

ctools - Action #2456

make sure residual computation with SUBDIV method fails gracefully for 0 counts

04/20/2018 05:34 PM - Tibaldo Luigi

Status:	Closed	Start date:	04/20/2018
Priority:	High	Due date:	
Assigned To:	Tibaldo Luigi	% Done:	100%
Category:		Estimated time:	0.00 hour
Target version:	1.6.0		
Description			
Talvikki Hovatta reported failures of csrespec that seem to be related to bins with 0 counts. Make sure that in this case the tool fails gracefully, i.e., still gives output with Nan in empty bins.			

History

#1 - 06/12/2018 04:06 PM - Knödlseeder Jürgen

- Assigned To set to Tibaldo Luigi
- Priority changed from Normal to High
- Target version set to 1.6.0

#2 - 06/15/2018 05:13 PM - Tibaldo Luigi

- Status changed from New to In Progress

Looking for a test case to reproduce the issue ...

#3 - 06/15/2018 05:45 PM - Tibaldo Luigi

- % Done changed from 0 to 10

In fact it's not csrespec that fails, but just the example plotting script. This is more logical since the SUBDIV method divides by the model (which is never exactly zero).
Here's the error message, need to look into it

```
$CTOOLS/share/examples/python/show_residuals.py specres_SUBDIV.fits
Traceback (most recent call last):
File "/usr/local/gamma/share/examples/python/show_residuals.py", line 341, in <module>
show_residuals()
File "/usr/local/gamma/share/examples/python/show_residuals.py", line 329, in show_residuals
plot_residuals(args9, plotfile, hdu)
File "/usr/local/gamma/share/examples/python/show_residuals.py", line 211, in plot_residuals
algorithm)
File "/usr/local/gamma/share/examples/python/show_residuals.py", line 117, in fill_cmr
e_resid.append(err / c_model.real(row))
ZeroDivisionError: float division by zero
```

#4 - 06/15/2018 06:16 PM - Tibaldo Luigi

- *Status changed from In Progress to Pull request*
- *% Done changed from 10 to 100*

It does happen for WSTAT that the model is exactly 0 for the Off region.

The case is dealt with in `obsutils.residuals`, and therefore in `csrespec`, but it was not in the `show_residuals` example script when computing the residual error bars on the fly.

I modified it to set the error to 0 whenever the model is 0 for the SUBDIV and SUBDIVSQRT algorithms.

#5 - 07/02/2018 03:19 PM - Knödlseider Jürgen

- *Status changed from Pull request to Closed*

Merged into devel.