Workshop Summary

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- Thanks….
  - Ana, Jean, Pedro, Bruno….
  - HCalSG

- Last workshop…..
  - I need to be careful what I say

Models

- One step forward, one back….
- Must label what we use….
- “Spitzer is dead, long live Spitzer” #1
- Overall:
  - Planet models, still not moved far. But close to end?
  - Stellar calibrators – no new MARCS models, parameter updates need to be in flux cal updates
  - Asteroids – prime calibrators
  - Being used in Planck, SOFIA, ALMA…..

Photometers and maps

- Able to see telescope mirror degradation! George/SPIRE is seeing Uranus weather?
  - Repeatability moving towards below 1%
- For PACS, K/M stars then show differences on order 2-3%.
- Map-making workshop very useful in assessing where we are.
  - SPIRE okay
  - PACS changes implied in postops (?)
- “Spitzer is dead. Long live Spitzer” #2

PACS/SPIRE spectrometers

- Finally getting a hold of key issues
  - Very impressive improvements in SPIRE RSRF
  - Pointing effects difficult to incorporate for PACS-S. Users very interested in getting this. Timeframe for pipelines?
- Red leak region for PACS usable? A good cross-calibration case.
- Continuum reliability for both?
- Flux calibration (lines) improving to better than 10%.

HIFI

- Knotty problem of sideband ratio (biggest error) coming to a set of conclusions.
  - Needs strategy for wrapping up.
  - New decon might help fill in gaps
  - Introducing full knowledge into pipeline.
- Repeatability is excellent – notably in SIS bands (2% ?!).
- Beams now very well characterized → beam efficiencies clearly improved.

Cross-calibration

- Can we explain differences?
  - Effects of using semi-extended sources?
  - Feedback for users
- SOFIA using same calibrators
- SCUBA-2/JCMT too…, ALMA…, AKARI…., Planck/HFI…, feed in for SPICA/SAFARI.
- Don't we have a link back to calibration on CMB through Planck?
- Can we use AKARI (IRAS?) all-sky maps to get PACS map offsets (cf SPIRE and HFI)?
- Feedback from ALMA using Herschel data/calibrators?

Pointing

- Still some way to go to get these into our pipelines but…
  - HIPE 11 look to improve STR information for all parts of the mission → 1” goal
  - Jitter improvements also coming with potential to reduce this by a factor of 3 or so.

Overall

- To start 10% considered good – perhaps 20% for spectrometers.
  - Already hitting goals which are half of these (removing systematics of models used we certainly get there).
- But we can do even better in several areas, notably spectrometers, pointing (+related effects on spec/phot observations), maps and extended emission.
- Finalise models. To limits of what Herschel gives us.
- **Need:** get this into the archive products. Document – expand quotable uncertainties?

Future

- Last of helium + technology tests
- Postops of 3-5 years (lights out Dec 2017)
- HCalSG goes on (and on)….
- Publishing……
- Another workshop towards the end of postops (for those remaining or reunion!)?