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## Drizzling ACS images

This webpage provides access to simulated ACS images which were created for pre-launch testing purposes. Contact Max Mutchler (mutchler@stsci.edu) with questions or comments. The calibration pipeline (CALACS) processing of the simulated dataset (below) is described in ACS ISR 99-09 (Mutchler, 1999). The further drizzling of this dataset is described cookbook-style in the latest version of The Dither Handbook (Koekemoer, 2002). Corresponding WFC simulations and examples using real data will be available here eventually. All the ACS dither and mosaic pointing patterns are described in ACS ISR 2001-07 (Mutchler, 2000).

## HRC mosaic simulation

- Download hrc\_mosaic\_raw.tar.gz for the FITS-format raw images (\*raw.fits). Also included is the association table (\*asn.fits) needed to run CALACS.
- Download hrc\_ref.tar.gz. for the test reference files needed to reprocess the raw images with CALACS and PyDrizzle.
- Download hrc\_mosaic\_drz.tar.gz for the corresponding calibrated and combined (\*crj.fits) and drizzled images (\*drz.fits). Also included is the "true" sky (hr\_field.fits) that the simulated exposures were extracted from, which is useful for comparison to the final drizzled image.

This is the 4-point HRC mosaic pattern, which can be defined in a Phase II HST proposal as follows. Once a pattern is defined, it's Pattern\_Number can be used as an exposure-level special requirement:

Pattern\_Data

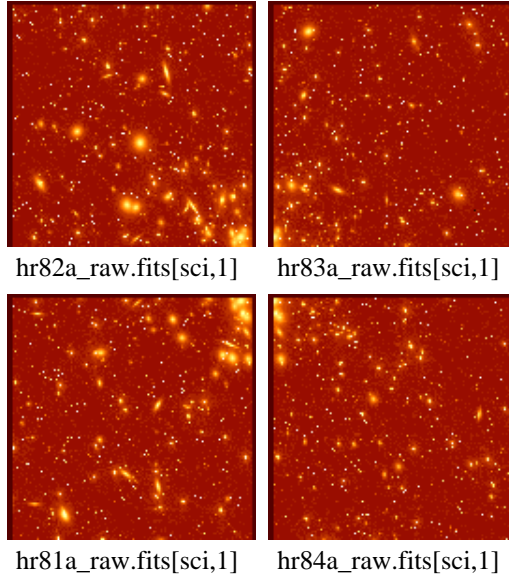
```
Pattern_Number: 1
Primary_Pattern:
  Pattern_Type: ACS-HRC-MOSAIC-BOX
Pattern_Purpose: MOSAIC
Number_Of_Points: 4
  Point_Spacing: 24.130
Coordinate_Frame: POS-TARG
Pattern_Orient: 90.0
```

## Shortcut

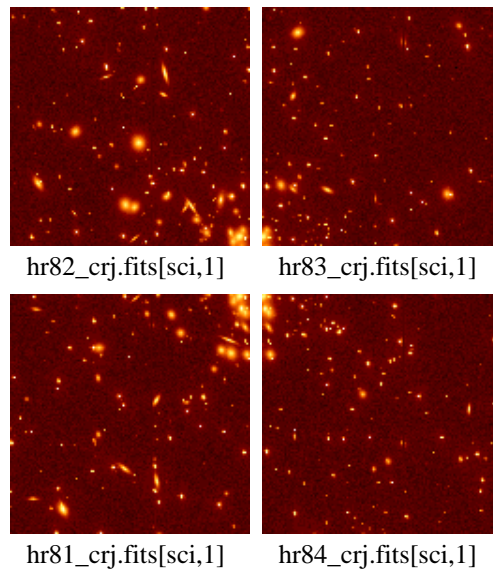
Instrument Han  
ACS Data Hanc  
Newsletters  
Spectroscopic E  
Imaging ETC  
Ramp ETC  
ISRs  
(TIRs)  
HST Primer  
Call for Proposa  
Proposal Instruc  
(ENG Prop Inst  
(Leave Request  
System)

Center\_Pattern: YES

For this simulation, there are two exposures (a and b) at each pointing for cosmic-ray removal (CR-SPLIT), for a total of 8 raw images (but only the "a" exposures are displayed below). Note the cosmic rays, hot pixels, bad column, overscan regions, and distorted stellar PSFs (click to enlarge images):



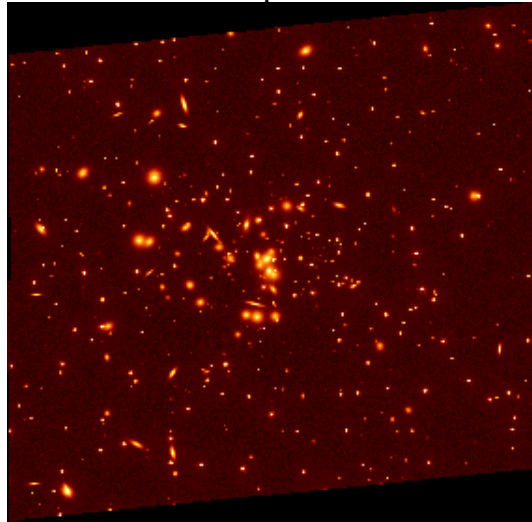
The raw images are reduced, combined, and the overscans are trimmed by the CALACS "pipeline", to produce 4 cosmic-ray rejected images:



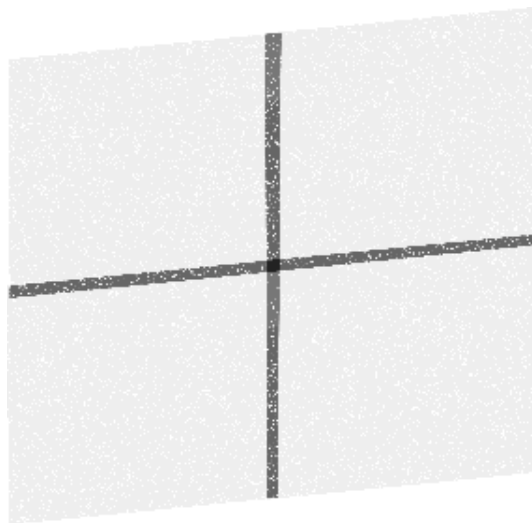
The calibrated images are then distortion corrected and drizzled into a mosaic by PyDrizzle. The science (sci), weight (wht), and

context (ctx) image extensions are displayed here:

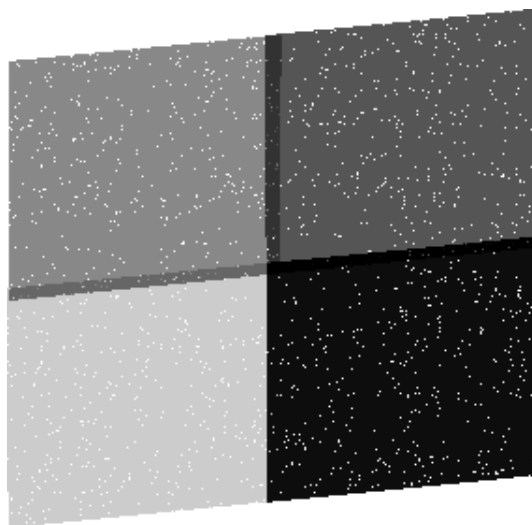
drizzled 4-point mosaic



hr\_mosaic\_drz.fits[sci,1]

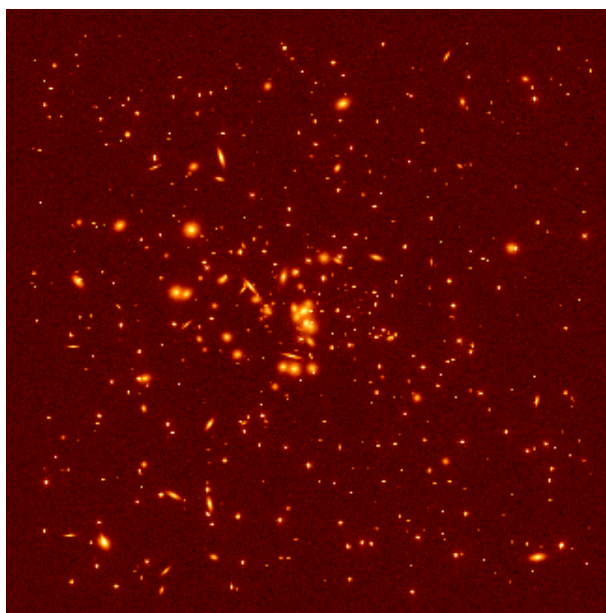


hr\_mosaic\_drz.fits[wht,1]



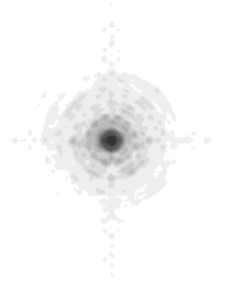
hr\_mosaic\_drz.fits[ctx,1]

This is the simulated field that the raw images were extracted from. It is the "true" sky, useful for comparison with the final drizzled image:



hr\_field.fits[0]

This is the point spread function (PSF) used to create the stars in the simulated field. It was produced with TinyTIM for the HRC at 800nm:



hr\_psf.fits[0]

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## Related documents

**The Dither Handbook**

Koekemoer, 2002

**ACS dither and mosaic pointing patterns**

Mutchler & Cox, ACS Instrument Science Report 2001-07, July 2001

**ACS calibration pipeline testing: cosmic ray rejection**

Mutchler, Hack, Jedrzejewski, Van Orsow, ACS Instrument Science Report 99-09, Nov 1999

**ACS image formats**

Mutchler, ACS Training Lecture Series, 1 July 1999

**ACS calibration pipeline testing: basic image reduction**

Mutchler, Jedrzejewski, Hack, Cox, ACS Instrument Science Report 99-04, May 1999

**Drizzling dithered HST images - a demonstration**

Mutchler & Fruchter, HST Calibration Workshop, Sep 1997, also AAS 191, Jan 1998

**A package for the reduction of dithered undersampled images**

Fruchter, Hook, Busko, Mutchler, HST Calibration Workshop, Sep 1997