

# HSA Report

**HUG#9 18-19 June 2015**

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## - HSA 6.0:

- The HSA DB was populated with the new metadata required for the New Instruments Advanced Query Panel
- Standalone Browse Products were changed to JScanam for PACS Phot and level2.5 products served for SPIRE Parallel Mode

## - HSA 6.1:

- Implementation of the Instruments Advanced Query Panel which allows to perform more refined queries by instrument-specific observational parameters like band, wavelength...
- New Pipeline Processing Query Panel (SPG version, processing level, QC Status)

## - HSA 6.2:

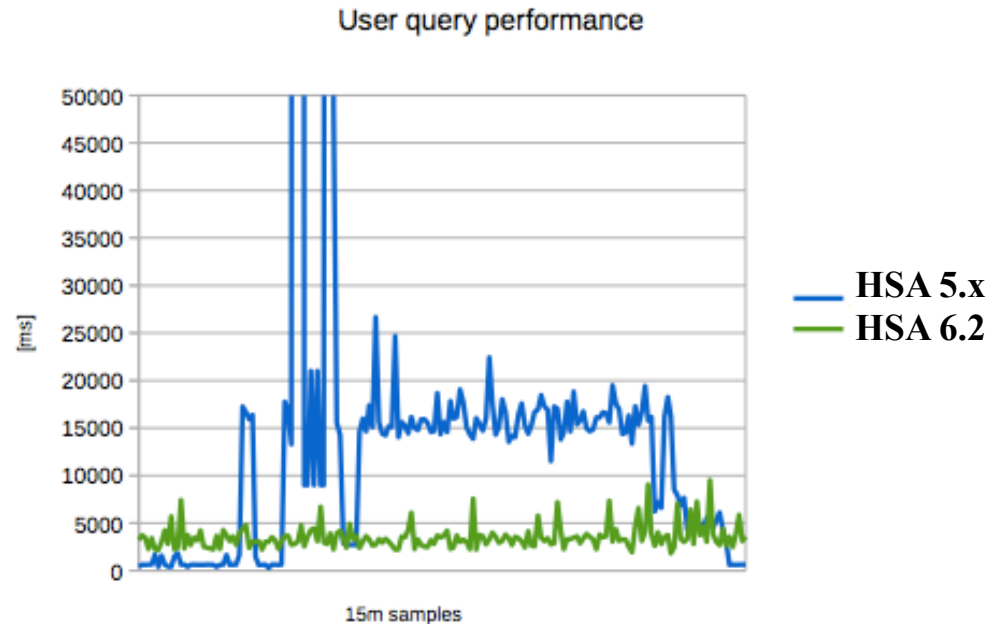
- Modification of the DB model to improve the performance
- Two new servers for HSA operational and HSA integration: modern machines, much faster, SSDs...
- Preparation for the bulk reprocessing exercise with HCSS 13.0 (new standalone browse products, new metadata to be extracted from products...)

## - New H/W:

- More stable
- More reliable
- Faster
- Less outliers

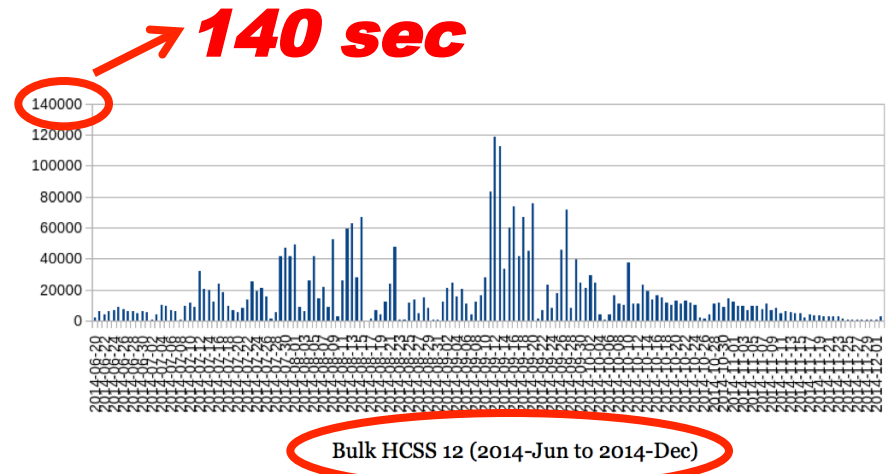
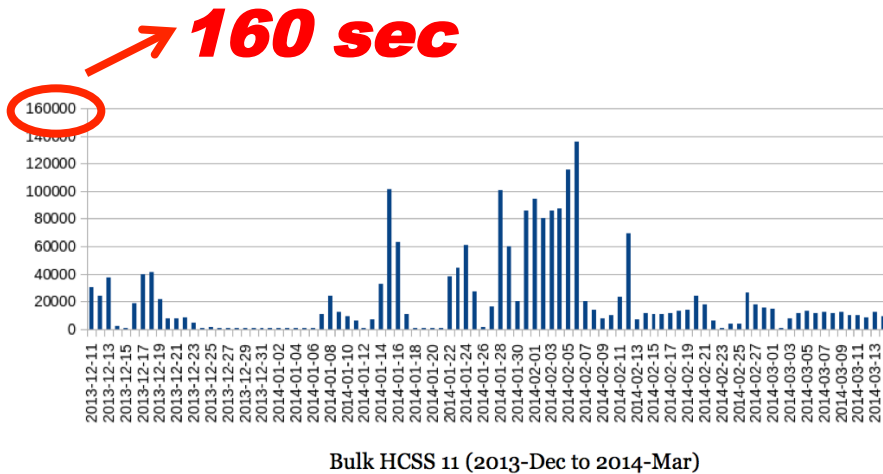
## - New S/W:

- Faster
- No serious wait times
- Queues quickly emptied

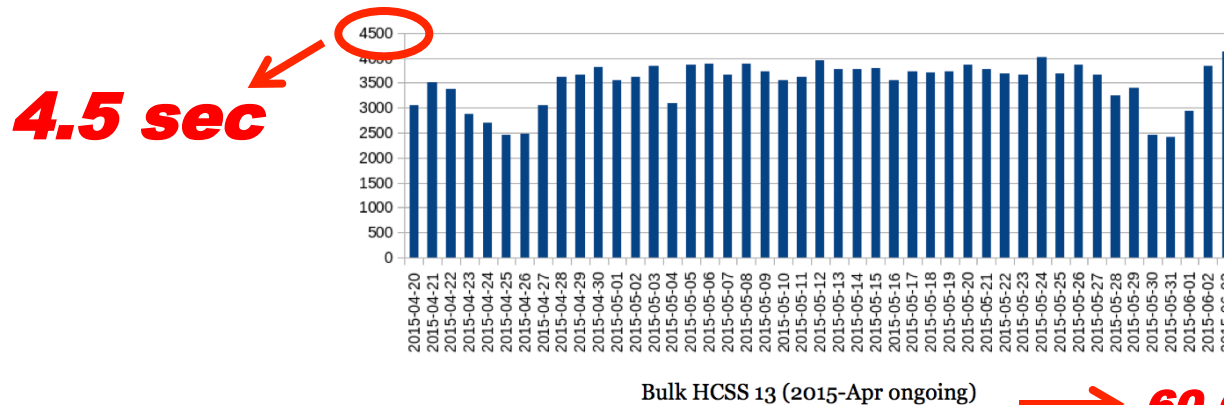


- **Improved performance:** 3.3 sec of median for queries in 5 metadata
- **Bulk reprocessing with HCSS 13.0:** ~ 60 ODs/day
- **HUI:** Instruments Advanced Query Panel + Standalone Browse Products + UPDPs

# Standard query responses times average per day during HCSS 11, 12 and 13 bulk reprocessing exercises



**6 months!!!**



**Flat response**

**60 ODs/day and no failures**

# Improvement of HSA functionalities



Following HUG recommendations:

- Queries by list of targets or coordinates

HSA Science Archive v6.2.1

File View Windows Account Tools Help

HERSCHEL esa

Search Observations #1 Observations #2 Observations #3 Observations #4 Observations #5 Observations #6 Observations #7

Query Panels

Query Cancel Clear

Main Query Panel

Observation Id  Obs. List  Choose

Proprietary Status

Geometry Panel

Target Multiple Target

Targets File  Choose Clear

HSA Online Help

**Search Panel. Geometry Panel. Target List.**

This filter allows searching of a list of target names or coordinates from the Archive in only one request using a file. Every line should contain either a target name or the two equatorial coordinates Ra and Dec.

- **Target:** the entered target name is resolved into coordinates using NED and SIMBAD.  
The default search radius is 5 arc minutes. This radius can be overridden by adding the desired one at the end of the line.

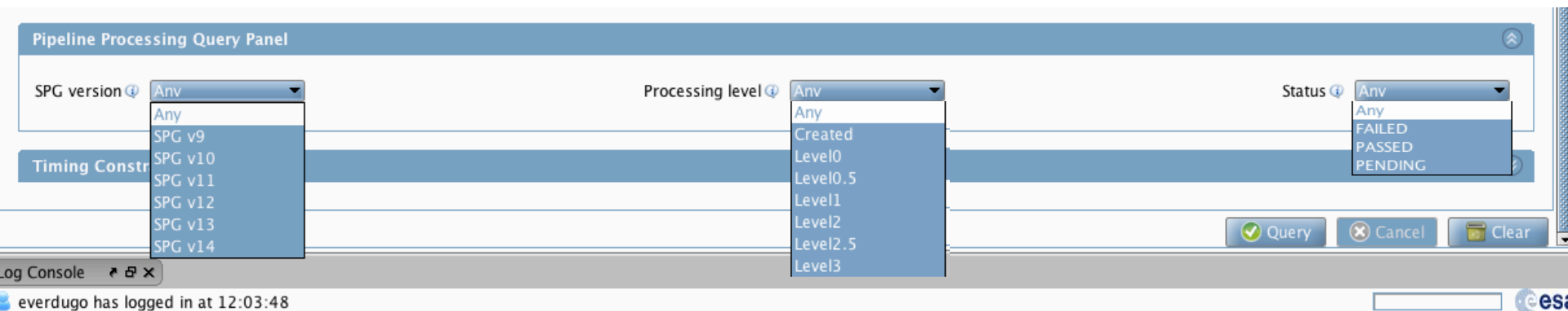
The radius format is *value [unit]*, where unit can be degrees(d), arc minutes (m or ') or arc seconds (s or "), being arc minutes the default one in case no radius unit has been provided.

See the examples below.

- Example 1 (using default radius of 5 arc minutes): *m31*
- Example 2 (overriding with a radius of 10 arc minutes): *m31, 10*
- Example 3 (overriding with a radius of 2 degrees): *m31, 2d*
- Example 4 (overriding with a radius of 10 arc seconds): *m31, 10s*
- **Coordinates:** together with a target name, it's possible to enter two coordinates per line. They are expected to be the two equatorial coordinates Ra and Dec, and several formats are possible:
  1. Two numbers are assumed to be hours and degrees.
    - *23 56* (using default radius of 5 arc minutes)
    - *23 56, 10* (overriding with a radius of 10 arc minutes)

Following HUG recommendations:

- New Instruments Advanced Query Panel (see next slide) which allows to perform more refined queries by instrument-specific observational parameters like band, wavelength...
- New Pipeline Processing Query Panel (SPG version, processing level, QC Status)





Search Search Search Search

Search

**Instruments Query Panel**

Instrument  Obs. Type:  ☒ Standard Data

**Instruments Advanced Query Panel**

Observing Mode   Processed Resolution     Image Sampling

Bias Mode    Commanded Resolution       Number of Repetitions

Position Angle (deg)

Map length (arcmin)  Map height (arcmin)  Number of Raster points

Log Co Log Cons Log Console Log Con Log Console

Not Not Logged Not Logged In





The currently offered 'Standalone Browse Products' are the following FITS products generated by the standard Herschel data processing pipelines:

**HIFI** The Level 2.5 products for all HIFI observations.

**PACS** The Level 2.5 products for PACS photometric observations (including SPIRE/PACS parallel mode observations) when available (produced with Madmap and PhotProject for observations processed with HCSS 11.1, and those produced with Scanmorphos when processed with HCSS 12.1 or 13.0); or the Level 2 products otherwise.

For PACS spectroscopic observations, a FITS table with the rebinned spectra at all spaxels for all raster pointings, plus the drizzled, projected or interpolated cube, depending on the observing mode (mapping, pointed, line scan, range scan) with an equidistant wavelength grid.

Note, however, that PACS spectroscopic standalone browse products are only available for those observations processed with version 13.0 of the standard Herschel data-processing pipelines. Chapter 5 of the 'PACS Products Explained' document (available via the HIPE documentation) is about these standalone browse products.

**SPIRE** The level 2 products processed with the version of the pipeline for extended sources for SPIRE photometric observations. For the SPIRE component of SPIRE/PACS parallel mode observations, the level 2.5 products processed with the version of the pipeline for extended sources.

For SPIRE spectroscopic observations, the unapodised level 2 products.

For further information on Herschel products, see the Instrument Data Reduction Guides listed below:

# HIFI Data Reduction Guide

([http://herschel.esac.esa.int/hcss-doc-13.0/print/hifi\\_um/hifi\\_um.pdf](http://herschel.esac.esa.int/hcss-doc-13.0/print/hifi_um/hifi_um.pdf))

# PACS Data Reduction Guide: Photometry

([http://herschel.esac.esa.int/hcss-doc-13.0/print/pacs\\_phot/pacs\\_phot.pdf](http://herschel.esac.esa.int/hcss-doc-13.0/print/pacs_phot/pacs_phot.pdf))

# PACS Data Reduction Guide: Spectroscopy

([http://herschel.esac.esa.int/hcss-doc-13.0/print/pacs\\_spec/pacs\\_spec.pdf](http://herschel.esac.esa.int/hcss-doc-13.0/print/pacs_spec/pacs_spec.pdf))

# SPIRE Data Reduction Guide

([http://herschel.esac.esa.int/hcss-doc-13.0/print/spire\\_drg/spire\\_drg.pdf](http://herschel.esac.esa.int/hcss-doc-13.0/print/spire_drg/spire_drg.pdf))



# 20 User Provided Data Products (UPDP) in the HSA



## User Provided Data Products Panel (UPDP)

UPDP Search UPDP

- 2013-09-09 ☐ [ACMC: The Auriga-California Molecular Cloud - PACS and SPIRE Data Atlas](#)
- 2013-10-10 ☐ [COLDCORES: Galactic Cold Cores: A Herschel survey of the source populations revealed by Planck](#)
- 2013-10-10 ☐ [DUNES: PACS and SPIRE Observations of Cold Disks around Nearby Stars](#)
- 2014-07-10 ☐ [GOODS: PACS and SPIRE images of the GOODS fields and associated source catalogs](#)
- 2014-05-07 ☐ [GOT\\_CPlus: Galactic Observations of Terahertz CII](#)
- 2015-04-21 ☐ [HELGA: The Herschel Exploitation of Local Galaxy Andromeda](#)
- 2015-04-21 ☐ [HERITAGE: PACS and SPIRE images of the Magellanic Clouds and associated source catalogues](#)
- 2014-10-08 ☐ [HerM33es: PACS and SPIRE maps of M33](#)
- 2014-07-11 ☐ [HerMES: Herschel Multi-tiered Extragalactic Survey](#)
- 2015-04-28 ☐ [HEXOS\\_HIFI: HIFI observations of EXtra-Ordinary Sources: The Orion and Sgr B2 Star-Forming Regions](#)
- 2013-09-09 ☐ [HIFISTARS: HIFI spectroscopy of molecular lines in evolved stars](#)
- 2013-10-10 ☐ [HOP: Herschel Oxygen Project](#)
- 2014-07-16 ☐ [KINGFISH: Key Insights on Nearby Galaxies: a Far Infrared Survey with Herschel](#)
- 2015-04-21 ☒ [MESS\\_PPHOT: PACS images of the circumstellar environment of 107 post-main-sequence objects](#)
- 2013-09-18 ☐ [PEP\\_PACS: PACS images of six cosmological blank fields, ten lensing clusters and two z~1 clusters and associated source catalogues](#)
- 2013-09-18 ☐ [PEP\\_SPIRE: SPIRE images of the clusters MS1054 and RXJ0152 and associated source catalogues](#)
- 2014-10-29 ☐ [PPDISKS: SPIRE spectroscopy of protoplanetary disks](#)
- 2013-10-10 ☒ [VNGS\\_PACS: PACS photometric maps of 13 very nearby galaxies](#)
- 2015-04-21 ☐ [VNGS\\_PACS\\_SPEC: PACS spectroscopic maps of 9 very nearby galaxies](#)
- 2013-10-10 ☐ [VNGS\\_SPIRE: SPIRE photometric maps of 13 very nearby galaxies](#)

**Now we will concentrate our efforts on collecting UPDPs for spectroscopic observations**

Now that the BKRP with HCSS 13.0 is about to finish and until the BKRP with HCSS 14.0 we will concentrate our efforts on the QC activity which was stopped around July 2014 due to all the performance problems in the HSA and with the ESAC infrastructures. Last status report on QC activities was:

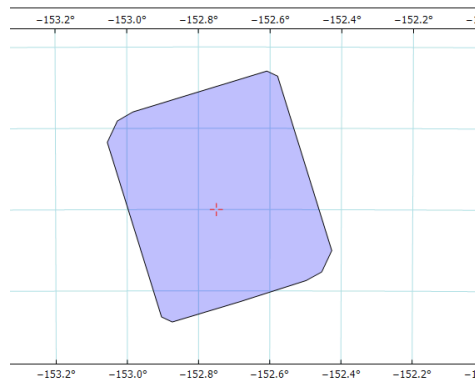
### QC Completion Report - July 2014

OD range	Completed	In progress	Comments
1400-1446	43	4	
1300-1399	32	9	
1200-1299	47	12	
1100-1199	82	4	
1000-1099	77	6	
900-999	78	12	
800-899	87	6	
700-799	99	1	
600-699	72	9	
500-599	31	2	Fast checks completed on 73 ODs, started on 6 ODs
400-499	56	0	Fast checks completed on 100 ODs
300-399	54	4	Fast checks completed on 94 ODs, started on 2
200-299	61	3	Fast checks completed on 90 ODs
156-199	44	0	
<b>Total</b>			
1291	863 ( 66,8% )	72 ( 6% )	

# The next version (7.0)



- **To work with HCSS 14.0:**
  - New QC flags format
  - Better handling of error messages
  - Postcard server to work by OBS\_ID
- **Footprints:** Complex polygons for the FoV created per every AOR in the Archive by the Konkoly group. An analysis of the complexity of the polygons vs the query performance of the HSA is on-going. The tool allows various ways of smoothing the footprints:



**Herschel Footprint Database**

[herchel home](#) [observation search](#) [rest api](#) [docs](#) [credits](#)

**observation search**

Instruments: ☒ PACS ☐ SPIRE ☐ PACS/SPIRE parallel ☐ HIFI  
Fine Time:   
Method: ☒ Coordinates ☐ Intersect  
Coordinates:

[search >](#)

**search results**

<input checked="" type="checkbox"/>	instrument	obs ID	fine time start	fine time end	angular velocity	area
<input checked="" type="checkbox"/>	Pacs	1342213848	1675840387616874	1675843642547088	20	0.21948
<input type="checkbox"/>	Pacs	1342213849	1675843721599853	1675846976530456	20	0.22009

[plot >](#)

**observation footprint**

☒ Outline  
☒ Fill  
☒ Original  
☐ Convex Hull  
Reduce: 25  
☐ Decimal  
☐ HMS-DMS  
☐ Grid  
☐ Plot Query

[save pdf >](#)

## The next version (7.0) (cont.)



- **Publications:** Link to published papers per AOR “a la” XMM-Newton

<input type="checkbox"/>			Obs.ID	EPIC	RGS	Target	RA	
<input type="checkbox"/>			0109270101			M31Core	00h 42m 42.99s	+

SummaryExposuresPublications

Title	BibCode
Chandra, XMM-Newton and HST observations of a transient in M31 with a possible asymmetric, precessing disc	2015MNRAS.449.3426B
The XMM deep survey in the CDF-S. VIII. X-ray properties of the two brightest sources	2015A&A...574A.144I
The diversity of quasars unified by accretion and orientation	2014Natur.513..210S
Serendipitous UV source catalogues for 10 years of XMM and 5 years of Swift	2014Ap&SS.354...97Y
Automatic Classification of Time-variable X-Ray Sources	2014ApJ...786...20L
Constraining properties of dark matter particles using astrophysical data	2013PhDT.....40I

## The next version (7.0) (cont.)



- **Various improvements of the HUI.** For instance, to display the “searchable” information in the Instrument Advance Query Panel per AOR

					Observation ID	Postcards	Target	RA/DEC
				UPDP	1342239276		aur-west	04h 09m 52.84s +39d 59' 29.13" P

**Details**

Right click to download associated Standalone Browse Products

**Observing Mode:**  
**Gain:**  
**Dithering:**  
**Filter selection:**  
**Scan speed for Parallel Mode:**

- **Register Herschel products in VO** and opening of standalone browse products with VO tools from the HUI directly:
  - Discussion on the VO compatibility of our products
  - Standalone browse products are going to be the VO Herschel registered products?
  - From standalone browse products to standalone legacy products (“Good products for doing science without any need of using a Herschel specific tool and VO compatible”)
- **Highly Processed Data Products (HPDPs)** in the HSA: Similar to the UPDPs but produced by “experts”
  - Point Source Catalogs (PACS & SPIRE)
  - Spectral Surveys (HIFI)
  - Line lists (HIFI & SPIRE)
- **Ancillary Data** in the HSA: To be preserved but not linked to a particular AOR (ftp direct retrieval from the HUI):
  - Distortion maps (PACS)
  - Gas cell (HIFI)
  - Calibration models...
- **Versant information on Proposals into HSA:** Proposals abstract, PI, Co-Is, scientific category