

IVS Newsletter

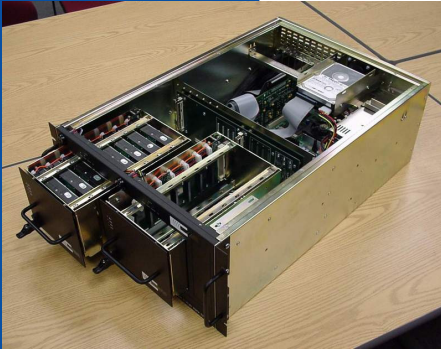
Issue 14, April 2006



Mark 5B Is Coming!

— Alan Whitney, MIT Haystack Observatory

The Mark 5B system is nearing initial deployment. In this short article we will attempt to answer some basic questions.



Mark 5B looks identical to Mark 5A.

What is Mark 5B?

Mark 5B is similar to Mark 5A, except that Mark 5B supports a VSI-H interface (see <http://web.haystack.edu/vsi/index.html>). It uses the same chassis and the same disk modules, but requires a Mark 5B I/O interface PCI board instead of the Mark 5A. The maximum data rate is still 1024 Mbps.

A major difference is that the Mark 5B has a built-in formatter so that an external formatter is unnecessary. The Mark 5B directly accepts unformatted sampler data in VSI-H format; the data are formatted and time-tagged within the Mark 5B.

Who needs Mark 5B?

If you currently have a Mark 5A system, you probably do not need Mark 5B. The only exception to this rule is that, if your current formatter is limited to less than 1024 Mbps, using the Mark 5B may allow you increase your maximum data rate to 1024Mbps. The prime example is the VLBA, where the VLBA samplers can generate 1024Mbps of data, but the VLBA formatter is limited to 512Mbps; using the Mark 5B will allow a VLBA system to increase its data rate to 1024Mbps.

There are three other cases where Mark 5B may be the best choice: 1) New VLBI stations can avoid the expense of an external formatter with the use of Mark 5B, though a suitable VSI-H interface must be provided, 2) the new digital-back-ends (DBEs), some of which may be in use by the end of 2006, have built-in VSI-H outputs that interface directly to Mark 5B, and 3) if you are currently using a Mark 4 formatter, it may be possible to upgrade the available aggregate data rate from 1024Mbps to 1792Mbps—see below.

How can I upgrade my Mark 5A to Mark 5B?

Upgrading a Mark 5A to a Mark 5B requires removing the Mark 5A I/O interface and I/O panel and installing a Mark 5B interface card. In addition, a small panel with an array of 8 tri-colored LEDs is installed in a cutout in the lower-right of the front panel. Of

course, a software upgrade is also required.

How do I interface a Mark 5B to my existing data-acquisition system?

If you have a Mark 4 formatter, a non-reversible upgrade/modification to the Mark 4 formatter is available to create two VSI-H outputs; for a DAS with 14 BBCs, this will increase the maximum recordable data rate from 1024Mbps to 1792Mbps using two Mark 5B recorders in parallel. If you have a VLBA formatter, the formatter is discarded and replaced by a Metsahovi VSI-C board which translates VLBA sampler data to a VSI-H format (<http://kurp.hut.fi/vlbi/instr/boards/>).

Is there any compatibility between Mark 5A and Mark 5B?

A single compatibility path between the Mark 5A and Mark 5B will be available: The Mark 5A system is being upgraded with new Xilinx code, dubbed 'Mark 5A+', to allow Mark 5B recordings to be re-played on Mark 5A+ units; the Mark 5B data will be transformed into VLBA-track-format data at the output of the Mark 5A+. No new hardware is required to upgrade a Mark 5A to a Mark 5A+.

How will Mark 5B recordings be correlated?

Using a Mark 5A+ playback system at a correlator, a Mark 5B recording can be correlated just like a Mark 5A recording. Alternatively, an interface box has been designed that allows the Mark 5B to directly connect to a Mark 4 correlator; this approach has the advantage of completely bypassing the troublesome Mark 4 Station Units, though a considerable amount of software upgrade work is required support this new configuration. We expect that the Mark 4 correlators at MPI, USNO and Haystack will support direct Mark 5B playback within the next few months.

Where can I get a Mark 5B? How much does it cost?

The Mark 5B can be ordered from Conduant Corp starting 1 April 06. A complete Mark 5B system without disk modules will cost ~\$20,000. Cost for a Mark 5B I/O interface board to upgrade a Mark 5A to Mark 5B will cost ~\$2500. VSI cables will be available for ~\$200 each. Haystack Observatory will accept a one-time-only order for kits to upgrade a Mark 4 formatter to VSI-H compatibility; the deadline for participating in this one-time-only order is 30 Sep 06 and the cost will be ~\$2000. A commercial supplier for these upgrade kits will be available following the Haystack one-time-only build. Upgrading a VLBA system for VSI-H compatibility requires a VSI-C board available from Metsahovi for ~600 Euros.



Permanent Component

Fortaleza Station, Ceará, Brazil

Fortaleza is the IVS Network Station with the longest history in VLBI operations on the South American continent. Newsletter editor Hayo Hase conducted e-mail interviews with Prof. Pierre Kaufmann, the head of the somewhat scattered Brazilian VLBI group, and Fortaleza's station manager Maciléo Pereira de Lucena. Please read on to learn more about the history of VLBI in Brazil and to gain insight into the current activities.



The 14.2 m radio telescope at Fortaleza station.



Pierre, when and how did you get in contact with VLBI for the first time?

In the early seventies Mackenzie's Center of Radio Astronomy and Astrophysics (CRAAM) erected a 13.4-m radome-enclosed antenna at the Itapetinga Radio Observatory, Atibaia, about 70 km north of the city of São Paulo.

An agreement was made with Haystack Observatory about studying molecular lines in the southern hemisphere and obtaining north-south VLBI observations.

How was it possible to establish VLBI activities in Brazil?

The first successful VLBI tests were obtained on celestial water vapor line sources with Haystack Observatory in 1978 in one of the last runs using the Mark I system. The Itapetinga VLBI facility was upgraded with a Mark II terminal and was successfully used in the 1974 Venus flyby Vega balloon tracking experiment at 1.7 GHz (in cooperation with CNES, France and JPL, USA). The first quasar imaging results at 11 GHz, adding a long north-south baseline with Itapetinga, were obtained in 1984 (in cooperation with Caltech, USA), showing the dramatic improvement in the resolution of the celestial object.

Which institutions are involved in geodetic/astrometric VLBI and where are they located?

The geodetic VLBI program was established in 1989 by the Brazilian institutions USP (São Paulo University, São Paulo), INPE (National Space Research Institute, São José dos Campos, SP State), Mackenzie (University and Institute, São Paulo) and Unicamp (Campinas, SP State), and a joint center called CRAAE was created. In the same year the first agreement between USP/CRAAE and NOAA, USA was made. Under this agreement ROEN (known as Fortaleza station) was established with support from the Brazilian Ministry of Science and Technology's agency FINEP and NOAA. When NOAA terminated their VLBI activities in 1997, a meeting of understanding between all Brazilian parties, as well as NASA and USNO, both USA, and BKG, Germany was held at Mackenzie. The result was an agreement between NASA and the Brazilian Space Agency AEB in 2002 that led to a NASA-Mackenzie contract in 2004 to partially support the geodetic activities at ROEN.

How do you manage to keep such a scattered group together? Do you have annual domestic VLBI meetings?

This was never an objective of the cooperating partners in Brazil. Furthermore there are no other geodetic VLBI research activities in Brazil today. There was the hope that local interest in the Fortaleza area would evolve over time, and that strong academic cooperation would be established with foreign partners. Presently there still is much to do to have these prospects materialize. A recent agreement with Ceará State University, involving a group from their Physics Department, brings new possibilities to enhance such cooperation.

What are the key problems in Brazil to keep the VLBI group running?

We basically face two problems: 1) Our funding partly comes from foreign partners (NASA, USNO). In the last two years the US dollar lost a substantial part of its value with respect to the Brazilian Real. Hence, while the Brazilian contribution remained the same, the effective contribution from our foreign partners was severely reduced. 2) We are in need of an enhanced international academic cooperation with research programs that involve the geodetic VLBI and GPS programs at ROEN.

How do you see the IVS?

The IVS is a very important forum to present and discuss common issues that have an impact on the entire VLBI community, e.g., running ROEN.

What are the future plans for the IVS Network Station Fortaleza?

Brazil started to install a high-speed data link to ROEN (2.5 Gbps initially), to be completed in a few months. This is an investment of the equivalent of US\$1.5M and will allow ROEN to enter into the e-VLBI operations. Other future plans will be made when the two key problems are solved.

At the Fortaleza IVS Network Station the engineers Macilio de Lucena and Adeildo Sombra da Silva operate and maintain the 14.2m radiotelescope. Macilio, how long have you been in charge of the station? What are your duties?

I am in charge of Fortaleza station since 1993. Adeildo is my main assistant and started to work at the station in 1997. I manage the activities at Fortaleza and in addition participate in the operation, maintenance, and development of space geodetic instrumentation.

Who else is working with you?

The station staff consists of our electrical engineer Adeildo (Mackenzie/CRAAE), the electronics technicians Avicena (INPE/CRAAE) and Fabiano (Mackenzie/CRAAE), the administrative support people Rozilene (INPE/CRAAE), Socorro (INPE/CRAAE) and Onivaldo (INPE/CRAAE), and the driver José (INPE/CRAAE).

The station is called Fortaleza, but the official name is ROEN. What does that mean? Where is it located? What is the distance between the city of Fortaleza and ROEN?

ROEN stands for Radio Observatório Espacial do Nordeste and is the name of the project that includes all space geodetic activities and resources at Fortaleza. ROEN is located near the city of Eusébio, State of Ceará, in the Northeast of Brazil. It is about 30 km away from the city of Fortaleza, the capital of the State of Ceará.



Station personnel in front of the antenna (from left to right): Avicena, Adeildo, Macilio, Socorro, Fabiano, Onivaldo and José.

Your operational load is with 74 experiments per year quite high. Which IVS observation series is Fortaleza contributing to? Do you run non-IVS experiments as well?

Fortaleza station contributes to the IVS-R4, IVS-T2, IVS-CRF, IVS-OHIG, and IVS-R1 series. We did perform a few radio astronomy, single dish experiments.

What are the main technical problems for doing VLBI in tropical latitudes?



Main building with the VLBI antenna in the background.

Our main technical problems are related to the cryogenics system.

Do you have other instruments installed at the station?

Yes. Presently there are some GPS receivers, and magnetometers installed.

Recently Fortaleza was connected to the backbone optical fiber network infrastructure of Brazil. What exactly was installed?

In fact, the installation is planned to be finished by September. A photo coupler to the fiber and two 1Gbps ZX interfaces are going to be installed.

Will this powerful bandwidth be available for e-VLBI in the near future?

Yes. We plan to use this new link to perform e-vlbi.

What are your plans for the future at the station?

Basically our plans for the future are to continue and to improve our VLBI operations. Furthermore, we hope that other geodetic space techniques such as SLR and DORIS will be co-located at our station in order to have more precise measurements for this part of the planet.

Would you like to work temporarily at another VLBI site in exchange for an operator of that station?

Yes, I think it is a good way to exchange information and experiences.

Who will be the next soccer world champion?

Probably Brazil, but it is very difficult to predict, because almost all countries play on the same skill level.

The IVS Newsletter is published three times annually, in April, August, and December. Contributed articles, pictures, cartoons, and feedback are welcome at any time.

Please send contributions to ivs-news@ivscc.gsfc.nasa.gov. The editors reserve the right to edit contributions. The deadline for contributions is one month before the publication date.

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The newsletter is published in color with live links on the IVS web site at <http://ivscc.gsfc.nasa.gov/>.

Fourth IVS General Meeting Held in Chile

- Jungbo Cho, Youngbee Kwak, Korea Astronomy & Space Science Institute
- Tuhwan Kim, Ajou University

The fourth IVS General Meeting was held in Concepción, Chile from January 9–11, 2006. About 80 participants attended the meeting that was excellently organized by Hayo Hase, Jenny Neumann, and the entire TIGO team. Three of our Korean colleagues—Jungbo Cho, Youngbee Kwak and Tuhwan Kim—undertook the long journey to attend the meeting. This is their experience report.



(left) Hayo Hase, chair of the LOC, proposing a toast during the icebreaker party. (right) Participants at the icebreaker reception.

Because of the long distance, the opposite season, and the 12-hour time shift, participating at the fourth IVS General Meeting was quite a challenge for us. We arrived at Santiago airport on Sunday afternoon January 8, where we by coincidence met Axel Nothnagel, Harald Schuh, and members of the Vienna group who were also on their way to Concepción. After their pre-meeting vacation trip to southern Chile they appeared to be very energetic. And seeing their suntanned faces, only then we realized that we were in the middle of summer in the southern hemisphere. After two more hours we finally arrived at the meeting hotel in Concepción—two days after the start of our journey. Luckily, the icebreaker party was waiting for us to get refreshed, to chat and to have a drink with the other participants. Though not all participants made it to the party (some were heavily jet-lagged), we enjoyed ourselves very much.

The opening ceremony on Monday morning featured an outstandingly fantastic Chilean folkloristic

show and welcoming addresses by the Rector of the University of Concepción, Sergio Lavanchy, and the IVS Chair, Wolfgang Schlüter. After the deeply impressive ceremony the fourth IVS General Meeting continued with its scientific program in two regular sessions. Each session had several invited talks and contributed presentations. Harald Schuh and Jinling Li chaired the first session entitled “VLBI in Science and Application”. And Arthur Niell and Bill Petrachenko chaired the second session “Next Generation VLBI”. Several talks triggered lively and interesting discussions, especially in the second session where topics related to VLBI2010 were enthusiastically discussed.

The second day of the conference was scheduled with two sessions and a visit to TIGO. Ed Himwich and Yasuhiro Koyama convened the session named “Network Stations, Operation Centers, Correlators”. Alan Whitney and Gino Tuccari convened the following session titled “New Technology Developments in VLBI”. After the two sessions the conference attendees were transported to the TIGO station to examine its facilities and to enjoy some refreshments and snacks. The bus ride from the meeting hall at the University of Concepción to the station was about 20 minutes. We saw the six-meter mobile VLBI antenna as well as the other space geodetic systems that together form the fundamental station TIGO. It was very interesting and educative to see other systems besides VLBI. A milepost showed baseline distances to the other IVS network stations as if pointing to where good friends were living.

Also on the final day of the meeting the participants were still energetic. While there were tempting, picturesque sceneries and extraordinarily mild weather outside, you could



Ballet of the University of Concepción giving a folkloristic performance during the opening ceremony.

almost feel the enthusiastic mood. The first session was “Software and Analysis Strategies” chaired by Oleg Titov and Johannes Böhm. The second one was “Results and Geodetic/Geophysical/Astrometric Interpretation” chaired by Seiji Manabe and Dan MacMillan. After all oral presentations the combined poster session was held in an arcade close to the conference hall. There were many interesting posters to see rounding out the excellent program of the conference.

The end of the poster session marked the end of the work program of the

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General Meeting. Still, there was one more item on the agenda—the conference dinner to be held at the golf club house “La Posada”.

We were surprised twice. First, La Posada impressed us with its strikingly beautiful scenery and graceful dinner hall. Secondly, we had the feeling that we were at a delightful dinner at our neighbor's. Probably everyone shared the feeling of informality and the sensation of being at a best friend's party. We think that this is one of the real virtues of the IVS community, which is more compact than small. Contributing to the special atmosphere were also the small presents, which Hayo Hase and his family had prepared. We all enjoyed the traditional songs and performances given by the participants country by country. When the people stepped out into the front yard after the dinner, lots of stars were twinkling in the sky. Among them, Orion was on the other side of the sky as opposed to the northern hemisphere.

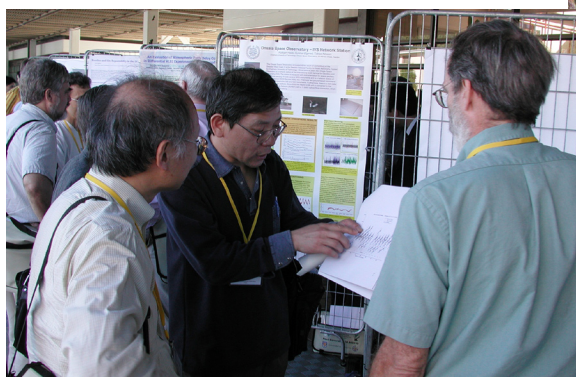
From the perspective of newcomers, we were impressed by every single moment of the General Meeting. Looking back, it was definitely worth attending it despite spending more than four days on planes. And, we are looking forward to the fifth IVS General Meeting, which will be hosted by our colleagues in St. Petersburg, Russia in 2008. Pictures taken at the meeting by various people are posted on the meeting website at



(above left) The milepost pointing to the other VLBI stations. TIGO VLBI antenna can be seen in the background. (above right) Jung-ho Cho, Dirk Behrend, Tuhwan Kim, Youngbee Kwak and Aleksander Brzezinski during the TIGO visit.



(above left) Participants concentrating on a presentation during a session. (above right) Performance of the Japanese team at the conference dinner. (left) Jinfeng Li (center) explaining part of his work to Chopo Ma (left) and Brian Corey (right) during the poster session.



Calc 10 to Be Released Soon

— David Gordon, Raytheon/GSFC

Calc version 10 has been updated for compliance with the IAU 2000 Resolutions and the IERS Conventions (2003). The GSFC Analysis Center has begun its switchover to Calc 10 processing and expects to complete this process in early April. An official Calc/Solve release, containing Calc 10 and an updated version of Solve, will be made about the same time. The GSFC Analysis Center will begin submitting Calc 10 databases to IVS shortly thereafter. Other Calc/Solve analysis centers will then need to update their software and switch over to Calc 10 as soon as possible. The GSFC Analysis Center will also make available all of its Calc 10 databases to whoever wants them. Calc 10 uses the non-rotating origin method for transforming from terrestrial to celestial coordinates, which will allow solving for adjustments to the X and Y precession-nutation quantities in Solve. It will still be possible to solve for classical nutation offsets though. With the next Calc/Solve release, all programs will also be both HP-UX and Linux compatible (except there is not yet a Linux version of Ddebit). The switchover to Calc 10 should have no effect on users of other analysis software packages which use NGS files.

To Leap or Not to Leap

—Dirk Behrend, NVI, Inc./GSFC

That is the second's question. And it did leap, 23 times to be exact, from its inception in January 1972. Positive leap seconds are inserted on the UTC (Coordinated Universal Time) time scale to keep the difference between UTC and UT1 (based on Earth's rotation) below 0.9 seconds. The last leap was on December 31, 2005 at 23:59:60, i.e. the last minute of the year 2005 had 61 seconds. But shall it leap again?

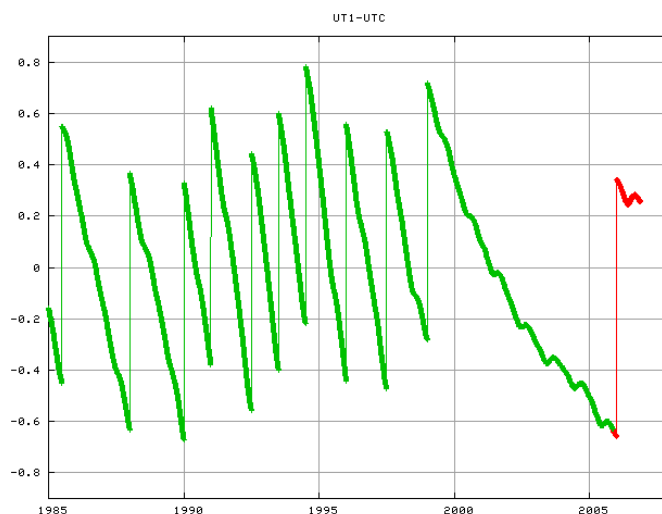
The International Telecommunication Union (ITU) established the use of the leap second via its Recommendation ITU-R TF.460.6, and the IERS (International Earth Rotation and Reference Systems Service) determines when to insert a leap second (usually at the end of June or December) and makes the decision public through the IERS Bulletin C about six months prior to the event. But one of the national delegations to Study Group 7 "Science Services" of the ITU Radiocommunication Sector prepared a first draft of a revised Recommendation proposing to discontinue the insertion of leap seconds and rather go for leap-hours basically redefining the UTC standard.

This proposal is quite controversial and further discussion and time are needed before a decision will be made. For the decision process it is important to probe the views of the user community. Thus, the ITU requested through the IERS that user experience made at the 2005 leap second event be documented. For this reason a questionnaire was sent to the IVS community, the evaluation of which is presented here.

We received 15 responses coming from IVS network stations (6), correlators (2), analysis centers (7), technology development centers (2), and the network coordinator. Some centers fulfill double or triple function, hence the result of 18 for the summation of the number of components. The majority of the components learned about the last leap second through the IERS bulletin. A few named TV news or newspapers as information source. One station received the leap second information after the fact—indicating that an additional information flow is necessary. The actions taken were all manual in nature: the stations had to reset their clocks, the correlators and analysis centers had to modify their control files. In general, no problems were encountered doing the manual changes. A few stations commented that problems were encountered when GPS-based NTP time servers are being used.

Most components stated that their operation is independent of the usage of leap seconds. Thus, the continuation or discontinuation is irrelevant from a VLBI operational point of view. Still, the overall preference of the VLBI components in terms of continuing the leap second was 7:4 (for vs. against) with 4 abstentions. Arguments in favor of the leap second include that the civil day should not deviate from the solar day, that hardware and software should be smart

enough to handle leap seconds properly, and that some existing hardware and software are not designed for a difference of UTC–UT1 exceeding 1 s (making periodic leap seconds necessary anyhow). Not applied leap seconds can lead to numerical problems in the data analysis due to an additional 200–300 meter error in the a priori models. The antenna tracking software would need modification in order to incorporate the effect of UTC–UT1. Re-validating space-qualified software—software for space missions is frozen for a long time span (years to decades)—is very expensive. Furthermore, leap seconds create a media awareness of our research work that would then be lost. On the other hand, manual modification of files and setting of clocks is error prone and constitutes a waste of resources and manpower. Due to the existence of leap seconds, it is impossible to predict the precise UTC time of an event in the future.



Graph showing the difference between UT1 and UTC. Vertical segments correspond to leap seconds. (Source: Wikipedia)

In summary, it can be stated that the IVS community is more in favor of continuing the leap second—though the impact of a discontinuation on VLBI operations would be relatively small. The interested reader can find more information on the topic in an email by Kenneth Seidelmann (University of Virginia) to IGS mail (<http://igsb.jpl.nasa.gov/mail/igsmail/2005/msg00114.html>) and browse the quite exhaustive web pages by Steve Allen (University of California at Santa Cruz) on the redefinition of UTC (<http://www.ucolick.org/~sla/leapsecs>).



The hardest thing to see is what is in front of your eyes.
—Johann Wolfgang von Goethe

IVS Directing Board News

— *Wolfgang Schlüter, BKG*

The 15th IVS Directing Board meeting was held in Concepción, Chile, on Friday, January 13, 2006 after the General Meeting and the Analysis Workshop. The meeting took place in the “Salón Azul” of the University of Concepción. This room, which is usually reserved for sittings of the university directorate only, was the basis for a very pleasant environment and atmosphere of the meeting.

Reports were given by the chair, the coordinating center director and the coordinators providing general information to all Board members. The Board was concerned by the facts that (1) Matera was having contractual difficulties in getting funds for their 2006 operations and that (2) Gilmore Creek was mothballed at the end of 2005—both stations have contributed significantly to the quality of the IVS products. A letter of concern was written and sent to Matera’s funding agency during the meeting. A letter of concern will also be written for Gilmore Creek. Gilmore Creek was one of the most successful US stations in the past decades. Still, in view of budget limitations and considering the need of station hardware upgrades NASA decided to redeploy the Gilmore Creek money to support the VLBI2010 efforts. An analysis performed by the Observing Program Committee indicated a decrease in product quality (EOP formal errors) of more than 10% for R1 or R4 without the contribution from Gilmore Creek. In this context, the Russian support with the stations Svetloe, Zelenchukskaya and Badari was highly welcome to overcome part of the product degradation by the loss of old network stations.

The Analysis Coordinator presented the status of the baseline pilot project. Baseline lengths determined by various Analysis Centers can be downloaded from the Analysis Coordinator’s web site. The Board highly appreciates the availability of this product, as baselines are primary products of VLBI. The Technology Coordinator reported on the progress of e-VLBI. In 2005, e-transfer between Tsukuba and Haystack became a routine operation. In addition, some other data transmissions between USA, Japan, and Europe were successfully done electronically. The VLBI2010 Committee anticipates providing antenna design parameters for the next generation VLBI system by June 2006.

The compilation of meta data for the meteorological sensors of the IVS Network Stations is still incomplete. Robert Heinkelmann, Vienna University of Technology, who is collecting the information, needs support and a reminder will be sent to the stations to report their constellation. Incomplete met sensor information can cause offsets in the results of the VLBI analysis, in particular in the height component.

The notes of the 15th Directing Board meeting are available on the IVS web site at <http://ivsc.gsfc.nasa.gov/about/org/board/dbmeet15.txt>.

Purging the Crosshead

— *Mike Poirier, MIT Haystack Observatory*

When you hear a “banging noise” while listening to the crosshead pump of your receiver, you probably have frozen contamination in the cylinder causing your receiver to warm up (see December 2005 Newsletter). This contamination needs to be removed by purging the crosshead. You should schedule a good amount of time to warm the system (4 hours), purge (1 hour), and cool down (4–8 hours). I do recommend that you warm the system overnight not to loose daytime work hours, and please remember to disconnect the helium lines closest to the crosshead so that the contaminants stay within the crosshead when it warms.

Then immediately the next morning you can start your purge and pump down procedure. Locate your charging adapters for the crosshead. If you do not have them you can contact Honeywell for their recommendation to address your needs. With charging adapters connected to both helium ports you should pressurize the supply side to 50 PSI and start the crosshead pumping. Open the return side so that the helium can flow through the crosshead. Run this way at least one minute. Close the return side valve of the crosshead so that the unit pressurizes and then turn off the compressor and crosshead. Close the supply side and remove all the adapters and then reconnect the helium lines.

You can now connect the vacuum pump to the dewar and start drawing a vacuum. Start the compressor and check the helium pressure. Add helium if needed and then allow the system to cool down. This cool down procedure will take anywhere from 4-8 hours depending on the ambient temperature. At Westford we setup the Field System to monitor the temperature every 5 minutes. When the 70K station goes below 100 degrees you can valve off the vacuum pump. At this point if all goes well your receiver should cool down and you will be ready for your next experiment. Thanks to all the support from the group at Honeywell in writing this article.

Upcoming Meetings...

EGU General Assembly
Vienna, Austria
April 2-7, 2006

AGU Fall Meeting
San Francisco, USA
December 11-15, 2006

Next Generation Correlators
Workshop
Groningen, The Netherlands
June 27-29, 2006

European VLBI Meeting
Vienna, Austria
April 12-13, 2007

26th IAU General Assembly
Prague, Czech Republic
August 14-25, 2006

8th IVS Analysis Workshop
Vienna, Austria
April 14, 2007

e-VLBI Workshop
Haystack Observatory
Westford, MA, USA
September 17-20, 2006

<http://ivsc.gsfc.nasa.gov/meetings>

Recent GGOS Activities

– Dirk Behrend, NVI, Inc./GSFC



Participants at the GGOS Steering Committee Retreat in Munich.



In the past several months the Global Geodetic Observing System (GGOS) of the International Association of Geodesy (IAG) made steps on its way to become an operational entity. At the Scientific Assembly of the IAG in Cairns, Australia in August 2005 the IAG Executive Committee approved the continuation of GGOS and appointed Markus Rothacher (GFZ, Germany) as new chair and Ruth Neilan (JPL, USA) and Hans-Peter Plag (University of Nevada, USA) as co-chairs. In a transitional period of two years, i.e. till the IUGG General Assembly in Perugia, Italy in July 2007, the internal structure will be established and an implementation plan developed.

To accomplish these tasks a new GGOS Steering Committee (SC) was set up following a meeting of the initial Steering Committee during the AGU

Fall meeting in San Francisco in December 2005. The new SC is quite large with over 30 members, but was specifically chosen this way in order to give a voice to all participating components such as the measurement services and the IAG commissions. The IVS Directing Board appointed Dirk Behrend as IVS representative to the GGOS SC and Wolfgang Schlüter as substitute. The main task of the SC will be to establish the GGOS Terms of Reference, strategies and implementation plans that are to be approved by the IAG Executive Committee in Perugia 2007.

The new SC met for a two-day retreat in Munich, Germany in February 2006 in order to discuss these topics as well as the contributions of GGOS to GEO/GEOSS and IGOS-P. For the day-to-day work a small GGOS Executive Committee of seven people (the three GGOS chairs, three at large members from the SC, and the IAG President) will be set up. The next SC meeting will take place during the EGU General Assembly in Vienna, Austria in April 2006. Furthermore, a general GGOS Workshop is planned in conjunction with the IAG/FIG event in Munich, Germany in October 2006.

More information: <http://www.ggos.org>

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