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UNIVERSITY OF CALIFORNIA OBSERVATORIES/LICK OBSERVATORY  
DEPARTMENT OF ASTRONOMY AND ASTROPHYSICS

June 02, 2005

Dr. G. Wayne Van Citters, Division Director  
Division of Astronomical Sciences  
National Science Foundation  
4201 Wilson Blvd.  
Arlington, VA 22230

Dear Dr. Van Citters:

The AAAC appreciated hearing about your plans for the upcoming Senior Review. As we noted in our 2005 annual report, the AAAC considers this to be an extremely important activity. AST is clearly endeavoring to be responsive to the high priority programs of the Decadal Survey and "Quarks with the Cosmos/Physics of the Universe" (QC/PU) with its support of ALMA construction and operations, the effort to move ATST into the MREFC queue as quickly as possible, and in moving forward on precursor activities on the other major projects (GSMT, LST, SKA). There are already indications that the community is planning increased effort on dark energy studies, and we expect that both the CMB Task Force and the Dark Energy Task Force (DETF) recommendations will lead to increased demand for resources.

We recognize that the current fiscal situation has been a driving factor in establishing the Senior Review at this time, but given the scale of the projects that the astronomy community is now undertaking, such a review was needed regardless of the fiscal challenges. Your goal of identifying \$30M per year out of the AST budget by 2011 for these new programs (~20-25% of the facilities budget) appears to be a significant challenge, but reflection on the needs for these new projects suggests that this may not be enough. As has been noted, the US share of ALMA operations alone will be around \$25M. Even larger changes may be needed.

It is clear from the AAAC discussion with you and Dr. Friel re the Senior Review at its May 16-17 meeting that you have given considerable thought to the Review committee structure and process. We appreciated your offer to consider recommendations from the AAAC for the process and for potential members.

We would thereby like to transmit some recommendations to you on carrying out the review. The Review committee's recommendations are going to reverberate throughout the community for the next decade and so it will be essential to have the process be viewed by the community as being undertaken with great thoughtfulness, extensive community input and recognition of the impact of the proposed changes. The key here is to be deliberate and inclusive, and to have this recognized as such by the community.

The AAAC appreciates that this is your goal, but notes that fiscal pressures have given some urgency to the process. However, these pressures need to be balanced against the impact that the Senior Review will have for many, many years. We think that a goal of having the process begin in Fall after all the inputs can be obtained from the community and finished by the end of the year is a reasonable schedule - but we would strongly encourage you to take extra time if you or the Review committee sees that additional input or deliberation is needed. This is not a process that should be rushed. The impact on the astronomy and astrophysics community will be substantial over the next decade and it is crucial that the community accept the outcome if we are to move forward without risks of major political damage to our program and to implementing the recommendations of the Decadal Survey and QC/PU.

The membership of the committee should incorporate highly respected and experienced members of the community, of stature similar to those who have participated in the Decadal Survey Committee. Having two meetings, as you plan, where the committee first gets input and discusses the impact of the changes, and then gets to reflect on that input and the plans, is a good approach. Some informal lobbying will clearly take place before and between meetings, but that will happen anyway since the membership of the committee will be known (as it should be) - and the membership should be selected in part for their known ability to take the broadest perspective on the questions before them.

Some particular recommendations:

- 1) there was a strong sense from the AAAC (and, noted also in the discussion at the CAA meeting) that it is crucial that the majority of the Senior Review committee members be recognized as community leaders of great stature and wisdom. The cross-disciplinary recommendations on priorities for the future are some of the most challenging for scientists to do, but our traditional ability to do this in the Decadal Surveys needs to be manifested here as well. You asked us to do help you identify names of possible members from the community and the AAAC will help by providing suggestions, as we did for the DETF.
- 2) input as White Papers should be solicited broadly from the community - as you are doing for the Centers, but even more broadly. This will help get "buy-in" to the process from not just the Centers and their users, but also from the community. This will add to the work load of the committee, but is likely to be of substantial benefit in garnering acceptance of the Review committee's recommendations and your subsequent actions. The request for White Papers could be structured so as to minimize the "save my telescope" response by asking for feedback within a structure that emphasizes future scientific capability and feedback on broader issues.
- 3) you noted that you were planning to give the Senior Review committee a number of potential options for funding profiles. One (or more?) of these might be for a larger figure than \$30M per year since there is a non-zero probability that even larger changes will need to be made.
- 4) it might be useful to identify for the Senior Review additional possible private and international support for operating current facilities. The Senior Review recommendations in these areas could help in discussions with potential partners, both private and international.
- 5) the Radio and Optical/IR Long Range Planning (LRP) committees provide key input into the Senior Review and the encouragement by the AAAC for them to try to deal with prioritization

and other items is likely to delay their reports until later in the summer. Taking these steps would seem to be time well-spent, and would still allow the Senior Review to be carried out in the Fall, as you have indicated. We hope that you can accommodate this in your schedule for the Senior Review. We have noted to the LRPs the value of targeted reviewers (as the NRC does for its reports), and this will also require some added time for the LRPs to complete their reports.

6) we have assumed that the LRP Chairs would be invited to a Q&A session with the Senior Review. This would be valuable for both groups.

7) our understanding is that the solar community has already committed to a very substantial reallocation of support away from current facilities to ATST operations when it comes on line. This presumably will be formally noted through the NSO "White Paper", but if this is not the plan then some effort should be made to have the solar community also input their thinking on this to the Senior Review.

Our suggestions about process, input from the community and timescales are made with the goal of strengthening an activity that the AAAC sees as an essential one if the community and the agencies are to move forward on the great scientific endeavors outlined in the Decadal Survey and Quarks with the Cosmos/Physics of the Universe.

The AAAC would like to commend you and AST for taking the step to organize a Senior Review. It is a very challenging activity for any community and its partners in the funding agency, but it is clearly crucial for us to do at this time.

Sincerely yours, on behalf of the Committee,

A handwritten signature in black ink, reading "Garth D. Illingworth". The signature is written in a cursive style with a long horizontal flourish at the bottom.

Garth D. Illingworth,  
Chair, Astronomy and Astrophysics Advisory Committee

Cc: Dr. Michael S. Turner, Assistant Director, Directorate for Mathematical and Physical Sciences