Marseille, June 25, 2008
Akari Meeting Minutes

Attendants:
Jean-Paul Baluteau, Peter Davis, Trevor Fulton, Hidehiro Kaneda, Mitsunobu Kawada, David Naylor, Hiroshi Shibei, Locke Spencer, Mai Shirahata, Hidenori Takahashi, Annie Zavagno

Mitsunobu Kawada, 9:45 – 10:35
FIS-FTS hardware overview

Main objective for today: Coming to conclusions

RT mirror lab measurements: 90 +- 2 arcmin
Misalignment is used to predict the reduction in modulation efficiency
Modulation efficiency better for LW than for SW

PSF from slow scans across Neptune
Misalignment of two beams at 7'
Double Gaussian fit for the iFTS' PSF can be modeled as two, 7' misaligned PSF measured in the photometric mode.

Aperture lid @ about 35K
Blocking filters are responsible for channel fringe which are shared by both arrays.
The SNR for SW is not high enough to measure the equivalent channel fringes.

Main optical passband: 60 – 90 cm-1
The transient response is different for each detector.

Input will be provided to the SPICA team.
Study LW07 (a 'good' pixel) when correcting the baseline.
Asymmetry may be different for forward/reverse scans? Symmetry properties for forward/reverse are very consistent: Adding all forward and all reverse leads to a result with good symmetry properties.
Can the non-linearity be corrected for in the interferogram domain?
158 um line should be easier to calibrate because it is not tied to the central burst, i.e. the transient response.

Compare DC level and integrated spectral power
Transient response reduces LW/SW modulation by 0.35/0.8
Ratio of lid / internal calibration source varies more strongly for LW than for SW
Calibration source at around 50K

Hidenori Takahashi, 10:35 – 12:20

Comments on author list to be submitted soon as the paper will be submitted asap.
3 sigma clipping for glitch identification: replace by non-glitched samples

Wavescale calibration from a line is not very accurate because the spectral resolution is not very high.
Relative motion of the source has to be taken into account for that calibration.
Reset correction is not an explicit step of the pipeline.
M82: 5 pointings with Akari
Red/Green circle is LWS01/02
Pixel size: SW: 30 x 30'', LW: 50 x 50'', slightly distorted according to PSF measurements (see MK's presentation)
SCF: Common/Different normalized SCF for all SW/LW pixels
Full resolution may lead to some differences between forward and reverse scans because of long time constants.
Flat: Just one number
Flux conversion: Planet model (Neptune & Uranus) only for a few pixels which measured planets
Neptune_p4 yields more consistent calibration than Neptune_p3
It is very time-consuming to measure the PSF as a function of wavelength (was not attempted with FIS-FTS, inconclusive for ISO-LWS)
SW calibration better than for LW
Spatial structure may confuse the calibration.

Fringe removal by a template of the fringe
Local fringe fitting may yield better results than fitting to the full passband

Line flux
M17 data were not processed in the same way as the GC
Difference between fwd/rev line flux may be due to long term time constants

FTS vs. Sky Survey
Correlation between FIS-FTS and All Sky Survey in absolute flux. Two pointings, red & blue, are consistently lower for the FTS.
Three orders of magnitude are covered in flux.

Hidehiro Kaneda, 14:00 – 15:00
Transient response modeling and correction

Central bursts become more symmetrical while the amplitude cannot be reconstructed.
Transient correction on the timelines.
Flux-dependency of transient correction: High flux conditions lead to better response correction.
Channel 38 shows only a weak dependence of the asymmetry on the flux level. Low flux condition is corrected better.
Backward scans start soon after having gone through the central burst.
The manual parameter selection is hard to automate.
More modeling and empirical work required for a more comprehensive understanding of the transient response.

Jean-Paul Baluteau, 15:00 – 16:50
Transient effects

Is the power at 150 cm-1 the first harmonic of the optical passband or is it from electrical noise?

Does SW show the same contamination as LW at high frequencies? If it does then the power should not be due to the transient response.
We have all the information available to verify whether we have a correlation between the TRF and the high frequency out-of-band power which might be a sign-post for non-linearity.

LWnarrow is not a reliable band for photometry.
Color-correction may change results by no more than 20%.

16:50 – 17:45
Next steps

Calibration, part 2, almost complete.
Check consistency between FIS01 and FIS03.
The RSRF is available only as an average of all pixels, not per pixel.

Calibration paper still in preparation (bright sources, ignore TR), to be submitted end of July 2008.
Correct the TR as a single scaling factor later on.
We need to study potentially different effects of the TR on the continuum and the lines.
Calibration accuracy of 50% is not ideal but may be unavoidable.

Transient Response:
HK will continue TR correction with an empirical model, aiming at a robust correction routine.
PD will correlate TRF to out-of-band high frequency power.
DN suggests to model the expected interferogram from ISO/LWS spectra to see what to expect.
MK sees potential for a publication on the TR for future missions.

OT observations may be acceptable because the photometry will give the SED and the lines are unknown and so worth publishing even with a large error.

Akari team can provide data. Effort and staff is short.

Perspective towards the future: collaboration towards future instruments.