

## GammaLib - Bug #1549

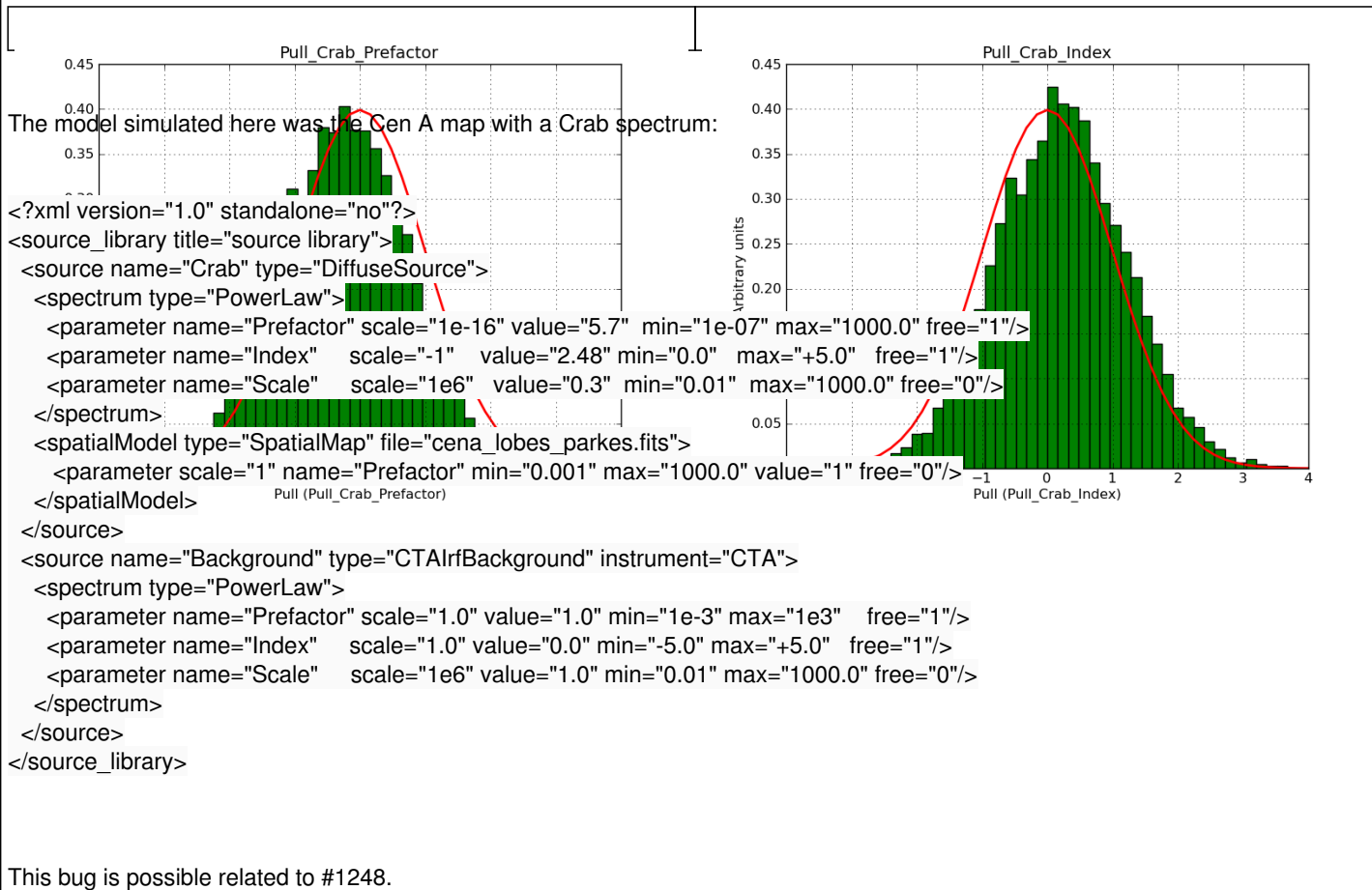
### Spectral parameters for diffuse map are biased

10/13/2015 04:22 PM - Knödlseider Jürgen

|                        |                    |                        |            |
|------------------------|--------------------|------------------------|------------|
| <b>Status:</b>         | Closed             | <b>Start date:</b>     | 10/13/2015 |
| <b>Priority:</b>       | Normal             | <b>Due date:</b>       |            |
| <b>Assigned To:</b>    | Knödlseider Jürgen | <b>% Done:</b>         | 100%       |
| <b>Category:</b>       |                    | <b>Estimated time:</b> | 0.00 hour  |
| <b>Target version:</b> | 1.0.0              |                        |            |

#### Description

The Prefactor and Index parameters for a diffuse map are biased. This can be seen in the following pull histograms:



#### Related issues:

Related to ctools - Bug # 1248: CTA simulation of molecular cloud does not re...

Closed

07/08/2014

#### History

##### #1 - 10/13/2015 04:29 PM - Knödlseider Jürgen

- Status changed from New to In Progress
- Assigned To set to Knödlseider Jürgen
- Target version set to 1.0.0

##### #2 - 10/14/2015 10:00 AM - Knödlseider Jürgen

- Description updated

##### #3 - 10/14/2015 10:16 AM - Knödlseider Jürgen

- % Done changed from 0 to 10

The mean prefactor is  $5.635348 \times 10^{-16}$  which presents a -1.1% offset with respect to the nominal value. The mean index is 2.474517 which presents a -0.2% offset with respect to the nominal value.

The Monte Carlo simulations of diffuse models rely on the `GSkyMap::flux()` method and specifically its precision. The flux computation has a precision of about 1%, hence the observed bias is fully compatible with that precision. It is thus plausible that the diffuse map computation is in fact correct and that the observed bias is due to the limited accuracy of the `GSkyMap::flux()` method.

#### #4 - 10/14/2015 10:44 PM - Knödseder Jürgen

- Status changed from *In Progress* to *Closed*

- % Done changed from 10 to 100

This issue can now also be closed. Improvement can only be achieved by improving the accuracy of the `GSkyMap::flux()` method.

#### Files

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|                   |         |            |                  |
|-------------------|---------|------------|------------------|
| map_prefactor.png | 45 KB   | 10/13/2015 | Knödseder Jürgen |
| map_index.png     | 43.7 KB | 10/13/2015 | Knödseder Jürgen |