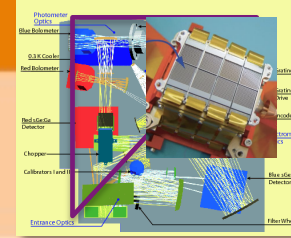




The Herschel—PACS Photometer



The PACS(blue) bolometer, with an instantaneous FoV of 3.5x17 arcmin²

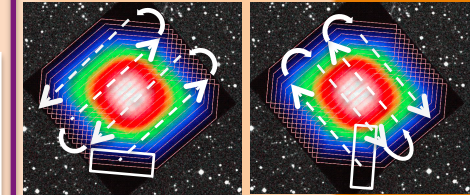
Bands

	Blue	Green	Red
Reference λ	70 μm	100 μm	160 μm
Bandwidth	60-85 μm	85-120 μm	125-210 μm

Beam

The photometer beam FWHM and shape varies with scan speed, band, and for prime vs. parallel mode. Representative values for a single scan direction, prime mode are:

	Blue	Green	Red
PSF (20"/s scan speed)	5.4"x5.7"	6.7"x6.9"	10.5"x12.1"
PSF (60"/s scan speed)	5.7"x9.0"	6.8"x9.8"	11.4"x13.4"



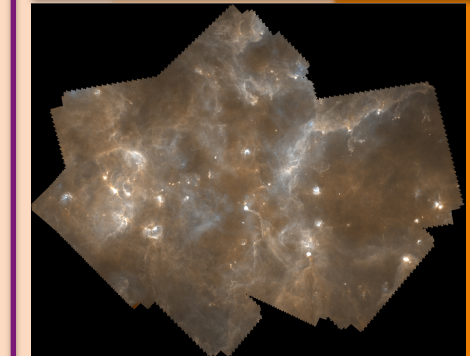
By scanning the sky along an observer-defined track (usually two orthogonal directions), a set of quasi-instantaneous detector readouts....
.... are turned into maps

Observing modes

- Scan mapping** Scan + orthogonal cross-scan to map a defined sky area
- Mini scan map** Scan mapping for point source
- Parallel mode** SPIRE and PACS scan maps executed simultaneously on the same sky region
- Chopped mode** Alternative for point sources, mainly used for calibration

Sensitivity

	Blue	Green	Red
Scan-map			
1 σ 1s (mJy)	30.6	36.0	68.5
Mini scan-map			
5 σ 1hr (mJy)	4.7	5.5	10.5



Calibration accuracy

- Point-source flux calibration** 5-7%
- Point-source flux repeatability** <1% (blue, green) 3% (red)
- Extended emission** data-reduction dependent; no absolute zero-level calibration

Products

- Maps** Units of Jy/(map pixel). Pixel size optimised to the band. Science programmes with two scan directions also have scan+cross-scan combined maps
- Super-combined Maps** For overlapping fields from multiple observations (same observing mode), all maps are combined to give higher sensitivity

Key documentation

- PACS Quick-start Guide
- PACS Handbook
- PACS Products Explained
- PACS Data Reduction Guide
- Poglitsch et al., 2010