

Town Hall Meeting
University of Virginia Dept of Astronomy
NRAO
March 11, 2009

Approximately 70 members of the community present at the town hall meeting, including graduate students, postdocs, UVa faculty, and NRAO staff. The meeting was held in the main auditorium of the NRAO headquarters building in Charlottesville, Virginia. The Town Hall was also attended by NRAO personnel at remote sites (Green Bank and Sicorro) via video conference. These notes were prepared by John Hawley, Chair of the Astronomy Department and the formal host for the Town Hall meeting. In this summary comments and questions were recorded without specific attribution so as to ensure an open and uninhibited exchange of ideas.

Initial Presentation

John Huchra was present to represent the Decadal Survey Panel. He gave a brief opening presentation about the history of decadal reviews, the status of the present survey, and the aims of the Town Hall meeting. There then followed a brief question and answer period regarding this presentation.

What is the concept of a life-cycle cost for something like the VLA? That would probably be maintenance, ongoing development, and continuing operation and science costs.

Has the committee considered yet the criteria that will be used for assessing projected costs? Insisting on well-costed projects might lead to over-emphasize “stale” versus novel concepts. The committee has had a number of discussions on how to weight these things and technological readiness will be one of the factors taken into consideration. It is hoped that the criteria will be made available to the community in a timely manner.

What is the threshold for costs to be considered by these panels? The threshold might be different for different programs, e.g., NASA, National Optical telescopes. It is not likely that small things will be discussed but where the line will be we can't say.

Will there be triggers so that if a project hits those marks it will be reconsidered? Yes, although it won't be astronomers who make those decisions.

How much attention have past congresses and presidents given to past surveys? Congress does follow the recommendations of the survey reasonably closely. Generally speaking the highest priority projects have been accomplished. Congressional staffers do pay attention to the surveys.

At this point the meeting was thrown open to discussion.

First, Do people have a clear idea of the process?

The web site is pretty confusing and today's presentation clarified the process quite a bit. There is also some confusion on how the different panels interact with each other.

Astronomers often disparage the separation into ground based versus space based astronomy but the decadal survey has chosen to separate them. It is noted that it is often difficult to get the agencies (e.g. NASA and NSF) to work together. Is there the ability to support a project that would require coordinated ground and space based observations? People need to remember that there are limitations to the ability of astronomers to make actual funding recommendations to Congress or agencies.

It looked from the presentation as if there is a lot of focus on data and equipment but what about the human capital and human resources? There needs to be a balance between available human resources and the (say) data output. Nobody is looking directly at that issue. Are there related issues in terms of University training and hiring? What if an area explodes with data, but there aren't the available faculty to maximize return on that? Universities might be tempted to take a cautious view and not make the decisions needed to change what astronomers do as the discipline evolves. Generally speaking astronomers as a whole are remarkably adaptable, but if there were any significant concerns that arise during the survey they should be identified by the appropriate survey panel. The question of training of astronomers in different fields is incredibly important, and there seems to be a decline in the number of people who experience hands-on use of equipment. This is a concern. A problem in millimeter astronomy is that there is a great new instrument coming but the construction process has sucked resources away from training millimeter-wave astronomers.

Should a small facility be kept going even if it doesn't produce "outstanding science", but nevertheless produces "outstanding scientists." Do existing facilities need to be considered in this current survey? If they aren't being considered does that mean they would become endangered by default? There must be a way to evaluate the quality of the training produced by a facility. The concern here seems to be that there is a focus on the "science" as the endpoint, but there is also an issue of assessing the training and development aspects of a project.

For example, the reduction of funding for VLBA cut off the university training for radio astronomers in that area.

Will astronomy go the way of particle physics with the increasing focus on big projects? Should astronomy go that way? Is that good or bad?

The decadal survey has become increasingly focused on "missions." That might be a self-fulfilling process in that it reduces the emphasis on general facilities and on single-astronomer research and hands on training. Emphasis on specific science goals might skew the balance between big, focused projects versus general user facilities.

Is the way the survey is constructed skewing things to the big project while leaving out the general purpose facilities?

A lot of the white papers just describe general science themes that don't seem to call for any specific facilities, so at least the science input seems to be quite broad.

Should there be a lot of (presumably smaller) higher risk projects versus a couple of really big (presumably more conservative) projects? That is a balance question for the survey committee.

SIM is a project that spans a number of the science panels. How does the consideration of such a multi-panel project trickle through all the panels toward a recommendation? For example, a project might be reasonably well regarded in individual panels but because it spans so many panels we miss the cumulative importance of that mission.

Is the committee considering what the future career trajectories are likely to be for astronomers in the next decade? Do those career prospects affect the number of quality students seeking astronomy careers? The committee should look at the AIP records to gather information. Today most astronomers are not at universities. A large number of PhD astronomers do stay in the field in one capacity or another.

Comparing the European versus US way of approaching science, Europe always seems so well organized. Is the notion of US astronomy remaining competitive with Europe being considered? Europe does well because they have big things embedded within treaty organizations so that projects gain significant inertia. It is certainly true that the US way of doing things has an aspect of unpredictability to it.

The survey should reiterate the need to include funding with ground based observing time (i.e., the NSF versus NASA way of doing things).

Will ongoing activities be reviewed and evaluated in addition to looking at new projects?

While the committee can't tell Congress how to run its business, can they make recommendations to NSF and NASA as to how they ought to be running their business? Will there be specific recommendations to the agencies? Recommendations have been made in the past but the agencies have been very reluctant to change the way they do business. This could impact us if top-ranked priorities fall into cracks between agency priorities or funding thresholds.

The astronomical community relies upon people making considerable service to the field in general. How employers react to this sort of effort may vary. Who will do this service if fewer and fewer university personnel make up the national astronomical community? This is an issue of concern to the AAS.

Will the survey confirm the importance of staff at national observatories?

Is it foreseen that the committee will make recommendations about independent ground based large telescope projects (e.g. LSST, GMT, etc) where there is considerable overlap.

The community has not focused on a concept. There are competing ideas – many of these projects may never be realized and the ongoing effort might be squandered. Are these projects going to end up competing for federal funds? There needs to be a recommendation from the survey as to what the preferred directions should be.

Is it too early to consider priorities in light of what Europe might be planning with respect to large aperture telescopes?

Cost overruns are seen to be a bigger and bigger problem. Does anyone know why? Perhaps the cause is the technology risk inherent in some of these major new projects. Projects tend to be much more expensive if they depend on a miracle occurring during development.

In modern astronomy projects tend to be broad spectrum. The end users generally don't deal directly with the data. The data is really understood only by the instrumental scientist associated with (say) the particular mission. There is an impression that there is a "drying up" of expertise in instrumentation training needed to create the next generation of experts who really know how to produce reliable data.

The term "education" in EPO within the community seems to focus on K-12 and to stop at the Astro 101 level. Should the community be considering ways to optimize and improve education in the majors and in the graduate programs? The AAS looks at these things but seems to focus on the lower level education effort.

A lot of the ideas presented here might be well-served by producing "white papers" but the timelines aren't good. This Town Hall meeting for example takes place just before a due date. Putting together a white paper that involves a number of people and considers several ideas might be more effective.

People are reminded that email will be accepted and emails will be considered and will become a matter of public record.

Is there any consideration of the role of international meetings, or the usefulness of the IAU?

Getting a MS is not highly regarded within the community. But there are many areas where an MS might be the appropriate degree for people to fill needed roles within the discipline.

The meeting concluded with a discussion related to the specific questions listed on the Astro2010 Town Hall Announcements.

Q1. *What do you think are the most important criteria for making choices about activities?:* Science is the ultimate goal but the committee should be modest (perhaps) so that they aren't dictating what science should be. The panels are also considering discovery opportunities.

Q2. *What balance of resources should be devoted to short term opportunities versus longer term, more expensive ventures?* Is there a voice in the process in support of the single PI researcher grant? Will that be prioritized? You need to have balance.

Q3. *What is the role of work such as technology development etc.?:* No comments

Q4. *How would you address the inevitable changes in circumstances that can occur during the decade?:* General facilities are best able to deal with the changes that occur? Will there be a mid-decade review? There was one the last decade. The CAA was suppose to be a standing committee to keep track of these things.

Q4. *How can we generate maximal support for the survey process?:* The white paper process is very public spirited and it is difficult to see how the community could ask for anything more. Are the plans to explain the process when it is completed? Will there be a public comment period? (The NRC has very rigid procedures that would preclude such a comment period.) Are there strong connections between theorists and the observational portions of this process?

Q5. *Can you suggest some ideas on how astronomy can argue for more funds?:* We are already funded well out of proportion to our numbers. We just need to keep the public on our side. Our discipline is exciting to the public and is very good way of encouraging STEM education. Discoveries made in the last decade have greatly clarified the cosmological story, and this might be regarded as a pivotal moment in humanity's intellectual history. If an idea of this magnitude catches the imagination it can have potency. Astronomy also provides a very good technical training and that plays well – it does draw students into science. Note that paleontology is very interesting to the public but doesn't get great funding. What is the difference? Astronomy helps to develop high tech industries.

Q6. *Do you have any further advice on how the Astro2010 committee can go about its business?:* No comments

Q7. *Do you have any suggestions regarding information flow?:* There is a lot on the web site. Add a “modified on date” stamp to the web information so that one can know if a specific topic has been updated. The chair's bulletins have been useful.

Q8. *Do you have advice regarding how the process is carried out?:* How narrowly focused are the science panels conclusions going to be?