European Grid of Solar Observations

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Database for Solar Observatories

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0.9.7	15 March 2004	S. Giordano	Search and Result Tools description
1.0rc1	12 July 2004	S. Giordano R. Alvino I. De Marino	Release Candidate 1

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1 Introduction

This documents describes the principles, architecture and functions of the Database of Solar Observatories (DSO), which will be part of the European Grid of Solar Observations (EGSO), the development details of the database are also included and the document will be updated to reflect design and/or implementation changes.

2 DSO Principles and Role in EGSO

The primary goal of EGSO is to construct a virtual observatory that allows solar resources to be shared within the community. In order to address this task we define and build a Database of Solar Observatories by considering as observatories all the entities that provide solar observations. Therefore, in this framework the solar space missions are considered as observatories as well.
This database is an attempt to collect information and the descriptive parameters of all ground-based observatories and space-based missions dedicated to solar studies. The catalog summarizes also the kinds and extent of data obtained by the instruments operating at these observatories and the information necessary to access the available data. The Database of Solar Observatories is like the Yellow Pages in that it provides the means to identify data producers according to general classifications
This catalog and the associated information serve as a registry of the resources for EGSO relative to the observatories, missions, institutes and data archives, Therefore it can address the interests of the broker in terms of availability and accessibility of observatory and mission data. As a second purpose, the database can also be used as an alternative way for the solar science community to locate data of interest from past and current observatories and missions and to survey the range of solar resources. For these purposes a user-friendly web interface has been developed to allow the user to make queries on the catalog. As a subsequent development, the web interface of the DSO could be enriched through pages more dedicated to educational and outreach purposes. For example it could be possible graphically display the history of solar space missions, the location of ground-based observatories, or the region of the electromagnetic spectrum covered at different times.

The fields of the database table are initially filled in the DSO by collecting information available in the web pages of observatories, instruments and institutes. Later on the fields will be verified and certified by consulting, as far as possible, the Project Scientists or Principal Investigators for each observatory and instrument.
Necessary refinements and updates of the information on the database are possible for the database managers and for certified persons, who can edit existing information or add entries by using an appropriate form available through the web interface. Users may also send update information and suggestions directly by e-mail to the database manager or to EGSO staff if they have any difficulty with the form or if they are not qualified to modify the entries.

3 Database Architecture

The architecture of the DSO is based on a simplified version of the solar data model focused on the classes related to the data production process carried out by observatories and instruments. Moreover there are classes related to the data archiving and the organization of the observatory.
Every class is associated to a primary table containing a number of fields that provides the description of the class for the DSO purpose. The primary tables of the database are related by using supplementary and intermediary tables as described in the following paragraph. Finally the enumeration tables statically stores the permitted values of some fields of the primary tables.

3.1 DSO Data Model

The DSO data model is an abstraction and simplification of the process that provides solar observations. The core of the model are the instrument and channel classes, which contain all the information to describe the observational capabilities (such as the data type, the scientific object, the spatial and spectral target and resolution). The observatory class, which takes into account both ground-based observatories and space-based missions, and the telescope class are intended as platforms hosting many instruments that can perform very different kind of solar observations. The data production process is completed by introducing organization and contact classes to provide information on the management and responsibility, moreover a network class gives the relation between different observatories working for a same scientific purpose. In order to address the search on the data location and availability there is an archive class that provides information on all the solar data archives. The following schema shows a synthetic description of the classes included into the DSO structure.

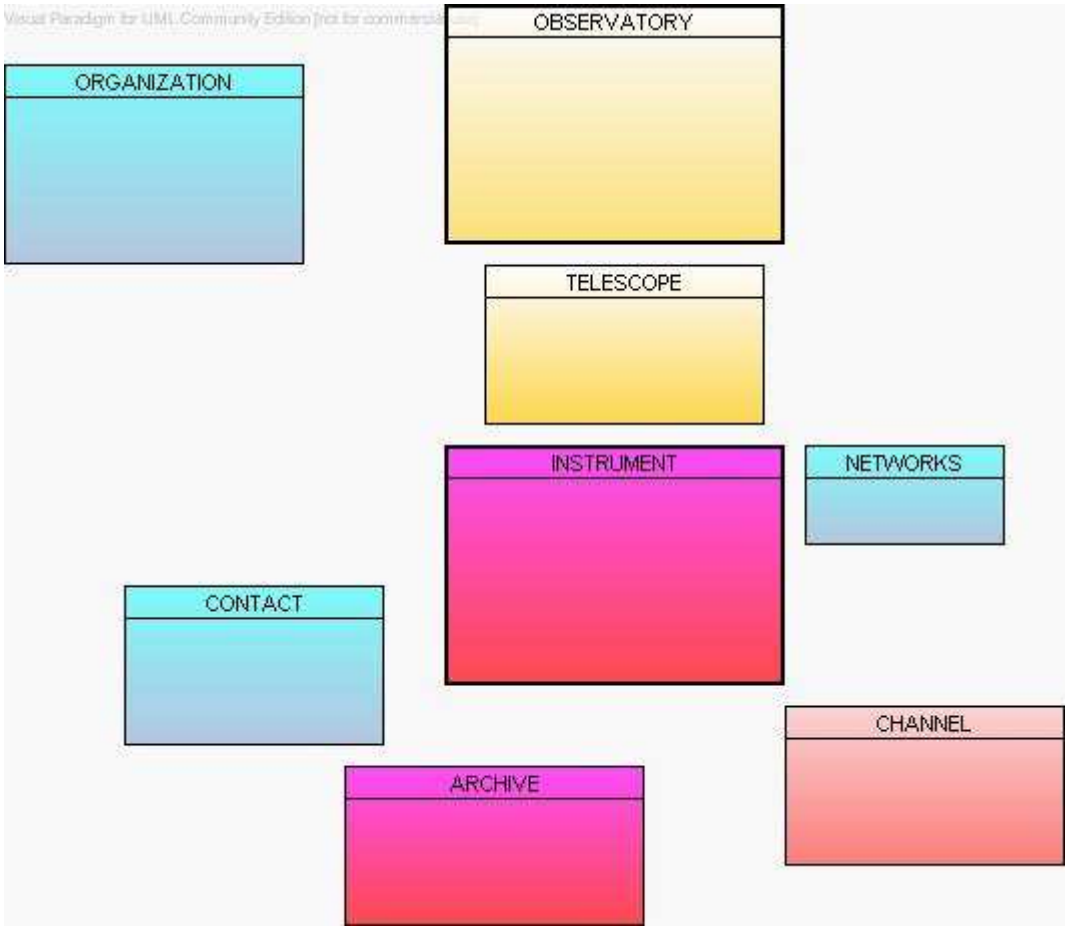


Figure 1: Schema of the classes of the DSO data model

3.2 Definition of classes

The **Observatory** is the physical facility hosting the instrumentation for providing observation: telescopes and the instruments; it is located where the observations are performed. The observatory class comprises both ground-based observatory and space-based mission as satellites, spacecrafts and rockets.

The **Telescope** is the entity, installed at an observatory, that collects photons or particles, . In the case of a telescope mounting a single instrument with a single channel, the telescope, instrument and channel classes coincide and the observation parameters are included into the instrument and channel fields. In the general case, a telescope can mount more than one instrument and an instrument more than one channel.

The **Instrument** is the entity that allows the data acquisition when mounted on a telescope. In the general case, an instrument can have more than one channel or detector observing different physical parameters, like different wavelength ranges.

The **Channel** is the entity that detects photons and particles. This is the entity that defines the characteristics of the observation, like the spatial coverage, the wavelength range and the resolutions, though these parameters may depend on the entire system assembly. This class it is very important to describe the observation parameters usually searched by the archive end users

The **Organization** is the entity that has the administrative and management responsibility of an observatory, instrument or archive. Usually it is a scientific institute, national organization or an agency.

The **Contact** is the person that has the responsibility or his agent as appropriate, of a component of the system; it can be the Project Scientist, Principal Investigator or the Archive manager.

The **Archive** is the entity that provides the data set obtained by the observations performed by the instruments, it can be related to one or more instruments or observatories. The archive can allow different levels of queries and data access.

The **Network** represents the combination, for some period of time, of a group of instruments that have some commonality of purpose.

3.3 Database Tables

Each class of the DSO data model, described in the previous paragraph, is represented in the database by a relative table. Therefore the DSO is structured in 8 correlated tables, defined as "Primary Tables". The information on the DSO classes described in these tables are integrated by the fields described in 6 "Supplementary Tables", for what concerns the activity periods, the URL addresses and for maintain the history of the insertion or modification of the DB fields and the reference to the persons responsible of the values related to each entity. The DB population and queries on some fields are addressed by 10 "Enumeration Tables", which statically store the lists of all the permitted values for the some fields. The 6 "Intermediary Tables" allow the relations **n** ←→ **n** between the primary tables. Each table contains a list of fields that are described in a following paragraph; these fields have to be filled in order to populate the database.

The Primary Tables, related to the DSO classes, are:

1. Archive
2. Channel
3. Contact
4. Instrument
5. Network
6. Observatory
7. Organization
8. Telescope

The Supplementary Tables are:

1. periods_cha: Channel Activity Periods
2. periods_obs: Observatory Activity Periods
3. url_arc: Archive URLs
4. url_ins: Instrument URLs
5. url_obs: Observatory URLs
6. url_tel: Telescope URLs
7. history: History of the inserted or modified row of the all tables

The Intermediary Tables are:

1. arc_con Archive - Contact
2. ins_arc Instrument - Archive
3. ins_con Instrument – Contact
4. org_arc Organization - Archive
5. org_ins Organization - Instrument
6. org_obs Organization - Observatory

The Enumeration Tables are:

1. cha_type: Type of Channel
2. country: Country and relative codes
3. em_domain: EM Region observed by the telescope
4. ins_type: Type of Instrument
5. obs_type: Type of Observatory
6. orbit: Possible Orbits for Space Mission (e.g. Geostationary, L1, out-of-ecliptic, IP)
7. status: Present Status of a class like Observatory, Telescope and Instrument (e.g. Active, Past, Future, off-line)
8. storage_type: Type of Archive storage
9. target: Primary Target of a Channel (e.g. Full Disk, Solar Corona, Disk Region)
10. tel_type: Type of Telescope

3.4 Tables Relationships

The Relationships among the Primary Tables are specified in the following table:

Observatory Table		
•	1 ←→ n	Telescope
•	n ←→ n	Organization
•	1 ←→ n	url_obs
•	1 ←→ n	periods_obs
Telescope Table		
•	1 ←→ n	Instrument
•	n ←→ 1	Observatory
•	1 ←→ n	url_tel
Instrument Table		
•	n ←→ 1	Telescope
•	n ←→ n	Organization
•	1 ←→ n	url_ins
•	n ←→ 1	Network
•	1 ←→ n	Channel
•	n ←→ n	Archive
•	n ←→ n	Contact
Channel Table		
	n ←→ 1	Instrument
	1 ←→ n	periods_cha
Organization Table		
•	n ←→ n	Observatory
•	n ←→ n	Instrument
•	n ←→ n	Archive
Contact Table		
•	n ←→ n	Instrument
•	n ←→ n	Archive
Network Table		
•	1 ←→ n	Instrument
Archive Table		
•	n ←→ n	Organization
•	n ←→ n	Instrument
•	n ←→ n	Contact
•	1 ←→ n	url_arc

The following figure shows the Entity-Relationship diagram of the database.

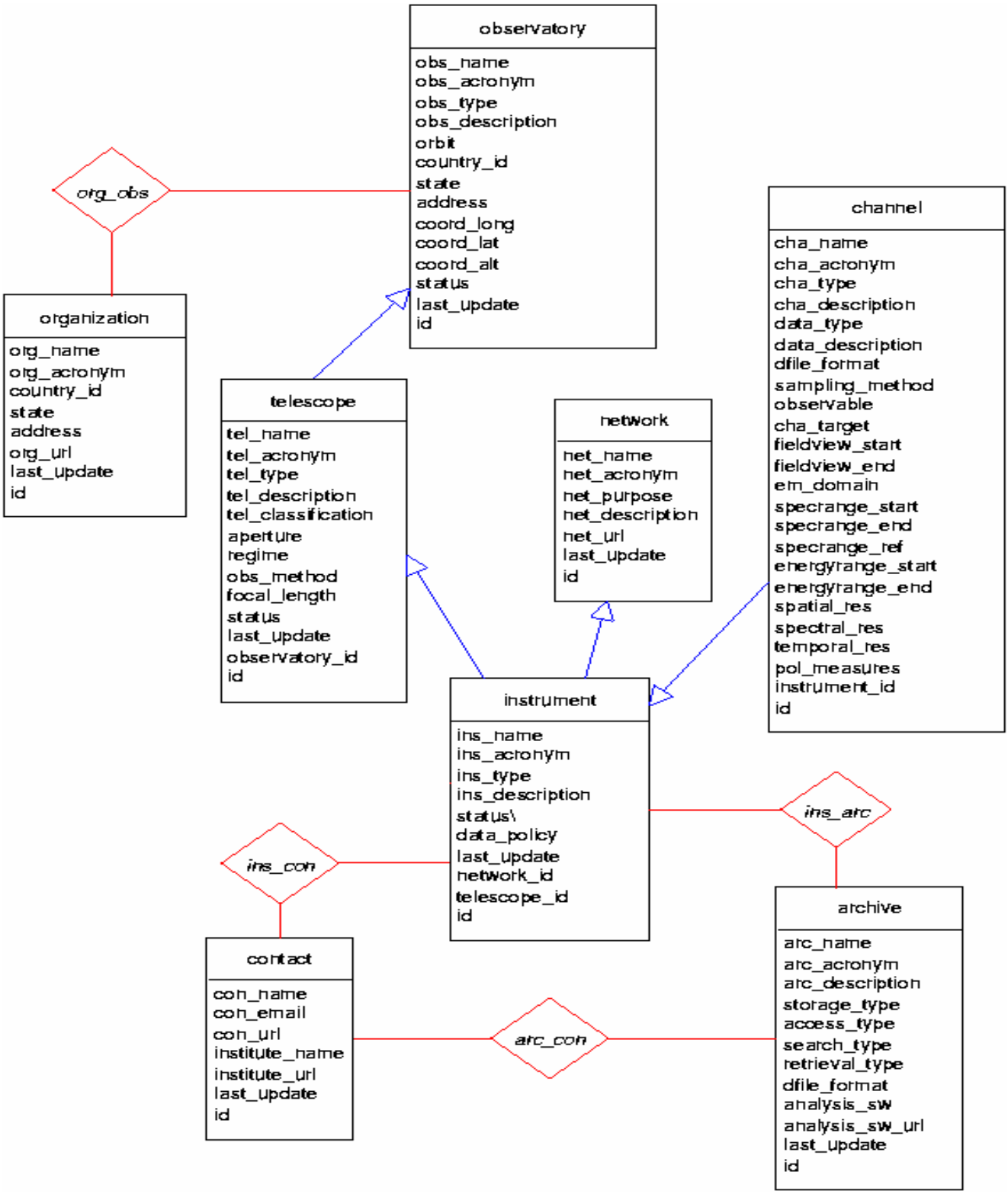


Figure 2: The DSO Entity-Relationship diagram

4 Database Architecture Specification

In this section the fields of all the tables of the database are defined. The used types for the fields in the tables of the database are:

- String
  - Varchar
  - Text
- Num
  - Integer
    - Serial
    - Timestamp
    - Interval
  - Float4

The fields more important for the filing and the search of the data are specified as "Mandatory".

4.1 Primary Tables

OBSERVATORY			
Field Name	**Data Type**	**Mandatory**	**Description**
OBS_NAME	string	yes	Observatory name
OBS_ACRONYM	string	no	Observatory acronym definition
OBS_TYPE	text	yes	Mission Type (Ground-Based, Space-Based, Balloon, etc.)
OBS_DESCRIPTION	text	no	Textual description of the observatory, it contains information not included in the other fields
ORBIT	text	no	Operational Orbit Type (GBO, LEO, L1, etc.)
COUNTRY_ID	string	no	Country where the observatory is located
ADDRESS	string	no	Observatory address
COORD_LONG	float4	no	Observatory longitude (degrees N/S)
COORD_LAT	float4	no	Observatory latitude (degrees (E/W)
COORD_ALT	float4	no	Observatory altitude
STATUS	string	yes	Observatory status at the last table update
LAST_UPDATE	timestamp	yes	Date of the last update
ID	integer	yes	Observatory ID

Note
ORBIT is a mandatory field in the case of “Space-Based” Observatory.

TELESCOPE			
Field Name	**Data Type**	**Mandatory**	**Description**
TEL_NAME	string	yes	Telescope name
TEL_ACRONYM	string	no	Telescope acronym definition
TEL_TYPE	text	no	Telescope Type (Optical Reflector, Radio Single Dish, Grazing Incidence, etc.)
TEL_DESCRIPTION	text	no	Textual description of the telescope
TEL_CLASSIFICATION	text	no	The classification of the telescope (primary, secondary, ancillary, etc.)
APERTURE	float	no	Telescope aperture
REGIME	text	yes	The class of observable measured: photons, particles, fields
OBS_METHOD	text	yes	The observation method: (remote sensing, in situ, etc.)
FOCAL_LENGTH	float	no	Telescope focal length
STATUS	string	yes	Telescope status at the last table update
LAST_UPDATE	timestamp	yes	Date of the last update
OBSERVATORY_ID	integer	yes	Observatory ID
ID	integer	yes	Telescope ID

Note
TEL_CLASSIFICATION - to distinguish among primary telescopes (i.e. real telescopes in their own right - e.g. THEMIS, Very Large Array, etc.), secondary telescopes (small telescopes, e.g. unnamed refractors, radio dishes, etc.), and ancillary telescopes (telescopes which don't really exist independently but are included to allow proper fitting to tables - e.g. UVCS, RHESSI, bolometers, etc.)

INSTRUMENT			
Field Name	**Data Type**	**Mandatory**	**Description**
INS_NAME	string	yes	Instrument name
INS_ACRONYM	string	no	Instrument acronym definition
INS_TYPE	text	no	Instrument Type (spectroheliograph, coronagraph, filtergraph, etc.)
INS_DESCRIPTION	text	no	Textual description of the instrument
STATUS	string	yes	Instrument status at the last table update
DATA_POLICY	string	no	Policy related to the scientific data distribution
LAST_UPDATE	timestamp	yes	Date of the last update
NETWORK_ID	integer	no	ID of the Network to whom the instrument belongs
TELESCOPE_ID	integer	yes	Telescope ID
ID	integer	yes	Instrument ID

CHANNEL			
Field Name	**Data Type**	**Mandatory**	**Description**
CHA_NAME	string	yes	Channel name
CHA_ACRONYM	string	no	Channel acronym definition
CHA_TYPE	text	no	Channel Type
CHA_DESCRIPTION	text	no	Textual description of the channel
DATA_TYPE	string	no	Type of data product
DATA_DESCRIPTION	text	no	Extended data description (not included into DATA_TYPE)
SAMPLING_METHOD	text	no	The method used by the channel to construct a normal dataset (imaging, scanning spectrograph, interferometry, etc.)
OBSERVABLE	text	no	The generally derivable physical observables from the channel (intensity, velocity, magnetic field, abundances, etc.)
CHA_TARGET	Text	no	Primary Channel Target (Full disk, disk region, corona)
FIELDVIEW_START	float4	no	Total Channel field of view, start point (Solar Radii)
FIELDVIEW_END	float4	no	Total Channel field of view, end point (Solar Radii)
EM_DOMAIN	text	no	EM region observed by the telescope, one from a list of possible values: X-ray, Visible, …
SPECRANGE_START	float4	no	Nominal spectral observation range of the channel, start point (nanometers)
SPECRANGE_END	float4	no	Nominal spectral observation range of the channel, end point (nanometers)
SPECRANGE_REF	float4	no	A reference or characteristic frequency for the spectral range of the channel (e.g. 304,171, etc.) (nanometers)
ENERGYRANGE_START	float4	no	Nominal energy observation range of the channel (start point) it has to take into account the energy/mass range (electronVolts)
ENERGYRANGE_END	float4	no	Nominal energy observation range of the channel, end point (electronVolts)
SPATIAL_RES	float4	no	Nominal spatial resolution of the channel

			(arcseconds)
SPECTRAL_RES	float4	no	Nominal spectral resolution of the channel (nanometers)
TEMPORAL_RES	float4	no	Minimum time resolution of the channel (seconds)
POL_MEASURES	string	no	The types of polarization measurements available for this channel (none, linear, circular, Stokes V, Full Stokes, etc.)
INSTRUMENT_ID	integer	yes	ID of the Instrument hosting the channel
ID	integer	yes	Channel ID

NETWORK			
Field Name	**Data Type**	**Mandatory**	**Description**
NET_NAME	string	yes	Network name
NET_ACRONYM	string	no	Network acronym definition
NET_PURPOSE	text	no	The primary motivation for the assembly of the network (Helioseismology, Patrol, Synoptic, etc.)
NET_DESCRIPTION	text	no	Textual description of the Network
NET_URL	text	no	URL of the Network
LAST_UPDATE	timestamp	yes	Date of the last update
ID	integer	yes	Network ID

ORGANIZATION			
Field Name	**Data Type**	**Mandatory**	**Description**
ORG_NAME	string	yes	Organization or Institute name
ORG_ACRONYM	string	no	Organization acronym definition
COUNTRY_ID	string	yes	Country where the Organization located
ADDRESS	string	no	Organization address
ORG_URL	text	no	URL of the Organization
LAST_UPDATE	timestamp	yes	Date of the last update
ID	integer	yes	Organization ID

CONTACT			
Field Name	**Data Type**	**Mandatory**	**Description**
CON_NAME	string	yes	Contact Person Name
CON_EMAIL	string	yes	Contact Person e-mail address
CON_URL	string	no	Contact Person homepage URL
INSTITUTE_NAME	text	no	Affiliation Institute of the Contact Person
INSTITUTE_URL	text	no	URL of the Affiliation Institute of the Contact Person
LAST_UPDATE	timestamp	yes	Date of the last update
ID	integer	yes	Contact ID

ARCHIVE			
Field Name	**Data Type**	**Mandatory**	**Description**
ARC_NAME	string	yes	Archive name
ARC_ACRONYM	string	no	Archive acronym definition
ARC_DESCRIPTION	text	no	Textual description of the Archive
STORAGE_TYPE	text	no	Type of Storage: on-line, near on-line, off-line
ACCESS_TYPE	string	no	Type of Authorization/Authentication needed
SEARCH_TYPE	string	yes	Possible data search, 'None': data available without any possibility of search, 'Simple': query on the observation date only, 'Advanced': complex queries are possible.
RETRIEVAL_TYPE	text	no	Data retrieval available methods (http, ftp, SOAP, …)
DFILE_FORMAT	string	no	Format of data files

ANALYSIS_SW	string	no	Availability of data analysis software
ANALYSIS_SW_URL	text	no	URL where the analysis software is available
LAST_UPDATE	timestamp	yes	Date of the last update
ID	integer	yes	Archive ID

4.2 Supplementary Tables

PERIOD_CHA			
Field Name	**Data Type**	**Mandatory**	**Description**
CHANNEL_ID	integer	yes	Channel ID
PERIOD_START	timestamp	yes	Date of the beginning of the period
PERIOD_END	timestamp	yes	Date of the end of the period

PERIOD_OBS			
Field Name	**Data Type**	**Mandatory**	**Description**
OBSERVATORY_ID	integer	yes	Observatory ID
PERIOD_START	timestamp	yes	Date of the beginning of the period
PERIOD_END	timestamp	yes	Date of the end of the period

URL_ARC			
Field Name	**Data Type**	**Mandatory**	**Description**
ARCHIVE_ID	integer	yes	Archive ID
URL	text	yes	Archive URLs

URL_INS			
Field Name	**Data Type**	**Mandatory**	**Description**
INSTRUMENT_ID	integer	yes	Instrument ID
URL	text	yes	Instrument URLs

URL_OBS			
Field Name	**Data Type**	**Mandatory**	**Description**
OBSERVATORY_ID	integer	yes	Observatory ID
URL	text	yes	Observatory URLs

URL_TEL			
Field Name	**Data Type**	**Mandatory**	**Description**
TELESCOPE_ID	integer	yes	Telescope ID
URL	text	yes	Telescope URLs

HISTORY			
Field Name	**Data Type**	**Mandatory**	**Description**
HISTORY_ID	integer	yes	History ID
TABLENAME	text	yes	Name of the table modified
RECORD_ID	integer	yes	ID of the inserted or modified row of the table TABLENAME
TIMES	timestamp	yes	Data of insertion or modification
CONTACT_ID	integer	yes	ID of the authorized contact person who made the insertion or modification
IP	text	yes	IP address where the insertion or modification came from
DESCRIPTION	text	no	Textual description of the insertion or modification

4.3 Intermediary Tables

ARC_CON			
Field Name	**Data Type**	**Mandatory**	**Description**
ARCHIVE_ID	integer	yes	Archive ID
CONTACT_ID	integer	yes	Contact ID

INS_ARC			
Field Name	**Data Type**	**Mandatory**	**Description**
INSTRUMENT_ID	integer	yes	Instrument ID
ARCHIVE_ID	integer	yes	Archive ID

INS_CON			
Field Name	**Data Type**	**Mandatory**	**Description**
INSTRUMENT_ID	integer	yes	Instrument ID
CONTACT_ID	integer	yes	Contact ID

ORG_ARC			
Field Name	**Data Type**	**Mandatory**	**Description**
ORGANIZATION_ID	integer	yes	Organization ID
ARCHIVE_ID	integer	yes	Archive ID

ORG_INS			
Field Name	**Data Type**	**Mandatory**	**Description**
ORGANIZATION_ID	integer	yes	Organization ID
INSTRUMENT_ID	integer	yes	Instrument ID

ORG_OBS			
Field Name	**Data Type**	**Mandatory**	**Description**
ORGANIZATION_ID	Integer	yes	Organization ID
OBSERVATORY_ID	Integer	yes	Observatory ID

4.4 Enumeration Tables

OBS_TYPE			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	yes	Observatory type name
ID	Integer	yes	Observatory type ID

The following table shows a preliminary list of the possible values of the field OBS_TYPE field on table OBSERVATORY:

NAME	Description
Ground-Based	Ground based Observatory
Space-Based	Space based Mission or Observatory
Balloon	Balloon Experiment
Rocket	Rocket Mission

ORBIT			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	Yes	Orbit name
ID	Integer	Yes	Orbit ID

The following table shows a preliminary list of the possible values of the field ORBIT of the table OBSERVATORY:

NAME	Description
GBO	
LEO	Low Earth Orbit
L1	Lagrangian point 1 Orbit
SPO	Solar Polar Orbit

COUNTRY			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	String	yes	Name of Country
ID	Integer	yes	Country ID

STATUS			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	yes	Type of status
ID	Integer	yes	Status ID

The following table shows a preliminary list of the possible values of the field STATUS of the tables OBSERVATORY, TELESCOPE and INSTRUMENT:

NAME	Description
Past	Entity not yet operating
Off-line	Entity not operating at the time of last update, but it can be resumed
Active	Entity (Observatory, Telescope or Instrument) operating at the time of last update
Future	Future operating entity

TEL_TYPE			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	yes	Telescope type name
ID	Integer	yes	Telescope type ID

The following table shows a preliminary list of the possible values of the field TEL_TYPE of the table TELESCOPE:

NAME	Description
Coronagraph	
Electrostatic Deflection	

Energetic Particle Sensor	
Filtergraph	
Grazing Incidence	
Grazing Incidence Spectrometer	
Imager	
Imaging Spectrograph	
Interferometer	
Magnetometer	
Normal Incidence	
Normal Incidence Spectrometer	
Optical Reflector	
Optical Refractor	
Optical Refractor	
Polarimeter	
Radio Single Dish	
Radioheliograph	
Radiometer	
Radiopolarimeter	
Radiospectrograph	
Spectro-Coronagraph	
Spectroheliograph	
Spectrometer	

TEL_CLASSIFICATION			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	yes	Telescope classification name
ID	Integer	yes	Telescope classification ID

The following table shows a preliminary list of the possible values of the field TEL_ CLASSIFICATION of the table TELESCOPE:

NAME	**Description**
Primary	Primary telescopes, i.e. real telescopes in their own right - e.g. THEMIS, Very Large Array, etc.
Secondary	Secondary telescopes, small telescopes, e.g. unnamed refractors, radio dishes, etc.
Ancillary	Ancillary telescopes, telescopes which don't really exist independently but are included to allow proper fitting to tables - e.g. UVCS, RHESSI, bolometers, etc.

OBS_METHOD			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	yes	Observation method name
ID	Integer	yes	Observation method ID

The following table shows a preliminary list of the possible values of the field OBS_METHOD of the table TELESCOPE:

NAME	**Description**
remote sensing	
In situ	

INS_TYPE			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	yes	Instrument type name
ID	Integer	yes	Instrument type ID

The following table shows a preliminary list of the possible values of the field INS_TYPE of the table INSTRUMENT:

NAME	Description
Coronagraph	
Electrostatic Deflection	
Energetic Particle Sensor	
Filtergraph	
Grazing Incidence	
Grazing Incidence Spectrometer	
Imager	
Imaging Spectrograph	
Interferometer	
Magnetometer	
Normal Incidence	
Normal Incidence Spectrometer	
Optical Reflector	
Optical Refractor	
Optical Refractor	
Polarimeter	
Radio Single Dish	
Radioheliograph	
Radiometer	
Radiopolarimeter	
Radiospectrograph	
Spectro-Coronagraph	
Spectroheliograph	
Spectrometer	

CHA_TYPE			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	yes	Channel type name
ID	Integer	yes	Channel type ID

The following table shows a preliminary list of the possible values of the field CHA_TYPE of the table CHANNEL:

NAME	Description
Coronagraph	
Electrostatic Deflection	
Energetic Particle Sensor	
Filtergraph	
Grazing Incidence	
Grazing Incidence Spectrometer	
Imager	
Imaging Spectrograph	
Interferometer	
Magnetometer	
Normal Incidence	
Normal Incidence Spectrometer	
Optical Reflector	
Optical Refractor	
Optical Refractor	
Polarimeter	
Radio Single Dish	
Radioheliograph	
Radiometer	
Radiopolarimeter	
Radiospectrograph	
Spectro-Coronagraph	
Spectroheliograph	

Spectrometer	

DFILE_FORMAT			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	yes	Data type name
ID	Integer	yes	Data type ID

The following table shows a preliminary list of the possible values of the field DFILE_FORMAT of the tables CHANNEL and ARCHIVE:

NAME	**Description**
FITS	
CDF	
HDF	
ASCII	
GIF	
Binary	

OBSERVABLE			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	yes	Observable name
ID	Integer	yes	Observable ID

The following table shows a preliminary list of the possible values of the field OBSERVABLE of the table CHANNEL:

NAME	**Description**
Intensity flux	
Spectral intensity	
Line intensity	
Continuum intensity	
Total irradiance	
Spectral irradiance	
Doppler velocity	
Vector magnetic field	
Longitudinal magnetic field	
Abundances	
Stokes I,Q,U,V	
Particle flux	
Radio flux	
Particle velocity	
Acoustic power	
Oscillation parameters	

EM_DOMAIN			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	yes	EM Region name
ID	Integer	yes	EM Region ID

The following table shows the list of the possible values of the field EM_DOMAIN of the table CHANNEL:

NAME	**Description**
Gamma ray	
X-ray	
Extreme Ultraviolet	
Ultraviolet	
Visible	
Near Infrared	
Far Infrared	
Radio	

CHA_TARGET			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	yes	Target name
ID	Integer	yes	Target ID

The following table shows a preliminary list of the possible values of the field CHA_TARGET of the table CHANNEL:

NAME	Description
Full Sun/Full Disk	
Disk Region	
Disk Center	
Photosphere	
Chromosphere	
Transition Region	
Solar Limb	
Corona	
Low Corona	
Extended Corona	
Full Sky	
Solar Wind	

STORAGE_TYPE			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	yes	Storage type name
ID	Integer	yes	Storage type

The following table shows a preliminary list of the possible values of the field STORAGE_TYPE of the table ARCHIVE:

NAME	Description
On-line	
Near on-line	
Off-line	

SEARCH_TYPE			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	yes	Archive search type name
ID	Integer	yes	Search type ID

The following table shows a preliminary list of the possible values of the field SEARCH_TYPE of the table ARCHIVE:

NAME	Description
None	data available without any possibility of search
Simple	query available on the observation date only
Advance	complex queries are available

RETRIEVAL_TYPE			
Field Name	**Data Type**	**Mandatory**	**Description**
NAME	Text	yes	Archive data retrieval type name
ID	Integer	yes	Data retrieval type ID

The following table shows a preliminary list of the possible values of the field RETRIEVAL_TYPE of the table ARCHIVE:

NAME	Description
http	
ftp	
SOAP	

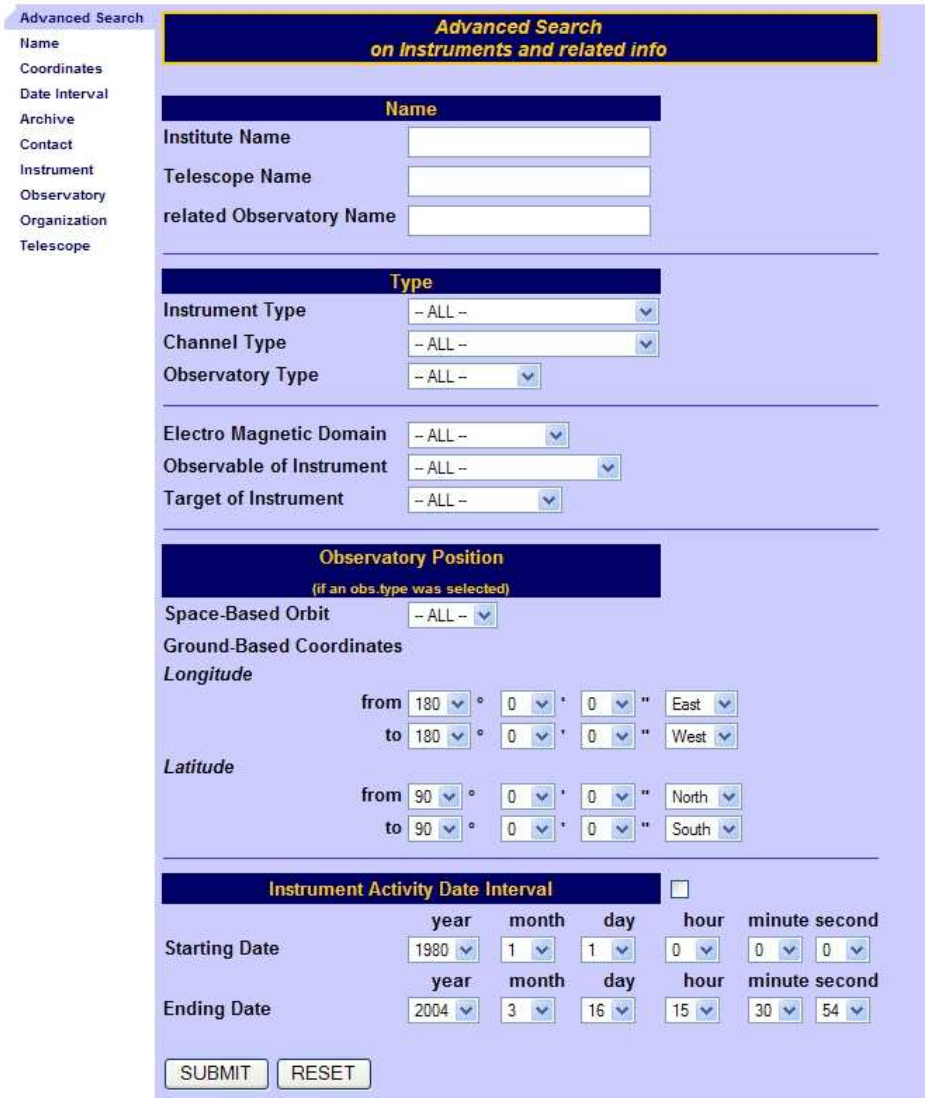
4.5 DSO Search Tool

The search allows a joint query for the following parameters:

1. Advanced Search
2. Name
3. Coordinates
4. Date Interval
5. Archive
6. Contact
7. Instrument
8. Observatory
9. Organization
10. Telescope

1. Advanced Search

select name, type, observatory position, instrument activity date interval (optional)



Search on:
INS_NAME field of INSTRUMENT table
TEL_NAME field of TELESCOPE table

OBS_NAME field of OBSERVATORY table
INS_TYPE field of INSTRUMENT table
CHA_TYPE field of CHANNEL table
OBS_TYPE field of OBSERVATORY table
EM_DOMAIN field of CHANNEL table
OBSERVABLE field of CHANNEL table
CHA_TARGET field of CHANNEL table
ORBIT field of OBSERVATORY table
COORD_LONG and COORD_LAT fields of OBSERVATORY table
PERIOD_START and PERIOD_END fields of PERIOD_CHA table

2. Name

select the name or the acronym of observatory, instrument and channel

Search on:
OBS_NAME field of OBSERVATORY table
INS_NAME field of INSTRUMENT table
CHA_NAME field of CHANNEL table

3. Coordinates

select the geographical coordinates of observatory

Search on:
COORD_LONG and COORD_LAT fields of OBSERVATORY table

4. **Date Interval**

select the operating period of instrument, the instrument type (optional) and the observatory type (optional)

Search on:
PERIOD_START and PERIOD_END fields of PERIOD_CHA table and
INS_TYPE field of INSTRUMENT table and
OBS_TYPE field of OBSERVATORY table

5. **Archive**

select the archive information

Search on:
ARC_NAME, ARC_ACRONYM, ARC_DESCRIPTION, STORAGE_TYPE, ACCESS_TYPE, SEARCH_TYPE, RETRIEVAL_TYPE, DFILE_FORMAT and ANALYSIS_SW fields of ARCHIVE table

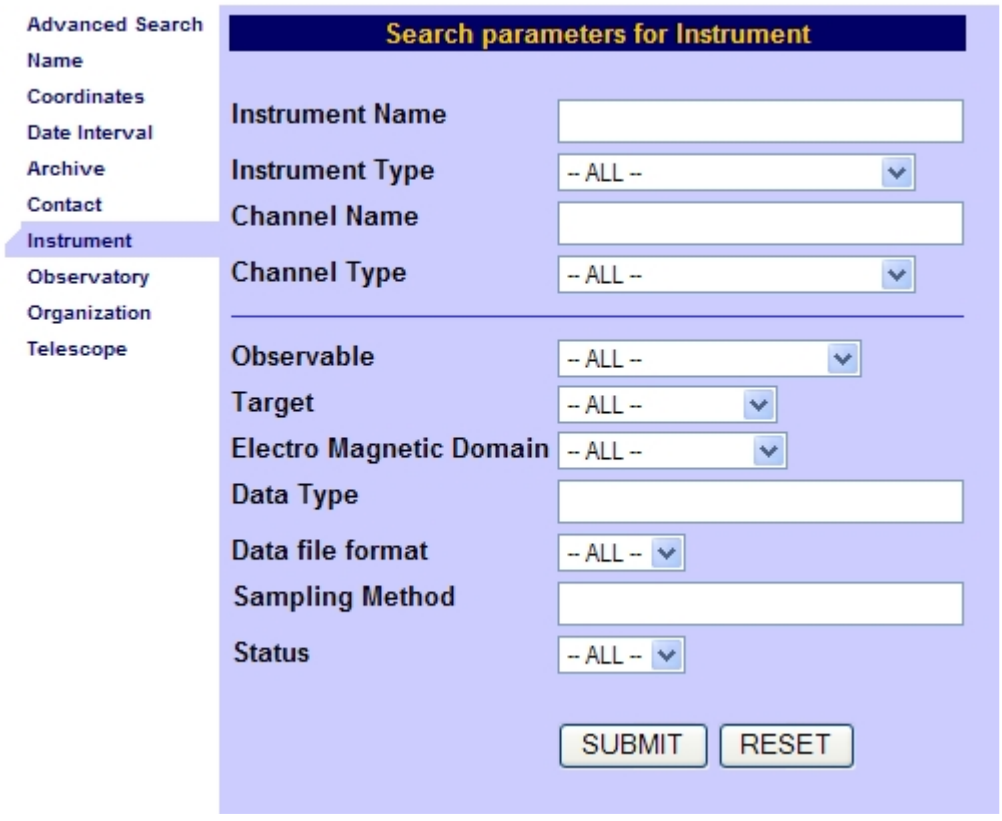
6. **Contact**

select the contact name and the contact institute

Search on:
CON_NAME and INSTITUTE_NAME fields of CONTACT table

7. **Instrument**

select the instrument and the relative channel information



Search on:
INS_NAME, INS_TYPE and STATUS fields of INSTRUMENT table and
CHA_NAME, CHA_TYPE, OBSERVABLE, CHA_TARGET, EM_DOMAIN, DATA_TYPE, DFILE_FORMAT and SAMPLING_METHOD fields of CHANNEL table

8. **Observatory**

select the observatory information

Search on:
OBS_NAME, OBS_ACRONYM, OBS_TYPE, OBS_DESCRIPTION, ORBIT, COUNTRY_ID and STATUS fields of OBSERVATORY table

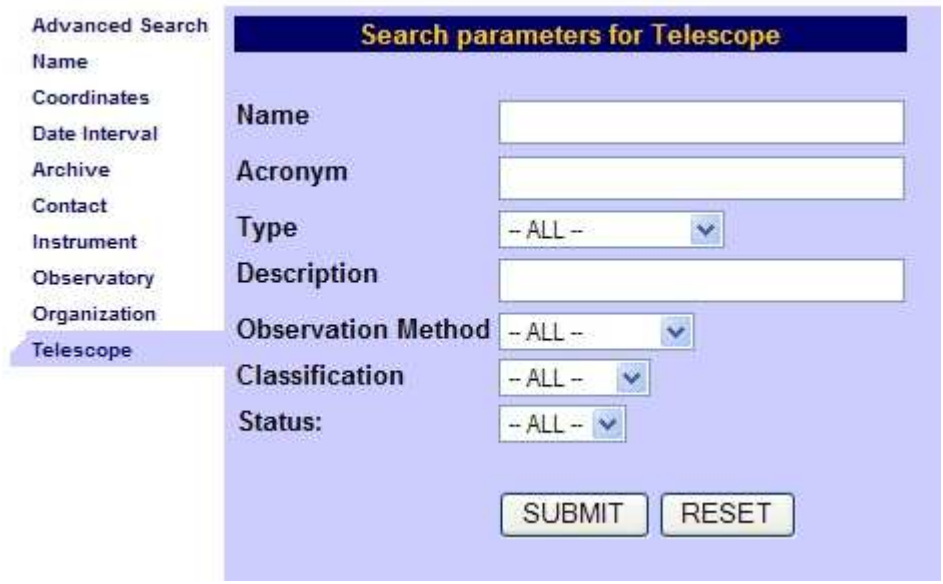
9. **Organization**

select the organization information

Search the string typed in the box on the following fields:
ORG_NAME, ORG_ACRONYM and COUNTRY_ID fields of ORGANIZATION table

10. Telescope

select the telescope information



Search on:
TEL_NAME, TEL_ACRONYM, TEL_TYPE, TEL_DESCRIPTION, OBS_METHOD, TEL_CLASSIFICATION and STATUS fields of TELESCOPE table

4.6 DSO Search Tool Results

The primary results of the query is presented in a table, which contains a list of fields extracted from the tables used for the search.

<ATTRIB_01>	<ATTRIB_02>	<ATTRIB_03>	<...>	More

The last column of the table (More) gives the link to the complete description of the instrument, through that link the description of the parent observatory and telescope and of the relative channels, archives and contacts are displayed.

As example the following snapshots show the results of a query on the Instrument's Channels that observe on the "Ultraviolet" Electromagnetic Domain and the information on the OVI channel of the UVCS instrument.

Instrument	ins.Type	Channel	ch.Type	observable	electro magnetic domain	...	#
Global Oscillations at Low Frequencies		Global Oscillations at Low Frequencies		Oscillation parameters	Visible	more...	1
Large Angle and Spectroscopic Coronagraph	Coronagraph	C1	Coronagraph	Line intensity	Visible	more...	2
Large Angle and Spectroscopic Coronagraph	Coronagraph	C2	Coronagraph	Line intensity	Visible	more...	3
Large Angle and Spectroscopic Coronagraph	Coronagraph	C3	Coronagraph	Line intensity	Visible	more...	4
Michelson Doppler Imager-Solar Oscillations Investigation		Michelson Doppler Imager/Solar Oscillations Investigation		Continuum intensity	Visible	more...	5
UltraViolet Coronagraph Spectrometer	Coronagraph	White Light Channel	Polarimeter	Stokes I,Q,U,V	Visible	more...	6
Variability of Solar Irradiance and Gravity Oscillations		Variability of Solar Irradiance and Gravity Oscillations		Total irradiance	Visible	more...	7

Printable Version

Search parameters for Instrument

Instrument Name

Instrument Type

Channel Name

Channel Type

Observable

Target

Electro Magnetic Domain Visible

Data Type

Data file format

Sampling Method

Status

SUBMIT RESET

... More Info:

Table Name: *instrument*

INS_NAME	Global Oscillations at Low Frequencies
INS_ACRONYM	GOLF
INS_TYPE	
INS_DESCRIPTION	filter band of 17 A centered on the Na D lines
DATA_POLICY	
STATUS	Active
TELESCOPE_ID	9
NETWORK_ID	
LAST_UPDATE	2004-01-15 12:00:00
Printable Version	

Related Telescope:

- Global Oscillations at Low Frequencies GOLF

Related Observatory:

- SOlar and Heliospheric Observatory SOHO

Related Channels:

- Global Oscillations at Low Frequencies

Related Archives:

- SOho Long-term ARchive
- MEDOC Solar Archive
- RAL SOHO Archive
- GSFC SOHO Archive

Related Contacts:

- A. Gabriel

Related Organizations:

Links:

- http://www.medoc-ias.u-psud.fr/golf/

Return to previous results

BACK

or Make another Search

5 Appendix

The present population of the DSO, for what concern the Space-Based Observatory, is to be intended for system test purposes, it includes the Mission, with related instrumentation showed in the following table:

Observatory	Telescope	Instrument	Channel
ACE			
P78-1			
RHESSI			
Skylab			
SOHO	LASCO	LASCO	C1
			C2
			C3
	GOLF	GOLF	GOLF
	MDI	MDI	MDI
	SUMER	SUMER	SUMER
	SWAN	SWAN	SWAN
	VIRGO	VIRGO	VIRGO
	EIT	EIT	He II
			Fe IX-X
			Fe XII
			Fe XV
	CDS	CDS	GIS
			NIS
	COSTEP	COSTEP	COSTEP
	CELIAS	CELIAS	CELIAS
	UVCS	UVCS	LYA
			OVI
			WLC
	ERNE	ERNE	ERNE
SMM			
Spacelab 2			
Spartan 201-1			
Spartan 201-3			
Spartan 201-3			
TRACE			
Ulysses			
Yohkoh	HXT	HXT	HXT
	BCS	BCS	BCS
	WBS	WBS	WBS
	SXT	SXT	SXT