MAST User Survey 2013
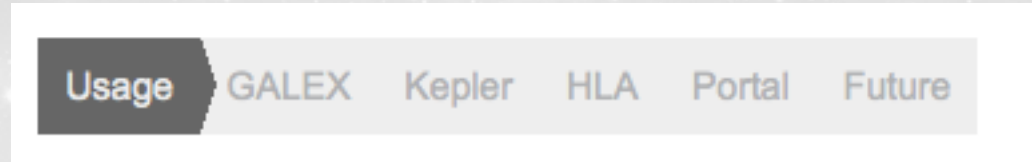
MAST
Users
Group
Meeting

2013 - changed survey approach:

- Redesigned structure, into distinct sections:

- More targeted set of users:
  - 2012: sent to 8,410 emails, 301 responses (3.6%):
    - all who have ever been on any HST proposals
    - all active archive accounts
  - 2013: sent to 3,079 emails, 180 responses (5.8%):
    - all who have been on HST proposals in last 5 years
    - all active archive accounts, excluding bad/bounced emails
- Also advertised survey on our social media pages:
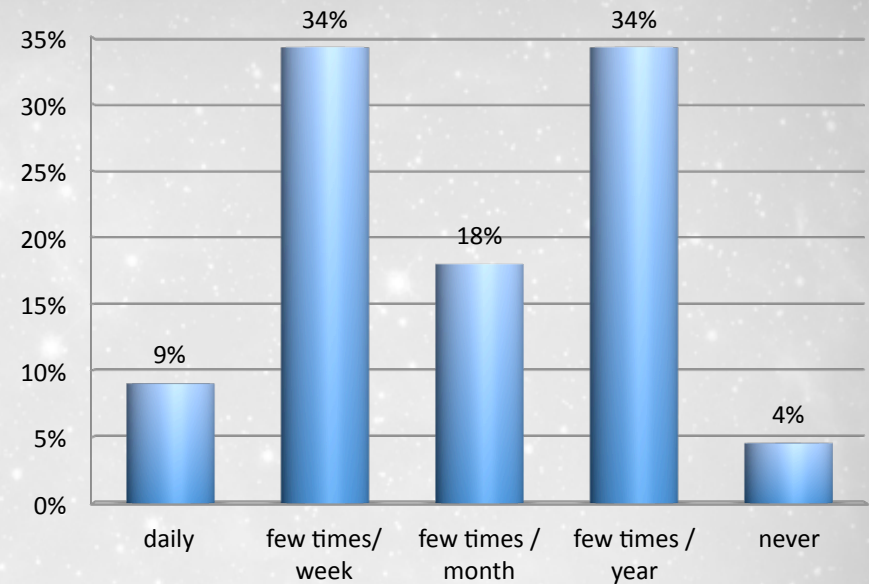 - Facebook, Twitter, MAST pages, newsletter mailing

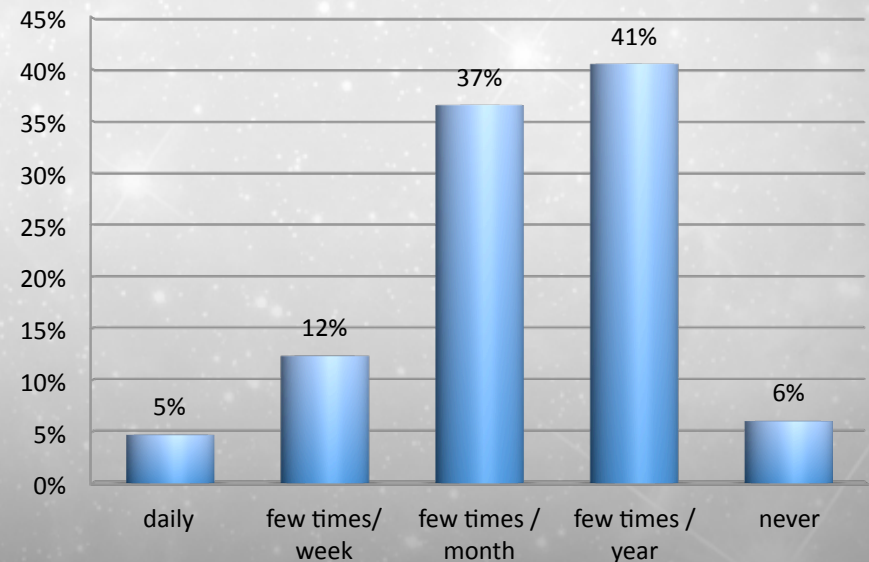# 1. How often have you used MAST in the past 12 months?

- 2013:
  - smaller number, but more active subset (daily+ few x/wk =77)
  - bimodal distribution

- 2012:
  - larger number, but more infrequent users, fewer frequent (daily+ few x/wk =51)

180 responses (2013)

	daily	few times/week	few times/month	few times/year	never
	9%	34%	18%	34%	4%

301 responses (2012)

	daily	few times/week	few times/month	few times/year	never
	5%	12%	37%	41%	6%

2. Which missions or products did you access?

2013

Note increased Kepler usage!
(7% ➜ 12% from 2012➜2013)
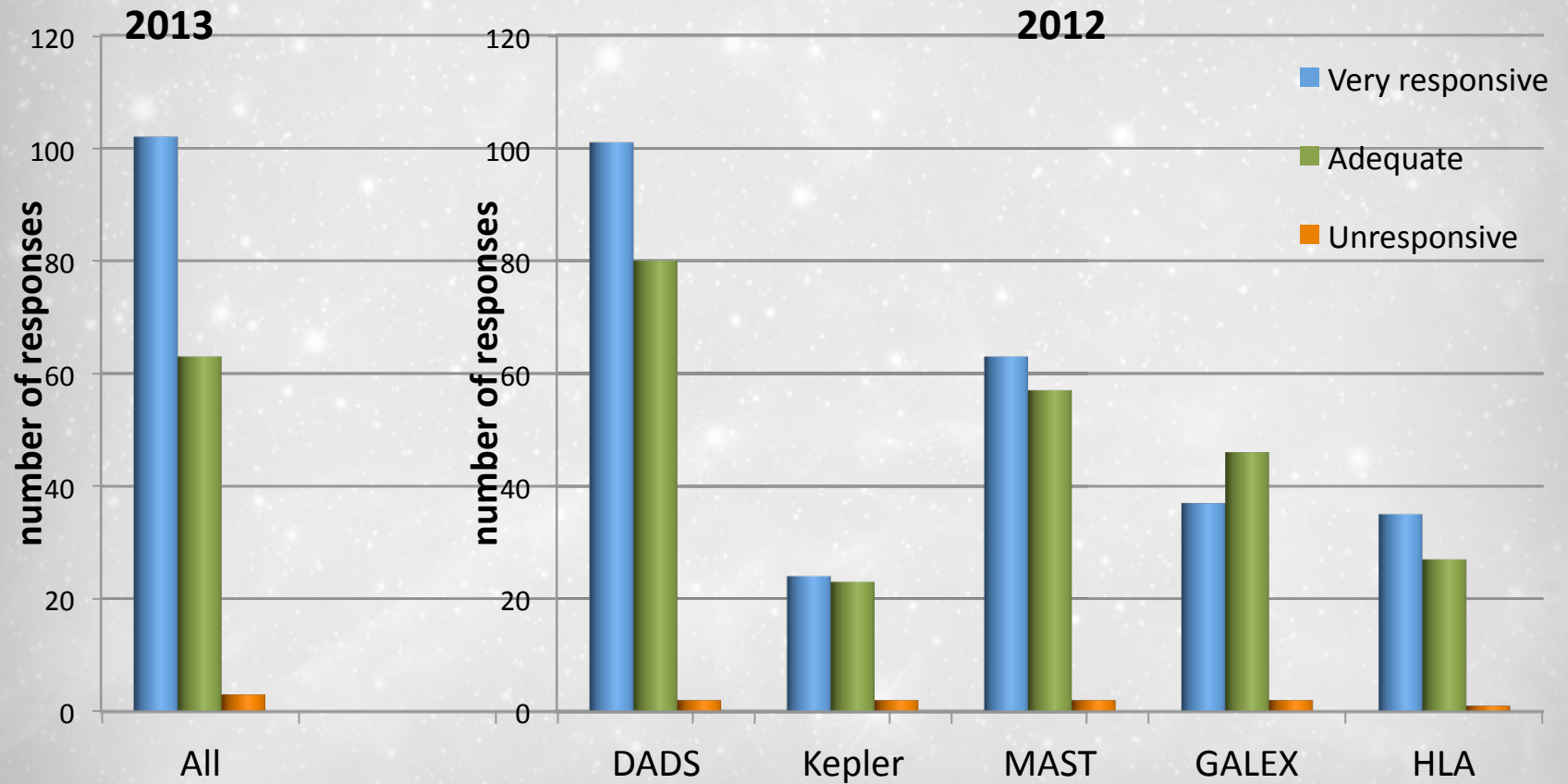
2012
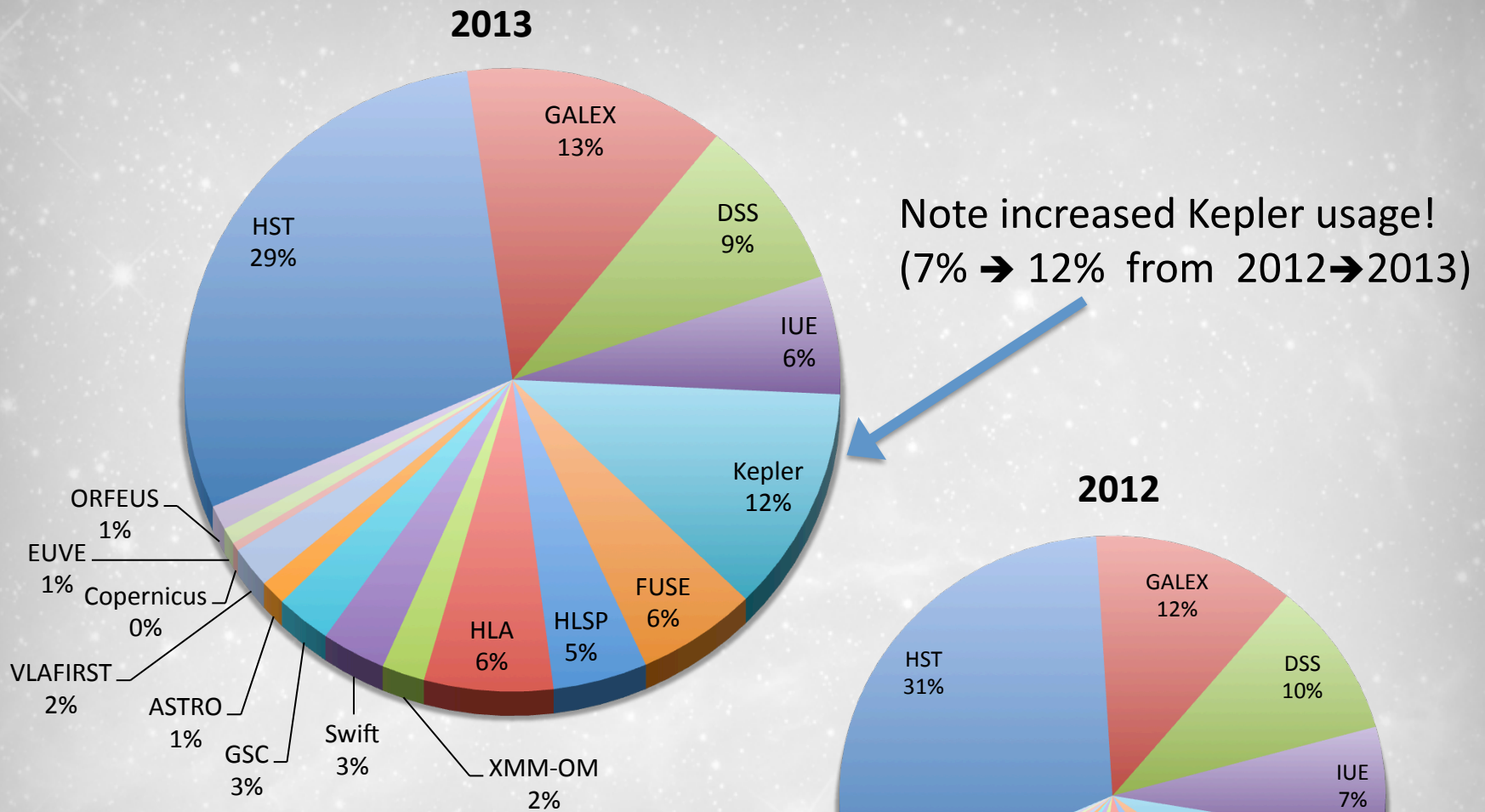
If you selected 2 or more missions
above, did you use them together
in the same project?

Yes: 83   (60%)

No: 55   (40%)

3. If you retrieved data from MAST in the last 6 months, what did you think of the performance?
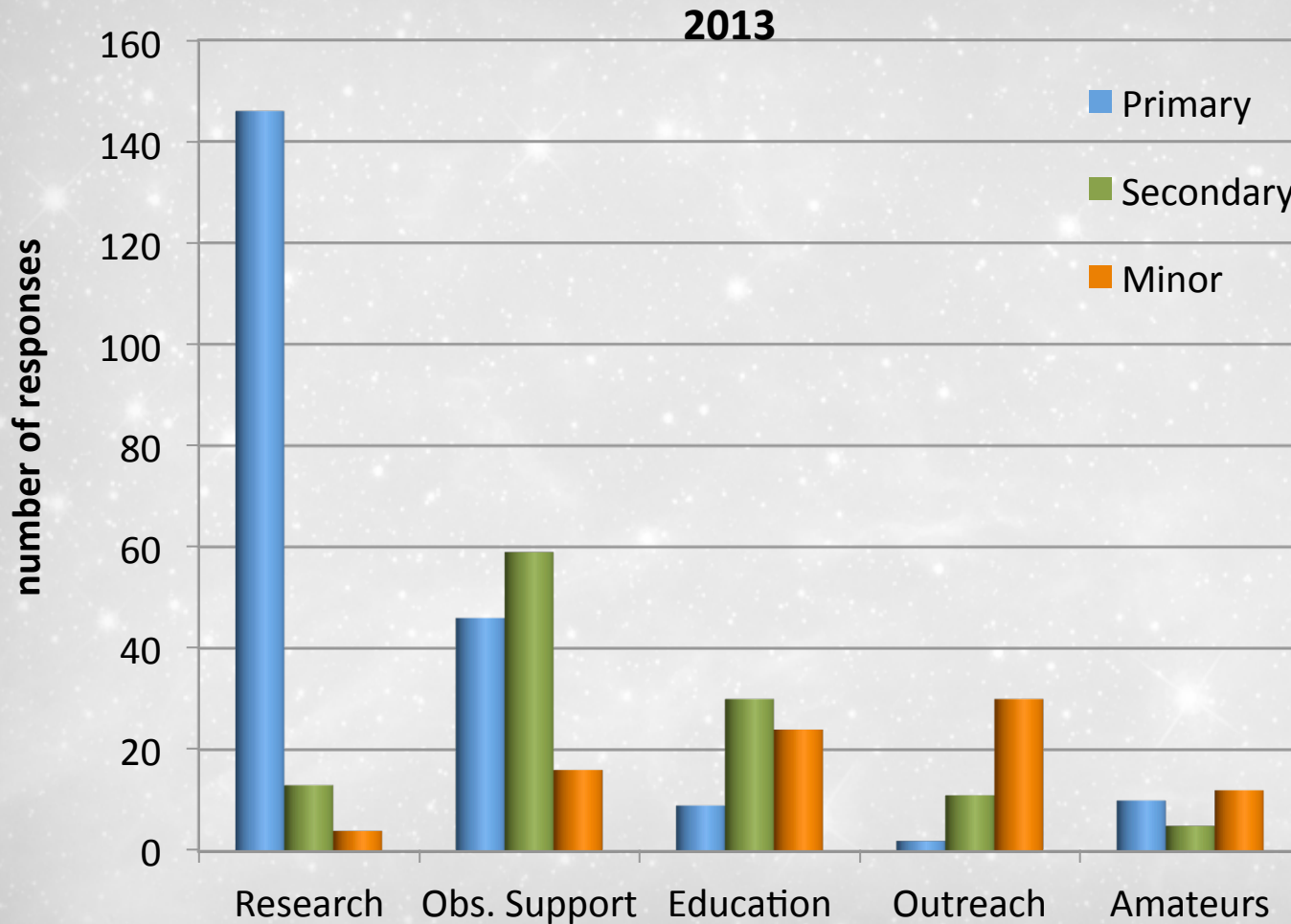
Q3 – some comments received:

- When retrieving HST data, would be a good idea to provide the data (eg, staged) compressed by default. Otherwise, the request needs to be repeated for reasonable ftp times (and also the staging space is very large on your side).

- When requesting large amounts of data often times it would take a long time for the website to respond. The confirmation page wouldn't show or the list of available data would be very slow to respond.

- Used GALEXVIEW to retrieve GALEX GR6/GR7 data products. The data files selection window (the basket) is tedious to use for choosing specific files when a large number of tiles are selected. Improvement can be made by adding a set of filters (or whatever works) for file name-formats (-nd or -fd, -int, -rrhr, -objmask, etc...) and some sort of 'mark all' and 'mark none' checkbox (like gmail's).

- STScI treats spectroscopy as a second-class citizen, i.e., the majority of the energy and resources at STScI is directed to imaging. In the case of the archive, for example, the spectroscopic products from the HLA are not very good (not very useful). Spectroscopy is the workhorse of astrophysics, and astrophysics behooves STScI to make a better investment of resources in support of its *spectroscopic* archive.

- I tried to download data for several hundreds targets but it did not work and had to divide my file into several pieces. It would be nice to be able to download larger number of files. It would also be nice to be able to select the spectral type of the star for the search.

- Search options were sufficient and results were good. I found the data I needed quickly and efficiently.
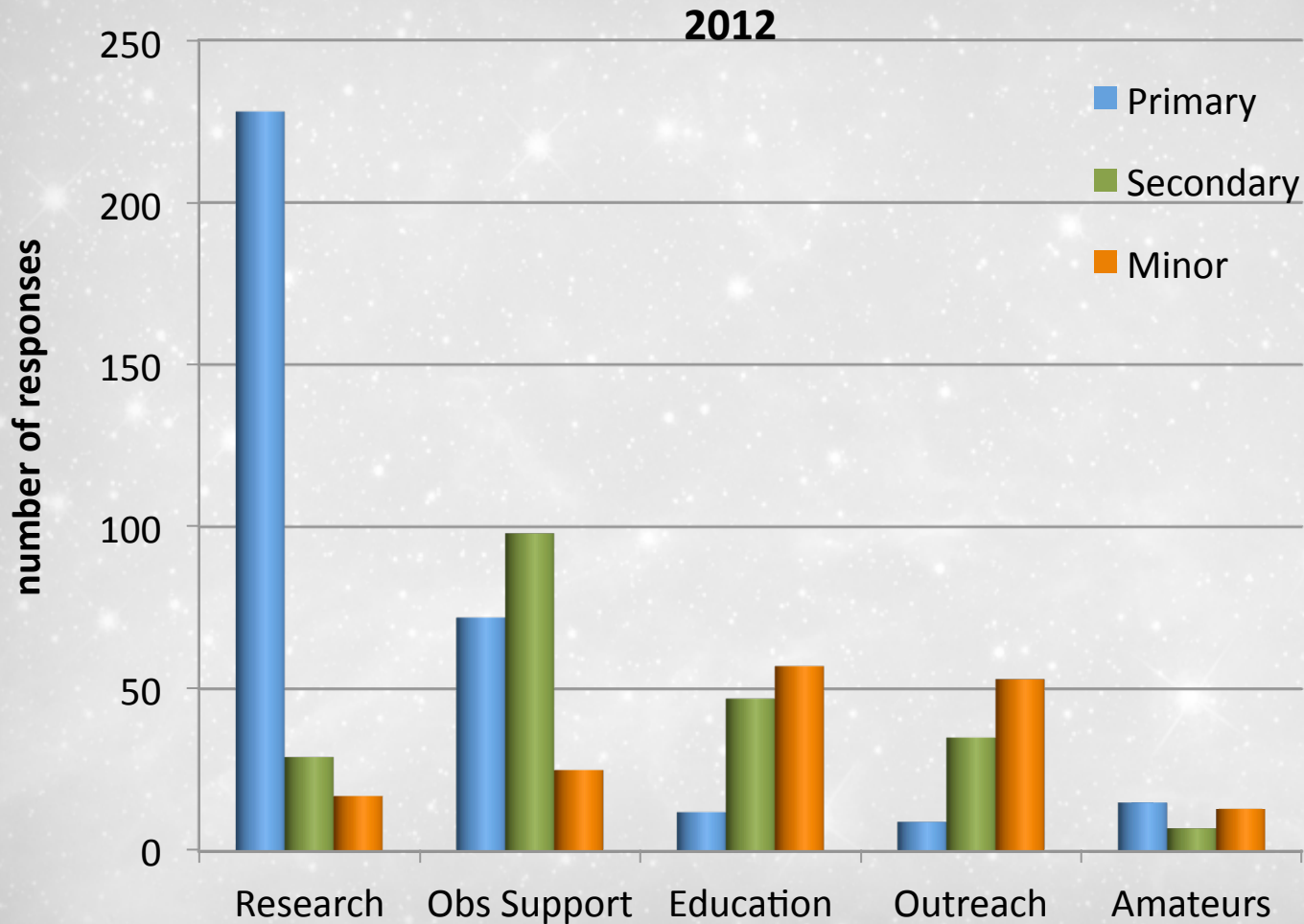
4. Which activities do you use MAST for?

4. Which activities do you use MAST for? (2012)

## (almost no change in proportions from 2012 to 2013)

Q4 –comments received:

- Specview is a pretty nice tool, but there are still ways in which it could be improved. With a few more resources, I think it could become a pretty popular research tool.

- we want to see individual exposures and not data products

- I'm a programmer by trade, and I love looking at the sky. But I'm only an amateur working off of my home computer. could you please organize the data sets and make it obvious what is the most recent and what location I'm looking at?

5. Which MAST interfaces do you commonly use?
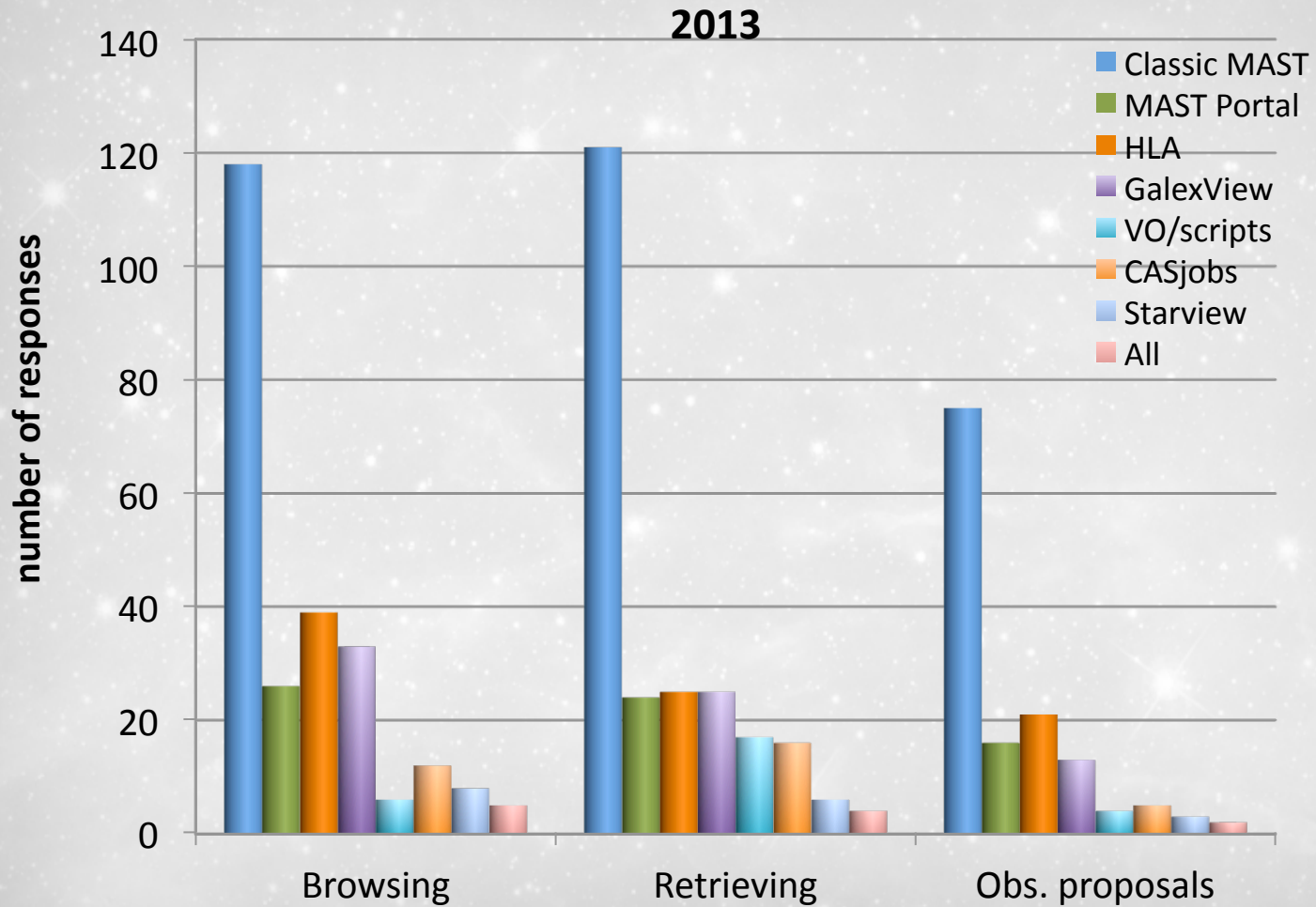
Q5 – comments received:

- FTP, to download large amounts of data

- Sometimes I refer others to result lists by copy and pasting the URL. I'm thankful that GET variables are used so this is possible.

6. For GALEX, we are releasing a new experimental tool called gPhoton which is a time-tagged database of GALEX photons and a tool to make light curves and movies from those photons. Would you find this useful?

- Yes: 59   (42%)
- No: 80   (58%)

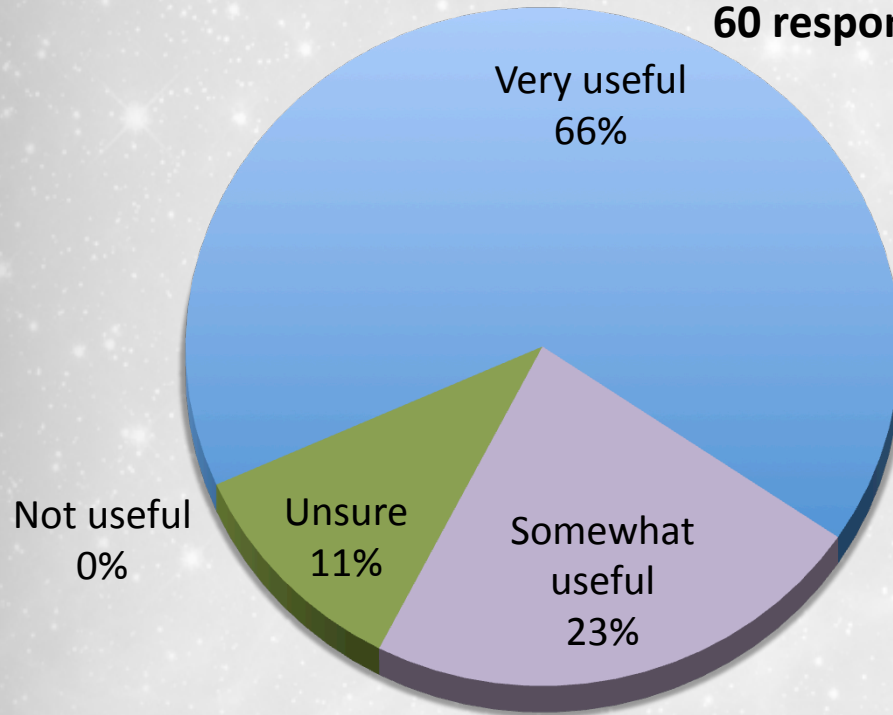- If yes, what science would you find it most useful for? (next page)

Q6 – some comments received:

- Would streamline light curve making process. Movies useful for visual representation of data.

- White dwarf variability

- Variable star research (7 separate comments!)

- To search for potential transiting objects

- Time series data to image processing.

- That sounds like a great project, and I'd be keen the use it if it applied to my work.

- Selecting quasars

- looking for a UV counterpart of an optical source

- Kepler FOV studies where applicable

- AGN, cataclysmic variables, M-star flares
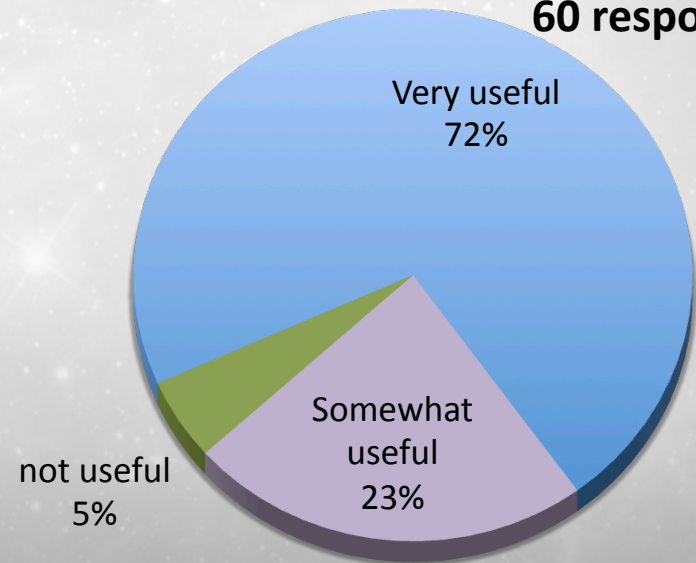
7. If you have used the Kepler archive, please rate your experience:

2013:
60 responses

Very useful
66%

Not useful
0%

Unsure
11%

Somewhat
useful
23%

2012:
60 responses

Very useful
72%

not useful
5%

Somewhat
useful
23%

Q7 – some comments received:

- The only thing I would do is be able to search for targets based on which quarters are available and which ones are NOT available. For example, I'd like to search for targets that only have data in Q14 Q15 and Q16. If the target has data other than these quarters, exclude it from the search results.

- merge the Data Search & Retrieval information with the Kepler Target Search information so that all is available in one go, rather than having to enter in the target twice and do two searches.

- It would be helpful if there were buttons to select all the short- or long-cadence data separately for an target. Now, you have to select each quarter by hand. Also, in the column indicating the disposition of a target, rather than just linking to a page defining the terms in that column, it would be VERY helpful for MAST to link to the Kepler diagnostic reports on the NexSci website. That way, someone looking at the target would, for example, know WHY Kepler thinks that target is a false positive for a planet.

- If larger tables would be retrieved, it would be so useful. In selecting parameters in MAST portal, no '>=' or '<=' are allowed. Include them will be a nice improve.

- For searches in general, in which a user uploads a list of targets (e.g., Kepler IDs), it would be very helpful if the results returned could be ordered according to the uploaded list. This would help when one wants to merge the search results with an existing table used for the uploaded targets.

- A general 'Getting started' section for basic info on usages of Kepler data, etc., would be greatly appreciated. I'm an undergraduate trying to get a significant research project with Kepler data going, but have had trouble utilizing MAST and Kepler data to its' fullest due to my lack of experience.
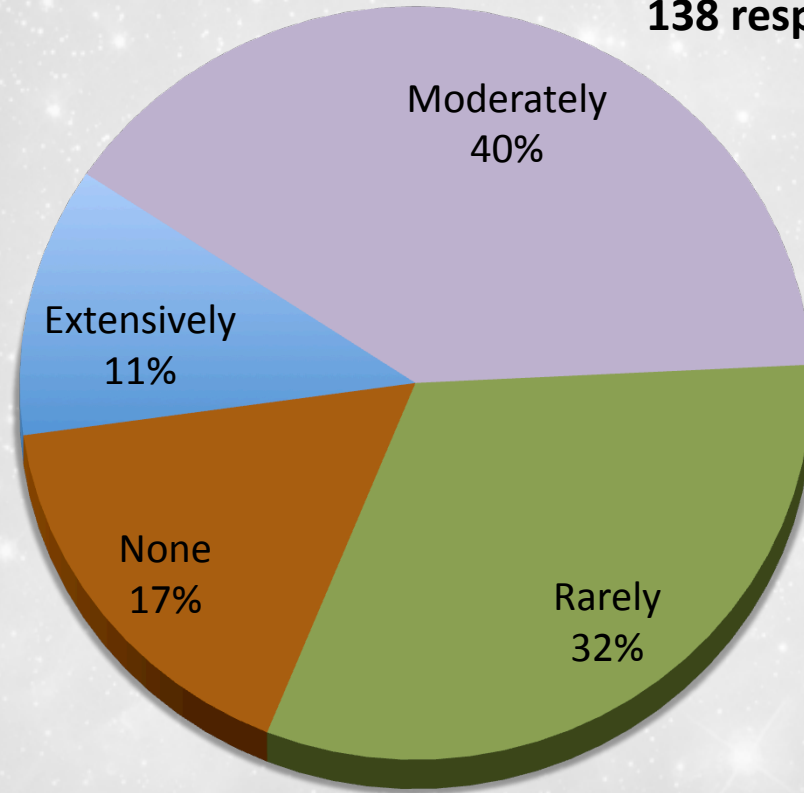
8. What activities should we carry out to maximize scientific usefulness of the Kepler archive long-term?

- The Kepler project has prioritized its shutdown activities to concentrate on its primary mission, exoplanets. Information useful to astroseismology and extragalactic targets should still be documented adequately.

- Include WISE colors for the KIC sources.

- Have the KOI links accessible from the KIC entries when people search things up by KIC number. (right now we can only access KIC entry from the KOI end).

- Since data provided have improved processing in time (PDC-MAP, PDC-msMAP), it would be useful to have that information accessible before downloading the data to be sure that all the data are consistent (and for instance for a given star data that are processed in the same way are downloaded to avoid any issues because different filters are applied from one quarter to the other).

- 1. Host a mirror of the Kepler PyKep software, so that when the Kepler mission ends, these critical programs do not vanish. Hosting the pixel-level data is not useful if the only tools able to use them don't exist. When the funding for Kepler is gone and the lights turned off at Kepler at NASA Ames, we don't want the large set of tools to disappear. 2. Much useful information was lost when the switch from the internal 'KSAS' to the external NASA Exoplanet Archive (NExSci) was made, purely do to policy, not due to any technical constraints.

- Two suggestions, each would take some time to develop as staff time permits: (1) add a column plot option to the data search results page, for those parameters which are amenable to graphic display. E.g., plot the RAs & Decs of selected sources; draw a histogram of their Kepmags, estimated effective Temperatures, kepmag vs g-r color, etc (2) Add a side panel when displaying the light curves which presents some information about the selected sources. Presented as a small table with their KepID, kepmag, cdp6, J-mag, a few other parameters. Also very useful would be the number of pixels in the optimal aperture, to help understand the quarter breaks.
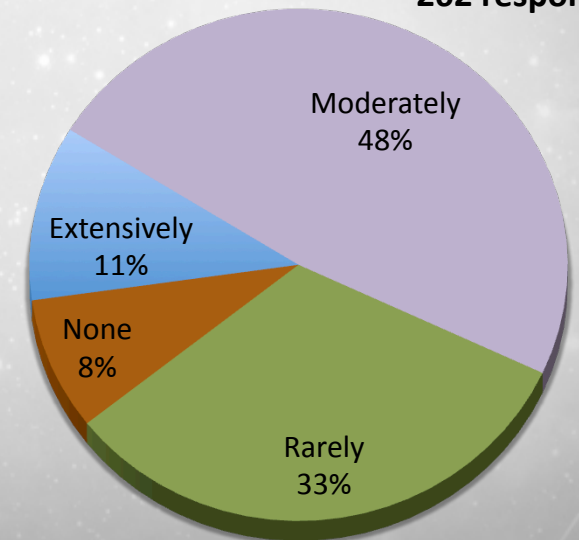
9. Hubble Source Catalog: How frequently do you think you would use the HSC for your research?
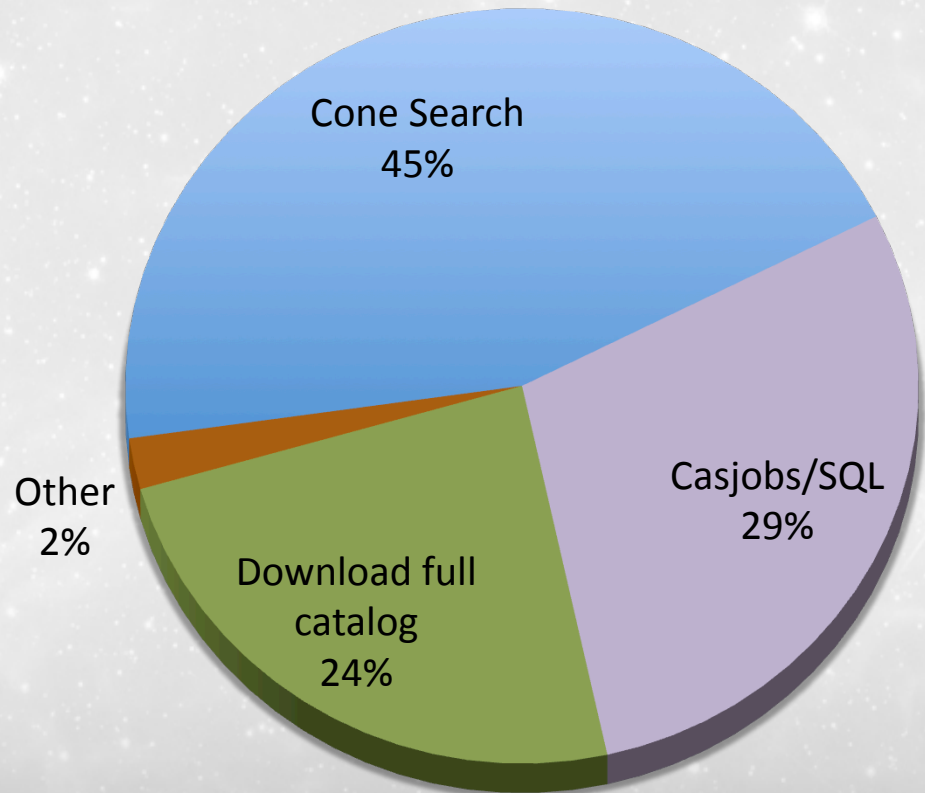

2013:
138 responses

Moderately
40%

Extensively
11%

None
17%

Rarely
32%

2012:
262 responses

Moderately
48%

Extensively
11%

None
8%

Rarely
33%

9. Hubble Source Catalog: What modes might you want to use in interacting with this catalog?

179 responses

- Cone Search 45%
- Casjobs/SQL 29%
- Download full catalog 24%
- Other 2%

Q9 – comment received:

- Part of my research involves looking a the bulk properties of galaxies over a range of redshifts, so this catalog sounds very interesting. If you do make it available for download, I recommend making it available as a fits binary table.
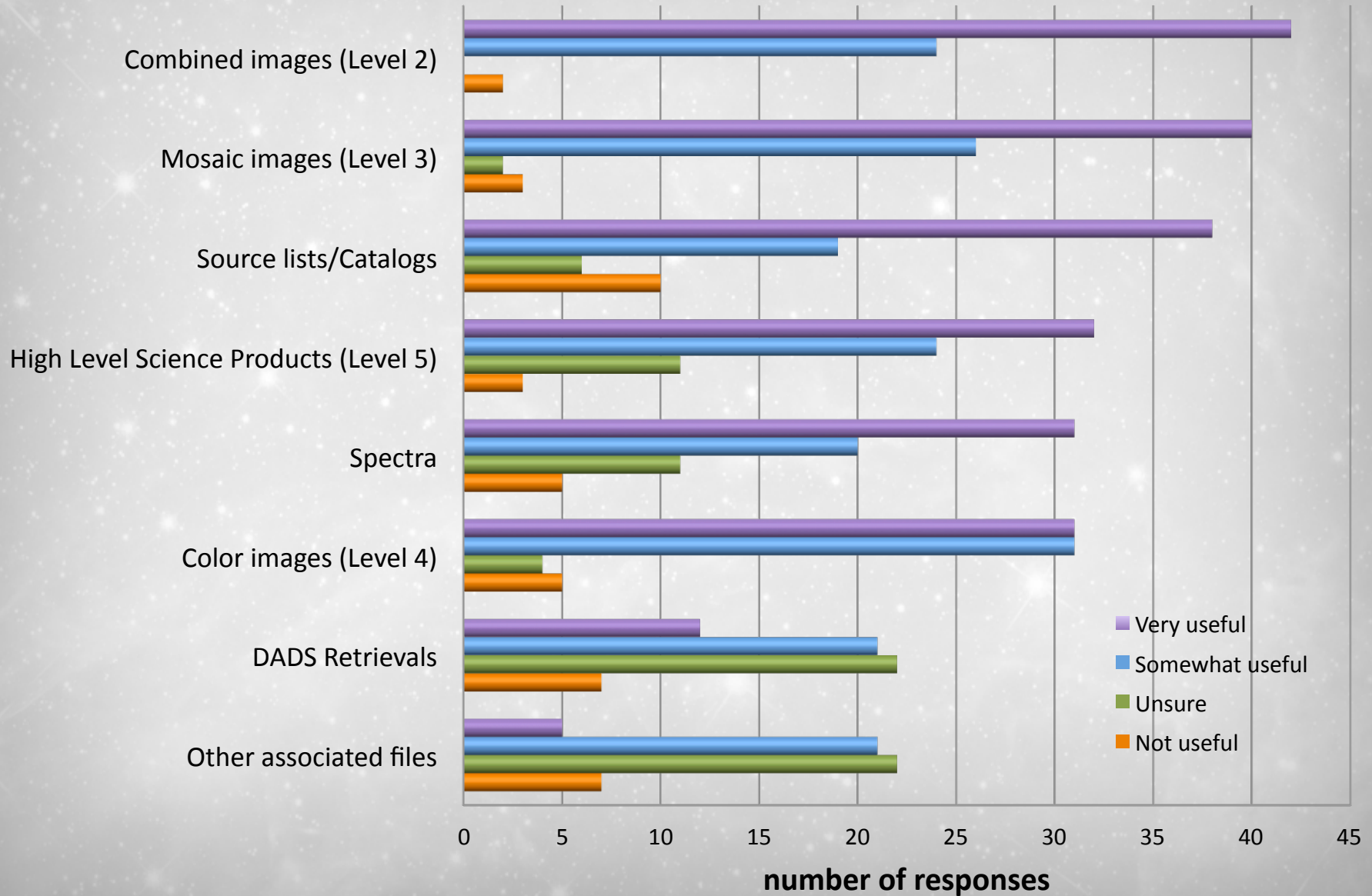
10. Please rate the usefulness of these HLA tools
(sorted according to responses)
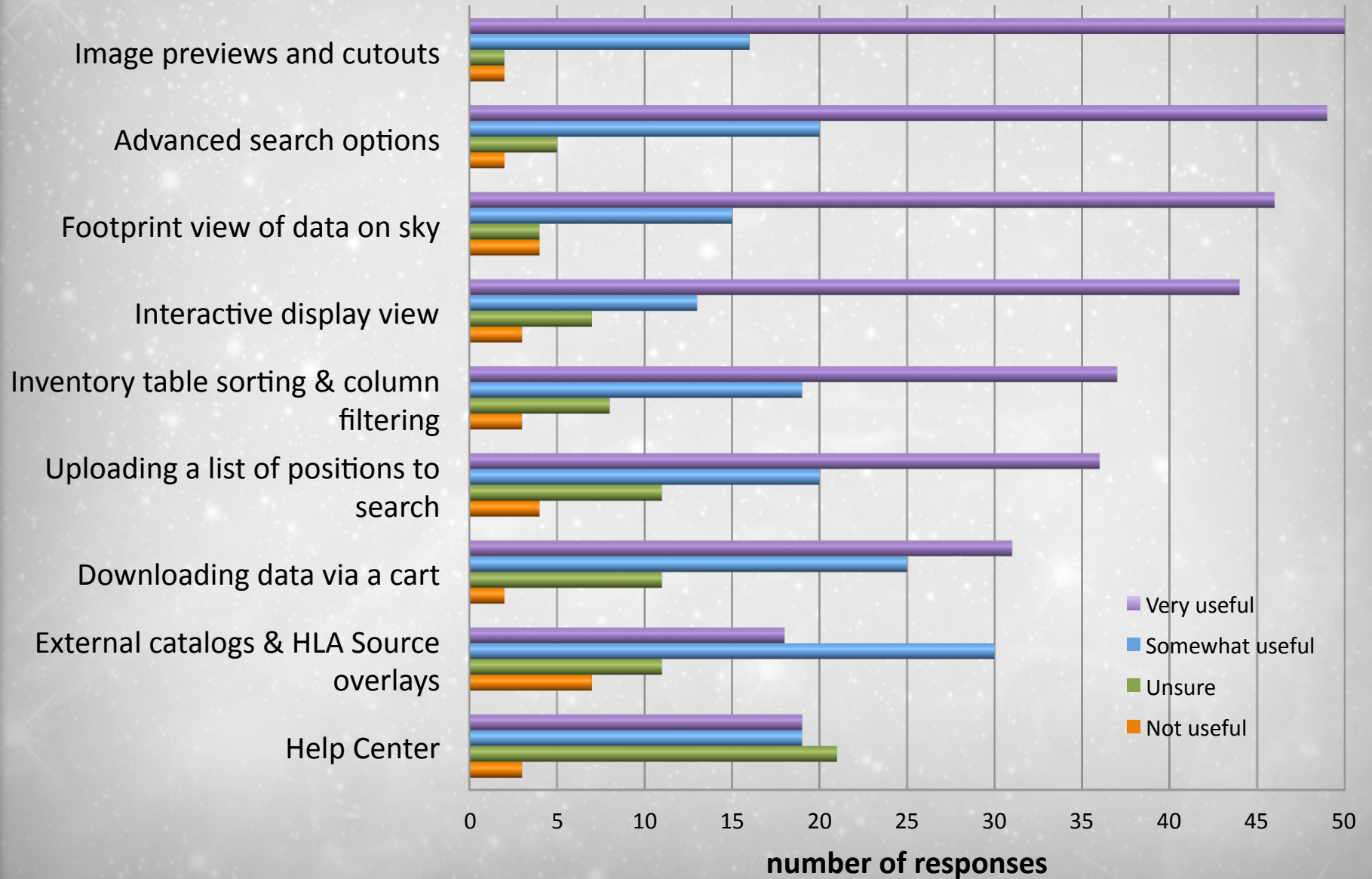
11. Please rate the usefulness of the following HLA data products (sorted according to responses)


number of responses

Q11 – some comments received:

- I use the HLA to find images to process into pretty pictures (the Hidden Treasures contest got me into this) and it's great for this. Sorry I am not of more help with the more science-related things. I wish there was something just like the HLA for the Cassini/Huygens mission.

- I do high-contrast imagery, and the HLA data are typically not helpful since they have been resampled out of the detector frame.

- A pointer from an individual record in the HSC to its location in an interactive display
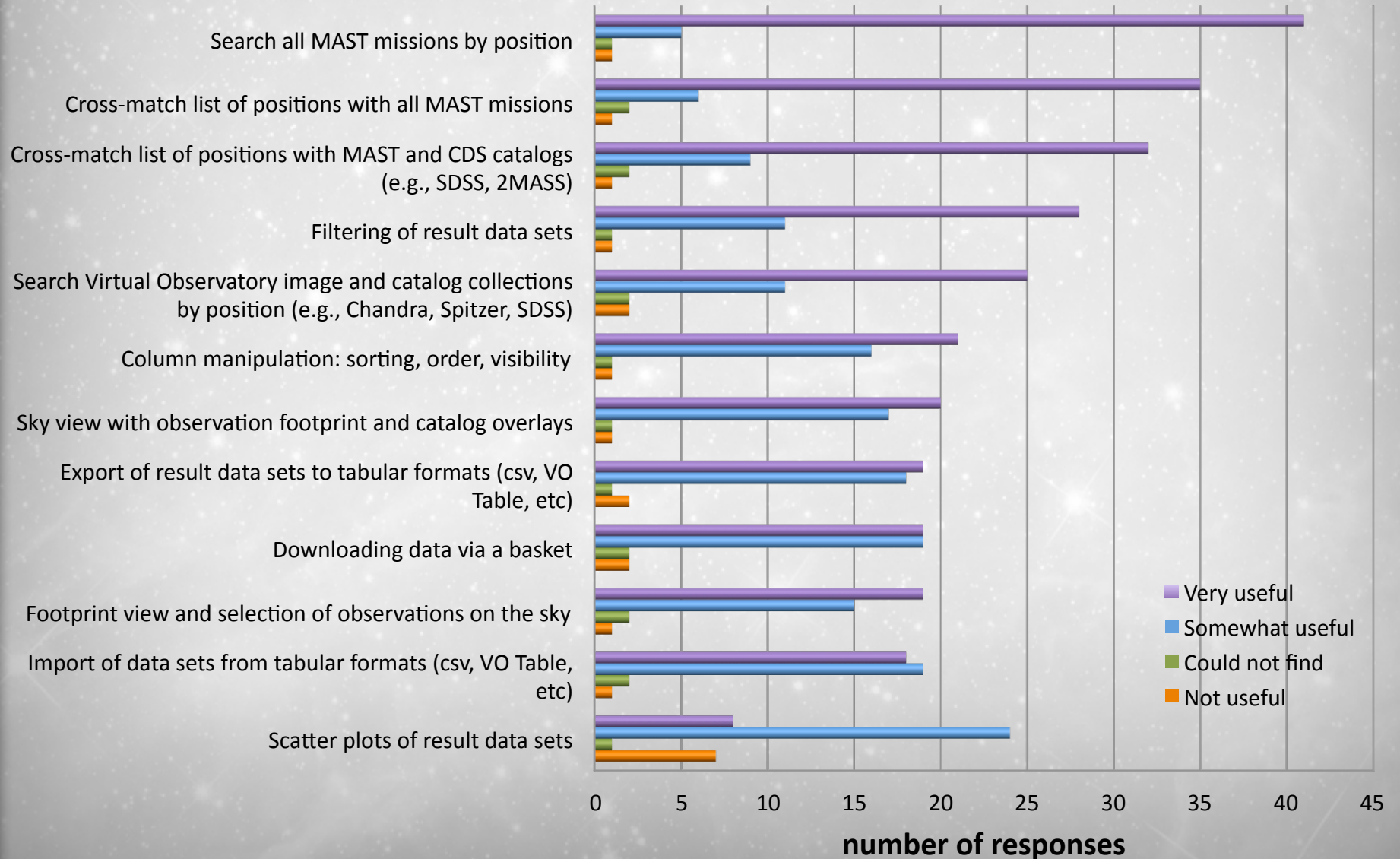
12. MAST Portal: What additional features would you find useful for the MAST Data Discovery Portal?

- Trying to download GALEX tiles, it would be useful to show the name format (nomenclature) of the corresponding files (e.g. -fd-int.fits, -nd-rrhr.fits, etc...) in either the Filters column or somewhere in Table View column.

- Include solar system target names, such as *Jupiter*

- I find IPAC table format quite useful

- I haven't figured out how to do source category searches, e.g. find all HST ultraviolet spectra of quasars.

- object categories for all spectroscopic data

- To be honest I didn't look for too long, I was trying to find Light Curves for certain KOI and I was unable to find a way to get them.

- i can never find P330 the IR standard star us ing the name option. *P*330* doesn't work..... sometimes the object is called PE330 one of the most observed objects in the HST archive, and it doesn't have a consistent name

- I love the interactive footprints map, and find it extremely useful. But I wish it had a few more features, like more zooming capability, and a better RA and DEC tracking when you're mouse is on the window.

13. **How important are the following planned features in terms of being useful for your own work?** (sorted according to responses)
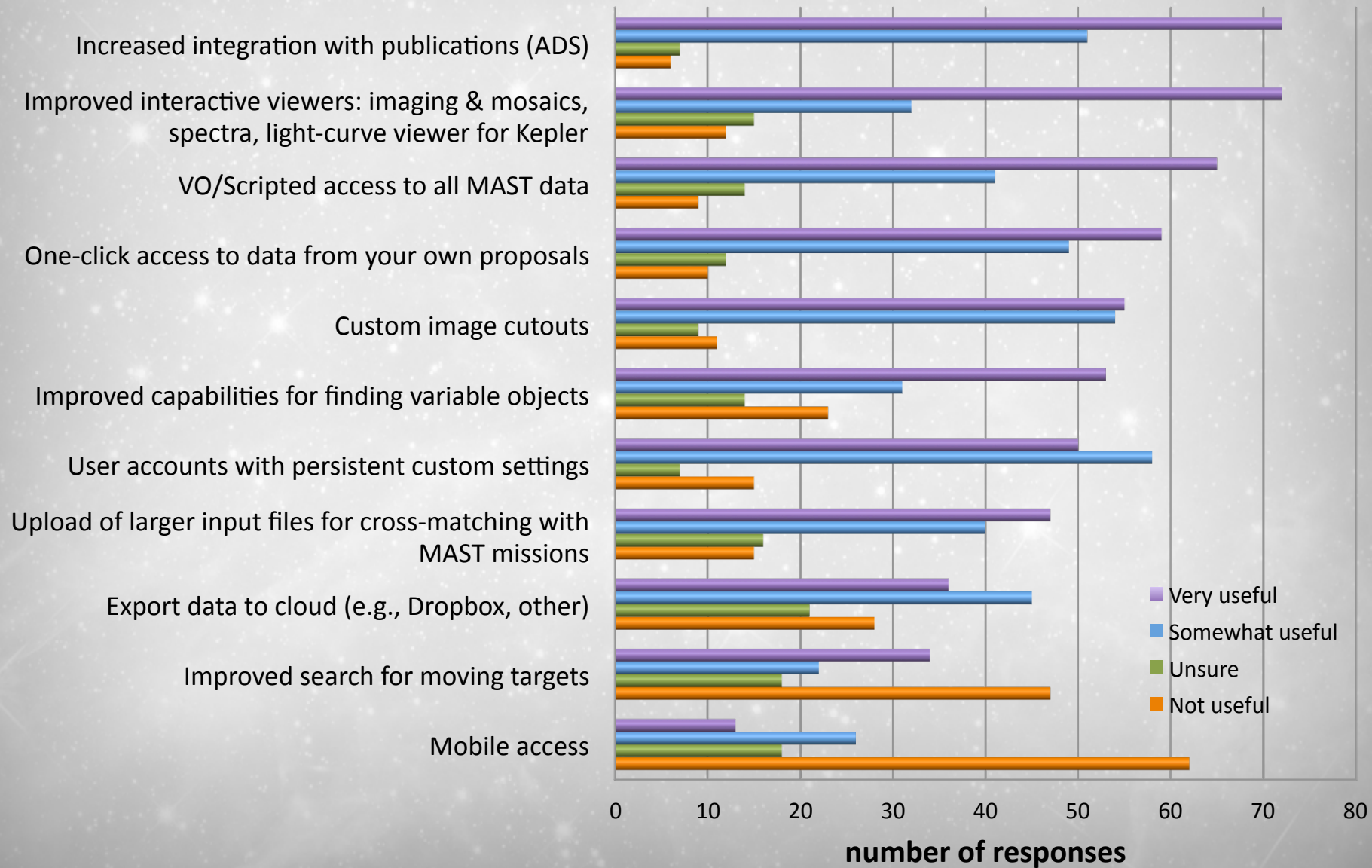
Q13 – some comments received:

- IMPROVED search capabilities. Return 'singletons' that are not parts of 'Associations'. Additional searchable metadata keywords , particularly for also calibration data. AND ... MOVING TARGETS!

- In the WFC3 team, we download all new WFC3 data daily and build a SQL database of all the file locations and header information. Our team would be particularly interested hearing about any plans MAST has to increase scripted MAST access that might effect the WFC3 data.

- I'm very satisfied with the current feature set.

- Mobile access or 'cloud' aren't issues to my, because the amount of data I need is much bigger than their capacity. Improvements in scripting and viewers would be so (so!) useful

- Exporting to cloud storage could go a long way toward making it easier for researchers to use the data, but I caution against giving any one technology such a central role in our reasearch lives.

- The two last items (mobile access and download to cloud) really go together.

- All these new features will be very useful, however, 'speed' and 'user friendliness' should not be compromised.

Q14. How can we do a better job of supporting your archive needs? Please suggest other new features or improvements you would like to see.

- I love the interactive footprints map, and find it extremely useful. But I wish it had a few more features, like more zooming capability, and a better RA and DEC tracking when you're mouse is on the window.

- Improved programmatic access to the data - If I have a list of datasets I want, it would be great to just 'wget' for each item in the list, rather than having to submit it for staging.

- More scripted access (python preferred) and more catalog data in CasJobs-like SQL servers.

- I'm an amateur. I need to be able to find the most recent data, know the location I'm looking at, and I would like reference material or links to identify some of the fields I don't recognize. A little about me, I am below mediocre amateur at astronomy(self-taught). I am an above average programmer and excellent at mathematics. I'm sure there are other people like me. If you enable common citizens myself who moonlight as astronomers, you could widen your audience.

- Allocating more resources for Specview. In particular, the fitting functions could be improved - learning from examples like Sherpa and even the IDL tools written for the FUSE satellite. Perhaps the ability for a person to select their own grid of model stellar atmospheres (of course they need to be in proper Specview format) and fit their data to that grid.

Please suggest other new features or improvements (cont'd)

- There should be an initiative to produce a GALEX source master catalog, i.e. merging all data on overlapping tiles and thus increasing the depth.

- As noted above, more effort and resources must be invested in support of spectroscopy.

- Add the possibility of choosing the spectral type of the stars that we want to download.

- encourage APT to add a button - in the 'Targets' window of Phase I and Ii proposals - 'search this object (or coordinates) in MAST' would *enormously* simplify duplication and instrument scientist support tasks.

- (1) Create & distribute a *regular* newsletter, say 4 times a year, describing recently implemented and planned upgrades / data ingests to MAST. The current MAST Newsletter page implies that previous newsletters are occasional and very limited in information content. Just a bulleted few pages with highlights and links. (2) Additional documentation for mission data. E.g. GALEX data requests are likely one of MAST's major user preferences - but I note that on the FAQ, under 'Data' and 'More FAQ' neither GALEX or Kepler is mentioned. (3) Add a top level page which succinctly describes the photometric system in use for archived photometric data *including the units* across missions, typical errors and conversion factors.

- (thank you for the outstanding service you provide!)

Please suggest other new features or improvements (cont'd)

- While the new way of making new windows for spectra is useful, I like the old way of specifying a range for a series of spectra during a session.

- Quick-look displays of spectra: Often, the vertical scaling of a UV spectrum in the initial quick-look display is set to the highest feature. Usually, this is either an enormous glitch at the end of a spectrum or a geocoronal L-alpha emission feature (especially true for COS). The spectrum of the object then looks like a barely perceptible thin line of fuzz just above the zero flux level. Thus, in order to view a spectrum, one must go to the custom display page and, by trial and error, set up a useful vertical scale for the plot. I suggest that the vertical scaling in the initial plot be determined from a median value of all of the flux recorded, multiplied by some reasonable factor (say, 1.5). This would eliminate the influence of the spurious delta-function spikes that are of no scientific value. Another suggestion: in the custom display, the tick marks for the wavelength scale are spaced by an awkward value of delta lambda -- I believe it is often something like 1.25 A or some other inconvenient interval. It would be nicer to have the tick marks correspond to something like 0.5A, 1A, 2A, 5A, etc. As you may gather, I use the quick-look displays frequently and find them very useful in the initial planning of new research ideas.