

Software Validation Report (SVR)

Open Data Interface (ODI)
ESTEC/Contract No. 21964/08/NL/AT

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Document status sheet

Version	Date	Comment
1.0	2010-05-03	
1.1	2010-06-08	
1.2	2010-06-11	Added real time GOES.
1.3	2010-06-17	Various updates.

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1 Introduction

This document describes the verification of the ODI system.

2 Applicable and reference documents

ODI/SOW ODI Statement of Work

ODI/SSS ODI Software System Specification

ODI/TN/DB Technical Note on the ODI Database

ODI/TN/SSS TN on SAAPS/SEDAT/SPENVIS adaption for ODI

ODI/AG ODI Administrator Guide

ODI/UG ODI User Guide

E401B ECSS-E40 Part 1B

E402B ECSS-E40 Part 2B

M40C ECSS-M-ST-40C Rev. 1

3 Terms, definitions and abbreviated terms

CDF Common Data Format

ODI Open Data interface

PRBEM Panel on Radiation Belt Environment Modeling

SAAPS Satellite Anomaly Analysis and Prediction System

SCF Software Configuration File

SEDAT Space Environment Data Analysis Tool

SOW Statement of Work for ESTEC/Contract No. 21964/08/NL/AT

SPENVIS Space Environment Information System

SQL Structured Query Language

SVR Software Verification Report

4 Software overview

The ODI system consists of a database and tools to download data, parse data, ingest data, and retrieve data. A complete description is given in ODI/TN/DB.

Three external software packages have been adapted to access data from ODI: SAAPS, SEDAT, and SPENVIS. A description is given in ODI/TN/SSS.

The ODI system is targeted for an Open Suse Linux system, however, it will run on many different platforms.

The external interfaces to ODI are:

1. terminal window and
2. file system (remotely or locally).

5 Software Validation Test Report wrt RB

In the ODI/SSS (Software System Specification) a number of requirements are listed. These requirements have been captured in the ODI/SRS (Software Requirements Specification) and the validation of each requirement is described. Here follows the results of these validations.

6.2.1	Requirements 5.6.2, 5.6.3
Description	Run all tests on an Open Suse Linux platform at ESA behind the ESA firewall.
Result	The software has been installed on a server at Estec. The following tests are carried out on that server.

6.2.2	Requirement 5.13.2
Description	Connect to the server using SSH.
Result	Ok.

6.2.3	Requirements 5.7.1, 5.7.2, 5.7.3, 5.13.3
Description	Use the interactive mysql SQL shell and log in as admin user (U1). Inspect the grant tables and verify the setting for U1, U2, and U3.
Result	Ok. See output below.

```
mysql> use mysql;
Database changed
mysql> select user,delete_priv,insert_priv,update_priv,select_priv
        -> from db where db="odi";
+-----+-----+-----+-----+-----+
| user      | delete_priv | insert_priv | update_priv | select_priv |
```

```

+-----+-----+-----+-----+
| odi      | Y      | Y      | Y      | Y      |
| odi_update | Y      | Y      | Y      | Y      |
| other    | N      | N      | N      | Y      |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql>

```

6.2.4 Requirement 5.13.4

Description Run PHP test program to check that PHP is installed and can connect to the MySQL database.

Result Ok. See output below.

```

odi@spitfire:~/odi/test> ./odi_read_data_test.php
Array
(
    [0] => Array
        (
            [Epoch] => 2010-01-01 00:00:00.000
            [Position (Xgeo)] => -30130.1
            [Position (Ygeo)] => 29505.6
            [Position (Zgeo)] => 0
        )
    )

```

(Output truncated.)

6.2.5 Requirements 5.1.1, 5.1.2, 5.1.3, 5.6.1

Description Run program to ingest metadata and data for a few selected datasets, both CDF and non-CDF data. For each dataset inspect that: the dataset has been created in ODI; the metadata in ODI match the metadata in the raw dataset; the number of variables in ODI match the number of variables in the raw dataset; the data for a few selected records in ODI match the data in the raw dataset.

Result Ok. A few datasets were selected and inspected.

6.2.6 Requirement 5.1.4

Description Install the real time updating of the GOES dataset and inspect that the data are updated.

Result Ok. See output below.

```
mysql> select utc_date(),utc_time();
+-----+-----+
| utc_date() | utc_time() |
+-----+-----+
| 2010-06-11 | 06:55:49   |
+-----+-----+
1 row in set (0.01 sec)
```

```
mysql> select epoch,position_1,feio_1,fpio_1 from dataset_goes_sem_rt
-> where epoch>="2010-06-11 06:00:00";
+-----+-----+-----+-----+
| epoch                | position_1 | feio_1 | fpio_1 |
+-----+-----+-----+-----+
| 2010-06-11 06:00:00 | 10914.7    | 8810   | 0.572   |
| 2010-06-11 06:05:00 | 10914.7    | 9060   | 0.838   |
| 2010-06-11 06:10:00 | 10914.7    | 8720   | 0.814   |
| 2010-06-11 06:15:00 | 10914.7    | 8900   | 0.776   |
| 2010-06-11 06:20:00 | 10914.7    | 8930   | 0.972   |
| 2010-06-11 06:25:00 | 10914.7    | 8900   | 0.492   |
| 2010-06-11 06:30:00 | 10914.7    | 9160   | 0.685   |
| 2010-06-11 06:35:00 | 10914.7    | 9670   | 0.892   |
| 2010-06-11 06:40:00 | 10914.7    | 9170   | 1.15    |
+-----+-----+-----+-----+
9 rows in set (0.00 sec)
```

```
mysql>
```

6.2.7 Requirement 5.1.5

Description Run program to list the datasets. Inspect the listed high level metadata.

Result Ok. The program `show_datasets.php` was used.

6.2.8 Requirement 5.1.6

Description Run program to list the metadata for a specified dataset. Inspect the listed metadata.

Result Ok. The program `show_metadata.php` was used on several datasets.

6.2.9 Requirement 5.14.1

Description Use the ODI tool to list the datasets in ODI. Verify that all sets in Table 1 in ODI/TN/DB exist.

Result Ok. See Appendix A.

6.2.10 Requirement 5.14.2

Description Use the ODI tool to inspect the metadata for each dataset. Verify that the metadata in the raw data files exist.

Result Ok. The program `show_metadata.php` was used and the output was verified against the contents of the `.skt` files in `$ODI_HOME/*/*.skt`.

6.2.11 Requirement 5.1.7

Description Run program to export a dataset to ascii file. Inspect the contents of the file and verify against the data in ODI.

Result Ok. See test file in `test/text_export.sh` and output below.

```
odi@spitfire:~/odi/test> ./text_export.sh
<?xml version=1.0?>
<odi_data_export>
<creator>Your Name (email)</creator>
<date_created>2010-06-09 13:42:29</date_created>
<settings_file>DST.set.xml</settings_file>
<field_descriptor>
<num>1</num><label>Epoch</label>
<num>2</num><label>Dst</label>
<num>3</num><label>Dst_Quality</label>
</field_descriptor>
<data num_records="25">
2010-06-29 23:00:00.000, 9999, 2
2010-06-30 00:00:00.000, 9999, 2
2010-06-30 01:00:00.000, 9999, 2
2010-06-30 02:00:00.000, 9999, 2
2010-06-30 03:00:00.000, 9999, 2
2010-06-30 04:00:00.000, 9999, 2
2010-06-30 05:00:00.000, 9999, 2
2010-06-30 06:00:00.000, 9999, 2
2010-06-30 07:00:00.000, 9999, 2
2010-06-30 08:00:00.000, 9999, 2
2010-06-30 09:00:00.000, 9999, 2
2010-06-30 10:00:00.000, 9999, 2
2010-06-30 11:00:00.000, 9999, 2
2010-06-30 12:00:00.000, 9999, 2
```



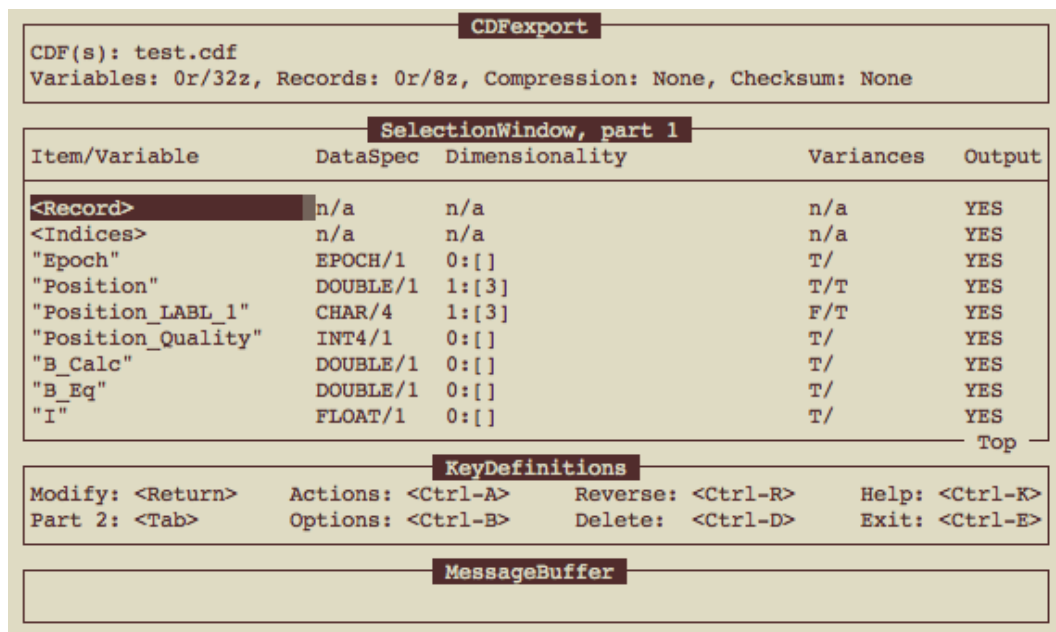
```
2010-06-30 13:00:00.000, 9999, 2
2010-06-30 14:00:00.000, 9999, 2
2010-06-30 15:00:00.000, 9999, 2
2010-06-30 16:00:00.000, 9999, 2
2010-06-30 17:00:00.000, 9999, 2
2010-06-30 18:00:00.000, 9999, 2
2010-06-30 19:00:00.000, 9999, 2
2010-06-30 20:00:00.000, 9999, 2
2010-06-30 21:00:00.000, 9999, 2
2010-06-30 22:00:00.000, 9999, 2
2010-06-30 23:00:00.000, 9999, 2
</data>
</odi_data_export>
odi@spitfire:~/odi/test>
```

6.2.12 Requirement 5.1.8

Description Run program to export a dataset to CDF file. Inspect the contents of the file and verify against the data in ODI.

Result Ok. The `odi_cdf` program is executed in IDL. The exported CDF file is examined using `cdfexport` program.

```
IDL> odi_cdf, 'test', 'XMM_RM', epochrange=['2002-01-01 00:00:00.000', '2002-01-01 01:00:00.000']
% Compiled module: ODI_CDF.
% Compiled module: STRSPLIT.
% Loaded DLM: CDF.
% Loaded DLM: DATAMINER.
% Compiled module: REVERSE.
IDL>
```



6.2.13 Requirements 5.1.11, 5.16.1

Description Start the SAAPS software. Select the Data Plotter tool. Select a dataset and plot data for a selected epoch range. Inspect metadata and data.

Result Ok. SAAPS was run locally on the Estec server.

6.2.14 Requirements 5.1.12, 5.16.2

Description Run SEDAT.

Result Ok. SEDAT was run locally on the Estec server.

6.2.15 Requirements 5.1.13, 5.16.3

Description Run SPENVIS.

Result Ok. SPENVIS was run locally on the Estec server.

6.2.16 Requirement 5.2.1

Description Run a dedicated test program that extracts 50 000 records and times the result. Verify that the extraction took less than one second.

Result Ok. The program `odi_read_50000_rec_test.php` was run. See output below.

```
odi@spitfire:~/odi/test> ./odi_read_50000_rec_test.php
```

```
52608 records in 0.55435395240784 seconds.
odi@spitfire:~/odi/test>
```

6.2.17	Requirement 5.1.9, 5.1.10, 5.13.1
Description	Run a dedicated IDL test program that reads data and metadata from ODI and displays the result.
Result	TBD

6.2.18	Requirement 5.4.1
Description	Make a SSH connection to an external computer.
Result	Ok.

6.2.19	Requirement 5.6.5
Description	Start the SAAPS application and verify that there are no possibility to write data to ODI.
Result	Ok.

6.2.20	Requirement 5.6.6
Description	Start the SEDAT application and verify that there are no possibility to write data to ODI.
Result	Ok.

6.2.21	Requirement 5.6.7
Description	Start the SPENVIS application and verify that there are no possibility to write data to ODI.
Result	Ok.

6 Software Unit/Integration Test Report

The four software units ODI, SAAPS, SEDAT, and SPENVIS have been demonstrated to be functional and integrated.

7 Software Integration Verification Report

The interfaces connecting to ODI have been tested: terminal window, SAAPS, SEDAT, and SPENVIS.

8 Software Code Verification Report

The code fulfills the requirements baseline.

9 Numerical Accuracy Analyses

The data stored in the MySQL data tables use types compliant with the types used in CDF, SEDAT, and IDL.

10 Software Documentation Verification Report

The documentation is included as stated in the SOW and listed in the SCF.

A Listing of datasets

Below follows a listing of the datasets ingested into ODI on the Estec server (spitfire) at the time of writing. In total there are 101 datasets. The output has been truncated to fit the page width.

```
odi@spitfire:~/odi/tools> date -u; ./show_datasets.php | cut -c1-74
Thu Jun 17 19:50:52 UTC 2010
ACE_MAG_RT (dataset_ace_mag_rt) 1407 records: 2010-06-16 20:03:00.000 to 2
ACE_MFI_H1 (dataset_ace_mfi_h1) 1586700 records: 1997-09-02 00:00:00.000 t
ACE_SIS (dataset_ace_sis_1hr) 111048 records: 1997-08-29 00:00:00.000 to 2
ACE_SWE_H0 (dataset_ace_swe_h0) 5705111 records: 1998-02-04 00:00:31.000 t
ACE_SWE_RT (dataset_ace_swe_rt) 1348 records: 2010-06-16 20:03:00.000 to 2
AMPTE-UKS (dataset_amppte_uks_elx) 37913 records: 1984-08-25 12:43:30.000 t
AZUR_EI-88 (dataset_azur_ei_88) 230974 records: 1969-11-16 13:26:53.376 to
CRRES_MEA (dataset_crres_mea) 70940 records: 1990-07-28 15:07:59.348 to 19
DST (dataset_index_dst) 468936 records: 1957-01-01 00:00:00.000 to 2010-06
Equator_S_AUX (dataset_equator_s_aux) 88923 records: 1997-12-16 11:25:30.0
Equator_S_EPI (dataset_equator_s_epi) 43862 records: 1997-12-16 16:16:30.0
Equator_S_MAM (dataset_equator_s_mam) 72659 records: 1997-12-16 11:25:30.0
GIOVEB_SREM_PACC (dataset_gioveb_srem_pacc) 500164 records: 2008-05-06 21:
GOES_A05_5 (dataset_goes_sem_a05_5) 131040 records: 1986-01-01 00:00:00.00
GOES_A06_5 (dataset_goes_sem_a06_5) 946656 records: 1986-01-01 00:00:00.00
GOES_A07_5 (dataset_goes_sem_a07_5) 999929 records: 1987-03-01 00:00:00.00
GOES_A08_5 (dataset_goes_sem_a08_5) 872928 records: 1995-03-01 00:00:00.00
GOES_A09_5 (dataset_goes_sem_a09_5) 254304 records: 1996-04-01 00:00:00.00
GOES_A10_5 (dataset_goes_sem_a10_5) 1210176 records: 1998-07-01 00:00:00.0
GOES_A11_5 (dataset_goes_sem_a11_5) 850107 records: 2000-07-01 00:00:00.00
GOES_A12_5 (dataset_goes_sem_a12_5) 770976 records: 2003-01-01 00:00:00.00
GOES_G05_1 (dataset_goes_sem_g05_1) 655200 records: 1986-01-01 00:00:00.00
```

GOES_G05_5 (dataset_goes_sem_g05_5) 131040 records: 1986-01-01 00:00:00.00
GOES_G06_1 (dataset_goes_sem_g06_1) 4688640 records: 1986-01-01 00:00:00.0
GOES_G06_5 (dataset_goes_sem_g06_5) 946656 records: 1986-01-01 00:00:00.00
GOES_G07_1 (dataset_goes_sem_g07_1) 4998076 records: 1987-03-01 00:00:00.0
GOES_G07_5 (dataset_goes_sem_g07_5) 999936 records: 1987-03-01 00:00:00.00
GOES_G08_1 (dataset_goes_sem_g08_1) 4320000 records: 1995-03-01 00:00:00.0
GOES_G08_5 (dataset_goes_sem_g08_5) 872928 records: 1995-03-01 00:00:00.00
GOES_G09_1 (dataset_goes_sem_g09_1) 1229691 records: 1996-04-01 00:00:00.0
GOES_G09_5 (dataset_goes_sem_g09_5) 44064 records: 1998-04-01 00:00:00.000
GOES_G10_1 (dataset_goes_sem_g10_1) 5958720 records: 1998-07-01 00:00:00.0
GOES_G10_5 (dataset_goes_sem_g10_5) 1210176 records: 1998-07-01 00:00:00.0
GOES_G11_1 (dataset_goes_sem_g11_1) 4271040 records: 2000-07-01 00:00:00.0
GOES_G11_5 (dataset_goes_sem_g11_5) 850107 records: 2000-07-01 00:00:00.00
GOES_G12_1 (dataset_goes_sem_g12_1) 3854880 records: 2003-01-01 00:00:00.0
GOES_G12_5 (dataset_goes_sem_g12_5) 770976 records: 2003-01-01 00:00:00.00
GOES_H06_5 (dataset_goes_sem_h06_5) 788544 records: 1986-01-01 00:00:00.00
GOES_H07_5 (dataset_goes_sem_h07_5) 8928 records: 1987-03-01 00:00:00.000
GOES_H08_5 (dataset_goes_sem_h08_5) 868032 records: 1995-03-01 00:00:00.00
GOES_H09_5 (dataset_goes_sem_h09_5) 254304 records: 1996-04-01 00:00:00.00
GOES_H10_5 (dataset_goes_sem_h10_5) 1192320 records: 1998-07-01 00:00:00.0
GOES_H11_5 (dataset_goes_sem_h11_5) 766656 records: 2000-07-01 00:00:00.00
GOES_H12_5 (dataset_goes_sem_h12_5) 762048 records: 2003-01-01 00:00:00.00
GOES_I05_5 (dataset_goes_sem_i05_5) 131040 records: 1986-01-01 00:00:00.00
GOES_I06_5 (dataset_goes_sem_i06_5) 946656 records: 1986-01-01 00:00:00.00
GOES_I07_5 (dataset_goes_sem_i07_5) 999936 records: 1987-03-01 00:00:00.00
GOES_I08_5 (dataset_goes_sem_i08_5) 872928 records: 1995-03-01 00:00:00.00
GOES_I09_5 (dataset_goes_sem_i09_5) 254304 records: 1996-04-01 00:00:00.00
GOES_I10_5 (dataset_goes_sem_i10_5) 1210176 records: 1998-07-01 00:00:00.0
GOES_I11_5 (dataset_goes_sem_i11_5) 850107 records: 2000-07-01 00:00:00.00
GOES_I12_5 (dataset_goes_sem_i12_5) 166752 records: 2008-08-01 00:00:00.00
GOES_I_5 (dataset_goes_sem_rt) 1918 records: 2010-06-11 03:40:00.000 to 20
GOES_Z05_5 (dataset_goes_sem_z05_5) 131040 records: 1986-01-01 00:00:00.00
GOES_Z06_5 (dataset_goes_sem_z06_5) 946656 records: 1986-01-01 00:00:00.00
GOES_Z07_5 (dataset_goes_sem_z07_5) 999936 records: 1987-03-01 00:00:00.00
GOES_Z08_5 (dataset_goes_sem_z08_5) 872928 records: 1995-03-01 00:00:00.00
GOES_Z09_5 (dataset_goes_sem_z09_5) 254304 records: 1996-04-01 00:00:00.00
GOES_Z10_5 (dataset_goes_sem_z10_5) 1201248 records: 1998-07-01 00:00:00.0
GOES_Z11_5 (dataset_goes_sem_z11_5) 841179 records: 2000-07-01 00:00:00.00
GOES_Z12_5 (dataset_goes_sem_z12_5) 157824 records: 2008-08-01 00:00:00.00
HELIOS_A_E6 (dataset_helios_a_e6) 0 records: No data!
HELIOS_A_E7 (dataset_helios_a_e7) 0 records: No data!
HELIOS_B_E6 (dataset_helios_b_e6) 0 records: No data!
HELIOS_B_E7 (dataset_helios_b_e7) 0 records: No data!

HERSCHEL_RADFET (dataset_herschel_radfet) 61689 records: 2009-05-14 14:48:
 HERSCHEL_SREM_PACC (dataset_herschel_srem_pacc) 616686 records: 2009-05-14
 IMP8_CPME_A_330s (dataset_imp8_cpme_330s_helium) 1677674 records: 1974-03-
 IMP8_CPME_E_330s (dataset_imp8_cpme_330s_electrons) 1677674 records: 1974-
 IMP8_CPME_I_330s (dataset_imp8_cpme_330s_ions) 1677674 records: 1974-03-01
 IMP8_CPME_P_330s (dataset_imp8_cpme_330s_protons) 1678618 records: 1974-03
 IMP8_CRNC (dataset_imp8_crnc) 943968 records: 1973-10-30 00:00:00.000 to 2
 IMP8_GME (dataset_imp8_gme) 490637 records: 1973-11-01 00:15:00.000 to 200
 INTEGRAL_IREM_PACC (dataset_integral_irem_pacc) 3753233 records: 2002-10-1
 ISEE1_MEPI (dataset_isee1_mepi) 163619 records: 1977-11-09 21:01:41.000 to
 ISEE2_KED (dataset_isee2_ked) 404021 records: 1977-11-03 08:14:34.766 to 1
 KPAP_1d (dataset_index_kpap_1d) 28641 records: 1932-01-01 00:00:00.000 to
 KPAP_3h (dataset_index_kpap_3h) 229145 records: 1932-01-01 00:00:00.000 to
 METEOSAT_ANOMALIES (dataset_meteosat_anomalies) 513 records: 1988-08-15 09
 METEOSAT_HR (dataset_meteosat_sem_hr) 395684 records: 1988-11-01 00:00:00.
 METEOSAT_LR (dataset_meteosat_sem_lr) 119482 records: 1988-11-01 00:00:00.
 METOP_02 (dataset_poes_metop02_sem_2) 6718811 records: 2006-12-03 00:59:46
 MIR_REM (dataset_mir_rem) 1199669 records: 1994-11-01 00:00:55.000 to 1996
 MIR_TEST (dataset_mir_test) 12665 records: 1994-11-01 00:08:23.000 to 1996
 NS41_BDD2R (dataset_ns41_bdd2r) 784186 records: 2000-12-10 00:00:57.974 to
 OMNI2 (dataset_index_omni2) 411564 records: 1963-01-01 00:00:00.000 to 200
 PLANCK_RADFET (dataset_planck_radfet) 60900 records: 2009-05-14 15:17:16.8
 PLANCK_SREM_PACC (dataset_planck_srem_pacc) 608833 records: 2009-05-14 15:
 POES_N15 (dataset_poes_noaa15_sem_2) 23227341 records: 1998-07-01 00:00:22
 POES_N16 (dataset_poes_noaa16_sem_2) 12821964 records: 2001-01-10 00:00:35
 POES_N17 (dataset_poes_noaa17_sem_2) 15465883 records: 2002-07-12 00:54:30
 POES_N18 (dataset_poes_noaa18_sem_2) 9727664 records: 2005-06-07 00:00:15.
 POES_N19 (dataset_poes_noaa19_sem_2) 2572820 records: 2009-02-24 00:00:25.
 PROBA1_SREM_PACC (dataset_proba1_srem_pacc) 5647302 records: 2001-10-29 11
 ROSETTA_SREM_PACC (dataset_rosetta_srem_pacc) 550722 records: 2004-10-21 2
 SAC_C_ICARE (dataset_sac_c_icare) 2535623 records: 2000-12-01 00:01:08.100
 SSN_1m (dataset_index_ssn_1m) 1301 records: 1902-01-01 00:00:00.000 to 201
 STRV1B_REM (dataset_strv1b_rem) 226387 records: 1994-06-23 02:47:39.175 to
 STRV1B_TEST (dataset_strv1b_test) 82937 records: 1994-06-23 02:45:59.000 t
 UARS_PEM (dataset_uars_pem) 1120229 records: 1991-10-07 00:00:26.080 to 19
 XMM_RM (dataset_xmm_rm) 11274592 records: 2000-01-04 11:40:02.095 to 2009-
 odi@spitfire:~/odi/tools>

B ODI datasets compared with RB

Table 1 in ODI/TN/DB (hereafter referred to TN/TAB1) lists all datasets that shall be included. The items are repeated in the table below and commented. The name given in column “TN/TAB1 Name” shows the suggested name as given in TN/TAB1.

If this column is empty it means that there was no corresponding entry in TN/TAB1. The column “ODI dataset name” gives the actual name in the ODI database. A short description of the dataset is also given. The “Comment” column contains an “OK” if the dataset exists on the ODI system at Estec. There may be additional comments in this column. Any datasets not specified in TN/TAB1 but also included in ODI are marked as “Extra”.

During the process of establishing a list with datasets a file named “LRD.txt” was produced by Estec. All entries in “LRD.txt” appear in TN/TAB1 and the table below. However, some entries below do not appear in “LRD.txt” and they are commented as “Not in LRD”.

The GOES MAG datasets (see entries in table) contain detailed magnetic field data. However, as they are not listed in “LRD.txt” and because the other GOES datasets already contain magnetic field data they are not included in ODI.

The ISEE-1 WIM data contains 3D variables. Although the ODI system handles N-dimensional variables it turns out that the ISEE-1 WIM dataset expands into MySQL data tables with more columns than the allowed maximum of 1000 for InnoDB tables. Thus, the ISEE-1 WIM set is not part of the current ODI system. Upon closer inspection of the original data files, it was found that the data can be re-grouped into platform scanning periods, which would remove one dimension in the data structure. This requires some additional processing, which DHC will provide in a new parser routine, time permitting.

The SAMPEX original data available to the ODI Team (from the SEDAT dataset) consist of out-dated data, and flux values are not included. A new, completely re-processed dataset was released a couple of years ago. The format and structure of the new dataset is completely different from the old one, and will need substantial processing to prepare it for ingestion in ODI. Therefore, this dataset is not yet part of ODI, but will be added in the future.

The table below shows that the majority of requested datasets have been ingested into ODI and there are now more than 100 datasets.

Table 1: The table lists all data sets included in ODI.

TN/TAB1 Name	ODI dataset name	Description	Comment
	ace.mfi_h1	ACE magnetic field	OK, Extra (Not in LRD)
	ace.swe_h0	ACE plasma	OK, Extra (Not in LRD)
ace_sis	ace_sis_1hr	ACE SIS data	OK
amppte_uks	amppte_uks_elx	AMPTE UKS elec- tron data	OK

Table 1: (continued)

TN/TAB1 Name	ODI dataset name	Description	Comment
azur	azur_ei_88	AZUR Proton/Alpha particle telescope data	OK
crres_mea	crres_mea	CRRES/MEA data	OK (More data to be ingested)
equator_s_aux	equator_s_aux	Equator-S AUX Dataset	OK
equator_s_epi	equator_s_epi	Equator-S EPI Dataset	OK
equator_s_mam	equator_s_mam	Equator-S MAM Dataset	OK (Not in LRD)
gioveb_srem_pacc	gioveb_srem_pacc	GIOVE-B/SREM PACC Data	OK, but no data available to ODI team
goes_sem_a05_5	goes_sem_a05_5	SPIDR GOES-5 A dataset 5 Minute resolution	OK
goes_sem_a06_5	goes_sem_a06_5	SPIDR GOES-6 A dataset 5 Minute resolution	OK
goes_sem_a07_5	goes_sem_a07_5	SPIDR GOES-7 A dataset 5 Minute resolution	OK
goes_sem_a08_5	goes_sem_a08_5	SPIDR GOES-8 A dataset 5 Minute resolution	OK
goes_sem_a09_5	goes_sem_a09_5	SPIDR GOES-9 A dataset 5 Minute resolution	OK
goes_sem_a10_5	goes_sem_a10_5	SPIDR GOES-10 A dataset 5 Minute resolution	OK
goes_sem_a11_5	goes_sem_a11_5	SPIDR GOES-11 A dataset 5 Minute resolution	OK
goes_sem_a12_5	goes_sem_a12_5	SPIDR GOES-12 A dataset 5 Minute resolution	OK

Table 1: (continued)

TN/TAB1 Name	ODI dataset name	Description	Comment
goes_sem_g05_1	goes_sem_g05_1	SPIDR GOES-5 G dataset 1 Minute resolution	OK
goes_sem_g06_1	goes_sem_g06_1	SPIDR GOES-6 G dataset 1 Minute resolution	OK
goes_sem_g07_1	goes_sem_g07_1	SPIDR GOES-7 G dataset 1 Minute resolution	OK
goes_sem_g08_1	goes_sem_g08_1	SPIDR GOES-8 G dataset 1 Minute resolution	OK
goes_sem_g09_1	goes_sem_g09_1	SPIDR GOES-9 G dataset 1 Minute resolution	OK
goes_sem_g10_1	goes_sem_g10_1	SPIDR GOES-10 G dataset 1 Minute resolution	OK
goes_sem_g11_1	goes_sem_g11_1	SPIDR GOES-11 G dataset 1 Minute resolution	OK
goes_sem_g12_1	goes_sem_g12_1	SPIDR GOES-12 G dataset 1 Minute resolution	OK
	goes_sem_g05_5	SPIDR GOES-5 G dataset 5 Minute resolution	OK (Not in LRD)
	goes_sem_g06_5	SPIDR GOES-6 G dataset 5 Minute resolution	OK (Not in LRD)
	goes_sem_g07_5	SPIDR GOES-7 G dataset 5 Minute resolution	OK (Not in LRD)
	goes_sem_g08_5	SPIDR GOES-8 G dataset 5 Minute resolution	OK (Not in LRD)
	goes_sem_g09_5	SPIDR GOES-9 G dataset 5 Minute resolution	OK (Not in LRD)

Table 1: (continued)

TN/TAB1 Name	ODI dataset name	Description	Comment
	goes_sem_g10_5	SPIDR GOES-10 G dataset 5 Minute resolution	OK (Not in LRD)
	goes_sem_g11_5	SPIDR GOES-11 G dataset 5 Minute resolution	OK (Not in LRD)
	goes_sem_g12_5	SPIDR GOES-12 G dataset 5 Minute resolution	OK (Not in LRD)
goes_sem_h06_5	goes_sem_h06_5	SPIDR GOES-6 H dataset 5 Minute resolution	OK
goes_sem_h07_5	goes_sem_h07_5	SPIDR GOES-7 H dataset 5 Minute resolution	OK
goes_sem_h08_5	goes_sem_h08_5	SPIDR GOES-8 H dataset 5 Minute resolution	OK
goes_sem_h09_5	goes_sem_h09_5	SPIDR GOES-9 H dataset 5 Minute resolution	OK
goes_sem_h10_5	goes_sem_h10_5	SPIDR GOES-10 H dataset 5 Minute resolution	OK
goes_sem_h11_5	goes_sem_h11_5	SPIDR GOES-11 H dataset 5 Minute resolution	OK
goes_sem_h12_5	goes_sem_h12_5	SPIDR GOES-12 H dataset 5 Minute resolution	OK
	goes_sem_i_5	GOES I real time dataset 5 Minute resolution, different GOES spacecraft	OK (Not in LRD)
goes_sem_i05_5	goes_sem_i05_5	SPIDR GOES-5 I dataset 5 Minute resolution	OK
goes_sem_i06_5	goes_sem_i06_5	SPIDR GOES-6 I dataset 5 Minute resolution	OK

Table 1: (continued)

TN/TAB1 Name	ODI dataset name	Description	Comment
goes_sem_i07_5	goes_sem_i07_5	SPIDR GOES-7 I dataset 5 Minute res- olution	OK
goes_sem_i08_5	goes_sem_i08_5	SPIDR GOES-8 I dataset 5 Minute res- olution	OK
goes_sem_i09_5	goes_sem_i09_5	SPIDR GOES-9 I dataset 5 Minute res- olution	OK
goes_sem_i10_5	goes_sem_i10_5	SPIDR GOES-10 I dataset 5 Minute res- olution	OK
goes_sem_i11_5	goes_sem_i11_5	SPIDR GOES-11 I dataset 5 Minute res- olution	OK
goes_sem_i12_5	goes_sem_i12_5	SPIDR GOES-12 I dataset 5 Minute res- olution	OK (Not in LRD)
goes_mag_06		SPIDR GOES-6 MAG dataset 5 Minute resolution	No. See comment above ta- ble. (Not in LRD)
goes_mag_07		SPIDR GOES-7 MAG dataset 5 Minute resolution	No. See comment above ta- ble. (Not in LRD)
goes_mag_08		SPIDR GOES-8 MAG dataset 5 Minute resolution	No. See comment above ta- ble. (Not in LRD)
goes_mag_09		SPIDR GOES-9 MAG dataset 5 Minute resolution	No. See comment above ta- ble. (Not in LRD)

Table 1: (continued)

TN/TAB1 Name	ODI dataset name	Description	Comment
goes_mag_10		SPIDR GOES-10 MAG dataset 5 Minute resolution	No. See comment above ta- ble. (Not in LRD)
goes_mag_11		SPIDR GOES-11 MAG dataset 5 Minute resolution	No. See comment above ta- ble. (Not in LRD)
goes_mag_12		SPIDR GOES-12 MAG dataset 5 Minute resolution	No. See comment above ta- ble. (Not in LRD)
goes_z05_5	goes_z05_5	SPIDR GOES-5 Z dataset 5 Minute res- olution	OK
goes_z06_5	goes_z06_5	SPIDR GOES-6 Z dataset 5 Minute res- olution	OK
goes_z07_5	goes_z07_5	SPIDR GOES-7 Z dataset 5 Minute res- olution	OK
goes_z08_5	goes_z08_5	SPIDR GOES-8 Z dataset 5 Minute res- olution	OK
goes_z09_5	goes_z09_5	SPIDR GOES-9 Z dataset 5 Minute res- olution	OK
goes_z10_5	goes_z10_5	SPIDR GOES-10 Z dataset 5 Minute res- olution	OK
goes_z11_5	goes_z11_5	SPIDR GOES-11 Z dataset 5 Minute res- olution	OK
goes_z12_5	goes_z12_5	SPIDR GOES-12 Z dataset 5 Minute res- olution	OK (Not in LRD)

Table 1: (continued)

TN/TAB1 Name	ODI dataset name	Description	Comment
helios_a_e6	helios_a_e6	HELIOS-A E6 and trajectory data	Download script and skeleton file OK, data parsing in process
helios_a_e7	helios_a_e7	HELIOS-A E7 and trajectory data	Download script and skeleton file OK, data parsing in process
helios_b_e6	helios_b_e6	HELIOS-B E6 and trajectory data	Download script and skeleton file OK, data parsing in process
helios_b_e7	helios_b_e7	HELIOS-B E7 and trajectory data	Download script and skeleton file OK, data parsing in process
	herschel_radfet	HERSCHEL RAD-FET Data	OK, Extra
	herschel_srem_pacc	HERSCHEL SREM PACC Data	OK, Extra
imp8_cpme_e_330s	imp8_cpme_330s_electrons	IMP-8 CPME e data	OK
imp8_cpme_h_330s	imp8_cpme_330s_protons	IMP-8 CPME H data	OK (Not in LRD)
imp8_cpme_he_330s	imp8_cpme_330s_helium	IMP-8 CPME He data	OK (Not in LRD)
imp8_cpme_mh_330s	imp8_cpme_330s_ions	IMP-8 CPME heavy ion data	OK (Not in LRD)
imp8_crnc_phint	imp8_crnc	IMP-8 CRNC (U. Chicago) PHINT Data Tape	OK
imp8_gme	imp8_gme	IMP-8 GME (GSFC Instrument)	OK

Table 1: (continued)

TN/TAB1 Name	ODI dataset name	Description	Comment
index_dst	index_dst	DST index 1957-1997	OK
index_kpap_1d	index_kpap_1d	Ap global geomagnetic index	OK
index_kpap_3h	index_kpap_3h	Kp and Ap global geomagnetic index	OK
index_omni2	index_omni2	NSSDC OMNI-2 Dataset	OK
index_ssn_1m	index_ssn_1m	Monthly sunspot numbers	OK
integral_irem	integral_irem_pacc	INTEGRAL/IREM PACC Data	OK
isee1_hi		ISEE1 WIM high resolution data	No. See comment above table.
isee1_lo		ISEE1 WIM low resolution data	No. See comment above table.
isee1_mepi		ISEE1 MEPI data	OK
isee2	isee2_ked	ISEE2 KED data	OK
meteosat_anomalies	meteosat_anomalies	METEOSAT anomalies	OK
meteosat_hr	meteosat_sem_hr	METEOSAT high resolution data	OK
meteosat_lr	meteosat_sem_lr	METEOSAT low resolution data	OK
metop_02	poes_metop02_sem_2	METOP-02 Space Environment Monitor	OK
mir_a	mir_rem	MIR REM data	OK
mir_b	mir_test	MIR REM test data	OK
ns41_bdd2r	ns41_bdd2r	GPS NavStar41 - Burst Dosimeter Detector IIR	OK
	planck_radfet	PLANCK RADFET Data	OK, Extra
	planck_srem_pacc	PLANCK SREM PACC Data	OK, Extra

Table 1: (continued)

TN/TAB1 Name	ODI dataset name	Description	Comment
poes.n15	poes.noaa15_sem.2	NOAA POES N15 Space Environment Monitor	OK
poes.n16	poes.noaa16_sem.2	NOAA POES N16 Space Environment Monitor	OK
poes.n17	poes.noaa17_sem.2	NOAA POES N17 Space Environment Monitor	OK
poes.n18	poes.noaa18_sem.2	NOAA POES N18 Space Environment Monitor	OK
	poes.noaa19_sem.2	NOAA POES N19 Space Environment Monitor	OK
proba1_srem_pacc	proba1_srem_pacc	PROBA-1 SREM PACC Data	OK
rosetta_srem_pacc	rosetta_srem_pacc	Rosetta SREM Radiation Monitor	OK
sac_c	sac_c_icare	SAC-C ICARE data	OK
sampex_pet		SAMPEX PET data	No. See comment above table.
soho_erne_a		SOHO-ERNE Alpha Data	No data archive available.
soho_erne_p		SOHO-ERNE Proton Data	No data archive available.
strv1b_a	strv1b_rem	STRV1B REM data	OK
strv1b_b	strv1b_test	STRV1B REM test data	OK
swpc_ace_1m	ace_swe_rt	One minute resolution ACE SWEPAM and MAG data.	OK (SWE) (Not in LRD)
swpc_ace_1m	ace_mag_rt	One minute resolution ACE SWEPAM and MAG data.	OK (MAG) (Not in LRD)

Table 1: (continued)

TN/TAB1 Name	ODI dataset name	Description	Comment
uars_pem	uars_pem	UARS Particle Environment Monitor data	OK
xmm_rm	xmm_rm	XMM Radiation Monitor	OK