

History of PACS calibration file set releases

When starting hiPE, you will be informed if new calibration files are available.

Clicking on 'show details' will show you the release note of the new calibration set, with details about the changes.

You can choose to update to the latest version of the calibration files.

The history of calibration files released to the community is provided below. The **calVersion** field in the meta-data of PACS products refers to the version numbers of the calibration file sets below.

Version	Hipe Version	Changes	Full release notes
PACS_CAL_72_0	HIPE v14.0	<p>Since</p> <ul style="list-style-type: none"> Installed on Operational System since 10-Dec-2015 <p>Spectrometer</p> <ul style="list-style-type: none"> New spectrometer calibration product ExtendedSourceLoss. This calibration file accounts for the imperfect response profile of our spaxels in the case of extended sources. Updates of spectrometer calibration products BeamsPerSpaxelB2A, BeamsPerSpaxelB2B, BeamsPerSpaxelB3A and BeamsPerSpaxelR1. The beams calibration files are now normalised such that the sum of the signal from all 25 spaxels is 1 when the simulated point source falls on the centre of the central spaxel. Updates of spectrometer calibration products TelBackCorB2A, TelBackCorB2B, TelBackCorB3A and TelBackCorR1. In the Pointing Offset Correction interactive pipeline scripts we make an correction to the telescope background to get the optimal SED flux calibration, removing remaining "RSRF" features in the spectra not corrected yet by the telescope background model. These corrections are for all bands and are based on all Ceres SED scans on ODs 286, 485, 523, 782, 947, 1237, and 1420 and the corresponding version 2 models for Ceres provided by Thomas Mueller. The current update is a small correction to present calibration files to make sure the flux calibration is fully consistent with the telescope background model and pointing offset corrections as implemented in calTree version 71. The overall absolute flux calibration compared to the Ceres models is adjusted by 2 percent to be consistent with the PACS photometer flux calibration as is described in Mueller et al 2014, ExA. The proposed corrections are at the percent level. The biggest change is for the B3A SED observations as the current implemented corrections were not entirely consistent. 	release note 72 
		<p>Since</p> <ul style="list-style-type: none"> Installed on Operational System since 10th April 2015. <p>Photometer</p> <ul style="list-style-type: none"> no change <p>Spectrometer</p>	

PACS_CAL_69_0	HIPE v13.0	<ul style="list-style-type: none"> • New version of the BeamsPerSpaxel calibration files. These files contain the beams which were published on the PACS Calibration WIKI in the file PCalSpectrometer_Beam_v5.tar.gz. • Provide fitted version of the Spectrometer BeamSize product. The calfile spectrometer.beamSize version 1 only contained a few measures. The resulting curve is not really smooth, and doesn't cover the whole wavelength range. A fitted version of those data is now provided, interpolated over all wavelengths between 50 & 220 um. A polynomial fit of order 2 does a good job. 	release note 69 
PACS_CAL_65_0	HIPE v12.0	<p>Since</p> <ul style="list-style-type: none"> • Installed on Operational System since 19th March 2014. <p>Photometer</p> <ul style="list-style-type: none"> • no change <p>Spectrometer</p> <ul style="list-style-type: none"> • Update of the spectrometer calibration product: TelescopeBackground to version v8. The update consists in a correction of the absolute flux calibration scheme, now consistent with the same set of calibrators as used for the calibration block (excluding Uranus and Neptune). Additionally, this version has a better coverage of the wavelength range than the previous versions. • Changes for the spectrometer telescope background correction calfiles (PCalSpectrometer_TelBackCorB3A_FM, ...) related to the TelescopeBackground calfile version 8. • New version (v4) of the PointSourceLoss product with an update of "fractionCentral_to_3x3" and "fraction3x3_to_total". These datasets contain the flux fraction of the central spaxel with respect to the central 3x3 spaxels and the flux fraction of the central 3x3 spatial pixels with respect to the total flux. The update takes into account an improvement of our knowledge of the PACS spectrometer beams, that was made possible by the improvement of the satellite pointing reconstruction. Additional measurements were also included in the derivation of these new correction curves, namely the 'fine rasters' (0.5 arcsec step) were used, along with the original ones (2.5 arcsec step). 	release note 65 
		<p>Since</p> <ul style="list-style-type: none"> • Installed on Operational System since 29th July 2013. 	

PACS_CAL_56_0	HIPE v11.0	<p>Photometer</p> <ul style="list-style-type: none"> Update the Photometer Cooler Recycling Times Product. Product updated until OD 1443 <p>Spectrometer</p> <ul style="list-style-type: none"> Update of the Spectrometer RSRF: slightly extended wavelength regions covered at the band edges New Spectrometer RSRF band R1 version 4 available for band R1, providing correct line fluxes in red leak region. This RSRF is not applied by default since it increases the noise in the resulting spectrum, but can be used interactively within Hipe. Update of the Spectrometer wavelength calibration for pixel 16 of module 9 in band B2A Editorial update in the description column of the translation table wheel position to band Update of the Spectrometer TelescopeBackground: new parameter set of aging telescope background model Update of the Spectrometer Beams and OffRatio calfiles with better pointing information A new BeamsPerSpaxel calibration files. These files contain the beams which were published on the PACS Calibration WIKI 	release note 56 
PACS_CAL_48_0	HIPE v10.0	<p>Since</p> <ul style="list-style-type: none"> Installed on Operational System since 15th March 2013. <p>Photometer</p> <ul style="list-style-type: none"> Updated cooler recycling times until OD 1349. Update of the BadPixelMask to mask out matrix 9 to compensate for its malfunctioning as of OD 1375. <p>Spectrometer</p> <ul style="list-style-type: none"> no change 	release note 48 
PACS_CAL_45_0	HIPE v10.0	<p>Since</p> <ul style="list-style-type: none"> Installed on Operational System since 22nd January 2013. <p>Photometer</p> <ul style="list-style-type: none"> no change <p>Spectrometer</p> <ul style="list-style-type: none"> Update of the spectrometer beams at all primary- and secondary key wavelengths Update of the off-ratio product (telescope background model at different chopper positions for nod A and B positions) New calibration products for the aging model for the 	release note 45 

		<p>telescope background</p> <ul style="list-style-type: none"> New calibration products for the spectrometer flux calibration tables based on the central 3x3 spaxels 	
PACS_CAL_41_0	HIPE v9.0	<p>Since</p> <ul style="list-style-type: none"> Installed on Operational System since 24th July 2012. <p>Photometer</p> <ul style="list-style-type: none"> updated responsivity, flat-field and encircled energy fraction (ApertureCorrection) and coefficients for non-linearity correction (NonLinearCoeff) calibration files. <p>Spectrometer</p> <ul style="list-style-type: none"> New PointSource loss calibration file - now includes correction from 3x3 spaxel sum to total power in the beam New BeamSize product, used to determine spatial resolution for spectral drizzling New calibration files, used in experimental tasks to correct flux loss due to pointing: spectrometer beams and telescope background on-off ratio 	<p>release note 41 </p>
PACS_CAL_32_0	HIPE v8.0	<p>Since</p> <ul style="list-style-type: none"> Installed on Operational System since 12th Dec 2011. <p>Photometer</p> <ul style="list-style-type: none"> The introduction of a non-linear coefficients calibration file, used in the non-linearity correction on PACS' signal. A new version of the bad pixel mask where the blue detector badpixel mask is extended by 3 pixels <p>Spectrometer</p> <ul style="list-style-type: none"> A new calibration product containing a model for the telescope background has been introduced for flux calibration using the background normalization method. A correction of the error estimation of the capacitance of the blue spectrometer array. A new calibration product containing, at every key wavelength, the detector responses computed from the observation of astronomical standards. An update of the calibration sources flux product. 	<p>release note 32 </p>
		<p>Since</p> <ul style="list-style-type: none"> Installed on Operational System since 24th May 2011. <p>Photometer</p> <ul style="list-style-type: none"> The PACS photometer flux calibration has been re-derived. Absolute fluxes of point-sources will change by less than 5%, extended sources will change by 10-20%. 	

PACS_CAL_26_0	HIPE v7.0	<ul style="list-style-type: none"> Aperture photometry of point-sources requires from now on the application of new aperture correction factors, taking into account that there is still significant flux beyond 60 arcsec. These new correction factors (together with the old ones, applicable for PACS photometer observations calibrated with the old version of the Response calibration file in PACS calibration file set v16 or older) are stored in: "PCalPhotometer_ApertureCorrection_FM_v2.fits" and can be retrieved via the new task "photApertureCorrectionPointSource" to be applied after "annularSkyAperturePhotometry" in hiPE 7.0 or later. Users of earlier versions of hiPE can use the aperture corrections listed in the PACS photometer point-source flux calibration report, available at the PACS instrument page on the HSC web pages. Invntt calibration files, used in the madmap map making, updated to v4. Version 4 of Invntt contains the values of version 1, but in a new format needed by a software update. New calibration product: DetectorReadoutTimeShift. Currently not used in the pipeline processing. New calibration product: CoolerRecyclingTimes. Currently not used in the pipeline processing. <p>Spectrometer</p> <ul style="list-style-type: none"> capacitance ratios updated, relevant for high flux source observations 	release note 26 
PACS_CAL_16_0	HIPE v6.0	<p>Since</p> <ul style="list-style-type: none"> Installed on Operational System since 13th Apr 2011. <p>Spectrometer</p> <ul style="list-style-type: none"> spatial calibration of chopped spectroscopy observations with large chopper throw wavelength calibration of spectroscopy in band B2B 	release note 16 
PACS_CAL_13_0	HIPE v5.0	<p>Photometer</p> <ul style="list-style-type: none"> new version (G3) of inverse noise time-time correlation for MadMap 	release note 13 
PACS_CAL_12_0	HIPE v4.0	<p>Since</p> <ul style="list-style-type: none"> Installed on Operational System since 29th July 2010. <p>Spectrometer</p> <ul style="list-style-type: none"> Nominal response calibration: <ul style="list-style-type: none"> Applying ground-orbit correction factors 1.1 and 1.3 is no longer needed with this version Improved spaxel-spaxel flatfield 	release note 12 

PACS_CAL_11_0	HIPE v4.0	Spectrometer <ul style="list-style-type: none">updated CalSourceFlux - not used in the pipeline	release note 11 
PACS_CAL_10_0	HIPE v4.0	Version identical to calibration set version distributed with hipe version 4.0	

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