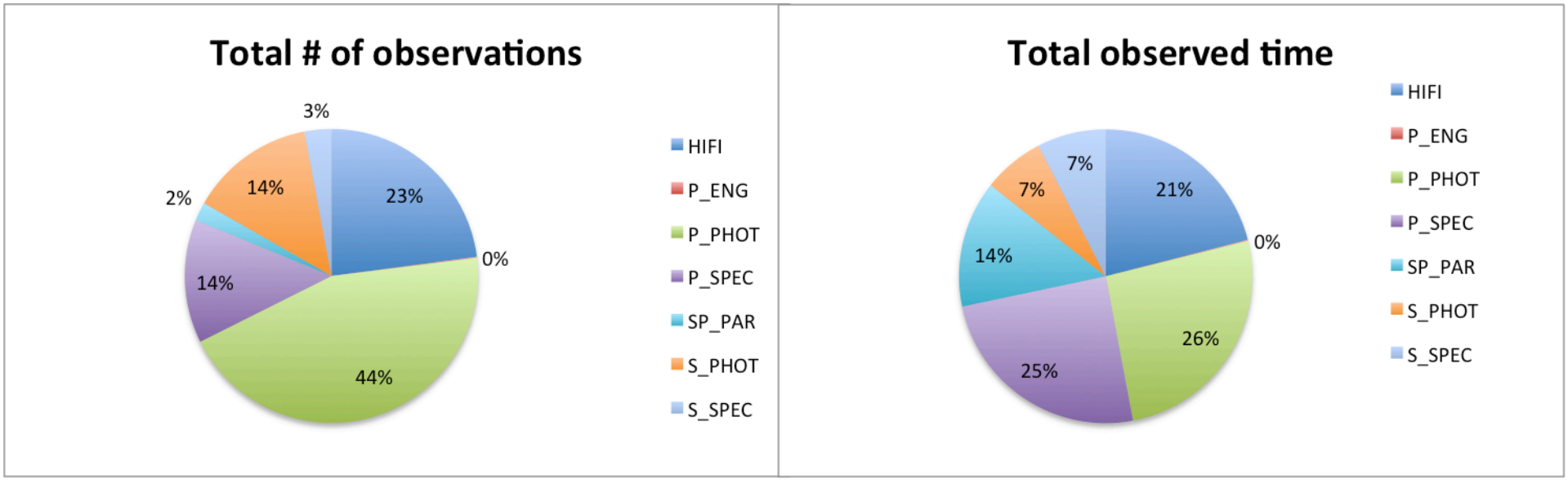
Users´ feedback in Data Processing
Status report for HUG#9 meeting

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

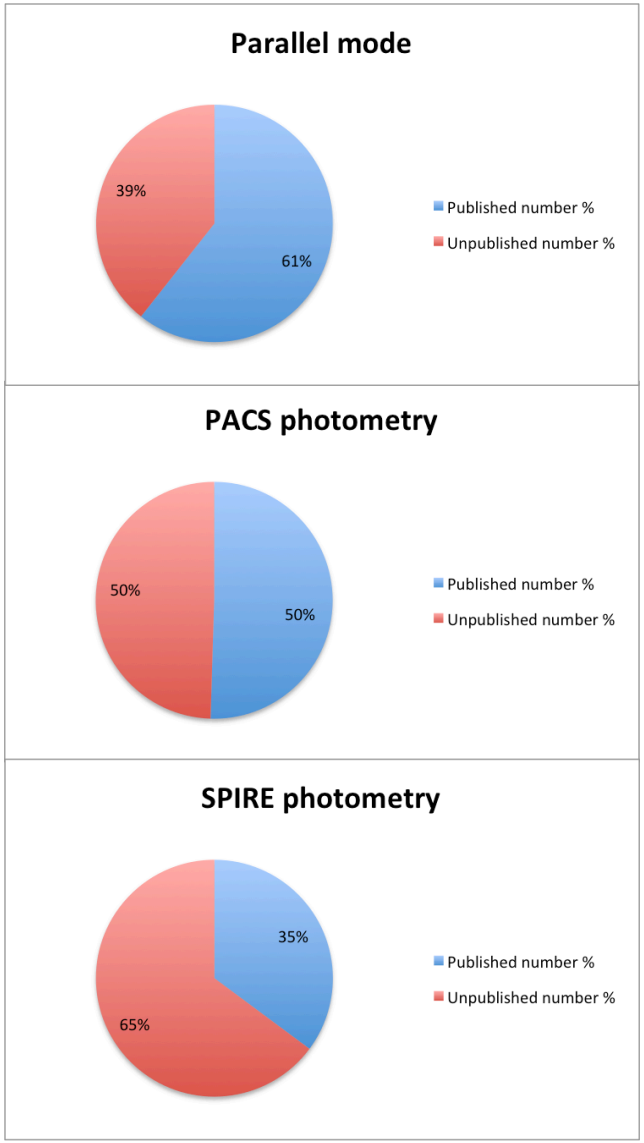
OUTLINE

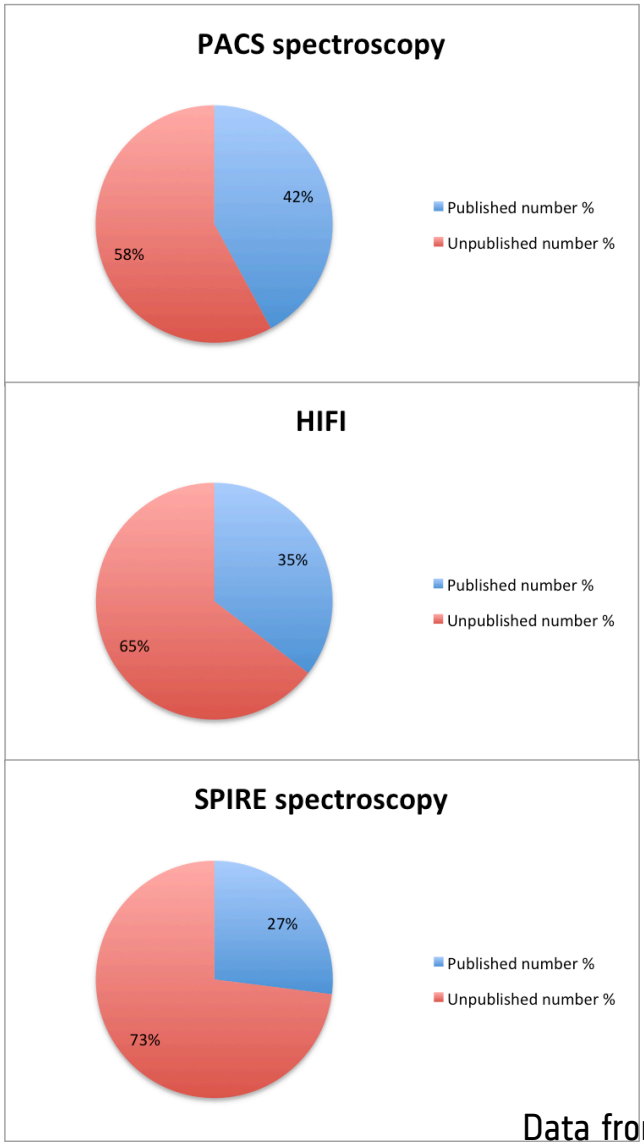
- Current fractions of published time per observing mode
- Responses to HUG recommendations on products
- Identified needs for user reprocessing post 2017
- Prioritized areas of software as unique and needed post 2017
- DPUG recommendations on the Legacy Software

TOTAL SHARE OF OBSERVATORY TIME



% OF PUBLISHED OBSERVATIONS PER MODE





Data from 12 June 2015

PRIORITIZING PARTS OF THE S/W

From more to less critical, HCSS contains :

1. Systematic processing (Systematic Product Generation, SPG)
2. Machine access to the archive (interoperability)
3. User interactive re-processing in HIPE
4. User interactive data analysis
5. Plotting, etc..

The first two aspects are dealt with within the Post-Operations Plans of the ICCs and of the HSC. Specific HUG requests on standalone browse products from SPG are discussed next.

HUG#8 RECOMMENDATIONS ON PRODUCTS

- **HIFI**:
  - FITS files in CLASS format: GILDAS will recognize HCSS FITS files from its upcoming release (July 2015).
  - Co-added and non-co-added files: being discussed for the HPDPs.
  - Co-added frequency, position and backend: decision was not to do this since H and V polarizations actually look into slightly different places and then this becomes a science decision rather than a purely technical one.

HUG#8 RECOMMENDATIONS ON PRODUCTS

- **PACS-P**:
  - FITS files with just three extensions (image, error and coverage): not yet implemented but in the plan.
- **PACS-S**:
  - Standalone FITS files available: from SPG 13.0.
  - Data cubes FITS files: from SPG 13.0 with equidistant wavelength spacing (filenames with “EQ”).
  - Ascii dumps of spectra: tables stored in FITS.
- **SPIRE-P**:
  - FITS files with just three extensions (image, error and coverage): not yet implemented but in the plan.

3. REPROCESSING NEEDS PER MODE

- **SPIRE-P** (61% published in parallel, 35% as prime): No need to reprocess in the vast majority of products at HSA.
- **SPIRE-S** (27% published): Same as for SPIRE-P, exceptions will be produced as HPDPs.
- **HIFI** (35% published): Potential problems with optical standing waves and/or residual noise. Plans to cope with them as HPDPs.
- **PACS-P** (61% published in parallel, 50% as prime): No need to reprocess in the vast majority of products at the HSA. Plenty of alternative external mapmakers.
- **PACS-S** (42% published): Unchopped and range spectroscopy will need to be reprocessed and observations still suffer from leaks > 180 microns.

3. REPROCESSING NEEDS PER MODE (II)

- Regarding user reprocessing needs the priorities are :
    - Flat-fielding for PACS-S range scan
    - PACS-S unchopped data
    - PACS-S red leak
    - HIFI correction of optical standing waves and residual noise
- The rest of the data are either good, or will have HPDPs available at the HSA with hands-on reduction by experts.

4. PRIORITIZED USER DATA ANALYSIS

- From more to less unique the analysis tools needed post 2017 are:
    - The Spectrum explorer + cube toolbox + spectrum fitter
    - The HIFI convertKtoJy and data cleaning tasks (fitHifiFringe, flagTool)
    - The SPIRE time-line fitter
    - The SPIRE-S and PACS-S semi-extended sources analysis tools
    - Bayesian model fitting tools (fitting engine)
    - Daophot and Sussextractor source extractor packages

- Number 5 (plotting, etc) is available in many other environments and is judged not critical post 2017.

FINAL RECOMMENDATIONS

1) Most observing modes are good for science in the archive but some are not. Possibility to run those specific cases with HIPE after 2017 should be enabled either by virtual machines, or by making the source code available publicly for users to continue re-compiling themselves if they need.

2) It is recommended to also extract, modularize and document the code of the identified areas of the software in pages 9 and 10 that are useful and/or unique.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Thank you
Any questions?
European Space Agency