FP7 HELCATS – Helsinki Meeting WP8 Dissemination

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Overview

- Aim of the dissemination activity WP8 is to support the other work packages and the project as a whole in getting the results of the HELCATS work to broader heliospheric community and other interested parties outside the project.

- Runs from month 1 to month 36
  - Five tasks
  - Eight formal deliverables

- The consortium web site and wiki are key resources for the dissemination activities.

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Tasks

T8.1: To publish the results of the studies in the professional literature, and present them at major international science meetings.

Work Package 4:

VERIFYING THE KINEMATIC PROPERTIES OF STEREO/HI CMES AGAINST IN-SITU CME OBSERVATIONS AND CORONAL SOURCES

Authors	title	Reference	doi:
Good, S. W., R.J. Forsyth, J.M. Raines, D.J. Gershman, J.A. Slavin & T.H. Zurbuchen	Radial Evolution of a Magnetic Cloud: MESSENGER, STEREO, and Venus Express Observations	S.W. Good et al. 2015 ApJ 807, 177	doi:10.1088/0004-637X/807/2/177
Good, S. W. et al.,	Interplanetary Coronal Mass Ejections observed by MESSENGER and Venus Express	Solar Physics, submitted, 2015	
Mays, M. L., Thompson, B. J., Jian, L. K., Colaninno, R. C., Odstrcil, D., Mostl, C., Temmer, M., Savani, N. P., Taktakishvili, A., MacNeice, P. J., & Zheng, Y.	Propagation of the 7 January 2014 CME and Resulting Geomagnetic Non-Event	The Astrophysical Journal, in press, 2015	
Mostl, C., Rollett, T., Vrsnak, B.	Strong coronal channelling and interplanetary evolution of a solar storm up to Earth and Mars	Nature Communications 6, 7135 (2015)	doi: 10.1038/ncomms8135
Rollett T., C. Mostl, M. Temmer, R. A. Frahm, J. A. Davies, A. M. Veronig, B. Vrsnak, U. V. Amerstorfer, C. J. Farrugia, T. Zic, and T. L. Zhang	Combined multipoint remote and in situ observations of the asymetric evolution of a fast solar coronal mass ejection	T. Rollett et al. 2014 ApJ 790 L6	doi:10.1088/2041-8205/790/1/L6
Ruffenach A., B. Lavraud, C. J. Farrugia, P. Demoulin, S. Dasso, M. J. Owens, J.-A. Sauvaud, A. P. Rouillard, A. Lynnyk, C. Foullon, N. P. Savani, J. G. Luhmann and A. B. Galvin	Statistical study of magnetic cloud erosion by magnetic reconnection	A. Ruffenach et al. 2015 J. Geophys. Res. Space Physics, 120, 43-60	doi:10.1002/2014JA020628

Tasks

Work Package 5:

PRODUCING A DEFINITIVE CATALOGUE OF CIRS IMAGED BY STEREO/HI THAT INCLUDES VERIFIED MODEL-DERIVED KINEMATIC PROPERTIES

Authors	title	Reference	doi:
Sanchez-Diaz E., K. Segura, A. P. Rouillard, B. Lavraud, and T. Chihiro	The very slow solar wind: origin, variability and properties	to be submitted to GRL, 2015	-
Plotnikov I., A. P. Rouillard, and R. Pinto	Using heliospheric imaging to predict the arrival time of CIRs at various points in the inner heliosphere	to be submitted to Space Weather Journal, 2015	-

Work Package 6:

INITIALISING ADVANCED NUMERICAL MODELS BASED ON THE KINETIC PROPERTIES OF STEREO/HI CMES AND CIRS

Authors	title	Reference	doi:
Pinto R., A.P. Rouillard, Y.-M. Wang, R. Grappin	The acceleration of the solar wind along magnetic flux tubes of varying geometries	to be submitted to Astrophys. J	-
Rouillard A.P., R. Pinto, I. Plotnikov	The expansion of coronal pressure waves in 3-D during Coronal Mass Ejections	to be submitted to Astrophysical Journal	-

- Please let us know papers in preparation, submitted or in print so we can keep the online list up-to-date.
- Project funds available for publication and open access charges.

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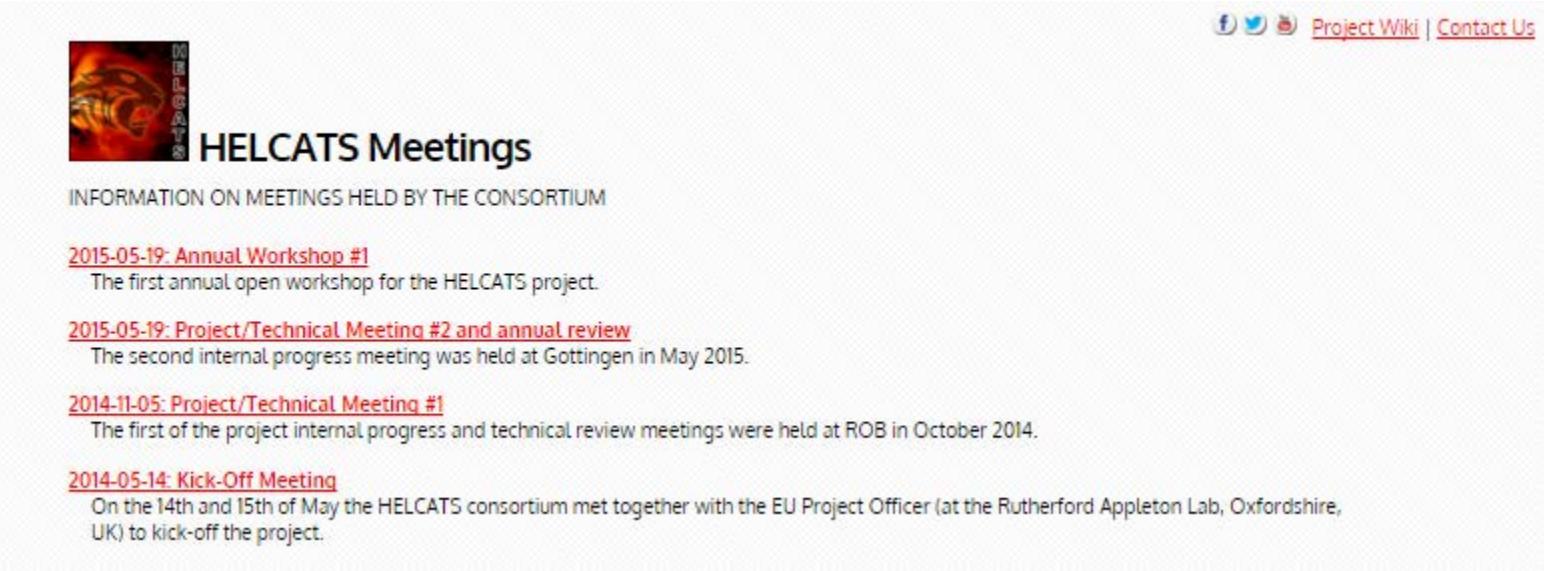
Tasks

T8.2: To arrange annual, open meetings for the scientific community during the lifetime of the project.

Status:

- Very successful first open workshop hosted Georg-August-University of Göttingen
- Presentations of both consortium and open meetings are on the web site



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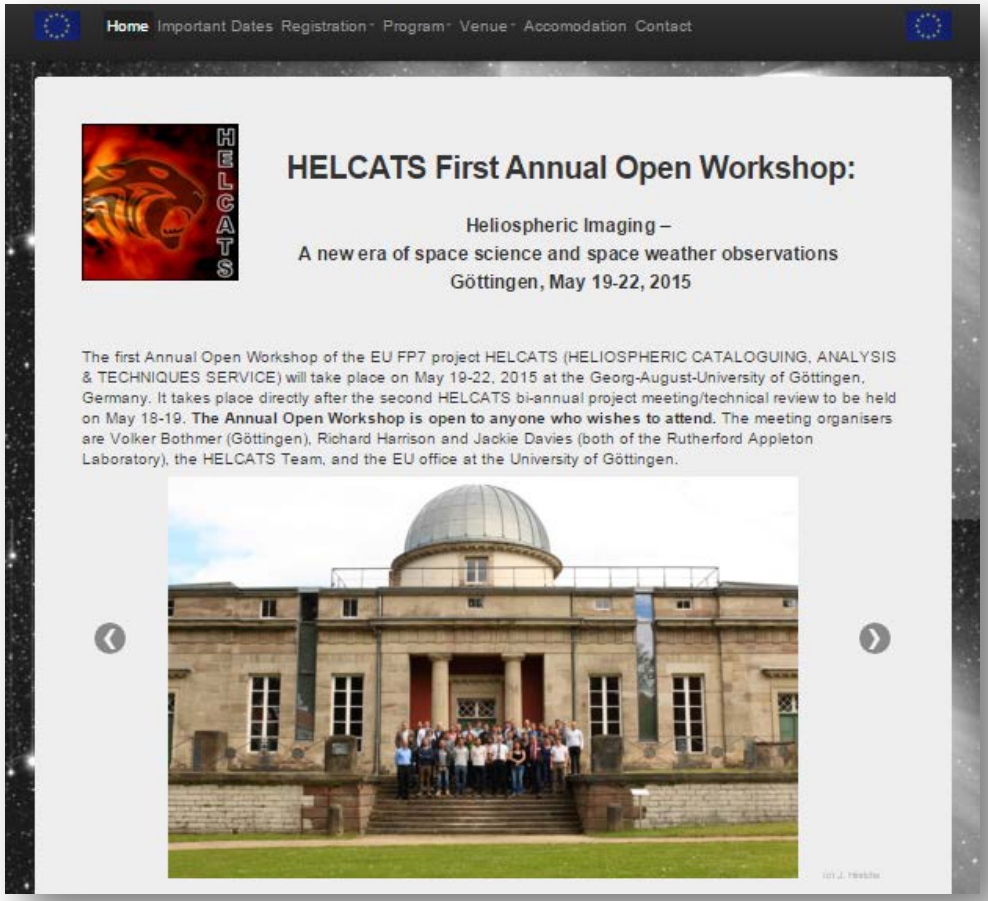
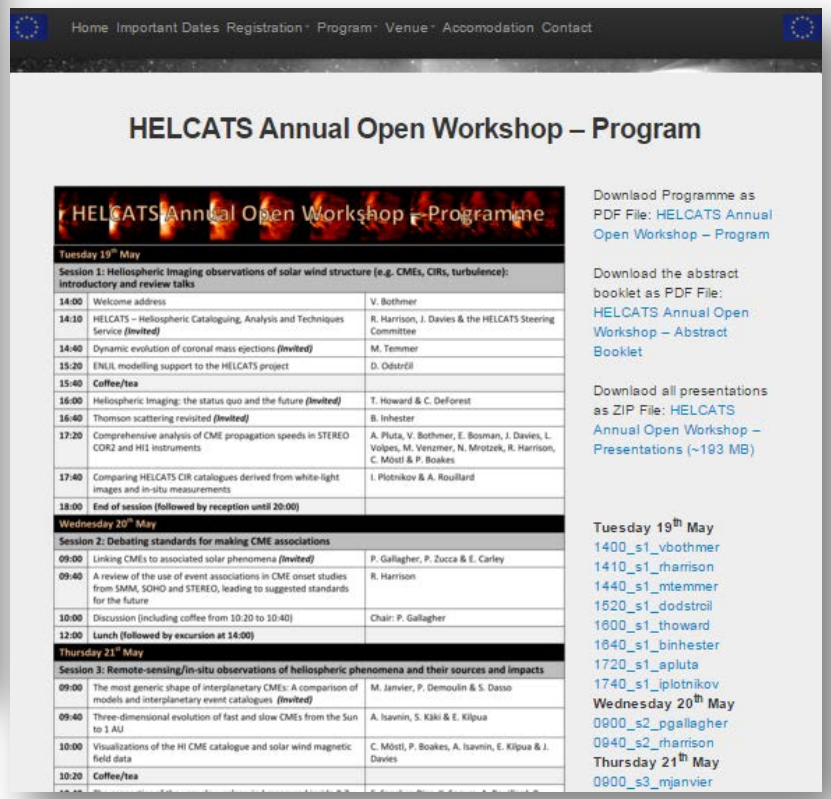
D8.2 Annual Workshop





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Contents

Introduction
Agenda
Actions/Announcements

Second bi-annual HELCATS project Meeting

THE CONSORTIUM AND EU MEET TO DISCUSS PROGRESS ON THE HELCATS PROJECT

The second bi-annual project meeting was held May 2015 at Georg-August-Universität, Göttingen just prior to HELCAT's first annual meeting at the same location. This was also the first review meeting for the project and was attended by the EU project officer and external reviewer.

Each of the work package leaders presented the current status of activities and good progress was seen to have been made with all workpackages now having been kicked-off.

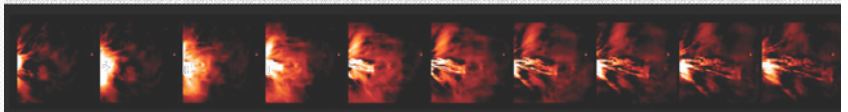
Minutes of Meeting PDF

Agenda

The meeting agenda is shown below. Follow the links to download copies of the individual presentations.

Monday 18th May 2015		
Time	**Presentation**	**Presenter**
14:00 – 14:10	Welcome and Introduction	V.Bothmer
14:10 – 14:20	EC perspective	S.Mekaoui
WP1: management		
14:20 – 14:40	Overview including general HELCATS status PDF	R.Harrison (WP1 lead)
WP2: producing a definitive catalogue of CMEs imaged by STEREO/HI		
14:40 – 14:50	Overview PDF	J.Davies (WP2 lead)
14:50 – 15:00	Manual CME identification PDF	J.Byrne
15:00 – 15:10	Automatic CME identification PDF	L.Rodriguez
15:10 – 15:20	HI – COR2 catalogue comparison PDF	V.Bothmer
WP3: deriving/cataloguing the kinetic properties of STEREO/HI CMEs based on geometrical and forward modelling		
15:20 – 15:30	Overview PDF	V.Bothmer
15:30 – 15:40	Forward modelling and CME kinematics PDF	A.Pluta
15:40 – 16:10	Coffee/tea	
16:10 – 16:20	Geometrical modelling PDF	D.Barnes
16:20 – 16:30	Inverse modelling	P. Gallagher - cancelled
WP4: verifying the kinematic properties of STEREO/HI CMEs against in-situ CME observations and coronal sources		
16:30 – 16:40	Overview PDF	C.Möstl (WP4 lead)
16:40 – 16:50	Lowcat – the low coronal event catalogue PDF	V.Bothmer
16:50 – 17:00	In-situ comparison PDF	E.Kilpua
WP5: producing a definitive catalogue of CIRs imaged by STEREO/HI that includes verified model-derived kinematic properties		
17:00 – 17:15	Overview PDF	A.Rouillard (WP5 lead)
17:15 – 17:30	Update on the CIR catalogue PDF	I.Plotnikov

Tuesday 19th May 2015		
Time	**Presentation**	**Presenter**
WP6: initialising advanced numerical models based on the kinetic properties of STEREO/HI CMEs and CIRs		
09:00 – 09:15	Overview PDF	A.Rouillard (WP6 lead)
09:15 – 09:30	Preparing boundary conditions for ENLIL PDF	R.Pinto
WP7: assessing the complementary nature of radio measurements of solar wind transients		
09:30 – 09:40	Overview PDF	J.Eastwood* (WP7 lead)
09:40 – 09:50	Type II PDF	J.Eastwood*
09:50 – 10:00	IPS PDF	M.Bisi
WP8: dissemination		
10:00 – 10:10	Overview PDF	C. Perry (WP8 lead)
10:10 – 10:20	STFC PDF	C. Perry
10:20 – 10:50	Coffee/tea	
10:50 – 11:00	UPS/CNRS PDF	A.Rouillard
Final comments		
11:00 – 11:15	Reviewer impressions	B.Schmieder
11:15 – 12:00	General discussions	Chair: R. Harrison



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 606692

Design: TEMPLATED. Adapted by the HELCATS consortium. *Last updated Friday, 07-Aug-2015 11:21:46 BST*

Tasks

T8.3: To install all relevant documents, catalogues, publications on the project website.

Status: (updates since last workshop)

- Formal release of V02 (2015-07-22) of the WP2 catalogue
  - DOI: 10.6084/m9.figshare.1492351
- WP3 kinematic properties catalogue has been added.
  - Based on V02 WP2 catalogue
  - Currently in draft (2015-09-30), some minor tweaks to VOT header needed
  - 2014 data complete -> next release of WP2 & WP3 (V03) almost ready
- Images, J-maps & Time elongation profiles created but update to datatables library needed to make them accessible by clicking on table rows.
- WP3 KINCAT – catalogue from UGOE translated (pre-release)
- Update to WP4 catalogue based on WP3 V02 expected soon
- WP5 CIR catalogue in propagation tool will be added to HELCATS web site ASAP
- Investigating a web “map” of catalogues prompted by Emila’s example

Tasks

Catalogues released in several formats (ASCII, JSON and VOTable)
Done for WP2, WP3 HI kinematics and KINCAT to be done for WP4 and WP5

Note: Display on web site automatically removes ‘bad’ quality events but these are included in the full file downloads

Fixed format ASCII

HCME_B__20070415_01 2007-04-15T04:10Z B 285 245 poor
HCME_A__20070417_01 2007-04-17T16:50Z A 105 125 poor
HCME_A__20070419_01 2007-04-19T13:30Z A 40 140 good

JSON (useful for web client access)

{ "columns" : ["ID", "Date [UTC]", "SC", "L:N", "PA-N [deg]", "L:S", "PA-S [deg]", "Quality"], "data" : [["HCME_B__20070415_01", "2007-04-15 04:10", "B", "", "285", "", "245", "poor"] , ["HCME_A__20070417_01", "2007-04-17 16:50", "A", "", "105", "", "125", "poor"] , ["HCME_A__20070419_01", "2007-04-19 13:30", "A", "", "40", "", "140", "good"]

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VOTable (XML, IVOA standard)

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```
<VOTABLE xmlns="http://www.ivoa.net/xml/VOTable/v1.2" version="1.2">
 <RESOURCE name="HCME_WP2_V02">
  <TABLE name="HCME_WP2_V02">
   <DESCRIPTION>
    HELCATS STEREO Manual CME Detection Catalogue (WP2)
   </DESCRIPTION>
   <FIELD name="ID" ID="col1" ucd="meta.record" datatype="char" arraysize="19*">
    <DESCRIPTION>The unique identifer for the observed CME</DESCRIPTION>
   </FIELD>
   <FIELD name="Date" ID="col2" ucd="time.crossing" datatype="char" arraysize="17*" xtype="iso8601">
    <DESCRIPTION>
     The date and time of the first observation of the CME in HI1 camera
    </DESCRIPTION>
   </FIELD>
   <FIELD name="SC" ID="col3" ucd="instr" datatype="char" arraysize="1*">
    <DESCRIPTION>
     The observing STEREO spacecraft, (A=Ahead or B=Behind)
    </DESCRIPTION>
   </FIELD>
   <FIELD name="L:N" ID="col4" ucd="meta.code" datatype="char" arraysize="1*">
    <DESCRIPTION>
     Indicator that CME extends beyond the northern edge of the field-of-view
    </DESCRIPTION>
   </FIELD>
   <FIELD name="PA-N" ID="col5" ucd="pos.posAng" datatype="int" width="3" units="deg">
    <DESCRIPTION>The most northern position angle of the CME span</DESCRIPTION>
   </FIELD>
   <FIELD name="L:S" ID="col6" ucd="meta.code" datatype="char" arraysize="1*">
    <DESCRIPTION>The most northern position angle of the CME span</DESCRIPTION>
   </FIELD>
   <FIELD name="PA-S" ID="col7" ucd="pos.posAng" datatype="int" width="3" units="deg">
    <DESCRIPTION>The most southern position angle of the CME span</DESCRIPTION>
   </FIELD>
   <FIELD name="Quality" ID="col8" ucd="meta.note" datatype="char" arraysize="4*">
    <DESCRIPTION>
     A measure of Good, Fair or Poor, that indicates the quality of the CME observation and confidence that the eruption is by
     definition a CME
    </DESCRIPTION>
   </FIELD>
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    <TABLEDATA>
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      <TD>B</TD>
      <TD/>
      <TD>285</TD>
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      <TD>245</TD>
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     </TR>
     <TR>
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      <TD>2007-04-17T16:50Z</TD>
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TOPCAT

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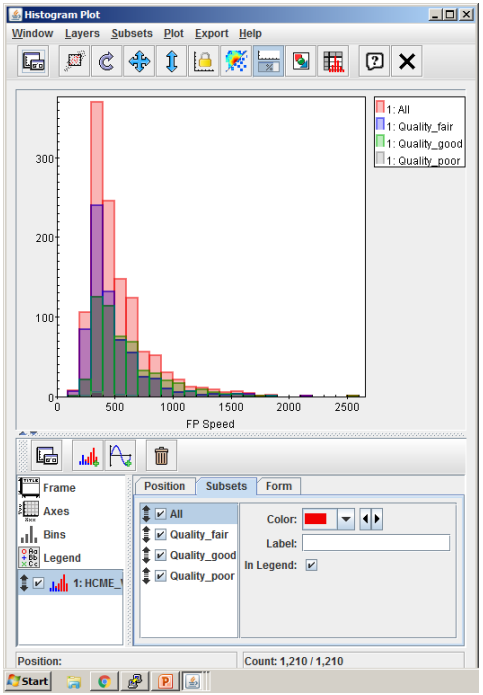

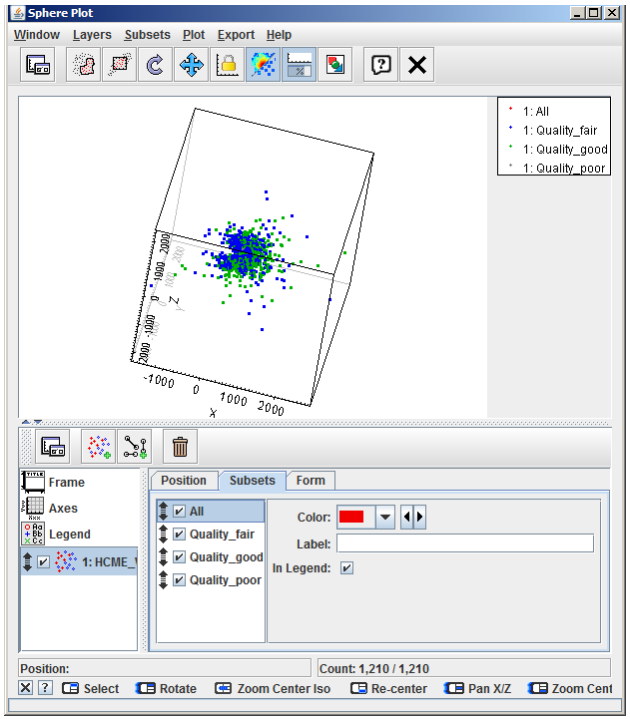

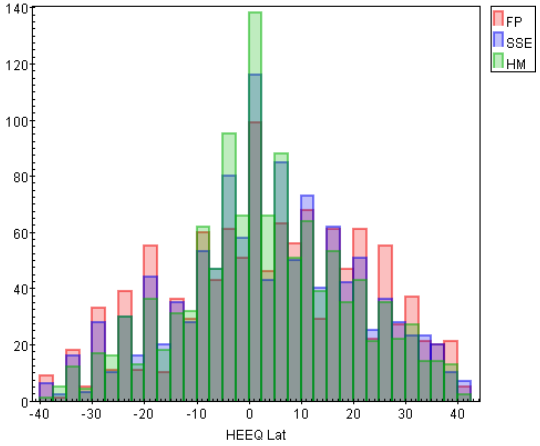

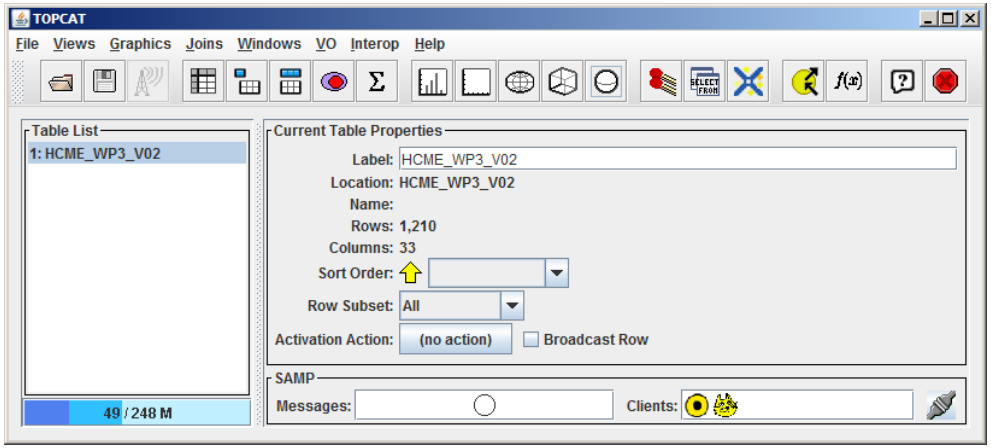

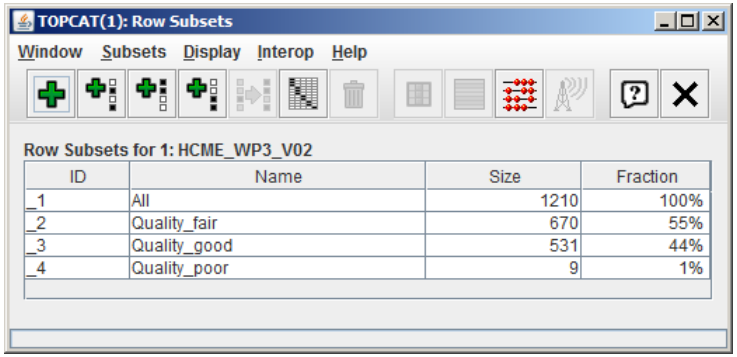

ID	Name	Size	Fraction
_1	All	1210	100%
_2	Quality_fair	670	55%
_3	Quality_good	531	44%
_4	Quality_poor	9	1%

PYTHON Example

Examples provided in the release notes demonstrating accessing catalogues directly from the web site (for example in Python).

```
>>> import urllib2, json
>>> url='http://www.helcats-fp7.eu/catalogues/data/HCME_WP2_V02.json'
>>> stream=urllib2.build_opener().open(urllib2.Request(url))
>>> cat2=json.load(stream)
>>> stream.close()
>>>
>>> cat2['data'][0]
[ "HCME_B__20070415_01", "2007-04-15 04:10", "B", "", "285",  "", "245", "poor" ]
```

Additional Q & A and tools will be added as time permits

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Tasks

T8.4: To integrate into relevant, established community facilities and websites, including the IRAP propagation tool, the AMDA data-mining tool, HELIO and the UKSSDC.

Status:

- Activity ongoing as stable versions of catalogues are now starting to be released
- See next presentation for status of IRAP tools

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Tasks

T8.5: To disseminate information and results to the public and policy makers.

Status:

- Presentations promoting HELCATS are being made at various external meetings (including ESWW, AGU etc)
- Visibility of project made (e.g. in context of ESA SSA)
- Use of social media (twitter, facebook etc)

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Deliverables

Work Package 8:

DISSEMINATION

Deliverable Number	Deliverable Title	Leader	Delivery Month
D8.1	Publication in the professional scientific literature	STFC	36
D8.2	Annual open meetings	STFC	36
D8.3	Attendance/presentations at major science meetings	STFC	36
D8.4	Posting information on the website	STFC	36
D8.5	Integration with community facilities and websites	STFC	36
D8.6	Production of press releases, public talks	STFC	36
D8.7	Integrate the J-map associated catalogues produced in HELCATS to the propagation tool	UPS	36
D8.8	Integrate Carrington Map associated catalogues in the propagation tool	UPS	36

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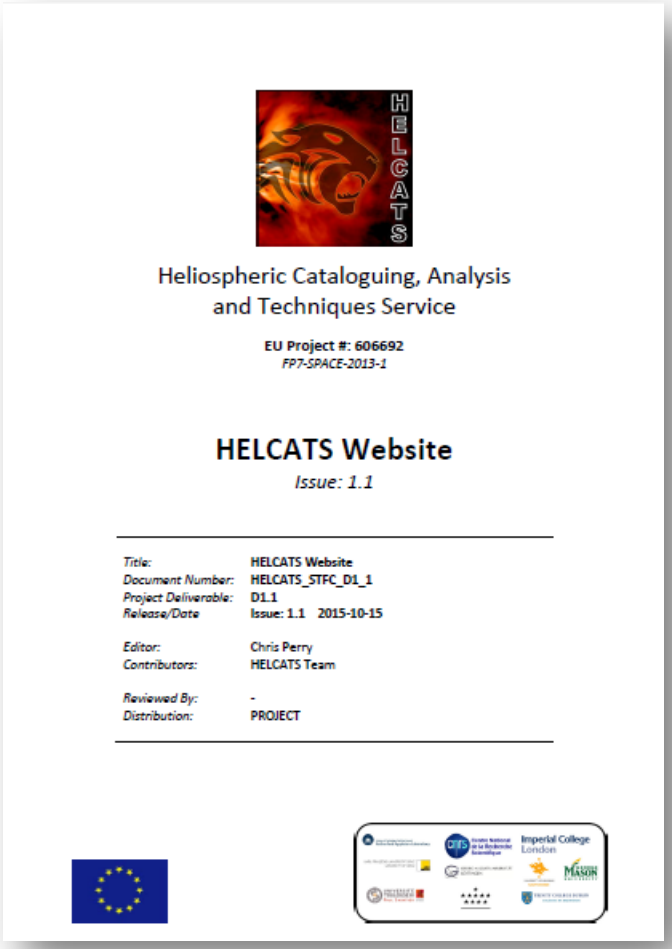
Deliverables

Web site summary document



Heliospheric Cataloguing, Analysis and Techniques Service

EU Project #: 606692
FP7-SPACE-2013-1

HELCATS Website
Issue: 1.1

Title:	**HELCATS Website**
Document Number:	**HELCATS_STFC_D1_1**
Project Deliverable:	**D1.1**
Release/Date	**Issue: 1.1 2015-10-15**
Editor:	Chris Perry
Contributors:	**HELCATS Team**
Reviewed By:	-
Distribution:	**PROJECT**

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Configuration control

The HELCATS wiki has code/documentation configuration control (via SVN) and ticketing system (via Trac).

- Teams are encouraged to put their codes and internal documentation onto the wiki
  - Good practice for keeping a record of what has been done
  - Encourages re-use of software modules
  - Provides a consistent way to handle issues, updates and testing.

- Jason has set-up and populated the software tree for the WP2 and WP3 catalogue activities undertaken at RAL

- If you need any support uploading your code or documents please contact Jason, Matthew or Chris.

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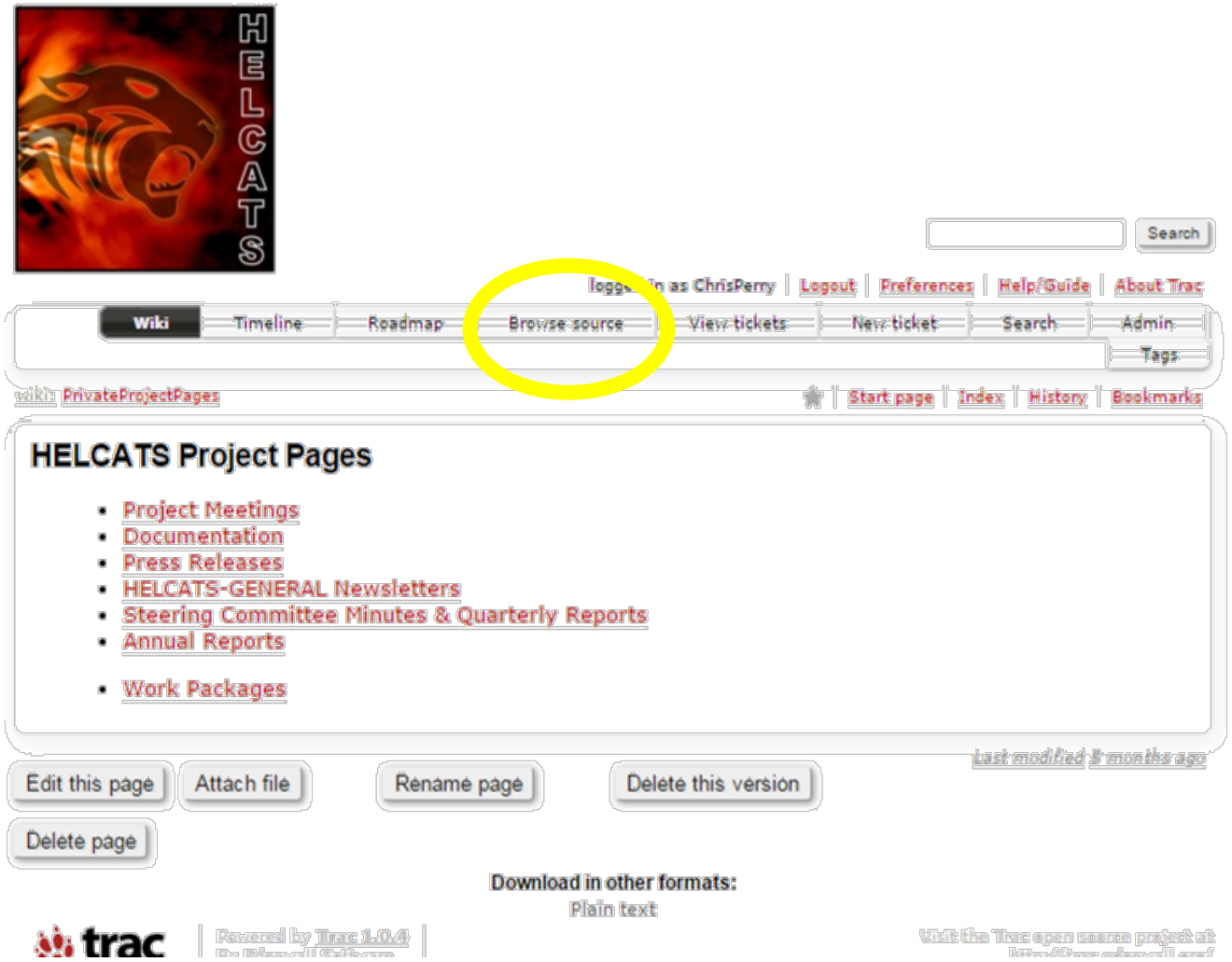
- Login to wiki to get access to the configuration control system



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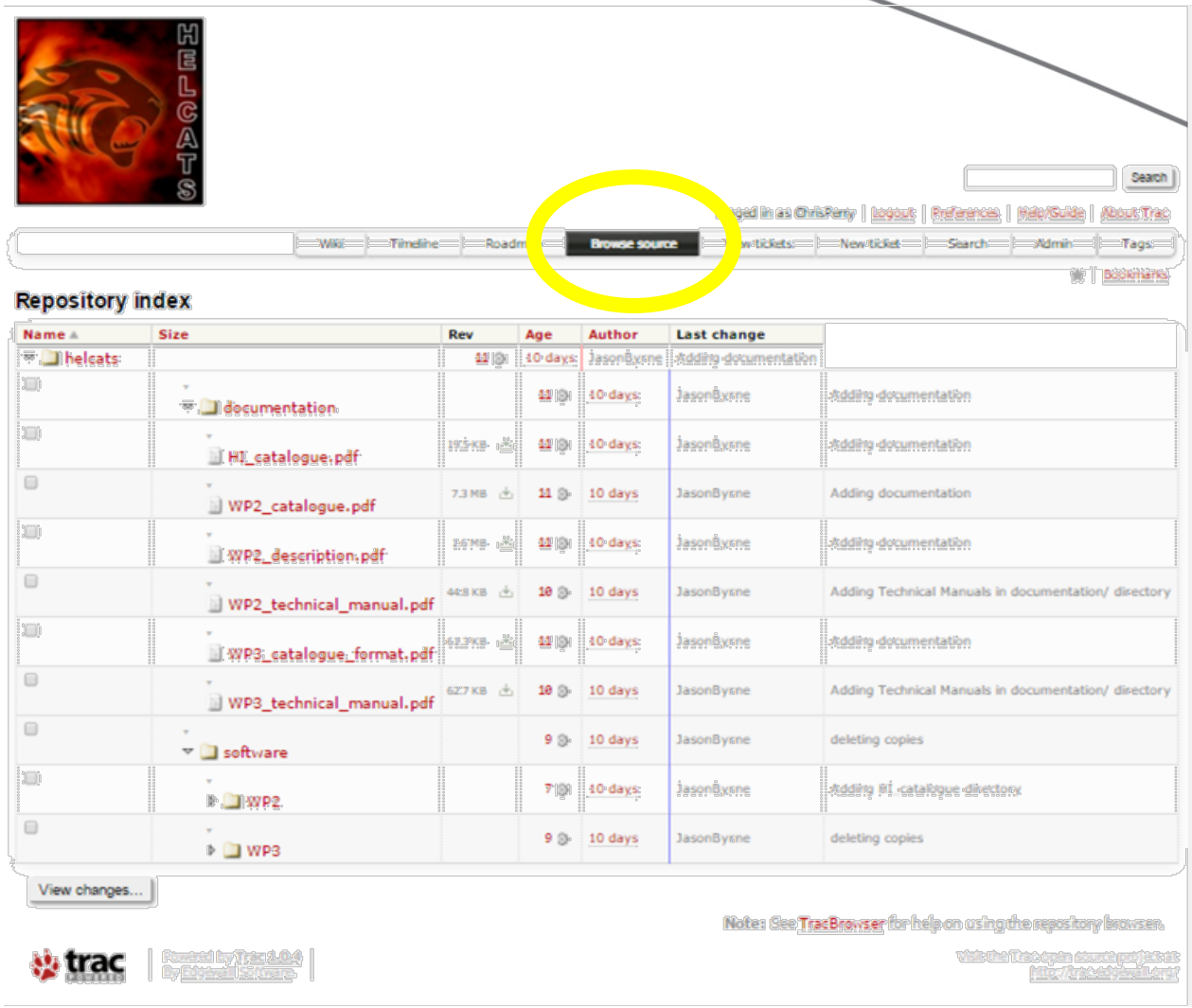
- Access via the browse source option on the wiki pages



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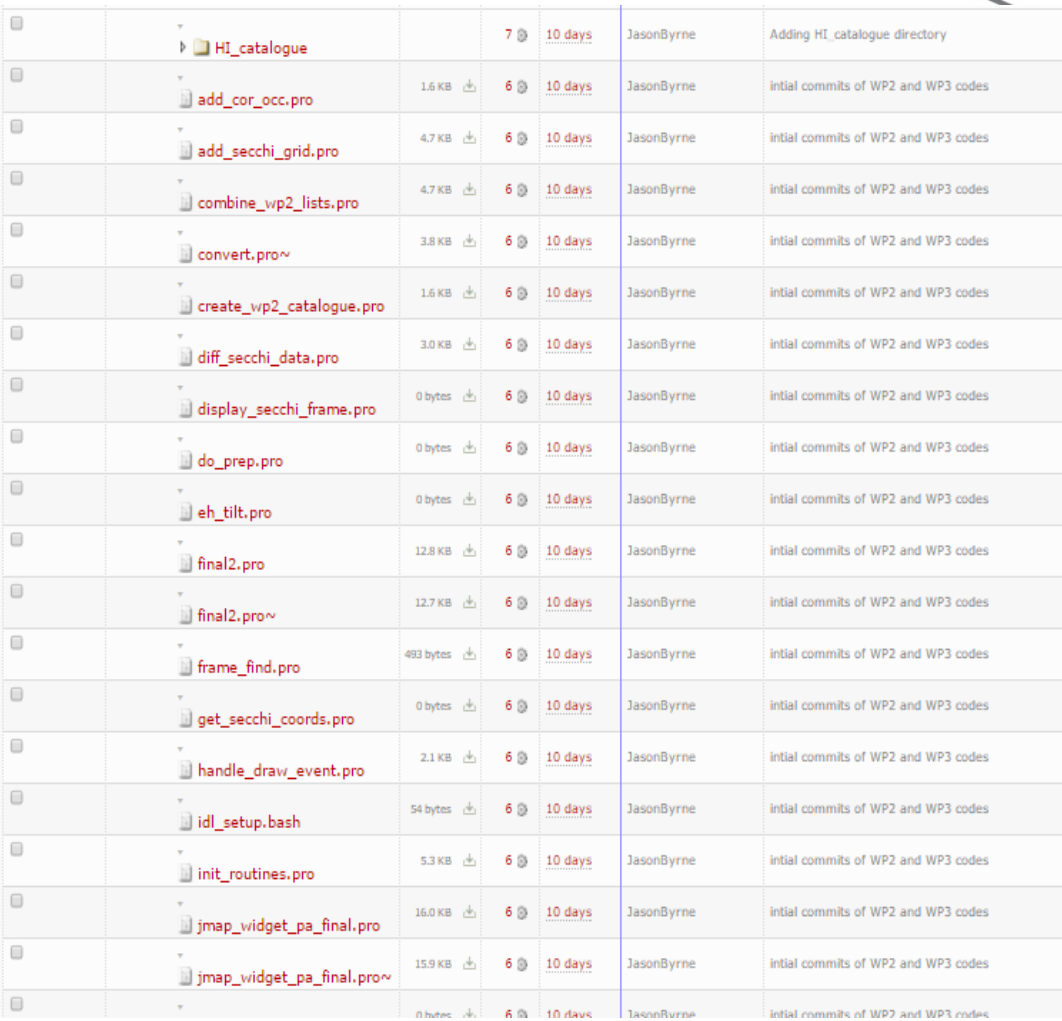
- Currently includes the codes used by STFC in selection, creation and fitting HI related CMEs
- Areas for documentation and for software
- Some tidying up required but already a useful resource



HI_catalogue		7	10 days	JasonByrne	Adding HI_catalogue directory
add_cor_occ.pro	1.6 KB	6	10 days	JasonByrne	intial commits of WP2 and WP3 codes
add_secchi_grid.pro	4.7 KB	6	10 days	JasonByrne	intial commits of WP2 and WP3 codes
combine_wp2_lists.pro	4.7 KB	6	10 days	JasonByrne	intial commits of WP2 and WP3 codes
convert.pro~	3.8 KB	6	10 days	JasonByrne	intial commits of WP2 and WP3 codes
create_wp2_catalogue.pro	1.6 KB	6	10 days	JasonByrne	intial commits of WP2 and WP3 codes
diff_secchi_data.pro	3.0 KB	6	10 days	JasonByrne	intial commits of WP2 and WP3 codes
display_secchi_frame.pro	0 bytes	6	10 days	JasonByrne	intial commits of WP2 and WP3 codes
do_prep.pro	0 bytes	6	10 days	JasonByrne	intial commits of WP2 and WP3 codes
eh_tilt.pro	0 bytes	6	10 days	JasonByrne	intial commits of WP2 and WP3 codes
final2.pro	12.8 KB	6	10 days	JasonByrne	intial commits of WP2 and WP3 codes
final2.pro~	12.7 KB	6	10 days	JasonByrne	intial commits of WP2 and WP3 codes
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get_secchi_coords.pro	0 bytes	6	10 days	JasonByrne	intial commits of WP2 and WP3 codes
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	0 bytes	6	10 days	JasonByrne	intial commits of WP2 and WP3 codes

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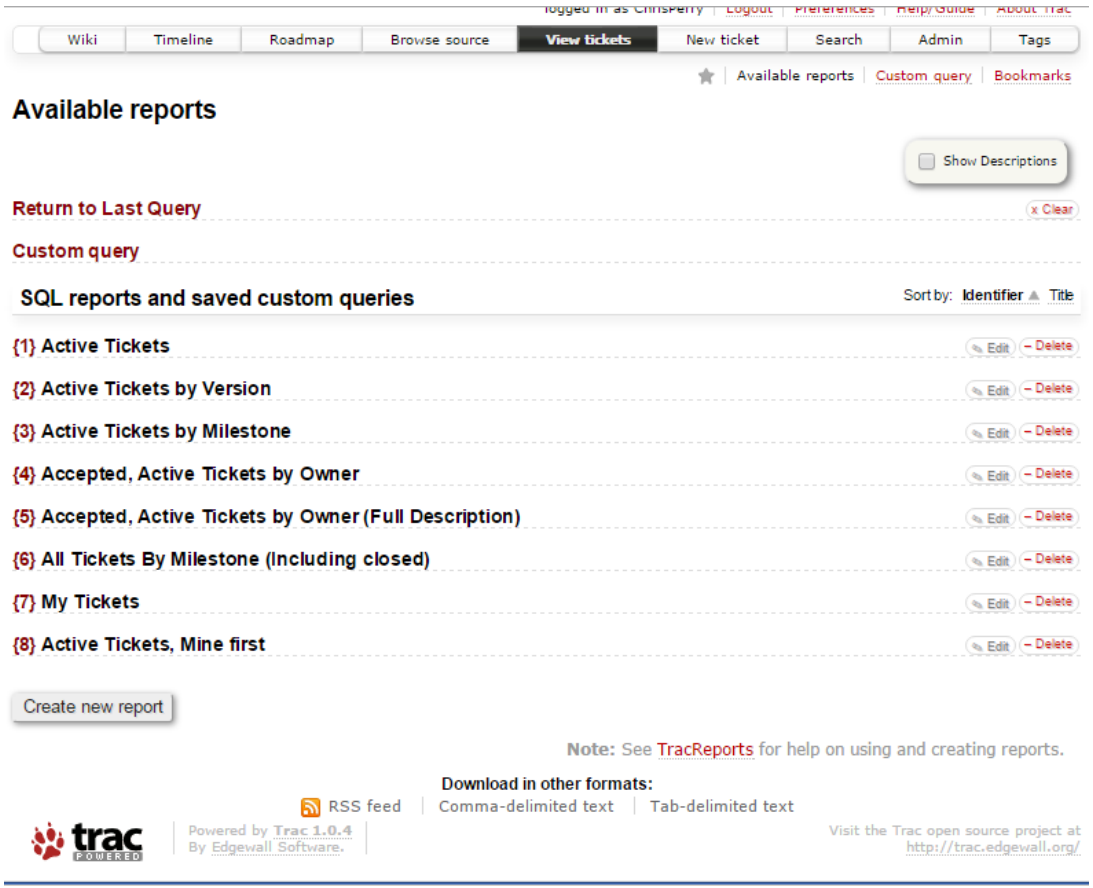
- Trac ticket system
- Can be used to keep tack of action items and change requests



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Future Work

- Focus on getting catalogues and documentation onto main HELCATS web site
  - Update of WP2 & WP3 catalogues for 2014 data (V03)
  - HI images, J-maps and time elongation for each events
  - Finalise current delivery of WP3 (COR2/GCS) KINCAT
  - Updated WP4 catalogue -> HELCATS web site
  - WP5 CIR catalogue -> HELCATS web site
  - WP2 (automated catalogue) -> HELCATS web site

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