**GSA Town Hall Meeting on Challenges and Opportunities in Geochronology**

Annual Meeting of the Geological Society of America

Vancouver, British Columbia

**21 October, 2014**

A Town Hall meeting entitled “Town Hall Meeting: Challenges and Opportunities in U.S. Geochronology” was conducted at the 2014 Annual Meeting of the Geological Society of America (Vancouver, B.C.). Participants were encouraged to attend to discuss the NROES recommendations, the results of the US geochronologists questionnaire, and to voice concerns. The Town Hall was advertised by the GSA in pre-meeting publications, in the printed and on-line versions of the Program volume, and in the “Daily Activities” messages sent to registrants each day during the meeting.

The Town Hall meeting was held in the Prince of Wales room of the Sheraton Hotel from 12:00 to 1:30 PM on October 21. Fifty nine participants were present, including seven managers or directors from the EAR division of the NSF, 43 researchers/students from the Earth Sciences community, and the seven members of the steering committee. Twenty-five community participants self-identified as “Geochronology Users”, eighteen self-identified as “Geochronology Producers”, and eight self-identified as both user and producer.

The meeting was opened with a brief introduction to the NROES report and NSF’s charge to the Steering Committee, and then the community was invited to comment on “what the geochronology community is doing well, and what needs improvement.”

Primary themes were as follows:

-- There is a long delay in acquiring some types of geochronologic information.

-- Productivity in many labs is limited by inadequate personnel rather than instrument time. NSF has done a better job of funding instrument acquisition than of supporting the researchers needed to maintain and operate instruments.

-- For some geochronologic techniques, demand far exceeds capacity from existing labs. A significant limitation in these techniques is the lack of sample preparation facilities and expertise.

-- For some geochronologic techniques, capacity is able to meet demand, and the availability of this geochronologic information is driving significant advances in Earth Science research.

-- Many labs are conducting support for industry because institutional and NSF funding is becoming harder to raise.

-- Faculty researchers need to be able to acquire pilot data sets at minimal expense, and student researchers need to have their research subsidized. Such support is available at some labs, and now with EarthScope funds for students, but should be more readily available.

-- Some researchers questioned whether NSF panelists and reviewers are qualified to evaluate proposals with a significant component of geochronology.

Townhall Minutes:

Mark gives introduction to our mission.

George has tallied how many users vs producers there are here and who from NSF was here. Some 10 stragglers came in afterwards – mix of users and producers. 59 people at 12:30

During introductions, 25 folks identified as users, 18 as generators, ~8 as both, plus 3 students

NSF personnel = Sonia Esperanca, Russ Kelz, Steve Harlan, Dave Fountain, Alexander Eisern, Dennis Geist, Carol Frost.

Mark Harrison began the discussion by reviewing background (using powerpoint):

-- NROES recommendations

-- NSF formed steering group

-- Identified 243 U.S. geochron producers, distributed survey, and invited to attend Goldschmidt Workshop

-- Goldschmidt Workshop discussion topics and findings

-- Invited comments from participants: what are we doing well, what needs improvement?

Comments from the user community:

Bill Philips (Idaho Geologic Survey): roadlblock is annual funding cycles: need results and/or invoices annually, which is difficult given the timescale of producing data (more than a year…)

Suzanne: our first priority is student and postdocs and then outside people – some methods take a long time.

Mark: is this an argument for a national facility?

Suzanne: maybe – but

Liz Catlos: Larger facilities lead to a monopoly of good ideas – whereas this should be spread around

Mark: cosmogenic community has lots of sample prep facilities that help distribute user accessibility

Brad: we are not mass spec limited, we are people limited. (lots of nodding heads)

Harold Stowell: inbetween user and producer – I’ve been all over the place – access is not an issue. Now setting up TIMS lab and foresees that he will need personnel.

Jeff Vervoort: NSF is good at funding instruments but doesn’t fund people – we need people

OSL researcher: disagrees, he is instrument limited.

Mark: why?

OSL researcher: has had one instrument for decades, applied to EAR/IF for new instrument. He was told that he was at a small university and wasn’t training lots of students so he shouldn’t get the money. NSF should look at the people and figure out if they are qualified to do the work. Tough to compete with larger universities.

Basil Tikoff: coming from structural geology/tectonics community: we don’t have access to facilities for pilot data that can accompany proposals. Masters and undergraduate level is severely limited.

Mark: what’s the solution?

Basil Tikoff: laserchron is a great example of people visiting and getting data

Jaime Toro: Surprised to hear that there is an apparent crisis in geochronology. Thinks that geochronology is experiencing a revolution, and that some techniques (Laserchron, e.g.) are working very well for producing data.

Mark: summarizes the bibliometrics to people (explosion of U-Pb, growth of cosmogenics, reduction of other methods)

John Cottle: question for basil: is it that tectonics people don’t know where to go? Or that they don’t want to approach labs or that labs say no?

Basil: they don’t approach labs because they are asking for something and can give nothing.

John Garver: For his fission track lab, demand is so high that he turns people away daily. Not enough labs. There is a crisis.

OSL researcher: why do we need to produce prelim data? Repeats that you need to have the project done before you apply for money. This needs to change.

Marc Caffee: something we’ve done at PRIMLAB (Cosmogenic facility funded by NSF): write 2-page proposal and if it makes sense, then they’ll run samples at no cost that would lead to a proposal.

Erik Klimetti (Dennison Univ): I’ve had luck getting time on the SHRIMP, but you need 16 month lead time, which is difficult for the timescale of undergraduate research.

Tim Jull (UofAZ AMS): we don’t get any NSF money anymore – it’s very difficult to get money through NSF if you’re not a big facility.

Ramon Arrowsmith: one thing that could be of value: the Earthscope geochronology student training network is one funding mechanism to get small grants to people, etc. (I can summarize the program later).

Lisa Park Boush: pilot data/funding: it’s ad-hoc reviewers and panel members that are controlling the need for pilot data. Some universities don’t support techs anymore, so that is a problem for NSF, and this is a new thing

Oberlin College researcher: it is an issue that seed grants (such as earthscope) are only available to grad students, which is a problem for undergrad colleges.

Harold Stowell: technical support is an issue, and when he approached U. Alabama about it: how much money will you make? Big problem.

As for seed money: dept. has raised endowed funds for seed money for students.

Jaime Toro: centralized labs will kill innovation, but there is some balance that could be reached there.

Jim Metcalf: earthscope program: we hope it’s a model that works, and if so then hopefully it will be contagious and could be expanded to include undergraduate institutions. As for facilities: it’s not just about producing mass amounts of data, but also about having staff that have the time to help with data reduction and interpretation.

Jeff Vervoort: I will second that, but…we run an open lab and produce data for outside users – it is run by recharge, but if we had support for personel, this would be done way easier.

Brad Singer: is the tectonics panel capable of evaluating the geochronology being proposed?

Mark: summarizes the venn diagram for people. 44 funding opportunities on the NSF website within GEO, and tectonics mentioned 7 times, critical zone 10 times, climate 30 times, geochron is mentioned once. We have no home!

Margaret Donnelick (AtoZ): building a false dichotomy by saying “national facility or single PI labs”. We do fission track, which takes years of training to do it correctly. We’ve been the largest producer of FT data in the world, but we’re old and tired, so we need to distribute this work.

Mark: can you cash in at NSF?

Margaret: we are meeting with NSF to discuss this.

Mark: there are only 6 FT labs

Ron Cole (Alleghany college) I have geochron envy. I have had some luck collaborating with geochronologists, but it’s hard to network with geochron people when you’re from a small university. Could there be some way to network/establish geochron connections? We can’t support stuff at our college – we need money!

OSL researcher: national facility: if this happens, the small guys will have no money! The earthscope network will not work because I can’t play by the rules of the network.

Mark: can Suzanne talk about the network idea that came up before Goldschmidt

Suzanne: describes network idea.

Mark: describes the need for a home and a centralized funding opportunity without stifling innovation.

John Garver: yes, innovation needs to be encouraged. Mineral separation is a huge problem.

Margaret Donelick (AtoZ): this company will split into mineral separation and then techniques. We do thousands of min seps/year.

Mark: does NSF have any thoughts?

Sonia Esperanca (NSF): I’ve heard a lot of interesting things! (Carol Frost is the incoming division director). The issue is the limitation on the number of labs that exist. There are some techniques that need expansion – why didn’t your students go and start labs?

OSL researcher: I was told that no one will hire you to do OSL, so I became a geomorphologist to sell myself.

Sonia Esperanca (NSF) are these community specific problems? OSL is immature (in terms of laboratories) and number of reviews. I wasn’t aware the peer review system is a limitation. We’re never going to stop funding single PI labs.

Suzanne: those of us who direct labs have had to diversify our funding base. Many labs are doing contract analyses for oil/gas, and students have jobs waiting for them in industry.

Liz Catlos: there is a generation of students coming from labs that want to do research, but there is no support for them (applause form one person). Stop eating our young!

Jeff Vervoort: question for Russ: what’s the status of funding in the IF program? Is it fully subscribed?

Russ Kelz: our budget is $16M, and ¾ is dedicated to support existing facilities. Our budget has been steady for a long time, and this is difficult. We need more money.

Laura Webb: as an invitee to speak at the earthscope shortcourse. As earthscope comes to a close, what is the funding landscape looking like in the future? Should we be gearing up for a battle to get this money?

Sonia Esperanca (NSF): 3% of our budget is invested in facilities and you can’t get that money. But EAR is fighting with much bigger facilities (ocean, polar, etc.) for money. It’s difficult for us too. We want to hear the easy solutions as well as the difficult expensive solutions.

Tim Jull: at UofAZ, we have faced continual budget cuts over two decades, and there is no money for technicians or whatever. State money has disappeared, can’t keep raising tuition.

Sonia Esperanca (NSF): I get it. NSF also isn’t allowed to ask for money from institutions any more (cost sharing)

Mariah Armenta (Uof AZ undergraduate): I work in FT and UPb – I think it’s beneficial for more money going into this type of work. As an undergrad, being able to do this hugely beneficial, and this may be more difficult with a national facility.

Sonia Esperanca (NSF): yes, this is good and it would be better if undergrads without facilties at their labs could have opportunities

Suzanne: should we still be thinking big?

Sonia Esperanca (NSF): don’t just think about “big” in terms of $$.

Brad: should we be thinking about a geochron program?

Sonia Esperanca (NSF): why would you do that?

Researcher: So we can get geochronologists to review geochronology.

Sonia Esperanca: Comment is offensive! We can find the right reviewers. Having a geochron program would not result in better reviews.

Mark thanked participants for attending, and noted that our report with recommendations would be available by AGU time.