Subject: Re: Adding/Subtracting/Multiplying images together
Posted by Russell[1] on Wed, 09 Mar 2016 14:04:51 GMT
View Forum Message <> Reply to Message

Soniya...

This is a very tough question to answer, because it depends critically on the properties of the images to add and the (desired) property of the result. In broad-brush terms, you will need to interpolate one image to the WCS of the other, before proceeding. If you are familiar with the IDL astrolib, then you can use hastrom, but that will only bi-linear interpolate --- and you might actually want/need something fancier (such as sinc-interpolation). That issue withstanding, the notion of "adding" is not actually that clear when you have a pixelated image, look up the process of drizzling:

http://drizzlepac.stsci.edu

of course that is relevant to HST only, but the mathematical underpinning is generic to any telescope/camera. You might also look at SWarp:

http://www.astromatic.net/software/swarp

which does very similar things.

However, be very (no VERRRRRYYYY) cautious with this. Any interpolation you do (bilinear, sinc, drizzle, etc.) will by it's VERY nature, introduce pixel correlation to your image. If you're a grad student, you've probably heard senior faculty or postdocs complain about "correlated errors"? Well, this is the worst manifestation of that problem. So, you need to be very careful in interpreting the results and understanding properties of your resultant image.

Good luck,
Russell

PS. I tried to make this sound very grave, because it is actually a tough problem. However it's so bad, many people have developed many ways of cracking this nut. I've just pointed you to the two most common approaches.

On Wednesday, March 9, 2016 at 3:27:33 AM UTC+1, soniya...@gmail.com wrote:
> On Wednesday, 22 July 2009 06:37:21 UTC+10, Barbara wrote:
>> I am extremely new to IDL, and am working with an astronomy professor
>> looks at fits files. I have been able to split the header and image
>> apart, however now I must be able to add images, then multiply them,
>> and find the average image. Does anyone know how to do this?
>
> As a follow up to this question how to add if the wcs of the images dont match ? Then I guess
> image_added = image_1 + image_2 this wouldn't work.. Is that right?