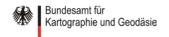
New Server Concept at the BKG Data Center

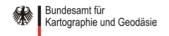
Heinz Habrich

Federal Agency for Cartography and Geodesy Frankfurt, Germany



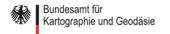
Introduction

- Motivation for development of new concept
- Concept background (basic ideas)
- Demonstration (offline)
- Outlook



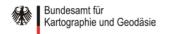
Current Drawback

- Only 1 to 2 staff members could maintain the data center (poor personal backup)
- Too many exceptions contrary to the general procedure
 - Programs became unclear
 - Debugging is difficult
- Quick information about active processes and missing data is sparsely possible
 - It takes too much time to detect any inconsistencies in the data transfer and errors of the running processes
- Current structure is designed for usage of ftp in batch-mode
 - Today's users ask additionally for interactive search and download
 - A presentation of the data center on the web is mandatory
- GSAC wholesaler software is currently not included



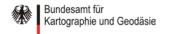
Why New Concept?

- Access should be more comfortable for users and administrators
- Quick orientation for users desirable
- Clear structure is helpful for maintenance
- Better visibility of current content of the data center desirable
- Easy repair and fallback possibility necessary
- GSAC Wholesaler kid is based on perl modules and perl should be used more generally



Why LAMP Server Concept?

- Decision in favour to use LAMP
- LAMP abbreviation used for
 - □ <u>L</u>inux operating system
 - □ Apache web server
 - □ MySQL data base
 - □ Php script language
- http protocol for users and maintenance
 - Easy to use
 - Access is possible from everywhere
 - We could share the daily maintenance between various staff members (short time to learn the administration)
- Standard hardware configuration (PC and RAID disk system)
- "open source" software
- Usage of a relational data base
 - □ A relational data base is well suitable for all bookkeeping tasks
 - □ It provides the input for dynamical web-pages
- Php could easily be used to generate web-pages from data base requests



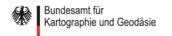
Restrictions for the new concept

- File system remains unchanged
- Anonymous ftp continuously possible
- Guidelines of various services/projects must be accounted for
 - □ E.g., BKG is Regional IGS DC, EUREF DC, and National DC
 - Each project has its own guidelines.
 - Project specific directories



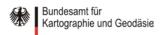
Basic Structure

- System programs
 - Watcher (looking for new incoming files)
 - ftp processes
 - Move files from incoming directory to working directory
 - GSAC daemon
 - Maintenance daemon (cleaning temporary directories)
- File processing
 - RINEX daemon
 - Mirror program
- Administration
 - Alert management (error console)
 - Enhanced automation (start new processes with http)
 - Monitoring
 - Show and handle processes
 - □ Simple configuration of tasks (e.g. daily download of station log files)
 - Storage of meta data in data base

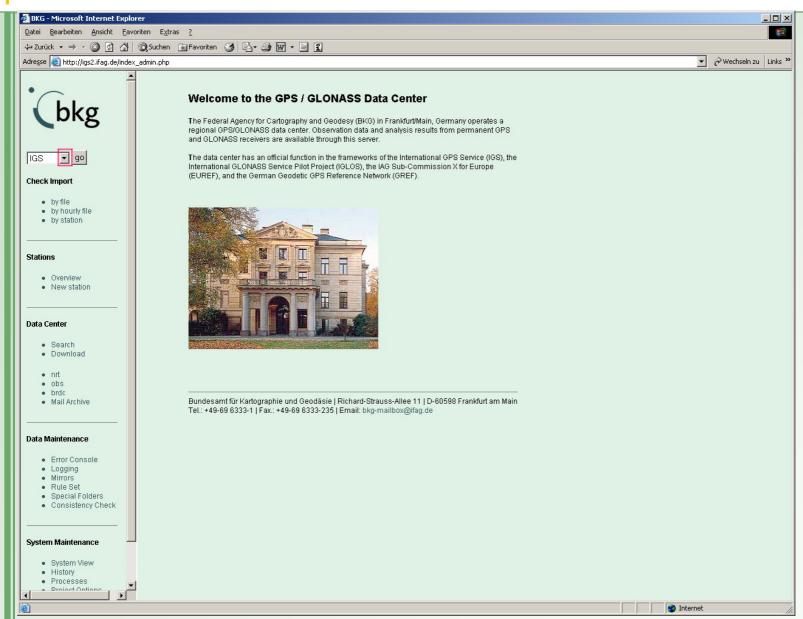


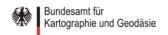
Detailed Structure

- ftp event daemon
 - Wait for finish of file transfer before processing
- Synchronization of configuration file of ftp und http user
- File locking applied to allow parallel processing
- New check import design
- Parse file headers according to the station log files
- Search feature
- Download feature

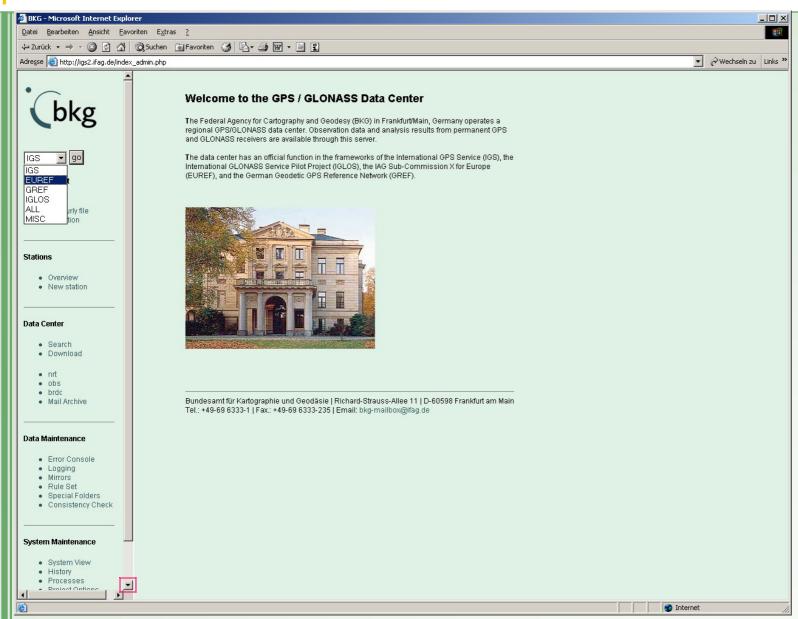


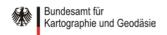
Start Up Page



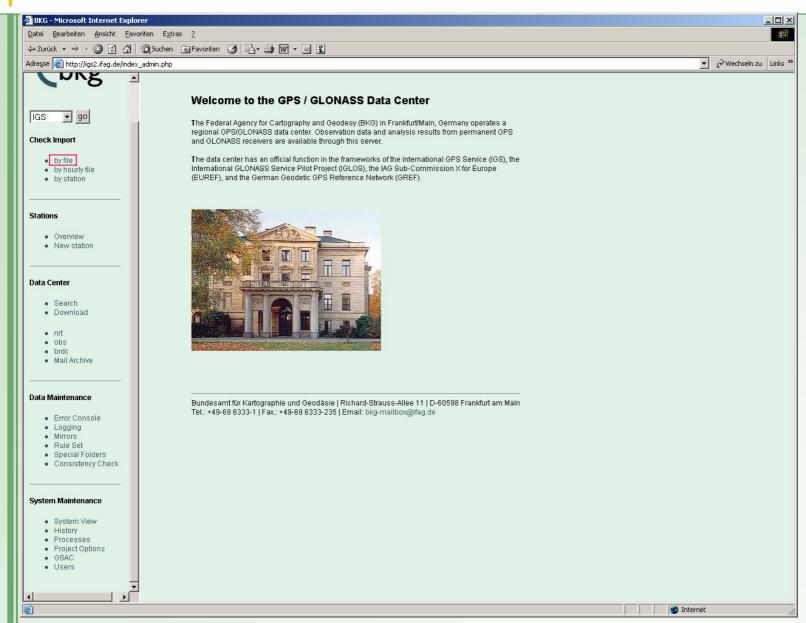


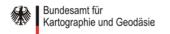
Project Selection



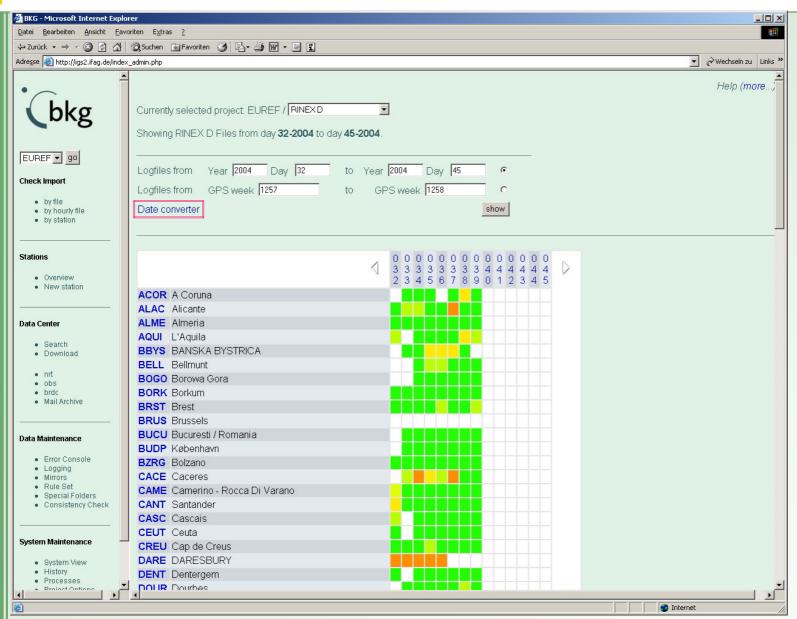


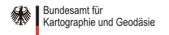
Maintenance



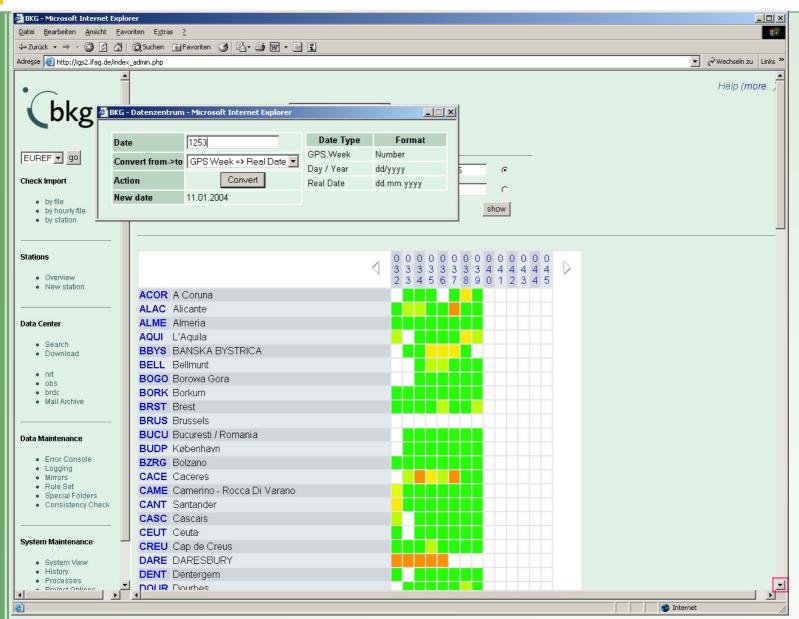


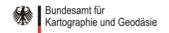
Checkimport – by Files



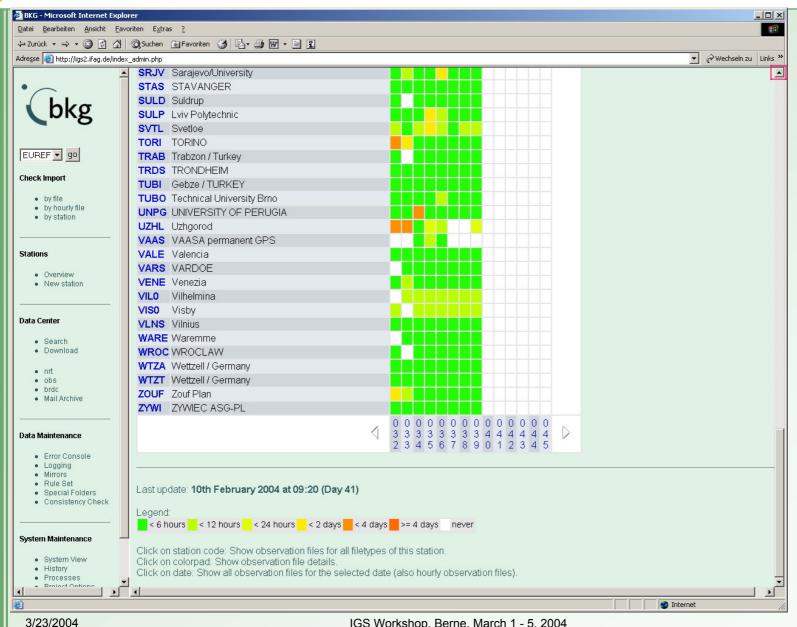


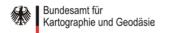
Date Converter



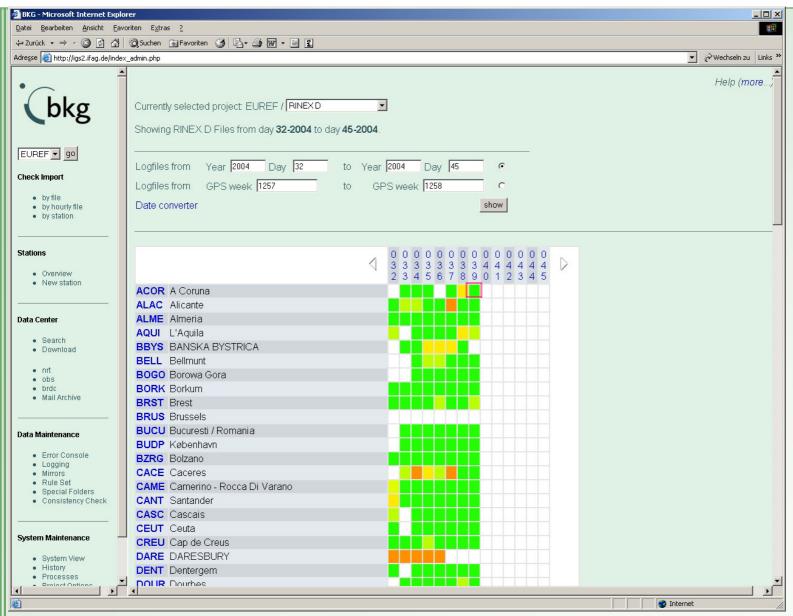


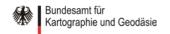
Checkimport – Color Index



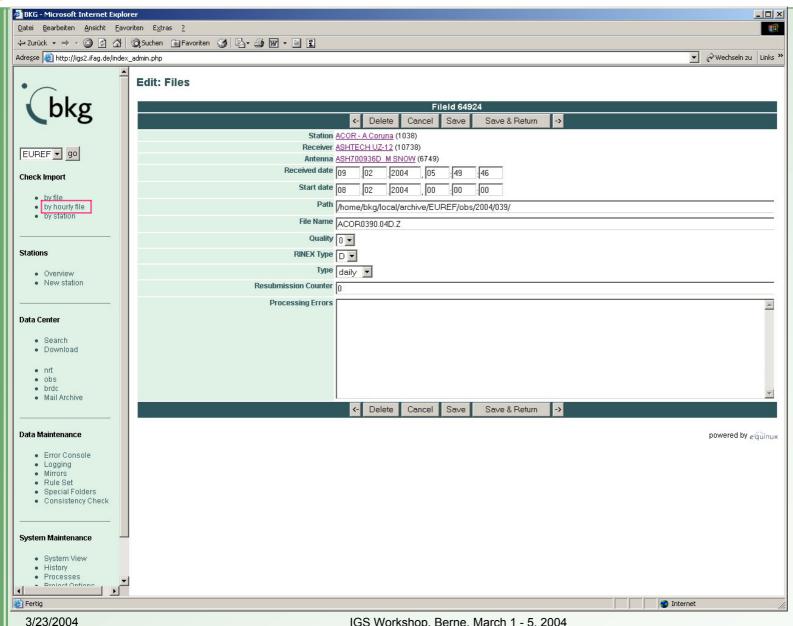


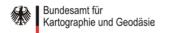
Checkimport – Zoom Functionality



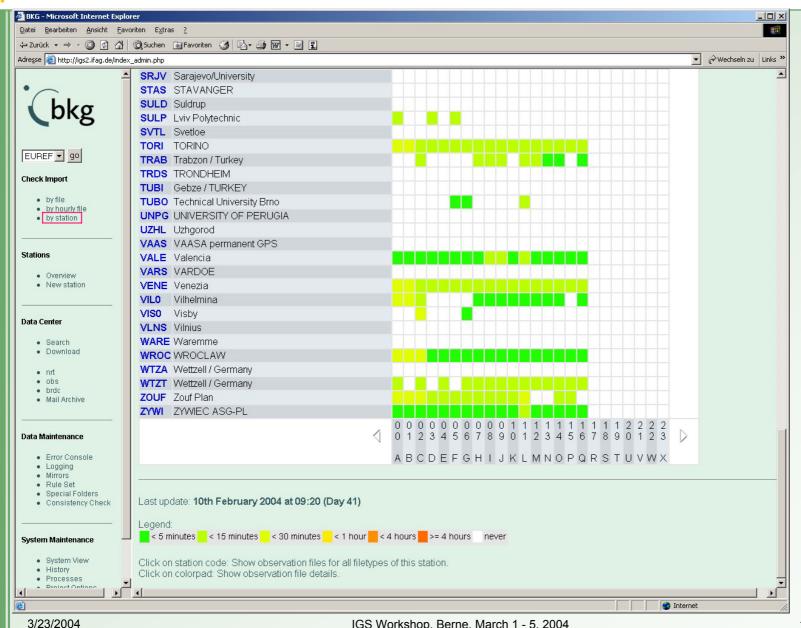


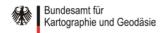
Checkimport – File Details



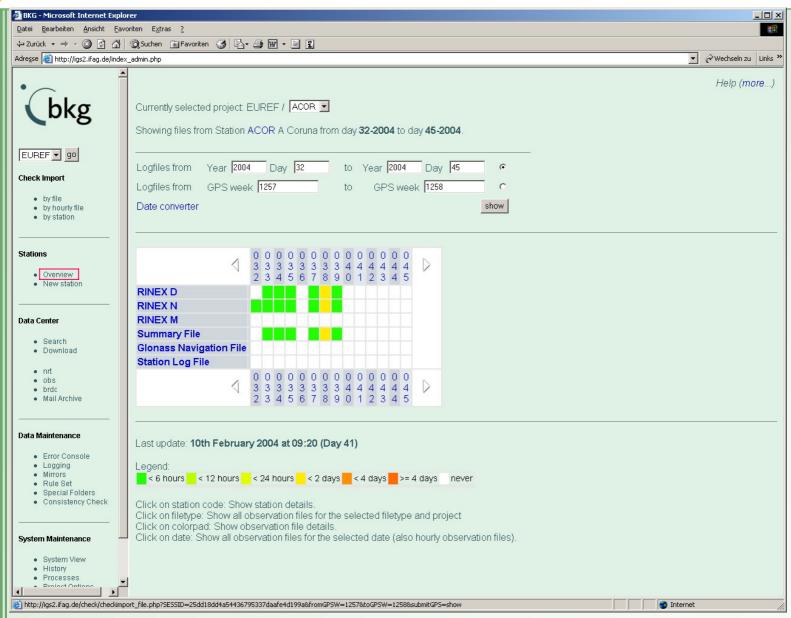


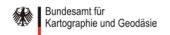
Checkimport – by Hourly File



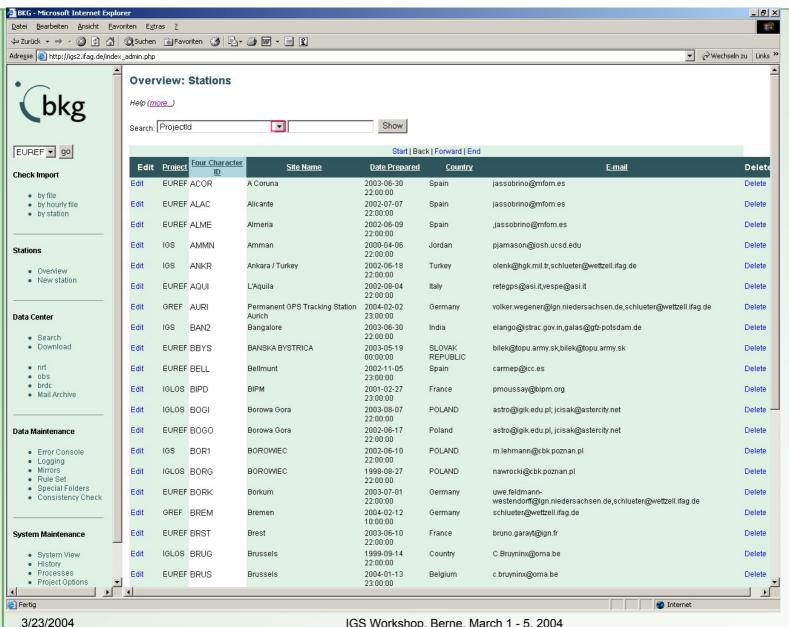


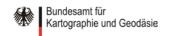
Checkimport – by Station



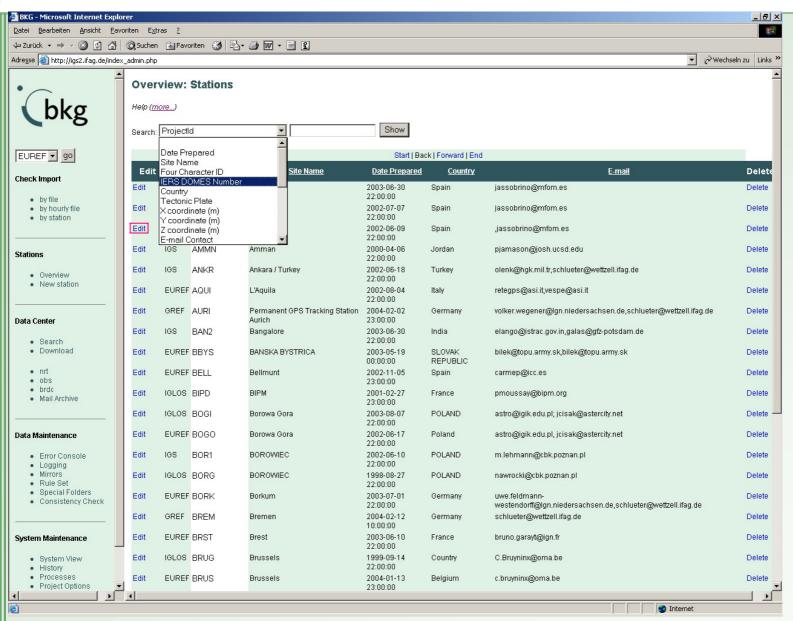


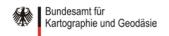
Stations - Overview



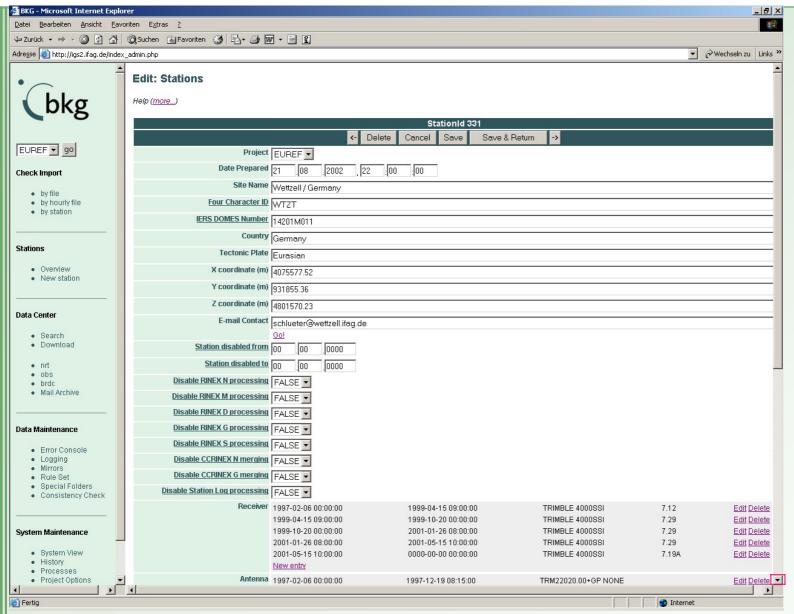


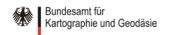
Stations - Search



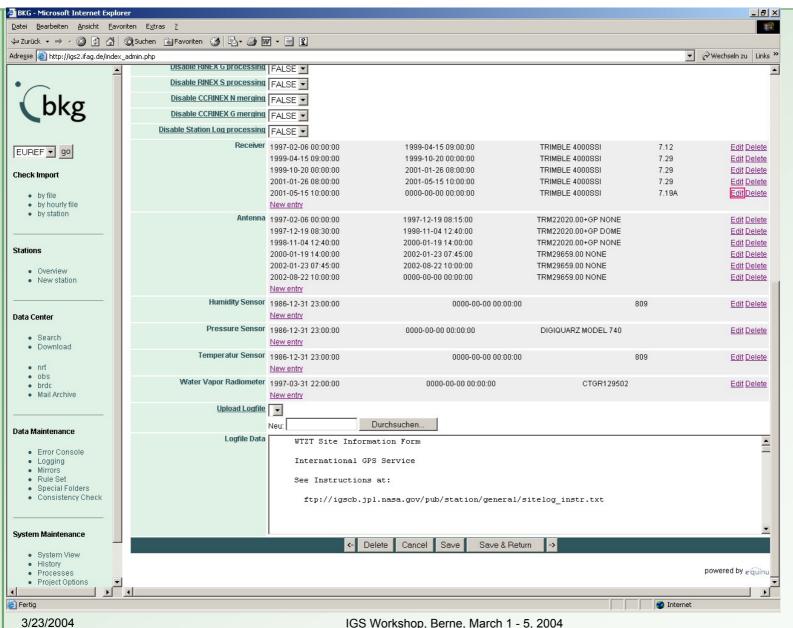


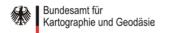
Stations - Edit



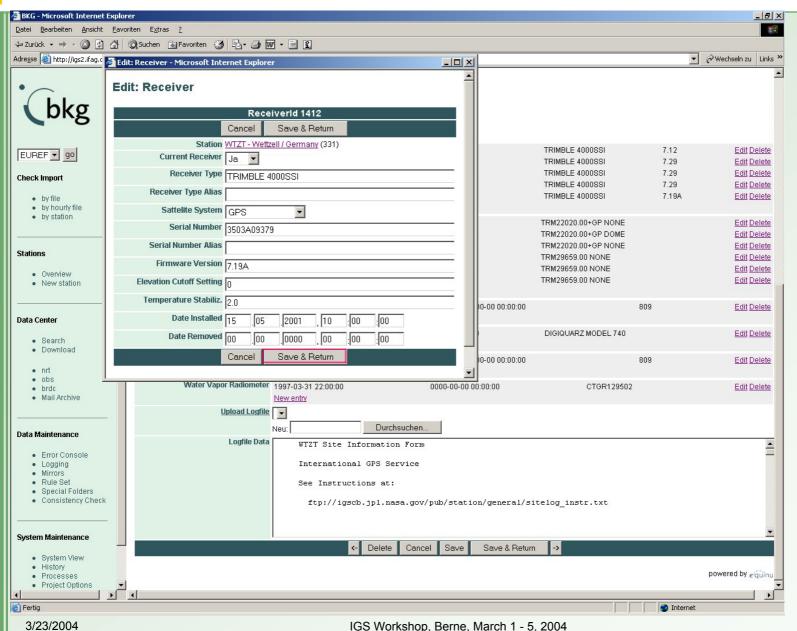


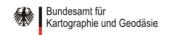
Stations – Edit cont.



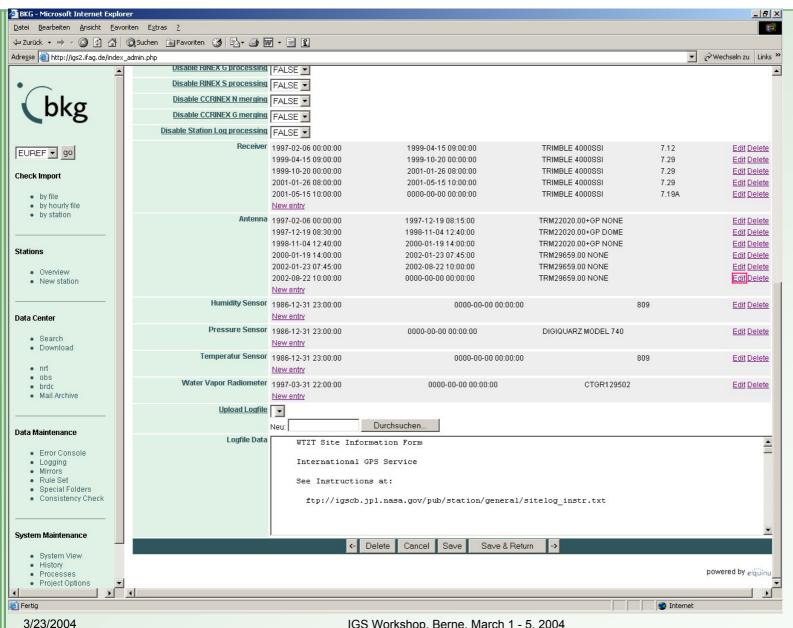


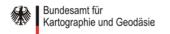
Stations – Edit Receiver



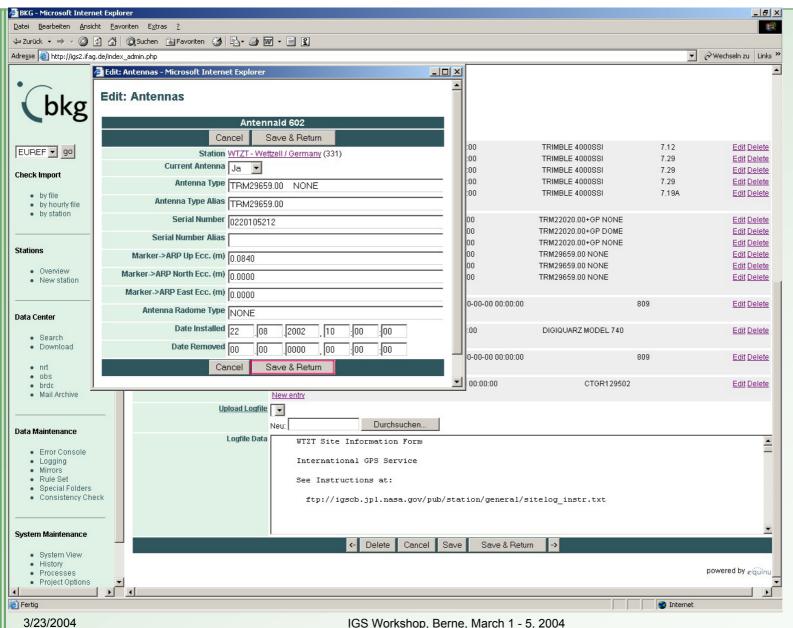


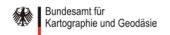
Stations – Edit cont. (2)



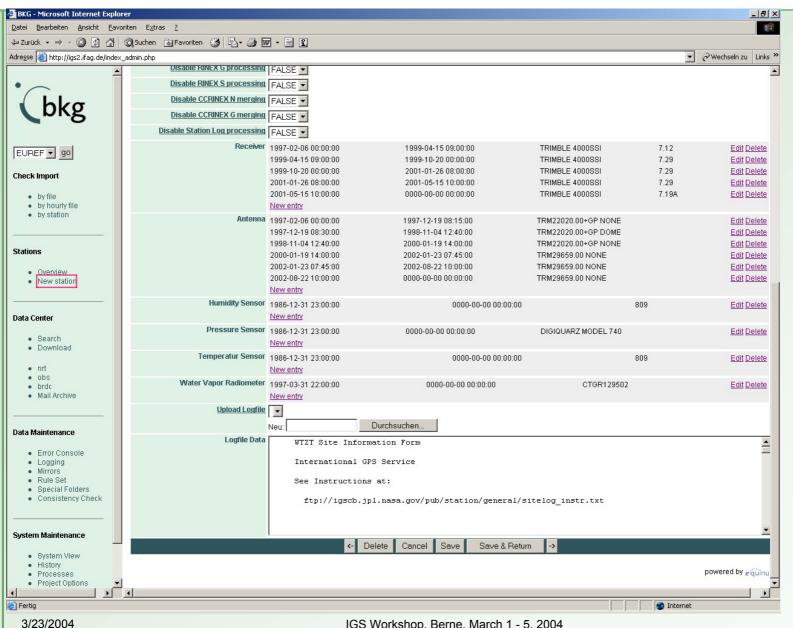


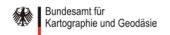
Stations - Edit Antenna



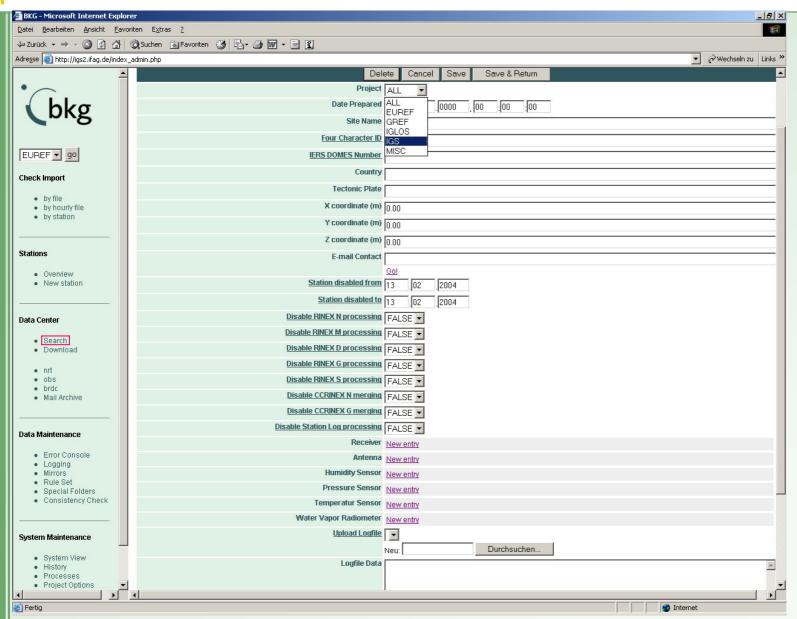


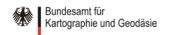
Stations – Edit cont. (3)



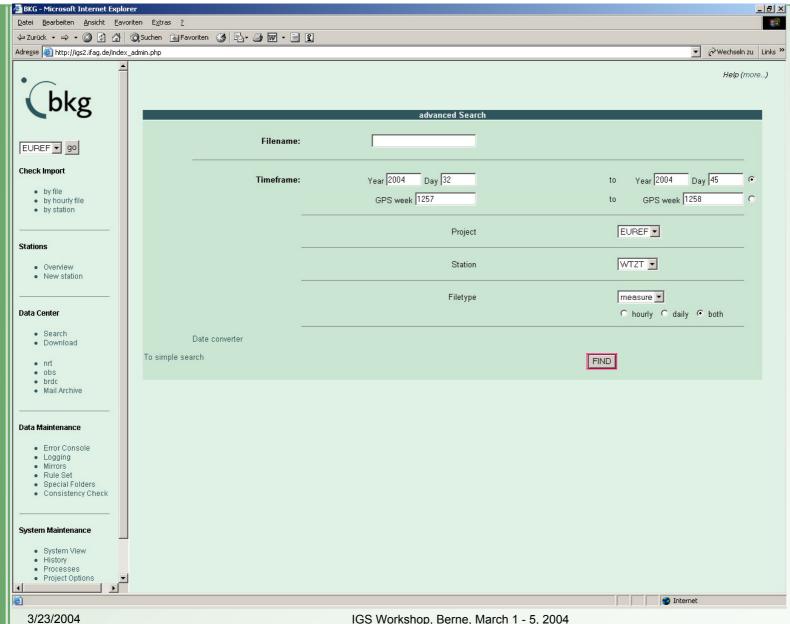


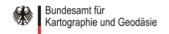
Stations - Setup



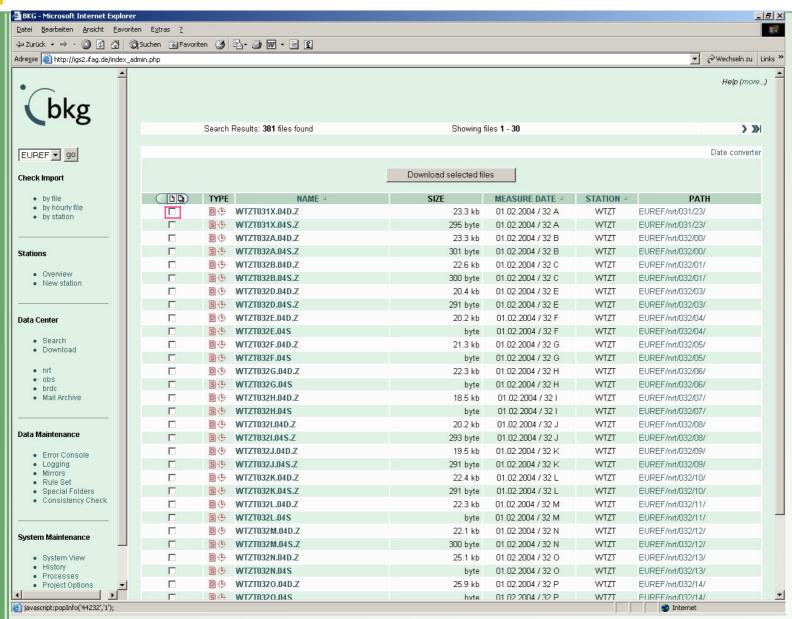


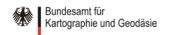
Data - Search



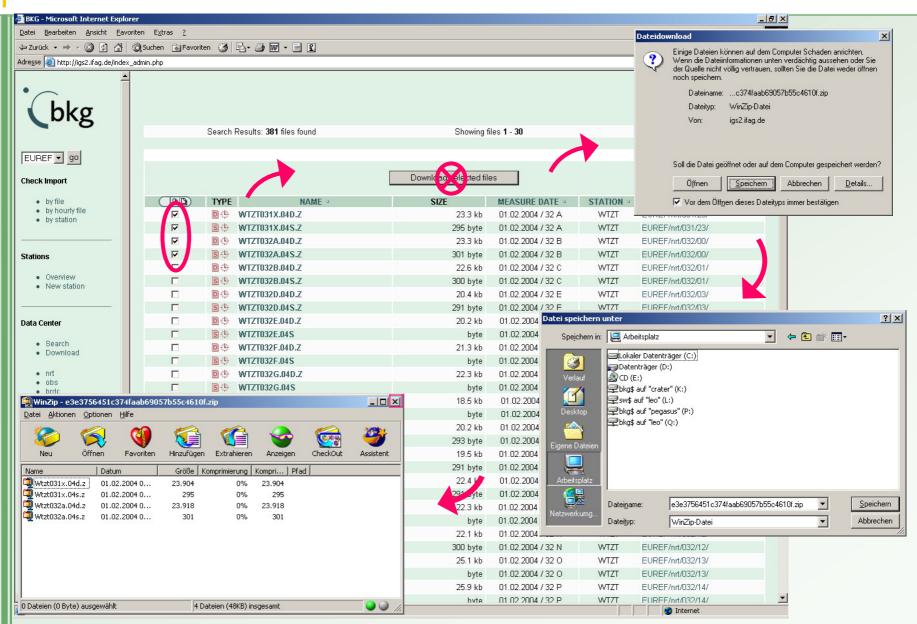


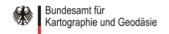
Data – Search Results



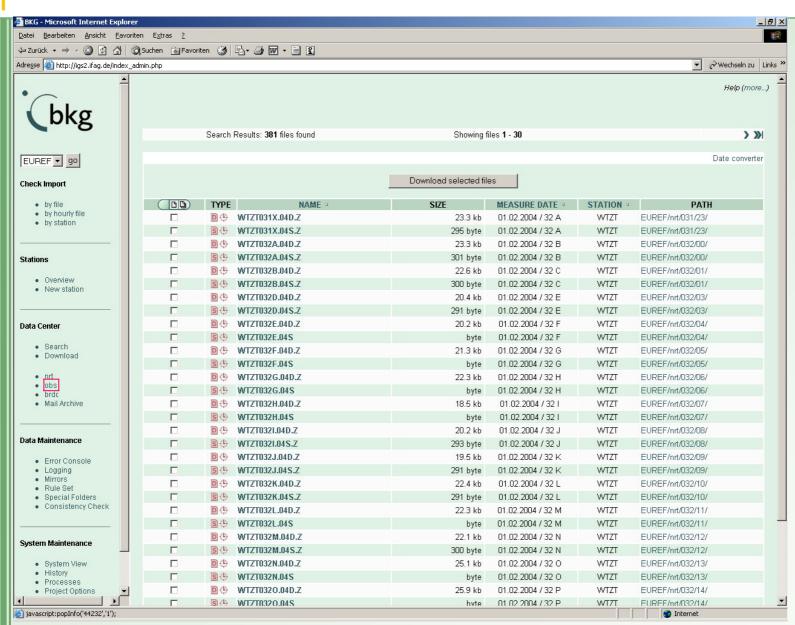


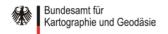
Data - Download



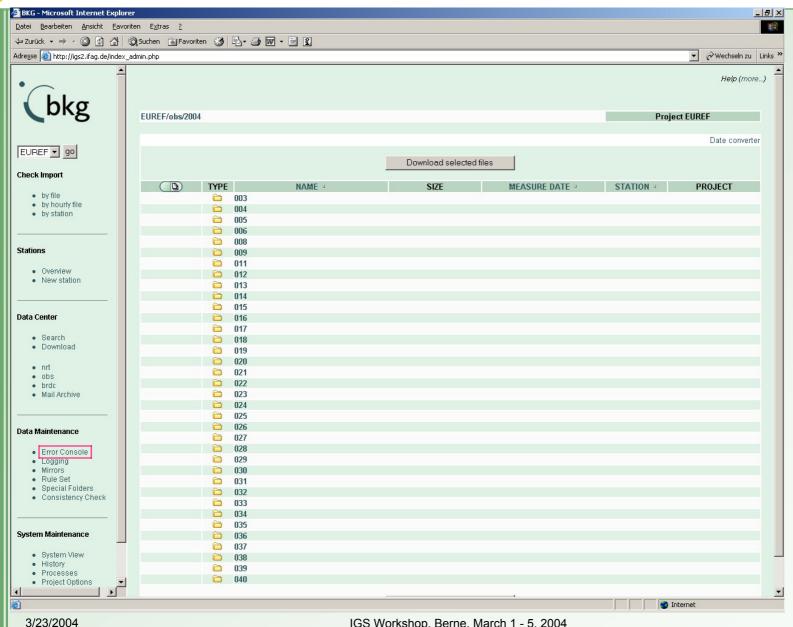


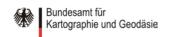
Data – Search Results (2)



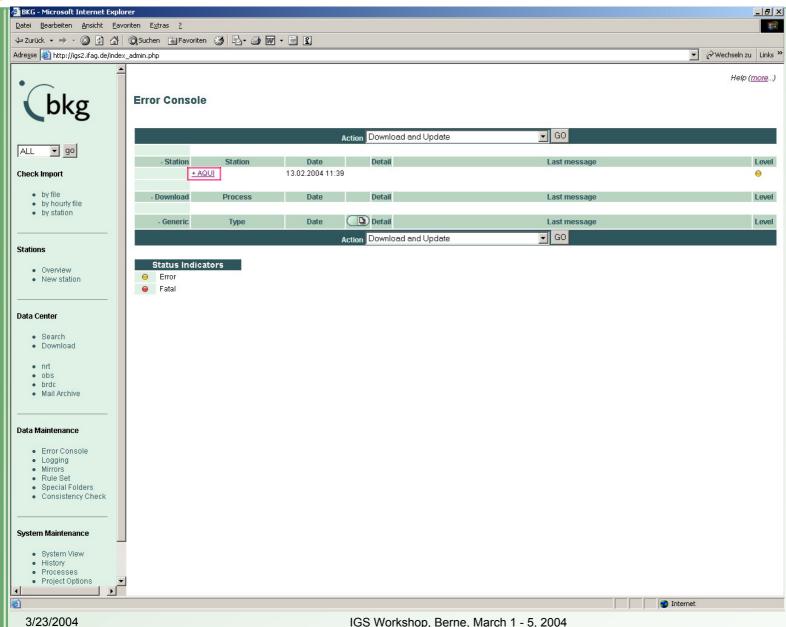


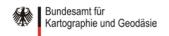
Data - Filebrowser



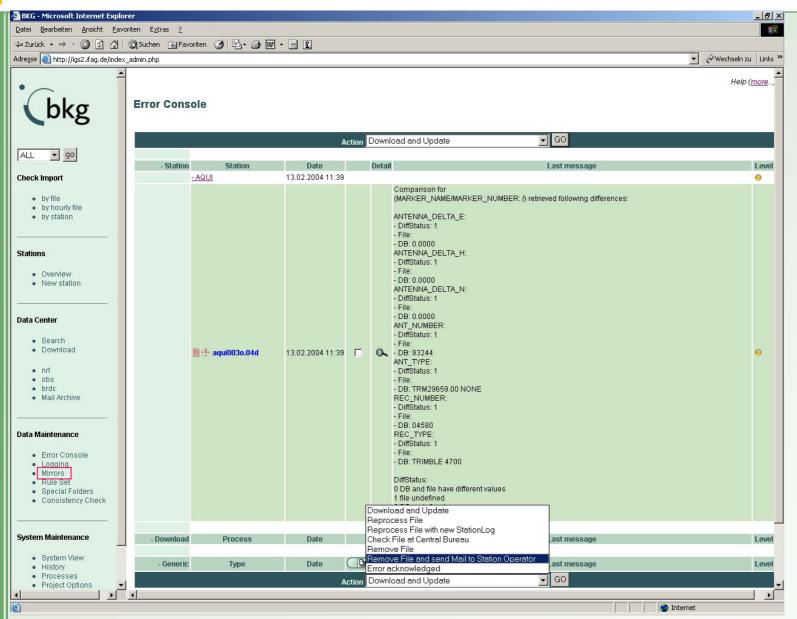


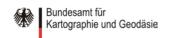
Error Console



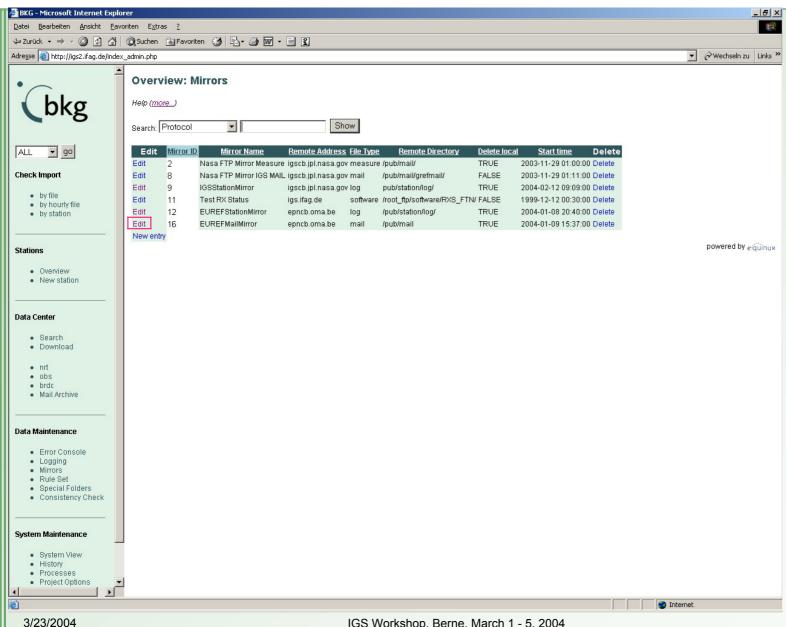


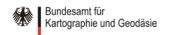
Error Details



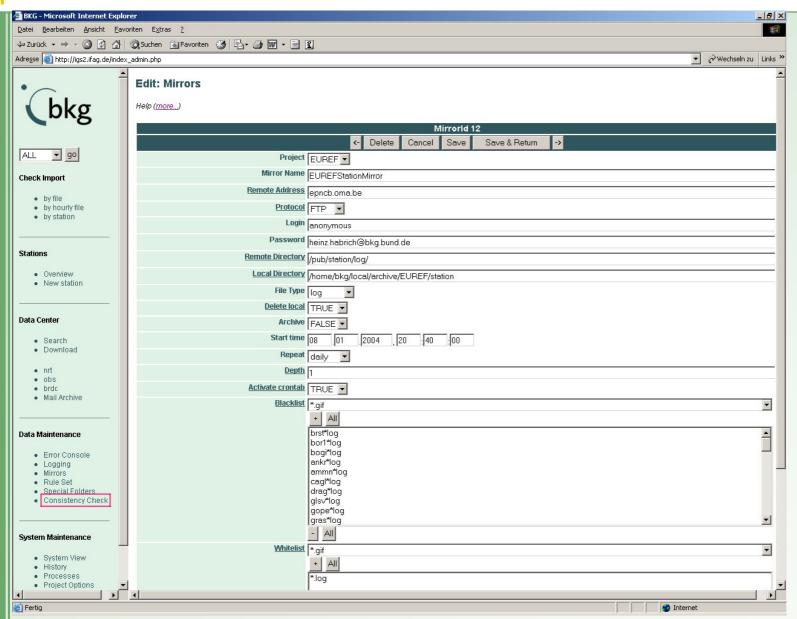


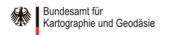
Mirrors



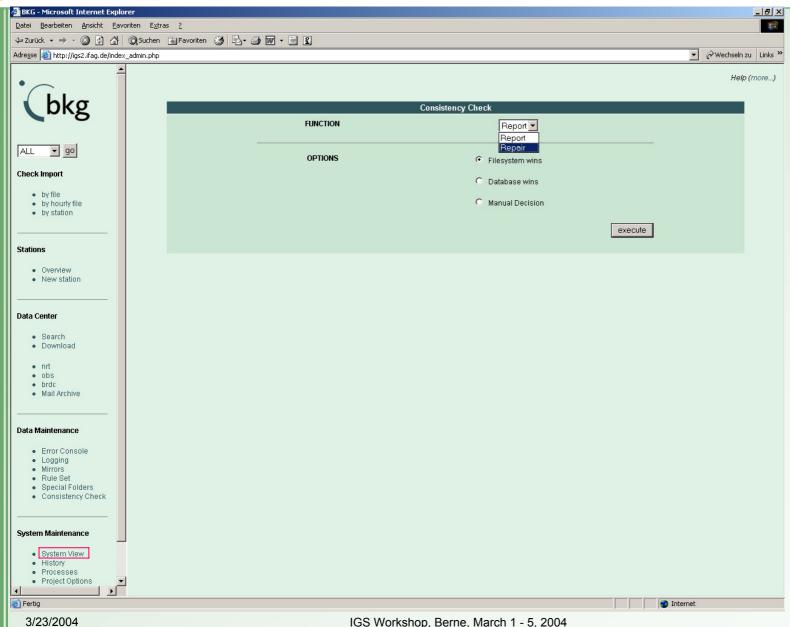


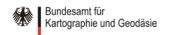
Mirrors - Edit



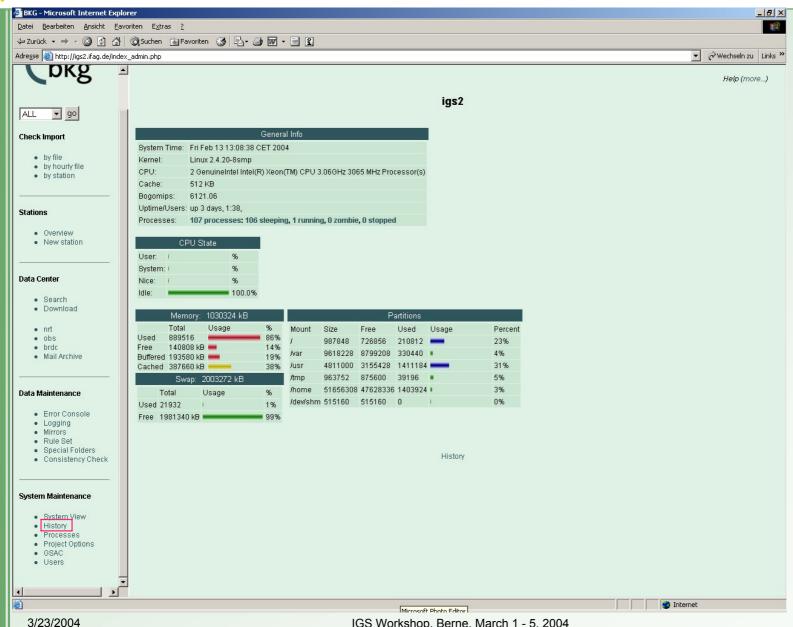


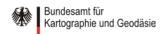
Consistency Check



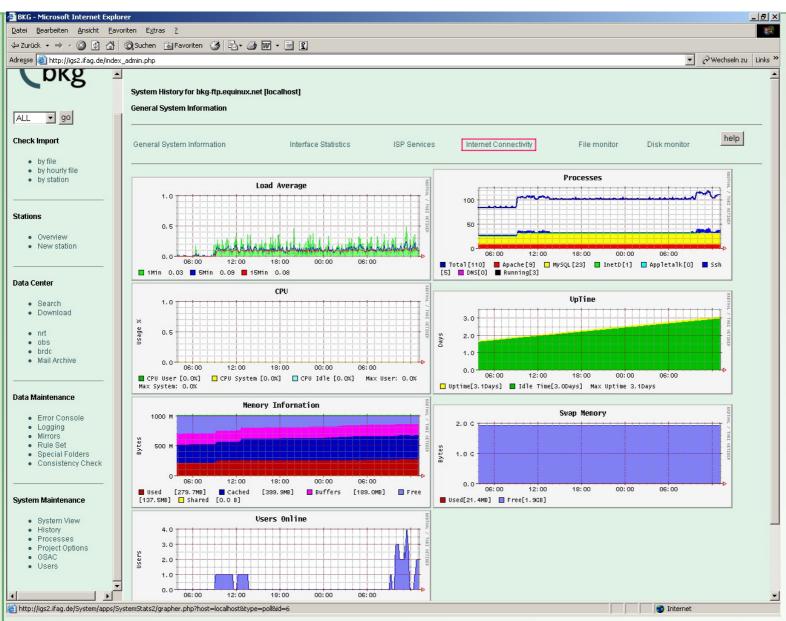


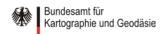
System View



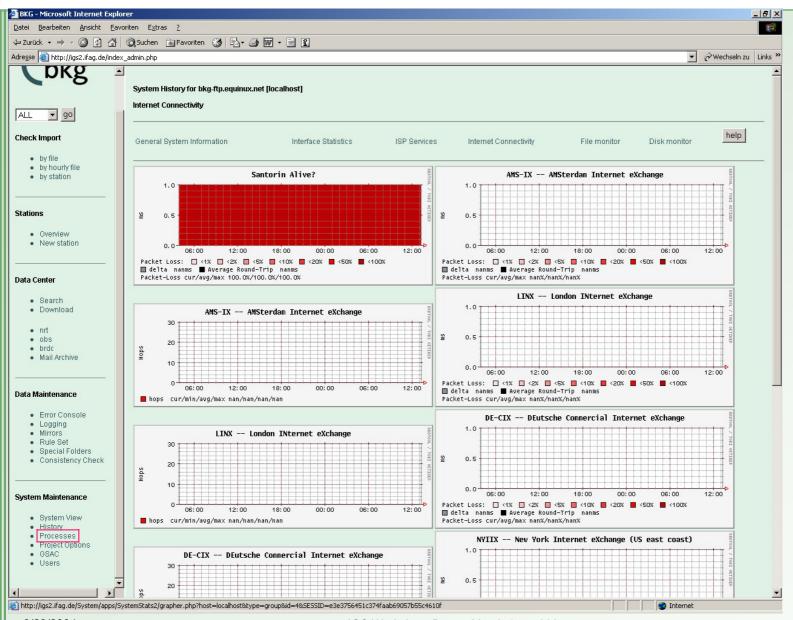


System History



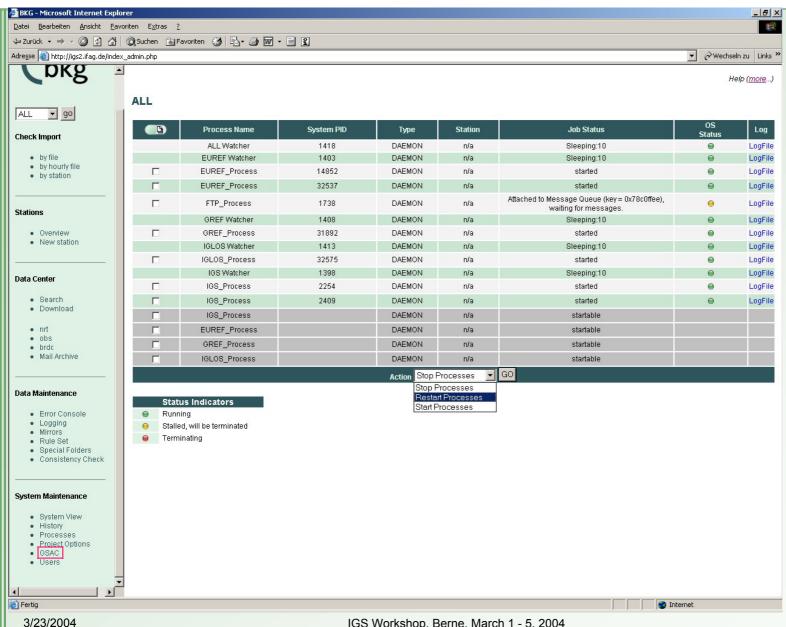


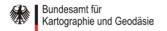
Internet Connectivity



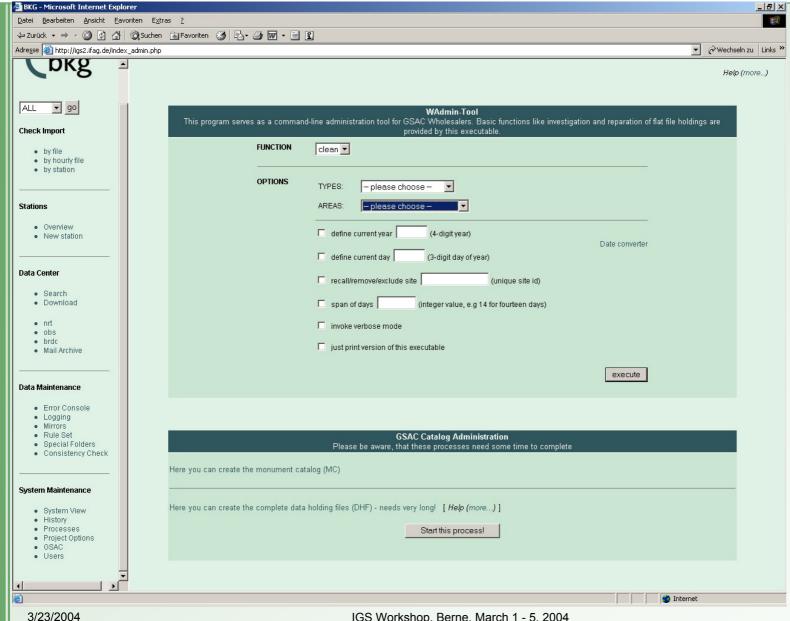


Processes





GSAC Wholesaler Administration





Demonstration

Link to the new server during test phase

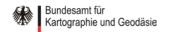
□ Users:

Administrator:

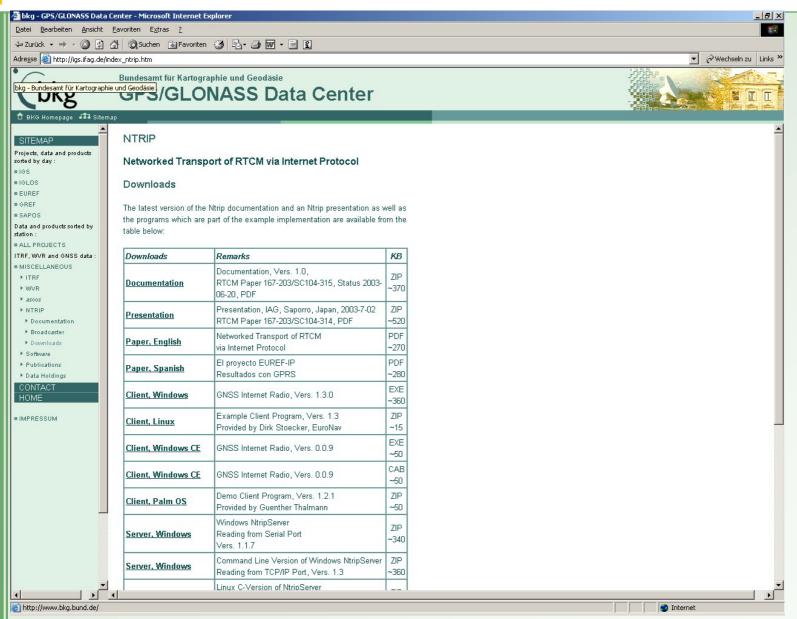


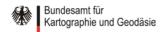
Real Time Data Streams

- The current data center web page includes
 - Information about available real time stations
 - Download of software to be used to receive real time data streams
- Data streams of stations of interest are accumulated to hourly files and transferred to the data archive

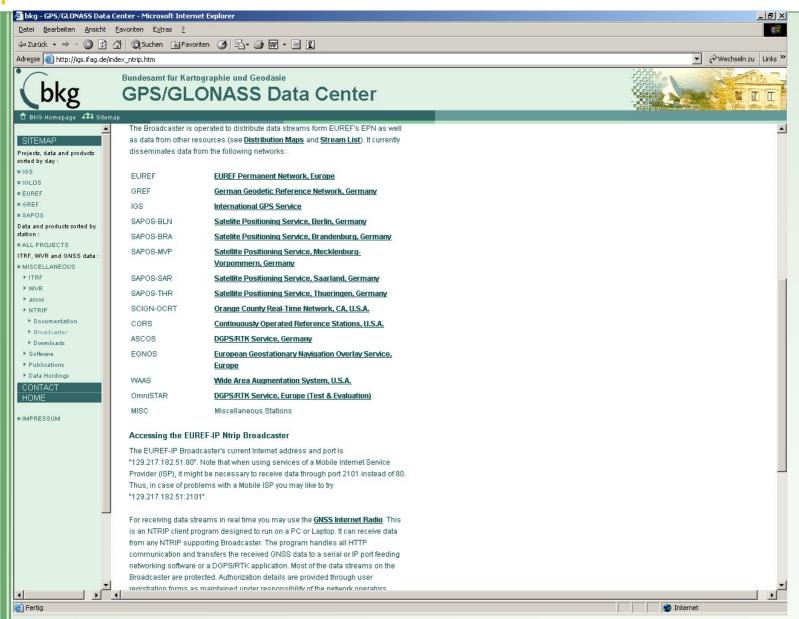


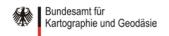
Software Download for Real Time Data





Access to Real Time Data Streams





Conclusion

- The new server realization shows up in a modern and user friendly design
- It contributes to a better visibility of IGS products
- We will run both (the old and the new) servers parallel until the functionality and robustness of the new concept will be confirmed

Notice:

BKG switched to 34 Mbit/sec Internet connection on February 23,
2004