WInSAR Business Meeting 2016, 14 December 2016

Meeting called to order at 12:30 pm

1 Intro and welcome (Zhong Lu, WInSAR Executive Committee Chair)

There are 234 member universities in WInSAR now, 50% growth in the past two years. Many of the new members seem to have joined in order to access the ISCE software, which is distributed through WInSAR.

WInSAR is governed by an elected Executive Committee (EC). Members of the EC serve for 2 year terms.

Current/recent activities of the EC include:

- Continuing to facilitate TerraSAR-X (TSX) tasking (but, for those who requested it, please write an archive proposal to DLR to get the data you requested!)
- Coordinating TanDEM-X proposals among members, to maximize coverage of areas of interest to WInSAR members
- Introduction of a simplified ESA licence agreement, including open access to WInSAR's ESA data holdings to all members, including adjunct members outside of the US
- Running successful annual training courses for GMTSAR and ISCE
- New for this year: WInSAR-sponsored AGU special sessions (G33C, G43A)!

2) Report from UNAVCO (Chris Crosby and Scott Baker, UNAVCO)

Some background: WInSAR is supported by the GAGE project at UNAVCO (1 FTE equivalent) for archive support services. On top of that, we have received supplemental funding of $100K (from NASA?) for web services development work, and $55K from EarthCube.

Current activities include website updates, and getting the website and the data portal on the same web platform. We are also planning to add automation of certain website features, such as membership applications and proposal management.

We currently have 750 registered users of the WInSAR website, of whom 369 are data users. As mentioned before, access to the ISCE software is the main driver of new registrations.

There are 75 TB of data in the archive. The start of archiving of ALOS-2 in the past couple of years is a big driver of increases to that number.

Proposal management is an increasingly important focus of our efforts. If you have an active TSX or ALOS-2 proposal, we automatically download and distribute the requested data to proposal PIs and co-PIs. If you don't have an active proposal, you can still search the archived data to see what is available to other PIs, and potentially contact them and get

yourself added as a co-PI to gain access. We have a request from the WInSAR membership to add ASI proposal management (for the Cosmo-SkyMed mission) as well.

Again, we'd like to draw your attention to the possibility of writing TSX archive proposals – if data acquired and archived by TSX are more than 18 months old, you can write a proposal to get access to those data for free!

We are pursuing cloud integration of the archive with XSEDE funding – moving archived data into the TACC Jetstream Science Cloud. This has a number of advantages:

- The archive will have improved bandwidth (through the 'Internet 2' consortium)
- Computational resources (through XSEDE) will be in the same physical location as the data archive – this could potentially remove the need for downloading the data across the Internet
- The archive will have a Jupyter Hub – lots of the software you might want to use is pre-installed, and you can apply for XSEDE computing allocations for more advanced analyses
- Scott will give more details on his poster on Thursday

3) Updates from agencies (Ben Phillips and Gerald Bawden, NASA)

Ben Phillips, Lead for NASA's Earth Surface and Interior (ESI) Focus Area: Given the recent election and the start of the transition, there is currently lots of turnover in upper management. A NASA transition team has been named and is partially in place. Despite these changes, we are well-positioned to continue to do what we are doing. Natural Hazards are things that have universal appeal and will continue to resonate and be cornerstones of NASA's Earth Science activities, in particular the NISAR mission.

Congress has extended a continuing resolution through April, and distribution of funding will be continuing soon. In the current round there are 18 new awards from the 2016 ESI/ROSES pogram (seven of which are InSAR related), four new awards for the space geodesy research program (e.g. reference frame determination). There are also two more ROSES competitions in review. We have a call for new NASA sea level change team (including solid earth deformation), and another for connections between solid earth and fluvial hazards.

A 2017 ROSES ESI call is planned, look out for it.

The 'CORE' report will be published next year, drawn from community input from a workshop held last year. Read it! Content from there will show up in future opportunities!

Gerald Bawden, NASA-USGS liaison for solid earth and hydrology: The NISAR satellite is being built. What are the threats to the mission? We need to be communicating the wide variety of applications of the satellite and pushing the geodesy science points to the public. This should be an important activity in the near future.

NISAR mission latest:

- NISAR is now in mission Phase C, a major step forward, marking the transition from mission formulation to mission development.
- A new Science Definition Team was named in late Spring.
- A new NISAR Science Team will be competed in 2 years' time.

UAVSAR will soon have a new platform (a new plane, a G5). With the new platform, there will be a suite of different radar wavelengths, from Ka-band to L-band to P-band. All three will have a common flight request process. NASA is currently considering the value of supporting UAVSAR stack processing.

An agreement between NASA and Argentina about the SAOCOM mission is still in the discussion phase. SAOCOM will be a two-satellite L-band mission; each will have a 16 day orbital repeat and there will be a 8 day separation between the two satellites. NASA has invested in upgrading downlink capacity to assist.

NASA collaborating with ESA for the BIOMASS project, and also for a companion satellite for SAOCOM.

We are doing everything we can to provide the data streams to the community – so we need to see the publications coming out from that – you do your jobs and we'll keep on doing ours!

4) NISAR & ISCE updates (Paul Rosen, NASA/JPL)

We are building hardware. And everything that was requested is still in the mission – there has been no descoping so far! We are working to push the launch up as fast as possible. The best indications are for a launch in 2021. This is a slight delay from previous estimates, but ahead of the nominal schedule when the mission was first proposed (2022)!

We are currently testing various engineering models and systems, such as the interfaces with the flight system and radar hardware, with ISRO. We are trying to figure out how much data we can realistically take with the system. It is a huge system, a beautiful system – the new administration should like that.

The SAR antenna should provide 240 km-wide swath coverage with no azimuth resolution loss, and full polarization capabilities, to meet all the science objectives. It will use a 12 m reflector dish, and have both S- and L-band instruments. A vendor has been selected for the reflector dish (Northrop Grumman), and another for the 12 Tbit data recorder.

The observation plan has been firmed up. We will cover pretty much all the land on Earth in 12 days, with very few gaps (the Sahara is one exception). There is a stable, and minimal, set of observation modes for most of the globe. Background acquisitions over most of the land area of interest will be dual polarization, with 20 MHz of bandwidth (giving ~10 m pixels), this will comprise 75% of the global coverage. ISRO have a different acquisition plan for India. There will be lots of quad-pol modes used there.

We anticipate a data volume of 1 petabyte of raw data per year, ramping up to 50 PB for the whole mission(!) This is equivalent to 3.25 Tb/day of raw data, which will scale up to 50 Tb/day once those data are processed. A robust cloud system will be an important part of how this huge data volume will be handled!

Some upcoming milestones:

- A community science data processing workshop is pencilled in for Fall 2017 (TBC)
- A community science workshop is planned for Fall 2018 (TBC)
- The next Critical Design Review is scheduled for Fall 2018 (all other milestones have been on-track, so we anticipate this one will be, too)
- Applications workshops will be more focused, and there will be more of them. The next, an ecosystems workshop, is planned for May 2017.

The ISCE software has been driven forward immensely in the past year, led by Piyush Agram. Lots of framework improvements and bug fixes have been made. JPL are figuring out how to open source the software, and progress has been made there, although it is still under some nominal export restrictions (it is classified as 'EAR99', but pencils also fall under that category!)

You can now run ISCE on the open cloud (see presentations later today). It is made up of lots of python-scripted modules, with some FORTRAN and C++ codes in the depths. It is compatible with GIANT and PLANT

There will be a tight relationship between ISCE and NISAR – the mission will be using it to produce the data products at both low and high levels.

5) GMTSAR update (Dave Sandwell, Scripps Institute of Oceanography)

We hosted our 5th short course in GMTSAR in La Jolla in August 2016. 25 students attended, with eight more participants joining in online. Students do some homework in GMT before they come, so that the course time can be used more efficiently.

Latest GMTSAR developments:

- It is now fully integrated with GMT5
- No external libraries are needed beyond those used by GMT5
- Pure geometric alignment for Sentinel-1 is a game changer! No need for fiddling with orbits or baselines! You can see phase closures around closed loops! Refinements both in software and in radar instrumentation have led to this improvement. Long, linked stacks are now possible.
- Burst overlaps give you the capability to measure ionosphere and along-track displacements.

6) Updates on Sentinel-1 and SAOCOM from ASF (Scott Arko, Alaska Satellite Facility)

The ASF Sentinel-1A data mirror was released in December 2015. Sentinel-1B data were added in September. Holdings have reached 1Pb of data so far.

Every ESA product that is made is pulled and ingested into the ASF archive. There is a small delay between the data appearing at ESA and being available at ASF, due to the time it takes to pull the data across the Atlantic.

We have updated the Vertex data search/download tool, giving it improved searching and filtering capabilities as well as a lighter load on web browsers.

The Sentinel-1 mirror has been moved to the cloud, following (and thanks to) community 'inputs'. The DAAC is now effectively distributed. The Alaska facility is the master store, but much of the 'active' data has been pushed out to the 'edges' – the Amazon cloud, the NASA cloud, the LP DAAC. Download speeds are higher, everything is 'hidden' – you don't need to know exactly where your data are being downloaded from, and it shouldn't (and doesn't) matter.

Coming this year: we are working with ARIA team and JPL to solve engineering problems with moving to NISAR scales. More Vertex improvements and API improvements are planned – e.g. getting orbital state vectors directly through the API.

Please come to the ASF reception at 5.30 tomorrow, in the Marriott – 5th floor, Sierra E.

7) COSMO-SkyMed/Supersites data access (Stefano Salvi, INGV)

The Cosmo-SkyMed (CSK) 2nd generation mission is planned to start in 2018 with two satellite launches (which are on track, they claim), and will run until 2024.

For those interested in CSK data access, there are several options:

- You can get data by agreement with ASI for institutional users – write to the mission manager Alessandro Coletta, and agree to pay some fees (typically 50-100 Euros per scene, maybe discounts are available?)
- There is an open call for science projects (2 month evaluation period), research only. You can get 100 scenes per project, only 20 of which can be 'new' acquisitions, all free.
- There is limited 3rd party mission access available through ESA
- There is access through some bilateral initiatives (e.g. ASI-CSA, for Canadian researchers)
- Access through GEO Supersites. Currently two more supersites are being planned for South America. For supersites in general there is a constant data flow from ASI with no limit on number of scenes. The low latency means the data can be used in operational mode.
- You can get access through CEOS initiatives – they are promoting four thematic pilots. However, this program finishes in 2017, so it's maybe not a sustainable way to get data!

8) New opportunities for WInSAR?

Do you have any thoughts about what WInSAR can or should do in future? Please e-mail any thoughts or comments to Zhong Lu.

9) WinSAR Executive Committee election results

The EC for 2017–2018 will be:

Chair: Gareth Funning
Vice Chair: Franz Meyer
Secretary: Eric Hetland
At-large members: Piyush Agram, Kristy Tiampo

Thanks to Jaime Magliocca and the UNAVCO staff for helping us put this meeting together!

Meeting closed at 1.30 pm.