

ctools - Feature #1217

Allow setting Emin and Emax in ctlike

06/16/2014 04:34 PM - Lu Chia-Chun

Status:	Closed	Start date:	06/16/2014
Priority:	High	Due date:	
Assigned To:	Lu Chia-Chun	% Done:	100%
Category:		Estimated time:	0.00 hour
Target version:	3rd coding sprint		
Description			
Now ctlike takes the energy range defined in the ctselect or ctbin output files (event lists or cubes) to perform the fitting. For testing or convenience reasons, there should be a possibility to set a user-defined energy range for the fitting.			

History

#1 - 07/08/2014 02:17 PM - Lu Chia-Chun

- Status changed from New to In Progress
- Assigned To changed from Knödseder Jürgen to Lu Chia-Chun
- % Done changed from 0 to 80

A ctool, ctfilter, is implemented for this task. ctfilter allows setting Emin, Emax, and roi for a eventcube. The pixels out of the energy of interest and region of interest are set -1. They will be ignored in ctlike.

The new filtered eventcube replaces the old eventcube in the GCTAObservation and a new eventcube fits file is created.

Todos:

Allow multiple roi and exclusion regions.

Tidy up codes.

Give messages of excluded cube slices in GCTAEventCube::print(const GChatter& chatter)

#2 - 07/09/2014 12:58 AM - Knödseder Jürgen

I implemented the event bin filtering in GammaLib (not yet tested). So when you now set energy bins to negative values they will be excluded from the fit.

You may test this feature by comparing two event cubes, one with an additional energy layer where all bins are set to -1, and one without that layer. The fit results should then be identical.

#3 - 07/19/2014 01:18 PM - Lu Chia-Chun

- Status changed from In Progress to Pull request
- Target version set to 3rd coding sprint
- % Done changed from 80 to 90

Link

<https://github.com/chiachun/ctools/tree/1217.4-ctcubemask>

- Not sure what log messages should be there.
- Tried to make it fit gammalib convention. Hope it's not too bad....

- GSKyRegions now only accept one exclusion region in the file. More regions result in

- ERROR encountered in the execution of ct cubemask. Run aborted ...
- ERROR in GSKyRegions::append(GSKyRegion&): Invalid value.
Attempt to append region with name "" to region container, but a region with the same name exists already at index 0 in the container.
Every region in the region container needs a unique name.

It's a problem of GSKyRegions(). Will make an issue for it.

- It seems that @param[in] is missing for this constructor, but I see the same thing missing in ctbin so I didn't add it in.

```
/******//** * @brief Observations constructor * * This constructor creates an instance of the  
class that is initialised from * an observation container.  
*****/  
ctcubemask::ctcubemask(GObservations obs) : GApplication(CTCUBEMASK_NAME,  
CTCUBEMASK_VERSION)
```

#4 - 07/19/2014 02:23 PM - Lu Chia-Chun

Found out why GSKyRegions(ds9.reg) doesn't work for multiple regions, because I didn't put {text=name}.

#5 - 07/19/2014 06:35 PM - Lu Chia-Chun

Please check this link, after update on gammalib-devel.

<https://github.com/chiachun/ctools/tree/1217.5-ctcubemask-merge-devel>

#6 - 07/20/2014 03:30 AM - Knödlseider Jürgen

- Status changed from Pull request to Resolved

- % Done changed from 90 to 100

Merged into devel.

I went over the code and did some clean up (there was old stuff from ctselect in there that handles temporary file, you don't need that).

I also adjusted slightly the energy selection, as I did not manage to select the full dataset using for emin and emax the values of the actual counts cube. Now it works. I added a 1e-6 margin internally, as when energy are read back from FITS they may differ by tiny amount from the original value.

I made exclusion regions optional, i.e. when you write "NONE" nothing is excluded (and no file is needed).

I also added a unit test to the test script. Seems all to be okay.

#7 - 07/20/2014 09:53 AM - Lu Chia-Chun

Oh! NO!! <https://github.com/chiachun/ctools/tree/1217.4-ctcubemask>
is the right version.....1217.5-ctcubemask is wrong!!

It looks like all changes I made in 1217.4 were erased when I updated to 1217.5.

I did clean up the temp file stuff and add "NO" option to exclusion regions and put everything in ctool conversion. Sad.T_T

But anyway, thank you for the work.

#8 - 07/20/2014 09:57 AM - Lu Chia-Chun

Some doxygen documentations are missing in this version. I will add them back later.

#9 - 07/20/2014 11:17 PM - Knödlseider Jürgen

- *Status changed from Resolved to Closed*