



CCDBand-Aid & CCDStack Narrowband Images

By

Bob Franke
(<http://bf-astro.com>)

CCDStack is developed and maintained
By
Stanley Moore

CCDOPS is developed and maintained
By
Santa Barbara Instrument Group

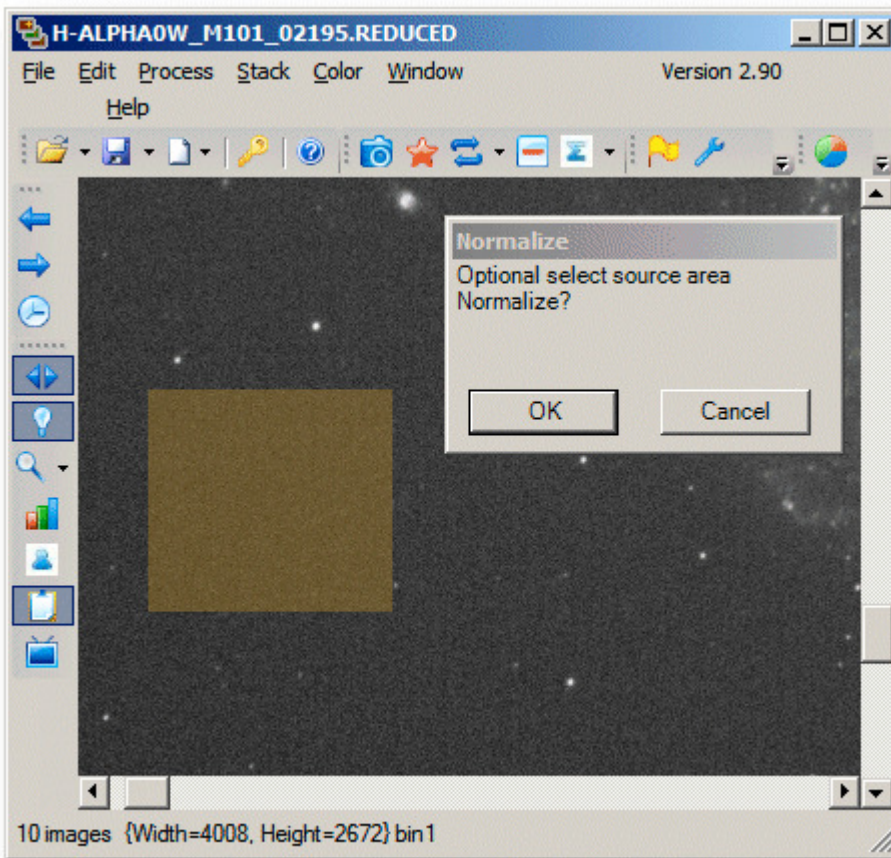
Working With Narrowband Images

Both CCDBand-Aid and CCDOPS usually fail to properly analyze and correct narrow-band (NB) images. Even with 30-minute exposures, NB images are still noisy and difficult to process.

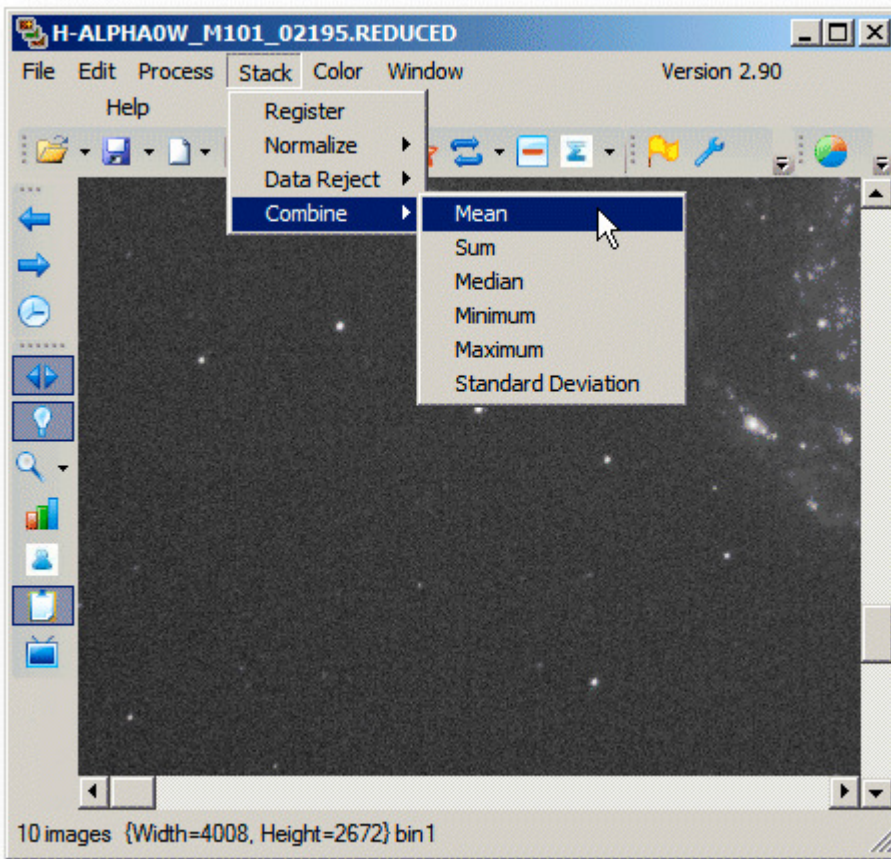
Here are the basic steps for working with narrowband images, followed by detailed instructions for CCDStack users.

1. Group your sub exposures by temperature and length of exposure. Apply the following steps to each group.
2. Without registering the images, normalize the sub exposures. This creates a set of images with similar background levels.
3. Mean combine the group of exposures and save this and the normalized images as 32-bit floating point FITS.
4. Processes the mean combined image with CCDBand-Aid to get the band pattern amplitude.
5. Use the acquired amplitude to repair the vertical bands in the normalized images.

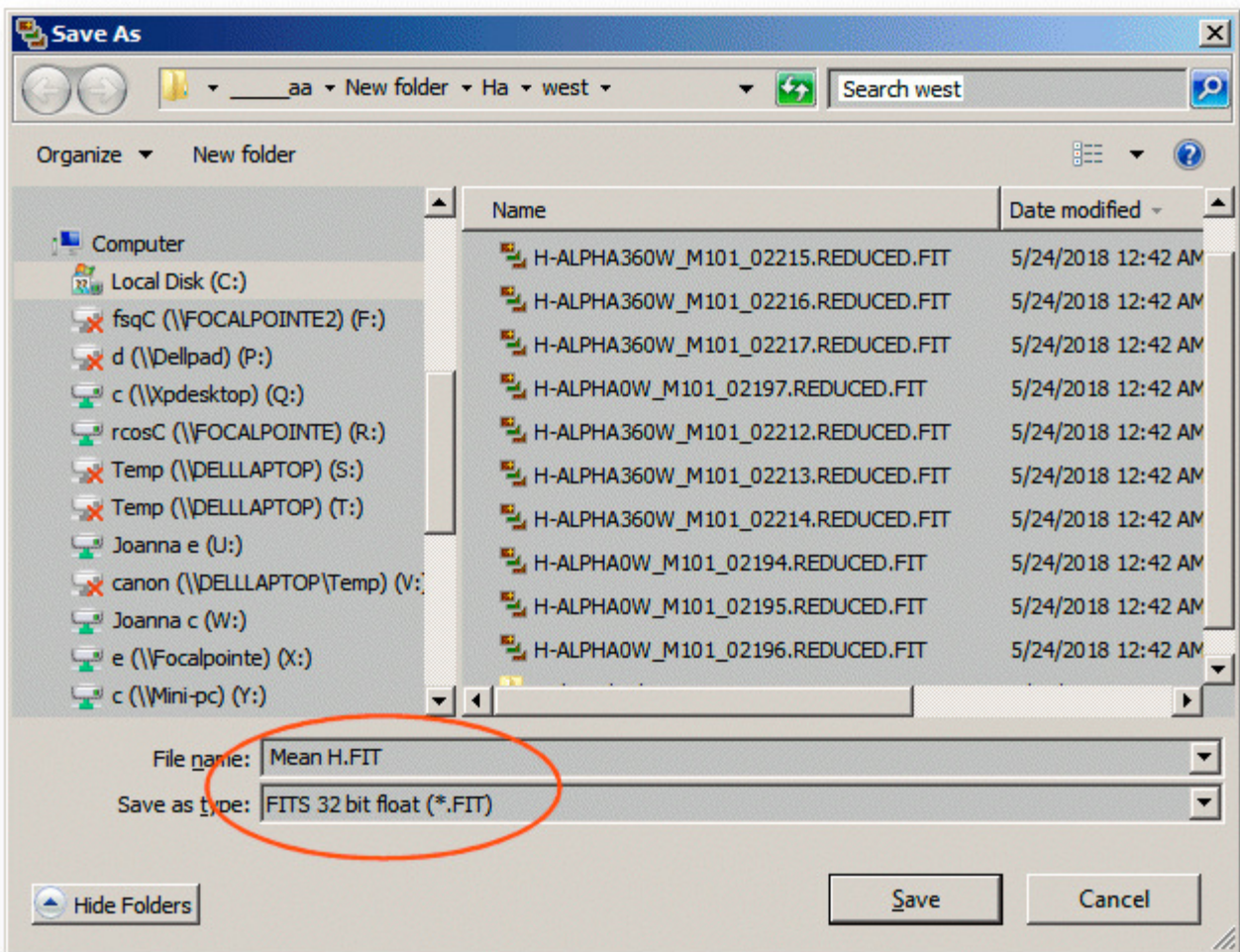
If you can do it, normalize the sub exposures using both scalar and offset. In this example, auto normalization produced a good result. After normalization, all the images should have very similar background levels.



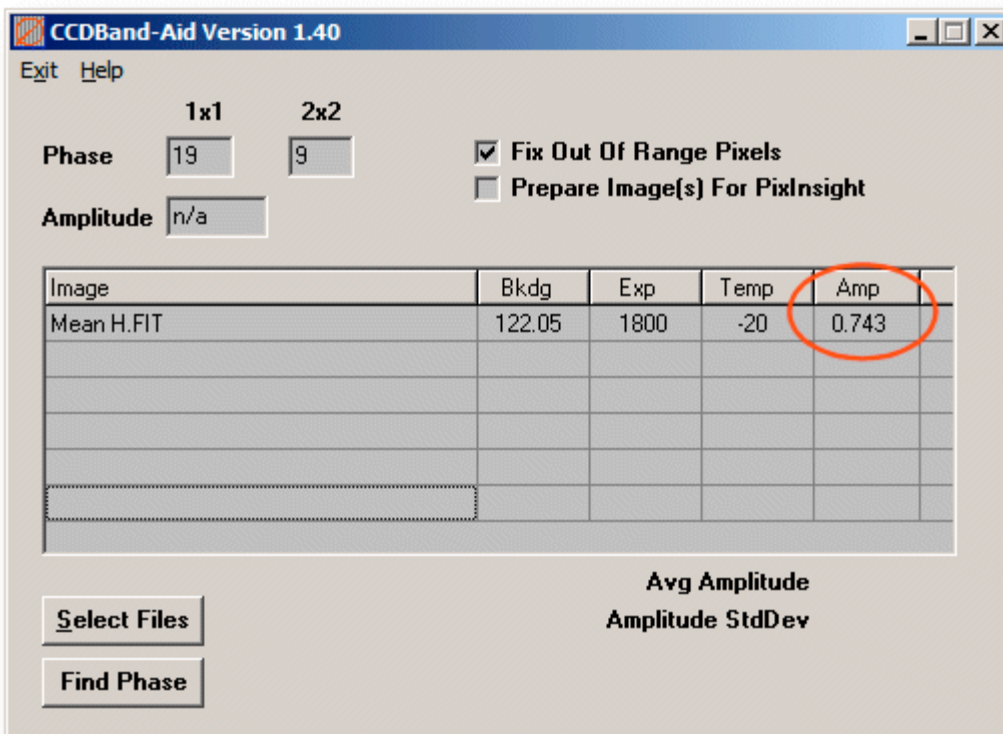
Then mean combine all of the normalized sub exposures. This produces an image with a stronger signal-to-noise ratio, allowing CCDBand-Aid to successfully determine the amplitude of the band pattern.



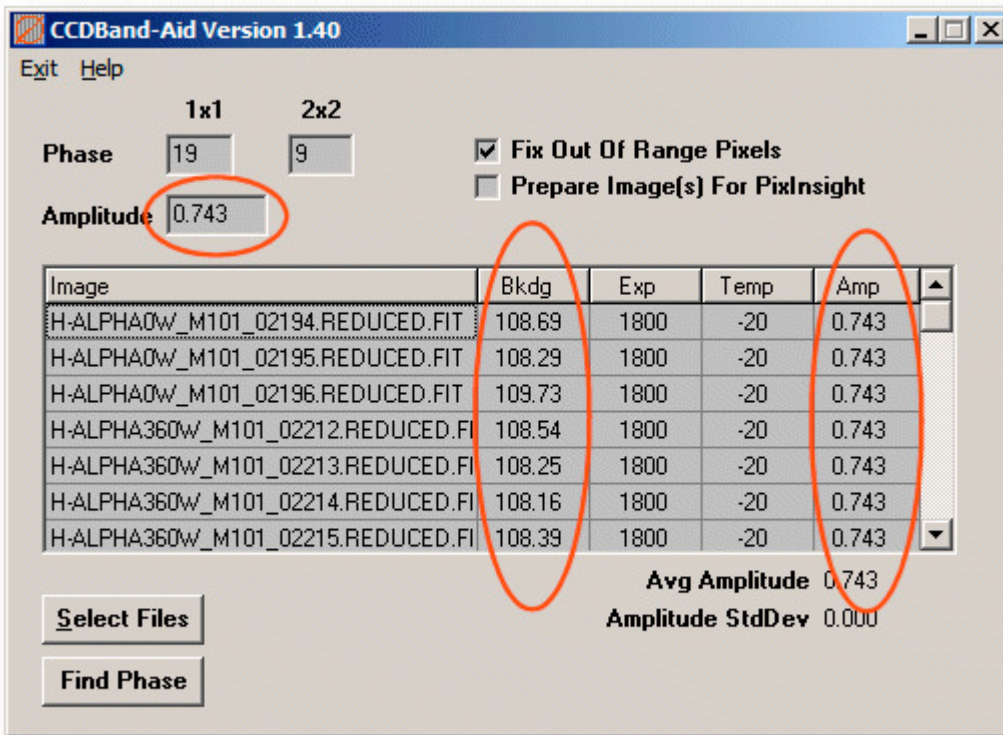
Save the mean combined image, and all of the normalized sub exposures, as 32-bit floating point FITS.



Process the mean combined image with CCDBand-Aid to determine the amplitude of the band pattern.



Enter the amplitude, from the previous step, and select the normalized FITS images. Below, we can see that CCDBand-Aid used the predetermined amplitude with all images. Also, note that the CCDStack automatic normalization worked well with these images. The background levels are all nearly identical. Now you can stack the sub exposures and produce a narrowband result with no vertical bars.



Disclaimers, and Copyright

Copyright © 2012-18 by Bob Franke, All Rights Reserved.

CCDBand-Aid is provided free of charge for all non-commercial use. Permission is given to distribute CCDBand-Aid in its original, unmodified form and only free of charge. The author accepts no responsibility for direct or consequential damage caused by the use of this software: use it at your own risk!

CCDBand-Aid is provided as-is, and although I will attempt to make changes and fixes as they become necessary, I provide no guarantees about its suitability for any purpose whatsoever.

...Bob Franke