

GammaLib - Action #3912

Add event selection capabilities to likelihood computation

11/28/2021 04:10 PM - Knödlseider Jürgen

Status:	Closed	Start date:	11/28/2021
Priority:	Normal	Due date:	
Assigned To:	Knödlseider Jürgen	% Done:	100%
Category:		Estimated time:	0.00 hour
Target version:	2.0.0		
Description Add comdataselect script that allows removal of Phibar layers from the DRIs.			

History

#1 - 11/28/2021 06:29 PM - Knödlseider Jürgen

Instead of implementing such a script a virtual method

GObservation::use_event_for_likelihood(const int& index) const

should be added that always returns true. This method should be called in the event loops of GObservation::likelihood_poisson_unbinned, GObservation::likelihood_poisson_binned and GObservation::likelihood_gaussian_binned.

Now an instrument specific implementation of GObservation can reimplement the method, allowing to select the events or bins that should be used for likelihood computation. This allows for example to implement for COMPTEL a Phibar selection.

#2 - 11/28/2021 06:30 PM - Knödlseider Jürgen

- Project changed from ctools to GammaLib
- Subject changed from Add comdataselect script to Add event selection capabilities to likelihood computation
- Target version changed from 2.0.0 to 2.0.0

#3 - 11/28/2021 06:34 PM - Knödlseider Jürgen

- Status changed from New to In Progress
- Assigned To set to Knödlseider Jürgen
- % Done changed from 0 to 10

Add

virtual bool use_event_for_likelihood(const int& index) const

and used method in likelihood computation.

#4 - 11/28/2021 09:54 PM - Knödseder Jürgen

- % Done changed from 10 to 50

I added an equivalent method for GCOMObservation, which now has two more members

```
int      m_phi_first; //!< First Phibar layer to use for likelihood
int      m_phi_last;  //!< Last Phibar layer to use for likelihood
```

and methods

```
const int& phi_first(void) const;
const int& phi_last(void) const;
void      phi_first(const int& phi_first);
void      phi_last(const int& phi_last);
```

to get and set the values for the members. These members specify the first and the last Phibar layer that should be used for likelihood fitting.

I also added parameters phi_first and phi_last to comlifixit and some code that sets the members for all COMPTEL observations.

#5 - 11/29/2021 12:48 PM - Knödseder Jürgen

- % Done changed from 50 to 90

I added phi_first and phi_last parameters to comlifixit and comlixmap so that Phibar layer selection is possible in these two scripts.

#6 - 03/14/2022 02:03 PM - Knödseder Jürgen

- Status changed from In Progress to Closed

- % Done changed from 90 to 100