Concept and Implementation of the IERS INFORMATION and ARCHIVE SYSTEM

Bernd Richter
Wolfgang Schwegmann
IERS Central Bureau
at the Federal Agency for Cartography and Geodesy

IERS workshop on site co-location 23/24. Oktober 2003, Matera, Italy
1. Establishment of IERS database:
   • Archiving of all IERS products and the data files to achieve the products
   • Administration of Meta-Information for the available products and data

2. Maintenance of the IERS information system:
   • General information concerning IERS
   • Meta-Information of the products
   • Web-Interface for search in the database
   • Standardised access to all IERS products and data

3. General management and coordination:
   • Address database
   • Mailing lists for news and publication
Data centre → external ftp-Server

Archiving at external ftp-Servers of the Product Centres.
Information centre ➞ static Web-pages

**Updates:** Web-pages are maintained and updated manually.

**Redundancy:** Identical information at various locations and pages.

**Consistency:** Information are stored independently in the address database and in the information system.

**Dynamique Administration of Web-pages:** Information be stored only in the database and serve the WEB - pages.
IERS Directing Board

Product Centres
- Earth Orientation
- Rapid Service / Prediction
- International Celestial Reference System
- International Terrestrial Reference System
- Global Geophysical Fluids
- Conventions

Combination Centres
- ITRS Combination Centres
- Combination Research Centres

Technique Centres (external Services)
- IGS
- IVS
- ILRS
- IDS

Central Bureau
- Analysis Coordinator

Nutzer
Technical Realisation

Dynamic access to database supported Web-pages with PHP und SQL:

All components based on Open Source Software:

- Database: PostgreSQL/MySQL
- Web-Server: Apache
- Access to the database via Web-interface with PHP-scripts
XML: eXtensible Markup Language

- General syntax to define documents and data structures
- Individual document and data formats could be developed
- Structure and content of the information are clearly separated from their final representation or output
- XML-Parser check the syntax of XML-Data automatically when reading
- XML-Documents can be displayed in various manners
- There are many free software tools available to work on XML-documents (XQUERY, XPATH, XSLT, SVG, ...)
- XML is portable and facilitates an easy data exchange
- XML is an open standard and freely available
Administration of heterogenic IERS data and products with XML

Data:
- technique specific analysis data
- IERS products: EOP, reference systems, geophysical fluids, ...

Transformation to XML

Formats: Ascii-text, tables, plots, SINEX I+II, HTML, ...

File archive

Meta-information stored in database

XSL

USER:
- Search the database
- Visualisation of data
- Download of data
- Combination of data

- HTML
- Tables / plots
- PDF
- Video streams
- Graphics (SVG)
- 3-D pictures
- ...
Application to site descriptions and site co-location

- Site SINEX (ascii file)
- Site documentation with details on environmental parameters but no technique specific info (ascii file)
- Maps / sketches / photos
- Site surveys (document, e.g. pdf, ..)
INTRODUCTION

This is the first edition of the NASA Space Geodesy Program: Catalogue of Site Information. This catalogue supersedes all previous versions of the Crustal Dynamics Project: Catalogue of Site Information, last published in May 1989. This document is prepared under the direction of the Space Geodesy and Altimetry Projects Office (SGAPO), Code 920.1, Goddard Space Fight Center. SGAPO has assumed the responsibilities of the Crustal Dynamics Project, which officially ended December 31, 1991. The catalogue contains information on all NASA supported sites as well as sites from cooperating international partners.

This catalogue is designed to provide descriptions and occupation histories of high-accuracy geodetic measuring sites employing space-related techniques. The emphasis of the catalogue has been in the past, and continues to be with this edition, station information for facilities and remote locations utilizing the Satellite Laser Ranging (SLR), Lunar Laser Ranging (LLR), and Very Long Baseline Interferometry (VLBI) techniques. With the proliferation of high-quality Global Positioning System (GPS) receivers and Doppler Orbitography and Radiopositioning Integrated by Satellite (DORIS) transponders, many co-located at established SLR and VLBI observatories, the requirement for accurate station and localized survey information for an ever broadening base of scientists and engineers has been recognized. It is our objective to provide accurate station information to scientific groups interested in these facilities.
SITE LIST

• North America
  - Algonquin (Algonquin, Ontario, Canada)
  - Austin (Austin, TX)
  - Bear Lake (Bear Lake, UT)
  - Bloomington (Bloomington, IN)
  - Brewster (Brewster, WA)
  - Cabo San Lucas (Cabo San Lucas, Baja, Mexico)
  - Carrollton (Carrollton, GA)
  - Ely (Ely, NV)
  - Ensenada (Ensenada, Baja, Mexico)
  - Flagstaff (Flagstaff, AZ)
  - Fort Davis (Fort Davis, TX)
  - Green Bank (NRAO, Green Bank, WV)
  - Greenbelt (GGAO, GSFC, Greenbelt, MD)
SITE INFORMATION

Site Number: 850
Current Site Name: MATERA
Other Site Name:
Location: MATERA, ITALY
Geographic Region: MEDITERRANEAN
Tectonic Plate: EURASIAN

Primary Scientific Purposes: MEASUREMENTS SUPPORTING MEDITERRANEAN TECTONICS AND SLR AND VLBI TECHNIQUE DEVELOPMENT, AND DETERMINATION OF PLATE MOTION, PLATE STABILITY, AND POLAR MOTION/EARTH ROTATION.

Site Description: THE SITE IS LOCATED IN THE BOOT OF ITALY JUST ABOVE THE INSTEP, 15 KM EAST OF MATERA AND APPROXIMATELY 80 KM NORTH OF TARANTO. A FIXED SAO LASER HAS BEEN OPERATED BY THE ITALIANS SINCE SEPTEMBER 1983. TWO SLR PADS ARE LOCATED SOUTHWEST OF THE FIXED LASER BUILDING. THE SITE IS EQUIPPED TO HOST TWO MOBILE LASER SYSTEMS SIMULTANEOUSLY. A FIXED VLBI ANTENNA HAS BEEN CONSTRUCTED AT THIS SITE.
GEOLOGICAL INFORMATION
Geological Province: SOUTHERN APPENNINES
Local Geology: UPPER CRETACEOUS SEDIMENTS
Comments: NONE

MONUMENT INFORMATION
(Continued)
Site Number: 850
Current Site Name: MATERA
Location: MATERA, ITALY
Monument Number: 7939
Type of Monument: INTERSECTION OF THE AZIMUTH AND ELEVATION AXES OF THE LASER
Monument Inscription: NONE
Systems Using Monument: FIXED LASER (SAO-1)
Latitude: N 40 38' 55.7875"
Longitude: E 16 42' 16.6921"
Elevation: meters
Height Above Ellipsoid: 528.719 meters
Survey Source/Date: TELESPAZIO SURVEYING TEAM (A. CALVITTI, M. FRONTANI) / 01-JAN-86
Datum/Ellipsoid: EUROPEAN 1979/INTERNATIONAL SPHEROID
Comments: NONE
Differential Coordinates FROM Observing Monument 7939 TO Reference Monuments and Other Observing Monuments

Data Source: SURVEY OF MATERA SITE-MAR 1992

**Differential Coordinates**

<table>
<thead>
<tr>
<th>Mon.Number</th>
<th>Monument Inscription</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
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</thead>
<tbody>
<tr>
<td>7540</td>
<td>----</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7541</td>
<td>----</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>&quot;A&quot;- ECCENTRIC MARK</td>
<td>-2.9025</td>
<td>-2.8523</td>
<td>-0.6347</td>
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<td></td>
<td>&quot;H&quot; BASEMENT OF VLBI</td>
<td>71.9615</td>
<td>-55.3370</td>
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<tr>
<td></td>
<td>&quot;K&quot; BASEMENT OF VLBI</td>
<td>78.6739</td>
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<td></td>
<td>&quot;P&quot; REFERENCE MARK</td>
<td>6.0460</td>
<td>-70.4876</td>
<td>-5.7375</td>
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<td></td>
<td>&quot;R&quot; ROGUE GPS MARK</td>
<td>33.0559</td>
<td>-19.4183</td>
<td>-0.1784</td>
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</table>
PREVIOUS OCCUPATION INFORMATION

Site Number: 850
Current Site Name: MATERA
Location: MATERA, ITALY

SLR OCCUPATIONS

<table>
<thead>
<tr>
<th>Monument Number</th>
<th>Occupying System</th>
<th>Occupation Designator</th>
<th>Starting Date</th>
<th>Ending Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>7540</td>
<td>MTLRS-1</td>
<td>75401501</td>
<td>08-JAN-86</td>
<td>17-MAR-86</td>
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<tr>
<td>7541</td>
<td>MTLRS-2</td>
<td>75411601</td>
<td>08-DEC-85</td>
<td>12-MAR-86</td>
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<tr>
<td>7541</td>
<td>TLRS-1</td>
<td>75411102</td>
<td>24-MAR-94</td>
<td>18-JUN-94</td>
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<tr>
<td>7939</td>
<td>SAO-1</td>
<td>79394101</td>
<td>01-MAY-83</td>
<td>31-DEC-99</td>
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</tbody>
</table>

VLBI OCCUPATIONS

<table>
<thead>
<tr>
<th>Monument Number</th>
<th>Occupying System</th>
<th>Occupation Designator</th>
<th>Starting Date</th>
<th>Ending Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>7243</td>
<td>20-METER</td>
<td>72435701</td>
<td>24-MAY-90</td>
<td>31-DEC-99</td>
</tr>
</tbody>
</table>
Site Information

SLR site information is contained in the following databases:

1. Site Occupation Designator (SOD), maintained by the CDDIS
2. Directory of MERIT Sites (COMES), maintained by the IERS
3. International Terrestrial Reference Frame 2000 (ITRF2000) SLR Site Coordinates/Velocities, maintained by the ITRF
4. ILRS Site Coordinates/Velocities (all sites), maintained by the ILRS CB
5. SLR System Eccentricities (Up, North, East and X, Y, Z), maintained by the ILRS CB
6. ILRS Site and System Information Form (Site Logs), maintained by the ILRS systems
7. System Configuration Files, maintained by the ILRS systems
8. Data Corrections (pre-1999, post-1999), maintained by the ILRS CB

Definitions:

SOD is an eight digit code to uniquely describe an occupation of a geodetic monument.

DOMES is a nine character code to unambiguously identify a geodetic instrument reference point and/or geodetic marker

ITRF2000 datum definition:

- Scale and rate: weighted average of SLR and VLBI solutions
- Origin: weighted average of SLR solutions
- Orientation: insured upon a selection of ITRF sites with high geodetic quality
- Rotations: ITRF97 at 1997.0 epoch
- Rotation rates: No Net Rotation w.r.t. NNR-NUVEL1A

System eccentricities are the offsets in Up, North, East and X, Y, Z from the geodetic monument (if one exists) to the optical reference point.
### ILRS Station Identification Table

Below is a table of different site identification schemes for ILRS stations (i.e., 4-letter site codes, SODs, and DOMES numbers). Systems that are no longer active have been depicted in red and have two (**) at the end of the location names. Systems that are no longer active have been depicted in red and have two (**) at the end of the location names.

<table>
<thead>
<tr>
<th>Monument Code</th>
<th>Location Name, Country</th>
<th>CDDIS SOD</th>
<th>IERS DOMES Numbers</th>
<th>IGS Site Log</th>
<th>IVS Site Log</th>
<th>IDS Site Log</th>
</tr>
</thead>
<tbody>
<tr>
<td>1624</td>
<td>Golsiv, Ukraine</td>
<td>18248101</td>
<td>12365S001</td>
<td>GLSY</td>
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<tr>
<td>1631</td>
<td>Lviv, Ukraine</td>
<td>10316501</td>
<td>12363S001</td>
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<tr>
<td>1633</td>
<td>Maidanak 2, Uzbekistan</td>
<td>10635101</td>
<td>12340S001</td>
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<tr>
<td>1684</td>
<td>Maidanak 1, Uzbekistan</td>
<td>18645401</td>
<td>12340S002</td>
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<td>-</td>
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<tr>
<td>1888</td>
<td>Komsonolok-na-Amur, Russia</td>
<td>18885901</td>
<td>12341S001</td>
<td>-</td>
<td>-</td>
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<tr>
<td>1870</td>
<td>Mendolove 1, Russia</td>
<td>18706301</td>
<td>12338S001</td>
<td>MDVO</td>
<td>-</td>
<td>-</td>
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<tr>
<td>1873</td>
<td>Simre, Ukraine</td>
<td>18734901</td>
<td>12337S003</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>1874</td>
<td>Mendolove 2, Russia</td>
<td>18748301</td>
<td>12338S003</td>
<td>MDVO</td>
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<td>-</td>
</tr>
<tr>
<td>1884</td>
<td>Riga, Latvia</td>
<td>18644401</td>
<td>12302S002</td>
<td>RIGA</td>
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<td>-</td>
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<tr>
<td>1863</td>
<td>Kaltzive, Ukraine</td>
<td>18931801</td>
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<td>-</td>
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<td>-</td>
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<tr>
<td>7000</td>
<td>McDonald Observatory, Texas</td>
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<td>40442M006</td>
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<td>-</td>
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<td>7090</td>
<td>Yarragadee, Australia</td>
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<td>50107M001</td>
<td>YARI</td>
<td>YAR2</td>
<td>YARB</td>
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<tr>
<td>7105</td>
<td>Greenbelt, Maryland</td>
<td>71050725</td>
<td>40451M105</td>
<td>CODE</td>
<td>-</td>
<td>GREB</td>
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<tr>
<td>7110</td>
<td>Monument Peak, California</td>
<td>71040111</td>
<td>40497M001</td>
<td>MONEP</td>
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<td>-</td>
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<tr>
<td>7124</td>
<td>Tahiti, French Polynesia</td>
<td>71240802</td>
<td>92201M007</td>
<td>THTI</td>
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<td>FAQB</td>
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<tr>
<td>7210</td>
<td>Haleakala, Hawaii</td>
<td>72102310</td>
<td>40445M001</td>
<td>MAUI</td>
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<tr>
<td>7231</td>
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<td>WUHN</td>
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<tr>
<td>7236</td>
<td>Wuhan, China** (now at 7231)</td>
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<td>WUHN</td>
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<tr>
<td>7245</td>
<td>Beijing, China</td>
<td>72451301</td>
<td>21501S004</td>
<td>BEJS</td>
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<tr>
<td>7308</td>
<td>Koganei, Japan(CRL)</td>
<td>73085001</td>
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<td>KONI</td>
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<tr>
<td>7309</td>
<td>Koganei, Japan**</td>
<td>73091100</td>
<td>21704M001</td>
<td>KONI</td>
<td>KOGANEI</td>
<td>-</td>
</tr>
</tbody>
</table>
Matera (MLRO) Photo:
Matera (MLRO) Site Log

You can use the hyperlinks to quickly get to the section of interest or you can scroll down to read them all.

Section: 0. Form
Section: 1. Identification of the Ranging System Reference Point (SRP)
Section: 2. Site Location Information
Section: 3. General System Information
Section: 4. Telescope Information
Section: 5. Laser System Information
Section: 6. Receiver System
Section: 7. Tracking Capabilities
Section: 8. Calibration
Section: 9. Time and Frequency Standards
Section: 10. Preprocessing Information
Section: 11. Aircraft Detection
Section: 12. Meteorological Instrumentation
Section: 13. Local Ties, Eccentricities, and Collocation Information
Section: 14. Local Events Possibly Affecting Computed Position
Section: 15. On-Site, Point of Contact Agency Information
Section: 16. Responsible Agency (if different from 15)
Section: 17. More Information

ILRS Site and System Information Form
International Laser Ranging Service

D. Form

Prepared by (Full Name) : Giuseppe Bianco
Preparer E-mail : bianco@asi.it, miro@asi.it
Date Prepared : 2003-05-00
13. Local Ties, Eccentricities, and Collocation Information

13.C1 Colllocated Permanent Geodetic Systems

GPS
- IGS+EUREF
- Date Installed: 1991-04-16
- Date Removed: (yyyy-mm-dd)
- Additional Information: (multiple lines)

GLONASS
- IGLOS
- Date Installed: unknown
- Date Removed: (yyyy-mm-dd)
- Additional Information: (multiple lines)

DORIS
- NO
- Date Installed: (yyyy-mm-dd)
- Date Removed: (yyyy-mm-dd)
- Additional Information: (multiple lines)

PRAKE
- YES
- Date Installed: 1996-01-01
- Date Removed: (yyyy-mm-dd)
- Additional Information: (multiple lines)

VLBI
- YES
- Date Installed: 1990-01-01
- Date Removed: (yyyy-mm-dd)
- Additional Information: (multiple lines)

Gravimeter
- NO
- Date Installed: (yyyy-mm-dd)
- Date Removed: (yyyy-mm-dd)
- Additional Information: 

13.C2.01 Local Ties from the SRP to Other Monuments or Systems on Site

Monument Name: GPS reference marker "R" (MATE)
Instrumentation Type: GPS
Instrumentation Status: PERMANENT
DOMES Number: 12734 MDCS
CDP Number: N.A.
Differential Components (ITRS) (R-M)
- dx [m]: -29.158 ± 0.001
- dy [m]: -22.199 ± 0.001
13.02.01 Local Ties from the SRP to Other Monuments or Systems on Site

Monument Name: GFS reference marker "R" (MATE)
Instrumentation Type: GPS
Instrumentation Status: PERMANENT
DOMES Number: 127343DD06
CDP Number: N.A.
Differential Components (ITRS) (R-M)
  dx [m]: -29.159 +/− 0.001
  dy [m]: -22.199 +/− 0.001
  dz [m]: 37.904 +/− 0.001
Date Measured: 2000-03-01
Determined by: Telespazio CSG
Date Installed: 1991-04-16
Date Removed: (yyyy-mm-dd)
Additional Information: IGS/EUREF permanent station

13.02.02 Local Ties from the SRP to Other Monuments or Systems on Site

Monument Name: Old Laser Telescope SAO System Marker "C"
Instrumentation Type: SLR
Instrumentation Status: PERMANENT
DOMES Number: 127343DD01
CDP Number: 7939
Differential Components (ITRS)
  dx [m]: 13.993 +/− 0.001
  dy [m]: 2.584 +/− 0.001
  dz [m]: 12.951 +/− 0.001
Date Measured: 2000-03-01
Determined by: Telespazio CSG
Date Installed: 1983-01-01
Date Removed:
Additional Information: Intersection of the oz/el axis of MAUL (Named Marker C)

13.02.03 Local Ties from the SRP to Other Monuments or Systems on Site

Monument Name: Marker "C" PAD
Coordination

Networks
- Mark 5 Deployment Plan
- Network Coordinator page
- 2003 Master schedule
- 2003 Intensive schedule
- 2003 Program Descriptions
- CONT02 Campaign
- Read ivs-ops mail
- TRACK
- Schedules and Log (password required)
- Network Stations
- Operation Centers
- Correlators

Analysis
- Analysis Coordinator page
- Analysis Web Site
- Analysis Solicitation
- Responses to Solicitation
- Sessions Analysis
- Read ivs-analysis mail
- Data Centers
- Analysis Centers
- Read working group mail

Technology
- Technology Dev. Centers
- VLBI Standard Interface
- Mark 5 Newsletters
# IVS Network Stations

*Alphabetical order by country*

<table>
<thead>
<tr>
<th>Country</th>
<th>IVS Component Name (link to configuration file)</th>
<th>2-letter code</th>
<th>8-letter name</th>
<th>On-site Technical Contact</th>
<th>Administrative Contact</th>
<th>Sponsoring Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Hobart, Mt. Pleasant Radio Observatory</td>
<td>Ho</td>
<td>HOBART26</td>
<td>Brett Reid</td>
<td>Peter McCulloch</td>
<td>University of Tasmania</td>
</tr>
<tr>
<td>Brazil</td>
<td>Fortaleza, Radio Observatorio Espacial de Nordeste (ROEN)</td>
<td>Fi</td>
<td>FORTLEZA</td>
<td>Macio Lucena</td>
<td>Pierre Kaufmann</td>
<td>Centro de Radio Astronomia e Aplicacoes Espaciais</td>
</tr>
<tr>
<td>Canada</td>
<td>Algonquin Radio Observatory</td>
<td>Ap</td>
<td>ALGOPARK</td>
<td>Mario Berube</td>
<td>Mario Berube</td>
<td>Geodetic Survey Division, Natural Resources Canada</td>
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<tr>
<td>Canada</td>
<td>Yellowknife Geophysical Observatory</td>
<td>Yk</td>
<td>YLOW7296</td>
<td>Bill Cuthwaite</td>
<td>Mario Berube</td>
<td>Geodetic Survey Division, Natural Resources Canada</td>
</tr>
<tr>
<td>China</td>
<td>Nan Shan VLBI Station</td>
<td>Ur</td>
<td>UEUMOI</td>
<td>Zhang Hongbo</td>
<td>Zhang Jin</td>
<td>Chinese Academy of Sciences</td>
</tr>
<tr>
<td>China</td>
<td>Seshan</td>
<td>Sh</td>
<td>SESHAN25</td>
<td>Liang Shiguang</td>
<td>Huang Xinyong</td>
<td>Joint Laboratory for Radio Astronomy (JLRA), CAS and Shanghai Observatory, CAS</td>
</tr>
<tr>
<td>Germany</td>
<td>ERS/VLBI Station O'Higgins</td>
<td>Oh</td>
<td>OCHIGINS</td>
<td>Andreas Reinhold</td>
<td>Wolfgang Schluter</td>
<td>Bundesamt fuer Kartographie und Geodaeis (BKG)</td>
</tr>
<tr>
<td>Germany</td>
<td>Fundamentalstaation Wettzell</td>
<td>Wz</td>
<td>WETTZEELL</td>
<td>Richard Klaer</td>
<td>Wolfgang Schluter</td>
<td>Bundesamt fuer Kartographie und Geodaeis (BKG) and Forschungseinrichtung Satellitengeodaeis der Technischen Universitaet Muenchen (FESG)</td>
</tr>
<tr>
<td>Germany</td>
<td>Transportable Integrated Geodetic Observatory</td>
<td>Tg</td>
<td>TTGOWTTL</td>
<td>Haro Hase</td>
<td>Wolfgang Schluter</td>
<td>Bundesamt fuer Kartographie und Geodaeis (BKG)</td>
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</tbody>
</table>
Network Station Configuration File
International VLBI Service

Refer to the instructions in the file
ftp://ivscc.gsfc.nasa.gov/pub/config/ns/instructions.txt
for how to fill out and submit this form.
950624 nrv Form version 0.5
950702 nrv Form version 0.6
950713 nrv Form version 0.7
951020 nrv Form version 0.8

0. Form

    Prepared by (full name) : Wolfgang Schlueter
    Date prepared          : 2001-jan-19
    Report type            : unknown

1. Site identification

    Site name               : Wettzell
    Site 8-letter code      : Wettzell
    Site 2-letter code(s)   : Wz
    IERS DOMES number       : 142018004
    CDP occupation code    : 72247801
    CDP monument number    : 7224
    Surveyed into national network? : yes
    IGS station code   : UTZS
    ILRS station name     : ULRS
    Additional information : no

2. Site information

2.1 Site location information

    City or Town : Kastrißing
    State or Province : Bavaria
    Country : Germany
    Tectonic plate : Eurasia
10. Co-location information

10.1 Instrument type: VLBI
Instrument name: TIGO
Status: Permanent/Transportable
Effective dates: 1997 - now
Included in local survey: yes

10.2 Instrument type: SLR/LLR
Instrument name: ULRS (8834)
Status: Permanent
Effective dates: 1985 - now
Included in local survey: yes

10.3 Instrument type: SLR
Instrument name: SLR (7834)
Status: Offline
Included in local survey: yes

10.4 Instrument type: SLR
Instrument name: NTLRS-1
Status: Mobile/now offline
Effective dates: 1984 - 1997
Included in local survey: yes

10.5 Instrument type: SLR
Instrument name: TIGO
Status: Permanent/Transportable
Effective dates: 1997 - now
Included in local survey: yes

10.6
IGS Tracking Network

Site information

- complete clickable map or station list
- active hourly sites map
- "Global" stations map
- GPS/GLONASS stations map
- active high rate LEO sites map
- All maps on one page
- IGS GPS station list
- IGS Inertial Navigation Satellite System
- IGS Global Navigation Satellite System
IGS Station: mate

Station Information

current site log

mate_20020919.log
older log by below

igsnet graphs

mate.gif (13 K)

site pictures: none found

Most Recent IGSMail
Older IGSMail below

43 67 07 May 2003 Francesco Ambrosio Subject: Fixed MATE external frequency problem
GPS Sites Archived at SOPAC

Site information utilities

- **GPS Networks**: SOPAC archives data for GPS networks around the world. This page provides a listing of these networks, their sites, and network maps.

- **Site Information Manager (SIM) v1.30**: The SIM allows users to view site metadata for GPS sites archived at SOPAC. Users with proper access rights may use the SIM to update and maintain their site logs. (version 1.20 is no longer supported).

- **Site (Site Information Tool)**: Retrieve a selected subset (cross-section) of information for a set of sites and/or GPS networks.

- **Get Single Site Information**: Obtain site information by entering the site's four-character code.

- **Check 4 Character Site Code**: Use this tool to determine whether a four-character site code is available, or already in use.

- **Locate Site**: Locate a GPS site by entering the site's four-character code.

- **Site Problem History**: A table of GPS sites currently or previously offline. Note that only sites with problems entered into the SOPAC database are included.

- **Site Logs**: These contain important metadata about a GPS site - antenna/receiver types, antenna height, equipment change dates, etc.

- **Retrieved Site Timeseries**: A listing of all GPS sites with timeseries generated from the SOPAC
mate: Permanent GPS Site Information

Array: PURIF
Name: Matera
City: MATERA
Province: BASILICATA
Country: ITALY

Domes Number: 12734M008

XYZ coordinates (m):
- 4841593.589 1393045.437 4133287.4358
  [Ref epoch: 2003.7945] [Ref frame: ITRF2000]
  [Source: estimated using SOPAC refined model]
- 4841593.591 1393045.488 4133287.4408
  [Ref epoch: 2003.7479] [Ref frame: ITRF2000]
  [Source: Latest weekly analysis result]
- 4841593.587 1393045.203 4133287.3558
  [Ref epoch: 1998.0027] [Ref frame: ITRF2000]
  [Source: SOPAC ITF2000 CORE SITE FILE - 2010 coordinate file]
- 4841593.709 1393045.298 4133287.333
  [Ref epoch: N/A] [Ref frame: N/A]
  [Source: site loc]

Lat/Lon/Elip. Ht (deg/deg/m):
- 40.84913135 16.70445911 535.8486
  [Ref epoch: 2003.7945] [Geodetic datum: WGS84]
  [Source: estimated using SOPAC refined model]
- 40.84913135 16.70445911 535.8583
  [Ref epoch: 2003.7479] [Geodetic datum: WGS84]
  [Source: Latest weekly analysis result]
- 40.8491 16.7045 535.85
  [Ref epoch: N/A] [Geodetic datum: N/A]
  [Source: site loc]

Site log: mate_log problems downloading? unix->windows text converter

Site location: On
The IAG subcommission EUREF, which is responsible for the maintenance of the European Reference System (ETRS89), took in 1995 the initiative to coordinate the activities related to existing local permanent GPS networks in Europe. These stations observe in permanence the satellites from the Global Positioning System (GPS) which has proven to be valuable for a wide range of space geodetic applications. A selection of the European permanent GPS tracking stations was the basis for the EUREF Permanent Network (EPN).

The European permanent tracking stations involved in the EPN provide near real-time high quality GPS data to Local and Regional Data Centres. EPN analysis centres routinely analyse the data from this network and deliver to the GPS community precise coordinates for all stations involved in the network. EUREF's multi-year network submissions to the International Earth Rotation Service assures the integration of the EPN tracking stations in the successive realizations of the International Terrestrial Reference System, which is the basis for the European Reference System.

Taking into account that more than 30 European countries are actively involved, EUREF created the necessary structure for several institutes to cooperate, share resources, develop and pursue standards, and make tracking and auxiliary data, as well as products of various kinds, publicly available. Download the EPN flyer for a quick overview of the EPN (Last updated: September 19, 2003). Since the EPN is the European densification of the IGS network, a complementary European-IGS web site provides the EUREF Permanent Network (EPN) in the IGS network context.
EUREF Permanent Network

TRACKING NETWORK

Maps
View and download different maps of the EPN tracking stations, including subnetwork maps such as stations submitting hourly data. High and low resolution maps are available in pdf, eps and jpg format.

Equipment list
The names of the GPS receivers and antennae known to both the IGS and EUREF, as well as the calibration values of the antennae.

Stations
Through a clickable map you have access to a complete description of each individual EPN station (site configuration, tracking performance, data availability and coordinate repeatabilities). In addition, you find tables of candidate stations, new stations and excluded stations.

Coordinates
Coordinates of the EPN stations in the different realizations of the International Reference System (ITRS) and European Terrestrial Reference System (ETRS89). The most recent set of coordinates includes all EPN stations included in the EPN from Jan 2000.

EPN Central Bureau (Royal Observatory of Belgium)

January 15, 2003
EUREF Permanent Network

ORGANISATION
- Creation, Management, Structure, Relation to IGOS, Projects, Guidelines, FAQ's

TRACKING NETWORK
- Maps, Stations, Equipment List, Coordinates

DATA & PRODUCTS
- Data centres, Analysis centres, Products, Time series, IGOS products

NEWS & MAILS
- EUREF mail, LAC mail, News, Related papers, Workshops, Web site history

FTP & WEB ACCESS
- Anonymous FTP, Web site index, Related links

TRACKING NETWORK - STATIONS - DESCRIPTIONS - MATE_12734M008

Station included in the EUREF network since GPS week No 0334.

- Station logs

`mate_20020919.log` (current)

`mate_20020805.log` (previous ones)

- Daily data available at

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5. Surveyed Local Ties

5.2 Tied Marker Name : SLR (MARKER O)
Tied Marker Usage : SLR
Tied Marker CDP Number : 7939
Tied Marker DOMES Number : 12734S001
Differential Components from GNSS Marker to the tied monument (ITRS)
   dx (m) : 15.172
   dy (m) : 24.826
   dz (m) : -24.959
Accuracy (mm) : 2
Survey method : TRIANGULATION
Date Measured : 1996-07-01
Additional Information :

5.3 Tied Marker Name : VLBI
Tied Marker Usage : VLBI
Tied Marker CDP Number : 7243
Tied Marker DOMES Number : 12734S005
Differential Components from GNSS Marker to the tied monument (ITRS)
   dx (m) : -10.946
   dy (m) : -42.246
   dz (m) : 38.203
Accuracy (mm) : 6
Survey method : TRIANGULATION
Date Measured : 1991-11-01
Additional Information :
### 7. **Collocation Information**

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<td>PRARE</td>
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MATERA Site Description

The Centro di Geodésia Spaziale (CGS) of the Italian Space Agency came into operation in 1983 in the framework of an agreement with the Basilicata Regional Government.

Thanks to the collocation of all precise positioning space-based techniques, CGS is one of the few "fundamental" stations in the world. Full integrated in the worldwide network for Space Geodesy, the Center observed several thousands of passes of the principal laser ranged satellites (LAGEOS I and II, STARLETTE, ATS4, ERS I and II, TOPEX/POSEIDON, STELLA, METEOR III). In the early 90's the station as extended its capabilities to the Very Long Baseline Interferometry using a 20m radiotelescope fully designed and built in the framework of an ASI contract awarded to Alenia Spazio and SAE. The Center capabilities extended also to the use of satellite based radio positioning techniques such as the US developed GPS (Global Positioning System).

Since 1983, the operational activities are performed by Telespazio S.p.A.

Acquisition Systems:

- SAO-1 and new MLRO SLR Systems
- VLBI System
- GPS Receiver
- PRARE System

Time and Frequency System

General Information:

See Local Surveys & reports page.

Other resources:

- Site information from NASA SGP Catalog of Site Information on CDDIS.
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**DIRECTORY OF IERS STATIONS**

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Administration of heterogenic IERS data and products with XML

Data:
- technique spécifique analysis data
- IERS products: EOP, reference systems, geophysical fluids, ...

Transformation to XML

Formats: Ascii-text, tables, plots, SINEX I+II, HTML, ...

File archive

Meta-information stored in database

XSL

- HTML
- Tables / plots
- PDF
- Video streams
- Graphics (SVG)
- 3-D pictures
- ...

USER:
- Search the database
- Visualisation of data
- Download of data
- Combination of data