Create Bad Pixel Masks

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Summary

This document describes the procedure for creating a bad pixel mask for a camera.

Associated Documents

For a description of the code used to generate elements of the final bad pixel mask, see the “Specialist view” document, linked here.

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1. Login to chanunpa
2. Cd to bpms directory
3. Mkdir kbXX, where kbXX is the code for the new camera.
4. Mkdir kbXX/YYYYMMDD to hold the image files, with subdirectories for bias/dark/flat, and subdirectories for start/end of night.
5. su root
6. Cp image files from /archive/engineering/(site)/(camera)/(date)/raw/(files) to kbXX/YYYYMMDD/(cal)/(start/end)/
7. Funpack all of the *.fz files, then delete them. (The script will work on the .fits files.)
8. Vi create_bpm.py, and Modify type of cal file (b00, d00, f00) on line 54.
9. Run: python create_bpm.py kb98 20180602 bias start 6 6

Sample output:
imagelist = ['coj0m403-kb98-20180602-0001-b00.fits',
'coj0m403-kb98-20180602-0002-b00.fits', 'coj0m403-kb98-20180602-0003-b00.fits',
'coj0m403-kb98-20180602-0004-b00.fits', 'coj0m403-kb98-20180602-0005-b00.fits',
'coj0m403-kb98-20180602-0006-b00.fits', 'coj0m403-kb98-20180602-0007-b00.fits',
'coj0m403-kb98-20180602-0008-b00.fits', 'coj0m403-kb98-20180602-0009-b00.fits',
'coj0m403-kb98-20180602-0010-b00.fits', 'coj0m403-kb98-20180602-0011-b00.fits',
'coj0m403-kb98-20180602-0012-b00.fits', 'coj0m403-kb98-20180602-0013-b00.fits',
'coj0m403-kb98-20180602-0014-b00.fits', 'coj0m403-kb98-20180602-0015-b00.fits',
'coj0m403-kb98-20180602-0016-b00.fits', 'coj0m403-kb98-20180602-0017-b00.fits']
Filename: (No file associated with this HDUList)

No. Name Ver Type Cards Dimensions Format
0 PRIMARY 1 PrimaryHDU 6 (3136, 2112) float64
Image mean and stddev: 1120.59464039, 5.910
Applying thresholds HI= 1156.05519001 ADU, LO= 1085.13409078
idx1 = (array([55, 300, 394, 510, 730, 789, 790, 812, 812, 816, 825,
825, 882, 948, 1006, 1166, 1240, 1250, 1546, 1678, 2009]), array([1784, 2943, 2226,
906, 258, 2046, 1192, 1899, 1900, 1899, 279,
280, 1522, 2455, 2357, 863, 801, 1913, 1920, 1901, 2294]))
len(idx1[0]) = 21
len(idx1[1]) = 21
Output BPM kb98_med_bpm.fits
Filename: (No file associated with this HDUList)
No. Name Ver Type Cards Dimensions Format
0 PRIMARY 1 PrimaryHDU 6 (3136, 2112) uint8

10. Running the program creates kb98_med.fits, kb98_med_bpm.fits.
11. mv kb98_med_bpm.fits kb98/kb98_bpm.bias_start.20180602.fits
12. Repeat 8,9,10 for all biases, darks, and flats. Repeat for starts and ends of nights.
13. Vi combine_images.py.
    a. On line 44, modify date of desired images, e.g. change 0531 to 20180602.
    b. Add final_bpm[Y_start, Y_end, X_start, Y_end] = 1 for individual bad pixels/regions.
14. Run: python combine_images.py kb98. New file combined_bpm.fits is created.
15. mv combined_bpm.fits kb98/bpm_coj_kb98_20180602_bin1x1.fits
16. Fpack bpm_coj_kb98_20180602_bin1x1.fits
17. Su root
18. cp bpm_coj_kb98_20180602_bin1x1.fits.fz /archive/engineering/coj/kb98/bpm/
19. Su archive

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source activate /home/archive/envs/banzai
ipython
In[1]: from banzai import dbs
In[2]: dbs.populate_bpm_table('/archive/engineering/(site)/(instrument)/bpm',
db_address='mysql://pipeline:pipeline@db1.lco.gtn:3306/pipeline')
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