CHAMP/GRACE- Information System and Data Center (ISDC) – The User Interfaces for Scientific Products of the CHAMP and GRACE Mission

Ritschel B., Behrends K., Braune St., Freiberg S., Kopischke R., Palm H., Schmidt A.

GeoForschungsZentrum Potsdam, Data Center, Telegrafenberg, 14473 Potsdam, Germany, E-Mail: rit@gfz-potsdam.de

The CHAMP-ISDC and the GRACE-ISDC are responsible for the management of all scientific CHAMP and GRACE satellite products. In addition to more than one hundred different satellite products of the scopes gravity field, magnetic field and atmosphere all necessary data for the processing and validation of the final products are also managed by the appropriate ISDC. The operation period of the ISDCs is designed to cover the whole mission period and beyond. The complex ISDC system consists

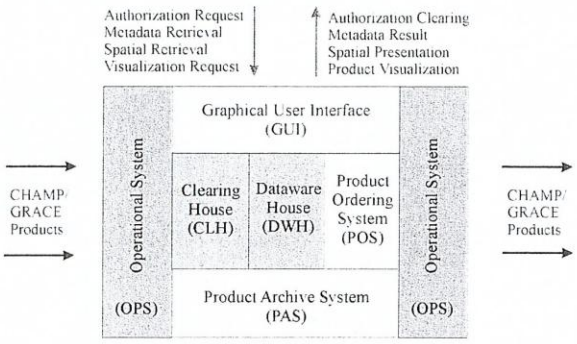

Figure 1: Schematical Structure of the CHAMP/GRACE-ISDC.

of six main components (Fig. 1. Schematical Structure of the CHAMP/GRACE-ISDC).

The Operational System (OPS) is responsible for the product input, caused by the appropriated processing groups and the product output relating to all types of user requests. The product input and product output directories are located on a dedicated FTP server. According to the ISDC product philosophy (Fig. 2. ISDC Product Philosophy) every product consists of a data file in a product type depending format and a metadata file in the format of the extended DIF standard (http://gcmd.gsfc.nasa.gov/User/difguide/whatisadif.html). The product check-in process of the OPS includes the metadata parsing and the transformation of the data into a relational data structure of the Clearinghouse (CLH). The Product Archive System (PAS) transfers the complete and metadata validated products into the online product archive consisting of TByte-Raidsystems as well as into the backup archive, the HSM (Hierarchical Storage Management) system of the GFZ. The Clearinghouse (CLH), the Datawarehouse (DWH) and the Product Ordering System (POS) are the main system components for product retrieval, product download and value added services. Internal and external ISDC users generally interact with the WWW based Graphical User Interface (GUI) of the system (Fig. 3. Graphical User Interface of the CHAMP-ISDC).

Using a standard Internet browser, the GUI guides registrated users according to theirs requests to the ISDC home page or the product description section as well as to the product retrieval section of the CLH or to the product download batch mode section of the POS. Additionally, the DWH offers product mapping and visualization services for dedicated atmosphere products. In order to keep the ISDC systems permanently operating, to avoid faulty operations and to protect it against hacker attacks, the system does not grant

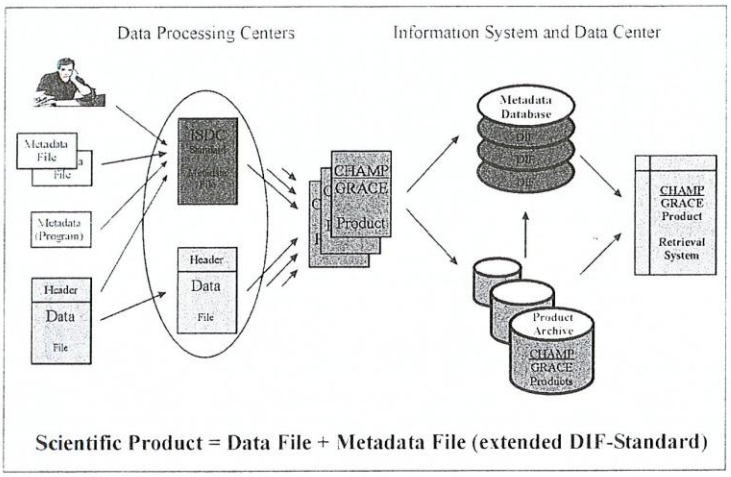

Figure 2: ISDC Product Philosophy.

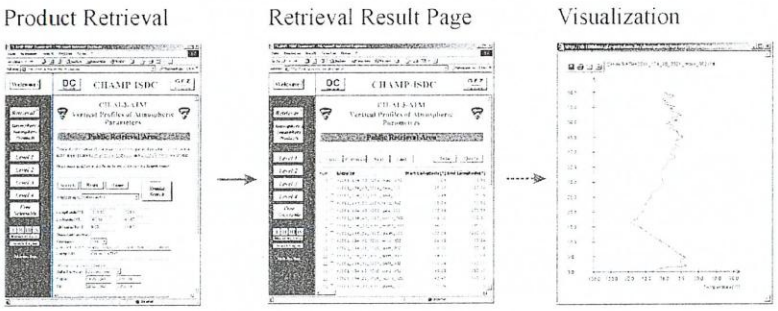

Figure 3: Graphical User Interface of the CHAMP-ISDC.

users direct access to the stored products within the archives, which are installed in the GFZ intranet only. Instead, users have to use the GUI or a batch mode interface of the POS for the processing of theirs product requests. All products provided by the PAS are stored into user own FTP directories. Extra time critical product requests are handled by the direct delivery mode of the POS via a product direct transfer from the input directories to the appropriate output directories of the FTP server.

References

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