

Chair's Report at 2nd IVS General Meeting

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Abstract

This report presents the status of the IVS and gives some prospects for the future.

1. Welcome and Introduction

With great pleasure I welcome you to our 2nd General Meeting in Tsukuba. I thank our hosts,

- Geographical Survey Institute
- Communications Research Laboratory

for the support both agencies supplied to IVS, both jointly organized our Conference. My special thanks to:

- Director General of GSI Hoshino and to
- Director General Dr. Takashi from CRL.

I would like to express my gratitude to the local Organizing Committee (LOC):

- Fujinobu Takahashi, chair of the LOC
- Shigeru Matsuzaka
- Tetsuro Kondo
- Tetsuro Imakiire
- Yoshihiro Fukuzaki
- Kazuhiro Takashima
- Yasuhiro Koyama
- Junichi Nakajima

for the excellent organization of the meeting. I would like to emphasize, that our hosts have also given us strong support by providing travel funds for some of the participants.

The scientific program of the meeting has been organized by the Program Committee. The Members are:

- Nancy Vandenberg
- Ed Himwich
- Axel Nothnagel

- Alan Whitney
- Shigeru Matsuzaka
- Yasuhiro Koyama
- Harald Schuh
- Calvin Klatt
- Arno Müskens
- Rüdiger Haas
- Zinovy Malkin
- Chopo Ma
- Seiji Manabe

The Program is ambitious and balanced concerning the areas of interests. I thank the program committee members for the excellent work, in particular Nancy Vandenberg for helping to keep the PC on track. We have more than 120 papers, 60 presented orally and 60 as posters. I thank the authors for the contributions and the chairpersons for their support during the meeting. We have more than 140 participants, coming from 15 nations.

I sincerely welcome all of you and thank you for coming to the 2nd IVS General Meeting.

2. Progress Report

IVS is in its third year of existence; the last General Meeting was two years ago in Kötzing.

To maintain the strong requirement for consistency, which is the basis for realizing and maintaining global reference frames such as the CRF and TRF, IVS initially employed and accepted existing infrastructure, observing programs, and related data handling. In the year 2001, a review of existing products and observing programs was performed in order to improve the official IVS products.

A Working Group (WG2) for product specification and observing programs was established at the 5th Directing Board Meeting in February 2001. Harald Schuh was appointed as chair of WG2. The assignment of WG2 was to

- review the usefulness and appropriateness of the current definition of IVS products and suggest modifications,
- recommend guidelines for accuracy, timeliness, and redundancy of products,
- review the quality and appropriateness of existing observing programs with respect to the desired products,
- suggest a realistic set of observing programs which should result in achieving the desired products taking into account existing agency programs,
- set goals for improvements in IVS products and
- suggest how these may possibly be achieved in the future.

A written report was presented in November 2001, and printed in the 2001 Annual Report.

As result of the Working Group 2 Report, the evolution of IVS's own observing programs has started in order to improve our products over the next few years. The programs will include for 2002:

Earth Orientation Parameter: Two rapid turnaround sessions each week, designed to have comparable X_p and Y_p results. One-baseline 1-hr INTENSIVE sessions four times per week, with at least one parallel session.

Terrestrial Reference Frame (TRF): Monthly TRF sessions with 8 stations including a core network of 4 to 5 stations and using all other stations three to four times per year.

Celestial Reference Frame (CRF): Bi-monthly RDV sessions using the VLBA and 10 geodetic stations, plus quarterly astrometric sessions to observe mostly southern sky sources.

CONT2002: a 14-day continuous sessions to demonstrate the best results that VLBI can offer, aiming for the highest sustained accuracy.

Monthly R&D sessions: to investigate instrumental effects, research the network offset problem, and study ways for technique and product improvement.

2.1. Data Analysis

With respect to data analysis, emphasis was placed towards reliable and robust products, coordinated by the Analysis Coordinator, Axel Nothnagel:

- Today six analysis centers provide a timely, reliable, continuous solution for the entire set of EOPs.
- The Analysis Coordinator makes a combined solution as timely input for the International Earth Rotation Service (IERS) and its combination with the GPS and DORIS solutions.

It turns out that the IVS combined solution gains more than 20% in accuracy over the single solutions. Under the reorganization of the IERS, IVS is one of the IERS Product Centers. To improve the analysis results more Analysis Centers are encouraged to contribute and have been invited to participate in Pilot Projects. Their solutions were compared, discussed and improved as all Analysis Centers reach for high standards. The 2nd Analysis Workshop was held in February, 2001 at Goddard Space Flight Center.

2.2. Technology Developments

Under the leadership of the IVS Technology Coordinator, Alan Whitney,

- The VLBI Standard Interface (VSI) was developed and the experts internationally agreed upon the specifications for the hardware interface. In 2001 the work for the software specifications was proceeding with similar promise of success. The international collaboration was regarded as very important, which resulted in the IVS Directing Board receiving an award from Japanese Ministry of Public Management, Home Affairs, Post and Telecommunication on "Radio Day," June 1, 2001. I sincerely thank Alan Whitney and Testuro Kondo for their strong effort.
- The development of the MK5 Data Recording System was promoted which is important for reducing operation cost and improving data recording towards real time developments.

2.3. Network Developments

A major goal of the Network Coordinator, Ed Himwich, was improving the quality of the observations and the network:

- Continuous investigations and statistics were maintained to find weak points especially in the performance of network stations.
- On the international level some additional stations will soon support IVS, such as the new station TIGO, and some additional stations will become involved which are equipped with data acquisition, recording or transmission systems developed by Canada (S2) and Japan (K4).

A first Technical Operations Workshop was organized in March 2001 at the Haystack Observatory.

2.4. WG 1

Working Group 1 (WG1), for mapping the GPS antenna phase center, chaired by Brian Corey, evaluated an error budget for possible VLBI contributions. The goal was to map the phase centers of the transmitting antennas of GPS satellites with respect to quasars. The WG 1 reports indicated the limits of current VLBI support. One result has been not to propose an observing campaign as any gain would be very difficult to accomplish. A final report is being prepared.

3. IAU and FAGS Membership

As IVS is responsible for maintaining the Celestial Reference Frame, IVS applied in early 2000 for being recognized as a service of the International Astronomical Union (IAU). After its General Assembly in Summer 2000 in Birmingham IAU accepted IVS as an IAU service too, and requested IVS officially to maintain the CRF.

In 2001 IVS applied for membership in the Federation of Astronomical and Geophysical Data Analysis Services (FAGS). In summer 2001 IVS was approved as a member of FAGS which supports IVS with some funds. Thanks to the IAG and IAU representatives, in particular Nicole Capitaine, who supported us in obtaining the FAGS membership.

4. Newsletters

The first IVS Newsletter was released December 1, 2001. The Newsletter is a very good medium to inform all of us about events. It is of importance that contributions are made by the members. I would like to encourage all members to take these opportunities and participate more actively in the IVS life. Thanks to the editors, Nancy Vandenberg, Hayo Hase and Heidi Johnson, who will spend a lot of time informing us with IVS news every four months.

5. Prospective Developments

Improvements are required in the availability and reliability of the network stations and the network configuration:

- Automation for unattended observing will help to overcome the weekend gaps.
- More capacity is required in data transmission media, which will be solved by the development of a modern disc based recording system (Mk5) and by the ability to transfer data via the Internet (e-VLBI). These new systems will reduce the time delay and reduce expenses currently needed for tapes and tape drives.
- The global network configuration has to be improved, especially in the southern hemisphere
- More observing time is required overall.

Encouraging additional related institutions and including the S2 and K4 technologies will improve the situation. High priority has to be placed on rapid turnaround sessions at the correlator. More analysis centers with different software are required to improve the analysis and to increase the robustness of the products.

Very promising was the fact that for the observing program of 2002 the international contributions will be increased by about 20%.

To meet the ambitious goals, proposed by the WG2 and set up by the IVS Directing Board, I kindly ask all responsible members of the contributing agencies to support IVS as fully as possible and to be prepared for the requirements we have to meet in the future. Let us do our best for meeting the requirements for maintaining consistent and precise reference frames and related products, which will become a very strong request from IAG towards the establishment of the International Global Geodetic Observing System (IGGOS).

Thank you.