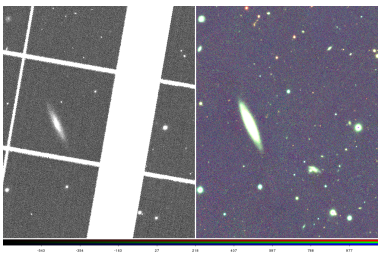
PS1 Warp images

Warps are the result of resampling and realigning the camera images into a skycell of the PS1 Sky tessellation patterns, a set of common pixel-grid images with simple projections from the sky. Warps are astrometrically and photometrically calibrated. These images are part of DR2 and can be accessed and downloaded through the PS1 archive image cutout interface.



Example of a single warp (left) and stack (right) of a galaxy at Ra=23:41:52 and Dec=-08:38:54.05

Warps	
Pixel scale	0.25 "/pixel
Size	~ 0.4° × 0.4° 6.3k × 6.3k pixels
File Products	warp, mask, and weight image
Skycell edge overlap	240 pixels = 60"

The following information is taken from Waters et al., which should be cited appropriately.

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Once astrometric and photometric calibrations have been performed, images are geometrically transformed into a so-called 'skycell' of the PS1 Sky tessellation patterns, a set of common pixel-grid images with simple projections from the sky. These images, called warps, can then be used in subsequent stacking and difference image analysis without concern about the astrometric transformation of an exposure. This processing is called ‘warping’; the warp analysis stage is run on all exposures before they are processed further. For details on the warping algorithm, see Waters et al.

A warp will generally consist of several different Orthogonal Transfer Arrays (OTAs), therefore there are gaps between the OTAs, as well as the smaller gaps between the cells (see example image to the right). The output products from the Warp stage consist of the skycell images containing the signal, the variance, and the mask information. These images were publicly released in DR2. Note that both the warp images and the stack images are available through the PS1 Image Cutout Service.

The projection is done into a standard tangential plane with North up and East to the left. The typical size is 6300 x 6300 pixels, with an overlap of about 240 pixels with neighbouring warps. The pixel scale is 0.25 "/pixel, and thus the area covered by a warp is about 0.4° × 0.4°. Note that the warps are considerably smaller than the camera's field of view (~7 sq deg), so there are many more warp images than exposures. There are more than 24 million warp images in the archive. Warp images (and their ancillary data) make up the bulk of the PS1 data volume.

Warps from the same projection cell share the same tangent world coordinate system with the original projection cell image (i.e., they have the same CRVAL1, CRVAL2, and pixel size). They can be pasted together to make a larger image. For more details see PS1 Sky tessellation patterns.