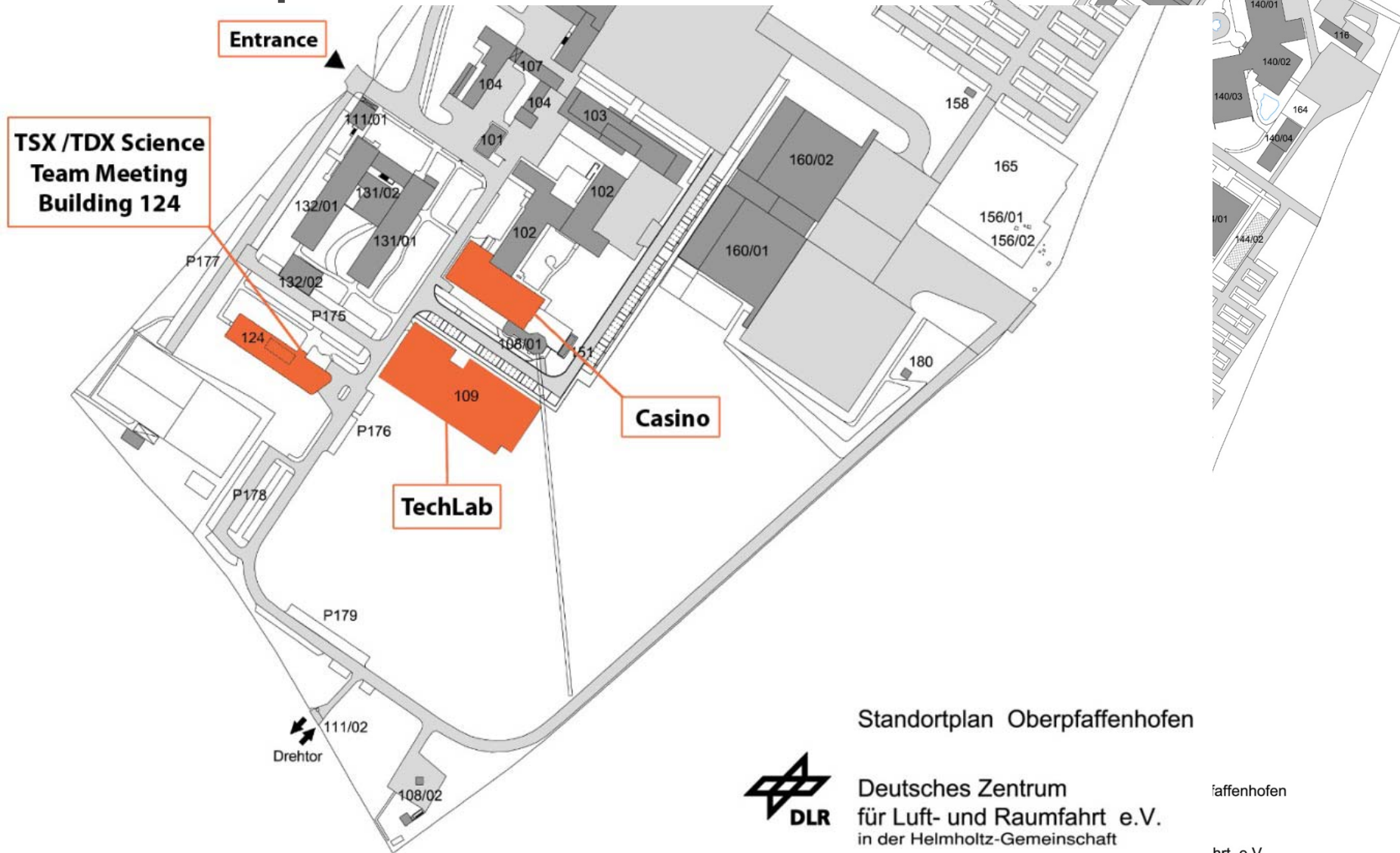


4th TDM Science Team Meeting: Organizational Issues

Irena Hajnsek and Thomas Busche

DLR Campus



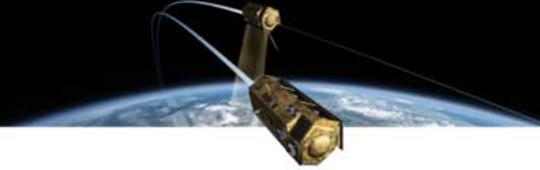
Standortplan Oberpfaffenhofen



Deutsches Zentrum
für Luft- und Raumfahrt e.V.
in der Helmholtz-Gemeinschaft

ffenhofen

hrt e.V.
chaft



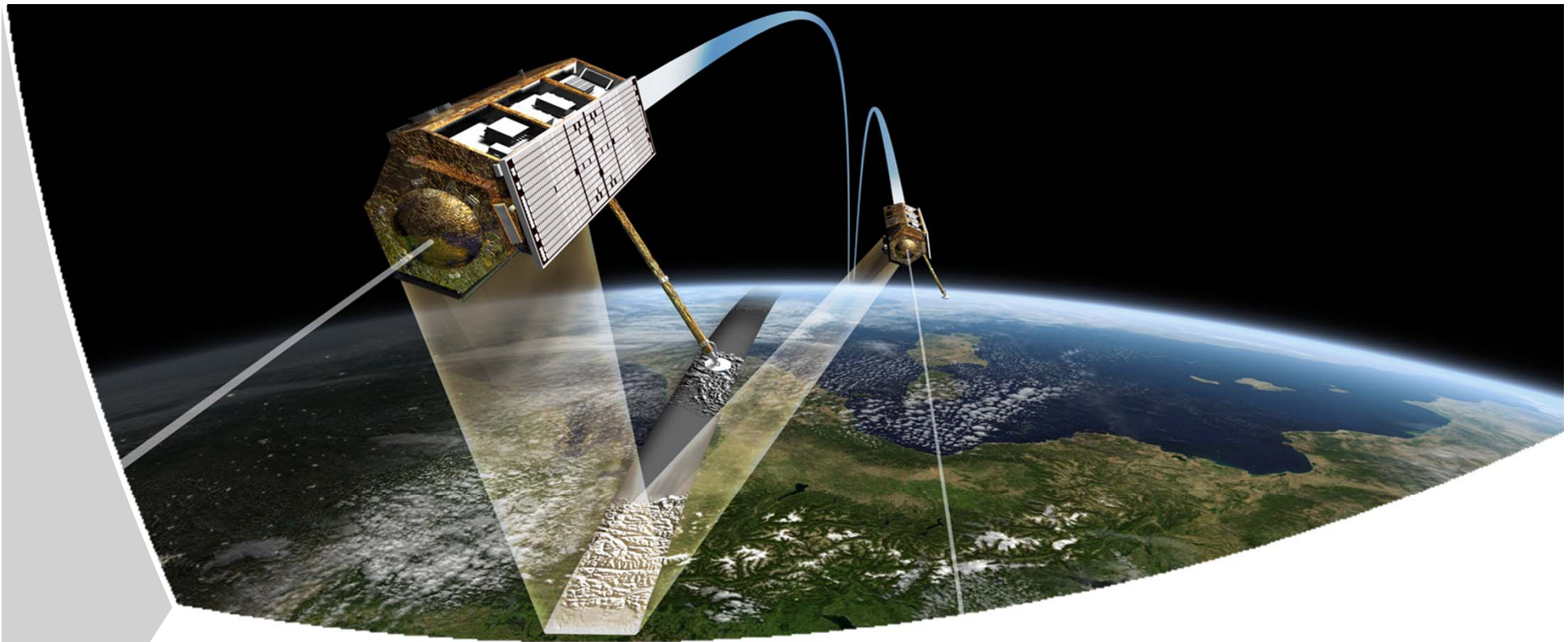
Organizational Issues

- Shuttle services between DLR campus and S-Bahn Station Weißling :
 - Monday June 10th: 8:00 – 9:30 am 6:00 – 7:00 pm
 - Tuesday June 11th: 7:30 – 8:30 am 4:45 – 8:30 pm
 - **Wednesday June 12th: 8:00 – 9:00 am 6:30 – 9:30 pm**
 - **Thursday June 13th: 7:30 – 8:30 am 6:00 – 8:00 pm**
 - **Friday June 14th. 7:30 – 8:30 am 2:00 – 3:00 pm**

- Poster sessions
 - TerraSAR-X: Tuesday June 11th, EOC building
 - **TanDEM-X: Thursday June 13th, Tech Lab**

- Remove your posters after the session, please!

- **Wednesday: Social event with live music and dinner in the Tech Lab**



4th TDM Science Team Meeting: Science Activities

Irena Hajnsek and Thomas Busche



Objective of the 4th TanDEM-X ScienceTeam Meeting

➤ 1st TanDEM-X Science Team Meeting

- 15 May 2006 @ International Congress Center Dresden
- Goal: Presentation of the Mission Concept and the User Requirements

➤ 2nd TanDEM-X Science Team Meeting

- 24 Nov 2008 @ DLR Oberpfaffenhofen
- Goal: Mission Status and opening of the TDM Science Server

➤ 3rd TanDEM-X Science Team Meeting

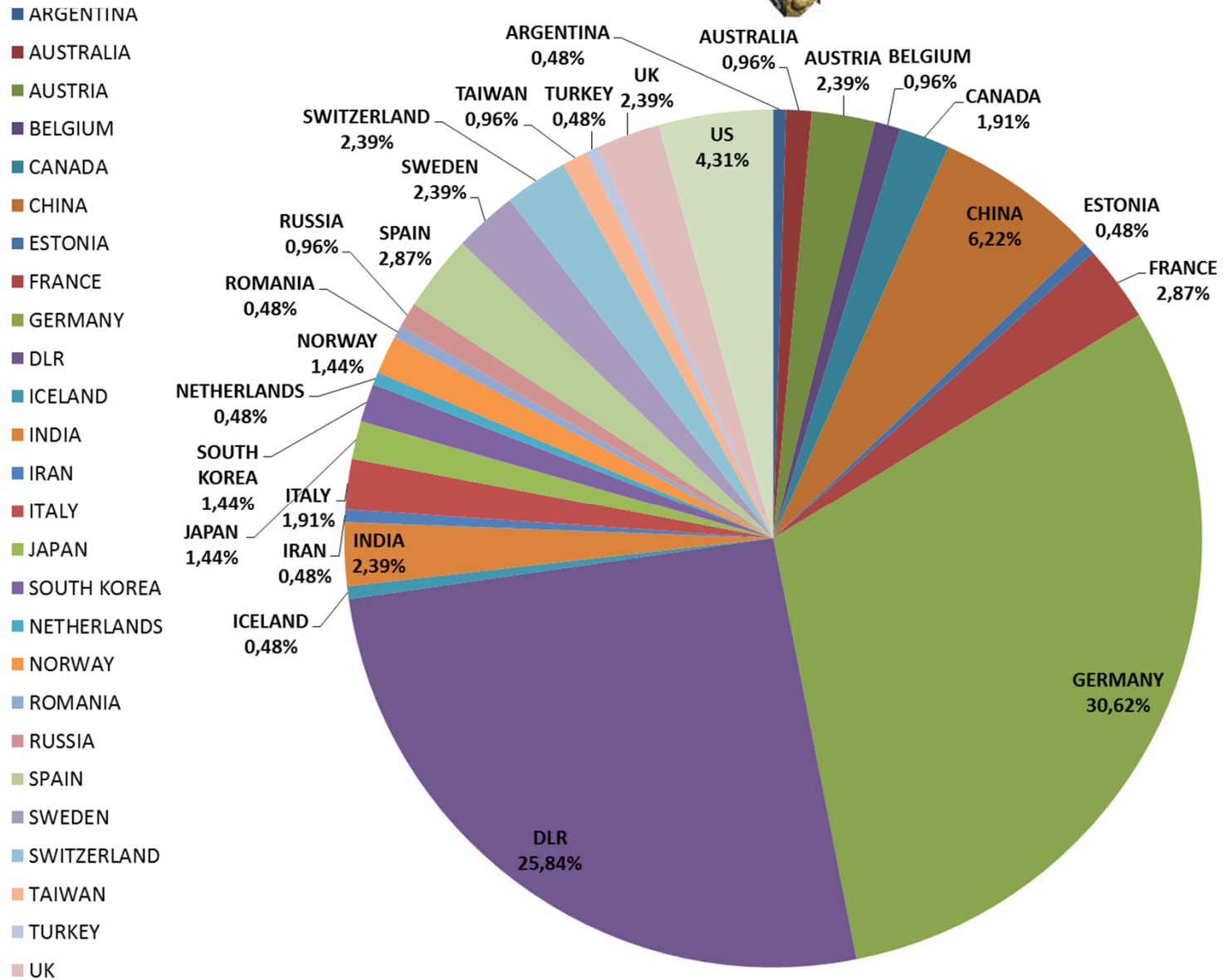
- 17-18 February 2011 @ DLR Oberpfaffenhofen
- Goal: Mission Status and super test site definition

➤ 4th TanDEM-X Science Team Meeting

- 12-14 June 2013 @ DLR Oberpfaffenhofen
- Goal:
 - Inform about Mission / DEM Status and AO for the IDEM
 - First scientific results from the PI's (48 paper contributions)
 - Science Experiments Definition for the 3rd TDM Phase

Nationality of the 209 Participants (Status: 10.06.2013)

55% German
+ DLR
45% other
countries



TanDEM-X Science Service System



Science Service System



You are here : Home

- Registered User Access
 - Investigator
 - Evaluator
 - Coordinator
- Basic User Registration
 - Investigators Registration
- View Other Proposals
 - Proposals Pre-Operational
- 4th Science Team Meeting
 - General Information
 - Registration
 - Abstract/Paper Submission/Maintain Address Details (for registered users only)
 - Accommodations
 - Site Map DLR
 - Final Program
 - Logistic Info/Travel
- Documents (Download)
 - Science Plan
 - Manual Science Service System
 - TanDEM-X Experimental Product Description
 - TanDEM-X CoSSC Generation and Interferometric Considerations
 - TanDEM-X DEM Product Specification
 - TerraSAR-X Basic Product
 - User License Agreement
 - COFUR Price List (Scientific Use)
- Software & Tools
 - Free IDL/ENVI CoSSC Reader
- Links
 - TanDEM-X Home
 - TanDEM-X Blog
 - TanDEM-X 3rd Science Team Meeting Presentations
 - EOWEB Data Access
 - TerraSAR-X Science Service System
 - Impressum/Contact Us
 - Print version
 - PDF version
- For registered users only
 - Username:
 - Password:

TanDEM-X Science Service System

The TanDEM-X Science Service System is a web interface for the submission and evaluation of scientific proposals. The portal is the main interface for Principal Investigators to define their acquisition requests. It is further used to monitor and track the status of submitted proposals and is a tool for the science coordination team to help organize the science user community of TanDEM-X.

- **(NEW 2013/04/30): TanDEM-X DEM Product Specification** This document reflects the current status of the TanDEM-X DEM product specification, and gives a first insight into the Digital Elevation Model products, which will become available to the science community in the future.
- **(2013/03/08): The next TerraSAR-X / TanDEM-X science team meeting will be held from 10-14 June 2013 at DLR Oberpfaffenhofen, Germany.**
 The main goals of the meeting are the presentation of results, exchange of experiences and the information about the mission status. Interested scientists are kindly invited to present their research results in an oral or poster presentation. Please note that a separate registration for TerraSAR-X and TanDEM-X sessions is required.
 The online services for registration and abstract submission for the TanDEM-X science team meeting is open now.
 Please register first, select the 'Registration' link from the side menu. The TerraSAR-X science team registration web form can be accessed [here](#)
 Please notice the following deadlines for both meetings:
Registration: from End of February, 2013 until April 30, 2013
Abstract submission: from End of February, 2013 until April 21, 2013 (extended!)
- **(2012/07/05): CoSSC Generation and Interferometric Considerations** This document is intended to clarify how the Coregistered Single look Slant range Complex (CoSSC) are generated and what are the particularities of the monostatic active and bistatic passive coregistered images.
- **(2013/04/22): IDL/ENVI TanDEM-X CoSSC Reader Software** New Version (1.20) with some bug fixes available! Download a Software tool for reading and handling TanDEM-X CoSSC data within the IDL/ENVI environment selecting the link. The software was developed and is kindly provided by Exelis Visual Information Solutions (<http://www.exelisvis.com>), in collaboration with DLR Microwaves and Radar Institute. Please check the pdf-file in the download zip-package for an installation & help documentation, and read therein the legal notices!
- **(2012/02/01): TanDEM-X Experimental Product Description** This document gives an overview of the variety of experimental products generated from TanDEM-X acquisitions, and contains a description of the Co-registered Single Look Slant Range Complex (CoSSC) product structure and format.
- New science users need to **register** first to get an account (see also the side menu link 'Investigators Registration'). After submission of the registration form an automated email is created, providing a link to a verification page. With the successful submission of the verification form the user account will be created, and the user is registered.
- Registered science users may login using the form fields on the left side menu. The proposal interface can be accessed after login by selecting the link 'Investigator' on the left side menu.
- **Evaluators** may access detailed information about the proposals they have been appointed to and submit their comments and rating.
- Anybody may access information about which proposals have been accepted and read their executive summaries [here](#).
- Important documents can be accessed from the left side menu. The **TanDEM-X Science Plan** gives an overview about the scientific objectives of the TanDEM-X mission. The document **TanDEM-X Science Service System Manual** provides both a summary and a detailed description of the procedure for submitting a scientific proposal. In addition it guides users through the acquisition request for TanDEM-X image products

Call for Proposals:

Name of the Call	Description	Due Date
PRE-OPERATIONAL-AO	This AO aims for user-specific experimental acquisition requests only. All data assigned to an approved proposal for this call will be free of charge.	October 31st, 2010. CLOSED
GENERAL Proposal Submission	This permanent proposal submission interface is open during the life time of the TanDEM-X mission. Commanding of a user specific data take requests may be limited due to orbit usage and downlink constraints and capacity during the global DEM mission phase. Please note that only Co-registered Single Look Complex (CoSSC) data according to the COFUR price list will be delivered. No DEM data will be provided. The DEM products of the mission will be made available at a later date, for which a special AO will be launched in the future.	Unlimited



<http://tandemx-science.dlr.de>

Statistics of Submitted Science Proposals

Announcement of Opportunity:

- Prelaunch (DLR Internal experiments)
 - Proposals: 17
 - Data Takes: 391 (312 successful)
- Pre- Operational AO
 - July, 13 until October, 31 2010
 - Objective: Only for user specific experimental acquisition requests
 - **Total Proposals: 211**
 - **Released Proposals: 154**
 - **Release Quote: ~70%**
 - Distribution into 17 scientific topics
 - **Data Take Requests:**
 - Standalone: ~ 900
 - Time series: ~ 15.000
- **General Proposal (since May 2011):**
 - Proposal: 30
 - COFUR: ~50 EURO per 50km (az)

<i>Scientific Topic's Pre-Operational AO</i>	<i>Amount</i>
Cross Track Ocean Interferometry	2
Cross Track Land Use Interferometry	18
Cross Track Vegetation Interferometry	24
Cross Track Hydrology Interferometry	11
Cross Track Geology Interferometry	20
Cross Track Glaciology Interferometry	30
Along Track Oceanography Interferometry	15
Along Track Hydrology Interferometry	3
Along Track Traffic Interferometry	5
Along Track Glaciology Interferometry	3
New Techniques Polarimetric Interferometry	13
New Techniques Bistatic SAR	6
New Techniques Digital Beamforming	1
New Techniques Super Resolution	1
New Techniques Interferometric SAR	26
<i>Other Applications</i>	32
Calibration & Validation	9

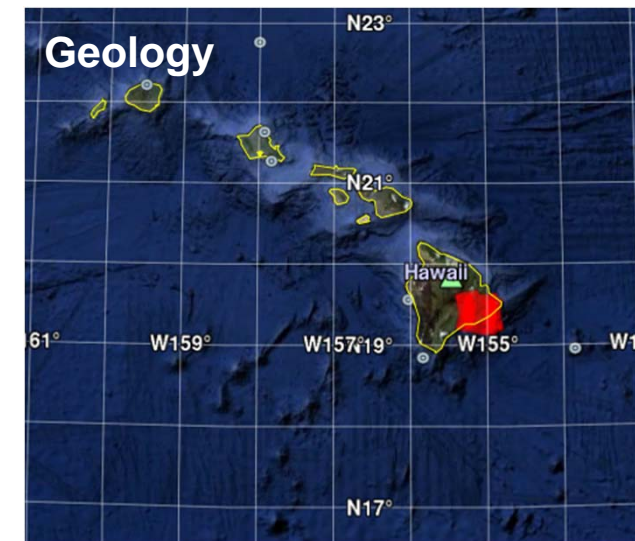
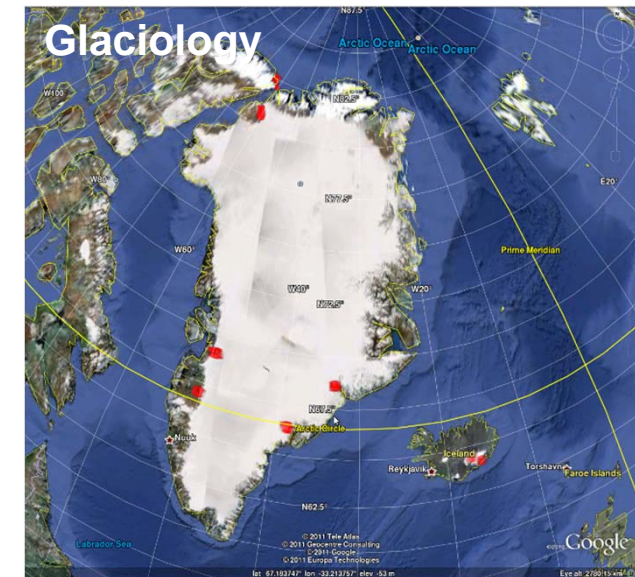


Super Test Site

➤ Super test site selection

Application Topic	Amount of Test Sites
Geology	20
Glaciology	33
Vegetation/Hydrology	11
Total	64

- Data acquisition since June 2011
 - every cycle (~11 day) most of the dt
 - thinning of dt (e.g. every 3rd cycle)
- Super test site are visible for every registered PI
 - Data acquisition reports stored for each test site
- Data provision
 - PI's of already approved proposals will have access to the data
 - New PI's will need to submit a science proposal



Super Test Sites



Geology	Glaciology	Vegetation/Hydrology
<p><i>Asal Fault asc</i> <i>Asal Fault desc</i> <i>Bezymianny Vulcano</i> <i>Breidamerkurjokull</i> <i>Colima Vulcano asc</i> <i>Colima Vulcano desc</i> <i>Etna</i> <i>El Hiero</i> <i>Grimsvotn and Skafta Cauldrons</i> <i>Kilauea East Rift Zone orbit 24/1</i> <i>Kilauea East Rift Zone orbit 32/1</i> <i>Kilauea summit orbit 24/1</i> <i>Kilauea summit orbit 32/1</i> <i>Merapi Vulcano</i> <i>Merapi Vulcano asc</i> <i>Piton de la Fournaise desc</i> <i>Shiveluch Vulcano asc</i> <i>Shiveluch Vulcano desc</i> <i>Soufriere Hills Vulcano asc</i> <i>Soufriere Hills Vulcano desc</i></p>	<p><i>Alert Sea Ice asc orbit 133</i> <i>Alert Sea Ice asc orbit 148</i> <i>Alert Sea Ice desc orbit 128</i> <i>Aletsch Glacier desc</i> <i>Antarctic Peninsula Mid West</i> <i>Antarctic Peninsula North East</i> <i>Antarctic Peninsula South</i> <i>Antarctic Peninsula South West</i> <i>Antarctic Pensinsula Mid East</i> <i>Barrow Sea Ice</i> <i>Bering Glacier 01</i> <i>Bering Glacier 02</i> <i>Bering Glacier 03</i> <i>Columbia Glacier asc/desc</i> <i>Hellheim Glacier asc/desc</i> <i>Jakobshavn Glacier</i> <i>Jakobshavn Inland Glacier</i> <i>Kangerdlugssuaq Glacier</i> <i>Petermann Glacier asc</i> <i>Pine Island Glacier Mid/N/S</i> <i>Russell Glacier asc/desc</i> <i>Thwaites Glacier North/South</i> <i>Wordie Shelf Ice desc</i> <i>Wordie Shelf Ice North/South asc</i></p>	<p><i>Barrax Spain Mixed Agriculture</i> <i>Demmin Agriculture</i> <i>Injune</i> <i>Krueger National Park</i> <i>Krycklan</i> <i>La Selva</i> <i>Remningstorp</i> <i>Sevilla Spain Rice Agriculture</i> <i>Tapajos</i> <i>Tasmania North East Forest</i> <i>Wallerfing Agriculture</i></p>
<p>Total: 20 test site locations</p>	<p>Total: 33 test site locations</p>	<p>Total: 11 test site locations</p>

TanDEM-X Data Delivery

➤ Since February 2012 EOWEB is open for TanDEM-X data delivery

➤ 154 EOWEB released

➤ 109 active accounts

➤ Some are sensitive orders

Collections:

- Thematic Maps
- IRS
- TanDEM-X
 - TanDEM-X_CoSSC
 - TDM-CoSSC-Experimental
- TSX-1
- SWACI
- SAR (Synthetic Aperture Radar Data)
- Optical Sensors High Resolution
- O3M-SAF

Query Mode: Standard

Date: From: 2011-03-12 00:00:00 To: 2012-03-12 23:59:59

Area: Rectangle, Center Lat/Lon: 51.002, 10.801, Extension Lat/Lon: 8.626, 9.804

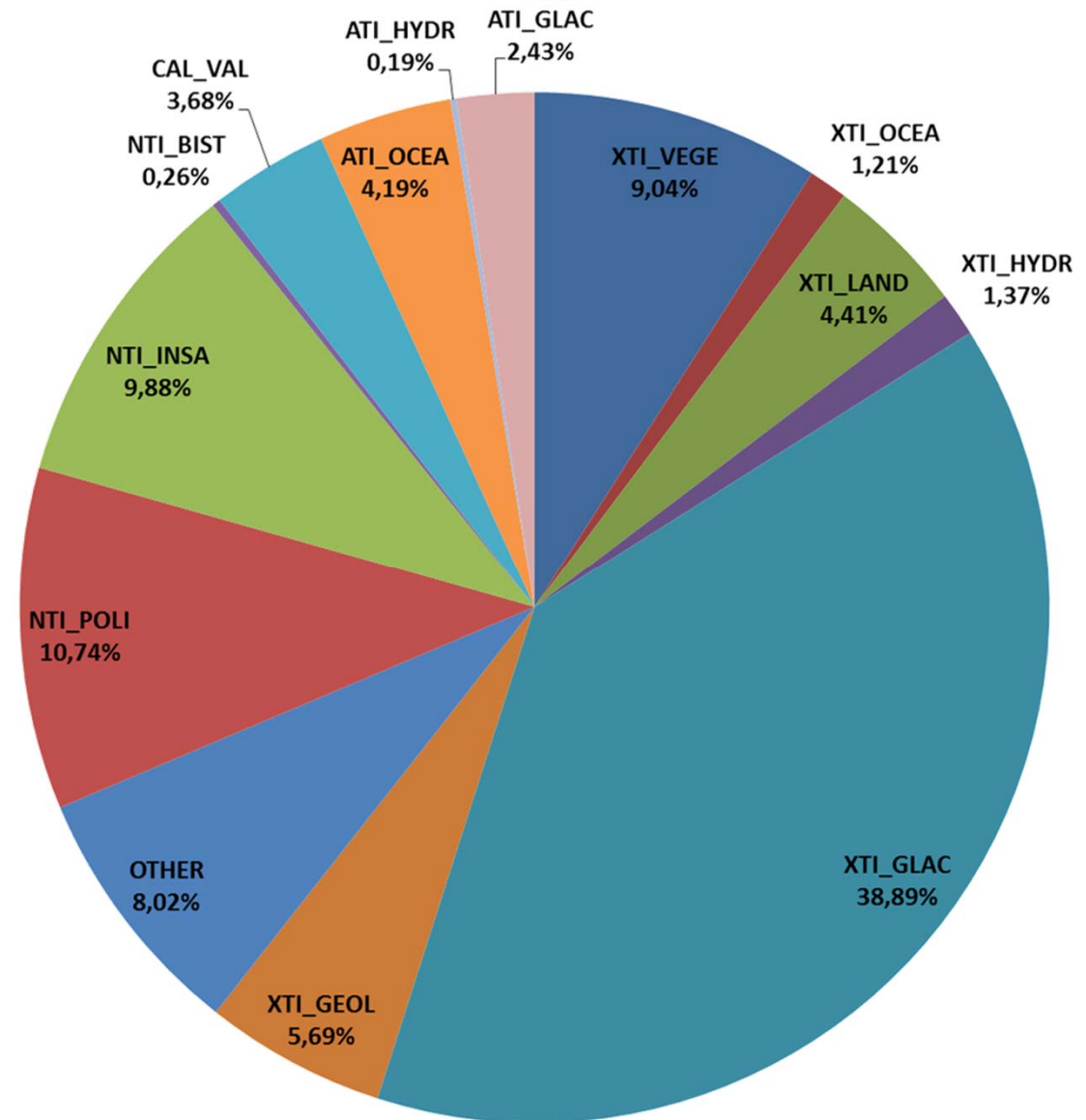
Id	Avail.	Abstract	Item Type	Mission/Satellite	Sensor	Start Date	End Date	Sensor Mode	Sat2 Polarisation Channels	Relative O
25	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-05-04T05:28:34,7...	2011-05-04T05:28:41,7...	Stripmap	VHVV	2
26	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-21T05:44:16,5...	2011-08-21T05:44:19,5...	Stripmap	HHVV	154
27	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-22T05:25:09,9...	2011-08-22T05:25:12,0...	Stripmap	HHVV	2
28	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-22T05:28:26,3...	2011-08-22T05:28:29,3...	Stripmap	HHVV	2
29	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-22T05:25:04,2...	2011-08-22T05:25:11,1...	Stripmap	HHVV	2
30	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-22T05:28:27,1...	2011-08-22T05:28:34,0...	Stripmap	HHVV	2
31	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-07-21T05:09:44,6...	2011-07-21T05:09:47,6...	Stripmap	HH	17
32	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-07-21T05:09:39,8...	2011-07-21T05:09:46,5...	Stripmap	HH	17
33	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-07-26T05:16:54,0...	2011-07-26T05:16:56,9...	Stripmap	VV	93
34	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-07-26T05:16:53,4...	2011-07-26T05:16:56,9...	Stripmap	VV	93
35	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-25T16:53:03,8...	2011-08-25T16:53:07,2...	Stripmap	HHVV	55
36	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-25T16:53:06,2...	2011-08-25T16:53:10,0...	Stripmap	HHVV	55
37	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-18T17:18:21,1...	2011-08-18T17:18:24,0...	Stripmap	HH	116
38	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-18T17:18:19,1...	2011-08-18T17:18:23,0...	Stripmap	HH	116
39	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-18T05:01:07,5...	2011-08-18T05:01:10,5...	Stripmap	HH	108
40	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-18T05:01:09,4...	2011-08-18T05:01:15,4...	Stripmap	HH	108
41	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-17T05:18:10,4...	2011-08-17T05:18:14,4...	Stripmap	HHVV	93
42	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-17T05:18:06,5...	2011-08-17T05:18:11,4...	Stripmap	HHVV	93
43	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-14T16:52:42,4...	2011-08-14T16:52:45,4...	Stripmap	VV	55
44	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-08-14T16:52:41,8...	2011-08-14T16:52:45,4...	Stripmap	VV	55
45	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-09-15T17:09:52,8...	2011-09-15T17:09:55,8...	Stripmap	HH	40
46	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-09-15T17:09:53,3...	2011-09-15T17:09:58,3...	Stripmap	HH	40
47	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-05-20T05:35:30,3...	2011-05-20T05:35:35,3...	Stripmap	HHVV	78
48	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-05-20T05:35:34,3...	2011-05-20T05:35:38,0...	Stripmap	HHVV	78
49	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-07-09T05:28:46,4...	2011-07-09T05:28:51,4...	Stripmap	HHVV	2
50	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-07-09T05:28:48,4...	2011-07-09T05:28:51,4...	Stripmap	HHVV	2
51	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-04-25T17:08:16,5...	2011-04-25T17:08:22,9...	Stripmap	HHVV	40
52	●	TDM-CoSSC-Experimen...	CatalogueSce...	TDM	SAR	2011-04-25T17:08:21,1...	2011-04-25T17:08:24,1...	Stripmap	HHVV	40

Data Distribution: Science Domains



TanDEM-X in Numbers:

- > 21000 CoSSC collected and available in EOWEB
- > 3100 CoSSC products ordered (from 109 accounts)
- Only ~14% of data are ordered
- Cross-track Glaciology highest order rate (~40%)
- Followed by New Techniques Pol-InSAR (~11%) and Cross-Track Vegetation (~9%)



Planned Announcements of Opportunities



Science Opportunities for the following products:

National

- Intermediate DEM July 2013
- CoSSC from the global DEM acquisition July 2013

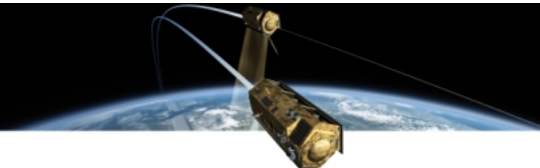
International

- Common AO with TerraSAR-X and RadarSAT-2 Sep 2013
 - Limited to PIs from Canada and Germany
 - IDEM and CoSSC products

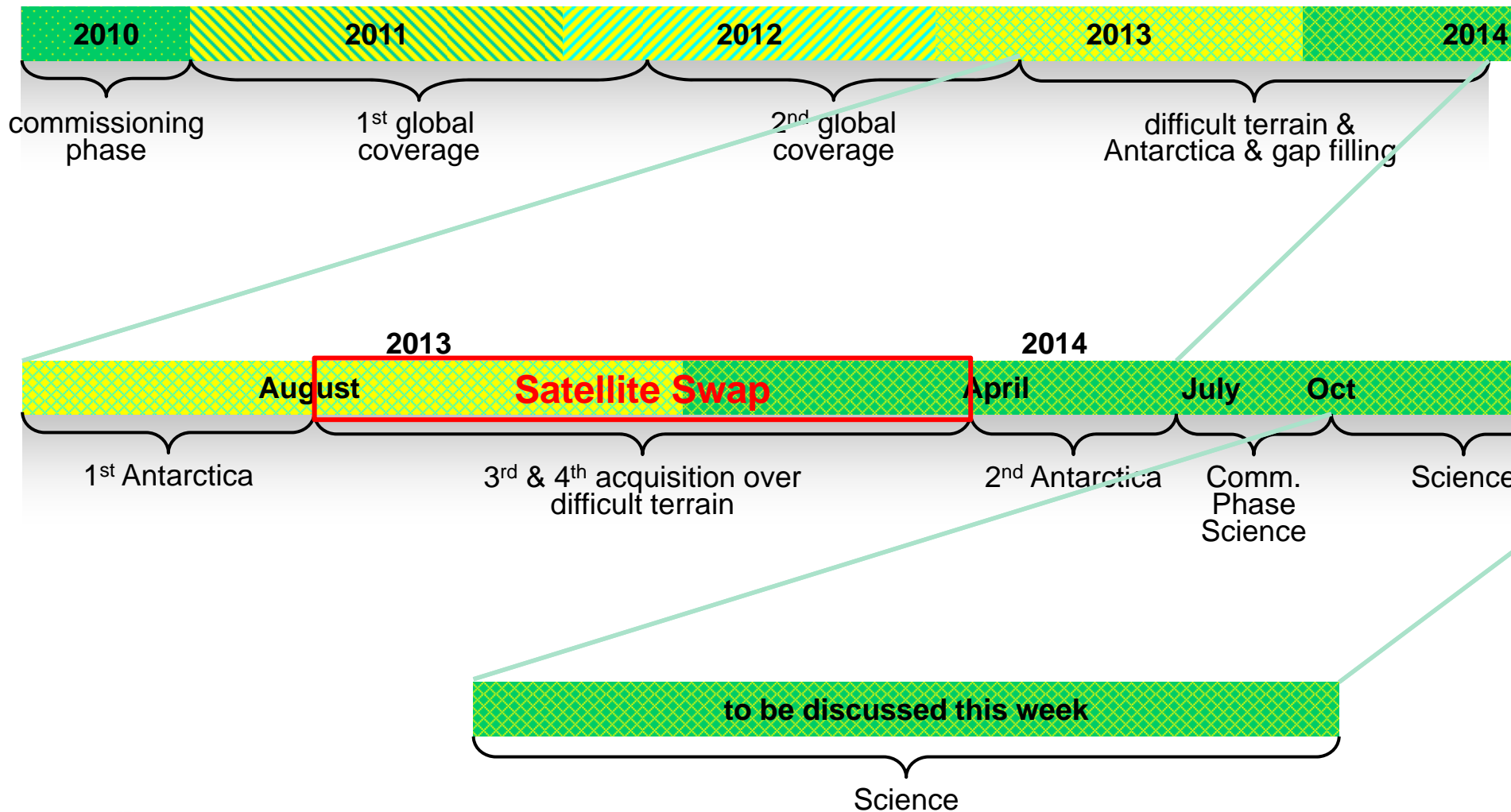
Definition of common test sites

- ALOS-2 (Cal/Val activities)
- Part of the GEO-Sites are also TanDEM-X super test sites
- MOU with JAXA: Member of the Kyoto and Carbon Science Group

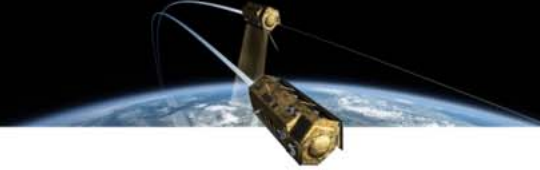
3rd TanDEM-X Mission Phase



TanDEM-X Global DEM Acquisition Plan

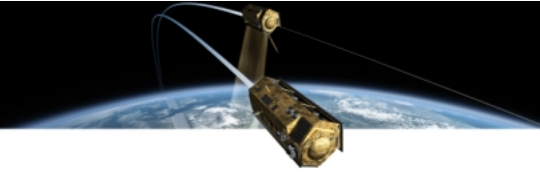


3rd TDM Phase: Definition



Planning requirements for the 3rd TDM Phase:

- Feedback from the science community and PI's
- Following information are requested:
 - Experiment / Application
 - Imaging mode
 - Baseline (along and across)
 - Coverage
 - Time frame / Number of acquisitions
- **First planning @ the splinter meetings on Fridays in 4 groups:**
 - Cryosphere/Ocean (EOC Einstein)
 - Hydro/Biosphere (Forest/Agriculture) (TechLab 1 OG)
 - Geosphere (Vorstandsgebäude)
 - New Techniques (TechLab 2 OG)



3rd TDM Phase: Applications

	Imaging Mode	Time Frame	Baseline	Coverage
Agriculture:				
Crop structure & height	Pol-InSAR (DRA)	4.5 months	long/huge (500m-3km)	selected sites
Cryosphere:				
Sea ice depth	Pol-InSAR (DRA)	4-5 cycles	huge	selected sites
Snow depth SWE	Pol-InSAR (DRA)	autumn-winter-spring	long/huge	selected sites (arctic, alpine)
Forest:				
Forest height	Pol-InSAR (DRA)	leaf on/off	small/long	selected sites (boreal forest)
Ocean:				
Ocean currents	ATI Alternating/ ScanSAR	1-3 cycle	ATI small XTI very short	selected sites (no time dependence) mid latitude



3rd TDM Phase: Applications

	Imaging Mode	Time Frame	Baseline	Coverage
New Technique Demonstration:				
MIT land and ocean	DRA – bistatic (short-long baseline)	1-3 cycle	small	selected small sites
	DRA prusuit mono	1-3 cycle	Small	selected small sites
Enhance image reconstruction (demo HRWS)	High resolution wide swath (DRA-4channel)	1-3 cycle	small	selected small sites
...				

3rd TDM Phase: Suggested Time Line for 2014

Mode	Appli.	1 oc	2 no	3 de	4 ja	5 fe	6 ma	7 ap	8 my	9 ju	10 jl	11 au	12 se
Pol-InSAR DRA bistatic long/short	Agri.												
	Forest												
	Cryo												
Spot - long	Urban												
Strip - long	DEM												
	Geology												
	Permafrost												
DRA bistatic short/long	MTI Land/ Ocean												
DRA pm short/long	MTI Land/ Ocean												
ATI Alt. bistatic	Ocean currents												
ATI ScanSAR	Ocean currents												
HRWS DRA-short	Enhance image rec.												

3rd TDM Phase: Baseline Definition



Baselines:

- **small < 250m**
- **Standart 250-600m**
- **Long 500-1500m**
- **Very long 1500-3000m**
- **Huge >3000m**