

GammaLib - Change request #2720

Add margin to energy boundaries GCTABackground3D

11/06/2018 05:06 PM - Specovius Andreas

Status:	New	Start date:	11/06/2018
Priority:	Normal	Due date:	
Assigned To:		% Done:	0%
Category:		Estimated time:	0.00 hour
Target version:			
Description			
<p>During the simulation of background events from a given template obviously it may occur that energies are dived that are slightly beyond the energy bounds due to numerics.</p> <p>This is what I get as output:</p> <pre>GCTABackground3D::mc(> emin=0.174448 energy=0.392216 emax=100 (diff max-energy=99.6078) GCTABackground3D::mc(> emin=0.174448 energy=0.425866 emax=100 (diff max-energy=99.5741) GCTABackground3D::mc(> emin=0.174448 energy=100 emax=100 (diff max-energy=-1.7053e-13) terminate called after throwing an instance of 'GException::invalid_value' what(): *** ERROR in GCTABackground3D::mc(GEnergy&, GTime&, GRan&): Invalid value. Event energy 100 TeV is outside the energy range [174.448269899925 GeV, 100 TeV] covered by the background response table. Please restrict the energy range of the simulation to the validity range of the background response table.</pre>			
<p>Adding a margin to the check in GCTABackground3D::mc() would help here and solve the issue:</p> <pre>// Determine energy range of response table GEnergy emargin = GEnergy(1.0, "MeV"); GEnergy emin = m_mc_spectrum.energy(0); GEnergy emax = m_mc_spectrum.energy(m_mc_spectrum.nodes()-1); if (energy+emargin < emin energy-emargin > emax) {</pre>			