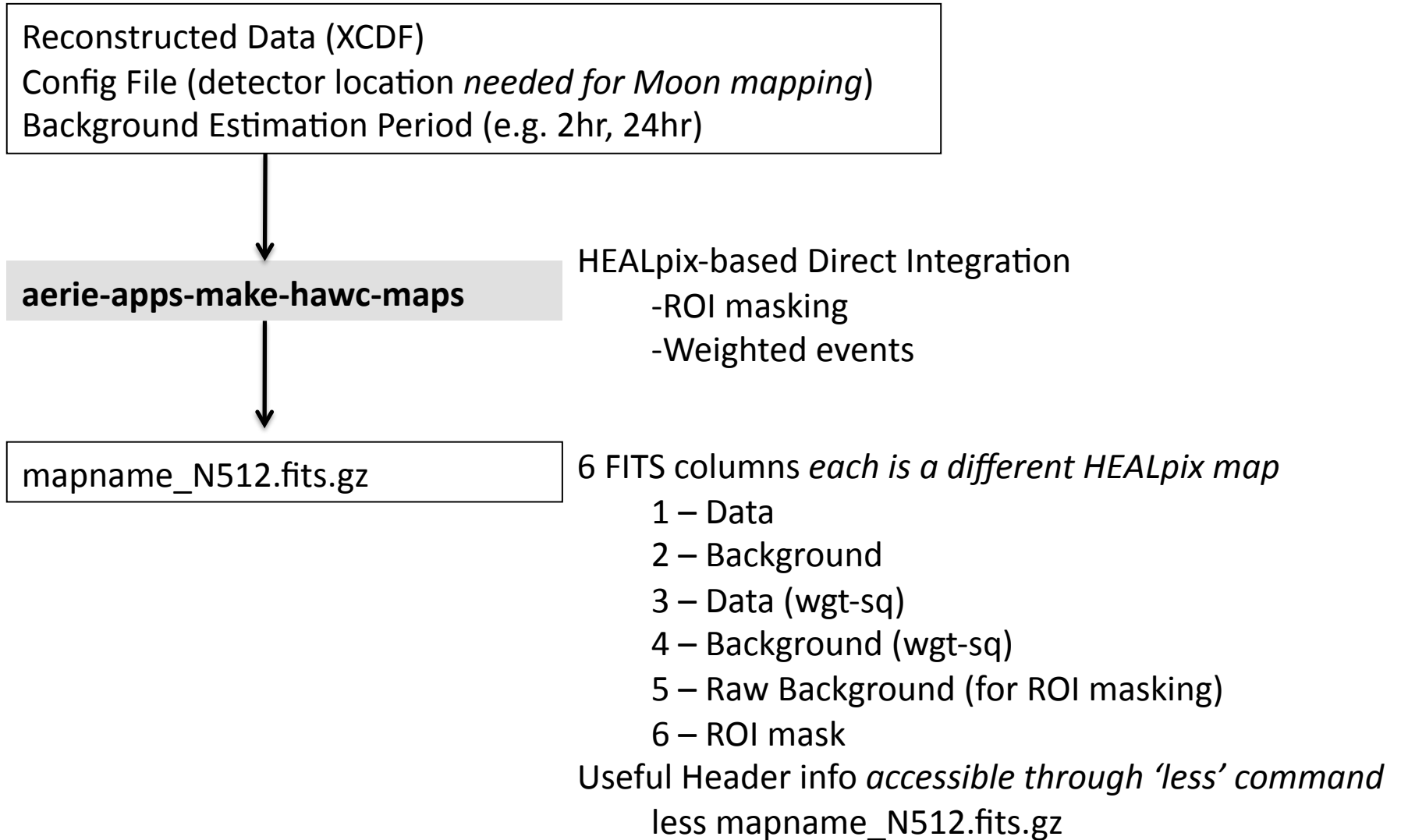


Data & Background Maps



Significance Maps for Cosmic-Ray maps

1) `cd HAWCEXtras/sim-maps`

small-scale anisotropy maps

```
arie-apps-smooth-tophat-make-significance-map hawc95sky-24hrChunks-  
nhit30-24_dt_N512.fits.gz -n hawc95sky-24hrChunks-nhit30-24_dt -M 70 -m -30 -s 10 --relint
```

Takes ~ 15 minutes (smoothing map with $\sim 2e6$ bins)

Moon maps

```
arie-apps-smooth-tophat-make-significance-map  
hawc95_341pmts_nhit30_moon_chunks_N512.fits.gz -n  
hawc95_341pmts_nhit30_moon_chunks -M 50 -m -50 -s 1.
```

Visualize Whole Sky

```
[fermi@fermi ~/HAWCEXtras]$ python plotMollweide.py ~/GRBWorkdir/hawc95sky-24hrC  
hunks-nhit30-24 dt N512 S10p000 relint.fits.gz -L "relative intensity  $\times 10^{-4}$ " -s  
10000 -M 7.5 -m -7.5 -T "Data Challenge: CR-Anisotropy" --mask --gplane
```

Visualize Partial Sky

```
[fermi@fermi ~/HAWCEXtras]$ python plotMercator.py --xyrange 170 190 10 -10 ~/GR  
BWorkdir/hawc95_341pmts_nhit30_moon_chunks_N512_S01p000_sig.fits.gz -T "Data Cha  
llenge Moon"
```

Significance Maps *for Gamma-Ray maps*

Data & Background map made for each analysis bin

D & B map for each analysis bin are smoothed with double-Gaussian
very slick harmonic smoothing method used (Thanks CMB!)

aerie-apps-smooth-map

Smoothed maps for each analysis bin are weighted and added. Proper Li/Ma Significance with weighting is applied.

aerie-apps-make-significance-maps