



CALL FOR PROPOSALS

VLBI PARTICIPATION IN IERS

FOR THE MAINTENANCE OF THE CELESTIAL AND TERRESTRIAL REFERENCE FRAMES AND THE MONITORING OF EARTH ROTATION

The Directing Board of the International Earth Rotation Service (IERS) has accepted the request of the IAU Working Group on Reference Frames, that the IERS would maintain the realization of the International Celestial Reference System (ICRS) on the basis of VLBI observations of extragalactic objects beginning in 1997. This activity is an extension of the work on reference systems carried out by the IERS since 1988.

VLBI is the technique that holds together the IERS celestial and terrestrial reference systems, and that provides the long-term monitoring of universal time, precession and nutation. The parallel use of satellite geodetic techniques (GPS, SLR, DORIS) for programs which include IERS applications also requires VLBI. The proportion of observing tasks that IERS recommends among the participating techniques is outlined in the document "IERS: Missions and Goals for 2000".

This Call for Proposals redefines the VLBI contributions to IERS in this new context. It asks for confirmation of present participations and applications for new activities.

The IERS requests submission of proposals for

- Radio Telescope Observatories
- Network Operations Centres
- Operational Analysis Centres
- Scientific Analysis Centres
- Technical Development Centres
- Coordinating Centre

for the use of VLBI for IERS objectives.

The IERS missions where VLBI is essential are the maintenance of the celestial reference frame, contribution to the maintenance of the terrestrial reference frame, long term monitoring of universal time and precession-nutation, and participation in the monitoring of polar motion.

Maintaining the celestial reference frame includes:

- monitoring the sources as physical objects: scheduling and organising their observation, monitoring their strength and structure, and related activities and research,
- monitoring the sources as fiducial points: systematic errors in the frame, stability of coordinates (including updates for individual sources), proper motions (apparent or real), precision, etc,
- maintaining the positions of a subset of sources that are used for the connection of other celestial frames, e.g. Hipparcos and the JPL Dynamical Ephemerides (DE4xx),

Contributing to the maintenance of the terrestrial reference frame includes:

- operating a set of worldwide stations, colocated to the maximum extent possible with IERS LLR, GPS, SLR, and DORIS stations,
- monitoring the motion of the VLBI stations,

- maintaining local ties with the other colocated stations.

Contributing to the Earth rotation determination includes organizing regular 24-hour sessions with a baseline geometry and observing schedule that yields uncorrelated pole positions (in the Earth and in space) and universal time. Additional, more frequent measurements of universal time are highly desirable.

The Coordinating Centre will have the following basic responsibilities:

- define the program of activities for IERS goals,
- organize the data collection and distribution to support the program,
- coordinate the IERS-directed work of the Operations and Analysis Centres.

Continued and new participation by a global network of radio observatories is essential. The primary interest of a participating observatory can be in the areas of the celestial frame, terrestrial frame, or Earth orientation, or a combination. Stations located in the southern hemisphere are particularly needed for robust determinations of the celestial reference frame.

Network Operations Centres should organize and coordinate global operations and ensure that compatible observing procedures are followed.

The Operational Analysis Centres should provide the IERS Sub-bureau for Rapid Service and Predictions and the IERS Central Bureau with estimates of the Earth orientation parameters (coordinates of the pole in the Earth and space, UT1-UTC) and related information with a few days delay.

The Scientific Analysis Centres should provide the IERS Central Bureau with global analyses of the existing VLBI observations, including estimations of station positions and motions and other parameters pertaining to the terrestrial references, and of Earth orientation parameters. These global analyses are collected for the IERS Annual Reports.

Technical Development Centres are sought to investigate new technologies and methods to improve the performance of the VLBI technique and to ensure the global compatibility of the various observing systems.

Proposals for VLBI Participation in the IERS should be submitted by 31 January 1996, to:

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with copy to:

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The submissions should list the resources available to support the proposed activity. As the IERS cannot provide financial resources, the commitment of institutions hosting the proposed Coordinating Centre and Analysis Centres will be an important consideration in the proposal review.

The IERS Directing Board will review the proposals and make the selection at its 1996 spring meeting.