Agenda
Tuesday, May 04, 2010, 19.00 to 20:30
Vienna, Austria
Room: Seminarraum (SEM 124), Vienna University of Technology
Institute of Geodesy and Geophysics, Advanced Geodesy (128-1)
Gusshausstr. 27-29
Room No. CB 0308, 3rd floor

1. Welcome and Introduction
   Randy Ricklefs

2. Membership
   Randy Ricklefs

3. Refraction Study Group Report
   Erricos Pavlis

4. Formats Study Group Report
   Randy Ricklefs
   - CRD implementation status
     Randy Ricklefs
   - tracking restrictions
     Randy Ricklefs
   - consolidation of ILRS OC quality checks
     C. Noll, R. Ricklefs
   - full rate data handling and transfer
     Randy Ricklefs
   - sample normal point programme
     Randy Ricklefs
   - criteria for rejection of CRD files
     Christian Schwatke

5. Quarantining of data from new stations
   Mike Pearlman
International Laser Ranging ServiceData Formats & Procedures WG
Members
ILRS e-mail exploder:ilrs-dfpwg@lists.nasa.gov

Chairman: Wolfgang Seemueller  
Michael R. Pearlman - mpearlman@cfa.harvard.edu
Co-Chairman: Randy Ricklefs  
Carey E. Noll - carey.noll@nasa.gov
New Members:  
- Adrian Jaeggi  
  - Maurice P. Dube - maurice.p.dube@nasa.gov
- Christian Schwatke  
  - Peter J. Shelus - pjs@astro.as.utexas.edu
- Florent Deleflie  
  - Magdalena Kuzmicz-Ceslak - magdak@umbc.edu
- Adrian Jggi  
  - Graham Appleby - graham.appleby@nerc.ac.uk
- Christian Schwatke  
  - Jan F. McGarry - jan.mcgarry@nasa.gov
- Florent Deleflie  
  - Julie E. Horvath - julie.horvath@honeywell.com
  - Mark Davis - mark.davis@nrl.navy.mil
  - Erricos Pavlis - epavlis@umbc.edu
  - Scott L. Wetzel - scott.wetzel@honeywell.com
  - Stefan Riepl - stefan.riepl@bkg.bund.de
  - Yang Fumin - yangfm@shao.ac.cn
  - Wolfgang H. Seemller - seemueller@dgfi.badw.de
  - Adrian Jggi - adrian.jaeggi@aiub.unibe.ch
  - Christian Schwatke - schwatke@dgfi.badw.de
  - Florent Deleflie - florent.deleflie@obs-azur.fr
1. CRD status
2. Tracking Restrictions Questionnaire
3. Data QC and file system harmonization
4. Full rate data handling
5. Sample code
CRD format status

- Conversion deadline is now June 30, 2010
- 25 stations are now submitting CRD-formatted normal points
  - 12 stations have been validated
  - 10 stations are awaiting analyst validation
  - 3 stations are awaiting OC validation
- 5 stations are known to be in coding/testing
- 10 stations are unaccounted for
- 6 AWG analysis centers are known to be able to handle CRD data, with 5 helping with the validation chores.
- ~7 stations are submitting CRD full rate data for T2L2
- 10 stations are submitting CRD full rate data for LRO, and the LRO/LR SOC is working to produce CRD normal points.
CRD format implementation

- All EDC OC's validated stations still need to provide normal points in CRD and old format. EDC is working on this.
- EDC is sending in CRD normal points 2-3 days later than the old normal points. EDC is working on this.
- Both OCs are now sending bad CRD normal points back to the stations for correction before distribution.
- Stations should not innovate data field values not already available in old format, e.g. 2 digits values in “Station Epoch Time Scales.” Some still are.
Data Formats and Procedures Working Group

Vienna
4 May 2010

R. Ricklefs

1. CRD status
2. Tracking Restrictions Questionnaire
3. Data QC and file system harmonization
4. Full rate data handling
5. Sample code
Satellite tracking restrictions

- Missions using restrictions (a reminder...):
  - Elevation: ICESat
  - Go/no-go: ICESat, ALOS, LRO, LLR
  - Pass segments: GP-B, ALOS
  - Power: LRO

- LLR go/no-go not yet implemented: A list of avoidance times for each reflector is distributed, often on a daily basis.

- Survey was sent by CB to all ranging stations in January 2009; there have been at least 4 reminders; several stations cannot be reached; several stations have been asked for updates

- Survey results are on the ILRS web site
Satellite tracking restrictions status

- 28 ILRS stations responded (plus Mark Davis for Stafford)
- 15 have automated elevation restrictions implemented
  - 9 plan to implement
- 16 have automated go/no-go implemented
  - 9 plan to implement
- 14 have automated pass segments implemented
  - 10 plan to implement
- 2 has automated power restrictions implemented
  - 11 plan to implement
  - 15 have some level of manual control of laser power or beam divergence.
- Some have promised to implement certain restriction when it becomes necessary.
1. CRD status
2. Tracking Restrictions Questionnaire
3. Data QC and file system harmonization
4. Full rate data handling
5. Sample code
File System and Normal Point QC Harmonization

- Agreed in Metsovo to harmonize CRD directory structure at EDC and CDDIS: change EDC – done (normal point and full rate)
- Agreed that all daily files should contain only data from that day: change CDDIS handling – not done
- Harmonize QC checks at EDC/OC and NASA/OC: comparison shows that both perform the same checks as on the ILRS web site, but EDC does more format checks and may be missing one check NASA does.
- Be sure OCs send bad data back to station for correction. Both do, now.
- Be sure OCs quarantine data from stations after upgrade: to be discussed later in this meeting.
Data Formats and Procedures
Working Group

Vienna
4 May 2010

R. Ricklefs

1. CRD status
2. Tracking Restrictions Questionnaire
3. Data QC and file system harmonization
4. **Full rate data handling**
5. Sample code
Full Rate Data

- How do we distribute full rate data, given the increase volume from kHz fire-rate stations?
- Largest kHz passes at Graz are about 1.7 Mb compressed, giving 690 Mb/month (based on average 406 passes/month). This would fit on a CD. (Thanks, Matt!)
- If Yarragadee were a kHz station, this could be 1.9 Gb/month (based on 1130 passes/month). This would fit on a DVD.
- Experience at Hersmonceaux and NASA stations show that daily uploads of full rate data are quite “do-able.” Media mails are a hassle.
- Internet transfer will be the recommended transfer method.
Harmonizing Full Rate Handling

- Can EDC and CDDIS handle the archive of kHz full-rate data?
- Automate the transfer of full-rate data (both formats if possible) from EDC to CDDIS on a daily basis
Data Formats and Procedures Working Group

Vienna
4 May 2010

R. Ricklefs

1. CRD status
2. Tracking Restrictions Questionnaire
3. Data QC and file system harmonization
4. Full rate data handling
5. Sample code
Sample Code - Motivation

- Stop reinventing the wheel
- Provides more consistency and quality control
- Easy access so they will be used
Sample Code - Existing

- CPF routines and programs
  - Read/write/interpolation routines
  - Format checker
  - scheduler, converter
- CRD routines and programs
  - Read/write routines
  - Converters
  - Format checker
- Distrib (statistics of a data distribution); refraction routines.
- Npcheck (check normal point consistency)
- Star and solar system routines/ephemeris (USNO/JPL)
Sample Code – Future

- Normal point program
  - A generic normal-point processor was available, but has been withdrawn
  - Who can supply one?
- Other candidates?
  - Cal solutions?
Data Formats & Procedures
Working Group Report

Activities of EDC OC -
CRD Check and Rejection of CRD Files

Wolfgang Seemüller and Christian Schwatke
Online Check for CRD Files

- Web page to check CRD Files
- URL: www.dgfi.badw.de/crd_check/
- CRD Check will be included in the Web Page of http://ilrs.dgfi.badw.de in future
- Currently 34 registered users
CRD Check Programme

- The check programme detects all possible errors in CRD files with regard to CRD Specification of Version 1.01
- Full-rate data can also be checked (not all checked at EDC OC)
- Multi-pass files can also be checked (still some questions to be solved)
- Error were corrected, when it was easy, and a message was sent to the station manager
- When errors occur in CRD files, the station manager will be informed automatically in future
Criteria for rejection of CRD files

- Criteria have to be fixed for rejection of CRD files:
  - Record C2: Station 7825 uses longer format for last parameter A10
  - Record H3: Should all official satellite names and IDs be checked? (official satellite name, COSPAR ID, SIC No., NORAD ID?)
  - Record 11: Violation of Bin Size especially for kHz lasers; (Removing one observation at the beginning or end for 7237, e.g.)
- Should the status of Conception changed from validated to quarantine due to the earthquake?