Users´ feedback in Data Processing

Bruno Merín, on behalf of the Data Processing Users´ Group

European Space Agency

- The Herschel Data Processing Users Group

- How is the user feedback collected?

- What is the user perception of the software?

  - DP Questionnaire results

- Current conclusions from the analysis

- Some questions from the DPUG to the HUG

THE DP USERS GROUP

(Project Astronomers in blue and KP astronomers in red)

- HSC: B. Merín, E. Verdugo, R. Vavrek, I. Valtchanov, D. Ardila, L. Conversi, S. Ott (observer)

- HIFI representative: E. Caux (deputy R. Shipman)

- SPIRE representative: M. Vaccari (deputy E. Polehampton)

- PACS representative: A. Contursi, (deputy V. Doublier)

- NHSC: P. Morris, C. Borys (deputy D. Fadda)

- Mission scientist: P. M. Harvey

- PACS photometry DP Interest group chair: P. Riviere (LAEFF-CAB, Spain)

- SPIRE photometry DP Interest group chair: J. M. Castro Cerón (HSC)

- PACS spectroscopy DP Interest group chair: R. Oonk (Leiden Observatory, The Netherlands)

- SPIRE spectroscopy DP Interest group chair: vacant

- HIFI Point sources and spectral scan DP Interest group chair: Sandrine Bottinelli (IRAP, Toulouse France)

- Large maps and point source extraction for PACS and SPIRE DP Interest group chair: V. Könyves (Saclay, France)

- Spectral maps for PACS, SPIRE and HIFI DP Interest group chair: G. Quintana-Lacaci (IRAM, France)

- General HIPE DP Interest group chair: Martin Groenewegen (OB, Belgium)

- Contributors to HIPE DP Interest group chair: Chris Martin (Oberlin U., USA)

THE DP USERS GROUP TERMS OF REFERENCE

1. To get feedback from users about their experience with the software, the data and the documentation.

2. To make recommendations to the HDPMG on the priorities for DP development. These recommendations are geared towards providing the astronomers the means – products, software and documentation - to do science.

1. From Helpdesk tickets on Data Processing (138 tickets up to Sept 2010):
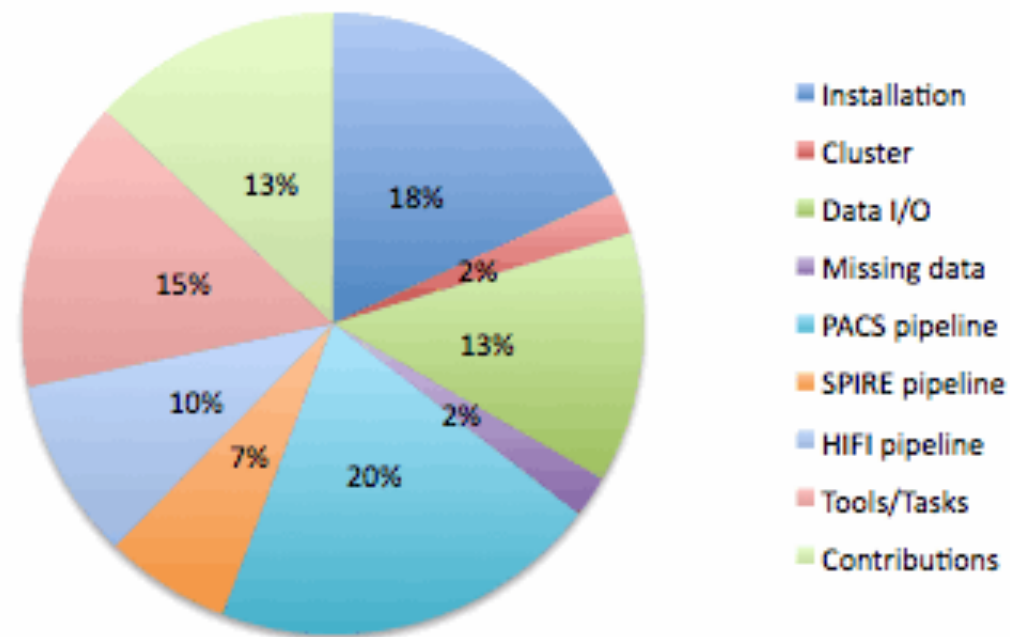
2. From direct feedback at DP Workshops

3. A Data Processing user questionnaire was sent out on Jan 24th 2011 to the 208 authors of articles in refereed journals with Herschel data. It asks what was the user overall experience with the software.

• The Data Processing questionnaire can be found at

http://www.surveymonkey.com/s/Herschel_Data_Processing_Questionnaire

• The following slides show the latest 52 consolidated responses from it. This is a representative sample of the total (~1/4).

• The plan is to keep inviting all authors of Herschel papers to fill in the questionnaire with their opinions to be able to make time-dependent and AOR-driven studies.

Herschel Users

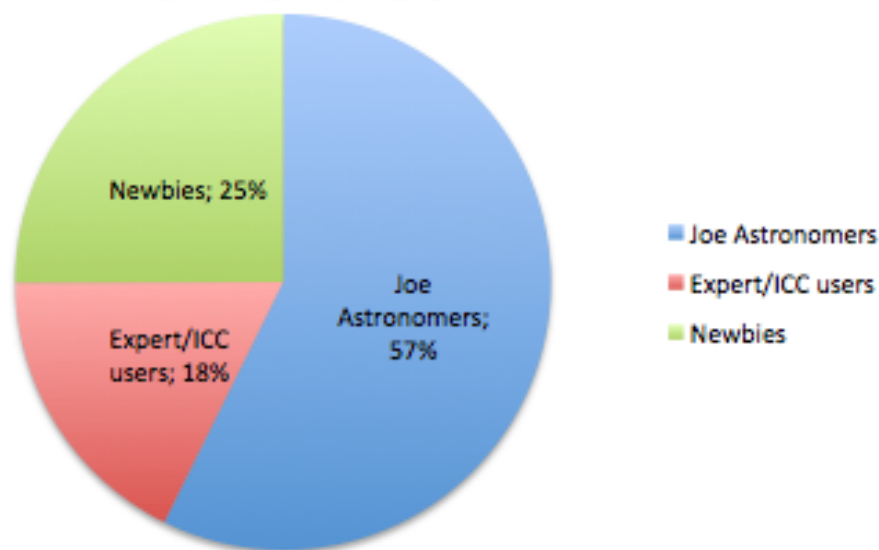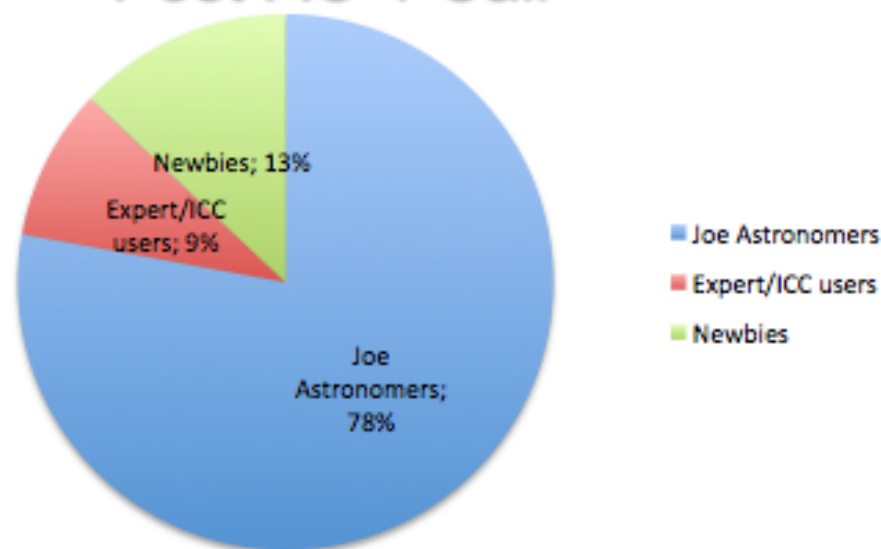~150 people at workshops

OT1 AO
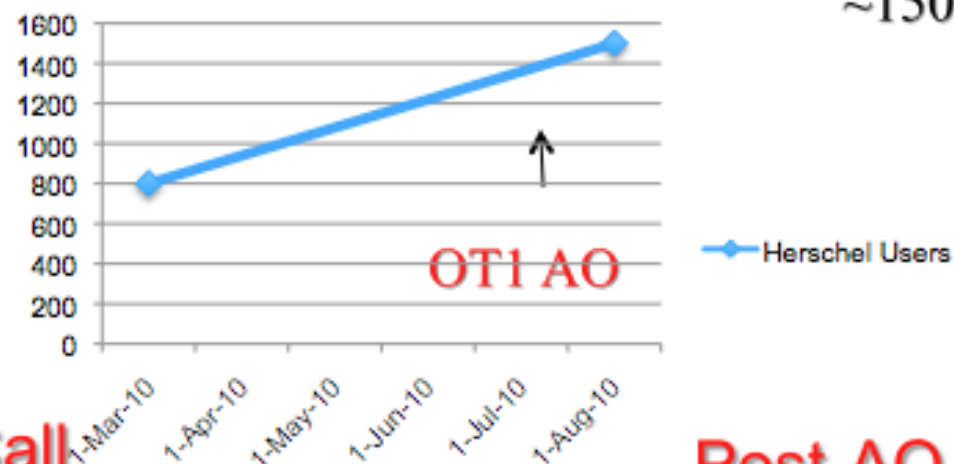
Pre-AO 1 Call

Post-AO 1 Call

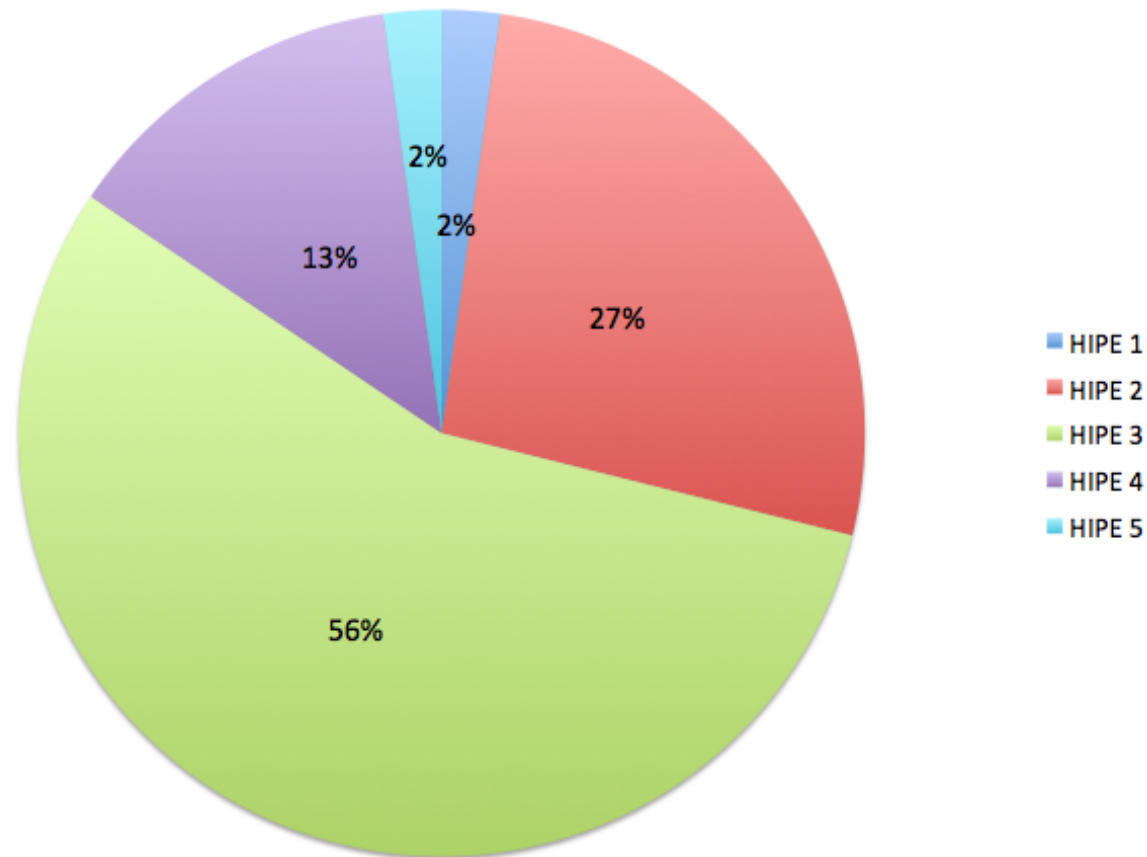# ANSWERS TO THE QUESTIONNAIRE

Which version of HIPE did you use to reprocess your data?

Legend:
- HIPE 1
- HIPE 2
- HIPE 3
- HIPE 4
- HIPE 5

Most published SDP data were processed with HIPE 2 and 3

How did you retrieve the observations?

- 27.5 % (14)
- 11.8 % (6)
- 5.9 % (3)
- 11.8 % (6)
- 49.0 % (25)

Legend:
- Tar files were retrieved from the HSA User Interface and imported into HIPE
- Observations were retrieved directly from the HSA into HIPE with getObservation()
- Observations were retrieved directly from the HSA using "Send to External application"
- Tar files were retrieved from the HSA User Interface and individual files read in HIPE
- Other

Varied methods for retrieving the data

10

How did you store your reprocessed data?

- Reprocessed Level-2 data were saved to FITS files and organized in directories
- Reprocessed Level-2 data were saved back to the local pools from where they were read
- Reprocessed Level-2 data were saved to a different output local pool
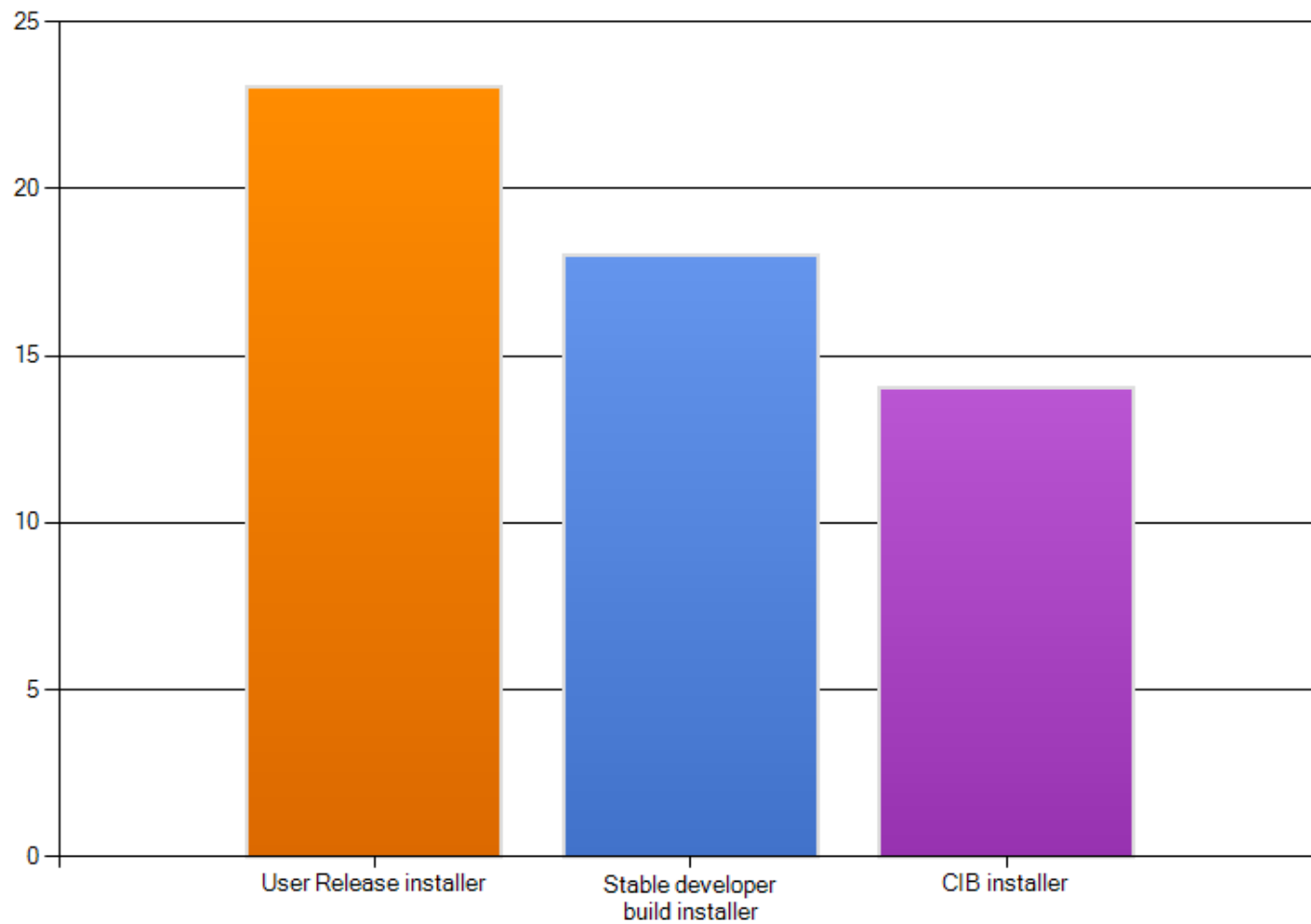- Other

74.5 % (38)
5.9 % (3)
2.0 % (1)
17.6 % (9)
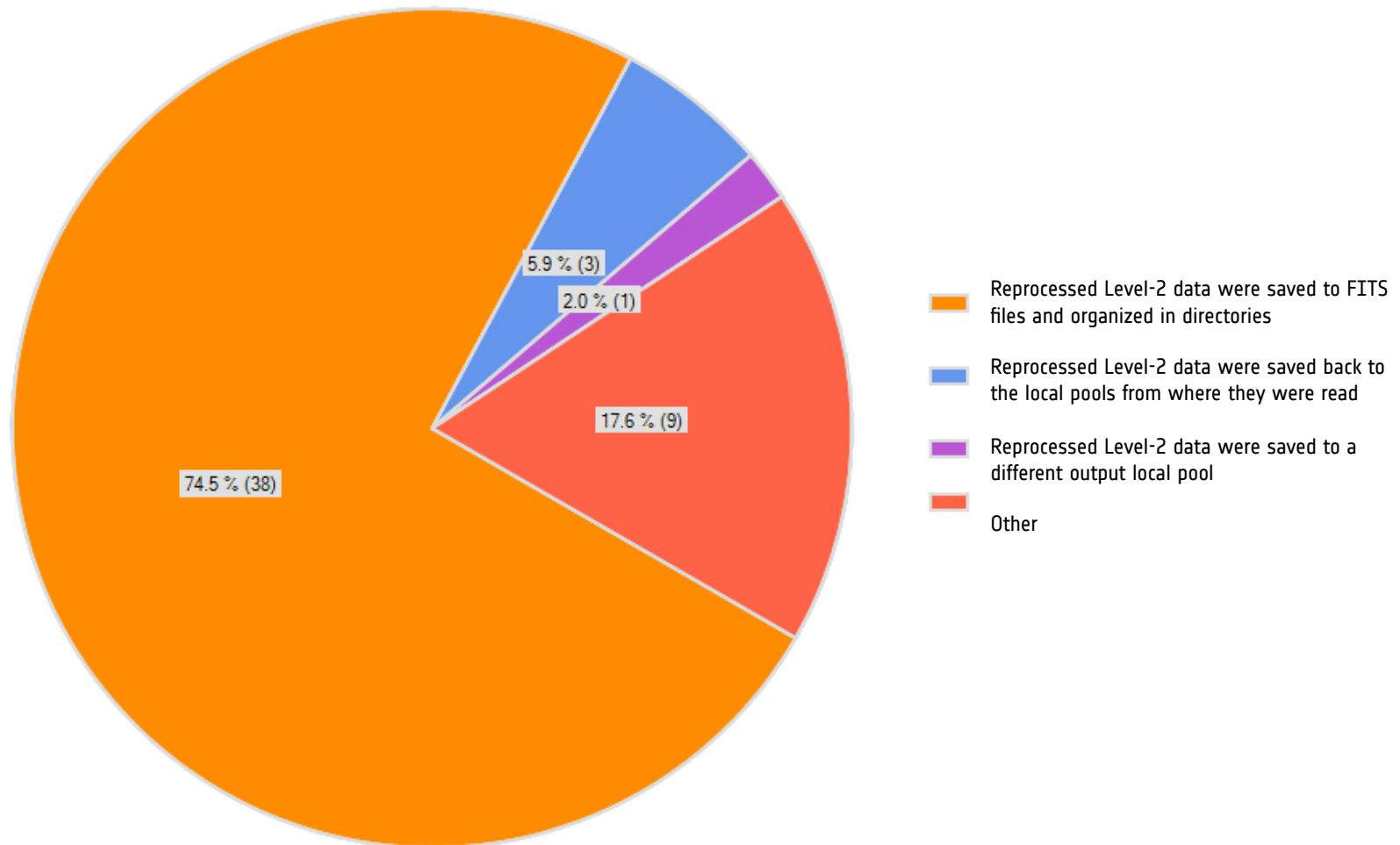
General agreement on output format to FITS files

European Space Agency

Which installer(s) did you use?

Multiple choice answers

Frequent use of an User Release plus some developer builds
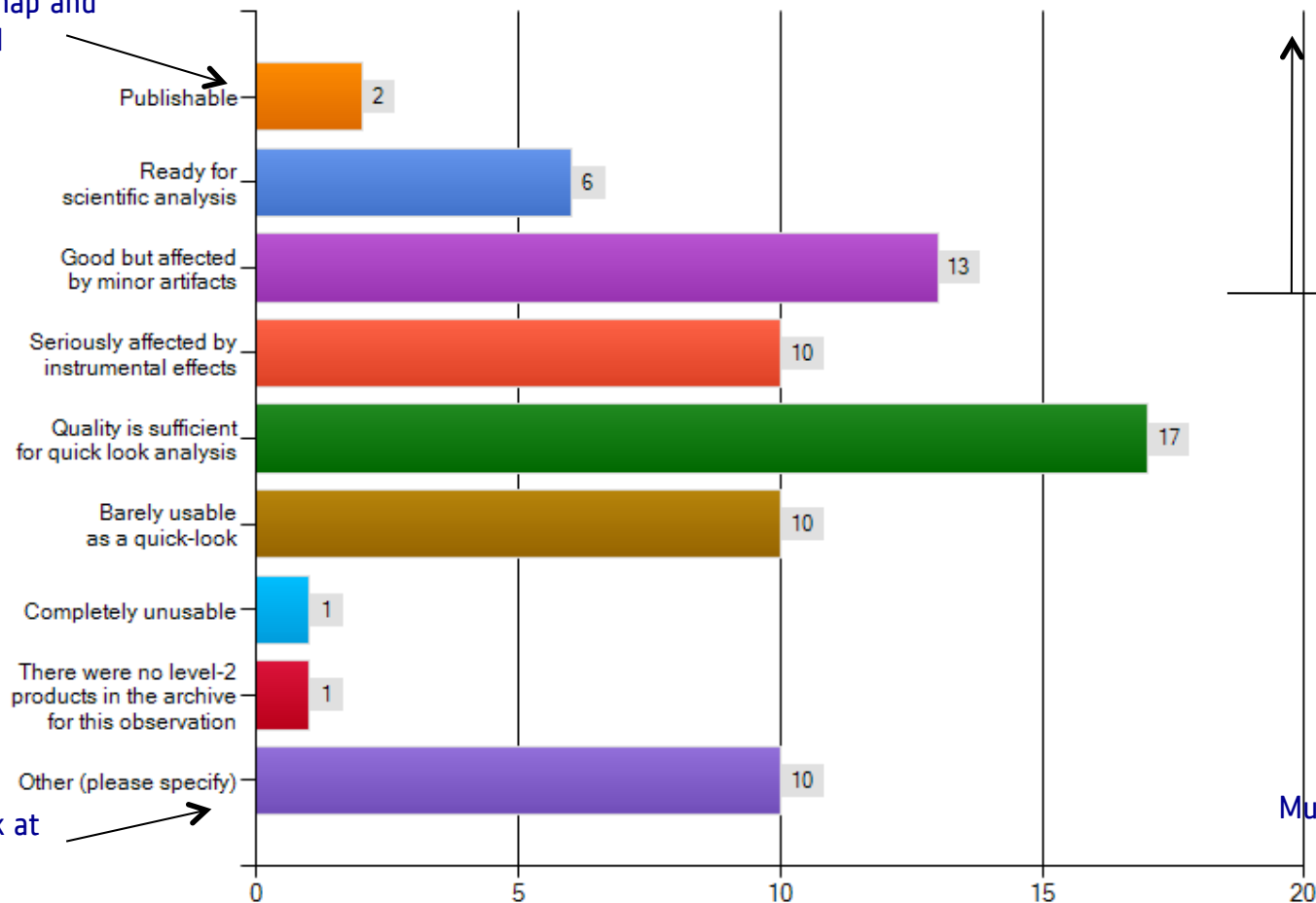
USER PERCEPTION OF THE SOFTWARE

How would you rate the level-2 products for your observation as you find them in the archive?

A SPIRE scanmap and a HIFI pointed observation

29 % find them quite usable

Multiple choice answers
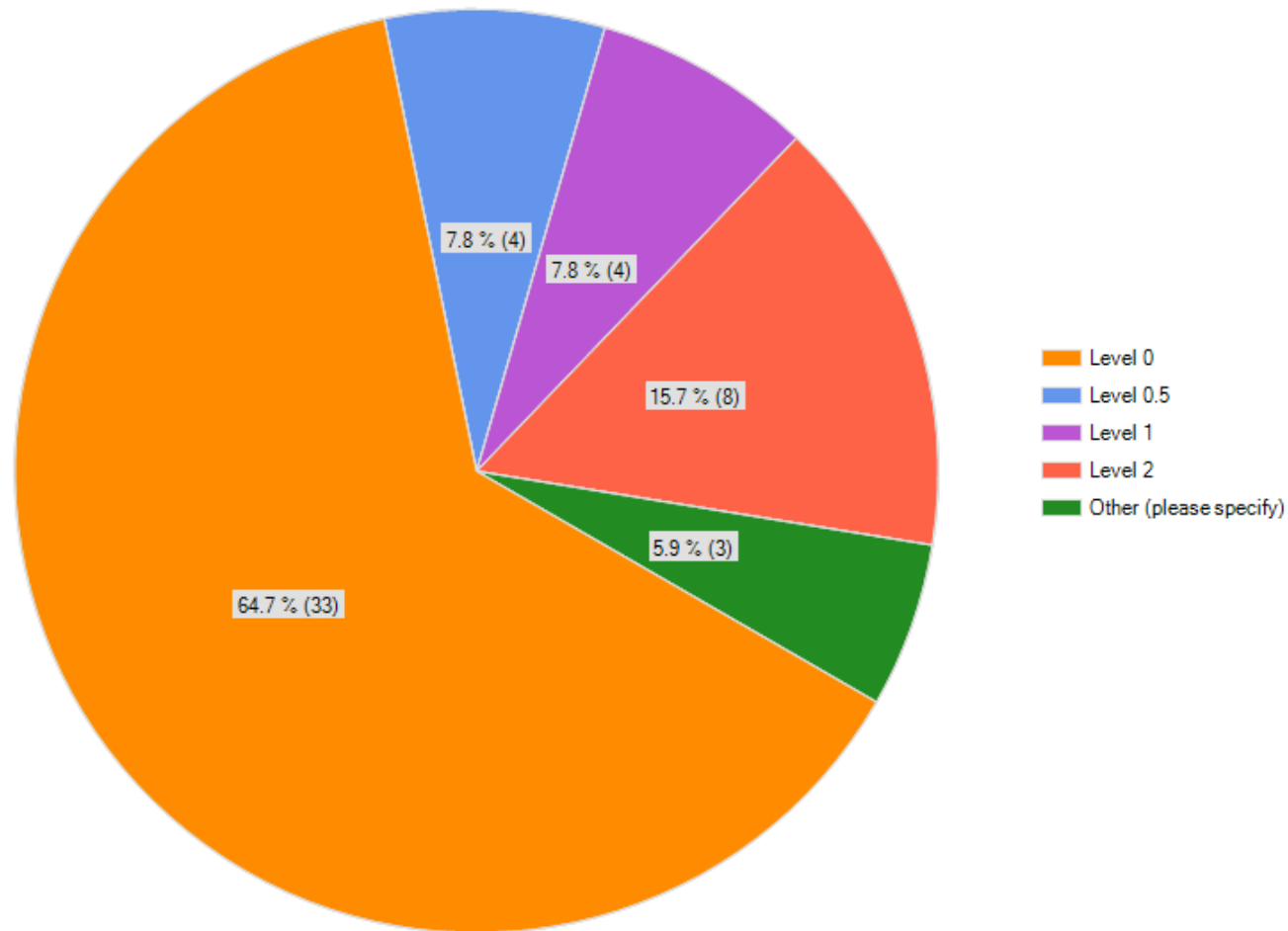
Mostly never look at them

The quality of the level-2 data in the Archive is largely mode-dependent

european Space Agency

USER PERCEPTION OF THE SOFTWARE

From which level did you start your reprocessing?

- Level 0
- Level 0.5
- Level 1
- Level 2
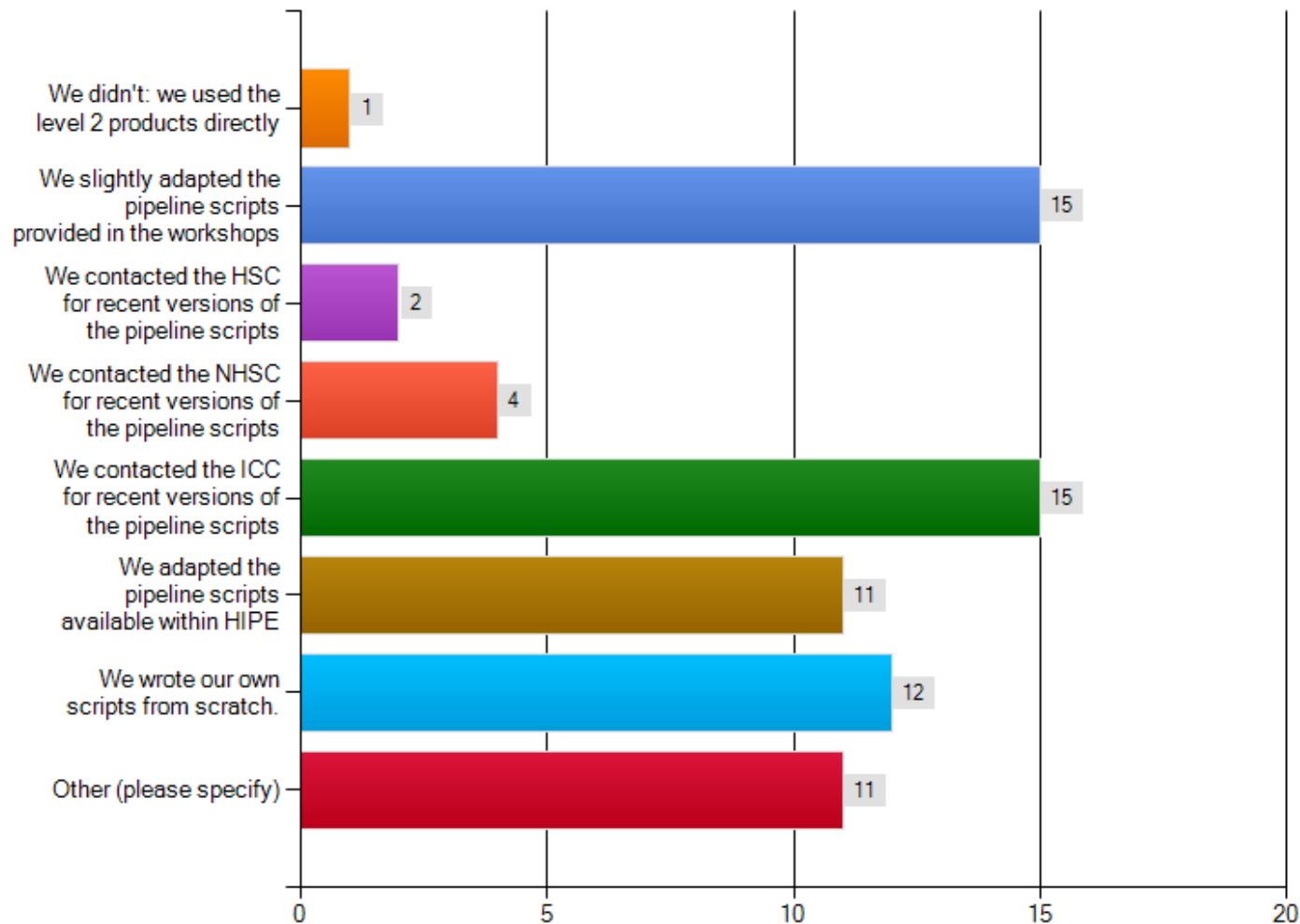- Other (please specify)

7.8 % (4) · 7.8 % (4) · 15.7 % (8) · 5.9 % (3) · 64.7 % (33)

So far, users are mostly reprocessing from scratch or getting the level-2 data

esa

How did you reduce the data?
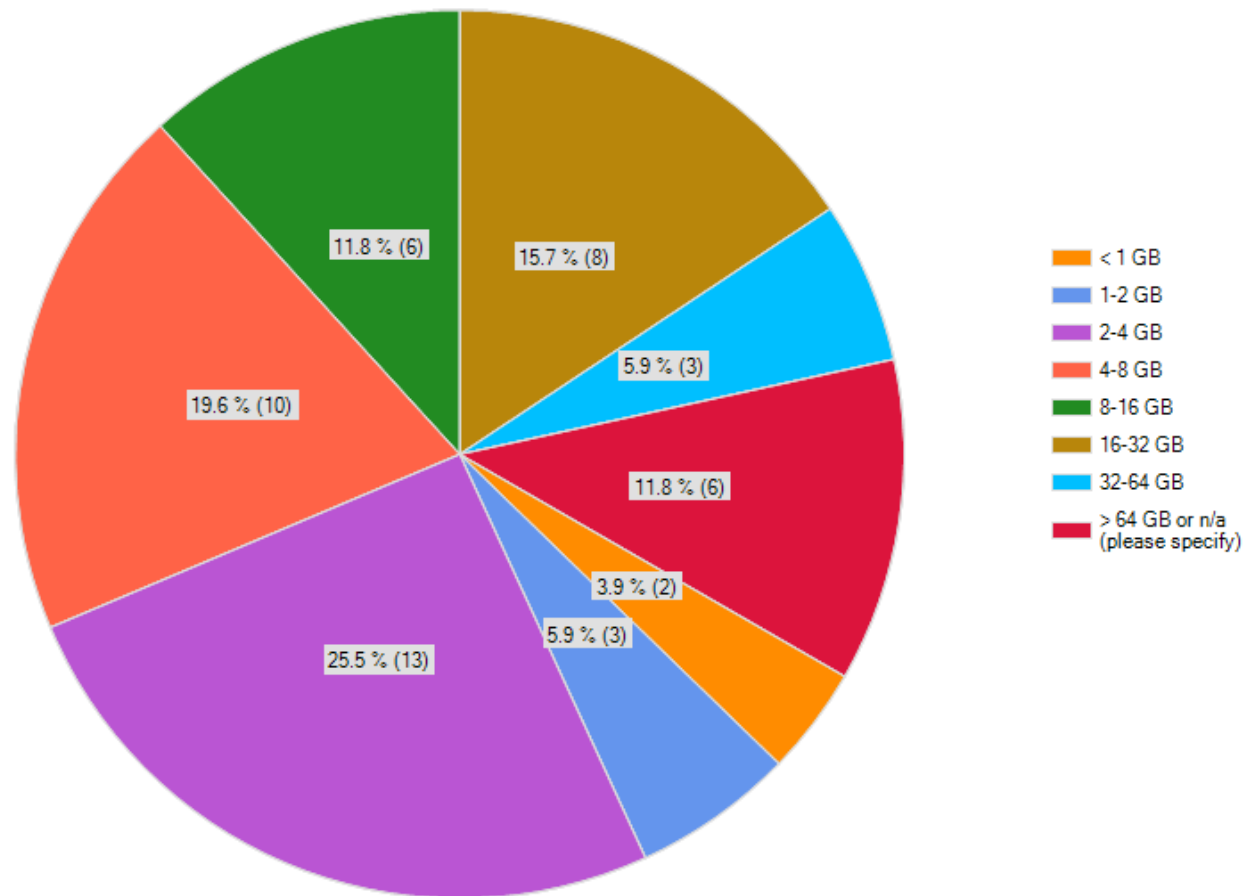
Multiple choice answers

DP workshop and ICC pipeline scripts, among the most used so far.

pean Space Agency

USER PERCEPTION OF THE SOFTWARE

How much memory did you need to allocate to HIPE to process your data?

Legend:
- < 1 GB
- 1-2 GB
- 2-4 GB
- 4-8 GB
- 8-16 GB
- 16-32 GB
- 32-64 GB
- > 64 GB or n/a (please specify)

Pie chart values: 15.7 % (8), 5.9 % (3), 11.8 % (6), 3.9 % (2), 5.9 % (3), 25.5 % (13), 19.6 % (10), 11.8 % (6)

2-4 GB enough to reprocess ¼ of the observations, but still >8 GB needed for 45 %

European Space Agency

In case of doubts or problems during the data reduction. What did you do?

Multiple choice answers
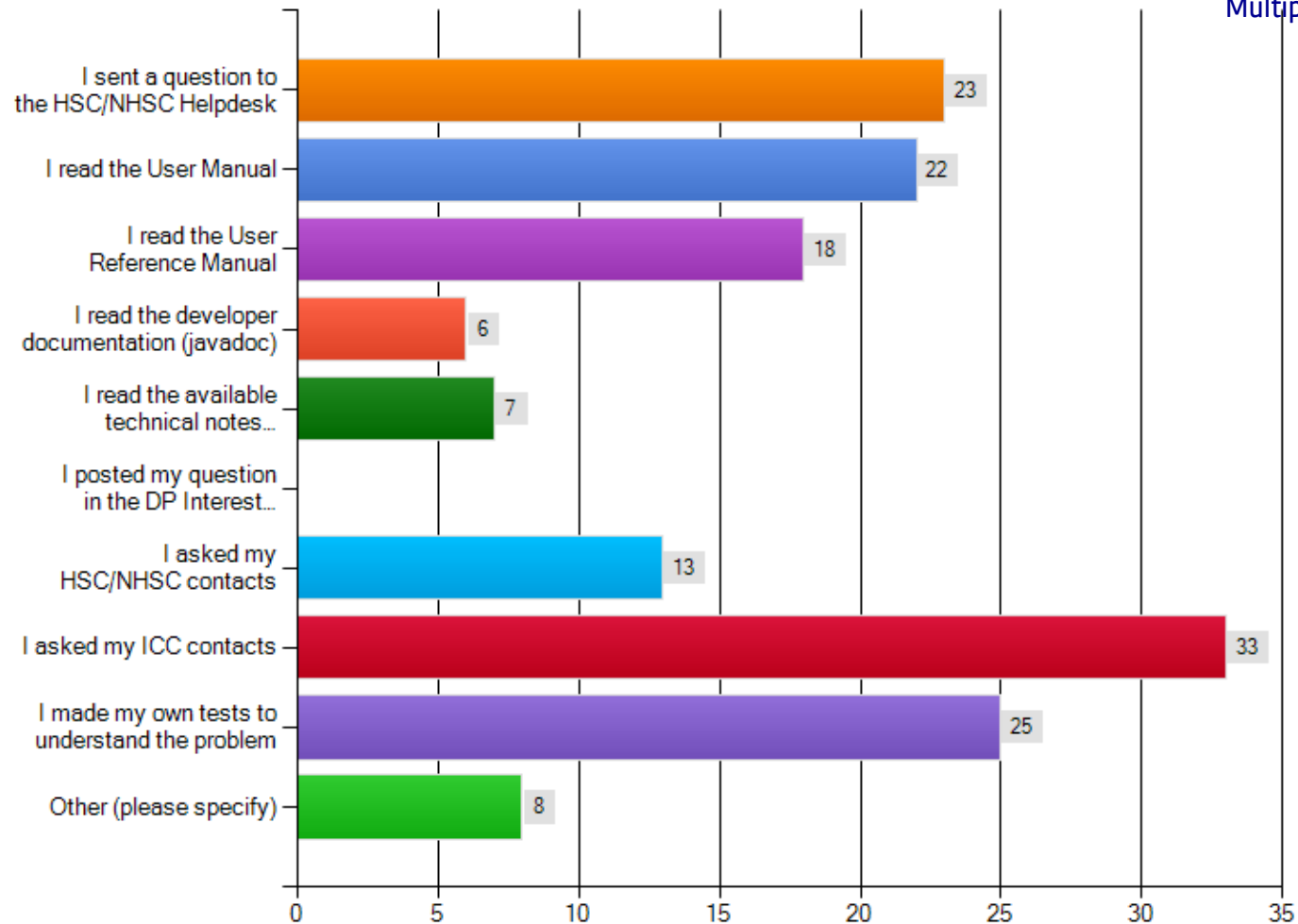
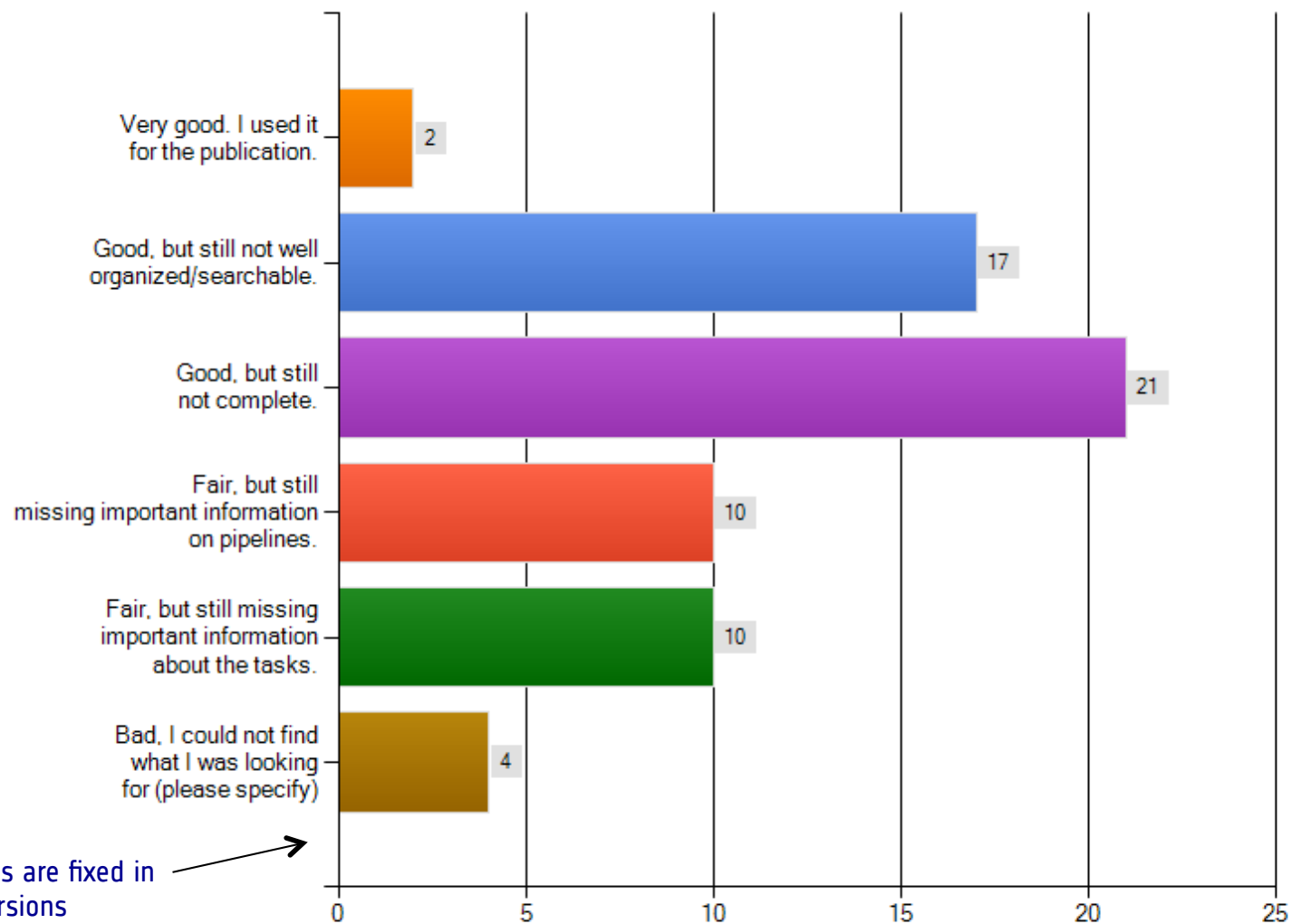Most users rely on the ICC, their own tests, the Helpdesks and the Manuals

17

How would you rate the documentation provided?

Multiple choice answers

This cases are fixed in future versions

USER PERCEPTION OF THE SOFTWARE

Did you know/use the "On-demand reprocessing"?

- No, I do not know what is it
- No, I did not consider that option
- Yes, but I preferred to reprocess the data myself
- Yes, and I plan to use it in the future
- Yes, and I have already used it for this publication

29.4 % (15)

11.8 % (6)

60.8 % (31)
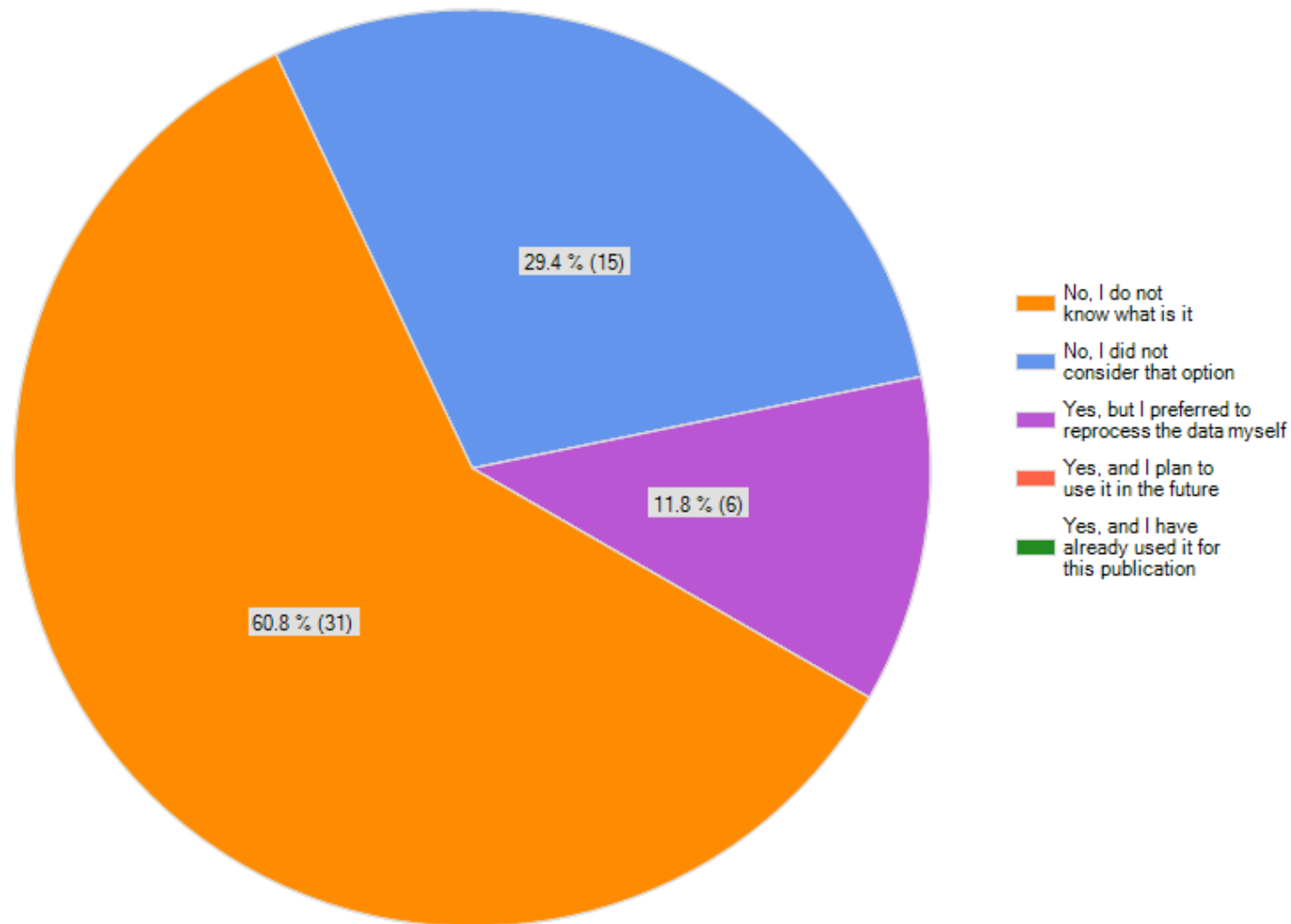
So far the community is not aware of the "On-demand reprocessing"

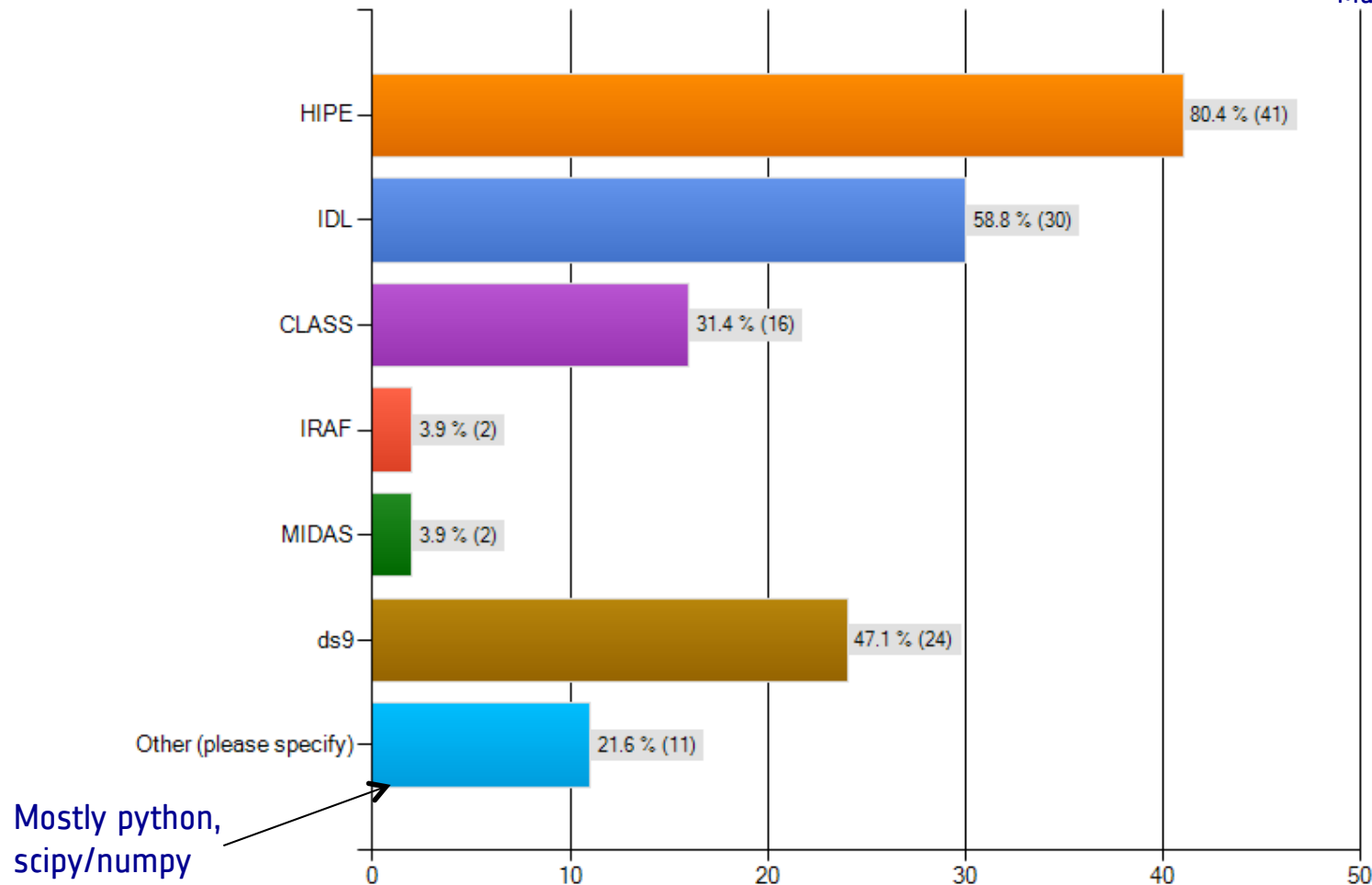Which tools were used for your publication (select more than one if applicable)?

Multiple choice answers

Mostly python, scipy/numpy

80 % of the Herschel observers use HIPE to process and/or analyze their data

20

European Space Agency

How would you rate the following functionalities in HIPE?

The common software is generally well rated. Apparent low rating comes from the fact that this functionality is instrument-specific
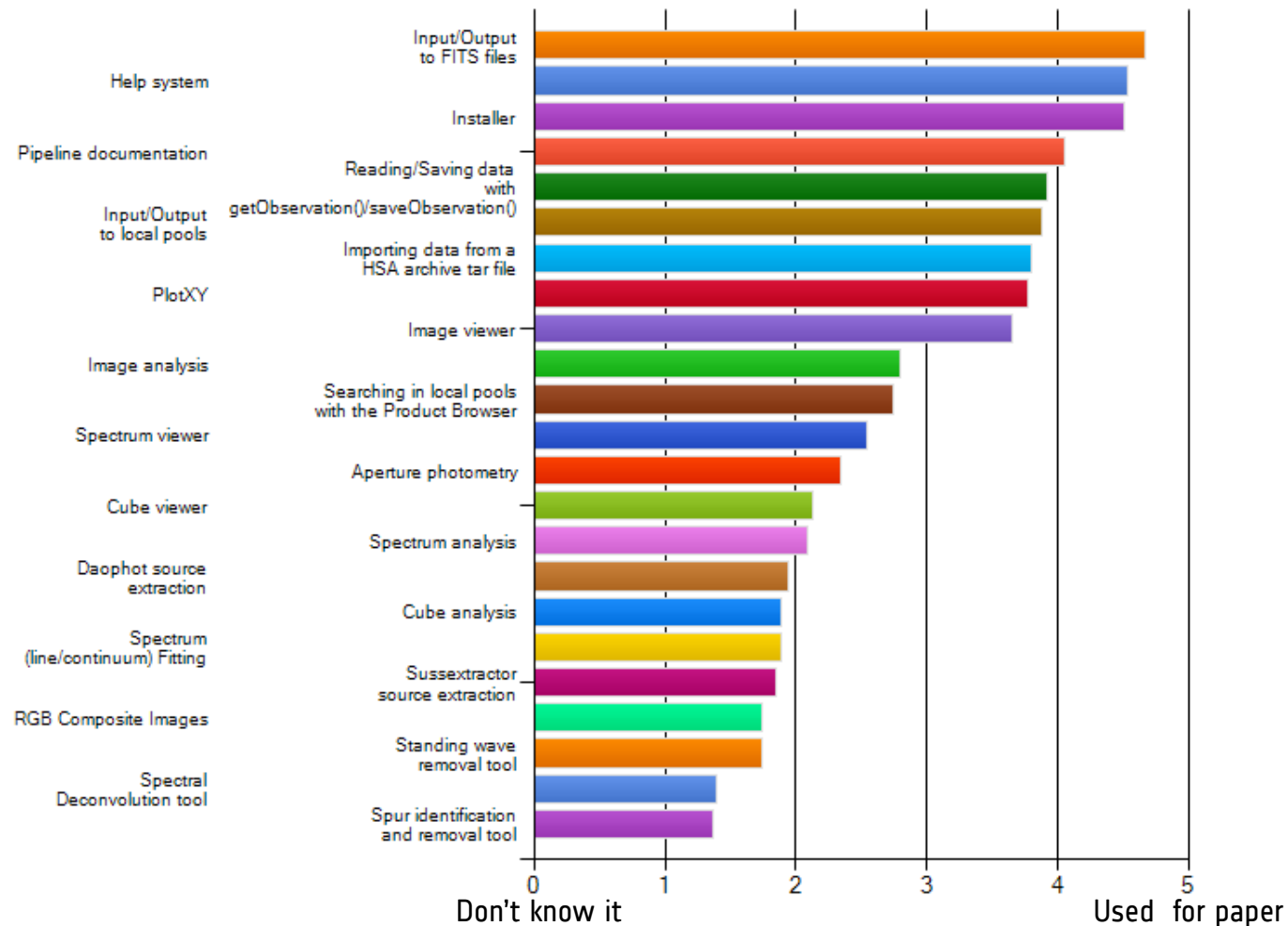
Please select here the observing mode(s) on which your publication is based

- PACS Photometry — 28%
- PACS Line Spectroscopy — 9%
- PACS Range Spectroscopy — 7%
- SPIRE Photometry — 16%
- SPIRE Spectroscopy — 4%
- HIFI Single Pointing — 19%
- HIFI Mapping — 4%
- HIFI Spectral Scan — 4%
- SPIRE PACS Parallel Mode — 9%
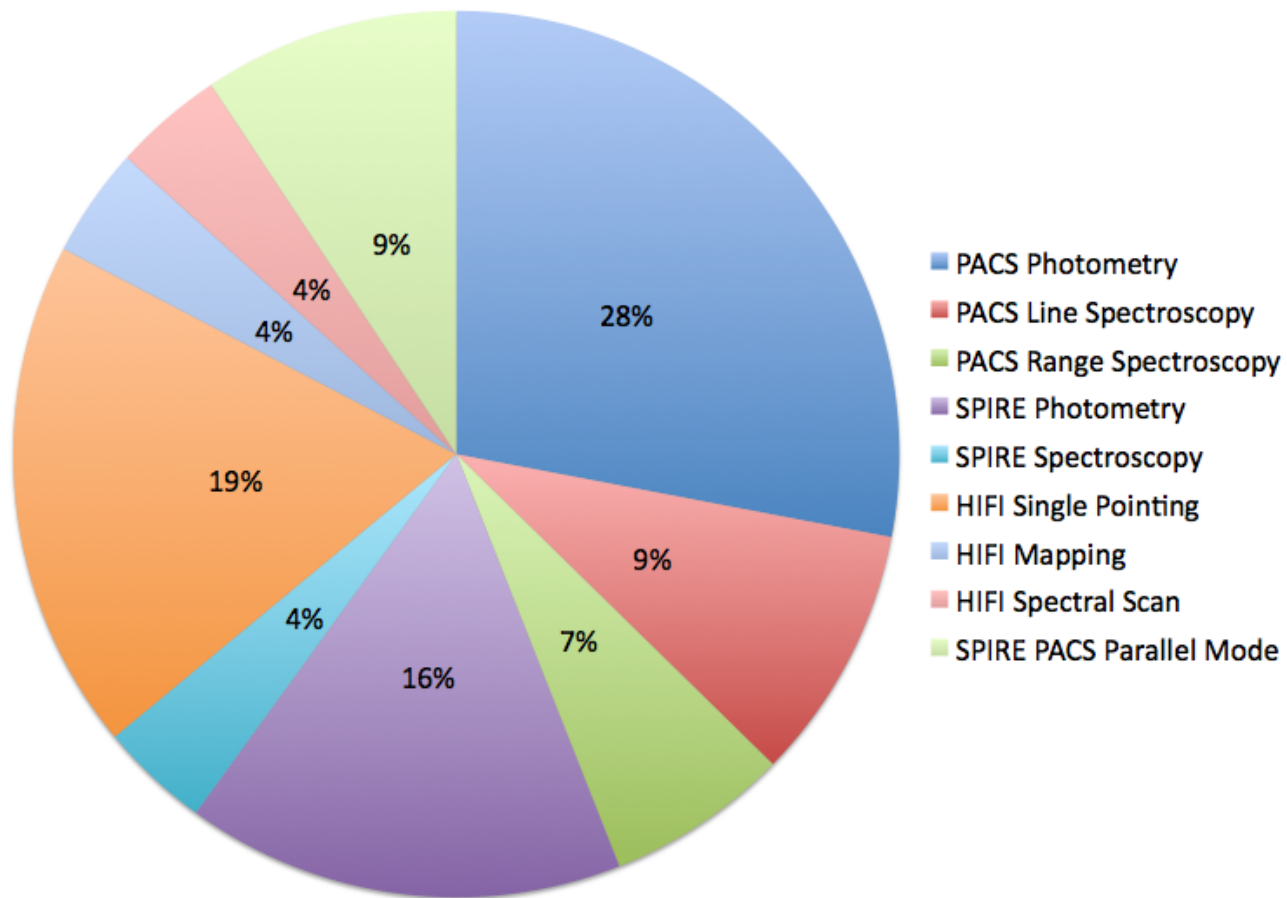
Space Agency

AOR-BASED DATA TO PAPER RATIO

Observing Time from KPs

Publications per AOR

Legend:
- PACS Photometry
- PACS Line Spectroscopy
- PACS Range Spectroscopy
- SPIRE Photometry
- SPIRE Spectroscopy
- HIFI Single Pointing
- HIFI Mapping
- HIFI Spectral Scan
- SPIRE PACS Parallel Mode
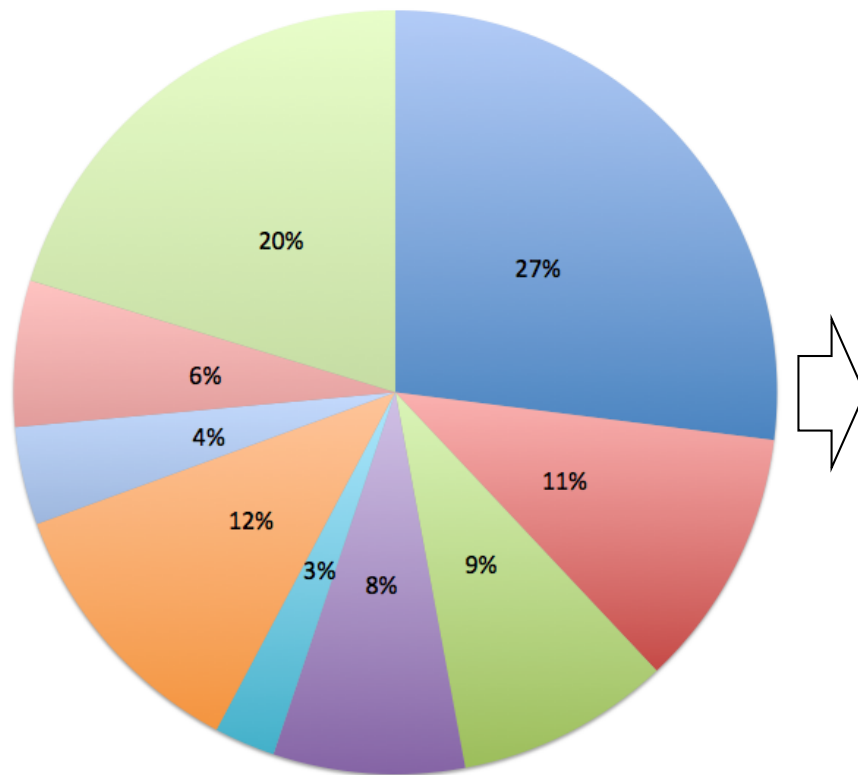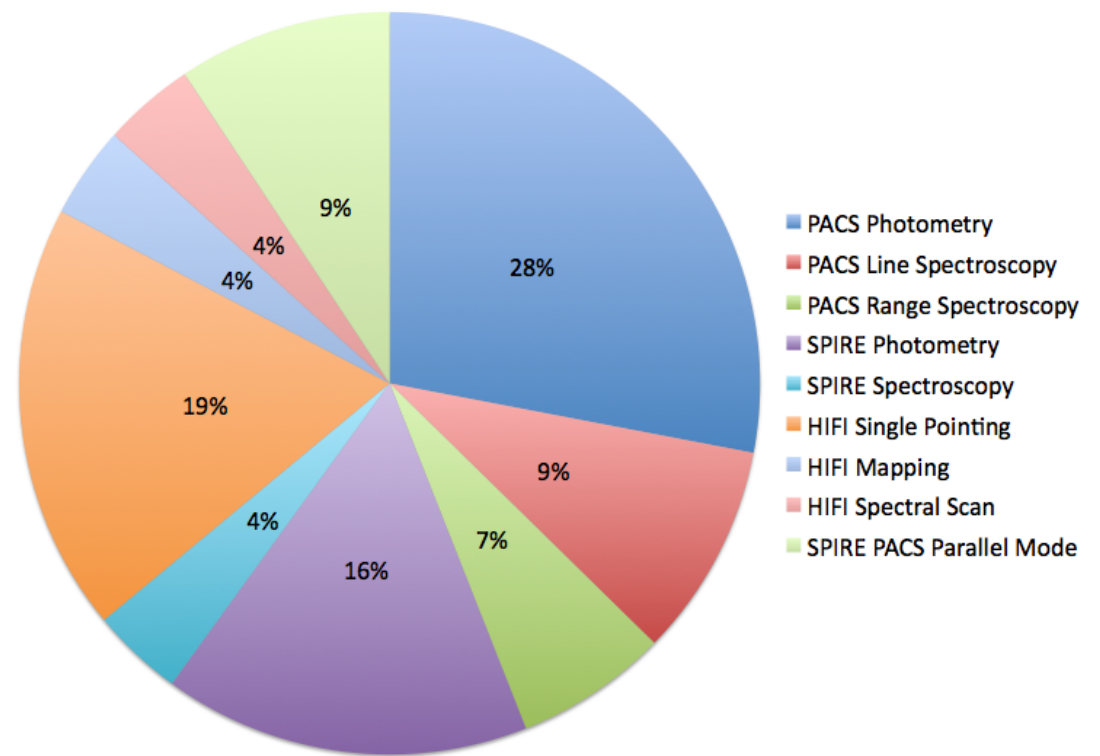
The number of publications per observing mode scales to the fraction of observing time with some exceptions

European Space Agency

USER PERCEPTION OF THE SOFTWARE

- Current conclusions from the DP Questionnaire

  - So far, the user community has relied strongly on the ICCs for solving their DP problems.

  - Very often, general astronomers have been using developer builds, which are untested.

  - More than 80% of the Herschel observers are using HIPE to reduce and analyze their data.

  - The high memory consumption and the non-settled recipes for the reduction of the some observing modes (mostly parallel mode observations) are currently the most pressing user wishes.

  - In general, most users acknowledge big improvements in HIPE since the first versions until today.

European Space Agency

ON-GOING WORK

- The questionnaire is alive and evolving as HIPE evolves. It provides a good measure of the improvements in the software and the data and will continue to be analyzed in the future.

- HIPE is intended for users so users should have a strong role in guiding its development.

- Questions from the DPUG to the HUG:

  - How does the HUG want to coordinate the activities on DP with the DPUG activities?

  - What suggestions does the HUG has to activate the DP Interest Groups?

  - Should the DPUG activities also be shown at the public web?

European Space Agency

Thank you

Any questions?

European Space Agency