Stack Testing Plan

SQuaRE plans to test the main algorithmic components of the stack. By "test" is meant "characterizing the performance of" and includes checking the precision, accuracy, computational speed, and the regime in which code works well and where it fails.

Below are the components we'd like to test (organized by main routine) and some thoughts on to go about doing the tests.

processCcd

maybe rename Single Frame Measurement

ISR

- cross-talk
- brighter/fatter, doesn't exist yet
- the application of ISR correction is normally pretty straightforward (image arithmetic), it's creating the calibration products that is often hard

calibration

- repair CRs
- background estimation
    - how well does it work near bright stars, big galaxies, crowded fields
- star selector
- initial PSF (FWHM)
- general PSF determination
- astrometric matching
- astrometric/WCS fitter
- photometric calibration
- aperture correction (measureApCorr)
- (there's detection/measurement in this part as well)

process

- detection
- deblend
- measurement

makeCoaddTempExp

- warping (createTempExp)
    - warpAndPsfMatchTask.run
    - PSF Matching, ip.diffim.ModelPsfMatchTask.run
    - Warping, afwMath.Warper.warpExposure
        - calls mathLib.warpExposure (this is the c++ code)

assembleCoadd

- in progress

processCoadd

- in progress

forcedPhot

- in progress

image differencing

- template generation for image differencing
- detection in difference image

simultaneous Astrometry