

WinJUPOS tutorial for everyone.

Preliminaries...

This tutorial covers the use of WinJUPOS using the “De-rotation of images...” and “De-rotation of R/G/B frames...” processes – there is also the “De-rotation of avi’s...” which is not covered here. Also, you can take 3 longish avi’s (maximum 6 minutes per channel Saturn, 3 minutes Jupiter) & process the image from each channel and combine them, essentially using the same method as the following: but specifically the method here outlines combining images from 3 sets of “classic” rgb runs (eg, 6 minute maximum for Saturn, 3 minute maximum for Jupiter.)

You'll need 3 sets of rgb's taken in reasonable seeing on any one night.....preferably taken one after the other so that the total time span from the start of the first set to the end of the last set isn't overly long (some small delays I'm sure can be accommodated - that's just my suggestion for optimum outcomes...) ☺

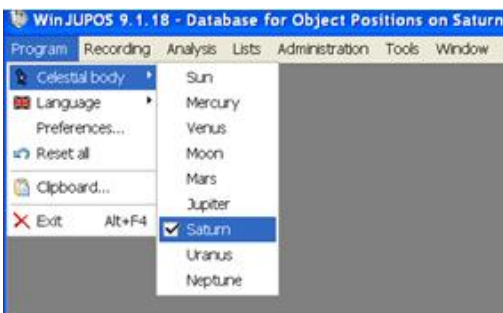
You'll need to process your avi's in Registax and AstralImage or whatever processing regimen you favour, and save the outcomes as .png files.....WinJUPOS says it will accept .tif files, but it haven't managed to get it to!!!

I first need to work out the mid-point time of each single channel’s processed file (**FireCapture's logs make this easy!**) and convert this value to Universal Time, and make sure you check what the day/date is also for each: the date *can* change over an imaging session - I use "**Jupiter2**" to give me UT's as it's a simple program to use.....if the data you're using is old and you live in an area where there's daylight saving, make sure you factor that in also!!!

So let's say you have 3 sets of rgb's.....this means you'll end up with 3 processed .png file outcomes in each channel...i.e., starting with nine in all. Both Registax & AstralImage will save as .png files. 😊

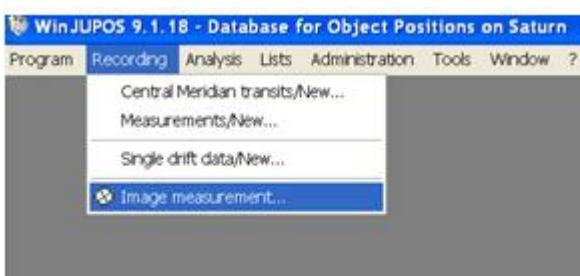
Loading processed files & aligning/measuring

Start by opening WinJUPOS and click on "Program" > "celestial body" and choose "Saturn" if that's the planet in question...



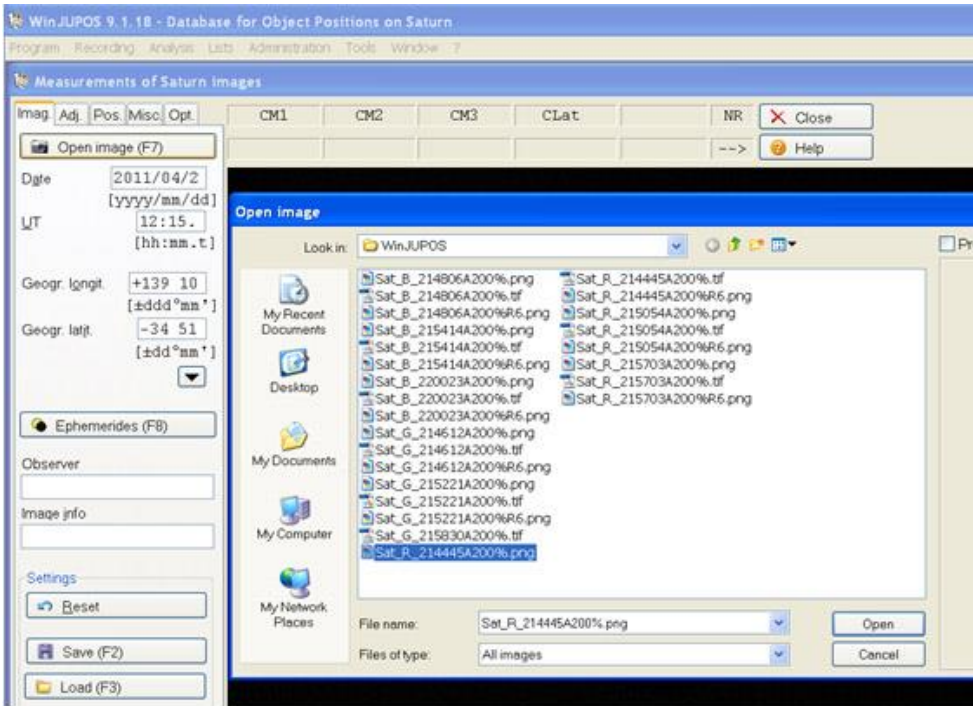
Use the help info of WinJUPOS to acquaint you with what all the keyboard functions do.....read and re-read it is my suggestion - it took me several reads to get the gist, mainly about moving the image and the frame!

Then click on "Recording" and select "Image measurement" and another (large) window will open on top of the original (it looks like WinJUPOS has a "double" window.)



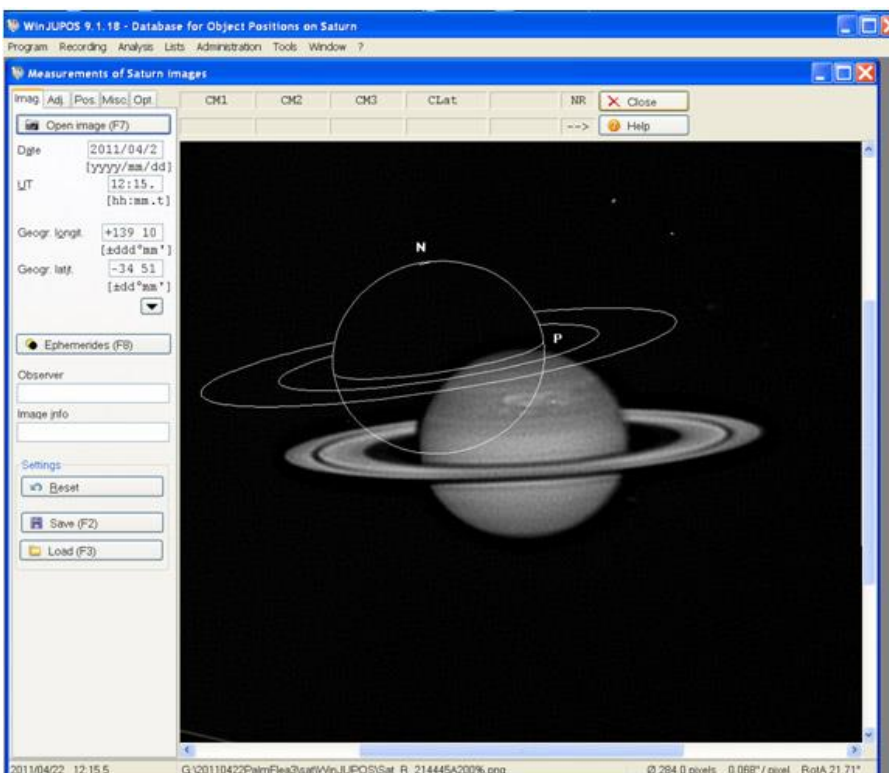
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Up the top left hand side the "Imag." tab should be highlighted with an orange/brown bar above it.....just below here is the "Open image (F7)" tab...



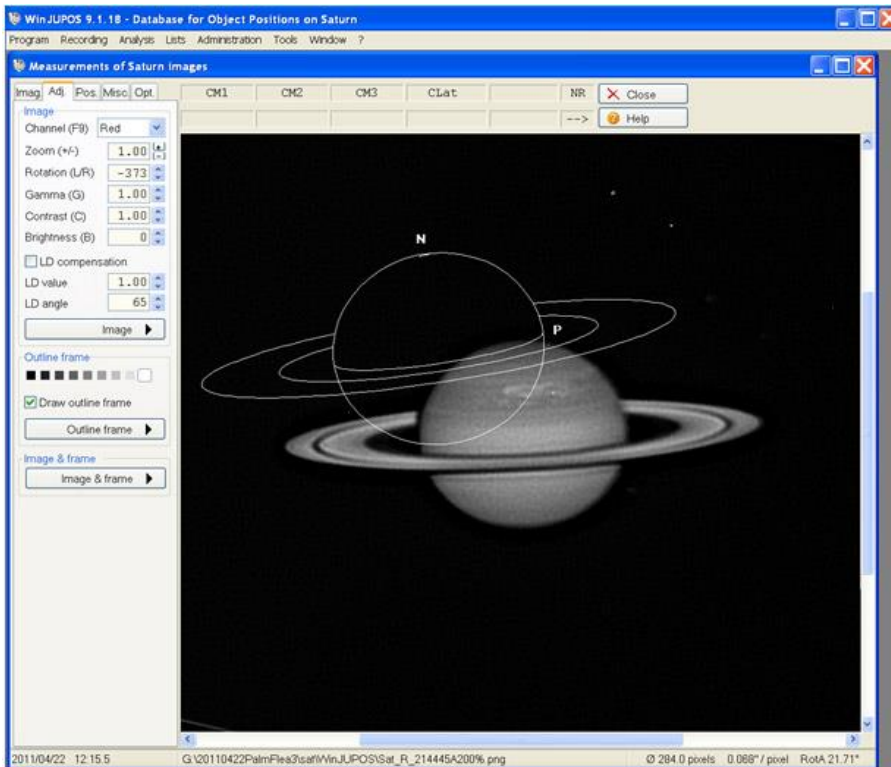
Your planet image will appear along with an "Alignment frame" - although the two will most probably be quite out of kilter with each other as per the next image... Once you've opened one of your images you have to enter the time (seconds as decimal points of a minute) as well as the geographical location of where you took the images (latitude & longitude).....you can save these co-ordinates for any imaging site by using the black arrow button just below the latitude window... 😊

Note the filename and path are at the very bottom of the windows.



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Once you've entered all the correct figures, click on the "Adj." tab next to the "Imag." tab - this is where you set up the alignment frame and planet image accurately so that WinJUPOS can accurately measure the image for its calculations for de-rotating...



This is a red filter/channel image.....you select this in the dropdown box titled ""Channel (F9)""

This is where you should really have read the "Help" info in WinJUPOS re all the various controls you can see here.....although a couple of them are incorrect therein..!

Altering the "Brightness" or "Contrast" may help you "see" the planet within the Alignment frame better...

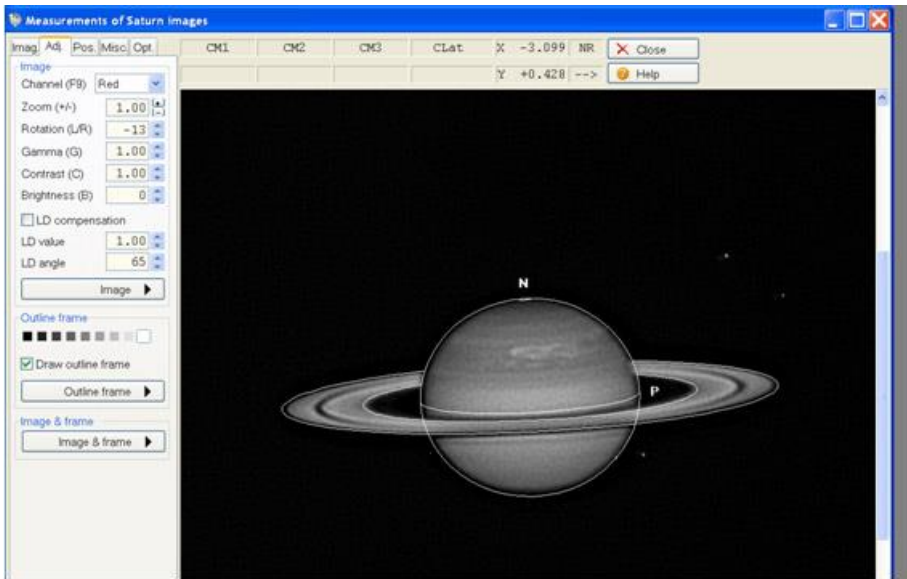
Most important are your "Page Up" and "Page Down" keys for altering the size of the Alignment frame.....the ordinary up & down arrow keys of the keyboard for moving the Alignment frame up and down and the "Left" & "Right" arrow keys for shifting the frame left & right..... "N" & "P" keys rotate the Alignment frame independently of the planet..... "L" & "R" rotate both the planet & Alignment frame...

Jupiter uses a "simpler" alignment frame than Saturn which isn't necessarily easier to set up (I find having an outline for the rings as well as the disk is a bonus on Saturn.....but the same keyboard controls work on both planets.

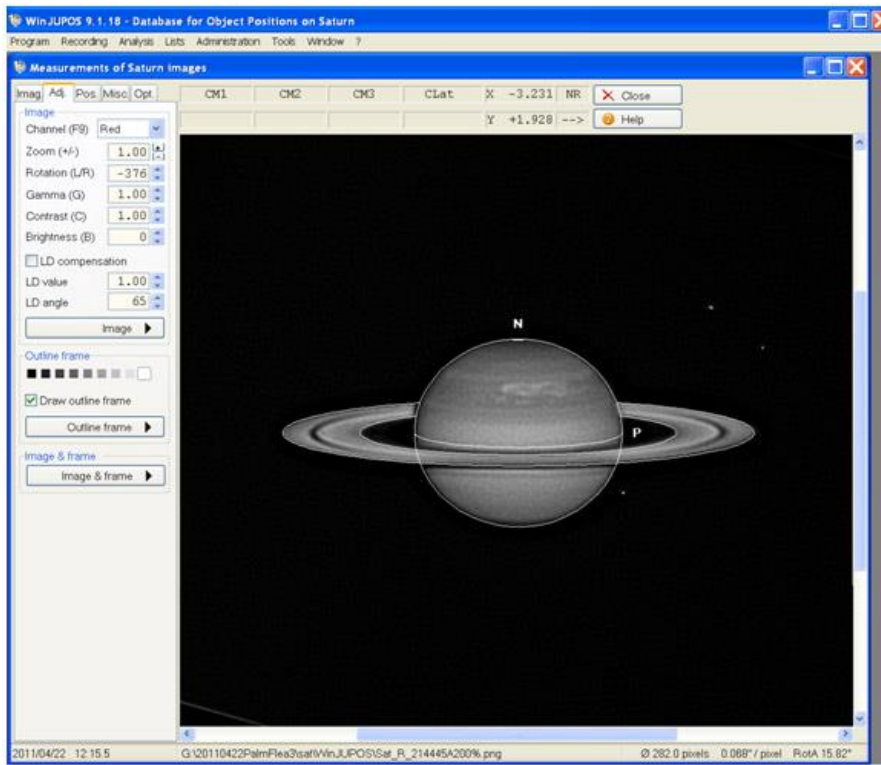
For Jupiter that "control H" will align the frame and planet horizontally on the screen (when they're synched) whilst "F11" is an automatic alignment operation that works well.....you need to be aware of North & South with Jove but you should find it very similar to Saturn in nearly all respects otherwise. 😊

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Using the above keys (except the “L” & “R”) I have positioned the Alignment frame around the planet – you will note that I have made the frame a little larger (“Page Up”) than the planet to assist me in determining if the planet is centred within the frame.....don’t be fooled with Saturn by looking at the disk unless you’ve adjusted the brightness etc – the polar regions are quite dark and I find it best to look at how centred the Alignment frame is around the ring system as well as the sides of the disk!



In the following image I have shrunk the Alignment frame to fit snugly around Saturn and also enabled “control H” to get the pair of them aligned horizontally on the screen! Using the “Outline frame” button on the LHS is meant to align both the frame and planet but this doesn’t seem to adjust the pair of them accurately in my experience, and I’ve found that manual positioning/alignment as above gave me the best results.....but your mileage may vary as they say! ☺



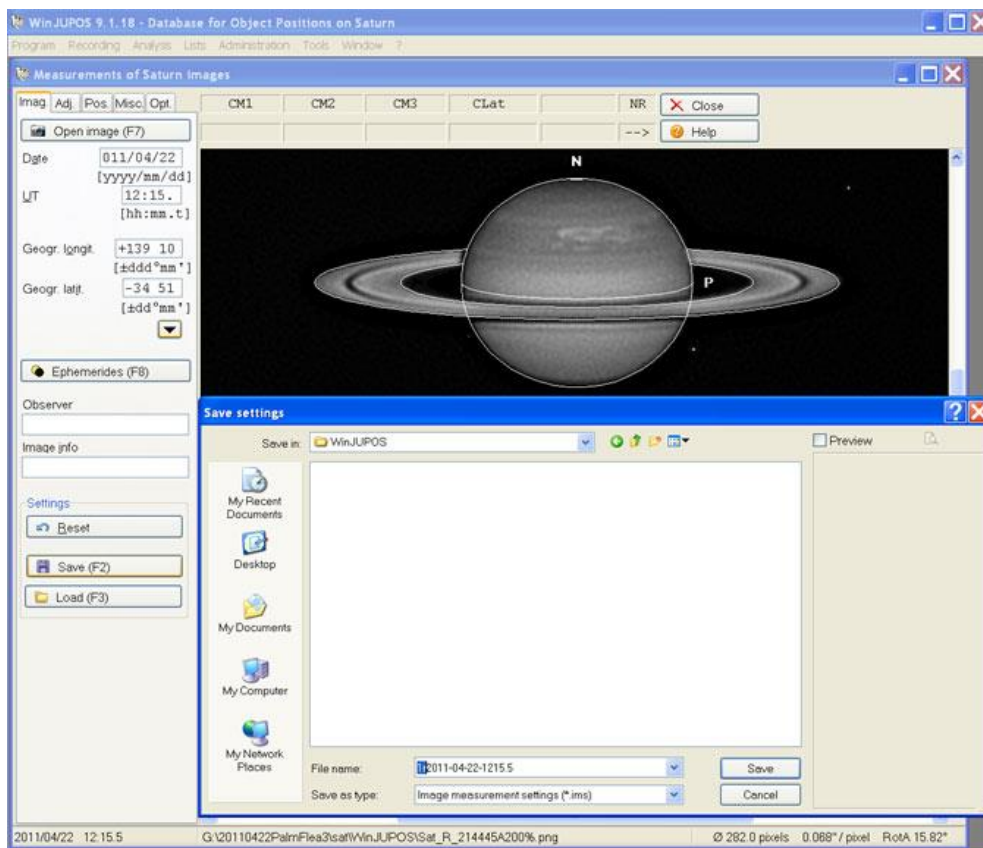
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At this point it pays to use the arrow keys (once you've "snugged" the frame around the planet using "Page Down") to double-check if they are indeed accurately aligned.....by moving the frame one shift up and one shift down as well as one shift left & right we can easily see if the frame is indeed centred around the planet when the frame is snugly-fitting.....looking to see what gaps there are with said movements.....

Then it's back to the "Imag." Tab and click "Save (F2)" Your image will be saved as an .ims file.....make sure you go to the correct folder to save it!!!

Also note that the WinJUPOS .ims filename has the date & timestamp in it.....this is important because when you make a combined image from all 3 .ims files in each filter it will apply a date & timestamp to this combination, and this is what you must use when you combine each of the compound images for your final RGB output....!

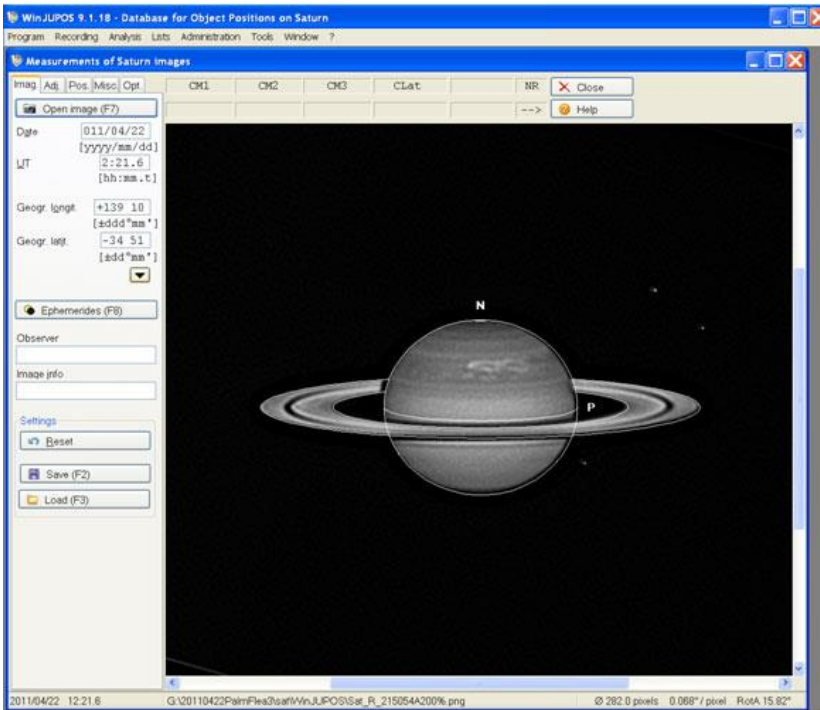
Note also that I have added (highlighted) "1r" to the front of the filename.....this means this is the first of the 3 red channel measured images I am doing (remember, the 3 sets of rgb's are WinJUPOS processed by measuring and obtaining an .ims file for each single red, green & blue and then combining the 3 reds, the 3 greens & the 3 blues.....and then combining those final 3 "compound" red, green & blue images for the output rgb image..!) ☺



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Now when you open the second red image you'll notice that it is much closer to being accurately aligned than the first one we opened, and much easier to adjust..!

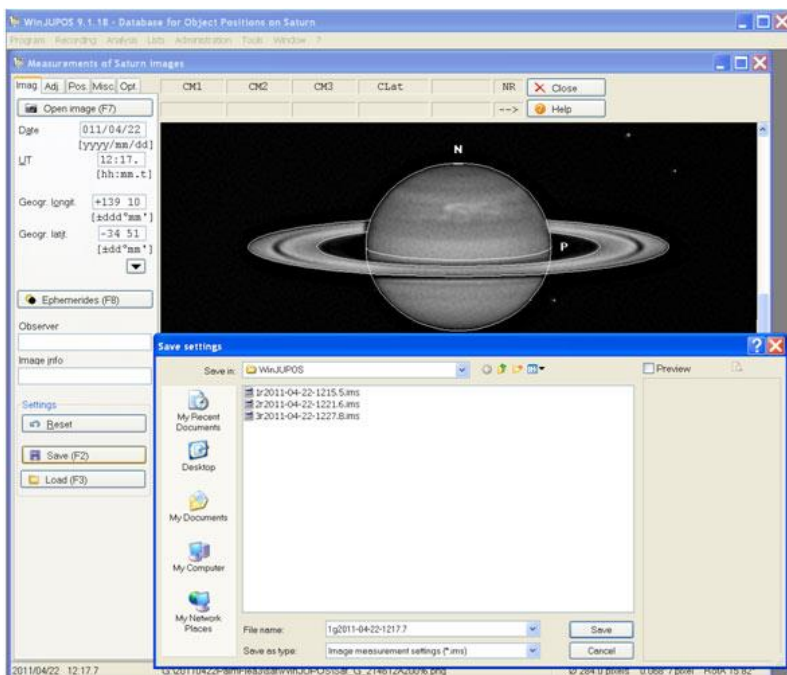
Don't forget to check that the date is correct for when we put in the UT details for this 2nd red image.....that is why you used Jupiter2 or some such...sometimes (depending upon what time you were imaging) the UT day date may change between images in any one session..!



Then go to the "Adj." tab and make your fine adjustments.....save and put the prefix "2r" or some such to define this file.....and do the same again for the last red channel image .

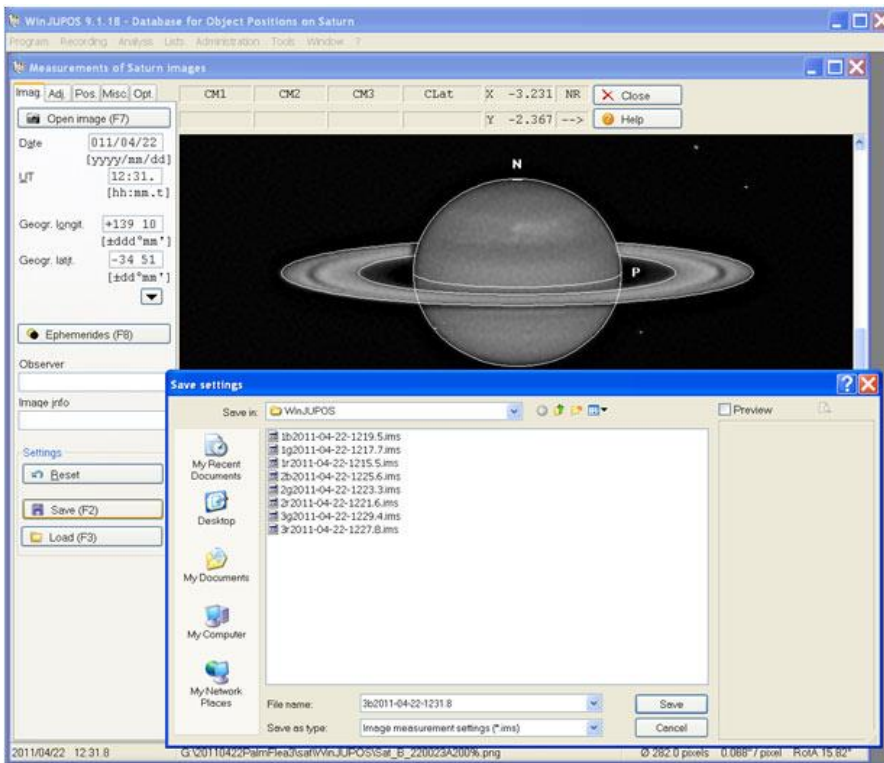
You must repeat all this with each set of 3 colour channel image.....make sure you enter "Green" or "Blue" for the "Channel (F9)" dropdown box when using those colours.....

In the next screenshot you can see I've saved all my red images (1r..... 2r..... & 3r.....) and am now about to save my first green image (1g2011-04-22-1217.7)

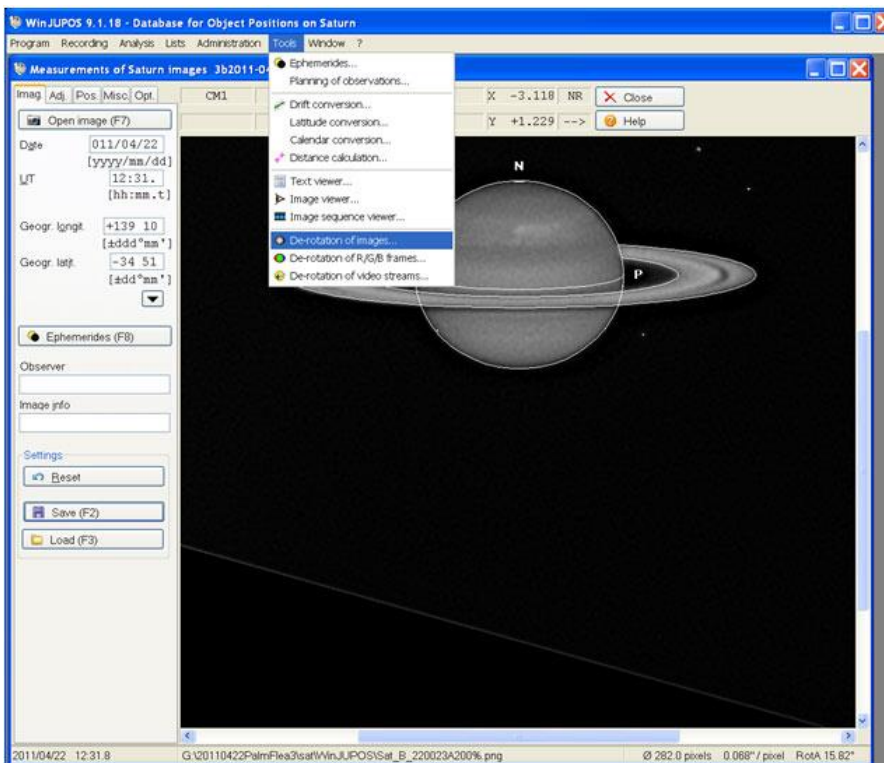


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Here's the last of the blue set.....all ready for the next process which combines each single red, green & blue.ims into single red, green & blue compound images for the final rgb combination: note the file naming protocol I've adopted as previously mentioned..

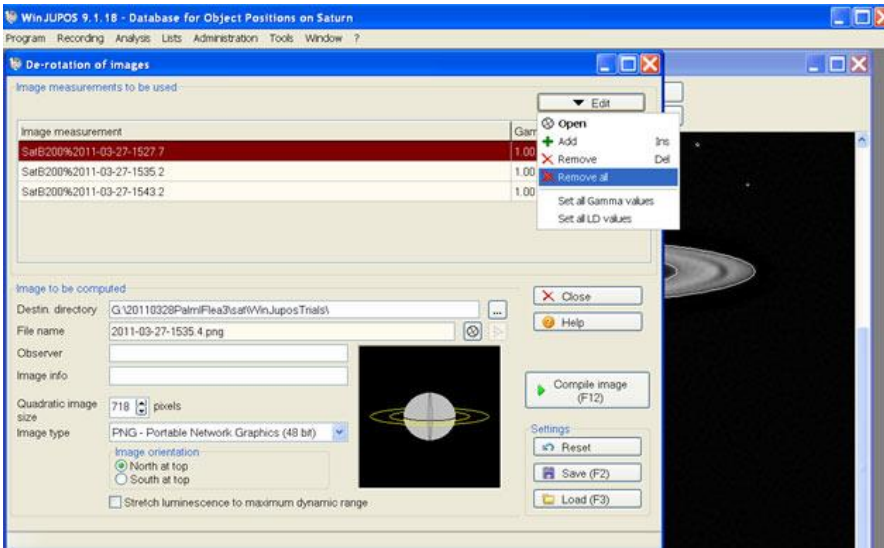


We now click on “Tools > De-rotation of images” in the menu bar to bring up the next screen...



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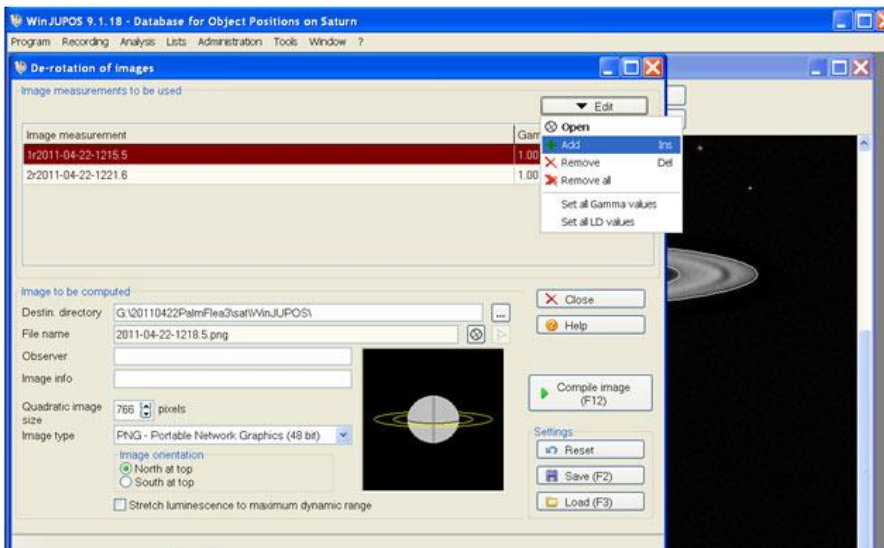
In the “De-rotation of images” window you won’t need to remove any files if this is the first time you’re using WinJUPOS - but after the 1st time you’ll need to click on the “Edit > Remove all” button to remove any files in the window.....a pop-up window will ask you if you want to remove the files and naturally you’ll click “Yes” if needed....!



Now click on “Edit > Add” and choose your first red channel image.....repeat for the other 2 red .ims images.....the following screenshot shows me about to load the 3rd red .ims file. (This is why you’ll appreciate it’s easier to call them “1r, 2r etc!)

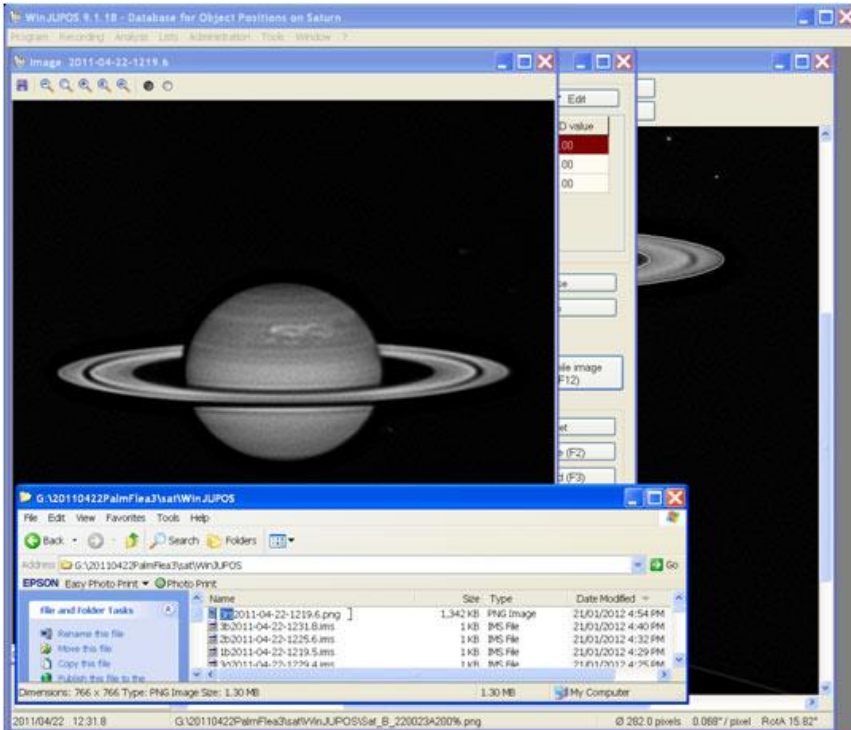
There isn’t any reason why you couldn’t have started with (say) 4 sets of rgb’s and be now combining 4 reds instead of 3 – WinJUPOS allows for more than 3 files to be opened herein..!

Check that the “Destin directory” is correct (i.e., where you want your images to go – back with the others!!!) and also note that when you hit the button “Compile image (F12)” the resultant image will have its own timestamp and be a .png file.

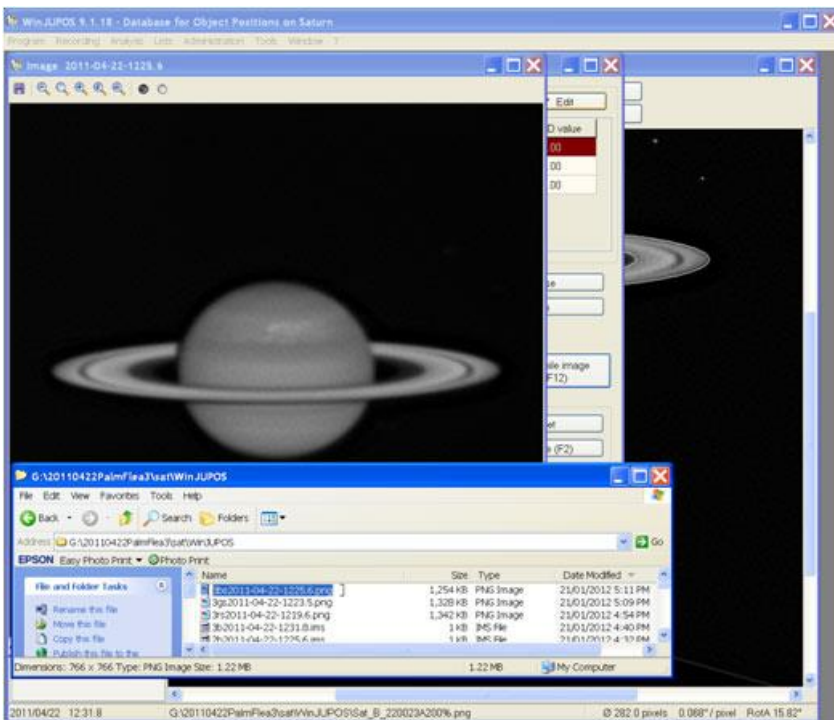


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A new window comes up with the image you've just created (a combination of all your red images) and it will be saved in the relevant folder/directory.....it will have its own timestamp that can identify it **BUT you should really add a prefix to this filename to make it more readily identified** – I chose “3rs” as per the screenshot below.....I do this immediately after “Compile image F12” – just by bringing up the window and using “Date Modified” to get this last image up the top. **You have to do it this way because WinJUPOS won't allow you to alter the filename beforehand...**



Close the “Image” window displaying the planet and repeat these preceding steps for the 3 greens and the 3 blues.....here's the final compound blue image being saved with the prefix “3bs”



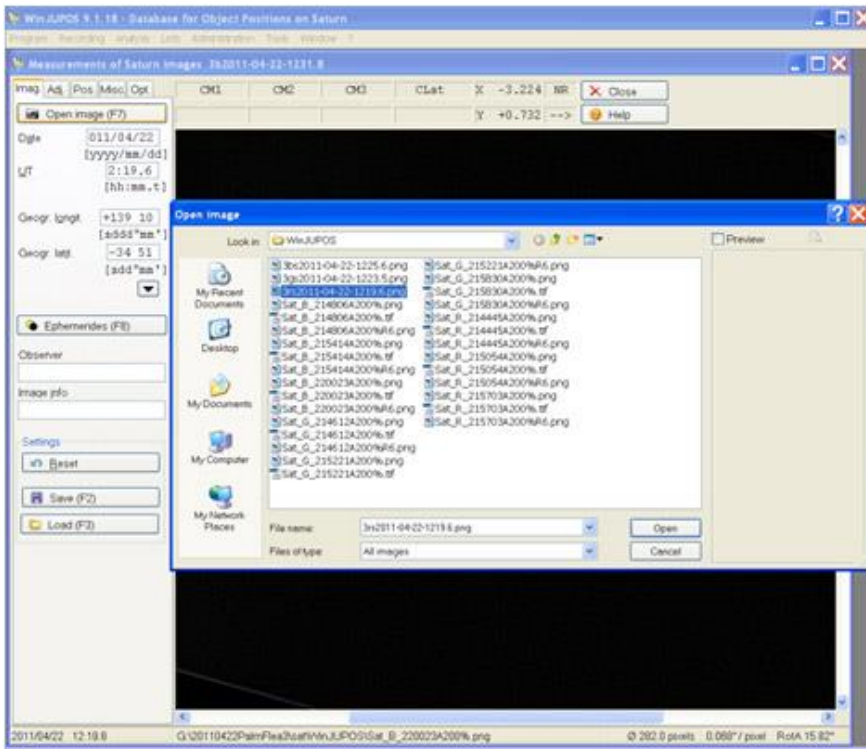
Now close this last “Image” window of the blue compilation and the “De-rotation of images” window.

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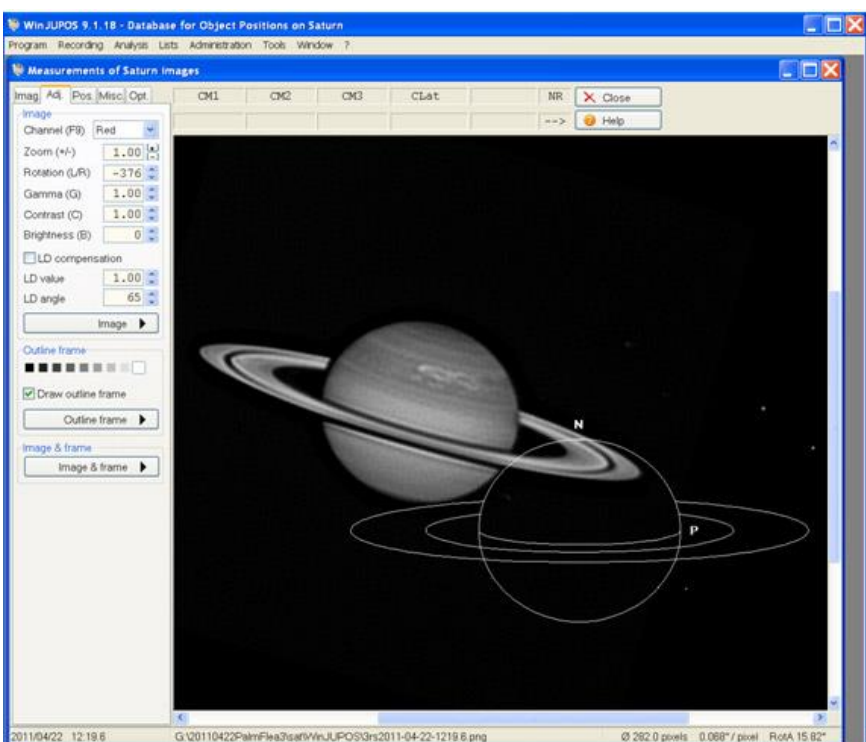
Okay – now we have to start all over again by measuring these compound .png files we’ve just created so that we can combine them as an RGB image.....meaning we turn these now into .ims files for WinJUPOS.

In the next screenshot you can see me opening the 3rs .png file and I have already entered the correct UT date & time taken from the filename I am opening (for the convenience of this tute!)

This timestamp is what WinJUPOS has calculated as the midpoint of the 3 images we’ve just combined for each channel.



You’ll notice that it’s “back to the start” with the Alignment frame & planet image also.....but you’ve already had a bit of practice....! ☺ Just treat this compound image exactly in the same manner you set up each single image in the “Adj.” window – **making sure that you have also set the correct “Channel (F9)” colour in there..!**

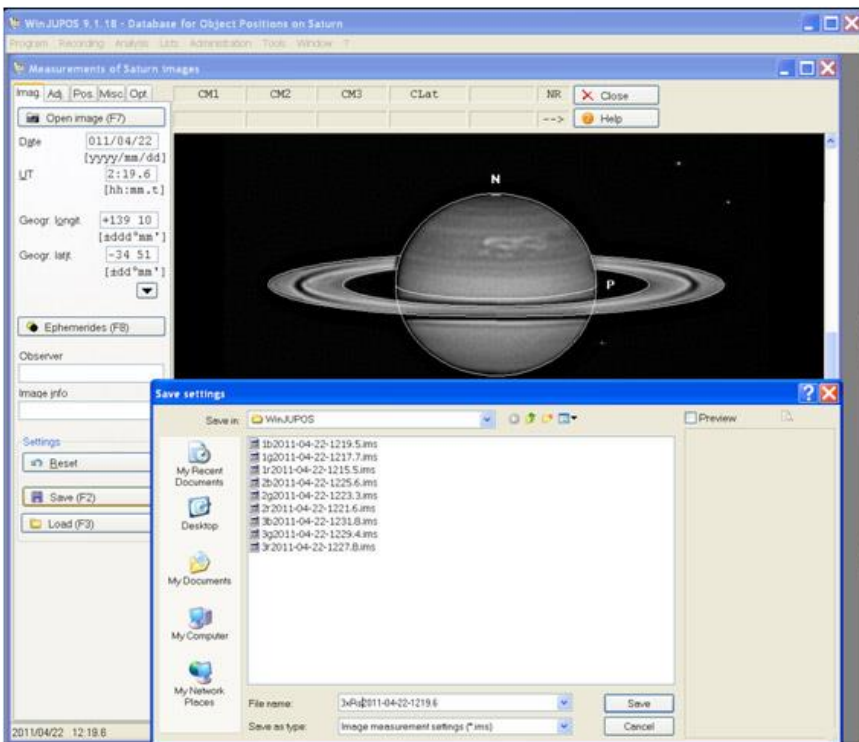


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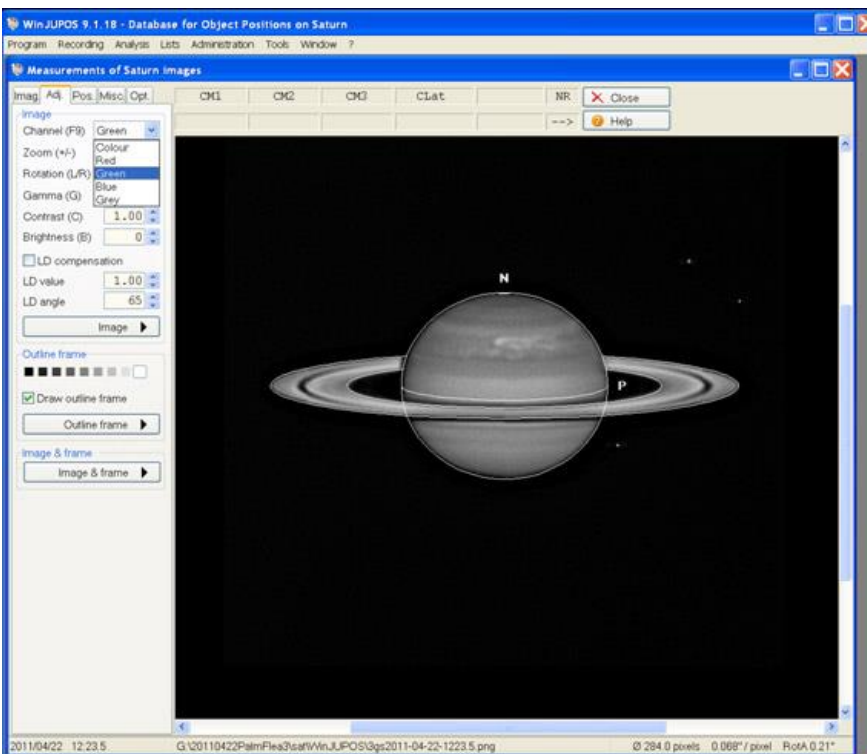
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We've aligned the planet & frame for WinJUPOS and gone back to the "Imag." tab view to save this .ims file.

I have given the file its own distinctive prefix so that it is clear that this is the .ims compound red image.....there are similarities with some of the .ims & .png filenames and this makes it clear to me what this file is.....you may have a better system..! ☺

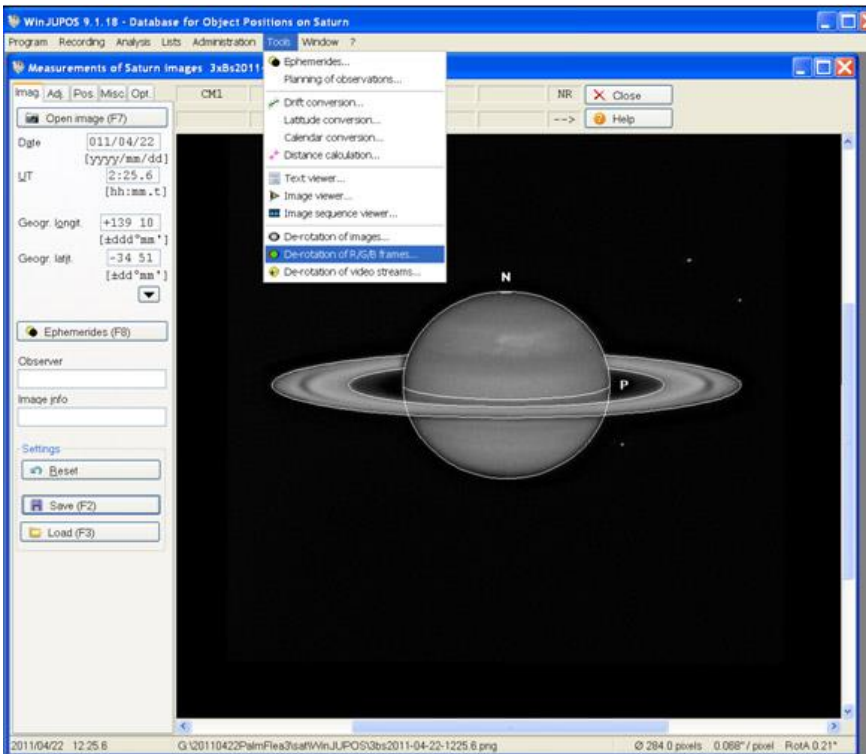


Repeat this for the green & blue sets also.....make sure that you change the filter "Channel (F9)" colour in the "Adj." tab view to the correct colour each time as well as using the time given on the timestamp of the .png file!



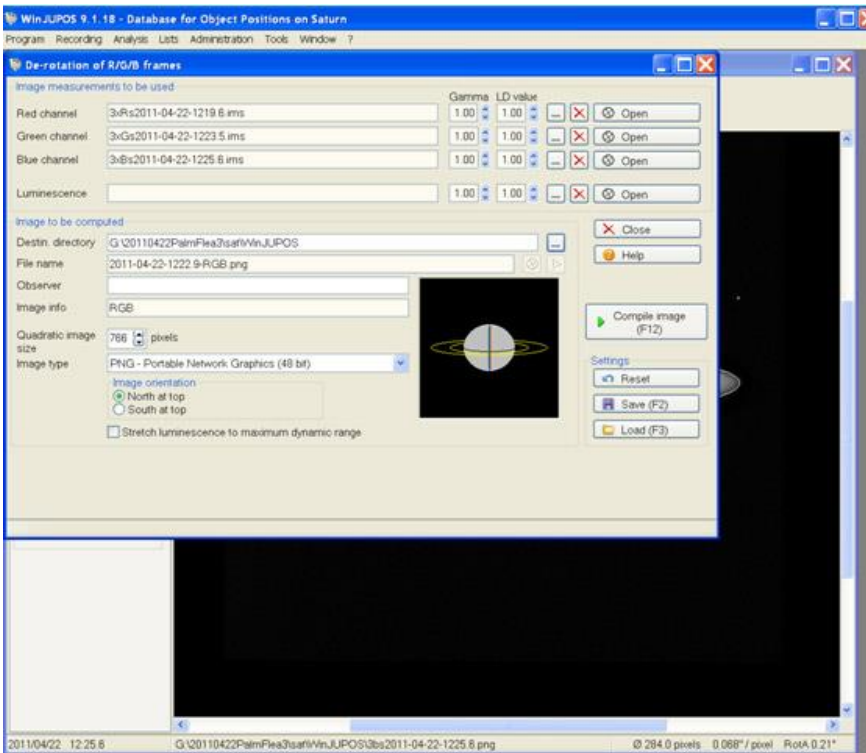
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Next, click on “Tools > De-rotation of R/G/B frames...”



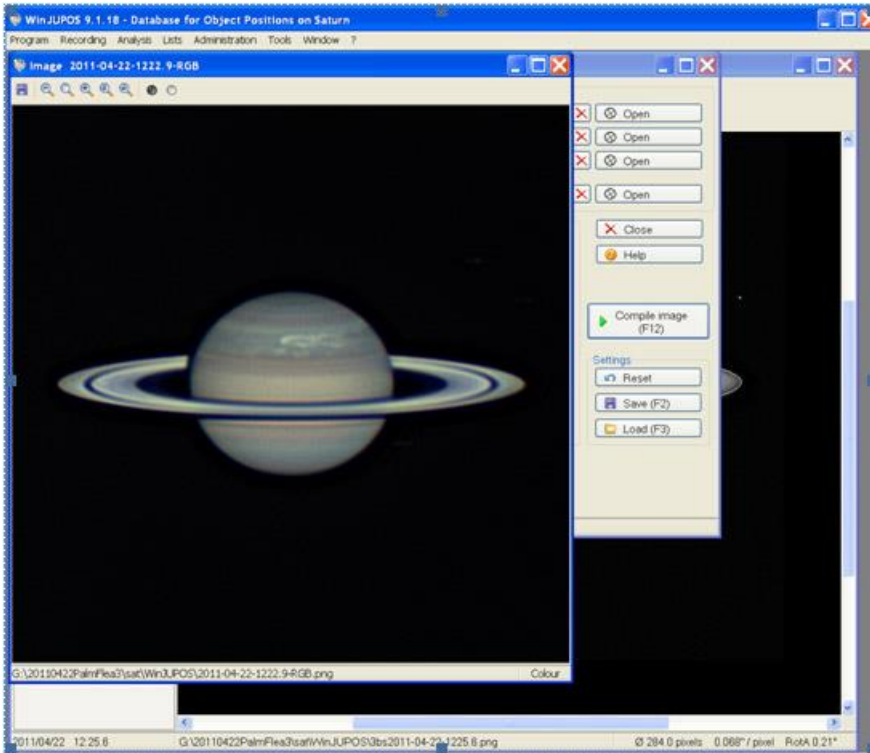
This screen will appear and you open each of the compound .ims files you have just created.....check to make sure you're directing the end-image to the appropriate "Destin directory" folder/directory..!

You can of course add another image (red for example) as a Luminance channel but I'm not overly impressed with WinJUPOS on that score – I prefer to do said in CS4 etc.....but you may like to experiment here to make your own judgement! 😊



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Hokey-dokes..! You've just hit the "Compile image (F12)" button and **Voila!** – if you've set up each image in its frame and used all the correct times etc, you should have a good RGB image.....meaning there is virtually no colour misalignments other than the very slight limb colours here: if you've got distinctive "rgb rainbows" on the sides you haven't properly followed these instructions....! ☺



The next step is really the "post-processing" but you will find with a good image that you can work it quite a bit: this image has 18000 frames - so personally I find that working it a bit harder than a "classic" 6 minute rgb set allows you to increase detail, smoothness and scale.....this image hasn't turned out as good as my best Saturn WinJUPOS effort so far (27th April 2011) but I am happy with it: seeing is always "King" and WinJUPOS won't turn sows' ears into silk purses, but I think that with reasonable/good data it is a very worthwhile processing tool to bring out the best in your captures..! ☺

