ctools - Feature #1882

Add possibility to perform background subtraction in ctskymap

11/23/2016 10:04 PM - Knödlseder Jürgen

Status:	Closed		**Start date:**	11/23/2016
Priority:	Normal		**Due date:**	
Assigned To:	Knödlseder Jürgen		**% Done:**	100%
Category:			**Estimated time:**	0.00 hour
Target version:	1.2.0			

Description

A string parameter bkgsubtract should be added that specifies the method for background subtraction. Additional parameters may be added as needed.

Initially, two methods should be supported:

- NONE
- IRF

The first is obvious, and for the second the background template from the IRF should be used for subtraction. This requires adding also the caldb and irf parameters in case that IRF information is needed (which should not be the case when an observation definition XML file is used).

History

#1 - 11/24/2016 11:15 AM - Mayer Michael

This would be analogous to creating an excess map, right? This can already be achieved by csresmap, if the user removes the sky models from the model XML file. The advantage in csresmap is that the background scale factors are also taken into account when subtracting the background. My alternative proposal would be to add an option to csresmap that ignores the sky models (using option "SUB") and creates an excess map. What do you think?

#2 - 11/24/2016 11:45 AM - Knödlseder Jürgen

user#77 wrote:

> This would be analogous to creating an excess map, right? This can already be achieved by csresmap, if the user removes the sky models from the model XML file. The advantage in csresmap is that the background scale factors are also taken into account when subtracting the background. My alternative proposal would be to add an option to csresmap that ignores the sky models (using option "SUB") and creates an excess map. What do you think?

I agree that there is some overlap, but the difference would be that ctskymap won't take a model, but simply includes methods for background subtraction (template background, ring background, etc.). In contrast, csresmap will subtract a model.

#3 - 11/24/2016 01:25 PM - Mayer Michael

Ok I think I understand the philosophy. Accordingly, ctskymap should become a tool that allows image analyses, in particular regarding classical methods.

#4 - 11/24/2016 01:41 PM - Knödlseder Jürgen

user#77 wrote:

> Ok I think I understand the philosophy. Accordingly, ctskymap should become a tool that allows image analyses, in particular regarding classical methods.

This was indeed my initial intention.

The output of ctskymap could then be used by another tool (or script) that recognizes for example excesses in a sky map and derives an XML model from that. This XML model would then be injected into ctlike for model fitting, and csresmap would be used to inspect the residuals. One could in principle also apply the excess finding tool to residual maps to improve the XML model.

#5 - 11/25/2016 03:46 PM - Knödlseder Jürgen

- Status changed from New to In Progress

- Assigned To set to Knödlseder Jürgen

- % Done changed from 0 to 80

Merged a first version into devel.

I keep this issue open as actual code only works for observation definition XML files on input. We need to add caldb and irf parameters for the case that an event list is provided as input. For the moment, an exception is thrown in that case.

#6 - 12/01/2016 12:08 PM - Knödlseder Jürgen

- Status changed from In Progress to Closed

- % Done changed from 80 to 100

Added a caldb and irf parameter to provide response information for IRF background subtraction in case that no response information is available. Parameters are ignored if no IRF background subtraction is requested, or if response information is already available in the observation definition XML file.

Code has been merged into devel.