Open Skies

T. Beasley
NRAO

Atacama Large Millimeter/submillimeter Array
Karl G. Jansky Very Large Array
Robert C. Byrd Green Bank Telescope
Very Long Baseline Array

What (astronomy community)(US)

- No restrictions on origin of proposers for telescope time – accept proposals from anyone/anywhere
- Examples
  - Most radio observatories world-wide except….. LOFAR, ALMA (recent)
  - NOAO/NSO + foreign equivalents..
  - Hubble Space Telescope
  - LHC (instruments…)

- Counterexamples:
  - ESO
  - Private optical observatories (*NSF/NASA some access)

What (astronomy community)(US)

- Some ESA space missions e.g. GAIA
- ALMA (5% open, NA – open, other partners – closed)
- LOFAR
- ITAR
- NASA & China…
- Square Kilometer Array (planned)

OPEN SKIES (AST) ≈ OPEN DATA ACCESS (SCI)

- OS/ODA = access to instrument for PI-targeted data?
- OS/ODA = access to targeted data produced by telescope? (possibly after some proprietary period - APP). Timescales?
- OS/ODA = access to survey data provided by telescope? (maybe APP). Timescales?

Origin (Survey)

- Consulted: broad international sample of senior radio astronomers
- Right now: Unable to ascertain where in the Federal Executive responsibility for the Open Skies policy actually lies.
- Originally: NSF? NRAO?

42 USC § 1862 - Functions

USC-prelim | US Code | Notes | Updates

USC*Prelim* is a preliminary release and may be subject to further revision before it is released again as a final version.

Current through Pub. L. 112–238. (See Public Laws for the current Congress.)

(a) Initiation and support of studies and programs; scholarships; current register of scientific and engineering personnel

The Foundation is authorized and directed—

(1) to initiate and support basic scientific research and programs to strengthen scientific research potential and science education programs at all levels in the mathematical, physical, medical, biological, social, and other sciences, and to initiate and support research fundamental to the engineering process and programs to strengthen engineering research potential and engineering education programs at all levels in the various fields of engineering, by making contracts or other arrangements (including grants, loans, and other forms of assistance) to support such scientific, engineering, and educational activities and to appraise the impact of research upon industrial development and upon the general welfare;

(2) to award, as provided in section 1869 of this title, scholarships and graduate fellowships for study and research in the sciences or in engineering;

(3) to foster the interchange of scientific and engineering information among scientists and engineers in the United States and foreign countries;

(c) Scientific and engineering research programs at academic and other nonprofit institutions; applied scientific and engineering research programs by Presidential directive; employment of consulting services; coordination of activities

In addition to the authority contained in subsections (a) and (b) of this section, the Foundation is authorized to initiate and support scientific and engineering research, including applied research, at academic and other nonprofit institutions. When so directed by the President, the Foundation is further authorized to support, through other appropriate organizations, applied scientific research and engineering research relevant to national problems involving the public interest. In exercising the authority contained in this subsection, the Foundation may employ by grant or contract such consulting services as it deems necessary, and shall coordinate and correlate its activities with respect to any such problem with other agencies of the Federal Government undertaking similar programs in that field.

NRAO: Science 30 October 1959

several brief reconnaissance trips have already been completed, and additional exploratory work is under way. The initial project will place primary emphasis on botanical research in that area, but it is expected that future projects will be undertaken in other disciplines and in other areas.

Under a grant from the fund, it is expected that the California Academy of Sciences will substantially expand its present library on all phases of the natural history and resources of Baja California. Donations to, exchanges with, or information about items that might be added to this library will be welcome. Correspondence about such items and inquiries about the research program should be addressed to: Belvedere Scientific Fund, 155 Sansome St., San Francisco 4, Calif.

National Observatory Announces Visiting Scientist Programs

The National Radio Astronomy Observatory was established by the National Science Foundation to make available to scientists from any institution facilities for research in radio astronomy. The observatory now has in operation a radio telescope of 85-foot diameter, together with receivers for work at various wave-lengths in the range 75 to 3.75 cm. The facilities of the observatory are open to any competent scientist with a program of work in radio astronomy, regardless of institutional affiliation.

A scientist who wishes to undertake work at the observatory should apply by letter to the Director, National Radio Astronomy Observatory, P.O. Box 2, Green Bank, W. Va. The letter should contain a description of the program to be carried out, including a statement of the objects to be investigated and their positions, expected flux densities or antenna temperatures, the receivers to be used, any additional or special equipment that will be needed, and the investigator's estimate of the time required for the program.

The observatory also invites inquiries, from any scientist interested in radio astronomy, concerning the opportunities and facilities available. No previous experience in the techniques of radio astronomy is necessary.

The National Radio Astronomy Observatory is operated by the Associated Universities, Inc., under contract with the National Science Foundation.

Grants, Fellowships, and Awards

Fertility. The Lalor Foundation has announced its 1960 program of awards for research in the biological sciences. These awards will be for support of research on the fundamental biochemical and physiological mechanisms concerned with fertility and reproduction in various forms of life. The objectives are to further the knowledge and understanding of the basic phenomena involved and to extend and develop the possibilities for effective regulation and control.

The awards may range up to $8000 per year, depending upon the scope and duration of the projects approved. Preference will be given to younger members of university and college staffs, with an upper age limit of 45 years. Proposed work may be carried on at the applicant's own institution or elsewhere.

The foundation will also grant postdoctoral summer or short-term research awards at the Marine Biological Laboratory at Woods Hole, Mass., or elsewhere, for appropriate projects in the fields specified. For these awards, the stipends will ordinarily not exceed $900 for a single man or woman, $1100 for a married man working at his home institution, and $1250 for a married man with principal program at another institution.

Requests for information and for application forms should be directed to the Lalor Foundation, 4400 Lancaster Pike, Wilmington 5, Del. The final date for receipt of executed application forms, complete with supporting data, is *15 January 1960*. Notification of appointment will be on or before *15 March*. The 1960 program follows closely the pattern of the current 1959 program, under which 27 awards were granted.

Pharmacognosy. The American Foundation for Pharmaceutical Education has announced the Edwin Leigh Newcomb Memorial Awards in Pharmacognosy. Published papers may be submitted, but they must represent work published not more than 1 year prior to its receipt by the awards committee. For information, write to Dr. H. W. Youngken, Massachusetts College of Pharmacy, 179 Longwood Ave., Boston 15, Mass.

Teaching equipment. The National Science Foundation has announced that *31 December* is the deadline to apply for awards under its program to encourage mathematicians, scientists, and engineers to devise new laboratory equipment for school and college courses. The objective of the program is to aid competent scientists to develop new equipment of potentially wide usefulness. Grantees are expected to supply teachers with full information about apparatus they devise. Such information is commonly distributed in the form of reports, articles in professional journals, and presentations at professional meetings. Once equipment has been developed, grantees are expected, as well, to permit interested commercial suppliers to enter negotiations for production and marketing. Further information may be obtained from the Course Content Improvement Section, National Science Foundation, Washington 25, D.C.

Women. The American Association of University Women has prepared a list of its graduate fellowships and international grants for 1960–61. This may be obtained from the Committee on Fellowships Awards, American Association of University Women, 1634 I St. NW, Washington 6, D.C. The application deadline for most of the awards is *1 December*.

News Briefs

The reactor for this country's first full-scale, privately financed nuclear power station has sustained its first chain reaction, according to a joint announcement by the General Electric Company and the Commonwealth Edison Company. Criticality was reached at the Commonwealth Edison Dresden nuclear power station 50 miles southwest of Chicago after engineers placed the 28th fuel element in the reactor core. When completely loaded, the core will contain 488 such elements. General Electric designed and built Dresden for the Commonwealth Edison Company and the cosponsoring Nuclear Power Group, Inc., which has seven members in addition to Commonwealth Edison.

* * *

A national tabulation of malformations at birth will be started in 1960 by the Office of Vital Statistics. The program resulted largely from the wide interest in the hereditary effect of radioactivity.

* * *

Fellowships in the Arts and Sciences 1960–61, edited by Virginia B. Potter, was published on 5 October by the Association of American Colleges. This is the third annual edition of this direc-

National Observatory Announces Visiting Scientist Programs

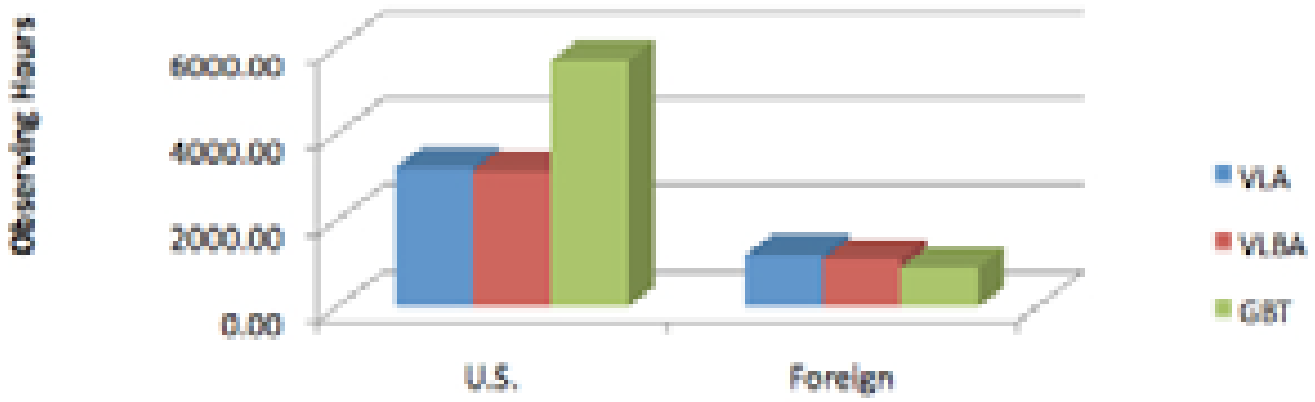
The National Radio Astronomy Observatory was established by the National Science Foundation to make available to scientists from any institution facilities for research in radio astronomy. The observatory now has in operation a radio telescope of 85-foot diameter, together with receivers for work at various wave-lengths in the range 75 to 3.75 cm. The facilities of the observatory are open to any competent scientist with a program of work in radio astronomy, regardless of institutional affiliation.

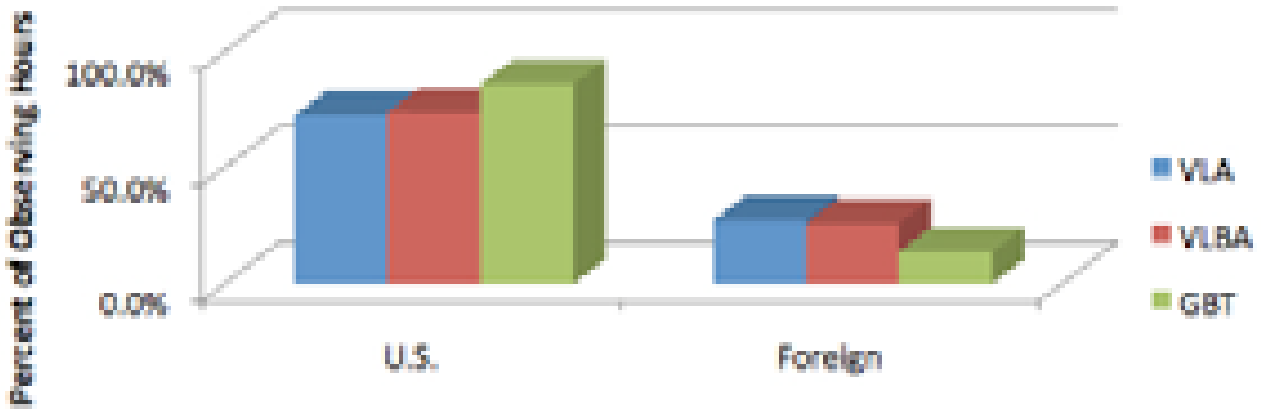
A scientist who wishes to undertake work at the observatory should apply by letter to the Director, National Radio Astronomy Observatory, P.O. Box 2, Green Bank, W. Va. The letter should contain a description of the program to be carried out, including a statement of the objects to be investigated and their positions, expected flux densities or antenna temperatures, the receivers to be used, any additional or special equipment that will be needed, and the investigator's estimate of the time required for the program.

The observatory also invites inquiries, from any scientist interested in radio astronomy, concerning the opportunities and facilities available. No previous experience in the techniques of radio astronomy is necessary.

The National Radio Astronomy Observatory is operated by the Associated Universities, Inc., under contract with the National Science Foundation.

Domestic & Foreign Usage FY2011





responsibility of the laboratory operating the regional facility.

2. The criteria used in selecting experiments and determining their priority are:

   (a) scientific merit
   (b) technical feasibility
   (c) capability of the experimental group
   (d) availability of the resources required.

3. It is expected that teams from other regions will normally wish to join with local regional teams to form experimental groups in proposing and carrying out experiments using a regional facility. The national or institutional affiliations of the teams should not influence the selection of an experiment nor the priority accorded to it.
4. The availability of the resources needed for the experiment are examined at the time of selection of the experiment (see 2 (d) above). The contributions of each team and of the operating laboratory to an experiment are the subject of agreements drawn up between the operating laboratory and the authorized leaders of the teams in the experimental group. When appropriate, realization of the proposals approved may be effected within the framework of bilateral and multilateral agreements in force or newly reached arrangements.
5. Operating laboratories should not require experimental groups to contribute to the running costs of the accelerators or colliding beam machines nor to the operating costs of their associated experimental areas. However, in particular for a large global facility, allocation of operating costs should be agreed by the project partners before project approval, while still allowing open access for experimental groups.
6. It is expected that averaged over a reasonable period of time the application of guideline 2. above will lead to a balanced use of the major new facilities by the regions concerned. However, if at any time an operating laboratory finds that the participation of teams from other regions in their experimental program is becoming excessive, the operating laboratory may be obliged to limit that participation. Any such action should be accompanied by discussions with the relevant authorities of the regions concerned and consultations with the operating laboratories subscribing to the guidelines laid down in this document.

EUROPEAN ASSOCIATION OF NATIONAL RESEARCH FACILITIES

The European association of national Research Facilities laboratories (ERF) represents international-level multidisciplinary Research Infrastructures funded by national sources but offering open and free access and serving every year over 20,000 academic and industrial users from Europe and all over the world. ERF is open to all Research Infrastructures which develop this "ERA open access" policy, hosting researchers from any Country in the world, selected solely on their quality by international peer review. These Research Infrastructures play a strong strategic role to make the European Research and Innovation Area attractive and competitive (...)

Read More

Last News

▫ Horizon 2020: the ERF is calling for an increase of the EU budget for R&D

9 November 2012, by Webmaster

Horizon 2020: the ERF is calling for an increase of the EU budget for R&D. The interview of Carlo Rizzuto, Chairman of the ERF, has been reported in Science.Business (...)

▫ ERF Workshop in Hamburg (31 May / 1st June)

27 June 2012, by Webmaster

The ERF Workshop in Hamburg (31 May-1st June) was a real success; about 120 participants

Scientific User Facilities (SUF) Division

SUF Home

About SUF

User Facilities

- X-Ray Light Sources
- Neutron Scattering Facilities
- Nanoscale Science Research Centers
- Electron-Beam Microcharacterization Centers

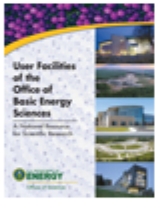
Accelerator & Detector Research & Development

SUF Principal Investigators' Meetings

Scientific Highlights

Construction Projects

User Facilities



Brochure (7.4MB) The BES user facilities provide open access to specialized instrumentation and expertise that enable scientific users from universities, national laboratories, and industry to carry out experiments and develop theories that could not be done at their home institutions. These forefront research facilities require resource commitments well beyond the scope of any non-government institution and open up otherwise inaccessible facets of Nature to scientific inquiry. For approved, peer-reviewed projects, operating time is available without charge to researchers who intend to publish their results in the open literature. These large-scale user facilities many of which were justified and built to serve a specific discipline of the physical sciences have made significant contributions to many other fields of importance, including biology and medicine. Over 10,000 scientists conduct experiments at BES user facilities annually. Thousands of other researchers collaborate with these users and analyze the data from the experiments at the facilities to publish new scientific findings in peer-reviewed journals.

- X-ray Light Sources
- Neutron Scattering Facilities
- Nanoscale Science Research Centers
- Electron-Beam Microcharacterization Centers

Quick Links to BES User Facilities

X-ray Light Sources

- Descriptions of 12 experimental techniques (1.3MB) conducted at these facilities.
- National Synchrotron Light Source (NSLS) at Brookhaven National Laboratory in Upton, NY
- Stanford Synchrotron Radiation Lightsource (SSRL) at SLAC National Accelerator Laboratory in Stanford, CA

Department of Energy
Office of Science
Washington, DC 20585

January 6, 2012

TO: OFFICE OF SCIENCE ASSOCIATE DIRECTORS

extends to facilities yet to be established.

A user facility is a federally sponsored research facility available for external use to advance scientific or technical knowledge under the following conditions:

- **The facility is open to all interested potential users without regard to nationality or institutional affiliation.**
- **Allocation of facility resources is determined by merit review of the proposed work.**
- **User fees are not charged for non-proprietary work if the user intends to publish the research results in the open literature. Full cost recovery is required for proprietary work.**

Printed with soy ink on recycled paper

publish the research results in the open literature. Full cost recovery is required for proprietary work.

Printed with soy ink on recycled paper

NSF Portfolio Review 2012

Finally, the facility for which a reconsideration of open skies might be most profitable is LSST. The current plan is that there will be three classes of LSST data products, two of which will be made available to all (and can therefore be thought of as open skies). So-called level 3 data products, which require significant additional processing, are not intended to be open skies. Currently they will be public immediately only to scientists and educators at U.S. and Chilean institutions, as well as to other contributors to the project, and may be available to other non-contributors only after expiration of a proprietary period.[2] Access to level 3 products might be exchanged for operations funding or to obtain access to other data sets or to follow-up time.

Recommendation 12.1: **Within the context of open skies, NSF should look to leverage its assets to maximize the ability of U.S. astronomers to access non-U.S. capabilities or to obtain contributions toward operations and maintenance costs for U.S. facilities with high fractions of foreign users.**

We encourage AST to pursue agreements that will broaden access for U.S. astronomers to critical capabilities. Furthermore, we believe that AST should be free to consider capping the fraction of open skies time on facilities when foreign demand surpasses some critical threshold, or establish user fees. Such a situation would require careful case-by-case consideration, both in terms of the impact on the productivity of the facility and on the broader issue of open skies and reciprocity in access.

SKA-BD-09-06
Paper for Approval

Conduct of scientific programmes

20. The Access Policy governing the right to propose for observations will be based on the following principles:
    a. All persons or teams led by persons affiliated with Member countries will be eligible to apply for observing time on SKA telescopes.
    b. Observing time will be awarded on a competitive basis based on the scientific merit of the observing project and availability of the necessary resources. The award will be based on advice from a single peer-review panel selected for expertise but with broad geographical representation.
21. There will be no up-front quota system, but use of observing time will be monitored on a per Member basis.
22. To ensure the best scientific ideas can be supported, some time on each Telescope will be available without regard to affiliation of the PI. This fraction will be initially modest (10%) and will be reviewed periodically by the board.

….. Now + Future: Not open….

Why?

- Produces the best science …. the best ideas (hypotheses) are tested.
- Egalitarian..The best ideas should rise to the top and gain access to scarce resources.
- Generates new scientific communities, users.
- Restrictions are meaningless, unenforceable (easy to work around)
- Open skies policy exploits the US (or other) capital construction costs which allows other countries to do research without having to pay the large costs of construction or operation. An alternate view is that the US has paid for and constructed facilities which they can't afford the labor costs to use. So they "hire" (at no cost) mercenaries whose salaries and education are paid by foreign governments to enable the US facilities to produce science. Who gets the credit, the scientists or the facility? In astronomy it is the individual. In physics it is the facility.

Arguments against?

- Governments funding the research of foreigners
- Tacit admission you don't have the best ideas?
- It discourages the formation of international partnerships
- It has discouraged U.S. policy makers from seeking reciprocal access to new leading-edge instruments that have been built or are being planned by other countries or multinational organizations, and from working toward an open, global system of ground-based astronomical instrumentation based on a combination of national partnerships, national instruments and public-private collaborations.
- "open skies is wonderful aspirational goal, but looks crushingly naive to funders these days."
- KSPs and experiments – more the norm… OS/ODA not relevant.

Issues

- Solely merit-based access to U.S. National Facilities should continue to apply to astronomers from countries or international organizations that reciprocate in providing open access to their own facilities based exclusively on scientific merit. The end goal of the Open Skies policy should be to maximize the scientific return from facilities, achieved through global parity of access to the best telescopes based solely on scientific merit.

Future (Questions)

- Does OS/ODA produce the best science?
- Should NSF facilities support open skies?
- Who should own "Open Skies" policy?
- Comment on solutions:
  - Favor US proposers?
  - Restrict foreign time available?
  - Tiering system?
    - Priority 1: Highest priority is given to users from U.S. astronomical institutions and from countries that fully support open skies, such as Japan plus users from countries having discipline-specific partnerships.
    - Priority 2: Users from countries that generally lack major astronomical instrumentation should continue to receive access to federally funded facilities.
    - Priority 3: Users from all other countries.

- How to capture/regulate approaches? Standard of specific Data Mgt Policies?
- ???

The National Radio Astronomy Observatory is a facility of the National Science Foundation operated under cooperative agreement by Associated Universities, Inc

www.nrao.edu