

PBH Update

Alison Peisker

MSU group meeting

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Limits with different amounts of downselecting (10s)

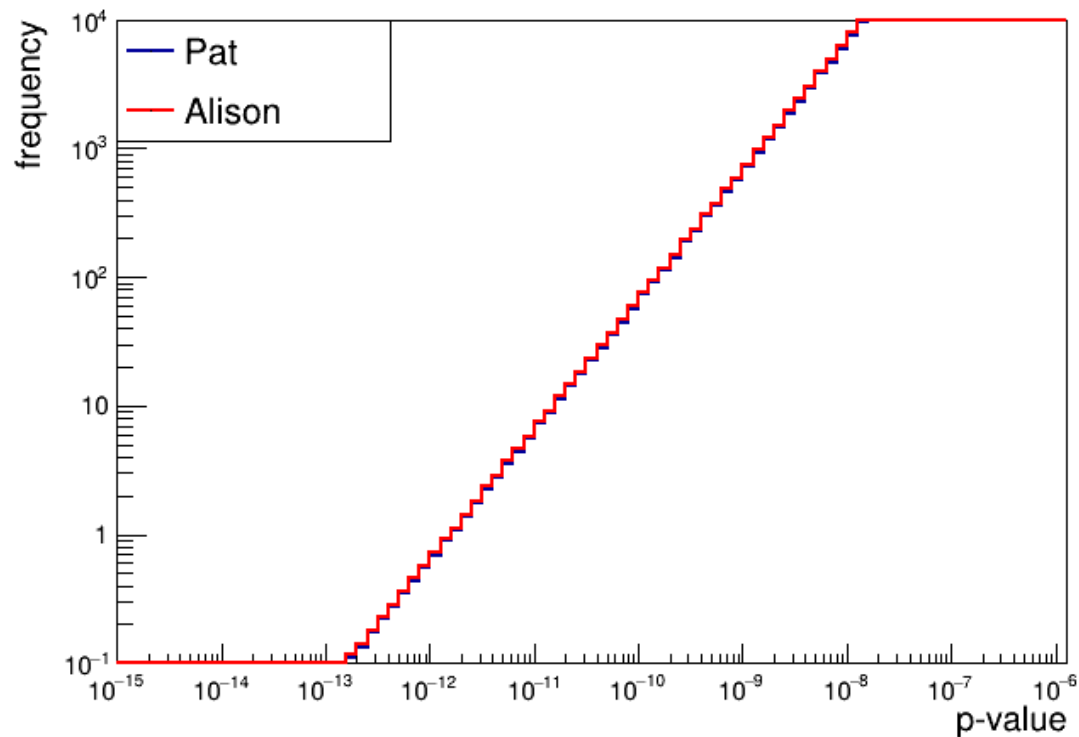
10s	Previous results	Without downselecting	Downselect x2	Downselect x4	Downselect x6	Downselect x8
Data = 0	3242	3242	3150	4332	2817	2459
Bkg = 10	5762	5287	3836	5375	3677	2633
Bkg = 25	6351	5672	3941	5605	3670	2703

- The “Previous results” column contains the results that were obtained a couple of months ago (these are using the new MC)
- The “Without downselecting” column contains the results that I obtained after running Pat’s code using a downselecting factor of 1, which should correspond to no downselecting
- I’m not sure why these two columns don’t match

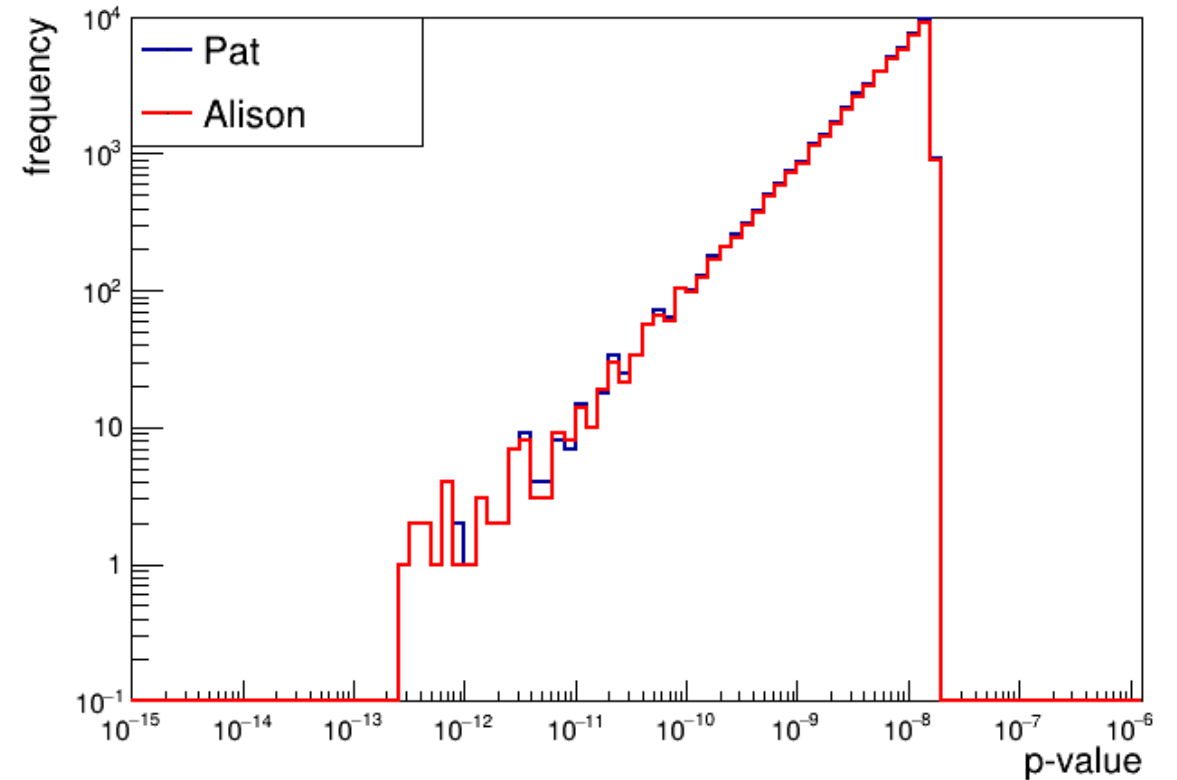
Investigating mismatch of results without downselecting

- The H_bkg histograms match, but the H_data histograms do not

H_bkg 10s



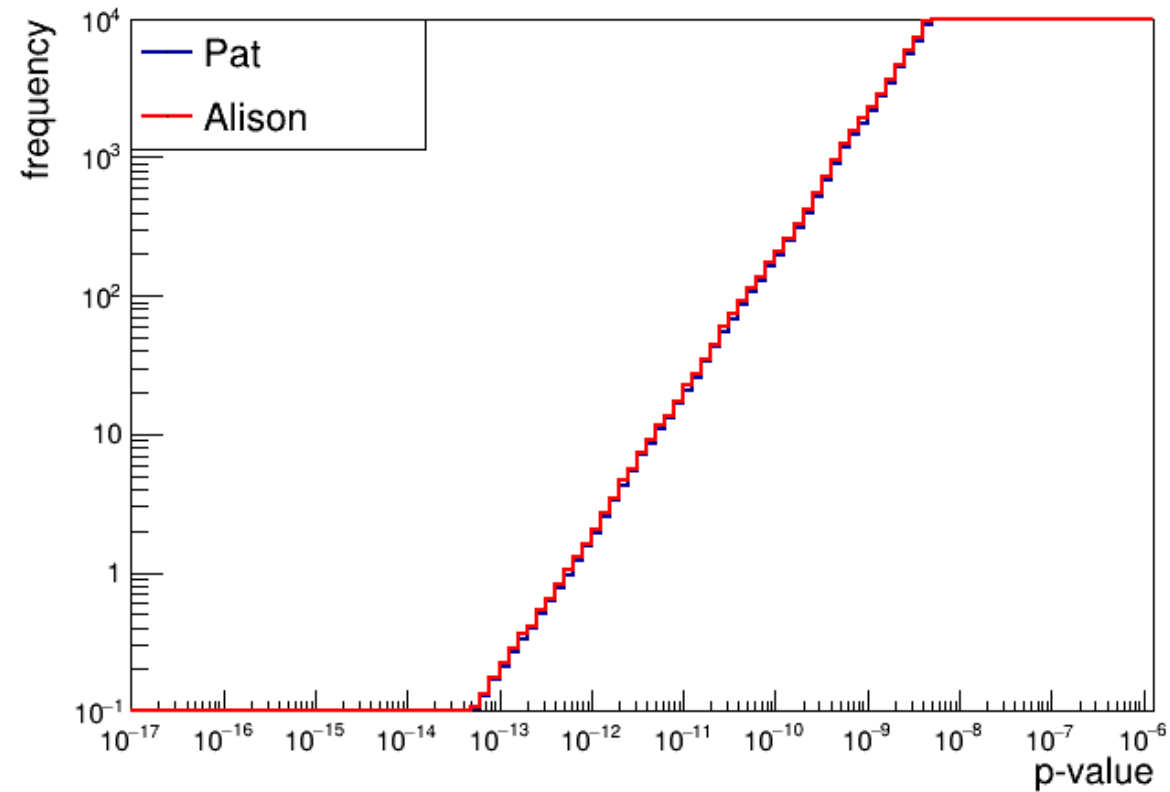
H_data 10s



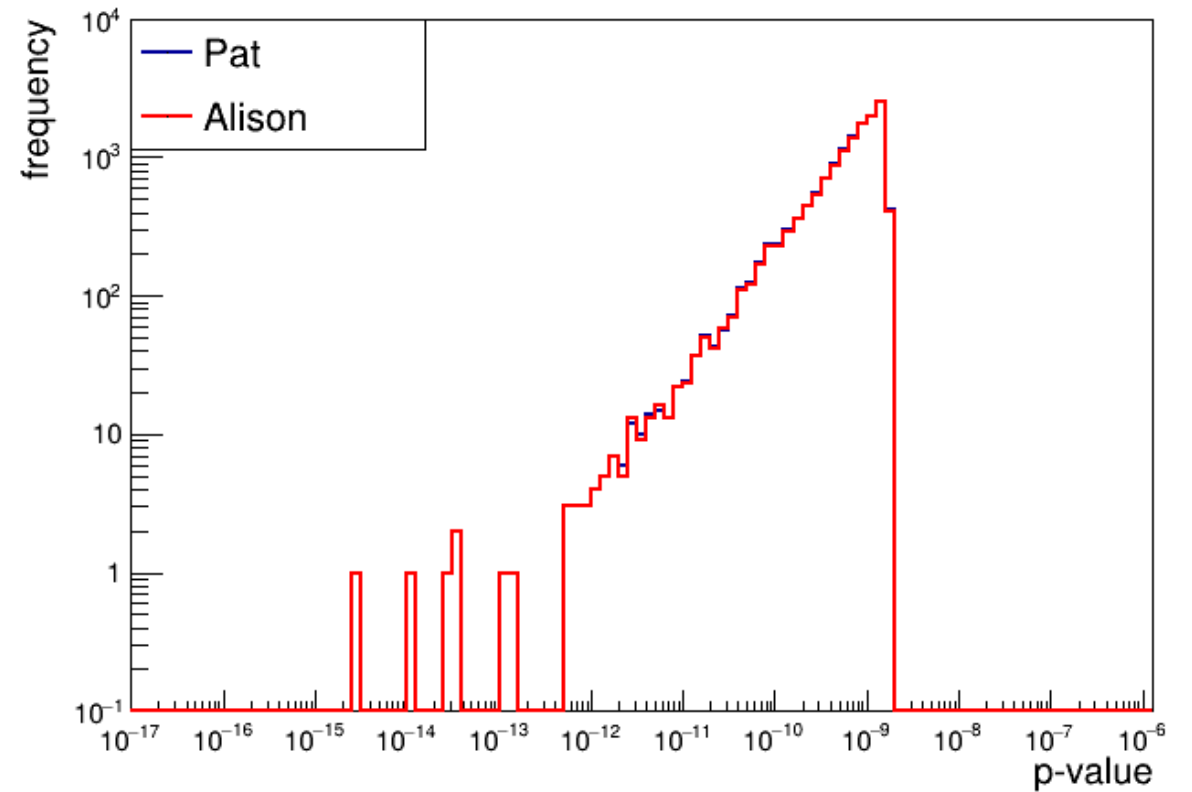
1s

Comparing data and background histograms

H_bkg 1s

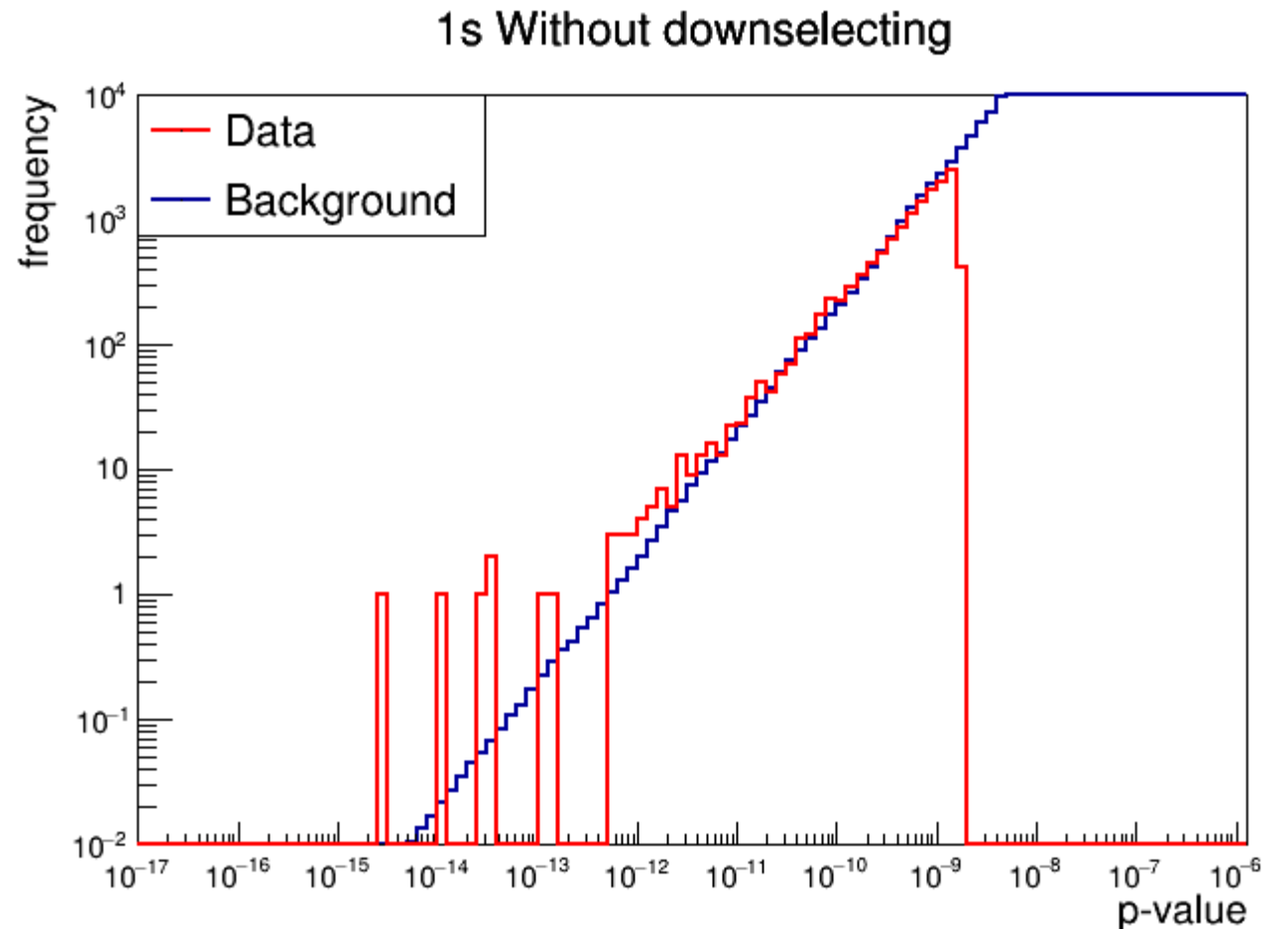


H_data 1s



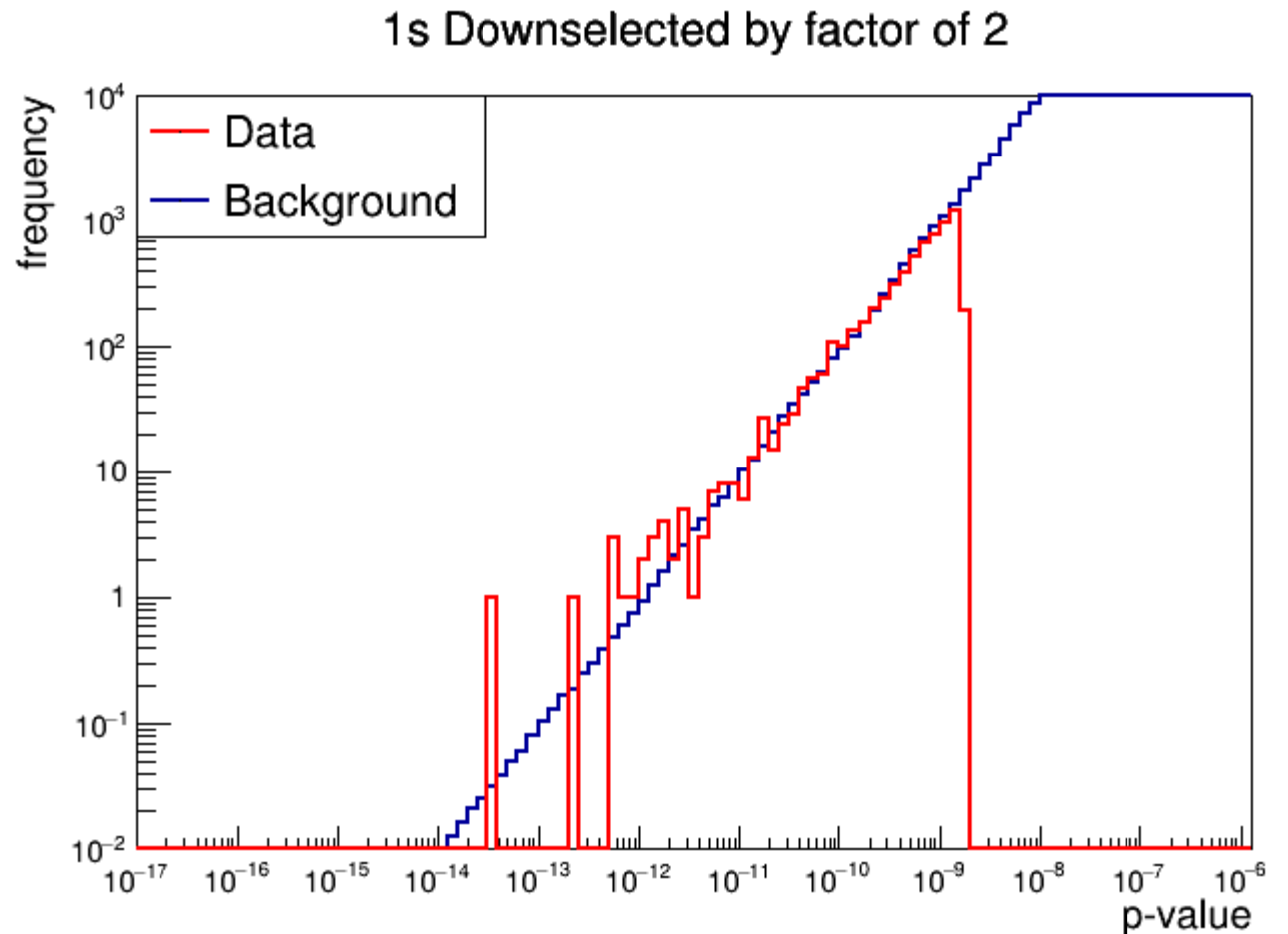
No downselecting

- Advance spatial bins by $.11^\circ$ and time bins by 0.1s
- 13590 events in the H_data histogram



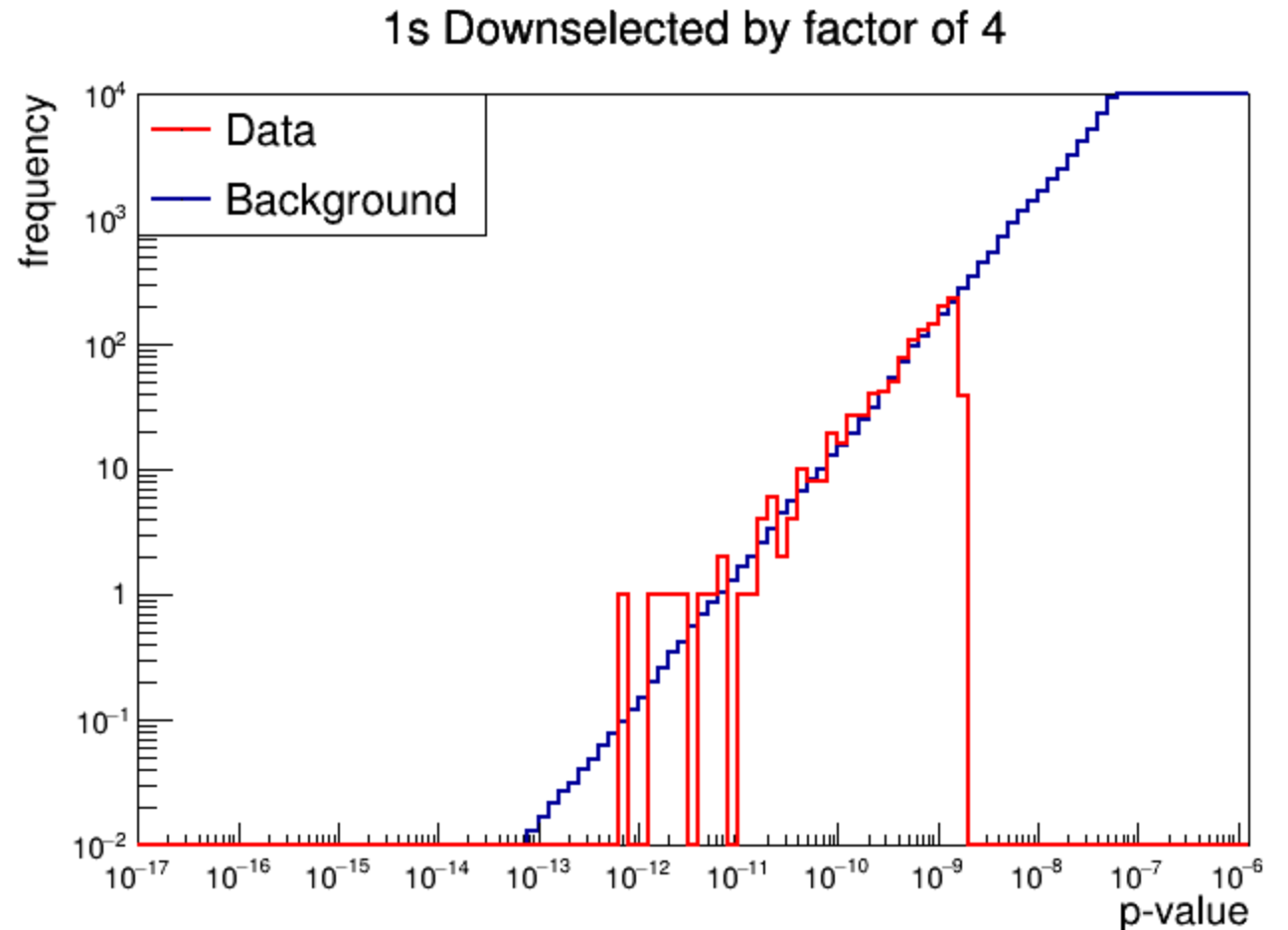
Downselecting by factor of 2

- Advance spatial bins by $.22^\circ$ (instead of $.11^\circ$) and time bins by 0.2s (instead of 0.1s)
- 6256 events in the H_data histogram



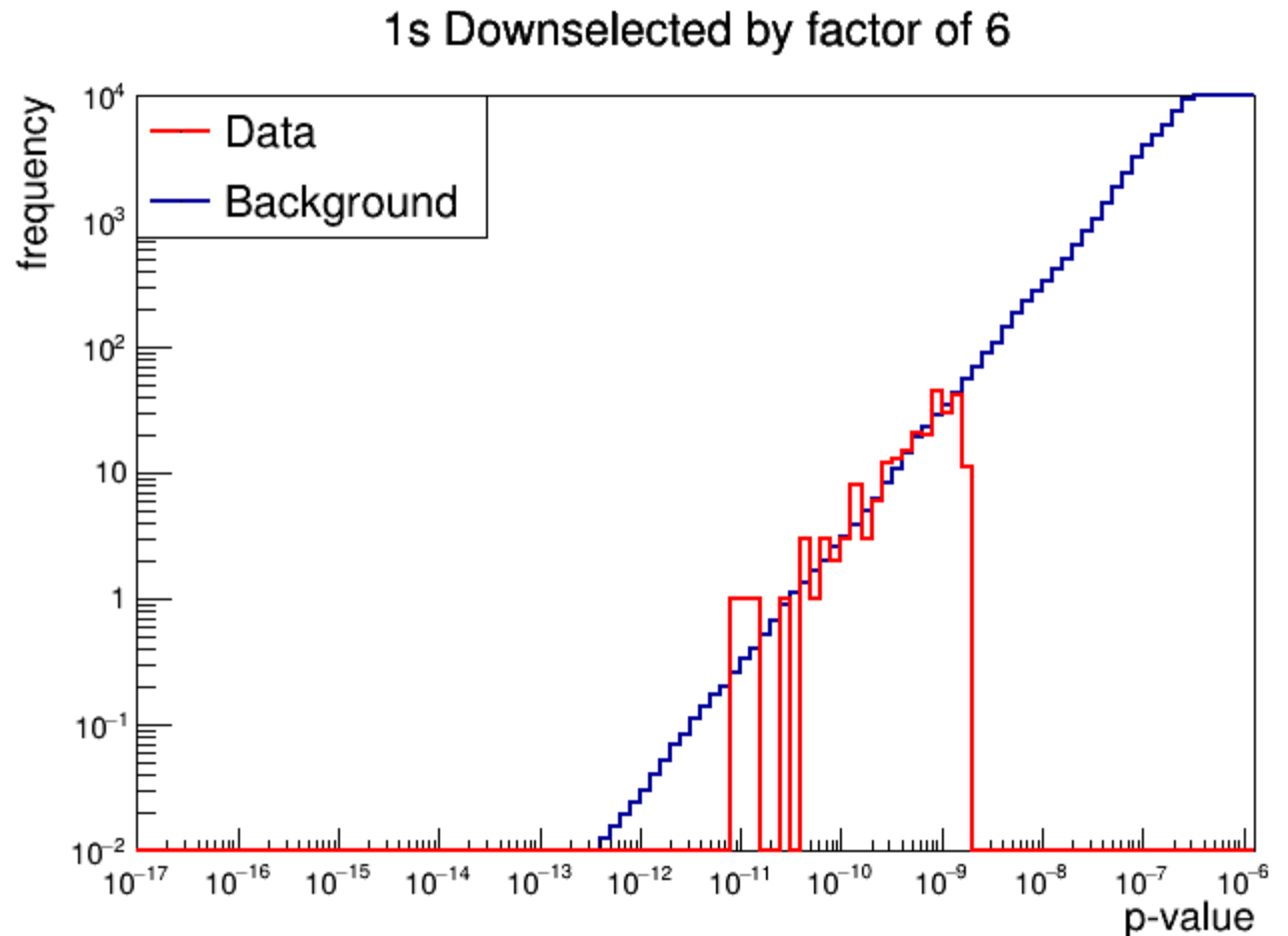
Downselecting by factor of 4

- Advance spatial bins by $.44^\circ$ (instead of $.11^\circ$) and time bins by 0.4s (instead of 0.1s)
- 1195 events in the H_data histogram



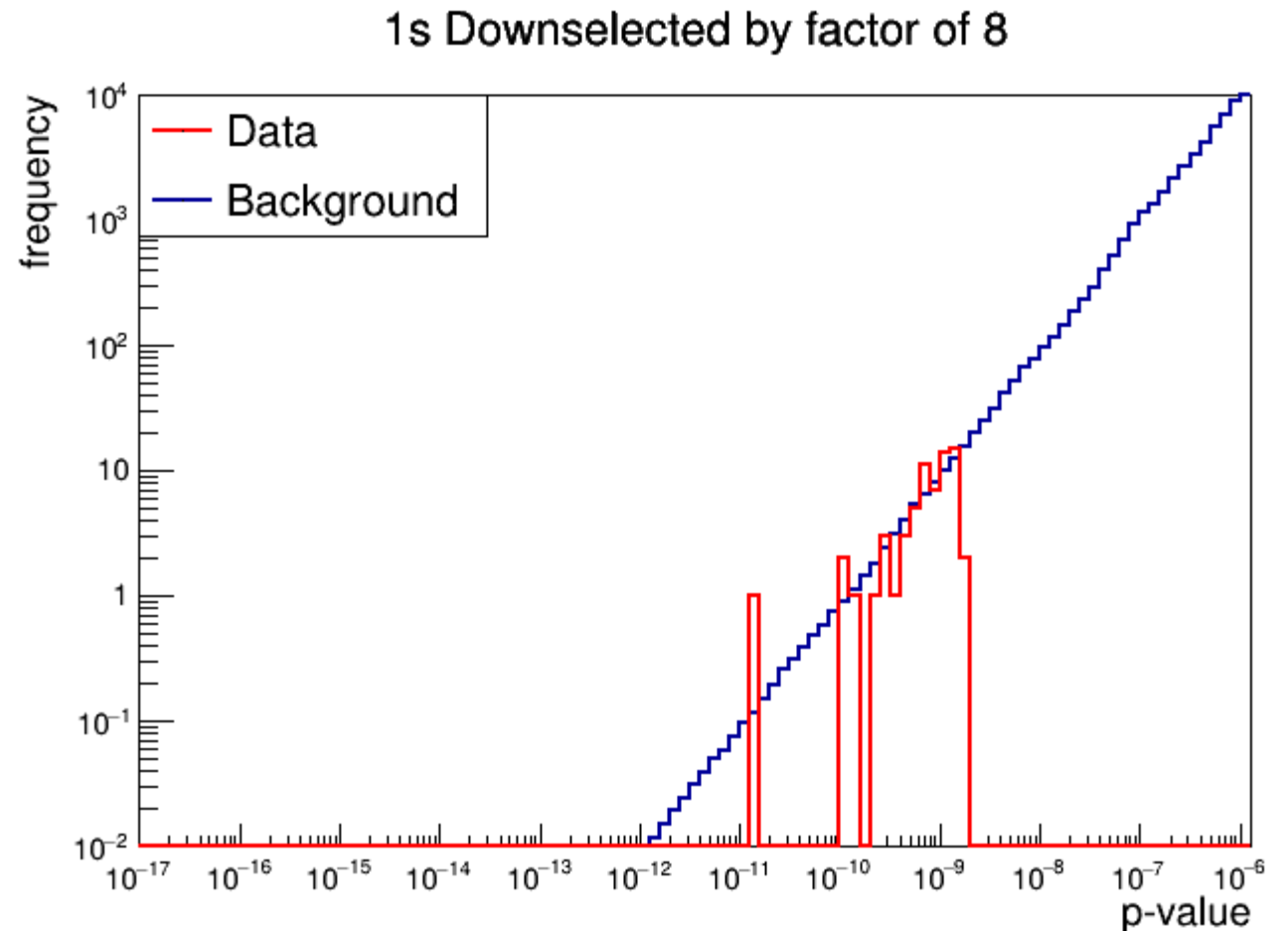
Downselecting by factor of 6

- Advance spatial bins by $.66^\circ$ (instead of $.11^\circ$) and time bins by 0.6s (instead of 0.1s)
- 241 events in the H_data histogram



Downselecting by factor of 8

- Advance spatial bins by $.88^\circ$ (instead of $.11^\circ$) and time bins by 0.8s (instead of 0.1s)
- 66 events in the H_data histogram



Next Steps

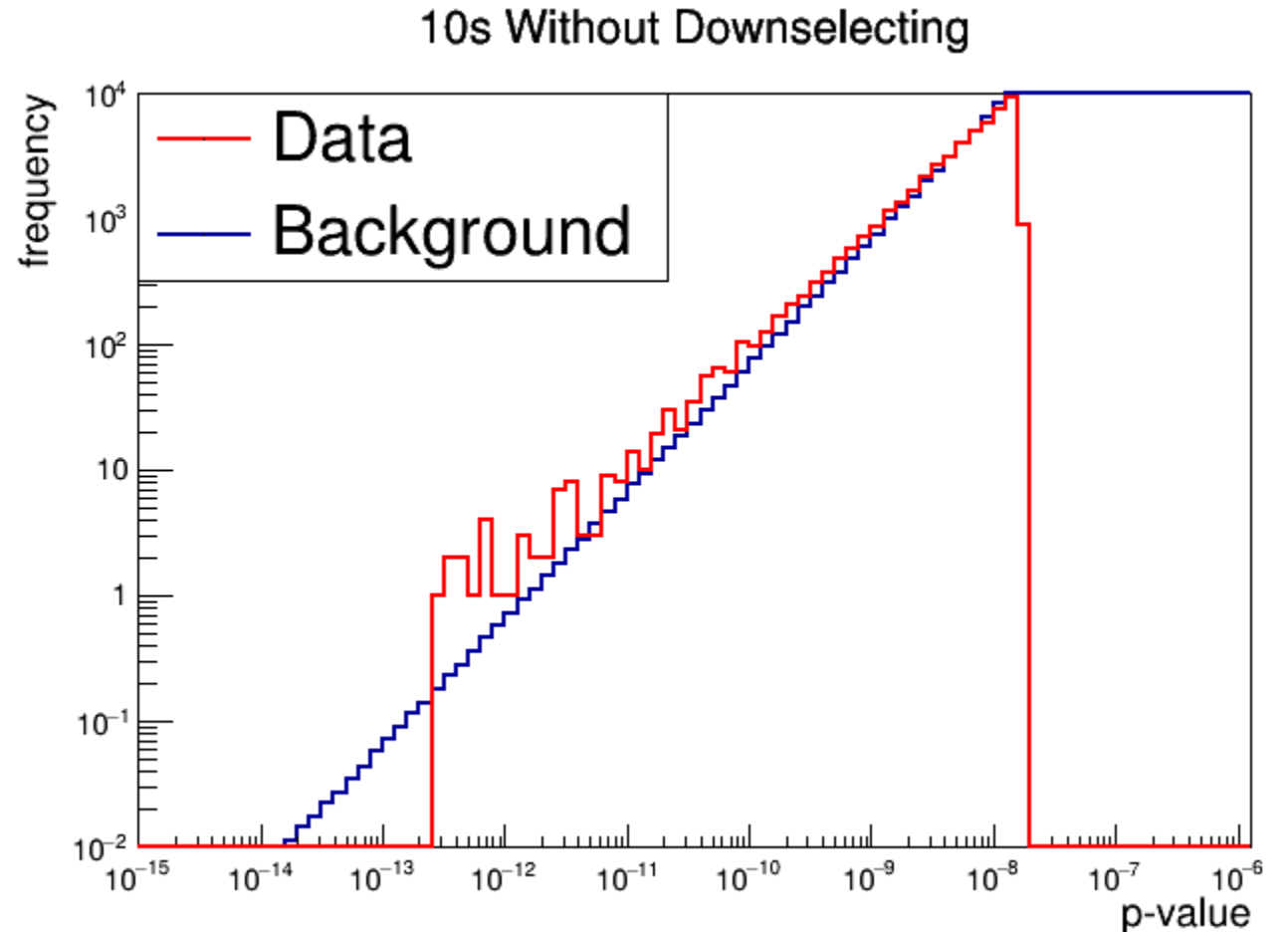
- Calculate limits with 1s downselected data
- Repeat for 0.2s and 100s durations
- Write ICRC proceedings

Backup

10s Plots

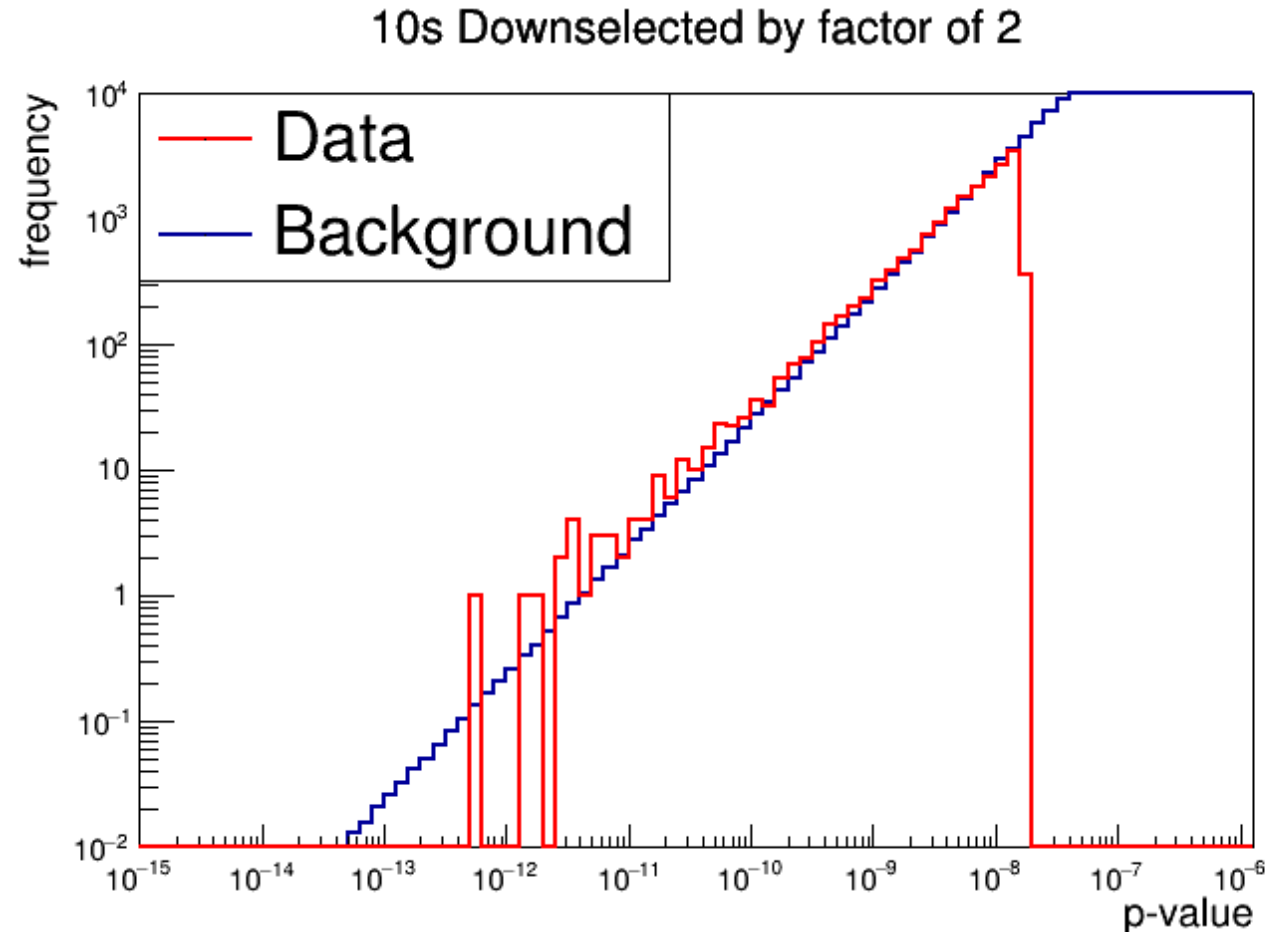
No downselecting

- Advance spatial bins by $.11^\circ$ and time bins by 1s
- 48745 events in the H_data histogram



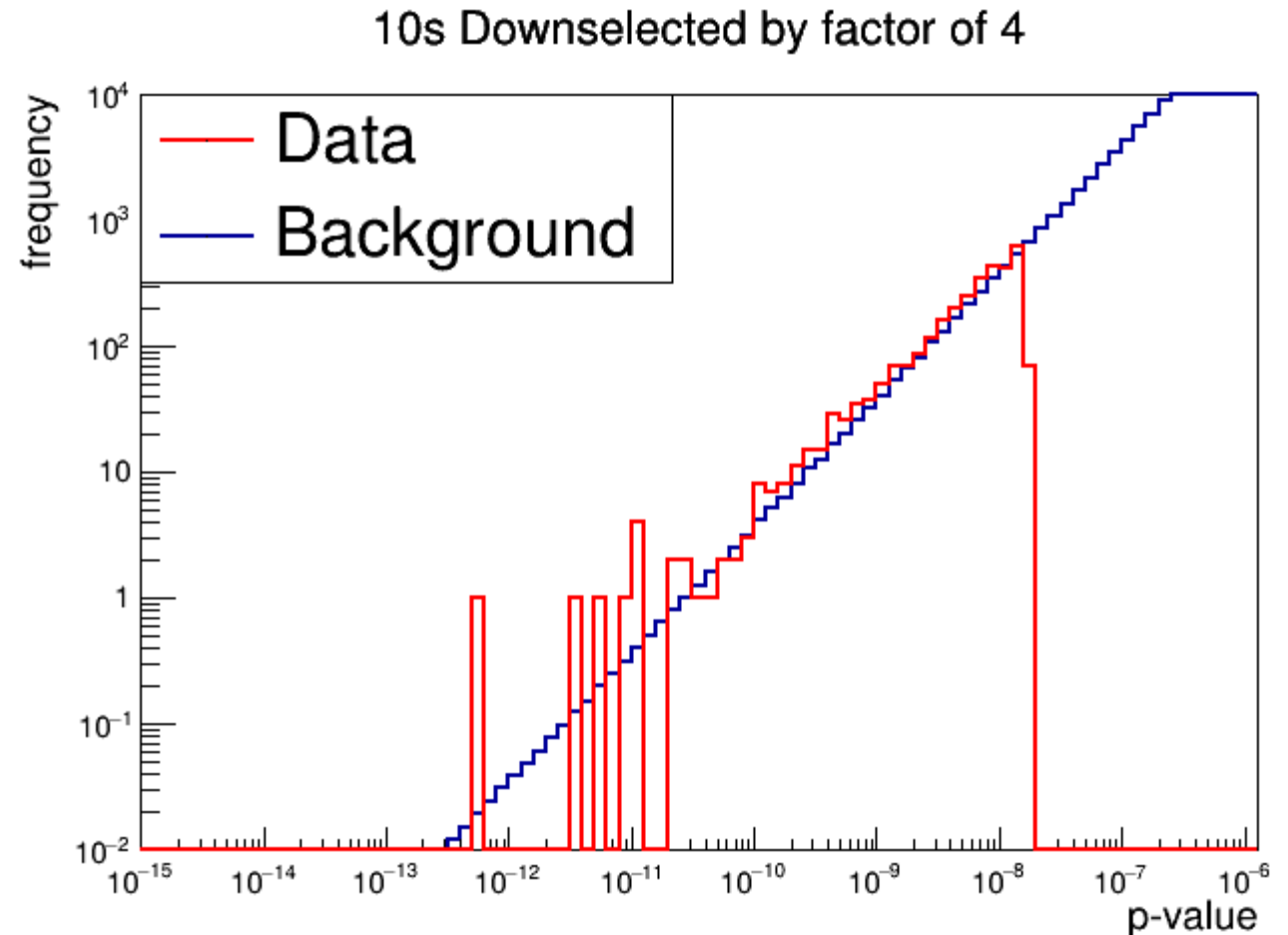
Downselecting by factor of 2

- Advance spatial bins by $.22^\circ$ (instead of $.11^\circ$) and time bins by 2s (instead of 1s)
- 17766 events in the H_data histogram



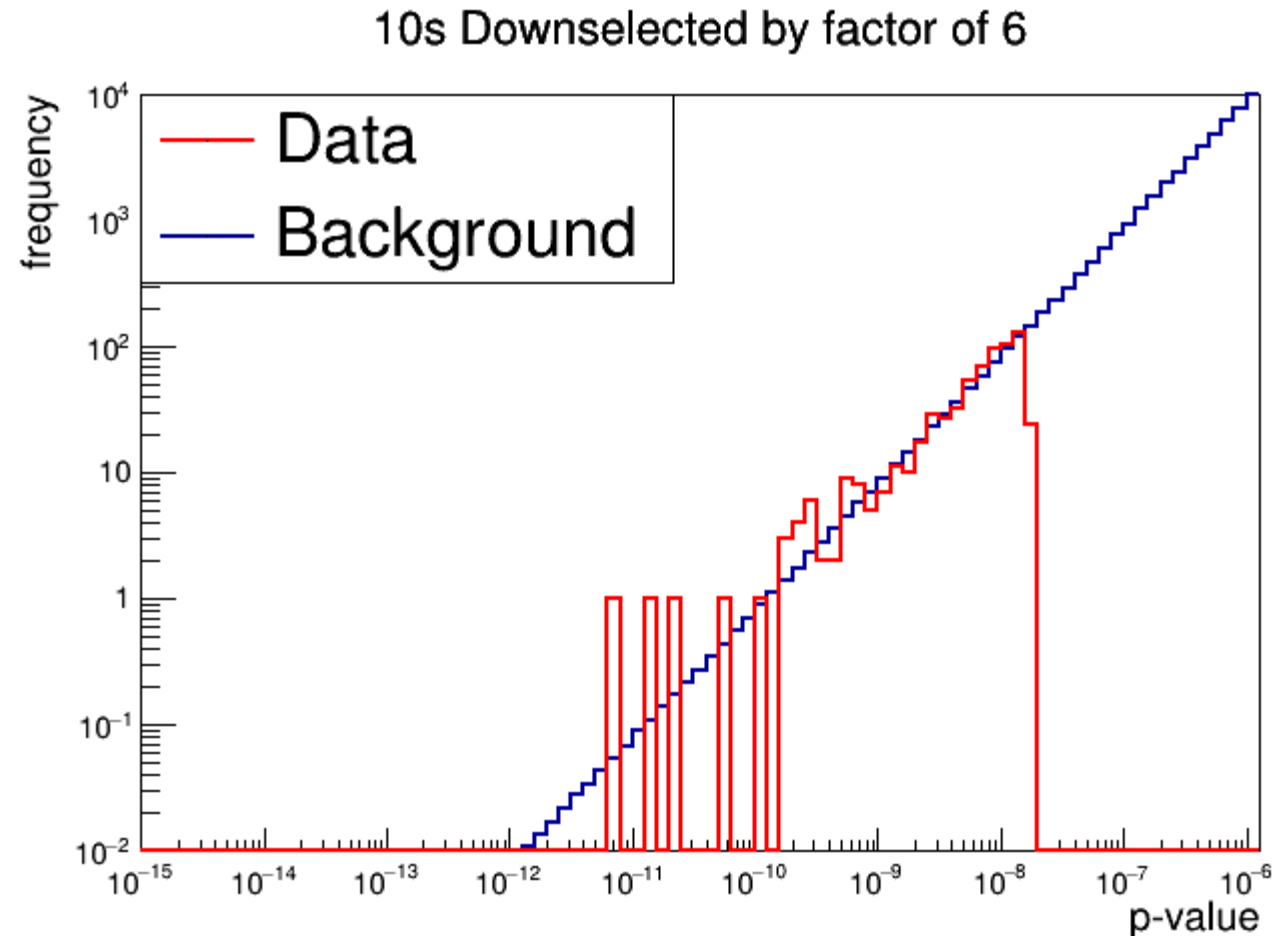
Downselecting by factor of 4

- Advance spatial bins by $.44^\circ$ (instead of $.11^\circ$) and time bins by 4s (instead of 1s)
- 3084 events in the H_data histogram



Downselecting by factor of 6

- Advance spatial bins by $.66^\circ$ (instead of $.11^\circ$) and time bins by 6s (instead of 1s)
- 649 events in the H_data histogram



Downselecting by factor of 8

- Advance spatial bins by $.88^\circ$ (instead of $.11^\circ$) and time bins by 8s (instead of 1s)
- 155 events in the H_data histogram

