

**Fourth IVS General Meeting  
Concepción, Chile**

**PROGRAM**

*Sunday, January 8, 2006*

**13:30 Registration**  
Hotel Diego de Almagro, Sala Llanquihue

**20:00 Icebreaker Reception**  
Hotel Diego de Almagro, Sala Llanquihue

*Monday, January 9, 2006*

**Opening Ceremony** *(Casa del Arte)*

**08:30 Bus from Hotel Diego de Almagro to Casa del Arte, UdeC**

**09:00 Welcome Addresses and Folkloristic Show**  
(1) Sergio Lavanchy, Rector Universidad de Concepción; (2) Wolfgang Schlüter, IVS Chair; (3) Ballet of UdeC

**10:00 Official Conference Photo**

**Session 1: VLBI in Science and Application** *(Facultad de Ingeniería)*  
**Chair: Harald Schuh**

**10:05 Break**

**10:35 1-01 Chair's Report**  
Wolfgang Schlüter, Bundesamt für Kartographie und Geodäsie (BKG)

**10:45 1-02 Coordinating Center Report**  
Dirk Behrend, NVI, Inc./GSFC

**10:55 1-03 GGOS *(invited)***  
Markus Rothacher, GeoForschungsZentrum Potsdam (GFZ)

- 11:20 1-04 GAIA and a New Optical Reference Frame** (*invited*)  
Alexandre H. Andrei, Observatorio Nacional/MCT & Observatorio do Valongo/UFRJ
- 11:45 1-05 Role of VLBI for Investigating Earth Rotation** (*invited*)  
Aleksander Brzezinski, Space Research Center, Polish Academy of Sciences
- 12:10 1-06 The ALMA Project** (*invited*)  
Massimo Tarengi, ALMA Consortium
- 12:35 1-07 IVS' Contribution to the IERS Combination Pilot Project and to the ITRF2004: Status and Results**  
Markus Vennebusch, Geodetic Institute of the University of Bonn
- 12:50 1-08 Corrections to the IERS Combination Pilot Project and to the ITRF2004: Status and Results**  
Jinling Li, Shanghai Astronomical Observatory, Chinese Academy of Sciences
- 13:05 Lunch**

## **Session 1: VLBI in Science and Application (cont.)**

**Chair: Jinling Li**

- 14:45 1-09 GPS Meteorology over Northeast Brazil: Perspectives**  
A. Costa (1,2), A. M. Pereira de Lucena (3), P. Kaufmann (4), F. Sales Ávila Cavalcante (2), F. Geraldo de Melo Pinheiro (2), F. de Assis Travares Ferreira da Silva (3), J. Bosco Verçosa Leal Jr. (2), V. de Paula Silva Filho (1,3); (1) FUNCEME, (2) UECE, (3) INPE, (4) Mackenzie University
- 15:00 1-10 Global VLBI Solution IGG05R01**  
Robert Heinkelmann (1), Johannes Böhm (1), Harald Schuh (1), Volker Tesmer (2), (1) Institute of Geodesy and Geophysics, Vienna University of Technology, (2) Deutsches Geodätisches Forschungsinstitut
- 15:15 1-11 International VLBI Tracking of SELENE**  
Nobuyuki Kawano, National Astronomical Observatory of Japan
- 15:30 1-12 Spacecraft Tracking with the Chinese VLBI Network**  
Xiuzhong Zhang and the Chinese VLBI Network Team, Shanghai Astronomical Observatory, Chinese Academy of Sciences
- 15:45 1-13 The First Year of VERA Geodetic Experiments**  
Takaaki Jike, Yoshiaki Tamura, Seiji Manabe, NAOJ VERA Group; VERA Observatory, National Astronomical Observatory of Japan

**16:00 1-14 VERA System and Recent Results**

H. Kobayashi (1), S. Manabe (1), N. Kawaguchi (1), K-M. Shibata (1), Y. Tamura (1), O. Kameya (1), M. Honma (1), T. Hirota (1), H. Imai (2), T. Omodaka (2); (1) VERA Observatory, National Astronomical Observatory of Japan; (2) Department of Science, Kagoshima University

**Session 2: Next Generation VLBI**

**Chair: Arthur Niell**

**16:15 2-01 Achieving a Quantum Leap in Observation Density**

Bill Petrachenko, Natural Resources Canada (NRCan)

**16:30 2-02 A Wide-Band VLBI Digital Backend System**

Alan Whitney, Shep Doeleman, Brian Fanous, Hans Hinteregger, MIT Haystack Observatory

**16:45 Break**

**17:15 2-03 A New Lower Cost 12m Full Motion Antenna (*invited*)**

Peter Shield, Mark Godwin, InterTronic Solutions, Patriot Antenna Systems Inc.

**17:40 2-04 Uses of the ICRF and Implications for Future VLBI**

Chopo Ma, Goddard Space Flight Center

**Session 2: Next Generation VLBI (cont.)**

**Chair: Bill Petrachenko**

**17:55 2-05 Softc + Beowulf – JPL’s Newest Correlator**

Stephen Lowe, Jet Propulsion Laboratory

**18:10 2-06 Real Time Correlator in FPGA**

Zhijun Xu, Xiuzhong Zhang, Shanghai Astronomical Observatory, Chinese Academy of Sciences

**18:25 2-07 Simulations for VLBI 2010**

Jörg Wresnik, Johannes Böhm, Harald Schuh, Institute of Geodesy and Geophysics, Vienna University of Technology

**18:40 2-08 Singular Value Decomposition – A Tool for VLBI Simulations**

Markus Vennebusch, Geodetic Institute of the University of Bonn

**19:00 Bus to hotel**

*Tuesday, January 10, 2006*

**Session 3: Network Stations, Operation Centers, Correlators**

**Chair: Ed Himwich**

**08:30 Bus from Hotel Diego de Almagro to Facultad de Ingeniería, UdeC**

**09:00 3-01 A New 40-m Radio Telescope in Yebes (Spain) for Geodetic VLBI Studies by IGN** (*invited*)

Jesús Gómez-González, Francisco Colomer, Alberto Barcia, José Antonio López-Fernández, Instituto Geográfico Nacional (IGN) of Spain

**09:25 3-02 K5/VSSP Data Processing System of Small Cluster Computing at Tsukuba VLBI Correlator** (*invited*)

Morito Machida, Masayoshi Ishimoto, Kazuhiro Takashima, Tetsuro Kondo, Yasuhiro Koyama, Geographical Survey Institute, National Institute of Information and Communications Technology (NICT)

**09:50 3-03 Remote Control of VLBI Operations**

Gonzalo Remedi, Sergio Sobarzo, Cristobal Jara, Roberto Aedo, Carlos Verdugo, Hayo Hase, UBB, UdeC, BKG

**10:05 3-04 National Geodetic VLBI Plan in Korea**

Tuhwan Kim (1), Tetsuo Sasao (1,2), Younghee Kwak (1), Kidok An (3), Wonkuk Lee (3), Jongwan Kim (3); (1) Ajou University, (2) Korea Astronomy & Space Science Institute, (3) National Geographic Information Institute

**10:20 3-05 Radio Astronomy and VLBI Developments in Brazil**

Pierre Kaufmann, Mackenzie Presbyterian University

**10:35 3-06 Footprint Observations at the Fundamental Station Wettzell**

Wolfgang Schlüter, Thomas Klügel, Christian Schade, Bundesamt für Kartographie und Geodäsie (BKG)

**10:50 Break**

**Session 3: Network Stations, Operation Centers, Correlators (cont.)**

**Chair: Yasuhiro Koyama**

**11:20 3-07 Bonn Correlator Report for Astronomy and Geodesy**

Arno Müskens, Walter Alef, Dave Graham, Geodetic Institute of the University of Bonn, Max-Planck-Institute for Radioastronomy

**11:35 3-08 Washington Correlator Report**  
Kerry Kingham, U.S. Naval Observatory

**11:50 3-09 Network Coordinator Report**  
Ed Himwich, NVI Inc./GSFC

**12:05 3-10 First Fringes to New Zealand**  
Sergei Gulyaev, Auckland University of Technology

**Session 4: New Technology Developments in VLBI**  
**Chair: Alan Whitney**

**12:20 4-01 DBBC – A Flexible Platform for VLBI Data Processing**  
Gino Tuccari (1), Salvatore Buttaccio (1), Gaetano Nicotra (1), Ying Xiang (2),  
Michael Wunderlich (3); (1) IRA/INAF, (2) SHAO/CAS, (3) MPI-Bonn

**12:35 4-02 FPGA Implementation in DBBC**  
Ying Xiang (1), Gino Tuccari (2), Wenren Wei (1); (1) Shanghai Astronomical  
Observatory (CAS), (2) National Astrophysical Institute (IRA)

**12:50 4-03 e-VLBI Developments with the K5 VLBI System**  
Yasuhiro Koyama, Tetsuro Kondo, Moritaka Kimura, Hiroshi Takeuchi, Masaki  
Hirabaru, National Institute of Information and Communications Technology  
(NICT)

**13:05 Lunch**

**15:00 4-04 The Development of the Streamlined Correlation Software Using Bitset  
Class Library**  
Fujinobu Takahashi (1), Kazuki Yanashima (1), Yuji Yoshida (1), Tetsuro Kondo  
(2); (1) Yokohama National University (YNU), (2) National Institute of  
Information and Communications Technology

**15:15 4-05 Development of a New VLBI Sampler Unit (K5/VSSP32) Equipped with  
a USB 2.0 Interface**  
Tetsuro Kondo, Yasuhiro Koyama, Hiroshi Takeuchi, Moritaka Kimura; Kashima  
Space Research Center/NICT

**Session 4: New Technology Developments in VLBI (cont.)**  
**Chair: Gino Tuccari**

**15:30 4-06 VSI Interfaces for Legacy Systems**  
Dan Smythe, MIT Haystack Observatory

**15:45 4-07 Integration of the Mk5B Playback System into the Mk4 Correlator**  
Roger Cappallo, MIT Haystack Observatory

**16:00 4-08 The Mark 5B VLBI Data System**  
Alan Whitney, MIT Haystack Observatory

**16:15 4-09 e-VLBI Development Program at Haystack Observatory**  
Alan Whitney, Chet Rusczyk, MIT Haystack Observatory

**16:40 Bus to TIGO**

**17:00 TIGO Visit and Cocktail**

**19:00 Bus to hotel**

*Wednesday, January 11, 2006*

### **Session 5: Software and Analysis Strategies**

**Chair: Oleg Titov**

**08:30 Bus from Hotel Diego de Almagro to Facultad de Ingeniería, UdeC**

**09:00 5-01 Impact of Different Tropospheric Mapping Functions on the TRF, CRF, and Position Time Series Estimated from VLBI** (*invited*)

Volker Tesmer (1), Johannes Böhm (2), Robert Heinkelmann (2), Harald Schuh (2); (1) Deutsches Geodätisches Forschungsinstitut (DGFI), (2) Institute of Geodesy and Geophysics, Vienna University of Technology

**09:25 5-02 Interaction of Atmosphere Modeling and Analysis Strategy**

Arthur Niell, MIT Haystack Observatory

**09:40 5-03 Comparison of Wet Path Delays Observed with WVR, Sun Spectrometer, Radiosondes, GPS and VLBI at Wettzell**

Wolfgang Schlüter (1); Walter Schwarz (1); Beat Bürki (2); Alexander Somieski (2); Petra Häfele (3); (1) Fundamentalstation Wettzell, (2) Eidgenössische Technische Hochschule Zürich/CH, (3) Universität der Bundeswehr, München

**09:55 5-04 Linear Horizontal Gradients of Refractivity vs. 3D Raytracing**

Johannes Böhm, Harald Schuh, Institute of Geodesy and Geophysics, Vienna University of Technology

**10:10 5-05 A Comparison of R1 and R4 IVS Networks**

Sebastien Lambert (1), Anne-Marie Gontier (2); (1) Royal Observatory of Belgium, (2) Paris Observatory

**10:25 5-06 First Results from CONT05**

Dan MacMillan, David Gordon, Dirk Behrend, Chopo Ma, Goddard Space Flight Center

**10:40 Break**

**Session 5: Software and Analysis Strategies (cont.)**

**Chair: Johannes Böhm**

**11:10 5-07 Radiosource Instability in the Analysis of VLBI Data (*invited*)**

Daniel MacMillan, NVI, Inc./GSFC

**11:25 5-08 The Effect of Reference Radiosource Instabilities on the TRF Solution**

Oleg Titov, Geoscience Australia

**11:40 5-09 First Steps to Investigate Long-term Stability of Radio Sources in VLBI Analysis**

Gerald Engelhardt, Volkmar Thorandt, Bundesamt für Kartographie und Geodäsie

**11:55 5-10 Correlation in VLBI Observations**

John M. Gipson, NVI, Inc./GSFC

**Session 6: Results and Geodetic/Geophysical/Astrometric Interpretation**

**Chair: Seiji Manabe**

**12:10 6-01 VLBA Phase Referencing for Astrometric Use (*invited*)**

Edward Fomalont, National Radio Astronomy Observatory

**12:35 6-02 High-frequency Earth Orientation Variations and Geodetic VLBI (*invited*)**

Rüdiger Haas, Chalmers University of Technology, Onsala Space Observatory

**13:00 Lunch**

**15:00 6-03 Extending the ICRF to Higher Radio Frequencies: Global Astrometric Results at 24 GHz**

C.S. Jacobs, G.E. Lanyi, C.J. Naudet, O.J. Sovers, L.D. Zhang (1); P. Charlot (2); E.B. Fomalont (3) D. Gordon, C. Ma (4); and the KQ VLBI Collaboration; (1) NASA/Caltech's JPL, (2) Bordeaux Observatory, (3) NRAO, (4) NASA/GSFC

**15:15 6-04 Astrometric Suitability of ICRF Sources Based on Intrinsic VLBI Structure**

Patrick Charlot (1); Alan Fey (2); Roopesh Ojha (3); David Boboltz (2); (1) Bordeaux Observatory, (2) U. S. Naval Observatory, (3) Australia Telescope

National Facility

**15:30 6-05 How Compact Are Faint Radio Sources?**

Richard Porcas, MPIfR Bonn

**Session 6: Results and Geodetic/Geophysical/Astrometric Interpretation  
(cont.)**

**Chair: Dan MacMillan**

**15:45 6-06 E3 Network Results**

Anthony Searle, Mario Bérubé, Bill Petrachenko, Natural Resources Canada (NRCan)

**16:00 6-07 A Generalized Scheme to Retrieve Wet Path Delays from WVR Measurements Applied to the European Geodetic VLBI Network**

J. Cho (1,2), A. Nothnagel (2), A. L. Roy (3), R. Haas (4); (1) Korea Astronomy & Space Science Institute, (2) Geodetic Institute, University of Bonn, (3) Max-Planck Institute for Radio Astronomy, (4) Onsala Space Observatory, Chalmers University of Technology

**16:15 6-08 Combination of Long Time Series of Tropospheric Parameters**

Robert Heinkelmann, Johannes Böhm, Harald Schuh; Institute of Geodesy and Geophysics, Vienna University of Technology

**Poster Sessions and Closing**

**16:30 Closing Remarks**

Wolfgang Schlüter, Bundesamt für Kartographie und Geodäsie (BKG)

**16:45 Poster Sessions and Refreshments**

**18:45 Bus to hotel**

**19:30 Bus from Hotel Diego de Almagro to Golf Club House “La Posada”**

**20:00 Conference Dinner**

**23:30 Bus to hotel**



## Posters

### Session 1P: VLBI in Science and Application

#### 1-01P VLBI Delay Model for Radio Sources at Finite Distance

Mamoru Sekido (1), Toshio Fukushima (2); (1) National Institute of Information and Communications Technology, (2) National Astronomical Observatory Japan

### Session 2P: Next Generation VLBI

#### 2-01P Carbon Fibre Antennas for Geodetic VLBI

Peter Dewdney (1), Gordon Lacey (1), Bill Petrachenko (2); (1) National Research Council of Canada (NRC), (2) Natural Resources Canada (NRCan)

#### 2-02P Network Size Simulations

Anthony Searle, Mario Berube, Bill Petrachenko; Geodetic Survey Division, Natural Resources Canada

### Session 3P: Network Stations, Operation Centers, Correlators

#### 3-01P Antenna Cross-Polarization Characteristics at Geodetic VLBI Stations

Brian Corey, Michael Titus; MIT Haystack Observatory

#### 3-02P An Investigation on a GPS-based Approach to Local Tie Computation

Claudio Abbondanza (1), Monia Negusini (2), Pierguido Sarti (2), Luca Vittuari (1); (1) DISTART - Università di Bologna, Italy (2) Istituto di Radioastronomia - INAF - Bologna, Italy

#### 3-03P GPS Measurements on the VLBI Telescopes at Onsala and Ny-Ålesund

Daniel Hernandez, Rüdiger Haas; Chalmers University of Technology, Onsala Space Observatory

#### 3-04P Photogrammetry, Laser Scanning, Holography and Terrestrial Surveying of the Noto VLBI Dish

Pietro Bolli (1), Simonetta Montaguti (1), Monia Negusini (1), Pierguido Sarti (1), Luca Vittuari (2), Gianluigi Deiana (3); (1) Istituto di Radioastronomia - INAF - Bologna, Italy (2) DISTART - Università di Bologna, Italy (3) Osservatorio Astronomico di Cagliari - INAF, Italy

#### 3-05P Observation Activities at the Tsukuba Station

Junichi Fujisaku, Kensuke Kokado, Masayoshi Ishimoto, Kazuhiro Takashima and Yoshihiro Fukuzaki; Geographical Survey Institute

**3-06P Status and Results of JARE Syowa Station, Antarctica**

Yoshihiro Fukuzaki (1), Kazuo Shibuya (2), Koichiro Doi (2); (1) Geographical Survey Institute, (2) National Institute of Polar Research

**3-07P Onsala Space Observatory - Station Report**

Rüdiger Haas, Chalmers University of Technology, Onsala Space Observatory

**3-08P Noto Station Status Report**

Gaetano Nicotra, Gino Tuccari, Salvatore Buttaccio, Pietro Cassaro, Corrado Contavalle, Leonardo Nicotra, Carlo Nocita, Luigi Papaleo, Mario Paternò, Francesco Schillirò; Istituto di Radioastronomia - INAF (Italy)

**Session 4P: New Technology Developments in VLBI**

**4-01P e-VLBI Demonstrates Real-time Correlation Using Both K5 and Mark 5 End Systems**

Chester Ruszczyk (1), Yasuhiro Koyama (2), Alan Whitney (1); (1) MIT Haystack Observatory, (2) Kashima Space Research Center/NICT

**4-02P e-NRTV - Radar VLBI Network**

Gino Tuccari (1), Igor Molotov (2), Alexander Volvach (3); (1) Istituto di Radioastronomia INAF (Italy), (2) Central Pulkovo Astronomical Observatory (Russia), (3) Institute of Radio Astronomy (Ukraine)

**4-03P An Evaluation of Atmospheric Path Delay Correction in Differential VLBI Experiments for Spacecraft Tracking**

Ryuichi Ichikawa, Mamoru Sekido, Yasuhiro Koyama, Tetsuro Kondo; Kashima Space Research Center, NICT

**4-04P A 2 Gbps DAS for Spacecraft VLBI**

Hiroshi Takeuchi, Moritaka Kimura, Junichi Nakajima; NICT

**4-05P The Post-Correlation Processing of VLBI Satellite Observations at SHAO**

Guangli Wang, Shanghai Astronomical Observatory, Chinese Academy of Sciences

**Session 5P: Software and Analysis Strategies**

**5-01P Calc 10 Implementation**

David Gordon (1), Dan MacMillan (2), Karen Baver (1); (1) Raytheon/NASA GSFC; (2) NVI Inc./NASA GSFC

**5-02P Baseline and Site Repeatability in the IVS Rapid Network**

Sebastien Lambert; Royal Observatory of Belgium (formerly at NVI, Inc./U.S. Naval Observatory)

**5-03P Thermal Deformation of Radio Telescopes Onsala and Wettzell**

Jörg Wresnik (1), Rüdiger Haas (2), Johannes Böhm (1), Harald Schuh (1); (1) Institute of Geodesy and Geophysics, Vienna University of Technology, (2) Chalmers University of Technology, Onsala Space Observatory

**Session 6P: Results and Geodetic/Geophysical/Astrometric Interpretation**

**6-01P Improving Astrometric VLBI by Using Water Vapor Radiometer Calibrations**

C.S. Jacobs, S.J. Keihm, G.E. Lanyi, C.J. Naudet, L. Riley, A.B. Tanner; Jet Propulsion Laboratory NASA/Caltech

**6-02P Tropospheric Parameters Long Time Series Analysis**

Sergey Kurdubov, Elena Skurikhina, Julia Sokolova; Institute of Applied Astronomy RAS

**6-03P VLBI as a Tool to Probe the Ionosphere**

T. Hobiger (1), T. Kondo (2), H. Schuh (1); (1) IGG, Vienna University of Technology; (2) NICT

**6-04P Detection of Short Period Ionospheric Variations from VLBI Fringe Phases**

T. Hobiger (1), T. Kondo (2), K. Takashima (3), H. Schuh (1); (1) IGG, Vienna University of Technology; (2) NICT; (3) Geographical Survey Institute

**6-05P The First Dual Frequency VLBI Observation Using VERA**

Bong Won Sohn (1), Hideyuki Kobayashi (2) Tetsuo Sasao (1), Tomoya Hirota (2), Osamu Kameya (2), Yoon Kyung Choi (2); (1) KASI, Korea Astronomy & Space Science Institute; (2) NAOJ, National Astronomical Observatory of Japan

**6-06P Crustal Deformation in South America from GPS and VLBI**

Annika Edh, Rüdiger Haas; Chalmers University of Technology, Onsala Space Observatory

**6-07P Preliminary Study on Plate Motion Measurements in Korean Peninsula by New Korean VLBI**

Youngee Kwak (1), Tetsuo Sasao (1,2), Tuhwan Kim (1); (1) Ajou University, (2) Korea Astronomy & Space Science Institute

**6-08P Modeling of the Earth Free Core Nutation**

V.S. Gubanov, S.L. Kurdubov; Institute of Applied Astronomy of RAS, St. Petersburg, Russia

**6-09P Local Tie Survey at VERA Ogasawara Station at Site Chichijima**

Yoshimitsu Masaki (1), Shigeru Matsuzaka (1), Yoshiaki Tamura (2); (1) Geographical Survey Institute, (2) National Astronomical Observatory of Japan

