SECOND CIRCULAR

“IVS VLBI2010 Workshop on Technical Specifications (TecSpec)”

March 1–2, 2012
Bad Kötzting/Wettzell (Germany)

Theme: Understanding VLBI2010 Technical Specifications

The IVS VLBI2010 Project Executive Group (V2PEG) and the International VLBI Service for Geodesy and Astrometry (IVS) are pleased to announce the “IVS VLBI2010 Workshop on Technical Specifications (TecSpec)” hosted by the Bundesamt für Kartographie und Geodäsie (Federal Agency for Cartography and Geodesy) and the Forschungseinrichtung Satellitengeodäsie (Research Institute for Satellite Geodesy) of the Technische Universität München.

The workshop will take place in the “Haus des Gastes” in Bad Kötzting/Wettzell (Germany) on March 1–2, 2012. Note that the workshop dates immediately precede the 7th IVS General Meeting in Madrid (Spain) on March 4–9, 2012, in order to facilitate participation at both IVS events.

Workshop Goals:

The IVS and affiliated institutions have developed a vision for future geodetic VLBI observations, correlation and analysis, which is called ‘VLBI2010’. Several IVS projects are currently developing next-generation antennas and systems to support this new vision. Many IVS network stations have expressed strong interest in obtaining more complete information on the technical aspects of the VLBI2010 system. In response, the V2PEG is offering this workshop on VLBI2010 technical specifications.

The goal of this workshop is to bring scientists and technologists together to provide information and promote discussion about the specifications for VLBI2010 station hardware, all the way from the fast-slewing antennas to wideband feeds and front-ends to back-ends and recorders. Topics also include e-transfer and e-VLBI, monitor and control, and clock distribution. In cases where commercial suppliers for VLBI2010 subsystems exist, contact information will be provided.

The workshop is intended for VLBI station managers, engineers, and others who wish to obtain a better understanding of the VLBI2010 concept from the technical point of view. It will also suggest pathways to enable VLBI2010-compatible upgrades at IVS stations.
The program is composed of invited lectures from VLBI2010 experts, discussion periods, and a tour of the Twin Telescopes Wettzell (TTW). In addition, we encourage everyone to submit poster contributions on any topic related to VLBI2010 technical developments.

**Workshop Outline:**

Most sessions of the workshops will be devoted to invited talks. The first day of the workshop will concentrate on VLBI2010 System Specifications with the following topics: front ends, calibration and signal distribution, signal processing and recording, e-VLBI and discussion. The second day will address topics about VLBI2010 antenna specification with an overview and several case studies of current VLBI2010-related projects. All sessions will have interactive components to encourage questions and discussion related to the subject material.

An extended poster session on VLBI2010 topics will be held on the afternoon of the first day (Thursday) of the meeting. Poster authors are requested to register contributions with a title and short abstract at the POC (tecspec-poc@fs.wettzell.de) until January 15, 2012. Posters may be displayed during the entire workshop; the size of the poster may not exceed 85 cm (width) x 150 cm (height).

On the second day (Friday) time is reserved for general discussions and for an organized tour to the newly constructed TWIN radio telescope Wettzell (TTW) at the observatory.

For more details of the workshop content, a draft of the program is attached at the end.

**Important Dates:**

- A Third Circular will be issued around **January 31, 2012.**
- Deadline for the registration of poster abstracts: **January 15, 2012.**

**Organizational Details:**

Participants are asked to make their own accommodation reservations, preferably by e-mail. A list of the hotels can be found on the workshop Web page; please use the keyword “TecSpec Workshop” as reference and ask for a booking confirmation. Early booking is recommended as the number of hotel rooms in Bad Kötzting is limited. The hotels accept cash, traveler checks and major credit cards; credit cards are usually not accepted in small hotels or pensions.

Interested participants are requested to register on the workshop Web page. The registration fee for the workshop is **€40,** which includes a field trip to the observatory and a small snack at the observatory on Friday.

**Directions to the venue** and additional information on the workshop (e.g., hotels) can be found on the workshop Web page.
The workshop Web page is hosted on the Web site of the Geodetic Observatory Wettzell at:

http://www.fs.wettzell.de/veranstaltungen/vlbi/tecspec2012/index.html

Questions to the LOC should be addressed to tecspec@fs.wettzell.de or via fax to “TecSpec” (+49-9941-603-222).

Questions to the POC can be addressed to tecspec-poc@fs.wettzell.de.

Program Committee:

Bill Petrachenko, NRCan (Chairman)
Brian Corey, MIT
Hayo Hase, BKG
Alexander Ipatov, IAA
Alan Whitney, MIT
Alexander Neidhardt, FESG/TUM (LOC coordination)

Local Organisation:

Ulrich Schreiber, BKG
Thomas Klügel, BKG
Reiner Dassing, BKG

Draft Program:

DAY 1 (Thursday, March 1): VLBI2010 System Specification

Session 1: Front End (duration 2:00)
8:30–8:45 Welcome and opening remarks (local organizing committee)
8:45–9:30 Review of VLBI2010 concept and general specifications (Bill Petrachenko)
9:30–10:00 QRFH Feed, LNA, Cryo (Chris Beaudoin)
10:00–10:30 Eleven Feed, LNA, Cryo (Miroslav Pantaleev)

Session 2: Calibration and Signal Distribution (duration 1:40)
11:00–11:25 Calibration—PCAL, Noise Cal, Cable Cal (Brian Corey)
11:25–11:50 Downlink and signal distribution—Gain balance, fiber, cable wrap, signal distribution (Chris Beaudoin)
11:50–12:15 Monitoring and control of new, worldwide VLBI2010 telescopes (Alexander Neidhardt)
12:15–12:30 H-maser performance requirements, and environmental and operational issues (Sylvère Froidevaux)
12:30–12:45 Time and frequency distribution (Brian Corey)
Session 3: Signal Processing and Recording (duration 1:40)
1:45–2:10 Flexible Down-converter (Brian Corey)
2:10–2:35 Digital back ends (Gino Tuccari)
2:35–3:00 High-Speed Data Systems for VLBI2010 (Alan Whitney)
3:00–3:25 Electronic VLBI Data Transfer (e-VLBI) for VLBI2010 (Alan Whitney)

Session 4: e-VLBI and Discussion (duration 1:45)
3:55–4:55 Posters, e.g. (can begin in the coffee break)
- S/X/Ka TTW Feed, LNA, Cryo (Kronschnabl)
- S/X/Ka RAEGE Feed, LNA, Cryo (López-Pérez)
- RFI at QUASAR Network Observatories (Ilin)
- Broadband Phase Cal System (Ivanov and Karpichev)
- Cryoelectric radiometers for VLBI2010 (Ipatov et al.)
- Digital DAS for New Russian Network (Marshalov and Nosov)
- VLBI Time Transfer at NICT (Hobiger, Sekido, et al.)
- Specification of New Antenna for VLBI2010 to be constructed in Japan (Fukuzaki et al.)
- A Triband S/X Receiver for the RAEGE Radiotelescope (López-Pérez)
- ... other contributed topics
4:55–5:40 General discussion (everyone)

DAY 2 (Friday, March 2): VLBI2010 Antenna Specification

Session 5: Antenna 1 (duration 1:45)
8:30–9:00 VLBI2010 antenna and site recommendation (Brian Corey)
9:00–9:45 Practical issues for writing an antenna spec (Hayo Hase)
9:45–10:15 Antenna case study #1: AuScope. Specifications used, site selection and preparation issues, comments on manufacturer, etc. (Jim Lovell).

Session 6: Antenna 2 (duration 1:45)
10:45–11:15 Antenna case study #2: GGAO. Specifications used, site selection and preparation issues, comments on manufacturer, etc. (Arthur Niell)
11:15–11:30 Antenna case study #3: Twin Telescopes Wettzell. Ensuring the long-term stability of the TTW (Thomas Klügel)
11:30–11:45 Critical moments of a radio telescope construction (Gerhard Kronschnabl)
11:45–12:15 Antenna case study #4: RAEGE. Specifications used, site selection and preparation issues, comments on manufacturer, etc. (José Antonio López-Pérez)

Session 7: Antenna 3 (duration 1:30)
1:15–2:00 General discussion of antenna issues

Session 8: Antenna 4 (duration 2:30)
2:00–6:00 Tour of TTW (Kronschnabl, Neidhardt, Klügel, Hase, others)
  - including discussion of site preparation