Imcat Analysis of All Outliers and All PSFs of those outliers

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1. Create Background for Phosim.

Program : aa_create_background.py

Depends : none

Output : backgrounds/background1.bkg

This program creates a background file for Phosim. In this background file we choose pixelsize 1.5 and saturation,blooming,chargesharing to be zero.

It will clobber the output folder backgrounds.

2. Create Seds for Phosim

Program : aa_create_sed_all.py

Depends : sed_flat.txt

Output : seds/narrowband*.sed

This program creates seds for all narrowbands.
We break the wavelength range 531-696 nm into 21 parts and decrease the normalizing wavelength at 500 nm by a factor of 100.

It will clobber the output folder seds.

3. Create Instance Catalogs for Phosim with given seed.

Program : a1b_create_instance_catalogs_seed.py

Depends : seed

Output : instance_catalogs/narrowband*.icat

This program creates instance catalogs for all narrowbands.
It will clobber the output folder each time this program runs.

4. Create zipped psf files using Phosim

Program : a2b_phosim_all_narrowbands.py

Depends :

- instance_catalogs/narrowband*.icat
- seds/narrowband*.sed
- backgrounds/background1.bkg

Outputs :

- phosim_output_extreme_psf/narrowband0/17_zipped_psf_fitsfiles
- phosim_output_extreme_psf/narrowband20/17_zipped_psf_fitsfiles

This program creates zipped psffiles for all narrowbands inside the output folder. It will clobber the output folder.

5. Unzip psffiles created from Phosim.

Program : a3b_unzip_all_psf.py

Depends : phosim_output_extreme_psf/narrowband*_out/zipped_psf

Outputs : extreme_psf/psf*.fits

This program unzips zipped psffiles created from Phosim into the folder extreme_psf.

6. Create psf for outliers using Phosim for given seed of outlier.

Program : outliers_psf_phosim.py

Depends :

- a1b_create_instance_catalogs_seed.py function create_catalogs (seed) argument: the SIM_SEED to run this program
- a2b_phosim_all_narrowbands.py function run_phosim # gives zipped psfs
  instance_catalogs/narrowband.*icat*
  seds/narrowbands.sed
  backgrounds/background1.bkg
- a3b_unzip_all_psf.py function unzip_psf phosim_output_extreme_psf/narrowband*/zipped_psf

Outputs : outlier_psf/extreme_psf_seed/psf*.fits

This program runs above programs a1b,a2b,a3b and it copies final output folder of
a3b (i.e, extreme_psf) into the folder outlier_psf with given seed number.

7. Create imcat catalog file for given outlier of given seed.

Program : outliers_psf_imcat_analysis.py

Depends :

- seed
- outlier_psf/extreme_psf_seed/psf*.fits

Outputs : outlier_psf/extreme_psf_seed/narrowbands_seed.cat

This program creates catalog file for the given outlier of given seed.