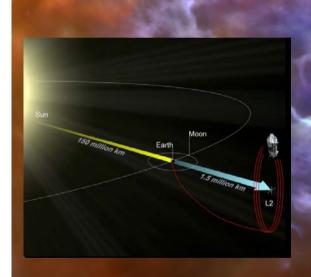
# HUG#6 feedback





HUG#7 meeting, ESTEC, 14 October 2013 Göran Pilbratt, Herschel Project Scientist

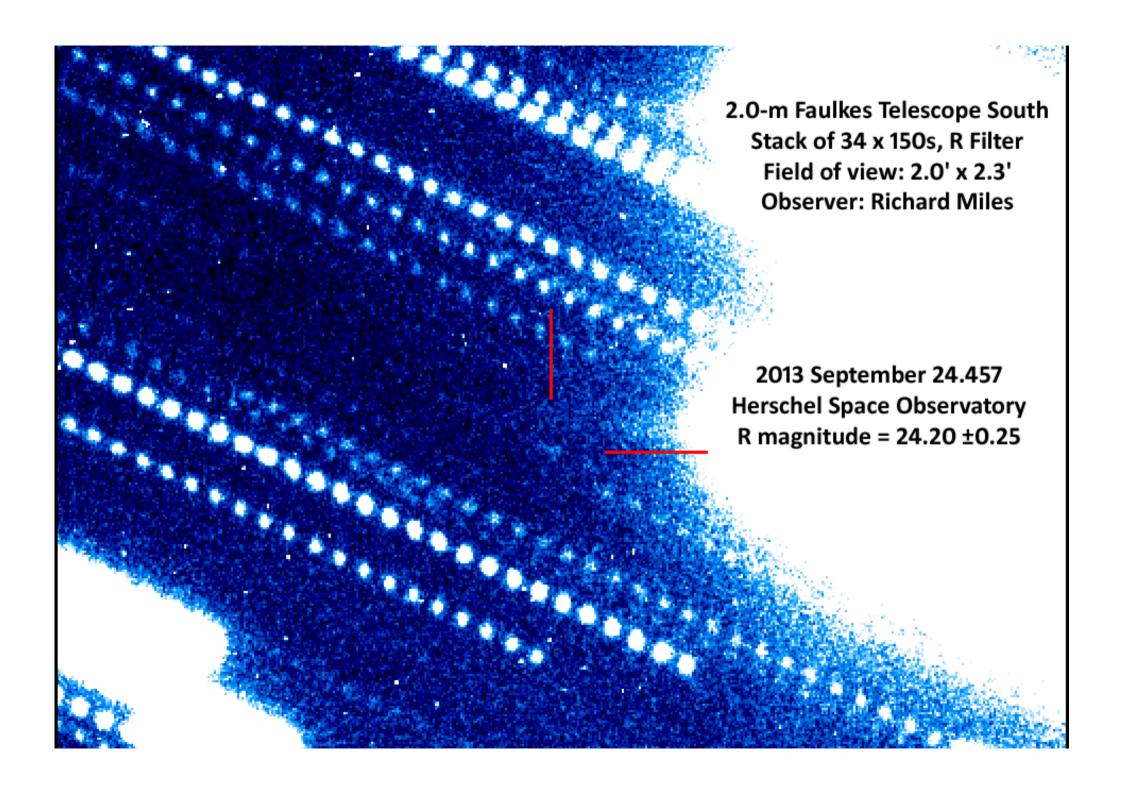




# **HUG#7** overview

Status, Milestones, Personnel, EoHe, Observing, Publications, HSA, UPDPs, Communications





## Milestones since HUG#6



- End-of-Helium on 29 Apr 2013
  - Formal EoHe occurred at 17:20 CEST, during DTCP#1447
  - Press release at 17:42 CEST, website postings done by 17:51 CEST
  - Mass-mail to all subscribed Herschel users at 18:19 CEST
- The "disposal manoeuvre" was executed on 13-14 May 2013
- HST#52 was held on 13-14 May 2013





### Milestones since HUG#6



- End-of-Helium on 29 Apr 2013
  - Formal EoHe occurred at 17:20 CEST, during DTCP#1447
  - Press release at 17:42 CEST, website postings done 17:51 CEST
  - Mass-mail to all subscribed Herschel users at 18:19 CEST
- The "disposal manoeuvre" was executed on 13-14 May 2013
- HST#52 was held on 13-14 May 2013
- All 42 KP consortia wrap-up telecons completed now "chasing" UPDPs
- Operations "cradle-to-grave" Lessons Learned mtg 28-30 May 2013
- "Last TX" event Herschel turned off on 17 June 2013
- "Herschel Data Processing for Newcomers", ESAC, on 24-28 June 2013
- HUG#6 minutes issued on 10 July 2013 posted on 11 July 2013
- HIPE 11 released on 26 July 2013 with Java 7 support
- "Exploiting the Herschel Archive", NHSC on 26-30 August 2013
- Bulk (to level 2.5) reproc with HCSS 10.3 completed on 4 Sep 2013
- HSA 5 released on 9 September 2013 enabling UPDP ingestion



# Personnel – according to plan



# Overall personnel resources are maintained at the level agreed at the time of the POP RR

 but there are recent changes at the level of individuals & areas:

### People known to you include:

- Leo Metcalfe, Mission Manager
  - 80% ExoMars from 1/09/2013
  - Pedro Garcia-Larío H/HSC
- Stephan Ott, DP
  - 50% ExoMars from 1/07/2013
- Bruno Altieri, HICS PACS-P
  - 25% Euclid support this year
- Roland Vavrek, HICS PACS-S
  - 50% Euclid Deputy PS from 1/09/2013 (exact date TBC)

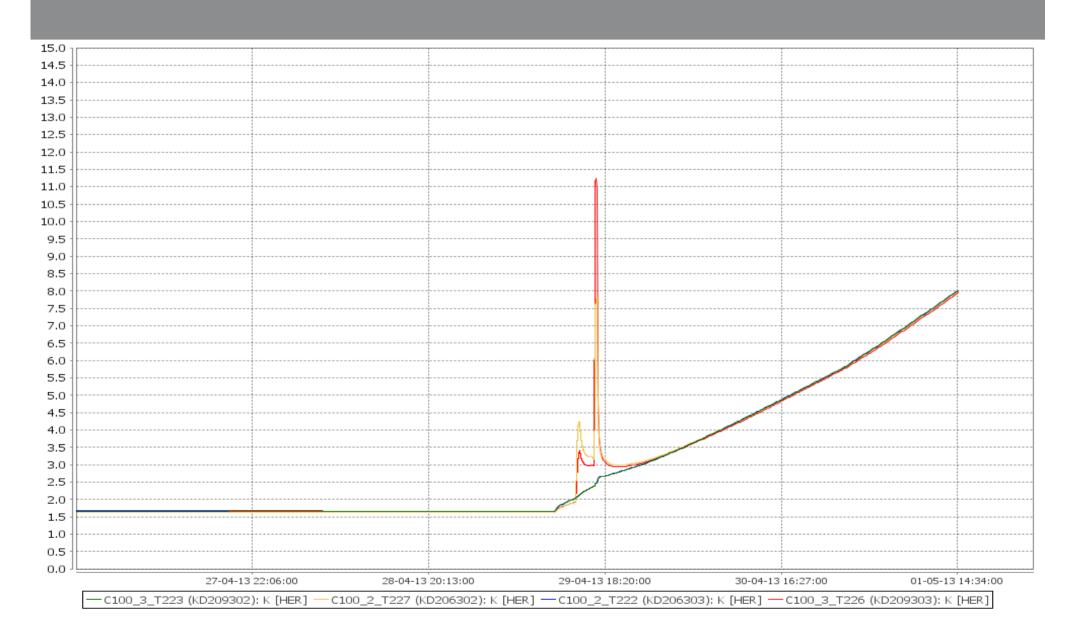
	Agreed for POP RR	Myrs now
Management	12.50	8.83
Calibration	29.50	30.08
DP (incl.Q and DP Sci.)	35.00	35.00
Community Support	19.25	20.17
S/W Maint.	8.45	8.60
CSG	7.50	7.50
SAT	4.50	5.50
Total	116.70	115.68
To be assigned		1.02

Personnel connected to Data Processing, Mission Planning, and SW Maintenance have left (or moved replacing other people who left), Herschel in line with the POP planning as presented in HUG#6. Note increase for SAT (for HSA)!



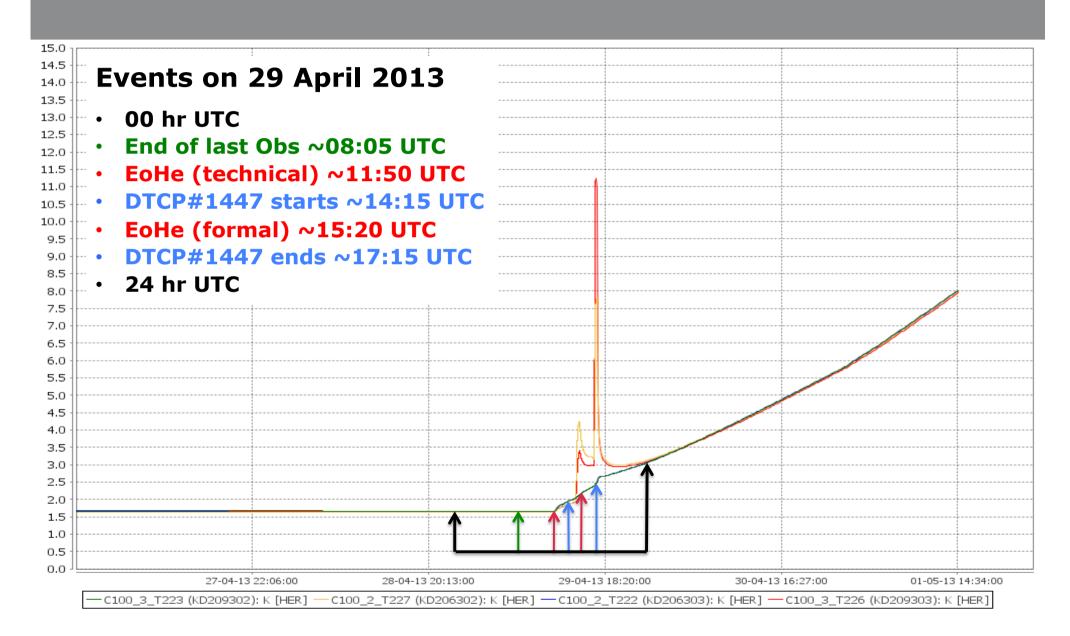
# 29 April 2013 - EoHe (level 0)





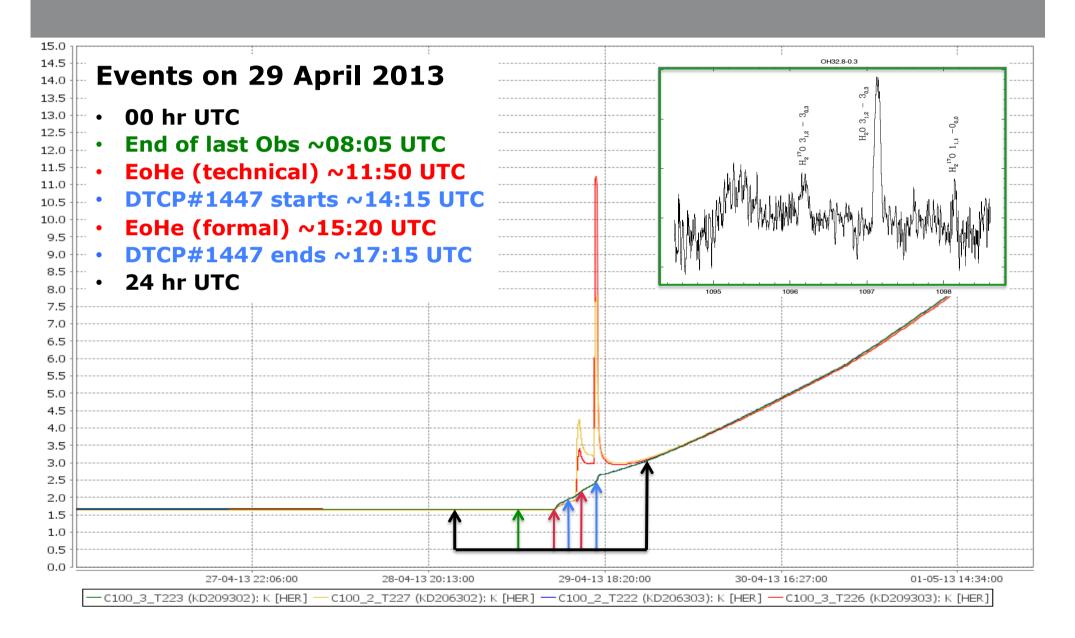
# 29 April 2013 - EoHe (level 0)





# 29 April 2013 - EoHe (level 0)

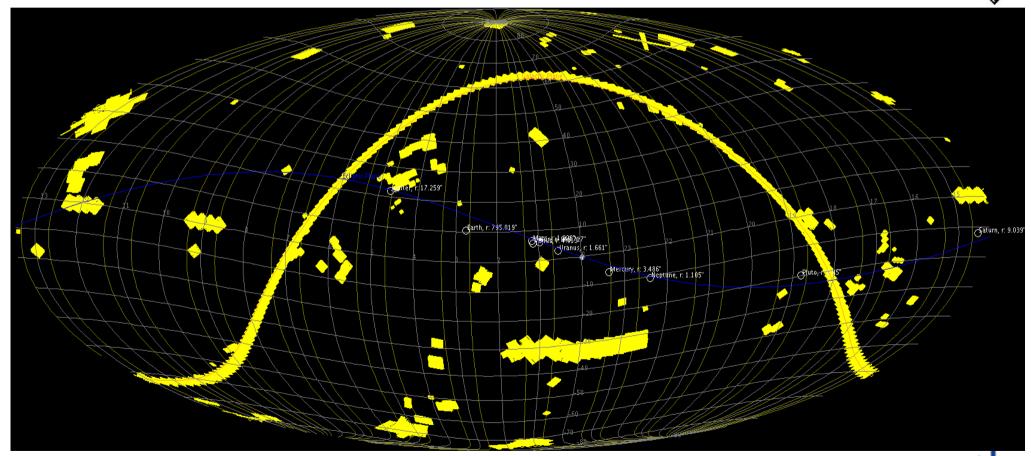






### **SPIRE/PACS** parallel mode observing



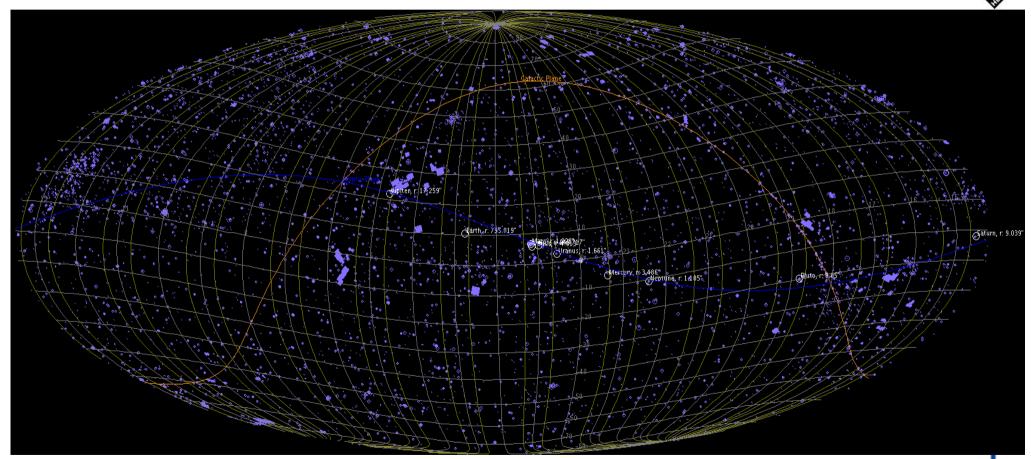






### **PACS** photometry observing



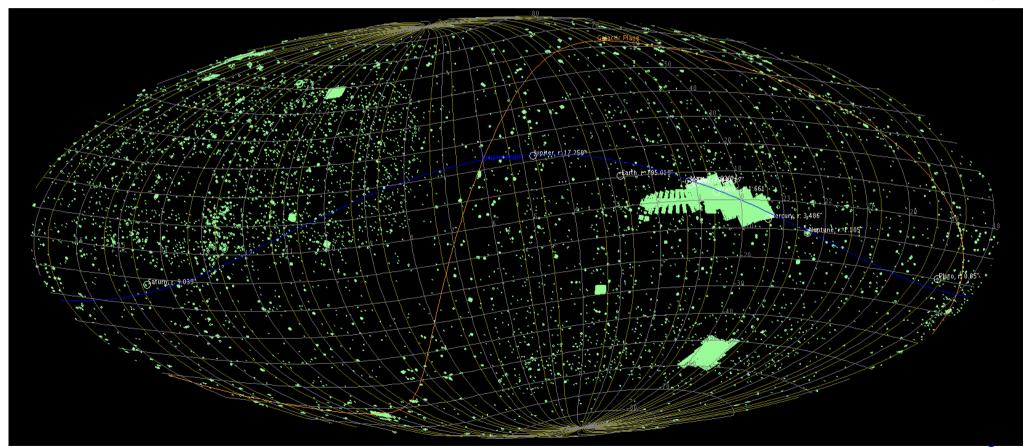




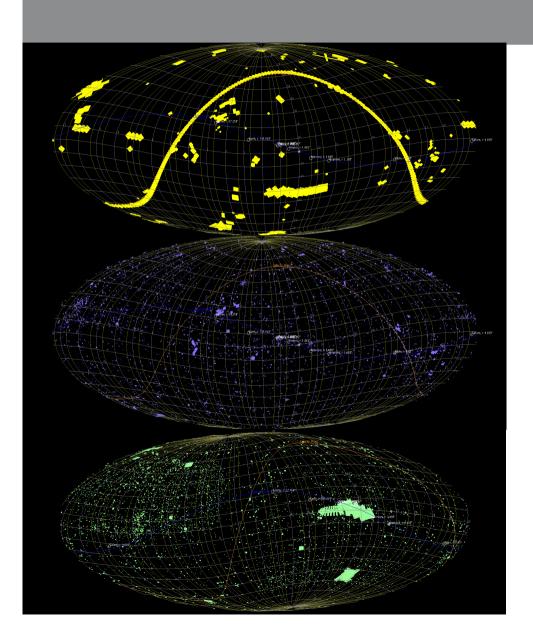


### **SPIRE** photometry observing









### Totals (uncert +/- 5%)

•	S/P parallel	6.44
---	--------------	------

PACS phot 0.67

SPIRE phot 2.28

• PACS spec <0.01

• SPIRE spec <0.01

• HIFI 0.06

Total Herschel 9.45

These numbers are %-ages of the entire sky (~41,000 sq deg)

Herschel has observed almost 1/10 of the entire sky!

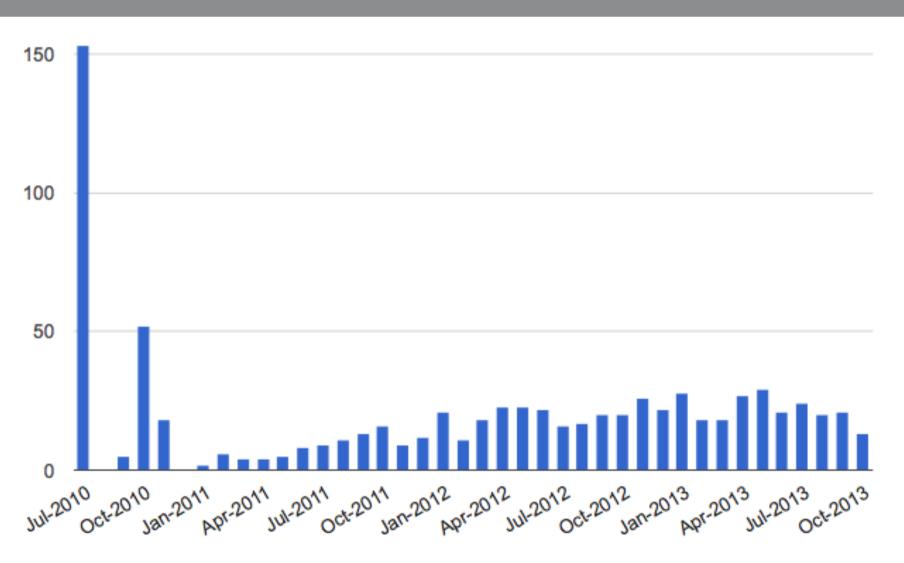
By performing ~23,500 hr of HOTAC approved observing!



## Time distribution of papers

- based on 785 papers





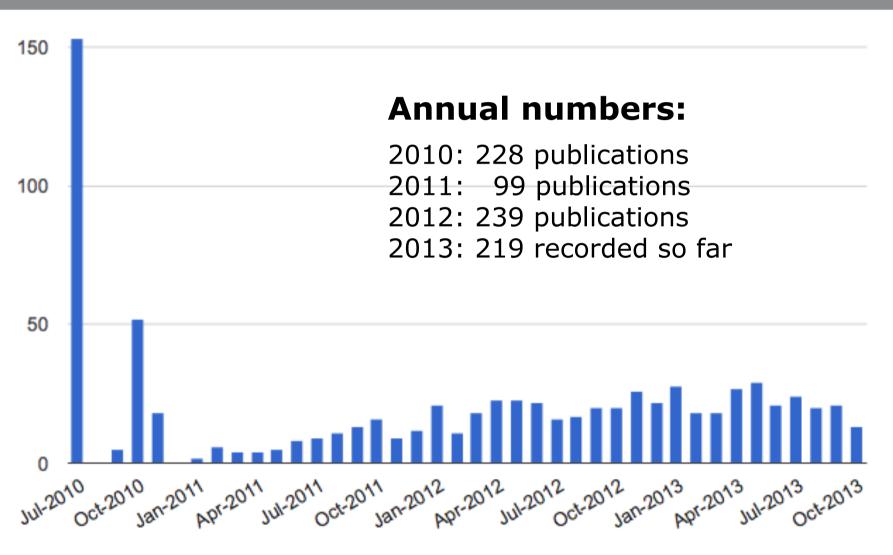


HERSCHEL SPACE OBSERVATORY

# Time distribution of papers

based on 785 papers

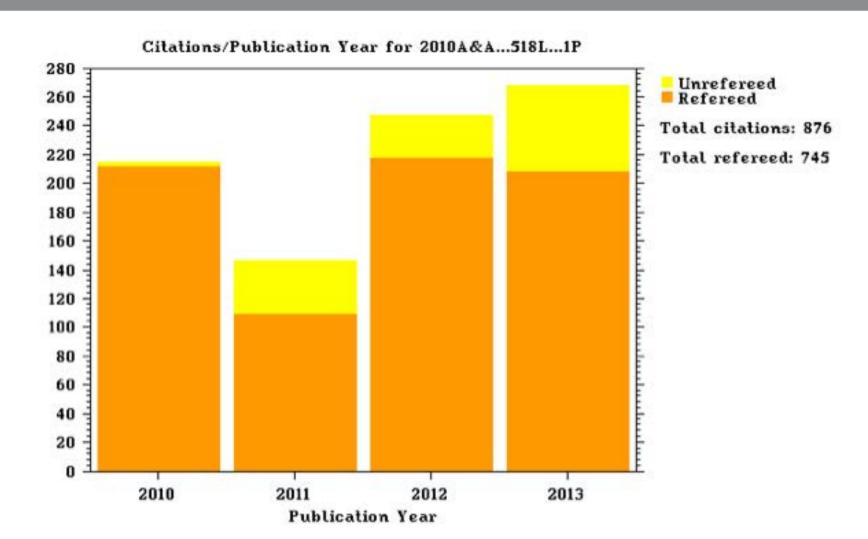






# **Herschel paper – citations (ADS)**



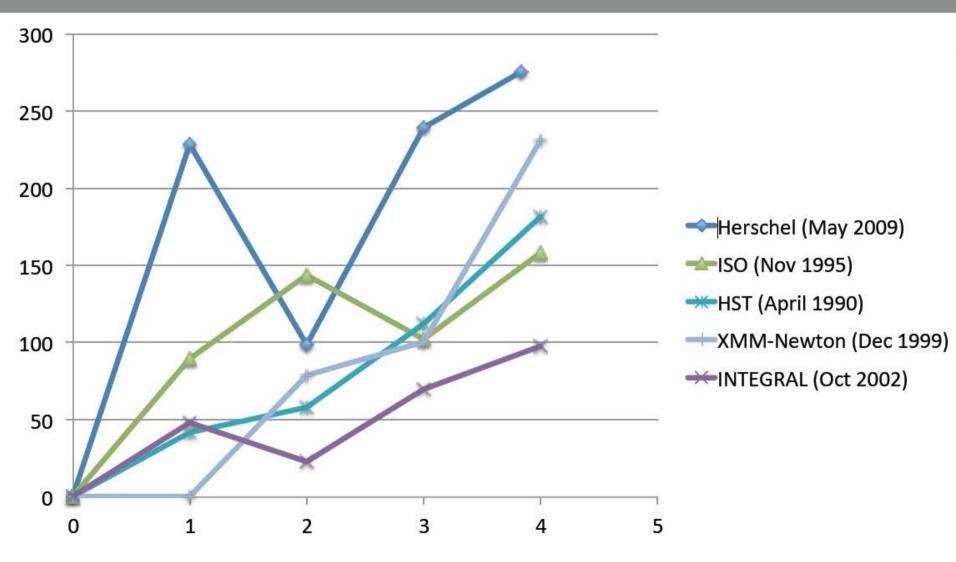




HERSCHEL SPACE OBSERVATORY

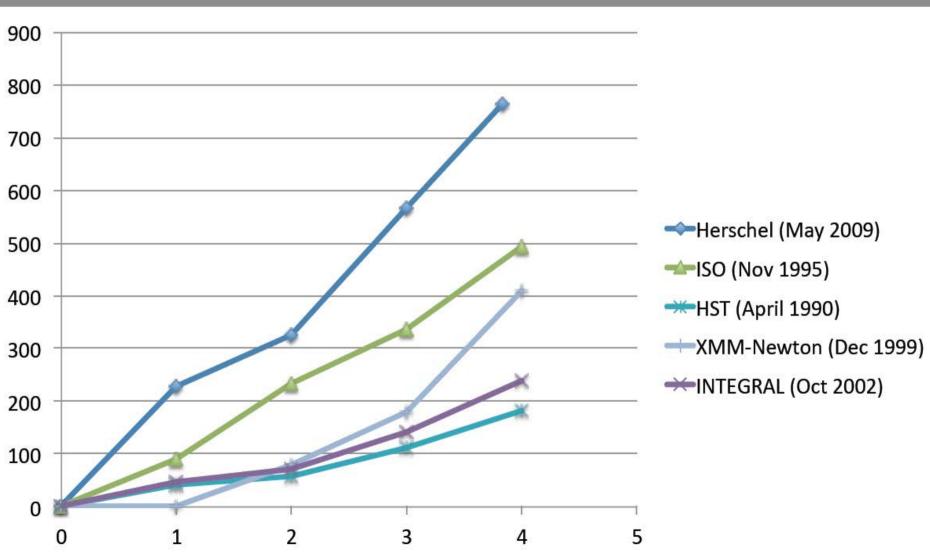
# **#Pubs/yr vs calendar yr after launch**





# **#Pubs vs calendar yr after launch**

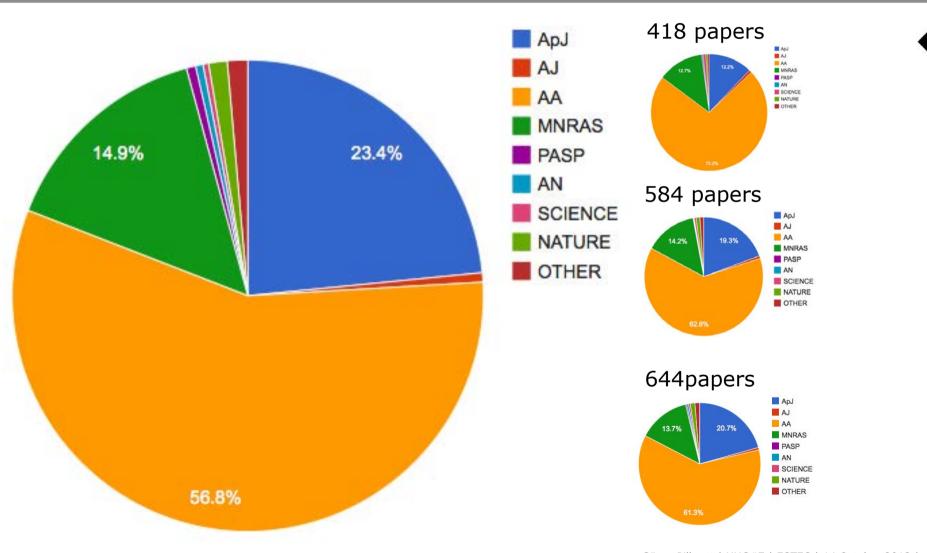




## Journal distribution of papers

- based on 785 papers





# 



Name	Executed obs	time (h)	Published obs	Published number %	Published time (h)	Published time % ▼
SDP	549	570.33	452	82.33	521.79	91.49
KPOT	6565	5,298.61	3957	60.27	2,918.81	55.09
TOO	210	34.90	86	40.95	19.11	54.77
KPGT	7441	5,156.38	3190	42.87	2,761.01	53.55
TOTAL	38533	22,651.06	8491	22.04	6,967.70	30.76
GT1	1151	517.92	203	17.64	153.28	29.59
AOTVAL	72	65.18	21	29.17	9.46	14.51
OT1	11652	5,527.24	452	3.88	480.06	8.69
DDT	664	282.02	32	4.82	14.68	5.21
Calibration	12178	4,633.80	145	1.19	149.88	3.23
GT2	461	347.12	16	3.47	10.08	2.91
OT2	9667	4,791.03	82	0.85	79.42	1.66
OBS	101	60.33	0	0.00	0.00	0.00

# 





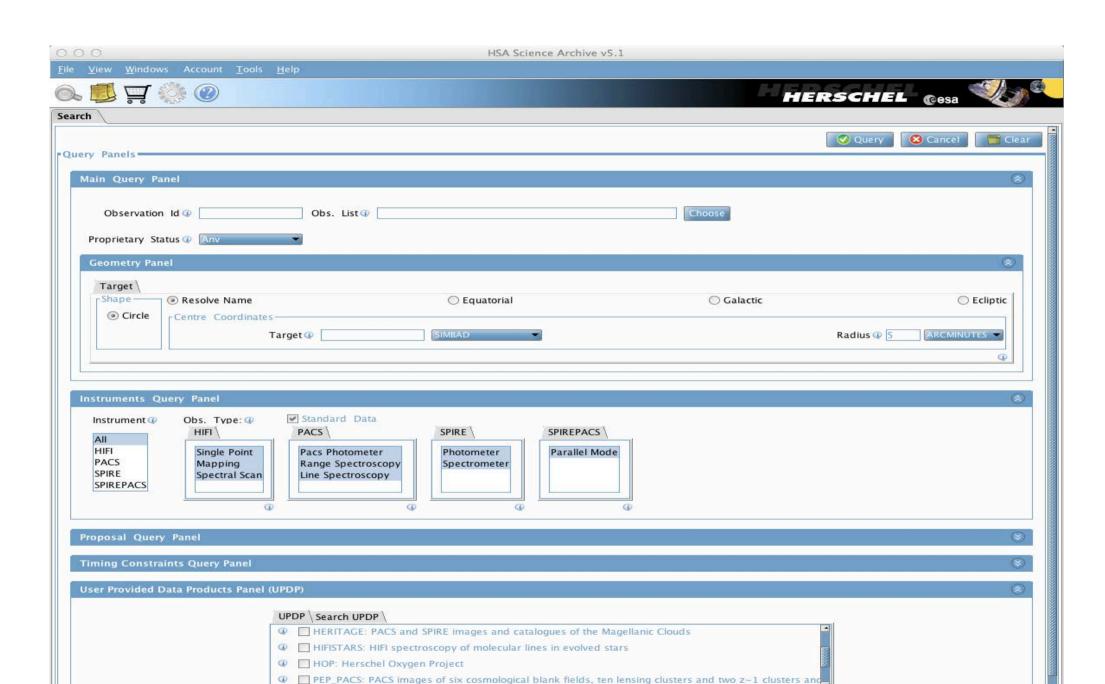
Name	Executed obs	Executed time (h)	Published obs	Published number %	Published time (h)	Published time % ▼
PARALLEL	790	3,213.29	343	43.42	1,754.62	54.61
PACS	22092	11,277.53	5606	25.38	3,562.62	31.59
TOTAL	38533	22,651.06	8491	22.04	6,967.70	30.76
SPIRE	6490	3,262.81	1165	17.95	803.13	24.61
HIFI	9161	4,897.44	1377	15.03	847.33	17.30

# 



Name	Executed obs	Executed time (h)	Published obs	Published number %	Published time (h)	Published time % ▼
SP_PAR	790	3,213.29	343	43.42	1,754.62	54.61
S_PHOT	5358	1,545.84	1107	20.66	686.05	44.38
P_PHOT	16893	5,778.72	4631	27.41	2,379.34	41.17
H_5b	19	23.94	4	21.05	9.85	41.13
H_7a	174	129.14	42	24.14	44.44	34.41
TOTAL	38533	22,651.06	8491	22.04	6,967.70	30.76
H_2a	308	139.99	59	19.16	41.76	29.83
H_2b	546	211.78	80	14.65	60.65	28.64
H_4b	824	543.33	170	20.63	132.66	24.42
H_1b	1068	461.49	194	18.16	108.15	23.43
H_6b	359	229.25	111	30.92	49.40	21.55
P_SPEC	5199	5,498.81	975	18.75	1,183.28	21.52
H_1a	1334	600.57	212	15.89	128.18	21.34
H_3b	395	194.45	31	7.85	32.60	16.77
H_6a	190	156.85	25	13.16	25.45	16.23
H_5a	788	488.75	146	18.53	76.06	15.56
H_4a	1129	416.28	140	12.40	50.42	12.11
P_ENG	43	24.61	6	13.95	2.92	11.88
H_3a	470	187.06	57	12.13	13.80	7.38
S_SPEC	1132	1,716.96	58	5.12	117.08	6.82
H 7b	1514	1,089.95	100	6.61	71.00	6.51





Log Console ₹ ₽ ×

Proposal ID	Proposal Name	Release Note	User Provided Data Products Repository	Related Publications	Latest update	Ingested in HSA ?
KPOT_mmeixner_1	HERschel Inventory of The Agents of Galaxy Evolution (HERITAGE) in the Magellanic Clouds	HERITAGE README file	HERITAGE Data	Meixner et al. 2013	[16-Jul-2013]	YES
KPOT_ceiroa_1	Cold Disks around Nearby Stars. A Search for Edgeworth-Kuiper Belt analogues (DUNES: DUst disks around NEarby Stars)	The DUNES archive (Release Note)	DUNES Final Archive	Eiroa et al. 2013	[09-Jul-2013]	YES
KPGT_cwilso01_1	Physical Processes in the Interstellar Medium of Very Nearby Galaxies	VNGS Release note (SPIRE data) VNGS Release note (PACS data)	VNGS Data release (SPIRE data) and postcards VNGS Data release (PACS data) and postcards	Bendo et al. 2012	[14-Jun-2013]	YES
KPOT_pgolds01_1	Herschel Oxygen Project (HOP)	Data Release Document	HOP Data	Goldsmith et al. 2011	[6-May-2013]	YES
OT1_pharve01_3	The Auriga-California Molecular Cloud: A Massive Nearby Cloud With Powerful Diagnostics For Early Stages of Star Formation.	Harvey et al. 2013	Data Repository	Harvey et al. 2013	[11-Mar-2013]	YES
KPGT_dlutz_1	PACS Evolutionary Probe (PEP)	PEP Release Note (PACS data) PEP Release Note (SPIRE data)	PEP public data releases	Lutz et al. 2011 PEP related publications	[01-Mar-2013]	YES
KPGT_vbujarra_1	HIFISTARS: The physical and chemical properties of circumstellar environments around evolved stars	HIFISTARS Release Note	HIFISTARS Data Repository	Bujarrabal et al. 2012	[16-Nov-2012]	YES
KPOT_delbaz_1	The Great Observatories Origins Deep Survey : far-infrared imaging with Herschel (GOODS)	GOODS-Herschel release documentation	GOODS-North Data GOODS-South Data	GOODS-Herschel related publications	[12-Sep-2012]	NO
KPOT_rkennicu_1	Key Insights on Nearby Galaxies: a Far Infrared Survey with Herschel (KINGFISH)	KINGFISH Data Products Delivery - DR2 User's Guide	KINGFISH Data Products (DR2) repository	Kennicutt et al. 2011	[18-Jul-2012]	NO
KPGT_soliver_1	HerMES	HerMES Release note	HerMES Data Release	HerMES related publications	[13-Apr-2012]	NO
KPOT_ckrame01_1	Herschel M33 extended survey (HerM33es)	HerM33es: Herschel M33 extended survey - SPIRE Data Products Delivery User's Guide HerM33es: Herschel M33 extended survey - PACS Data Products Delivery User's Guide	HermesPublicData	Xilouris et al. 2012 Boquien et al. 2011 Kramer et al. 2010	[2-Mar-2012]	NO
KPOT_mjuvela_1	Galactic Cold Cores: A Herschel survey of the source populations revealed by Planck	ColdCores Release Note	ColdCores Data Repository	Juvela et al. 2010, 2011	[8-Sep-2011]	YES
KPOT_jdavie01_1	The Herschel Virgo Cluster Survey (HeViCS)	Data Reduction for HEVICS Public Data Release of 2 Scan DatA	The first HeViCS public data release	The HeViCS papers	[2-Sep-2011]	NO
KPOT_seales01_2	H-ATLAS	First data release of the Herschel ATLAS	H-ATLAS SDP images and files H-ATLAS SDP catalogue	PACS maps (Ibar et al. 2010) SPIRE maps (Pascale et al. 2010) 5-band source catalogue (Rigby et al. 2010)	[24-Oct-2010]	NO

### ESA News & Press Releases related to Herschel



Hunting high-mass stars with Herschel
ESA Space Science News - also in-depth on ESA SciTech News
27 March 2013



Herschel gets to the bottom of black-hole jets ESA SciTech News 12 March 2013



Herschel to finish observing soon ESA Space Science News - also in-depth on ESA SciTech News 5 March 2013



A cool discovery about the Sun's next-door twin ESA Space Science News - also in-depth on ESA SciTech News 20 February 2013



Stars can be late parents
ESA Space Science News - also in-depth on ESA SciTech News
30 January 2013



Cool Andromeda ESA Space Science - Image of the Week 28 January 2013



Betelgeuse braces for a collision ESA Space Science News 22 January 2013



Herschel intercepts asteroid Apophis ESA Space Science News 9 January 2013



A Cradle of Stars ESA Space Science - Image of the week 7 January 2013





### **ESA News & Press Releases relate**



Hunting high-mass stars with Herschel ESA Space Science News - also in-depth on ESA SciTech News 27 March 2013



Herschel gets to the bottom of black-hole jets ESA SciTech News 12 March 2013



Herschel to finish observing soon ESA Space Science News - also in-depth on ESA SciTech News 5 March 2013



A cool discovery about the Sun's next-door twin ESA Space Science News - also in-depth on ESA SciTech News 20 February 2013



Stars can be late parents
ESA Space Science News - also in-depth on ESA SciTech News
30 January 2013



Cool Andromeda ESA Space Science - Image of the Week 28 January 2013



Betelgeuse braces for a collision ESA Space Science News 22 January 2013



Herschel intercepts asteroid Apophis ESA Space Science News 9 January 2013



A Cradle of Stars ESA Space Science - Image of the week 7 January 2013



Herschel helps find elusive signals from the early Univere ESA Space Science News - also in-depth on ESA SciTech News 1 October 2013



Embracing Orion ESA Space Science News 26 August 2013



Goodbye Herschel ESA Space Science News 1 July 2013



Final command: Herschel ends operations as orbiting testbed ESA Operations News 17 June 2013



There is more gas in the Galaxy than is dreamt of by astronomers ESA SciTech News 11 June 2013



Rare merger reveals secrets of galaxy evolution ESA Space Science News - also in-depth on ESA SciTech News 22 May 2013



Herschel finds hot gas on the menu for Milky Way's black hole ESA Space Science News - also in-depth on ESA SciTech News 7 May 2013



Herschel closes its eyes on the Universe ESA Press Release N° 11-2013 See also the ESA Space Science and SciTech web releases 29 April 2013



Herschel links Jupiter's water to comet impact ESA Space Science News - also in-depth on ESA SciTech News 23 April 2013



Herschel and Hubble see the Horsehead in new light ESA Space Science News - also in-depth on ESA SciTech News 19 April 2013



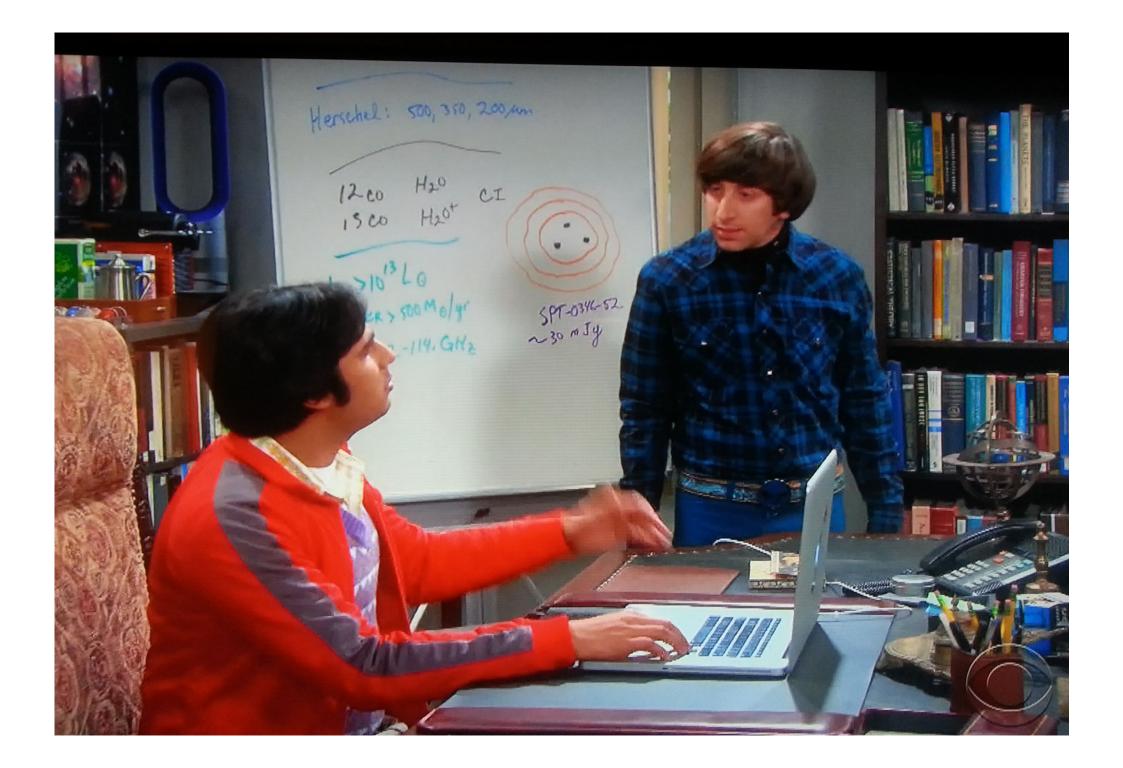
Star factory in the early Universe challenges galaxy evolution theory ESA Space Science News - also in-depth on ESA SciTech News 17 April 2013



Retired star found with planets and debris disc ESA Space Science News - also in-depth on ESA SciTech News 9 April 2013



Hunting high-mass stars with Herschel ESA Space Science News - also in-depth on ESA SciTech News 27 March 2013







# **HUG#6** feedback

HSA & "standalone" products, Map-maker reports, Way forward re implementation

# "Standalone" HSA products - 1(6)

### **HUG#6** discussion of HSA and products

- The HUG want simple self-contained products (maps, spectra) as FITS files, as opposed to "giant tarballs" (observation contexts).
- These products should be "complete" and obtainable & usable outside of HIPE.
- Born: The concept of "standalone" (aka "export") products should be "easily" downloadable, and in addition to not replacing current SPG products.
- Initial discussion centred on providing easy/easier access to already existing higher level products in HSA, then additional wishes emerging.

### **HUG#6** minutes & global recommendations

- Argues SPG products might pose challenge for HSA users unfamiliar with HIPE.
- Aim is to make HSA and its products accessible for a broader community.
- Recommendations on "structure, format, and contents" of HSA products including concept of "standalone" products.
- Stresses that "standalone" products should be provided in addition to current SPG products which should remain unchanged.
- Easy access of "standalone" products assume no HSA or HIPE proficiency.
- Sufficient resources to continue improving HSA is considered critical.



# "Standalone" HSA products - 2(6)



### **HUG#6** minutes & specific recommendations

- and the second
- Specific "standalone" product recommendations per sub-instrument provided, summarised in sec. 1 of the minutes, see also sec. 3.
- Related issue of map-making workshop reports under data processing, sec. 2&4.

### **Preliminary global feedback**

- HUG#6 minutes were made available on 10 July 2013 analysis mainly after the summer and is a continuing ongoing activity.
- General agreement about desirability of simplification and "de-HIPE-ing" of products "standalone" products can be outside of observation contexts.
- Most/all recommended "standalone" products in principle possible but not all are currently existing or even defined in some cases.
- Many/most but not all are necessarily considered good/best choices further work and dialog with HUG is desirable.
- Complete cleanup of FITS keywords is underway, intention is to ensure completeness for the user and to enable future improved archive queries.
- ASCII output is not considered a good idea, due to loss of essential information.

# "Standalone" HSA products - 3(6)



### **Preliminary specific feedback - PACS**

### **PACS-P**

- Current level 2 or 2.5 products can be made available, but need to decide on map-maker (highpass and MADmap currently used, but others are available).
  - Comment: the whole issue of future map-maker is also being addressed.
- Some work needs to be done to offer "standalone" products, but not considered a major task and possibly can be done at archive level.

### PACS-S

- What is currently visible in the browse products can be delivered as "standalone" products as FITS files on short timescale.
- Creating a 1d spectrum FITS file for central point source can/could be done.
- Creating products with regular wavelength grids is being worked on, but does involve resampling and some resulting degradation.
- ASCII products are not considered an option, standalone products will be FITS products in all cases.
- PACS-S team agrees that the structure of the current FITS files is difficult to understand, FITS files need clearer and grouped keywords.



# "Standalone" HSA products - 4(6)



### **Preliminary specific feedback – SPIRE**

### SPIRE-P

- •Current level 2.5 products can be made available as "standalone" FITS files, one multi-extension file per band, single-extension FITS files (sec.1.4.2) are not considered a good idea.
  - Comment: the whole issue of future map-maker is also being addressed.
- •Provision of beams (sec. 1.4.3) is under discussion. Full beams are available as separate FITS file products. Considered better to have keyword point to full beam information. Otherwise maybe simple beam information in header.

### **SPIRE-S**

- •Current level 2 FITS files (as available in HSA) can be provided.
- •Creating a 1d spectrum FITS file for central point source could be done, it used to be done(!), but was changed in HIPE 11 to add the other detectors (as additional FITS extensions) in response to pressure from users to have access to point source calibrated off-axis detectors. Hesitation to "go back".
- •ASCII products are not considered an option.



# "Standalone" HSA products - 5(6)



### **Preliminary specific feedback - HIFI**

- E RESCRET
- Starting point: none of the suggestions is technically infeasible, but not all are considered advisable.
- Co-adding of H and V spectra in maps not obvious, as beams are offset from each other, more so in some bands than others.
- To produce CLASS products (sec.1.1.1) is in principle easy (in HIPE), but entails loss of information, worries about CLASS (already) evolving and products may (have) become unreadable.
- Providing finer granularity (sec.1.1.2) can be done (trivially in HIPE remove one step of processing), and has been considered earlier by the ICC. Hesitation on also producing CLASS product (see above).
- Providing co-added spectra (sec.1.1.3) is possible, but questioned whether it should be done, in part due to considerations of beam offsets.
- Bottom line: The HUG recommendations will be a main topic of discussion in the upcoming HIFI ICC co-location on 21-25 October in Florence.

# "Standalone" HSA products – 6(6)



### **Envisaged way forward**



### Short-term (HSA 5.2 – months, goal by Xmas, HCSS 11.1 reprocessing)

- Currently existing products:
  - PACS & SPIRE level 2 or 2.5 maps, one FITS file per band,
  - PACS-S current browse products as FITS files,
  - SPIRE-S current level 2 products as FITS files,
- could be made available "as is" by changes to HSA.
- Preliminary foreseen implementation under study:
  - Right-click on "postcards" get shopping basket.

### Medium term (HCSS 12.1 – spring 2014 bulk reprocessing)

- PACS-S & SPIRE-S 1d spectra FITS files for central point sources (TBD).
- HIFI TBD products.

### Long-term (HCSS 13.1 – spring 2015 bulk reprocessing)

- Photometry: Awaiting map-maker decisions re potential new products.
- PACS-S regular wavelength grid spectral cubes.
- TBD further products.

# Map-maker reports - 1(1)



### Status and envisaged way forward

### **SPIRE**

- Current schedule as recently reported:
  - Internal version circulated for comments, deadline on 10 October 2013.
  - Report made publicly available on 11 October 2013.

### **PACS**

- Current recently updated schedule foresees:
  - Internal version for commenting to be circulated by 10 October 2013.
  - Draft report made available on 11 October 2013.
  - Public final version to be released by 1 November 2013.

### Way forward

- Reports provide data but no clear recommendations, assessment underway.
- The aim is to reach a wide agreement on this in HST#53.
- If change of map-maker, decision would be needed by HSC/ICCs in 2013 for implementation in HCSS 13 => reprocessed archive contents in spring 2015.



# Way forward & HUG/HST - 1(1)



### **Envisaged way forward**

### HST#53 – to be held on 4-5 November 2013

- HST wants to have HSA "as major agenda point"
- Map-maker discussion/decision on way forward
- **HUG input to HST desirable & important** bullets OK
- Remember PIs (in HST!) responsible for (they 'deliver' the) ICCs

### HST#54 – provisionally to be held on 10-11 April 2014

- As discussed informally earlier
  - Would like to coordinate HUG & HST meetings
  - Would like to have HUG input for every HST meeting, from 2014 frequency of HST meetings lowered to twice per year
  - => HUG#8 in Feb/Mar 2014!?
- I suggest (initially internal?) HUG discussion on this matter
  - HST experience: decide on future meeting dates in meetings. It works!



