

**IRIS Board of Directors Meeting
May 8-10, 2018
IRIS Headquarters, Washington, DC**

Attendees:

Board Members: D. Wiens (Chair), C. Thurber (Vice Chair), K. Fischer, S. Hansen, K. Koper, V. Schulte-Pelkum, D. Shillington Absent: Z. Peng, M. West

IRIS Staff: R. Detrick (President), T. Ahern, C. Shin, J. Taber, R. Woodward, K. Anderson (5/8-9/18 only), R. Busby (5/9/18 only), A. Frassetto (5/9/18 only), K. Hafner (5/8-9/18 only), M. Swanson (5/8-9/18 only), R. Porter (5/8-9/18)

Standing Committee Chairs (5/9/18 only): G. Pavlis, J. Louie (via telecom), J. Park, S. Schwartz, A. Sheehan, B. Stump

AGENDA

Tuesday, May 8th

- 3:00-5:00 Board Member Orientation – John Rodock (Baker Donelson), Jacqueline Henson (Baker Donelson), Greg Plotts (Aronson LLC), Swanson (IRIS), Shin (IRIS)
5:30-7:00 Buffet dinner at IRIS HDQ

Wednesday, May 9th (Board, SMT, PM and SC chairs)

- 8:00-8:30 Breakfast
8:30 Welcome – Chair’s and President’s remarks
8:35 Approval of Consent Agenda
8:45-10:00 NCEO Update
 - NCEO discussions with NSF (*Detrick*)
 - NCEO transition planning discussions with UNAVCO (*Detrick*)

10:00-10:15 *Break*

10:15-11:30 Other SAGE related issues
 - CEUSN transition to USGS Operations (*Woodward, Busby*)
 - TA demobilization plans (*Woodward, Busby*)
 - Large-N Data Issue and possible solutions (*Ahern*)OBSIP/R/V Langseth Update (*Woodward*)
 - NSF response to IRIS BoD letter

11:30-12:00 Preparation for meeting with NSF and USGS

12:00-1:00 *Lunch*

1:00-2:30 Meeting with NSF and USGS

2:30-3:00 Follow-up discussion of meeting with NSF and USGS Management and Program Guidance I
 - CoCom Report (*Thurber*)

3:00-3:15 *Break*

3:15-5:00 Management and Program Guidance I (con't)
• Spendout of SAGE Yr 5 funds

6:00 Dinner Old Ebbitt Grill (675 15th St NW)

Thursday, May 10th (Board and SMT)

8:00-8:30 Breakfast

8:30-10:00 Management and Program Guidance II

- Decisional CoCom Issues for the BoD
 - Disposition of CEUSN/N4 equipment not transferred to USGS
 - Reactivation of the Active Source WG
 - EMAC Letter to the BoD
 - IRIS Data Workshops
 - IRIS relationship with OBSIC going forward
 - Management of historical datasets
- BoD Action Items from the Budget and Finance Committee
 - Comments on/approval of FY17 Form 990
 - Authorization of proposed distribution of unrestricted funds from Morgan Stanley account

10:00-10:15 *Break*

10:15-12:00 Future Planning

- Discussion of NCEO transition issues
 - SC membership
 - Community workshops
- Board Nomination Committee membership
- Other issues (GLISN proposal; PASSCAL instrument use, etc.)
- Succession planning (*Detrick*)

12:00-1:00 *Lunch*

1:00-3:00 Board Executive Session (Board + President)

Adjourn

MINUTES

Meeting called to order by Board Chair Doug Wiens about 3:00 pm on May 8th, 2018.

1. Board Training (Board attendees: S. Hansen, V. Schulte-Pelkum, C. Thurber D. Wiens)
An ~2 hour orientation session was held for new Board members. Attorneys Jacqueline Henson and John Rodock, from the Baker Donelson law firm gave a presentation on good non-profit governance and the legal responsibilities of the non-profit Director. Marlo Swanson gave a presentation on IRIS' Sexual Harassment policy and Board members signed a document testifying that they have read and understand this policy. We also heard from Greg Plotts, IRIS auditor at Aronson LLC and Candy Shin who presented a financial overview of IRIS.

2. Consent Agenda

Motion 1805-01: The Board unanimously approved the following motion (Fischer moves; Thurber seconds): *“The Board approves the following Consent Agenda items as presented in the May 3rd, 2018 pre-Board webinar with documentation provided and reviewed prior to this Board meeting.”*

- The Board received and approved the Minutes of the February 20 & 21, 2018 Board meeting. Minutes have been posted on the BoD website.
- The Board approves the letter to NSF regarding the R/V *Langseth* DCL.
- The Board approves the IRIS/SSA Distinguished Lecturers for 2019 (Susan Hough, Arthur Rodgers)

3. Management and Program Guidance I

3.1 NCEO Update

Bob Detrick reviewed the status of IRIS' NCEO proposal. He explained that we had hoped that the National Science Board (NSB) would act on our proposal at their May meeting. However, NSF informed IRIS in March that this has been postponed to the July meeting of the NSB. A presentation on NCEO was made to the NSB subcommittee on Awards and Facilities in May.

If the NSB approves our NCEO proposal in July, we expect the present SAGE Cooperative Agreement (CA) will form the basis a new CA. NSF is likely to impose new terms and conditions in the new CA. These new conditions may include:

- Annual programmatic reviews
- Harassment reporting
- Competency requirements
- Cyber security
- NSF branding

NSF has asked IRIS for comments on the SAGE CA. IRIS will seek changes to the CA in several areas:

- Reduce burden on Quarterly Reporting requirements
- Change foreign travel approval to notification
- Revised performance metrics
- Wording to protect IRIS corporate information
- Intellectual property and sub-awardees
- Include a Management fee (now called just a “Fee” by NSF)

Action Item (1805-01) – If the NSB approves our award, the Board will have to review and approve a new CA with NSF in August 2018.

NSF has indicated that IRIS will have to spend out all SAGE Yr 5 funds by Sept 30, 2018 (i.e. no carryover funds) with a few exceptions (TA, MT operations, TIMS meeting). Later in this meeting the Board discussed priorities for utilizing any unspent SAGE funds.

Discussions with UNAVCO. Beginning with the IRIS Board of Directors meeting in February, IRIS and UNAVCO have had continuing discussion on the transition to NCEO, including the following topics:

- NCEO Governance and Management Structure
- NCEO website and social media
- e-newsletter and publications

- Fall AGU activities
- Community workshops

Detrick reviewed what has been agreed to in these discussions. Until a final decision is made by the NSB on the IRIS and UNAVCO NGE0 proposals these discussions are on hold.

Action Item (1805-02) – Once a final decision is made on NGE0 by the NSB, the IRIS Board will have to meet (by teleconference) to revisit these transition plans and work with the UNAVCO Board to modify as necessary.

3.2 Other SAGE-related Issues

CEUSN transition to USGS operations. Bob Busby reviewed the plans for transitioning operation of the CEUSN to the USGS at the end of FY18. USGS plans to descope N4 from 153 to 131 stations plus operate 14 CEUS RefNet stations. IRIS is seeking other operators for 4 western RefNet stations, 12 EARN stations and 5 descope stations.

Activities planned for FY 18 include:

- IRIS will monitor and assess CEUSN network performance and diagnostics; maintain data availability with station service up to Sept. 7th, 2018
- IRIS will upgrade station cellular modems to 4G and secure VPN
- IRIS is working with landowners to release IRIS from existing permits as well as initiating contact between landowners and USGS. Permits transfer August 15th.
- Title to all equipment that USGS will continue to operate will be transferred from NSF to the USGS on September 1, 2018; USGS assumes telemetry costs on Sept. 1
- IRIS has received approval from NSF to use \$150,200 of SAGE-TA funds to remove ~20 stations USGS does not wish to continue to operate; equipment from these stations will be sent to the PASSCAL Instrument Center
- USGS will add a new task to our FY18 Interagency Agreement (IAA) to fund additional N4/RefNet station removals if landowners do not agree to change their permits to the USGS; equipment from these stations will be retained by the USGS

USGS will take over full operational responsibility for the CEUSN/N4 network on Oct. 1, 2018. USGS will support the ANF through a new IAA with NSF for the first 6 months of FY19. The ANF will provide real-time data collection and metadata management for CEUSN. IRIS Data Services will also have support for the first 6 mo of FY19 for curation, archiving and distribution of CEUSN/RefNet data.

Busby noted that these plans will result in the loss of 6 FTE (3 IRIS employees and 3 subaward staff at UCSD) and an \$1.3M/yr award with its associated overhead. After the transition of the CEUSN to USGS, IRIS will no longer be operating any “TA-like” stations in the L48.

TA-AK Demobilization. Bob Busby also summarized the status of the TA-AK experiment. The TA-AK installation was completed in Fall 2017 and consists of about 280 autonomously operating stations across Alaska and the Canadian Yukon equipped with broadband seismometers, infrasound, pressure, meteorological, and soil temperature sensors.

A number of SAGE-supported and cooperative activities are planned for FY18, including:

- Monitor and assess performance and diagnostics
- Maintain data availability through station service

- Upgrade stations to lower cost comms as available
- Addition of (30) Forgen Wind Turbine at northern stations
- (12) Borehole upgrades at AEC and Canadian stations supported by the operators
- Strong Motion sensors added to Tsunami Warning station locations at: TA.S15K / AT.CHGN and TA.S19K / AT.OHAK
- Additional (12-15) Met sensor installations
- Woods Hole Research Center soil sampling-NASA ABoVE / NSF BIO
- SpaceWeather trial with MACAW project and possible soil moisture / snow depth via backscatter

Station removals are slated to begin in 2019 with about 60 stations in northern Alaska, and continue with removal of about 120 stations in southern Alaska in 2020, closer to the subduction zone.

The potential for adoption of TA-AK stations was discussed. This includes:

- USGS / AEC adoption of USArray stations (up to 80 stations)
- NOAA / NASA supplemental sponsorship
- Canadian Sponsored operation in Yukon while CCArray is forming

Action Item (1805-03) – IRIS to hold meeting May 30th in DC to engage multiple agencies (USGS, NOAA, NASA, NSF, State of Alaska) about potential future uses of the TA-AK stations and will continue to try to raise interest in the adoption or continued operation of TA-AK stations.

Large-N Data Issue and Possible Solutions. Tim Ahern described several potential affordable solutions for archiving the very large data sets (> 10 Tb) expected from Large N experiments. Although Cloud solutions and Data Bricks were both investigated, it appears that the best solution may be relatively inexpensive JBOD RAID systems. The cost to the end user would be \$150/Tb for JBOD storage at both the DMC and ADC, compared to the current \$1,250/Tb. The initial cost of the RAID would be borne by the PI; future storage costs by IRIS DS.

This solution would allow the DMC to manage Large N data sets in a scalable manner. High volume data could be accessed seamlessly from the current archive, PH4 and this Large N system, although transfer times from the PIC to the DMC may be longer and JBOD RAID systems may be less reliable than more expensive RAID systems. While PIs would have to include this cost in their proposals, it is an affordable amount. This approach could also be a solution for historical, scanned seismograms and other data products with significant volumes (e.g. images).

Action Item (1805-04) – DS will acquire two JBOD RAID systems using SAGE Yr 5 funds for testing and evaluation. DS will report back to the DSSC and Board at their next meetings on the performance of these JBOD RAID systems.

OBSIP R/V Langseth. The Board discussed its concerns regarding the announced NSF plans to divest itself of the R/V *Langseth* in 2020 and no longer accept proposals for use of the *Langseth* for MCS studies. The Board is very concerned that this step was taken without a clear plan for providing a “*Langseth*-type” capability to the US research community post-2020. The Board was particularly concerned about the impact on early-career investigators and US leadership in the field of research.

Action Item (1805-05) – Depending on the response of the NSF to the IRIS letter, the Board should consider scheduling a face-to-face meeting with Bill Easterling at NSF on this issue.

4. Meeting with NSF and USGS Agency Representatives

The Board had a 1½ hour discussion with NSF and USGS. NSF was represented by L. Patino, M. Benoit, E. Zanzierka, R. Murray, C. Major, M. Tivey, M. Jackson and D. Kowalewski. USGS was represented by Cecily Wolfe and Bill Leith (via teleconference).

The discussion covered a wide range of topics including the N GEO approval process, IRIS concerns about the R/V *Langseth* DCL, TA-AK demobilization and potential station adoptions, and Polar seismic instrumentation and base support. L. Patino announced the Earth Sciences Division will be commissioning the National Research Council to conduct a “Decadal Study” for Earth Science. The study is expected to be completed in 2020.

5. CoCom Report

Cliff Thurber presented the CoCom report to the Board. He reviewed a list of several informational items from CoCom for the Board and six items CoCom asked for a Board response on. The Board response for these six items is summarized below.

5.1 EMAC: IRIS BoD response to the EMAC letter of April 3rd, 2018

The Board discussed the EMAC letter at length. First, the Board wanted to convey how impressed it is with the achievements of the EarthScope USArray magnetotelluric (MT) program, and in particular the MT Transportable Array (TA), which has succeeded far beyond initial expectations. The Board is quite supportive of an effort to extend the MT TA deployment to cover all of the lower 48 states. The Board recommends that the starting point needs to be a community-driven proposal that can be brought to NSF and other possible funding sources. The proposal can take advantage of the well-established framework for carrying out the MT TA deployments developed in EarthScope, and include a clearly defined project plan and associated budget. IRIS can assist by helping arrange a meeting among interested parties as well as assisting with developing the proposal itself. The Board would be happy to provide input and advice as these efforts are developed.

5.2 DS: Seeks support from the Board for future IRIS Data Workshops; asks the BoD’s thoughts regarding historical data management and having an NRC study examine cross-agency support for long-term management of seismic data

The Board is strongly supportive of continuing to hold Data Workshops but recognizes that there is no support for Data Workshops in the N GEO budget. The Board suggests that the DSSC Chair draft a letter that the Board could send to NSF (M. Benoit), along with the supporting letters the DSSC has assembled, and ask for her support to seek support outside N GEO for these workshops.

Action Item (1805-06) – IRIS will transmit a cover letter and supporting letters on continuing IRIS Data Workshops to NSF.

The Board supports having the DMC act as the archive for scanned images from analog sources such as paper records, film chips, etc. as has been suggested by the Committee on Seismology and Geodynamics (COSG). If the cost of scanning, metadata creation, and other related tasks is borne by other organizations or individuals, and if they pay for the initial cost of an inexpensive storage system (currently ~\$150/terabyte), IRIS could manage these data in perpetuity contingent on availability of adequate funding. It is also recommended that usage of these data be tracked to assess their apparent value to the community relative to the volume of data and the associated cost of storage and management.

Action Item (1805-07) – The above response from the IRIS Board on archiving of historical data at the DMC should be conveyed to the COSG.

Support for the long-term management of seismic data at the IRIS DMC is not solely an NSF responsibility and other Federal agencies that utilize this facility (e.g. USGS, DOE, DOD) should contribute to its support. The planned NRC “Decadal Study” of Earth Science would be an appropriate place for this issue to be addressed.

5.3 EPO SC: Requests approval of the 2019 IRIS/SSA Distinguished Lecturers

The Board approved Susan Hough and Arthur Rodgers as the 2019 IRIS/SSA Distinguished Lecturers.

5.4 TAAC: Seeks guidance from the Board on the disposition of the CEUSN/Lower48 equipment that are unsuitable as spares for Alaska and not needed by the PIC.

The Board discussed the disposition of equipment from CEUSN/Lower48 stations not being adopted by the USGS. The Board recommends that the PASSCAL Instrument Center (PIC) first assess the condition of the returning equipment, especially the sensors. The highest priority is to add equipment that is in good condition and that is needed by PIC (e.g., STS-2's and T240's) to the PASSCAL pool. Other equipment that is functional but not needed by the PIC (e.g., CMG3's) should be offered "as is" to the community, including regional networks, educational affiliates, and international partners, perhaps through a targeted call for instrument requests. Input from EPO and IDS should be sought in this process.

5.5 PASSCAL SC: Requests the reactivation of the Active Source Working Group.

The Board supports this request and asks the PASSCAL SC to provide the Board with a revised charter for the working group and a proposed membership.

Action Item (1805-08) – The PASSCAL SC should provide the Board with a revised charter for the Active Source Working Group and a proposed membership.

5.6 CoCom: Request the Board consider reinstating one face-to-face CoCom meeting per year.

The Board discussed the merits of holding a face-to-face CoCom meeting and recognizes that it could improve the effectiveness of this committee. However, the Board deferred a decision on this pending final decisions on the IRIS NGENO proposal and the associated NGENO governance structure.

6. Spend-out of SAGE Year Funds

NSF has indicated that IRIS will have to spend all SAGE funds by Sept 30, 2018 (i.e. no carryover funds) with a few exceptions (TA, MT operations, TIMS meeting). The Standing Committees were asked to identify their programmatic priorities for using any unspent SAGE funds. The Board reviewed these lists and developed the following list of priorities for IRIS management to use during the SAGE spend-out:

Priority	Item	
1	Additional MT-TA stations (Option B)	~\$352K
2	Portable P&S Source	~\$90K
3	Nodes	~\$1,400/node
3	JBOD RAID	~\$150K
4	Q330 & Episensors	~\$86K

Notes:

The BoD recommended that the MT-TA program, its highest priority, be given the authorization ASAP to spend these funds so they can assemble an additional field team to complete this work before the end of the summer/fall field season.

Acquisition of additional nodes and another JBOD RAID are linked and considered equal priorities. Funds available for these two level 3 priorities should be split between acquiring more nodes and acquiring additional JBOD storage capacity.

If the upgraded T360 Vault Sensors cannot be acquired, that money is applied to obtaining the Q330s and Episensors.

7. Budget and Finance Committee Action Items

After discussion, and in consideration of information presented in the pre-meeting webinar, the Board approved the following two motions:

Motion 1805-02: *“The Board approves the submission of the IRIS Form 990 for 2017”.* Fischer moves; Shillington seconds; approved unanimously

Motion 1805-03: *“The Board approves the quarterly distribution of funds from the Morgan Stanley investment account to meet current and expected unallowable expenses over the next year”.* Thurber moves; Fischer seconds); approved unanimously

8. Board Nomination Committee Membership

The IRIS By-laws require that the Board Nominating Committee be appointed 180 days prior to the Membership Meeting, which this is June 13th.

The approved the following membership for the Nominating Committee:

Nominating Committee

Karen Fischer, Chair

Miaki Ishii, Co-Chair

Aubreya Adams, Colgate

Nick Schmerr, Maryland

Fan-Chi Lin, Univ. of Utah

Action Item (1805-09) – The President is charged with contacting these proposed members to see if they are willing to serve on the Board Nominating Committee

9. Board Nomination Committee Membership

The Board discussed personnel changes expected in the next year including retirement of the Director of Data Services.

Action Item (1805-10) – The President is charged with assembling a search committee for the Director of Data Services and beginning the search process this summer. Keith Koper will serve as Board member on this search committee.

10. Board Executive Committee Session

The Board met in Executive Session from 11:00-1:35 pm. Topics included: SAGE Spendout priorities, succession planning for key IRIS staff and standing committee membership

Meeting adjourned by Board Chair Doug Wiens about 1:35 pm on May 10, 2018.