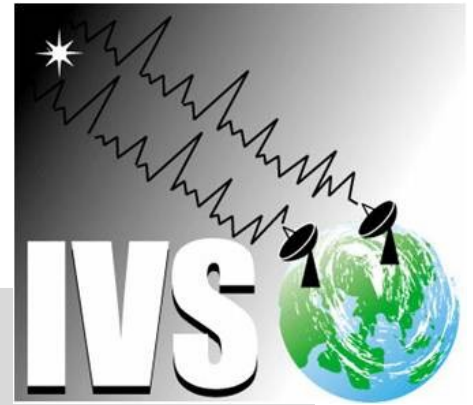




TECHNISCHE  
UNIVERSITÄT  
WIEN  
Vienna University of Technology



# Welcome & Chair's Report

**Harald Schuh, IVS Chair**  
**[harald.schuh@tuwien.ac.at](mailto:harald.schuh@tuwien.ac.at)**



## **IVS** General Meeting

[www.oan.es/gm2012/](http://www.oan.es/gm2012/)

**March 4-9, 2012. Madrid. Spain**

# In Memoriam

**Anne-Marie Gontier,  
1966-2010**



**Andrey Finkelstein,  
1942-2011**



# Major IVS Meetings (since 2010)



- **6th IVS General Meeting (GM2010)**
  - 7-13 February 2010, Hobart, TAS, Australia
- **20th European VLBI for Geodesy and Astrometry (EVGA) Working Meeting & 12th IVS Analysis Workshop**
  - 29-31 March 2011, Bonn, Germany
- **6th IVS Technical Operations Workshop (TOW2011)**
  - 9-12 May 2011, MIT Haystack Observatory, MA, USA
- **IVS Directing Board Retreat**
  - 21-23 September 2011, Hohe Wand, Austria
- **VLBI2010 Workshop on Technical Specifications**
  - 1-2 March 2012, Bad Kötzting, Germany
- **7th IVS General Meeting**
  - 4-9 March 2012, Madrid, Spain

# Highlight: CONT11



- September 15-29, 2011
- 0-24 UT observation days
- 15 days, 13 stations
- continuous VLBI
- correlation at USNO finished recently
- Remote-control of several radio telescopes allowed unattended operation (e.g. during nights)





# IVS Live



Calendar Search: Session | Source | Station | Current

Session **r1522** (has begun since **0 d 20 h 42 m 44 s**)

k12058 i12058

**Tue, 28 Feb 2012**  
(Tue, 28 Feb 2012 14)

Schedule

Group by + Go to now

Id	Source	Start time [UTC]	Duration
2012-02-27 17:00:00			
2012-02-27 18:00:00			
2012-02-27 19:00:00			
2012-02-27 20:00:00			
2012-02-27 21:00:00			
2012-02-27 22:00:00			
2012-02-27 23:00:00			
2012-02-28 00:00:00			
2012-02-28 01:00:00			
2012-02-28 02:00:00			
2012-02-28 03:00:00			
2012-02-28 04:00:00			
2012-02-28 05:00:00			
2012-02-28 06:00:00			
2012-02-28 07:00:00			

Now observing session r1522

Session Details Webcams

Session Details 0749+540 0851+202 0641+392

Coordinates	Current observation	Previous observation	Next observation
<b>Right Ascension</b> 07h53m01.384568s <b>Declination</b> +53°52'59.63707"	<b>From</b> 2012-02-28 13:38:12 <b>To</b> 13:42:35 <b>Duration (s)</b> 263	12:46:54	14:26:24

Network

Karte

Most recent VLBI image (2010-08-04)

Bordeaux VLBI Image Database  
(Laboratoire d'Astrophysique de Bordeaux)

<http://ivslive.obs.u-bordeaux1.fr/>

# IVS Retreat & 26th Board Meeting



- 21-23 September, Hohe Wand, Austria
- “Hohe Wand Declaration”
- New Directing Board (Feb 2011)

Position	Term	Name	Affiliation	Country
IAG Representative, Chair	<i>ex officio</i>	Harald Schuh	Technical University Vienna	Austria
IAU Representative	<i>ex officio</i>	Patrick Charlot	Bordeaux Observatory	France
IERS Representative	<i>ex officio</i>	Chopo Ma	NASA Goddard Space Flight Center	USA
Coordinating Center Director	<i>ex officio</i>	Dirk Behrend	NVI, Inc./Goddard Space Flight Center	USA
Analysis Coordinator	permanent	Axel Nothnagel	Institut für Geodäsie und Geoinformation der Universität Bonn	Germany
Technology Coordinator	permanent	Alan Whitney	Haystack Observatory	USA
Network Coordinator	permanent	Ed Himwich	NVI, Inc./Goddard Space Flight Center	USA
Networks Representative	Feb 2009 to Feb 2013	Gino Tuccari	Istituto di Radioastronomia INAF	Italy
Networks Representative	Feb 2011 to Feb 2015	Hayo Hase	Bundesamt für Kartographie und Geodäsie, TIGO	Germany/Chile
Correlators and Operation Centers Representative	Feb 2011 to Feb 2015	Alessandra Bertarini	IGG Bonn, Max Planck Institute for Radio Astronomy	Germany
Analysis and Data Centers Representative	Feb 2009 to Feb 2013	Oleg Titov	Geoscience Australia	Australia
Technology Development Centers Representative	Feb 2009 to Feb 2013	Rüdiger Haas	Onsala Space Observatory, Chalmers University of Technology	Sweden
At Large Member	Feb 2011 to Feb 2013	Jesús Gómez González	National Geographical Institute of Spain	Spain
At Large Member	Feb 2011 to Feb 2013	Shinobu Kurihara	Geospatial Information Authority of Japan	Japan
At Large Member	Feb 2011 to Feb 2013	Fengchun Shu	Shanghai Astronomical Observatory	China



# Hohe Wand Declaration



## Declaration of the Participants of the IVS Retreat at Hohe Wand, Austria from 21–22 September 2011

We, the eighteen participants of the IVS Retreat at Hohe Wand, met on 21–22 September 2011 to review the IVS organization and its mandate, functions, and components as well as to define focus areas for future IVS work and activities. We

### recognize

- that the global framework for geodetic activities has evolved since the inception of the service through the establishment of the Global Geodetic Observing System (GGOS);
- that the IVS data and products are also GGOS data and products;
- that the increased requirement, as mandated by GGOS, for position accuracy of 1 mm and velocity accuracy of 0.1 mm/year by the year 2020 can only be achieved by the next generation VLBI system (VLBI2010);
- that the IVS organization, mandate, functions, and components as outlined in the IVS Terms of Reference (ToR) in general continue to fulfill the requirements of the global geodetic/astrometric VLBI science and user communities; and
- that the ToR needed updating for the inclusion of the GGOS and the augmentation of the IVS Directing Board by a second Analysis Center representative;

### recommend

- that the updated ToR be approved by the IVS Directing Board and the IAG Executive Committee;
- that the development of the next generation VLBI system be advanced and that the corresponding VLBI2010 infrastructure be established on a global basis;
- that the quality control of VLBI data and products be improved;
- that internal and external outreach activities be enhanced;
- that real-time observation and product creation (including automation) be advanced to an operational state; and
- that research and research fields be expanded.

Hohe Wand, Austria  
22 September 2011



# New Components



- **Analysis Centers**

- GSI, Tsukuba as new Operational Analysis Center
- Norwegian Mapping Authority (NMA) and Politecnico di Milano, Italy as new Associate Analysis Centers
- Institute of Geodesy and Geophysics, TU Wien, Austria as new Special Analysis Center for Specific Observing Sessions, SAC-SOS)

- **Network Stations**

- Parkes CSIRO Radio Telescope
- Sejong station, Korea, proposal received last week

- **Correlator**

- Shanghai Correlator, proposal received last week



# Publications



- **IVS Annual Reports**

- 2009, 2010
- print and electronic versions

- **General Meeting Proceedings**

- GM2010 (NASA Conference Publication)
- electronic versions on IVS web site

- **IVS Newsletter**

- tri-annual issues
- paper copies mailed to IVS community
- online version

- **Journal of Geodesy Special Issue Cont08**



# 2nd Realization of the International Celestial Reference Frame (ICRF2)



## . Work of IERS/IVS working group on ICRF2

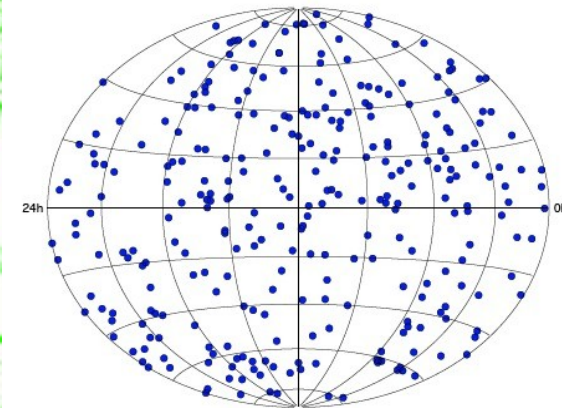
### . Compared to the original ICRF:

- 14 years additional observations
- Utilizes numerous advances in observing, analysis and modeling techniques
- 5 times as many sources (3414)
- Noise floor 5-6 times lower (40 micro arc sec)
- Axis stability 2 times better (10 micro arc sec)

### . Adopted at IAU General Assembly (2009)

- ICRF2 resolution adopted unanimously
- ICRF2 became the Fundamental Astrometric Reference Frame on 01 January 2010

### . Adopted also by IAG and IUGG at IUGG General Assembly in Melbourne (July, 2011)



# VLBI measuring rapid plate tectonics



- **IVS-antennas close to earthquake foci**
  - 2010 Feb. 27, Concepción (Chile), M 8.8
  - 2011 Mar. 11, Tohoku (Japan), M 9.0





# VLBI2010: Next Generation VLBI System



- **Progress Report of the VLBI2010 Committee**

- “Design Aspects of the VLBI2010 System”
- NASA/TM-2009-214180

- **VLBI2010 Project Executive Group**

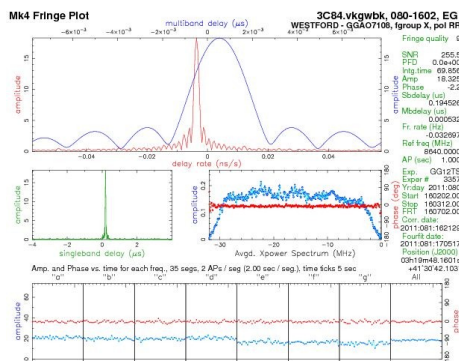
- Strategic leadership
- Network station survey

- **Workshop on Frequencies and Feeds**

- **VLBI2010 network growing** (e.g., Wettzell, Hobart, Yarragadee, Katherine, Warkworth, Goddard)

- **On the way to the VLBI2010 System (broadband phase delay observation):** proof-of-concept development project of NASA, first fringes observed on Oct. 2011. between Westford and Goddard (16 Gbps, Mark 6)

- **Workshop on VLBI2010 Technical Specifications, Bad Kötzing, March,1-2, 2012**



# IVS - ICSU World Data System

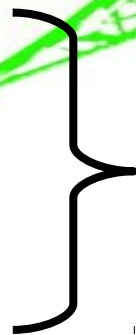
- The IVS has been accepted for WDS membership by August 2011
- First ICSU World Data System conference „Global Data for Global Science“; September 3-6 2011, Kyoto (Japan)
- Citation capability for VLBI and the IVS

## FAGS

Federation of  
Astronomical and  
Geophysical Data Analysis  
Services

## WDC

World Data Center System



## ICSU-WDS

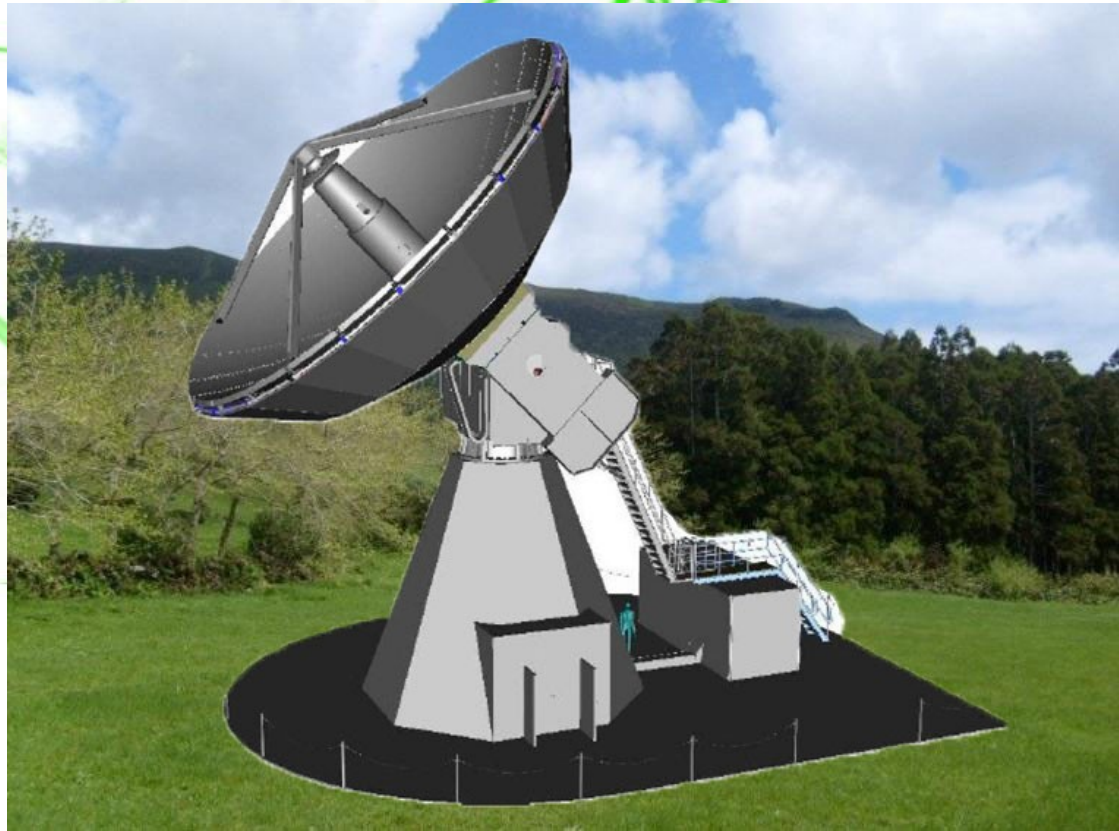
International Council for  
Science - World Data System

# Promising new projects



- **Several new VLBI2010 sites will be realized in near future:**
- **RAEGE (keynote speech J. Gómez-González)**
- **GSI, Tsukuba**
- **FGI, Metsähovi**
- **NMA, Ny Alesund**
- **Kasan + Moscow universities**

.....





# IVS Chair / IAG Vice-President



- in March 2011 Harald Schuh got elected on his second term as IVS Chair
- in July 2011 HS got elected as IAG Vice-President
- according to an IAG “rule” the VP may not chair any other IAG entity
- since August 2011 HS is “Acting Chair” of the IVS until the next IVS Directing Board election (2012/2013)
- in spring 2013 the next IVS Chair will be appointed

# Keynote Speaker



- Hansjörg Kutterer
- New President of BKG since May 2011
- Chair of GGOS (Global Geodetic Observing System) since 2011



# Thank You!



## Program Committee:

Dirk Behrend    Alessandra Bertarini    Jesús Gómez González  
Hayo Hase    Ed Himwich    Shinobu Kurihara  
Arthur Niell    Axel Nothnagel    Bill Petrachenko  
Fengchun Shu    Oleg Titov    Gino Tuccari  
Alan Whitney

## Local Organizing Committee:

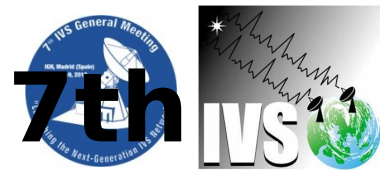
Francisco Colomer (Chair)

Susana Garcia-Espada    Alvaro Santamaria  
Pablo de Vicente    Marta Calvo

and of course also:    Jesús Gómez González



# Some statistics about the 7<sup>th</sup> IVS GM



**7<sup>th</sup> IVS General Meeting**  
[www.oan.es/gm2012/](http://www.oan.es/gm2012/) March 4-9, 2012, Madrid, Spain



Waterloo 13.2 m  
(Ohio Telescope)



Waterloo 12 m  
(Ohio Telescope)

**Launching  
the Next-Generation  
IVS Network**



Waterloo 13.2 m  
(Ohio Telescope)



Waterloo 12 m  
(Ohio Telescope)

#### SCIENTIFIC COMMITTEE

Dick Behrend  
 Alessandra Bertolini  
 Jesús Gómez-González  
 Ryoji Hase  
 Ed Hurn  
 Shinsuke Kurihara  
 Arthur Kroll  
 Axel Muthaenig  
 Bill Petrochenko  
 Fengshun Shi  
 Qing Tzou  
 Gino Taccari  
 Alan Whitney

#### LOCAL ORGANIZING COMMITTEE

Francisco Colomer (Chair)  
 María Ceballos  
 Pablo de Vicente  
 Susana García-Espada  
 Álvaro Santamaría

Hosted by the International VLBI Service for Geodesy and Astrometry (IVS) and the National Geographic Institute of Spain (IGN)



**participants: ~ 150**  
**countries: ~ 25**  
**institutions: ~ 65**  
**abstracts submitted: ~ 120**  
**oral presentations: ~ 60**  
**poster presentations: ~ 50**

# Let's kick off!

