EMWoG Telephone Conference Call
Tuesday November 22, 2005, 5-6pm EST

Minutes and Action Items (V1.1)

Present: Rob Evans, Martyn Unsworth, Dean Livelybrooks, Adam Schultz, Phil Wannamaker, Steve Park, Kent Anderson, Shane Ingate.
Apologies: Kevin Mickus, Gary Egbert, Tim Ahern.

Instrument Procurement:

- Orders have been placed for 20 systems from Narod. Expected completion date of order is 10/31/06. If change order 0012 is successful, another 10 systems will be ordered with the same delivery date.
- Narod has expressed concerns about slow communications with Magnetics, Inc., his current suppliers of ring cores. Magnetics Inc. assured him in August that their cores should meet spec of 10 nT/Sqrt(Hz) at 1 Hz, but he has been waiting for lab test results. He has also run lab tests of his own, which reveal the coercivity and the flux switching characteristics of the Magnetics core material is about a factor of two worse than the older Infinitics cores, and also 2714 and VAC 6025X cores (the Metglas ceramic cores are used by Billingsley and were pioneered for magnetometers by Narod). These are being examined by Narod as alternatives to Magnetics cores, are potentially of lower noise spec than Magnetics, but are a factor of four less thermally stable which may be mitigated through Backbone vault design. Schultz is working closely with Narod.
- Park has received and will be analyzing data from the "repaired" Reftek/Quantec instrument using UCR funds on behalf of EMSOC. Subsequent analysis will not influence results of ES MT competition.
- Vendors will be notified by Ingate after Thanksgiving, and before EMSOC Annual Meeting where the competition results will be announced. Vendors are probably aware of the results anyway.

Rescope:

- WG feels that it can speak for EMSOC, as 3 members of the EMSOC Steering Committee participate in the WG (Wannamaker, Park, Evans), and all but two academic members of EMWoG are members of EMSOC institutions.
- WG does not agree with scope as interpreted by NSF and stated in Shedlock email of 9/7/05 (attached at end).
- WG endorses the use of MREFC funds for procurement of 40 systems and construction of the Backbone.
- Given the fenced O&M funds available through EarthScope Year 5, WG endorses a scope consisting of operating Backbone stations installed for the duration of EarthScope, as well as transportable campaign systems continuously deployed for 1 month each on a regular grid across the US. The regular grid provides a background for practical 3-D inversion.
- WG unanimously supports striving to install as many 1-month campaign systems as possible within the fenced budget profile. Given informal estimates from

contracting parties received so far, a target of 130-150 campaigns/yr and support for Backbone stations is possible within the O&M budget available.

- The status of the 10 "spare" systems needs to be clearly defined, and should be a task for this panel. One suggestion that has broad-based support is reprogramming all 10 systems into augmenting the Transportable pool Reprogramming some of the systems to operate in a portable mode is not widely supported because of the high attrition rate of systems used in PI-funded experiments. The EMSOC systems are far better positioned to deal with focused campaign studies. WG does not endorse focused, target-specific transportable deployments.
- WG does not endorse the use of 10 systems installed for 18-month campaigns within the Bigfoot footprint as this provides no added value science. The cost of installing a system for 18 months is nearly identical to installing a Backbone site (vault required), so a cost-benefit trade-off indicates there is greater scientific return per unit expenditure from maximizing TA deployments on a one-month deployment basis.
- WG does not advise rescoping Backbone at this point in time, until a better estimate of the cost to continuously deploy transportable campaign stations is understood.
- If descoping of Backbone is required to support the transportable array, it is estimated that there would be a one-time saving of $45K in infrastructure (vault installation and logisitics), and $42K in NIMS acquisition for Backbone that could be reprogrammed for TA instruments, and of order $6K annually in O&M for service visits and $5K annually in telephone line leasing, would be saved by reducing the number of Backbone stations from 10 to 7. WG discussed that MREFC savings arising from descoping of Backbone would likely not be returned to ES MT and would be absorbed somewhere else in EarthScope. WG agreed to a full procurement of 10 systems for Backbone, and should descoping be required, then the unused systems would be retained as spares.
- WG agrees that Schultz will manage Backbone construction, Park will manage Transportable. Ingate will provide overall coordination.
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Instrument Centers:

- WG agrees to centralize near real-time data quality control and data forwarding to IRIS DMC from OSU for the Backbone data, and non real-time data from the Transportable will undergo QC and data forwarding to IRIS DMC from UCR.
- The two 0.5 FTEs identified in the 2003 proposal for QC and limited maintenance work should be split between the two data centers. For the first year of ES MT operations, QC and data flow are covered under existing subaward to Egbert and Park.
- WG agree that MT system maintenance is limited, and that major work will require that systems are returned to vendor. It is likely that the Transportable contractor will deal with maintenance in this manner.

Dipole Spacing:

- WG states that dipole spacing at the Transportable sites will be site-dependant. 4x50m X-shaped dipoles or 2x100m L-shaped dipoles are preferred. WG agrees that there is no need for 2x200m or 4x100m dipoles.

Siting:

- Park will forward MT siting requirements to Ingate. Ingate will prepare a document for distribution to Busby for use in co-location with Bigfoot sites. Such a document will have life in permit searches and outreach efforts.

EMSOC:

- EMSOC has 25 NIMS which are underutilized. EMSOC needs to detail a policy on use of EMSOC systems for use in EarthScope-funded experiments. Park has indicated that this will be discussed by the EMSOC Steering Committee at AGU on Dec 7. WG will draft a policy on use of spare ES MT systems in non-EarthScope funded experiment.

EOS Paper:

- WG defers submission until ES MT scope is defined.

Forthcoming meetings:

- Tue, Dec 6, 2005 EMWOG breakfast at Jasmine's Restaurant, the Courtyard Marriot, 99 Second St, San Francisco. 7am.
- EMSOC Annual Meeting, Wed 7 Dec, UC Extension Services Center, 425 Market Street, Rm 802, 13.30-15.30. Steering Committee (executive session) 12.00-13.00.
- EarthScope Town Hall meeting, Thu 8 Dec, Room 3018, Level 3, Moscone West, 7pm.
- Next telecon Tuesday, December 20, 2005, 5pm EST.

NSF Comments

Kaye Shedlock, email of June 3, 2005

The MT effort is an area of great concern. The original EarthScope Facility MREFC & OM proposals described 30 MT systems to be included in the TA and 10 installed at selected ANSS stations. The 10 stations would "be installed for the duration of EarthScope" and "rely on the infrastructure established for the permanent seismic station." The 30 MT stations "are for use within the Transportable Array footprint." Ten of those would be installed with a TA station for "the entire 18-month deployment." The other 20 would be co-located at some of the other TA sites, "depending on permitting restrictions" or be permitted separately and operated independently for 1-month durations. A total of 3.5 FTE were budgeted for this effort in the original O&M proposal. The equipment purchase costs are covered by the MREFC project. The O&M costs for years 2-5 are covered in the original O&M proposal (total = $ 1,315,312). The yearly

increments are slight (1.8%), suggesting a steady-state behavior. This is the MT plan that NSF has agreed to support. The description we heard of the MT component of USArray at the review is quite different, and in our opinion represents a change in scope. Any change to the MT component described above requires NSF involvement and approval.

Kaye Shedlock, email of September 7, 2005

As I recall, the MT plan approved when ES was approved is quite simple and straightforward: 10 permanent MT installations, coincident with ANSS backbone stations, 10 MT installations that go with the TA (18 months in place at a time), and 20 MT stations available as campaign, for PI-driven research or however funding allows. We should all check to be sure about this, though.