2 cov./1 year

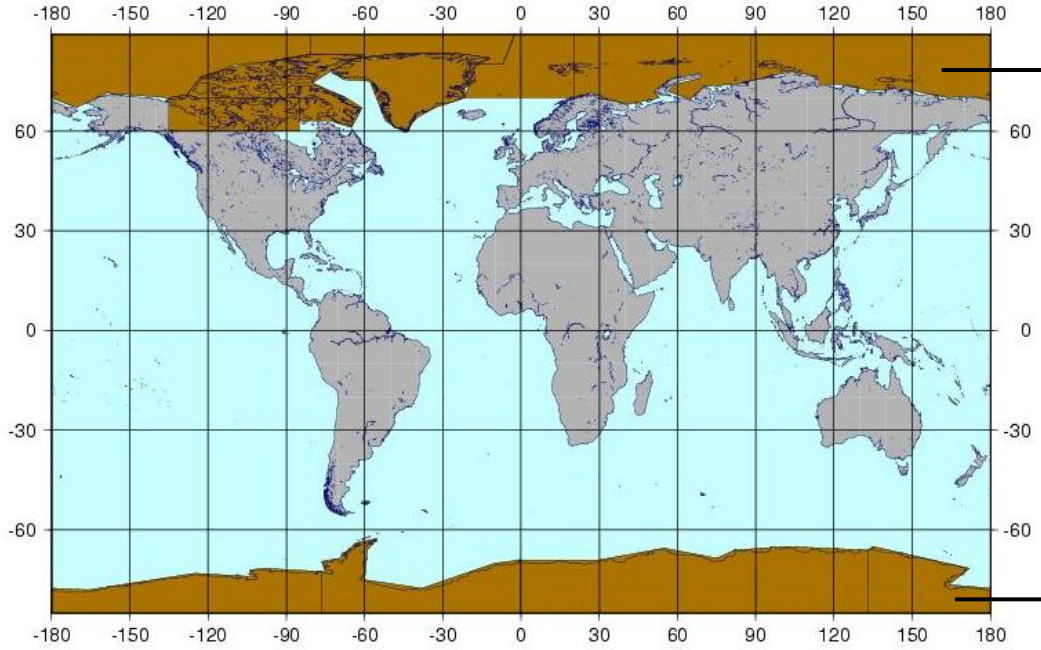
Basic Observation Scenario (Global)

Polar Ice

Temporal repeat: 3 cov/year

GSD: 100 m (off-nadir 26.2° – 41.8°)

Mode: ScanSAR 350km (HH+HV/14MHz)



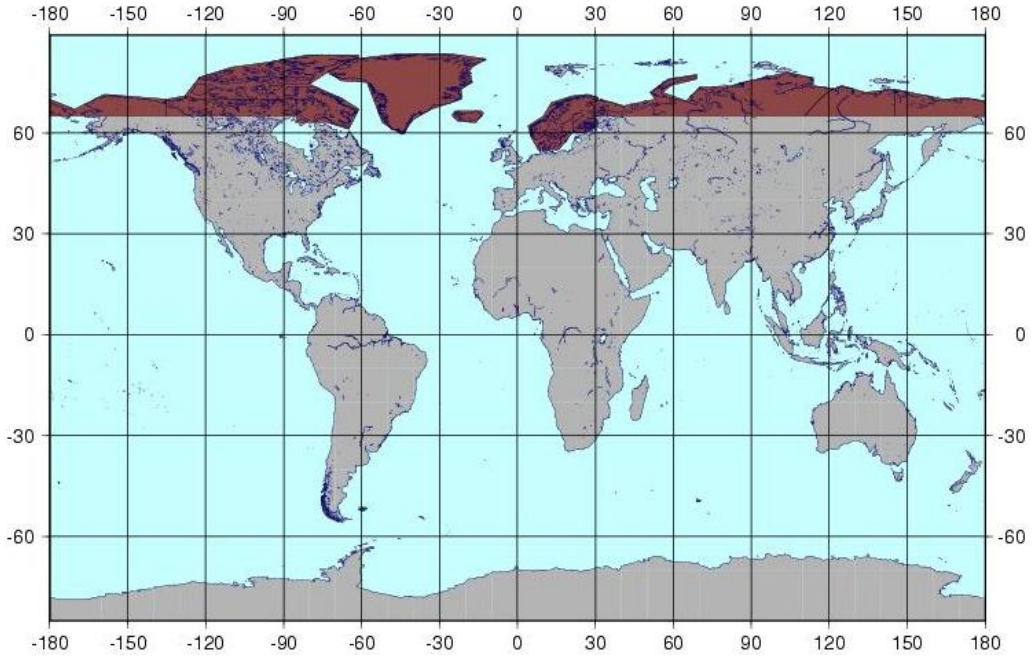
Super Sites (K&C)

Boreal and sub-Arctic

Temporal repeat: 3 cov/year (Until cycle52)

GSD: 100 m (offnadir 34.9° -51.5°)

Mode: ScanSAR 490km (HH+HV/14MHz)



E

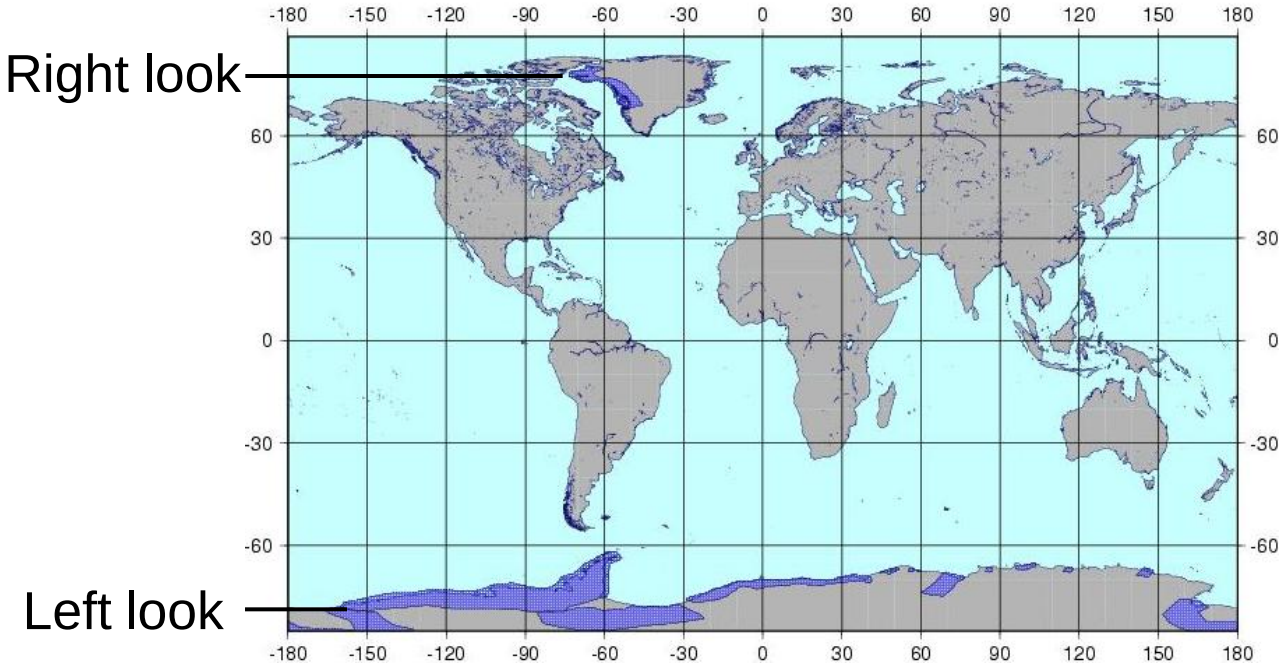
Super Sites (K&C)

Glacier movement

Temporal repeat: 3 cov/year

GSD: 10 m (off-nadir 32.5°)

Mode: Stripmap Dual-pol (HH/28MHz)



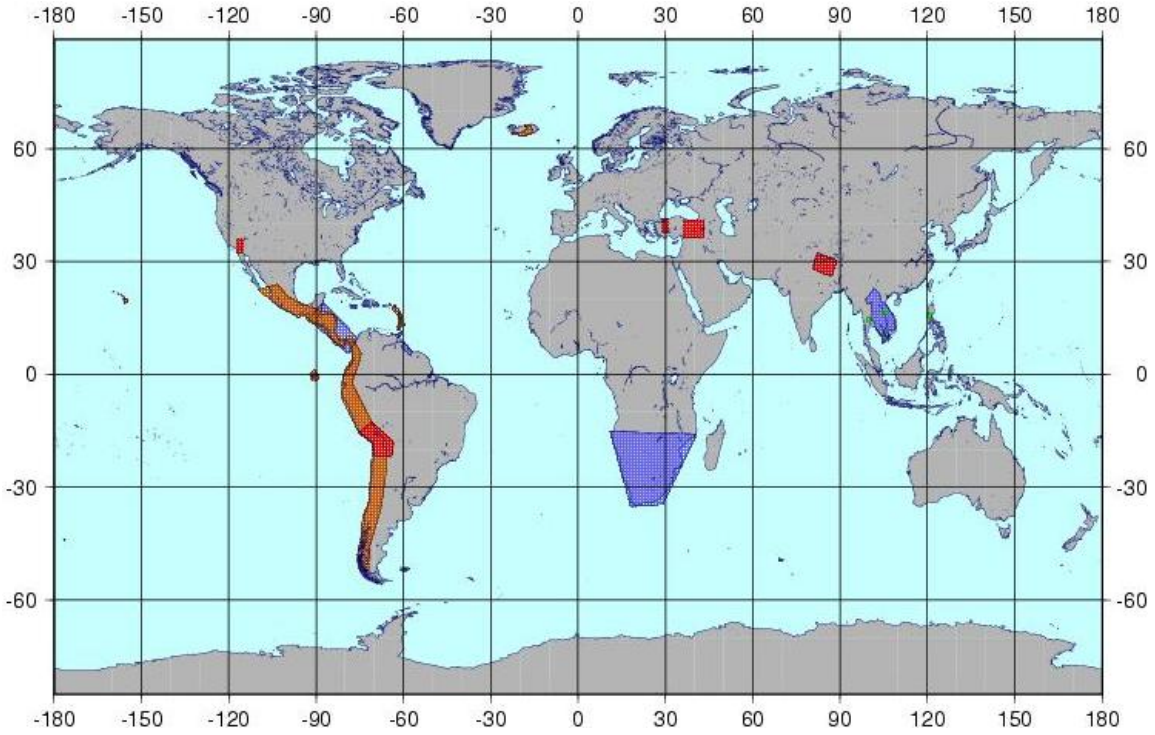
Super Sites (CEOS)

Temporal repeat: when coinciding with BOS observations

GSD: 10 m (off-nadir 28.2° – 36.2°)
& 100 m (off-nadir 26.2° – 41.8°)

Mode: Stripmap Dual-pol (HH+HV/28MHz)
& ScanSAR 350km (HH+HV/14MHz)

Agriculture
Earthquakes
Volcanos
Flooding



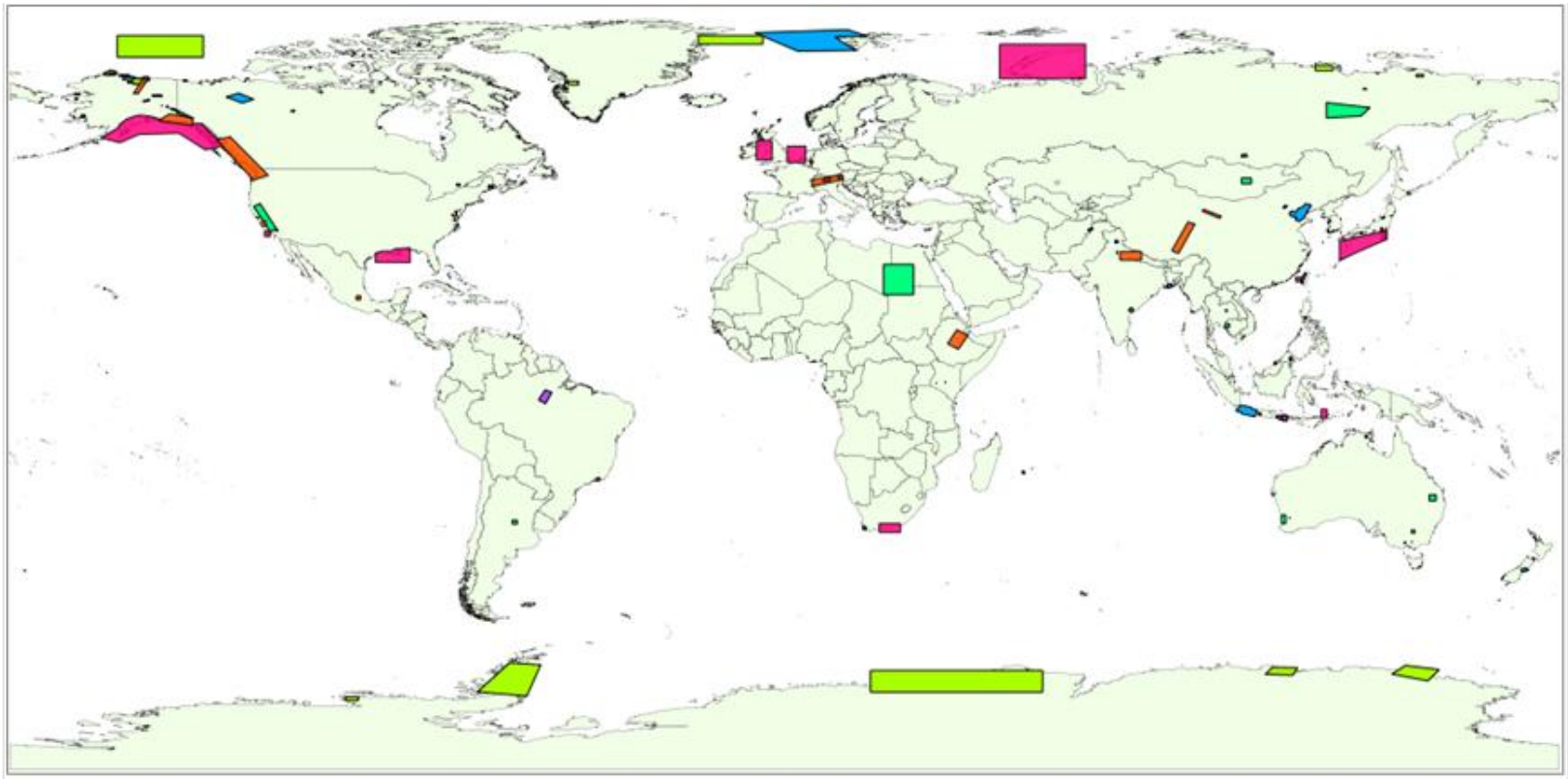
Super Sites (PI)

Temporal repeat: When not affecting the BOS

GSD: according to PI requests

Mode: according to PI requests

Polar research and Snow
Polarimetry
Ocean
Disaster
Hydrology and Agriculture
Land use and Forestry



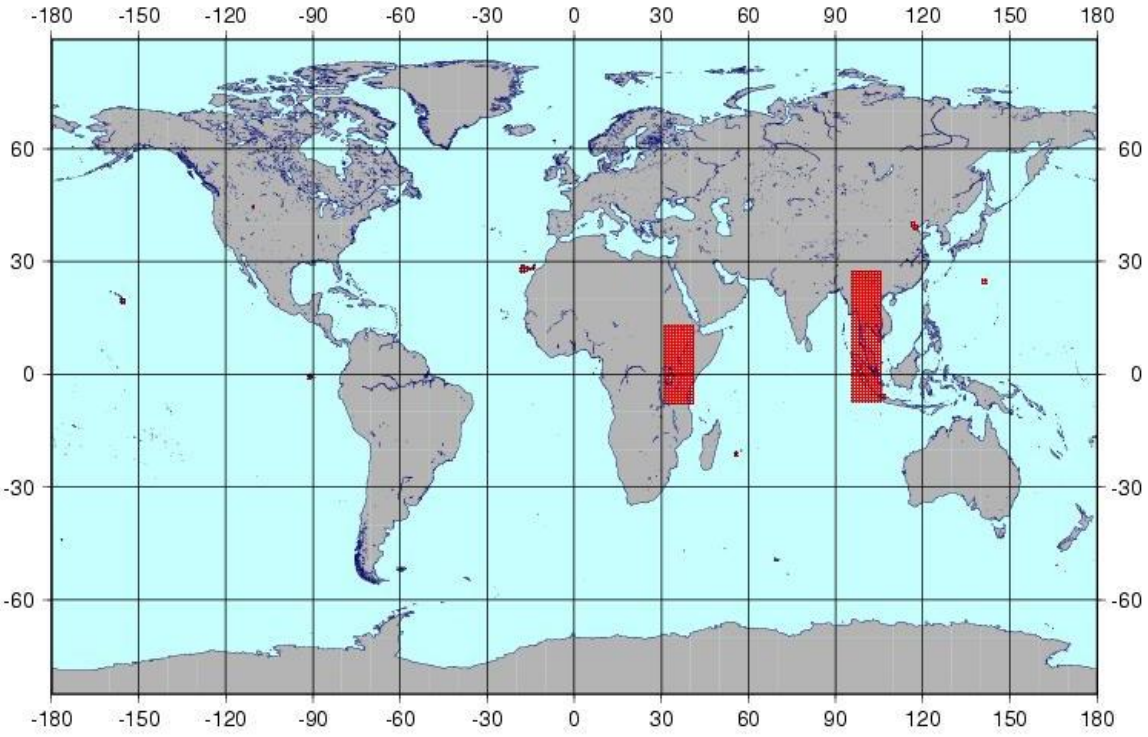
D

Super Sites (Crustal WG)

Temporal repeat: When not affecting the BOS

GSD: according to WG request

Mode: according to WG request



Basic Observation Scenario (Global)

■1st Year

Cycle	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Year	2014年											2015年														
Month/Day	08/04	08/18	09/01	09/15	09/29	10/13	10/27	11/10	11/24	12/08	12/22	01/05	01/19	02/02	02/16	03/02	03/16	03/30	04/13	04/27	05/11	05/25	06/08	06/22	07/06	07/20
Descending	Crustal Wetland Deforest	Glacier Super Site	Crustal Wetland Deforest	Glacier Super Site	sub-Arctic Super Site	Crustal Wetland Deforest	Global 3m (1/3)		Crustal Wetland Deforest	Global 3m (1/3)		Crustal Wetland Deforest		sub-Arctic Super Site	Crustal Wetland Deforest	Crustal＆Forest 14-day InSAR		Crustal Wetland Deforest	Crustal＆Forest 14-day InSAR		Crustal Wetland Deforest	Crustal＆Forest 14-day InSAR		Crustal Wetland Deforest	sub-Arctic Super Site	Crustal Wetland Deforest
	W2 (2)R	F2(6)L	W2 (2)R	F2(6)L	V2(2)R	W2 (2)R	U2 (6)R	U2 (7)R	W2 (2)R	U2 (8)R	U2 (9)R	W2 (2)R		V2(2)R	W2 (2)R	F2 (5)R	F2 (5)R	W2 (2)R	F2 (6)R	F2 (6)R	W2 (2)R	F2 (7)R	F2 (7)R	W2 (2)R	V2(2)R	W2 (2)R
Ascending	Crustal	Pole	World 1-1(10m)					World 2-1(10m)			Pole	North Pole	World 1-2(10m)			GR Super Site	GR Super Site	Global FP6m (1/5)						World 2-2(10m)		
	W2 (2)R	W2(2)R / W2(2)L	F2 (7)R	F2 (5)R	F2 (6)R			F2 (7)R	F2 (5)R	F2 (6)R	W2(2)R / W2(2)L	W2(2)R	F2 (7)R	F2 (5)R	F2 (6)R	F2(6)R	F2(6)R	FP (6)R	FP (5)R	FP (4)R	FP (3)R	FP (7)R		F2 (7)R	F2 (5)R	F2 (6)R

■2st Year

Cycle	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
Year	2015年											2016年														
Month/Day	08/03	08/17	08/31	09/14	09/28	10/12	10/26	11/09	11/23	12/07	12/21	01/04	01/18	02/01	02/15	02/29	03/14	03/28	04/11	04/25	05/09	05/23	06/06	06/20	07/04	07/18
Descending	Glacier Super Site	Glacier Super Site	Crustal Wetland Deforest	Glacier Super Site	sub-Arctic Super Site	Crustal Wetland Deforest	Global 3m (2/3)		Crustal Wetland Deforest	Global 3m (2/3)		Crustal Wetland Deforest		sub-Arctic Super Site	Crustal Wetland Deforest	Crustal＆Forest		Crustal Wetland Deforest	Crustal＆Forest		Crustal Wetland Deforest	Crustal＆Forest		Crustal Wetland Deforest	sub-Arctic Super Site	Crustal Wetland Deforest
	F2(6)L	F2(6)L	W2 (2)R	F2(6)L	V2(2)R	W2 (2)R	U2 (6)R	U2 (7)R	W2 (2)R	U2 (8)R	U2 (9)R	W2 (2)R		V2(2)R	W2 (2)R	F2 (5)R	F2 (6)R	W2 (2)R	F2 (7)R	F2 (5)R	W2 (2)R	F2 (6)R	F2 (7)R	W2 (2)R	V2(2)R	W2 (2)R
Ascending	North Pole	Pole	World 1-1(10m)					World 2-1(10m)			Pole	South Pole	World 1-2(10m)			GR Super Site	GR Super Site	Global FP6m (2/5)						World 2(10m)		
	W2(2)R	W2(2)R / W2(2)L	F2 (7)R	F2 (5)R	F2 (6)R			F2 (7)R	F2 (5)R	F2 (6)R	W2(2)R / W2(2)L	W2(2)L	F2 (7)R	F2 (5)R	F2 (6)R	F2(6)R	F2(6)R	FP (6)R	FP (5)R	FP (4)R	FP (3)R	FP (7)R		F2 (7)R	F2 (5)R	F2 (6)R

■3st Year

Cycle	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Year	2016年											2017年														
Month/Day	08/01	08/15	08/29	09/12	09/26	10/10	10/24	11/07	11/21	12/05	12/19	01/02	01/16	01/30	02/13	02/27	03/13	03/27	04/10	04/24	05/08	05/22	06/05	06/19	07/03	07/17
Descending	Glacier Super Site	Glacier Super Site	D+W+F	Glacier Super Site		Crustal Wetland Deforest	Global 3m (3/3)		Crustal Wetland Deforest	Global 3m (3/3)		Crustal Wetland Deforest			Crustal Wetland Deforest	Crustal＆Forest		Crustal Wetland Deforest	Crustal＆Forest		Crustal Wetland Deforest	Crustal＆Forest		Crustal Wetland Deforest		Crustal Wetland Deforest
	F2(6)L	F2(6)L	W2 (2)R	F2(6)L		W2 (2)R	U2 (6)R	U2 (7)R	W2 (2)R	U2 (8)R	U2 (9)R	W2 (2)R			W2 (2)R	F2 (5)R	F2 (6)R	W2 (2)R	F2 (7)R	F2 (5)R	W2 (2)R	F2 (6)R	F2 (7)R	W2 (2)R		W2 (2)R
Ascending	North Pole Crustal	Pole	World 1-1(10m)					World 2-1(10m)			Pole	South Pole	World 1-2(10m)			GR Super Site	GR Super Site	Global FP6m (3/5)						World 2-2(10m)		
	W2 (2)R	W2(2)R / W2(2)L	F2 (7)R	F2 (5)R	F2 (6)R			F2 (7)R	F2 (5)R	F2 (6)R	W2(2)R / W2(2)L	W2(2)L	F2 (7)R	F2 (5)R	F2 (6)R	F2(6)R	F2(6)R	FP (6)R	FP (5)R	FP (4)R	FP (3)R	FP (7)R		F2 (7)R	F2 (5)R	F2 (6)R

E

F2 10m 10m(HH+HV)28MHz Right

U2 3m 3m(HH)84MHz Right

FP 6m 6m(HH+HV+VH+VV)42MHz Right

(*) *Beam No.

W2 350km ScanSAR350km(HH+HV)14MHz Right

W2 350km ScanSAR350km(HH+HV)14MHz Left

V2 490km ScanSAR490km(HH+HV)14MHz Right

F2 10m 10m(HH+HV)28MHz Left

【Number system】

EX：U2(6)R

U2(6) R

- R → Beam direction（R：Right、L：Left）
- 6 → Beam Number
- U2 → Beam Class

Super sites（TBD）

* 3m SP and 6m QP modes require 3 and 5 years for global coverage

Appendix 1

Analysis results: Revisit-times for Basic Observation Scenario over Japan and Frequency of Differential InSAR

(1) Revisit-times after completion of base map observations of Japan

Observation mode	Average	Maximum
U2（Ascending, Descending）U3（Descending only）	65 hr	74 hr* (121)
*Reference: U2（Ascending, Descending） W2（*Ascending, Descending)	*61hr*	*132 hr*

*except parts of regions in Kyushu and Okinawa

(2) Frequency of Differential InSAR
(note: Emergency observations of disasters separately)

Orbit direction	Stripmap 3m		ScanSAR 350km	
	Maximum number of observations（year）**	InSAR interval	Maximum number of observations（year）**	InSAR interval
Descending・right	4	3～3.5 months	6	1.5～4.5 months
Ascending・right	4	2.5～3.5 months	6	1.5～4.5 months

** In case of no conflict with the user of crustal movement other than