



Deliverable D6.8

“Online event and feature database”

Project acronym: *SOTERIA*
Project title: *SOLar-TERrestrial Investigations and Archives*
Grant Agreement number: *218816*
Coordinator: *Giovanni Lapenta*
*Project co-funded by the European Commission,
Seventh Framework Programme*
Funding Scheme: *FP7-SPACE-CALL-1*

Due date of deliverable:	October 31, 2010
Actual submission date:	October 15, 2010
Start date of the project:	November 1, 2008
Project duration:	3 years



Work package:	WP 6 “Distribution of data and dissemination”
Task(s):	Online event and feature database
Lead beneficiary for this deliverable:	KO
Editor:	Manuela Temmer
Authors:	Wolfgang Maierhofer, Manuela Temmer
Quality reviewer:	

Project co-funded by the European Commission within the Seventh Framework Programme (2007)		
Dissemination level		
PU	Public	PU
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	



DOCUMENT CONTROL

This document has no controlled or maintained paper copies. The master document is held in (indicate where) on the (indicate name) network. All files have widespread access for reading only. Changes to this document will be notified to its audience.

ISSUE RECORD

Version	Date	Author(s)	Reason for modification	Status
		W. Maierhofer, M. Temmer		Consortium distribution
1.0		M. Temmer	Editorial	Contributions
1.1		M. Temmer, W.Maierhofer		Update



NOTICE

The contents of this document are the copyright of the SOTERIA consortium and shall not be copied in whole, in part or otherwise reproduced (whether by photographic, reprographic or any other method) and the contents thereof shall not be divulged to any other person or organisation without prior written permission. Such consent is hereby automatically given to all members who have entered into the SOTERIA Consortium Agreement, dated 2008/12/22 and to the European commission to use and disseminate.



1. Purpose and goal:

The SOTERIA Online Solar Event Catalogue (SOSEC) is a deliverable of WP6: 'Distribution of data and Dissemination'. The overall goal of WP6 is to share the data produced by members of the SOTERIA consortium and to improve data accessibility. According to this goal SOSEC will provide easy access to data of solar event catalogues produced and/or maintained by members of the SOTERIA consortium.

2. Introduction:

Many data are gathered, coming from space-borne missions as well as ground-based observatories. Within the SOTERIA consortium a lot of local data archives exist at most participating institutes, but all have their different links and sites of information. When studying events under a broad spectrum of interest, from solar physics to geophysics, there is a need to provide an easy searchable database. Focusing on the data archives that are maintained by members of the SOTERIA consortium the SOTERIA Online Solar Event Catalogue (SOSEC) is build to ensure an easy and uniform access to these data. SOSEC makes these otherwise scattered or poorly known solar data archives accessible via a unified web interface. Since the SOTERIA consortium also prepares lists of events worth studying, the online database comprises such lists, too. As the SOTERIA consortium covers a wide range of expertise, SOSEC reveals all common actions of investigations of events which are performed by groups of different scientific interest (e.g., solar physics, geophysics, interplanetary space).

We would like to acknowledge the assistance received from the HELIO consortium (FP7 Project No. 238969; Mauro Messerotti, Bob Bentley and collaborators). We could fully use the synergy between deliverable D6.8 and the HELIO project, which allowed us to work more efficiently.

In the following we describe the technical aspects of SOSEC. The SOSEC webpage can be found under <http://soteria-event.uni-graz.at/>.

3. Technical Aspects:

SOSEC is a web database capable to answer SQL queries relevant to data of solar event catalogues maintained by members of the SOTERIA consortium. Solar event catalogues that can be integrated into SOSEC contain purely numerical data as opposed to image data. Image data will be served by a separate WP6 tool (SOTERIA Solar Data Archive - SODA). Responsibility to maintain and update a specific solar event catalogue is left with the catalogue provider. These event catalogues are ingested into a central Relational Database Management System (RDBMS) by php parser skripts and automatically updated on a daily basis in case of non-static data.

The SQL query is based on the selected catalogue and the requested time interval. The result of the SQL query is a list of solar events that meet the selection criteria.



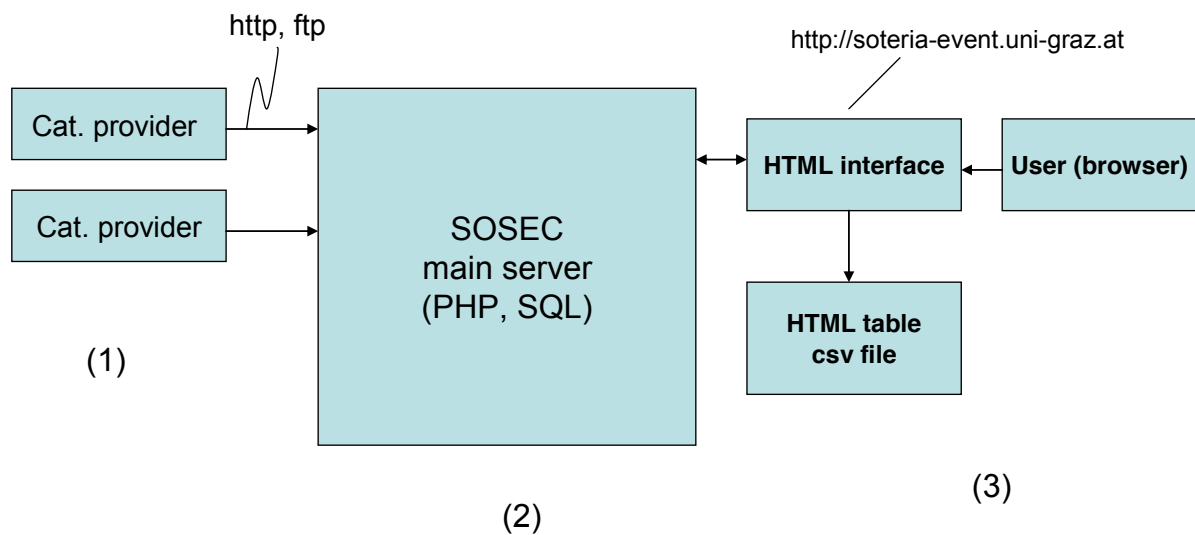


Fig. 1 summarizes the 3 main operations relevant to the SOSEC system

- (1) Data are periodically downloaded from catalogue providers via http or ftp by php parser scripts
- (2) The SOSEC server stores the php parsed data files and converts them into SQL data tables in a SQL database (PostgreSQL in our case)
- (3) A web user issues SQL queries via the HTML interface and retrieves the result data as an HTML table or as a csv file (a csv or comma separated file is regarded as the standard format for data exchange between application programmes).

2.1 Current Software Versions:

- SUN/Solaris 10 x86 platform
- PHP 5.2.6
- Apache 2.2.9
- PostgreSQL 8.1.19



3. Catalogues:

The catalogues were implemented in collaboration with those SOTERIA members which provided their catalogues and event lists that were generated during the last two years. The current database can be easily enlarged as it is necessary.

Currently the SOSEC contains the following catalogues:

1. **Kanzelhoehe Flare list:** An H-alpha flare list derived from full-disk observations by human inspection maintained by the Kanzelhoehe Observatory/Austria.
2. **SIDC Smoothed Sunspot No:** A smoothed monthly international sunspot number index from the Solar Influence Data Centre (SIDC) in Belgium.
3. **SOHO/MDI-Debrecen hourly sums:** Hourly sunspot data derived from full-disk white-light observations (Summary list) maintained by the Heliophysical Observatory in Debrecen.
4. **SOHO/MDI-Debrecen hourly group data:** Hourly sunspot data derived from full-disk white-light observations (NOOA group data) maintained by the Heliophysical Observatory in Debrecen.
5. **SOHO/MDI-Debrecen hourly sums:** Hourly sunspot data derived from full-disk white-light observations (spot number data) maintained by the Heliophysical Observatory in Debrecen.
6. **Debrecen daily sums:** Daily sunspot data derived from full-disk white-light observations maintained by the Heliophysical Observatory in Debrecen.
7. **SOLSTICE mg2 Index:** Daily measurements of the MgII core-to-wing index provided by SORCE/SOLSTICE
8. **Hvar CME_CIR_list:** List of observed CMEs and CIRs for solar-terrestrial studies maintained by the Hvar Observatory in Croatia.
9. **SECCHI CME list:** STEREO/SECCHI list of observed CMEs provided by the Institute for Astrophysics in Goettingen
10. **HFC Filaments list:** Observed filaments from Meudon H-alpha maintained by Observatoire de Paris
11. **SphinX Event list:** Measurements of the solar X-ray emission taken with the SphinX instrument, provided by the Polish Space Research Centre in Wroclaw, Poland
12. **Dcx Daily Index:** Daily Dcx Index (the corrected and extended index for monitoring geomagnetic storms) from Oulu University.
13. **Dxc Yearly Index:** Yearly Dxc (the corrected and extended index for monitoring geomagnetic storms) Index from Oulu University
14. **CME Cactus Catalog:** CMEs observed with the LASCO instrument, provided from the Solar Influence Data Centre (SIDC) in Belgium
15. **Flow Cactus Catalog:** Flows (=suspicious detections) observed with the LASCO instrument, provided from the Solar Influence Data Centre (SIDC) in Belgium






Fig. 2 Overview of all solar event catalogues searchable via SOSEC

Catalogue Name	Catalogue Provider	Catalogue Description	Data available	Catalogue status
Kanzelhöhe Flare list	Kanzelhöhe Observatory	H-alpha Flare list derived from full-disk observations by human inspection	from 1984-Jan-02	active
SIDC Smoothed Sunspot No	Solar Influences Data Analysis Center, Belgium	Smoothed monthly international Sunspot Number	from 1749-Jul-01	active
SOHOMDI-Debrecen hourly sums	Heliohistical Observatory Debrecen	Hourly sunspot data derived from full-disk white-light observations - Summary	from 1996-Dec-31	active
SOHOMDI-Debrecen hourly group data	Heliohistical Observatory Debrecen	Hourly sunspot data derived from full-disk white-light observations - NOAA group data	from 1996-Dec-28	active
SOHOMDI-Debrecen hourly spot data	Heliohistical Observatory Debrecen	Hourly sunspot data derived from full-disk white-light observations - Spot No data	from 1996-Dec-26	active
Debrecen daily sums	Heliohistical Observatory Debrecen	Daily sunspot data derived from full-disk white-light observations	1986/01/01 to 2003/12/31	closed
SOLSTICE mg2 Index	SOLSTICE homepage	Daily measurements of the MgII core-to-wing index	from 2005-Dec-31	active
Hvar CME_CIR_list	Hvar Observatory	List of observed CMEs and CIRs for solar-terrestrial studies	from 1998-May-05	active
SECCHI CME list	Institute for Astrophysics Göttingen	STEREO/SECCHI list of observed CMEs	2007/01/09 to 2009/12/31	closed
HFC Filaments list	Observatoire de Paris	Observed filaments in H-alpha from Meudon	1986/01/05 to 2010/05/09	closed
Sphinx Event list	Space Research Center, Poland	Solar X-ray emissions measured with the Sphinx instrument	2009/02/21 to 2009/11/28	closed
Dcx Daily Index	Oulu University, Finland	Daily Dcx Index from Oulu University	1932/01/01 to 2007/12/31	closed
Dcx Yearly Index	Oulu University, Finland	Yearly Dcx Index from Oulu University	1932 to 2007	closed
CME Cactus Catalog	CACTUS homepage, Belgium	CMEs observed with the LASCO instrument	from 2007-07-03	active
Flow Cactus Catalog	CACTUS homepage, Belgium	Flows (=suspicious detections) observed with the LASCO instrument	from 2007-07-03	active

Site maintained by Univ. Graz
[Contact](#)



4. Implementation details

As already stated in the introduction, it lies in the responsibility of each catalogue provider to maintain and update their event catalogue(s). Depending on the type of the catalogue (e.g., daily versus monthly Sunspot Numbers) this will be done on a daily to monthly basis. On the SOSEC side, the server runs each day a unix cron job to check updates of the various catalogues. The unix cron job executes a shell file `soteria-loader.sh` every day at 04:00 UTC which downloads new data from the catalogue provider and thus updates the SOSEC database.

This shell file has 3 basic tasks:

1. download and parse new data from provider via **php-skripts**. Php parsing and string manipulating functions analyse the original data files (ASCII text files or csv files) and write postgres-ready converted data files (tabulator separated files) to the temp/ directory.
2. at every update the SQL database (called HEC in our case) is completely regenerated. The creation of catalogue data tables is carried out via the **soteria-create.sql** procedure.
3. postgres-ready data files created by the php-skripts in step 1 are then used by the **soteria-insert.sql** procedure to populate/update the postgres data tables created in step 2.

The shell file **soteria-loader.sh**:

```
#! /bin/sh

#-----
# SOTERIA - HEC server
# automatic crontab loader
#-----
# AUTOMATIC (crontab) DAILY UPDATING (04:00 UTC)
# OF HEC DATABASE
#-----
```



```

# by W. Maierhofer - SOTERIA
# last revision 02-August-2010
#-----

HECROOT=/opt/coolstack/apache2/htdocs/soteria-htdocs

#-----
# load and parse new data from providers
#-----
/opt/coolstack/php5/bin/php -f $HECROOT/sec_load_kso.php
/opt/coolstack/php5/bin/php -f $HECROOT/sec_load_ssn.php
/opt/coolstack/php5/bin/php -f $HECROOT/sec_load_mg2.php
/opt/coolstack/php5/bin/php -f $HECROOT/sec_load_filaments.php
/opt/coolstack/php5/bin/php -f $HECROOT/sec_load_secchi.php

#-----
# regenerate HEC database structure
#-----
psql -d hec -f $HECROOT/soteria_create.sql

#-----
# insert HEC data
#-----
psql -d hec -f $HECROOT/soteria_insert.sql

#-----
# write log and summary
#-----

```

Comments:

`HECROOT` is the location of the web root on the SOSEC-server

The command `/opt/coolstack/php5/bin/php -f $HECROOT/sec_load_kso.php` starts the php interpreter and executes the php script. Note: php-scripts of static or closed catalogues are not listed since these catalogues need not to be updated.

`psql` is the postgres client, which connects to the SQL database. The option `-d` specifies the database (`hec` in our case), and the `-f` option submits the sql file containing the sql statements to `psql`

Here is an example php script:

```

<?php
# =====
# SOTERIA - by W. Maierhofer
# IGAM - Graz University
# -----
# Mg2 core-to-wing
# ftp://laspftp.colorado.edu/pub/solstice/sorce_solstice_mg2_index.txt
# sec_load_mg2.php
# last rev 07-jul-2010
# =====
require ("sec_global.php");

// get files from FTP site
$conn = ftp_connect("laspftp.colorado.edu");

```



```

if (!$conn) {
    echo 'FTP connect error';
    exit;
}
if (ftp_login($conn, 'anonymous', 'wolfgang.maierhofer@gmail.com')) {
    echo "Connected!\n";
} else {
    echo "Couldn't connect\n";
}

ftp_chdir($conn, 'pub/solstice');
echo "Dir: ". ftp_pwd($conn). "\n";
ftp_get($conn, "$tempdir/sorce_solstice_mg2_index.txt", "sorce_solstice_mg2_
index.txt", FTP_ASCII);
echo "Got file sorce_solstice_mg2_index.txt! \n";
ftp_close($conn);
// create postgres-ready file and parse original data
$f1 = fopen("$tempdir/mg2.postgres.converted", 'w');
$f2 = fopen("$tempdir/sorce_solstice_mg2_index.txt", 'r');
while ( ($f2) AND (!feof ($f2))) {
    $buffer = fgets($f2);
    if ($buffer == ""){
        $time="\n";
        $julian="\n";
        $mg2="\n";
        $out = sprintf("%s\t%s\t%s\n", $time,$julian,$mg2);
    }
    else {
        $julian = substr($buffer,5,13);
        $mg2 = substr($buffer,20,6);
        $gregorian = jd_to_greg($julian);
        $dd = split("/", $gregorian);
        $time = sprintf("%04d/%02d/%02d 00:00:00", $dd[2], $dd[0], $dd[1]);
        $out = sprintf("%s\t%s\t%s\n", $time,$julian,$mg2);
    }
    // write postgres-ready file and close
    fwrite($f1,$out);
} //end while
fclose($f2);
fclose($f1);

?>

```

Comments:

As one can see from the comments in the program each php script consists of the steps:

1. get files from the catalogue provider via HTTP or FTP
2. copy file to temporary directory
3. parse file and create postgres-ready file (tabulator separated file; empty lines or values must be filled with a \N null value)
4. extract needed values via php functions (e.g. `substr`) and convert values if needed (e.g. php function `jd_to_greg`)
5. write to postgres-ready file and close



Here is a fragment of **soteria-create.sql**

Note: User creation details and grant permission details are omitted

```
-- SOTERIA - HEC server
-- # IGAM
-- creation script
-- by W. Maierhofer last rev. 17-May-2010

-- Creation of catalogue tables
DROP TABLE deb_soho_data;
CREATE TABLE deb_soho_data (
    deb_soho_id      SERIAL,
    time_start       TIMESTAMP,
    u_disc           INTEGER,
    up_disc          INTEGER,
    u_hem            INTEGER,
    up_hem           INTEGER,
    jul_date         FLOAT,
    pos_angle        FLOAT,
    latitude         FLOAT,
    PRIMARY KEY (deb_soho_id)
);

DROP TABLE deb_group_data;
CREATE TABLE deb_group_data (
    deb_group_id     SERIAL,
    time_start       TIMESTAMP,
    group_no         VARCHAR(5),
    u_disc           INTEGER,
    up_disc          INTEGER,
    u_hem            INTEGER,
    up_hem           INTEGER,
    latitude         FLOAT,
    longitude        FLOAT,
    long_dist        FLOAT,
    pos_angle        FLOAT,
    dist_cent        FLOAT,
    mag_u            FLOAT,
    mag_up           FLOAT,
    PRIMARY KEY (deb_group_id)
);
```

Comments:

The sql command `DROP` deletes the old data table. `CREATE TABLE` creates the new data table with the appropriate data types (`TIMESTAMP`, `VARCHAR`, etc)

Here is a fragment of **soteria-insert.sql**

```
-- SOTERIA server
-- creation script
-- by W. Maierhofer last rev. 17-May-2010

BEGIN;
DELETE FROM deb_soho_data;
```



```

COPY deb_soho_data
(time_start,u_disc,up_disc,u_hem,up_hem,jul_date,pos_angle,latitude) FROM
'/opt/coolstack/apache2/htdocs/soteria-hdocs/temp/UNGARNh.postgres.converted';
COMMIT;

BEGIN;
DELETE FROM deb_group_data;
COPY deb_group_data
(time_start,group_no,u_disc,up_disc,u_hem,up_hem,latitude,longitude,long_dist,po
s_angle,dist_cent,mag_u,mag_up) FROM '/opt/coolstack/apache2/htdocs/soteria-
hdocs/temp/UNGARNg.postgres.converted';
COMMIT;

```

Comments:

The sql command `DELETE` clears the old data table. `COPY` copies the new data from the postgres-converted file (suffix .converted) to the postgres data table.

5. Demonstration and Help details

The following screenshots demonstrate the use of SOSEC and give some Help details.

Step 1: At the homepage (<http://soteria-event.uni-graz.at>) the user can select a **catalogue** (here e.g., Kanzelhoehe Flare list) or can go to **Details** for some information on catalogue providers, technical details etc.

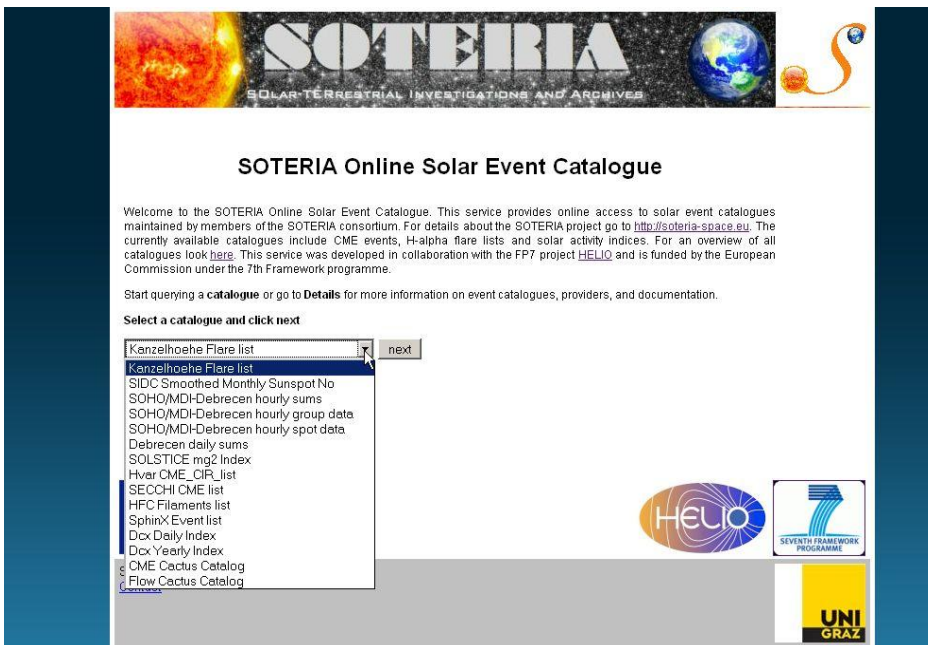



Fig 3: Homepage of SOSEC. The user selects a specific catalogue from the drop-down menu



Step 2: For the selected catalogue the user gets a short summary (URL to the original catalogue, first und last observation, status information).

In order to retrieve data form the catalogue the user selects **Start Date** (2007 07 01 in this case) and **End Date** (e.g. 2008 12 01). Optionally, the user can select Make csv file. In this case the user gets (additionally to the HTML table) a csv file for downloading the selected data. In order to send the sql query to the database management system the user hits the **Submit** button.



SOTERIA
SOLAR-TERRRESTRIAL INVESTIGATIONS AND ARCHIVES

Kanzelhoehe Flare List

[Catalogue URL](#)

First Observation: 1984-01-02
Last Observation: --
Status: active

Select **Start Date** and **End Date** and click the Submit button

Start Date			End Date		
Year	Month	Day	Year	Month	Day
2007	07	01	2008	12	01

Caution: The catalogue may contain an enormous number of records. Not narrowing the search interval may slow down the query. Optionally, the queried list can be put into a single text file for downloading. Note: For test and speed reasons the number of records that can be written into the text file is limited to 100. Narrow down your search!

Make textfile

Site maintained by Univ. Graz
[Contact](#)

UNI
GRAZ

Fig 4: The user selects start date and end date for the selected catalogue

Step 3: The result of the query. The user gets back some details (selected catalogue, query interval, Catalogue URL, Explanation of Fieldnames) and the retrieved data as an HTML table or as csv file.

Fig 5: Result HTML table for the selected catalogue and selected query interval






Query Summary
 Your query interval: From 2007-01-01 to 2008-12-01
 Catalogue Name: Kanzelhoehe Flare List
[Catalogue URL](#)
[Explanation of Fieldnames](#)
 Status: active

kso_id	time_start	time_start_m	time_peak	time_peak_m	time_end	time_end_m	latitude	longitude	long Carr	optical_class
114	2007-01-10 09:23:00		2007-01-10 09:28:00		2007-01-10 10:03:00		-3	59	34.08	sf
115	2007-01-10 10:09:00		2007-01-10 10:10:00		2007-01-10 10:16:00		-4	54	28.66	sf
116	2007-01-14 10:02:00		2007-01-14 10:06:00		2007-01-14 10:11:00		1	-56	226.05	sf
117	2007-01-15 07:54:00	E	2007-01-15 07:54:00	E	2007-01-15 08:19:00		2	-45	225.05	sf
118	2007-01-15 11:41:00		2007-01-15 11:54:00		2007-01-15 12:25:00		2	-40	227.98	sf
119	2007-05-19 12:49:00		2007-05-19 12:58:00		2007-05-19 13:34:00		1	5	77.03	sf
120	2007-06-02 10:30:00	E	2007-06-02 10:40:00	U	2007-06-02 10:48:00		-5	-73	175.08	fn
121	2007-06-03 06:39:00		2007-06-03 06:43:00		2007-06-03 07:33:00		-5	-61	175.96	fn
122	2007-06-03 09:26:00		2007-06-03 09:29:00		2007-06-03 09:31:00		-7	-65	170.43	sf
123	2007-06-04 08:43:00	E	2007-06-04 08:43:00	E	2007-06-04 08:44:00	U	-8	-48	174.59	sf
124	2007-06-08 08:42:00		2007-06-08 09:02:00	U	2007-06-08 09:10:00		-8	8	177.66	sf
125	2007-06-10 11:03:00		2007-06-10 11:11:00		2007-06-10 11:16:00		-9	36	177.89	sf
126	2007-06-29 08:07:00		2007-06-29 08:16:00		2007-06-29 08:24:00		-7	-61	191.01	sf
127	2007-07-01 08:23:00		2007-07-01 08:29:00		2007-07-01 08:34:00		-7	-36	189.39	sf
128	2007-08-06 09:09:00		2007-08-06 09:16:00		2007-08-06 09:24:00		-5	-40	88.86	sf
129	2007-08-24 07:50:00		2007-08-24 07:55:00		2007-08-24 08:07:00		4	-44	187.45	sn
130	2007-08-24 11:49:00		2007-08-24 11:54:00		2007-08-24 12:02:00		4	-41	189.28	sf
131	2007-12-10 08:07:00	E	2007-12-10 08:09:00		2007-12-10 08:30:00		-10	-22	224.55	sf
132	2007-12-10 08:39:00		2007-12-10 08:40:00		2007-12-10 08:45:00		-11	-22	224.26	sf
133	2007-12-11 09:26:00		2007-12-11 09:28:00	U	2007-12-11 09:50:00		-6	-10	222.65	sf
134	2007-12-11 09:38:00		2007-12-11 09:38:00		2007-12-11 09:50:00	U	-7	-9	223.54	sf
135	2007-12-13 10:01:00	E	2007-12-13 10:01:00	E	2007-12-13 10:28:00		-8	-19	224.98	fn
136	2007-12-14 07:47:00		2007-12-14 08:30:00		2007-12-14 09:02:00	D	-7	31	225.03	sf
138	2008-04-26 13:56:00		2008-04-26 14:00:00	U	2008-04-26 14:01:00	D	9	-9	215.73	sf
139	2008-11-03 11:16:00		2008-11-03 11:19:00		2008-11-03 11:22:00		36	28	249.78	sf
140	2008-11-05 12:54:00		2008-11-05 12:54:00		2008-11-05 12:56:00		36	54	248.51	sf

Number of records that match your query: 26
[New Search?](#)

The user can explore the data in more detail by clicking on the [Explanation on Fieldnames](#) link



Query Summary
 Your query interval: From 2007-01-01 to 2008-12-01
 Catalogue Name: Kanzelhoehe Flare List
[Catalogue URL](#)
[Explanation of Fieldnames](#)
 Status: active

kso_id	time_start	time_start_m	time_peak	time_peak_m	time_end	time_end_m	latitude	longitude	long Carr	optical_class
114	2007-01-10 09:23:00		2007-01-10 09:28:00		2007-01-10 10:03:00		-3	59	34.08	sf
115	2007-01-10 10:09:00		2007-01-10 10:10:00		2007-01-10 10:16:00		-4	54	28.66	sf
116	2007-01-14 10:02:00		2007-01-14 10:06:00		2007-01-14 10:11:00		1	-56	226.05	sf
117	2007-01-15 07:54:00	E	2007-01-15 07:54:00	E	2007-01-15 08:19:00		2	-45	225.05	sf
118	2007-01-15 11:41:00		2007-01-15 11:54:00		2007-01-15 12:25:00		2	-40	227.98	sf
119	2007-05-19 12:49:00		2007-05-19 12:58:00		2007-05-19 13:34:00		1	5	77.03	sf
120	2007-06-02 10:30:00	E	2007-06-02 10:40:00	U	2007-06-02 10:48:00		-5	-73	175.08	fn
121	2007-06-03 06:39:00		2007-06-03 06:43:00		2007-06-03 07:33:00		-5	-61	175.96	fn
122	2007-06-03 09:26:00		2007-06-03 09:29:00		2007-06-03 09:31:00		-7	-65	170.43	sf
123	2007-06-04 08:43:00	E	2007-06-04 08:43:00	E	2007-06-04 08:44:00	U	-8	-48	174.59	sf
124	2007-06-08 08:42:00		2007-06-08 09:02:00	U	2007-06-08 09:10:00		-8	8	177.66	sf
125	2007-06-10 11:03:00		2007-06-10 11:11:00		2007-06-10 11:16:00		-9	36	177.89	sf
126	2007-06-29 08:07:00		2007-06-29 08:16:00		2007-06-29 08:24:00		-7	-61	191.01	sf
127	2007-07-01 08:23:00		2007-07-01 08:29:00		2007-07-01 08:34:00		-7	-36	189.39	sf
128	2007-08-06 09:09:00		2007-08-06 09:16:00		2007-08-06 09:24:00		-5	-40	88.86	sf
129	2007-08-24 07:50:00		2007-08-24 07:55:00		2007-08-24 08:07:00		4	-44	187.45	sn
130	2007-08-24 11:49:00		2007-08-24 11:54:00		2007-08-24 12:02:00		4	-41	189.28	sf
131	2007-12-10 08:07:00	E	2007-12-10 08:09:00		2007-12-10 08:30:00		-10	-22	224.55	sf
132	2007-12-10 08:39:00		2007-12-10 08:40:00		2007-12-10 08:45:00		-11	-22	224.26	sf
133	2007-12-11 09:26:00		2007-12-11 09:28:00	U	2007-12-11 09:50:00		-6	-10	222.65	sf
134	2007-12-11 09:38:00		2007-12-11 09:38:00		2007-12-11 09:50:00	U	-7	-9	223.54	sf
135	2007-12-13 10:01:00	E	2007-12-13 10:01:00	E	2007-12-13 10:28:00		-8	-19	224.98	fn
136	2007-12-14 07:47:00		2007-12-14 08:30:00		2007-12-14 09:02:00	D	-7	31	225.03	sf
138	2008-04-26 13:56:00		2008-04-26 14:00:00	U	2008-04-26 14:01:00	D	9	-9	215.73	sf
139	2008-11-03 11:16:00		2008-11-03 11:19:00		2008-11-03 11:22:00		36	28	249.78	sf
140	2008-11-05 12:54:00		2008-11-05 12:54:00		2008-11-05 12:56:00		36	54	248.51	sf

Number of records that match your query: 26
[New Search?](#)

Firefox

http://soteria-event.uni-graz.at/doc_iso_flare.html

Field Name	Description
kso_id	Event Identification number
time_start	Event start time (UTC)
time_start_m	Event start time modifier E ... Earlier, U ... Uncertain, D ... Delayed
time_peak	Event peak time (UTC)
time_peak_m	Event peak time modifier E ... Earlier, U ... Uncertain, D ... Delayed
time_end	Event end time (UTC)
time_end_m	Event end time modifier E ... Earlier, U ... Uncertain, D ... Delayed
latitude	Heliographic latitude (deg)
longitude	Heliographic longitude (deg)
long Carr	Carrington longitude (deg)
optical class	Optical importance class

Fig 6: Result HTML table with explanation of fieldnames (pop-up window)



Future prospects:

In collaboration with ROB we aim to link the database with the SOTERIA VSO (SOTERIA Solar Data Archive – SODA). With this we will provide an easy tool for the SOTERIA consortium to search and download data.

