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Press Release

This report is a translation of the press release provided to journalists from radio, television, and newspapers who reported on the first IVS General Meeting in Kötzting.

1. Information

In the period from February 21 to 24, 2000, the first General Meeting of the International VLBI Service for Geodesy and Astrometry (IVS) will take place in "Haus des Gastes" in Kötzting. The meeting will be hosted by the Bundesamt für Kartographie und Geodäsie (BKG), Fundamentalstation Wettzell. More than 100 guests from all over the world are expected, from the U.S.A., Canada, Japan, China, South Africa, Vietnam and from European countries.

2. What is VLBI?

VLBI is the abbreviation for Very Long Baseline Interferometry. Several radio telescopes, spread all over the world, simultaneously observe quasars (quasi-stellar objects). Quasars are billions of light years away from the Earth; therefore only very low-power microwave radiation is detected on the Earth. The telescopes are capable of receiving the weak signal and they record the signal together with time marks provided by highly precise atomic clocks. The data are recorded on magnetic tapes. After the observation of a complete experiment the magnetic tapes are shipped to a correlator. The correlator is a very sophisticated device, specially developed for this purpose to compare the signals from the different stations and to derive the times of arrival at the various stations. The different signal arrival times are used to calculate the distance between the radio telescopes—the so-called baselines. Also, Earth rotation is derived with respect to the quasars. VLBI is the most accurate technology to determine intercontinental baselines and Earth rotation parameters.

Quasars define a celestial reference frame which is fixed in space. The radio telescopes define a reference frame on the surface of the Earth that is fixed to the Earth. This enables us to fix points on the Earth's surface in relation to the celestial system.

Today we know that due to plate tectonics and geophysical phenomena there is no fixed point on the Earth. The task of realizing a reference frame thus becomes very complex. Nowadays not only the position of a radio telescope must be determined but also its motion.

VLBI plays a key role. On one hand VLBI allows us to determine the positions of quasars in the space-fixed reference system—which is the objective of astrometry. On the other hand the positions of the radio telescopes realize an Earth fixed reference system. Continuous observation series allow the monitoring of changes. The Earth orientation parameters describing the direction of the Earth's rotation axis and the rotation velocity provide the links between Earth fixed and space fixed reference frame—which is the task of geodesy.

Earth fixed reference frames are employed and are of great importance for satellite navigation systems such as GPS. GPS is used for navigation of vehicles, for land surveying, for the provision of basic information for geo-information, even in farming to measure the ground location of the harvest in order to spread fertilizer most efficiently. GPS today is used in a lot of daily applications. The global reference frame is the basis for development and application of such new technologies.

3. IVS

In the last few years the importance of VLBI and its results was recognized in research and in applications. In order to guarantee the delivery of VLBI products in a timely manner a service was required. In

1998 within the International Association of Geodesy and the International Astronomical Union a call for participation was released for the purpose of establishing wordwide the International VLBI Service. The first meeting of the Directing Board of the IVS was held in Wettzell on February 11, 1999. The IVS is supported by 15 nations and is formed through 30 radio telescopes, 7 correlators, 6 data centers, 19 analysis centers, 9 technology development centers and 1 coordinating center. Around 250 scientists and engineers are engaged in this effort.

4. Contribution of the German Research Group Satellite Geodesy

The Research Group Satellite Geodesy (Forschungsgruppe Satellitengeodäsie or FGS), formed by the Bundesamt für Kartographie und Geodäsie, Forschungseinrichtung Satellitengeodäsie of the Technische Universität München, Deutsche Geodätisches Forschungsinstitut (DGFI) and the Geodätisches Institut of the Universität Bonn, supports IVS enthusiastically. The FGS provides observations with the radio telescope at Wettzell, with TIGO (Transportables Integriertes Geodätisches Observatorium), and with the telescope located at O'Higgins/Antarctica. FGS also provides data and analysis centers and a correlator operated jointly by BKG, the University of Bonn and the Max Planck Institut für Radioastronomie. Important functions are carried out by Axel Nothnagel of the University of Bonn as the coordinator for analysis and by Wolfgang Schlüter, chair of the IVS Directing Board.

The first General Meeting is organized jointly by BKG and the IVS Coordinating Center, which is located at NASA Goddard Space Flight Center, Greenbelt/USA. Wolfgang Schlüter and Hayo Hase of BKG/Fundamentalstation Wettzell organized the local arrangements.

5. Objectives of the Meeting

The objectives of the General Meeting are to exchange experiences to support international cooperation, to present actual results and to discuss new projects. The program covers all areas starting from the observations up to the analysis. The first day summarizes some highlights and observation strategies. The second day covers VLBI technology. Data analysis is the topic of the third day. An excursion to the Wettzell observatory is planned for the fourth day. In the evening splinter meetings take place to discuss very special topics. All participants will take the opportunity for personal discussions. The next meeting will be in two years.

6. Thanks

We have to express our thanks to the city of Kötzting and especially to Mayor Wolfgang Ludwig; to Sepp Barth, the director of the tourist office; and to Theo Zellner, the Landrat of Cham, for their tremendous support in hosting our guests, providing the meeting facilities in the "Haus des Gastes" and for the warm welcome of the city of Kötzting.