



- Main goal is to give you a serviceable understanding of how to locate HIFI observation(s) of your favorite target(s), judge the data quality, and what to do next with interactive processing steps.
- We will help you do this with demos and hands-on time, preceded by short presentations.
- We do not tackle topics we consider advanced (taking more than an hour to demo/explain or required PhD jython scripting knowledge), but if they come up we will consult with you.
- Plenty of time! Coffee breaks interspersed.
- Webex is running and recording (later edited and posted, TBD).
- After lunch science talk by N. Flagey, "Water Absorption in Galactic Translucent Clouds: Conditions and History of the Gas Derived from Herschel/HIFI PRISMAS Observations"
- Quick poll: which OS's are here? What RAM? HSpot installed?
- Questions?









HIFI in the HSA, and Using HSpot as a Data Reduction Aid

Pat Morris (NHSC)





- By now you have probably become grizzled veterans at using the HSA and the User Interface.
- Just a few more points about HIFI in the archive...
- Then we will play with HSpot as a valuable tool for schematically visualizing the sidebands and AOR overlays.







• It makes sense to first search on your interest area, *then* go to what you need to know about the way the data were taken (instrument setup and performances), the products you are offered, and data (re-)processing.

Search Observations #2 Observation Id @ Observation Id @ <th>The front panel of the HUI is simple for target and coordinate based queries.</th>	The front panel of the HUI is simple for target and coordinate based queries.
Image: Shape (a) Resolve Name (b) Equatorial (c) Galactic (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	Target-based query. TIP: verify first that the name can be resolve by SIMBAD, NED, or target name given by original proposer; on failure to resolve you wi get "undesired" query results (a bug). Total ACTS, standard modes (non-engineering)
Proposal Query Panel TII Timing Constrains Query Panel Mc	P: The AOTs can be individually (de-)selected. ore about the AOTs later.
Clear	Query



Managing Query Results

(see slides re HSA and query output by D. Ardila)







- At this time (version 4.3.1) advanced, and still some *basic*, searching is limited with the HUI.
- Example: What excited CO (J_u > 8) has been observed around 10 of my most favorite AGB stars?
 - 1. A list of obsids can be loaded into the HUI.
 - 2. Observed sky frequency range, the tuned instrument frequency, species names or rest frequecies cannot be searched. Query should proceed on the obsid list.
 - 3. Similarly, in the output, neither sky frequency nor tuned frequency are present. There are 3 options:
 - 1. Save the output to a table, and search for strings like "CO" the AOR labels. This is unreliable since the AOR labels have been "free-form", at the discretion of the original proposers, sometimes unrevealing.
 - 2. Open the Browse Product images (jpgs) if they are present, and check for coverage of the observed frequency ranges over the transitions of interest, taking redshift into account if needed.
 - 3. Dave Shupe's mining script not ready for prime time.







- HSpot is a valuable tool to have open on your desktop alongside HIPE sessions with HIFI.
- 1. The Frequency Editor.
- 2. Visualizing AORs

Will use a mapping example, however this is generally recommended to check even fixed beam observations to see the environment and in particular where the OFFs are placed.





PPN CRL618 (5 different obsids shown) Note broad profiles and lines from both sidebands





Let's use this spectrum as an example: a search for fundamental water in this target.

2 options:

-Search spectral line databases (JPL, CDMS, ...) over USB & LSB freq. ranges, here 1099 – 1103 and 1111 – 1115 GHz, if you have a good idea of what species will be present. Searching all possibilities over 8 GHz gives huge output.

-Visualize with the HIFI Frequency Editor in HSpot.



HIFI Frequency Editor



Service Frequency Editor	
Frequency Editor	
Lower Sideband LO Frequency 1,107.058 Upper Sideband	
HRS 1 HRS 2 HRS 2	Visualizing Spectral Lines in the HIFI Sidebands with HSpot
Type … Line Transition Up Observed (GHz) Rest (GHz) WBS ✓ H20 ▼ -No Lines- ▼ ✓ 1,112.623 1,112.541 HRS 1 ✓ H20 ▼ -No Lines- ▼ ✓ 1,101.113 HRS 2 ✓ H20 ▼ 111-000 ▼ ✓ 1,113.186 1,113.104	The second secon
Warning messages OK Cancel	ftp://ftp.sciops.esa.int/pub/hspot/HSpot_download.html



Video tutorial on the workshop wiki.



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• Let's retrieve the mapping AOR corresponding to the observation we will demo later today.

٢	Herschel Observation Planning Tool - OT2 Call Phase 2 version		
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	Read AOR(s) and Target(s)	Ctrl+R	
	Save AOR(s) and Target(s)	Ctrl+S	
	Read Fixed Single target list		n Requests (AORs)
	Read Moving Single target list		Instrument Mode Information Duration Stat On 🕫
	Save target visibility windows		
	Save Current Plotted Image as FITS file		
	Save Current Plotted Image & Overlays to JPEG, GIF, BMP, or PNG		If this goes correctly,
	View Accepted Proposal		Accepted Proposal Name: KPGT_evandish_1
	View Accepted Proposal		
	Quit	Ctrl+Q	with the proposal
			abstract and a button
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			to "View AORs"
	Observations		
Tar	get: None Specified		Total Duration (hrs): 0.0
Pr	oposal - <no file=""> C</no>	necking For	r Updates 🚍 Net Up







 Now follow the rest of the video tutorial to open the frequency editor and expand your spectral line list.



AOR visualization – importing images



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- With our AOR filtered from the full KP set of AORs, we can import an image from one of the archives to which HSpot has a connection, or one of your own.
- Select the AOR (to set the target), and we take an MSX image.



Adjusting the image colors





Adding the AOR overlay



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	Date: 2013	Sep 20				
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OK		Cancel	Help			

Selecting this will bring up a visibility selection window.

Enter 2010 Oct 27, and "OK"













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More overlaying



Herschel Observation Planning Tool - OT2 Call Phase 2 version	
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This is the 13CO 10-9 map we will create later today, exported from HIPE to FITS, and imported using the Overlays menu.

The image can be adjusted for color, opaciity, etc.

Neat! And pretty easy.

Questions?



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