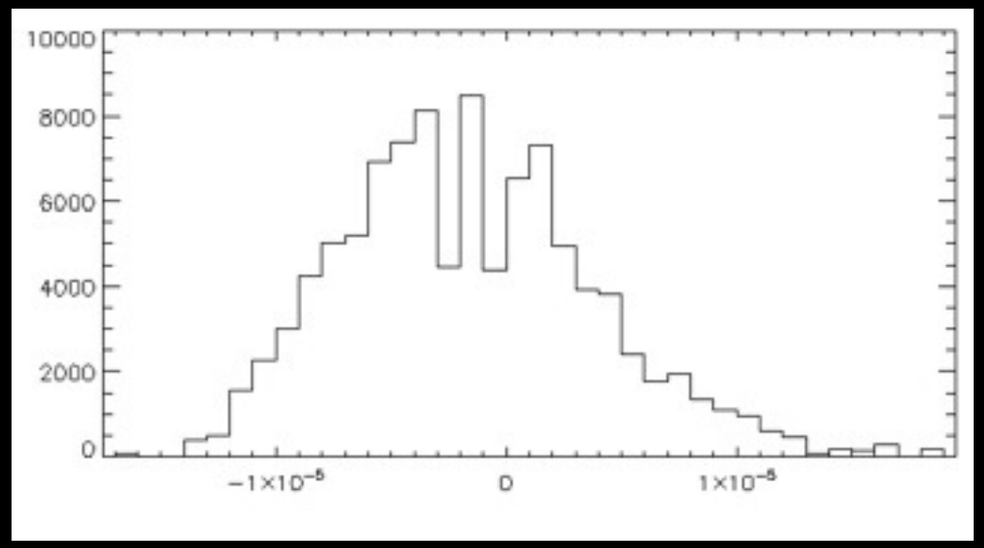
Fitting transit depths with wavelets

Bekki

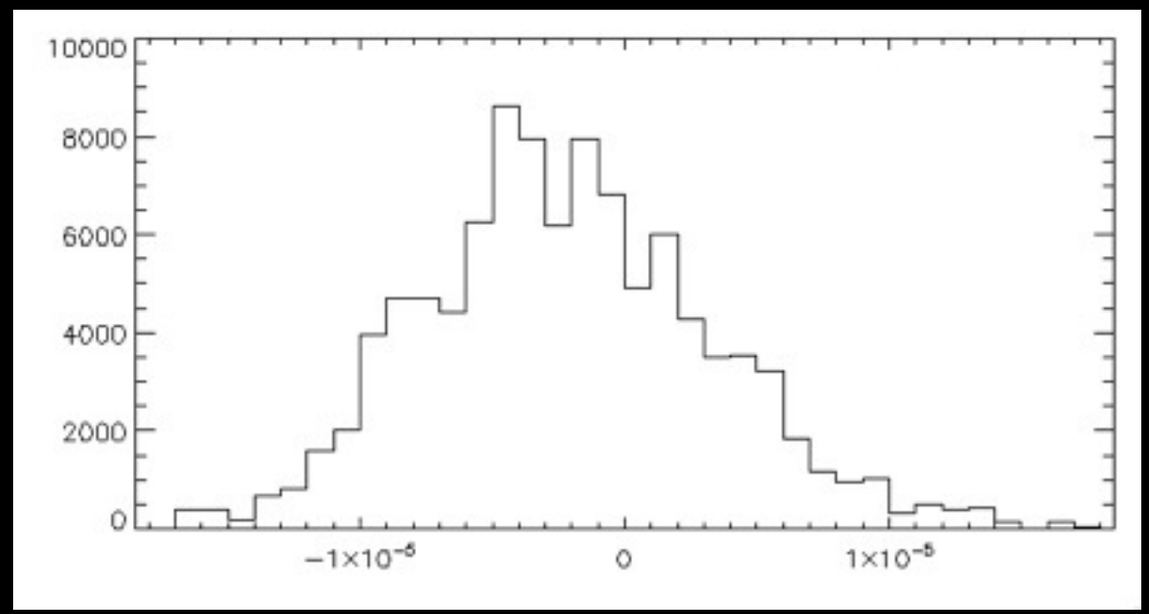
Current fit

- no correction for missing data
- log-uniform prior on wavelet coefficients
- injected single “transit” into Ben’s llc detrended light curve
- just fit depth of this “transit”

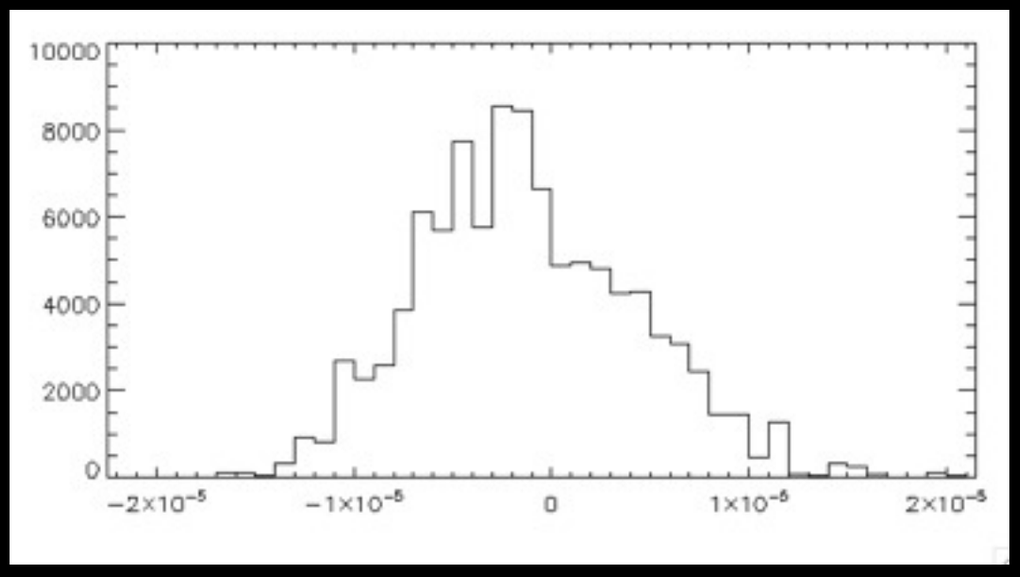
delta depth



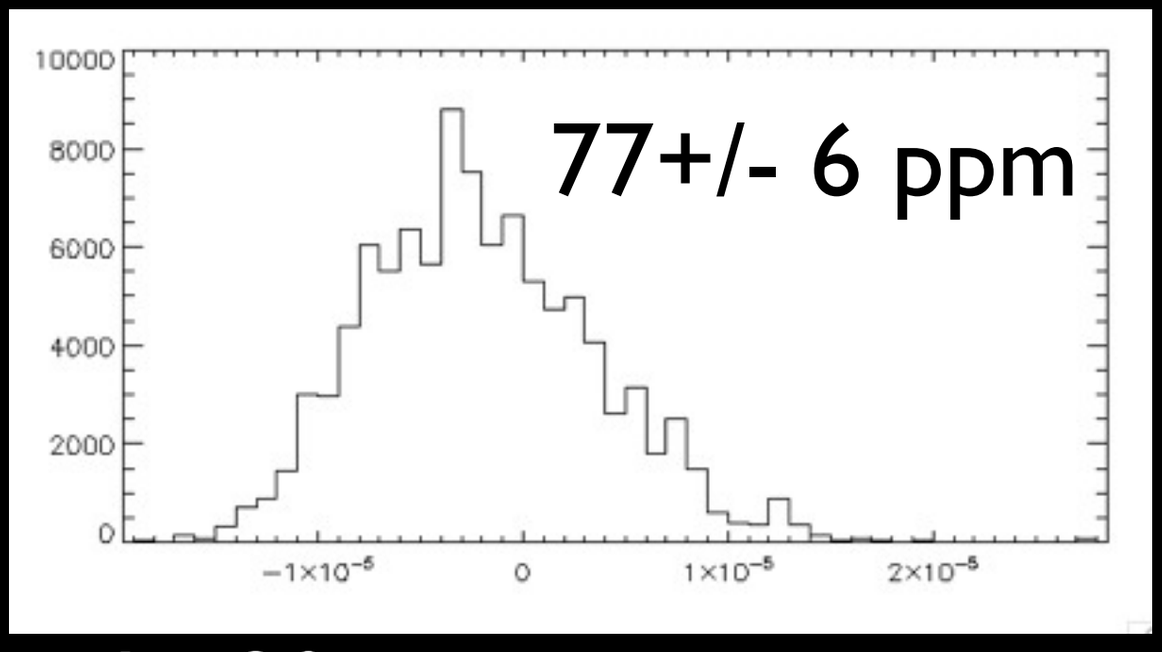
depth=10,000 ppm



depth=100 ppm

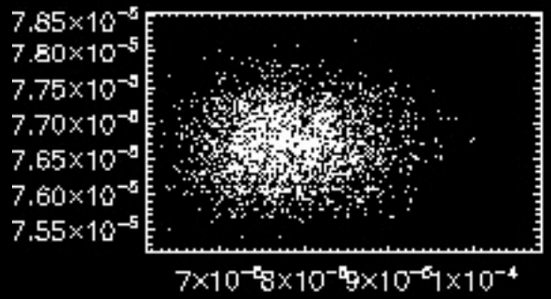


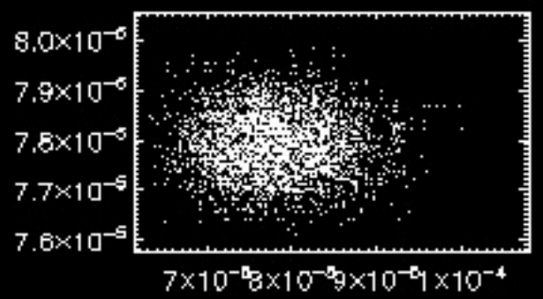
depth=1,000 ppm

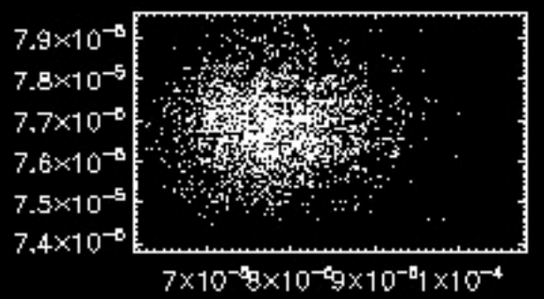


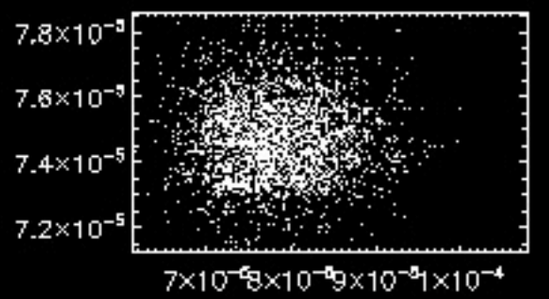
depth=80 ppm

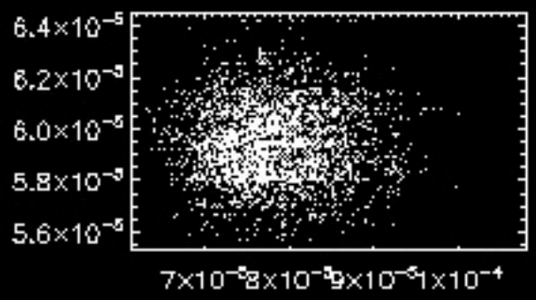
Correlation of wavelet coefficient variance with transit depth (x-axis)

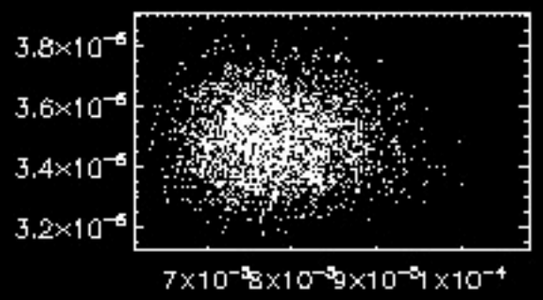


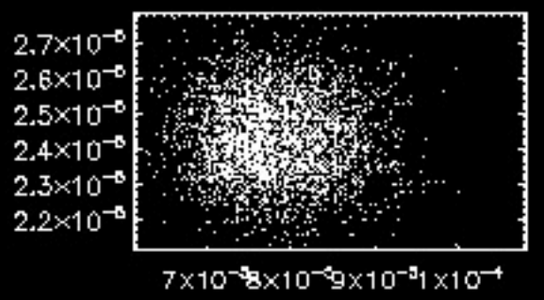


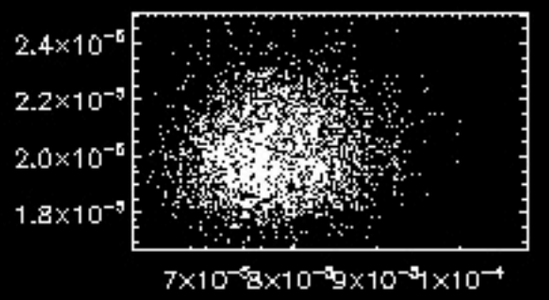


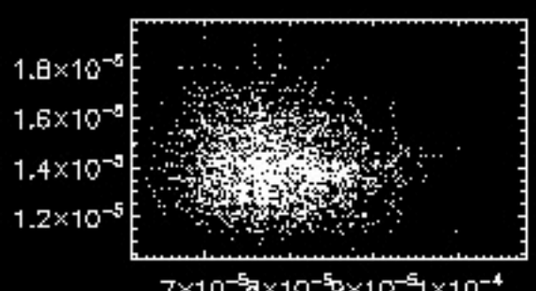


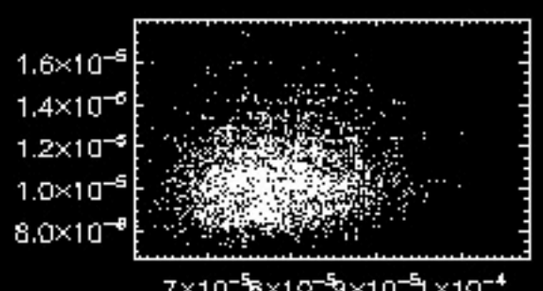


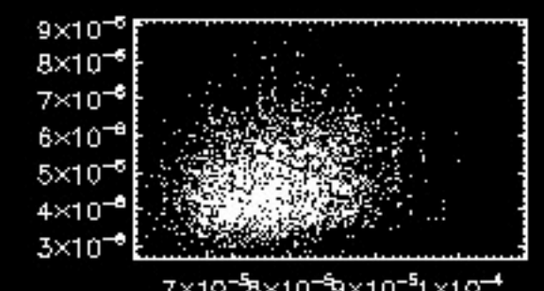


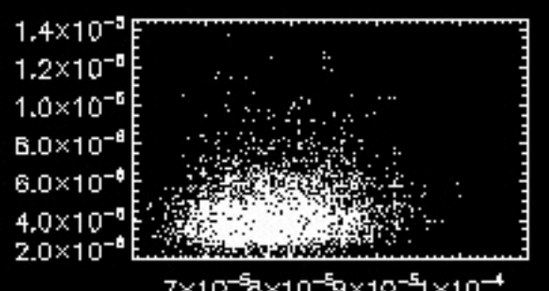


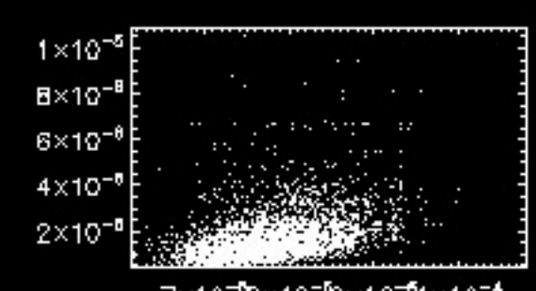


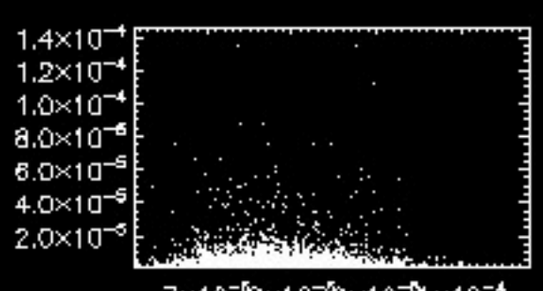






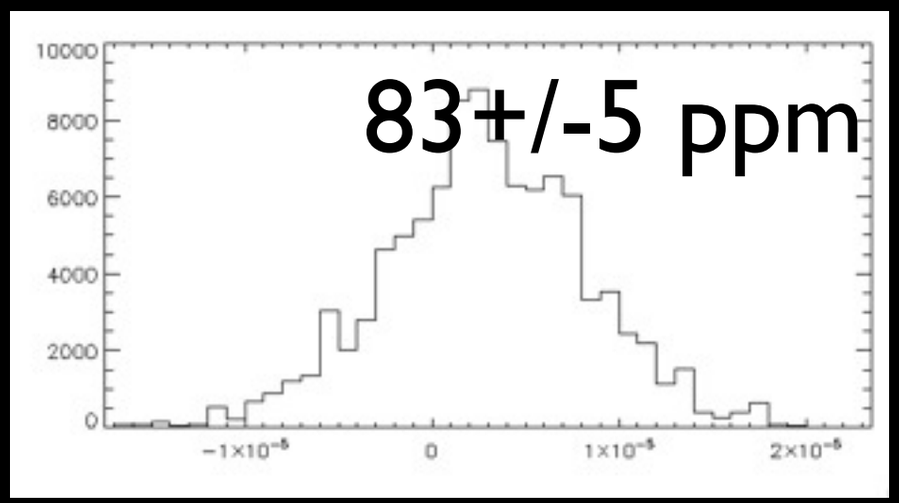


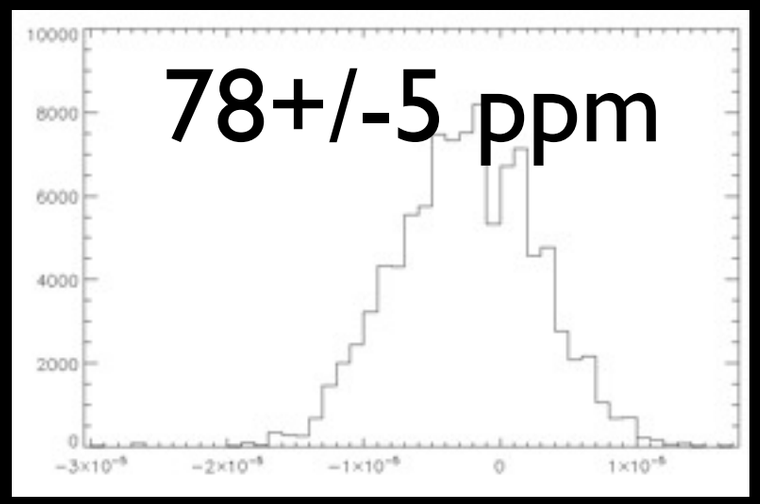


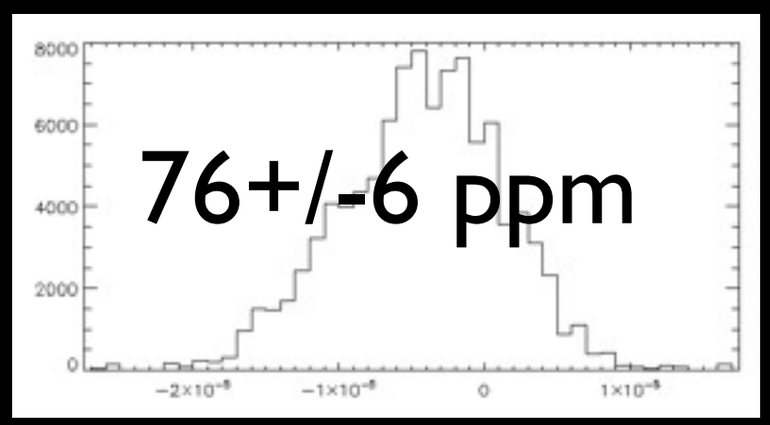


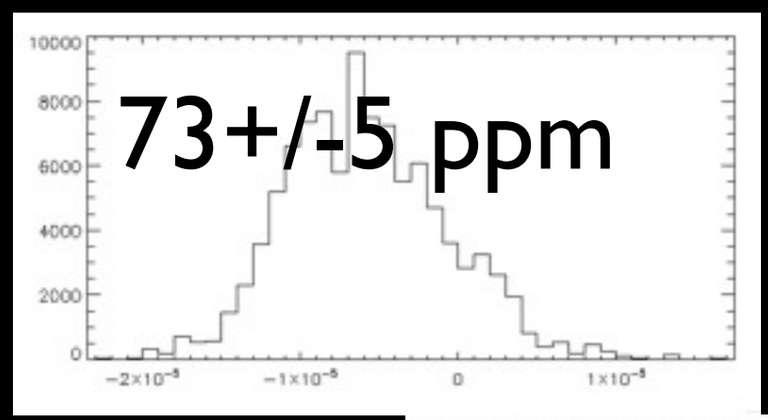
histogram depth-true

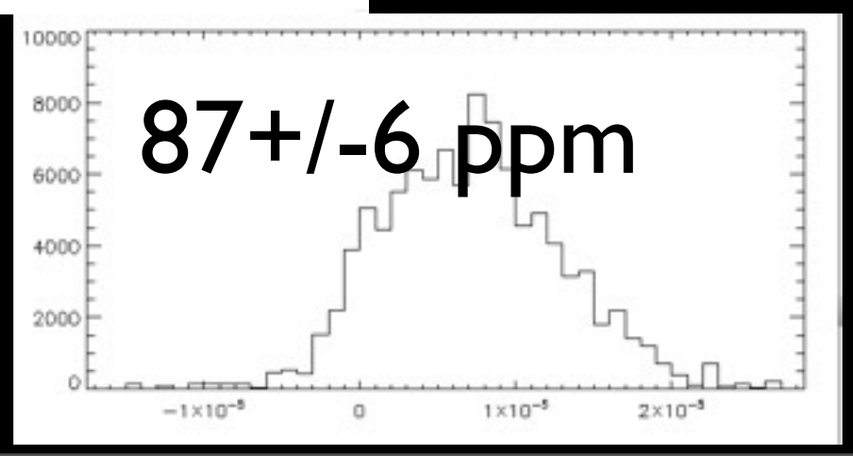
Inject transits at 5 other locations



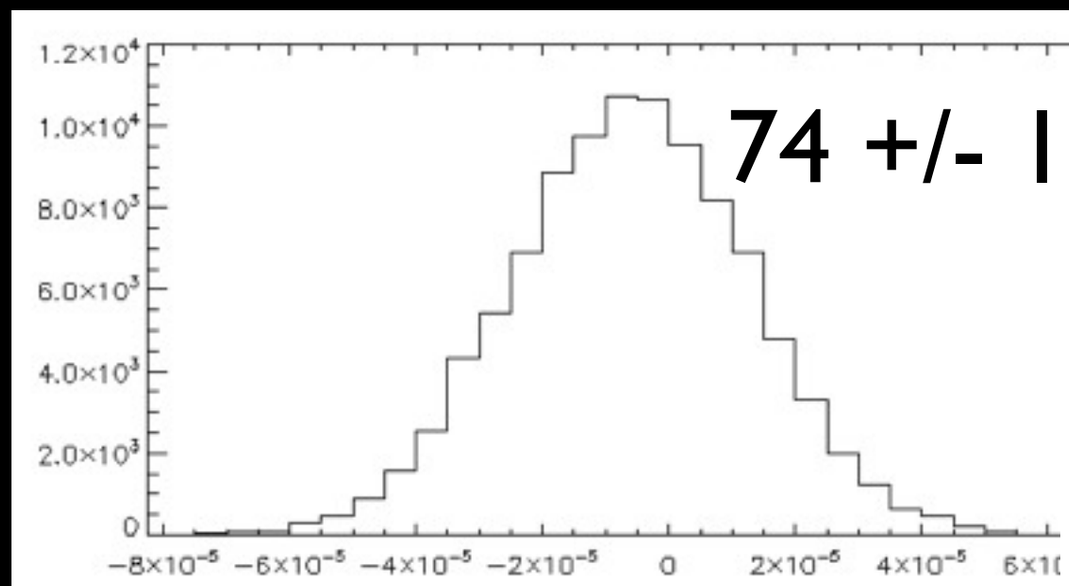


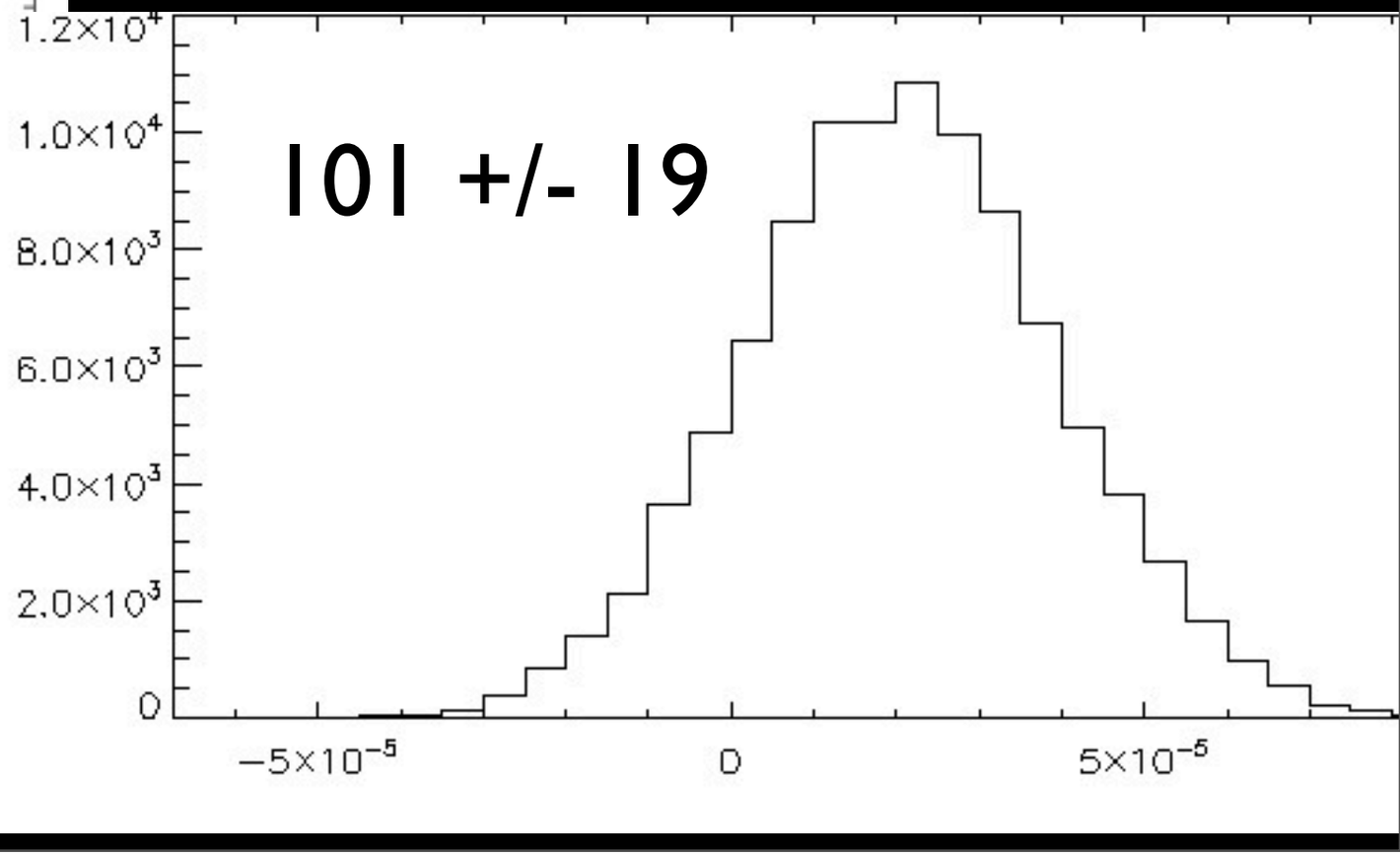




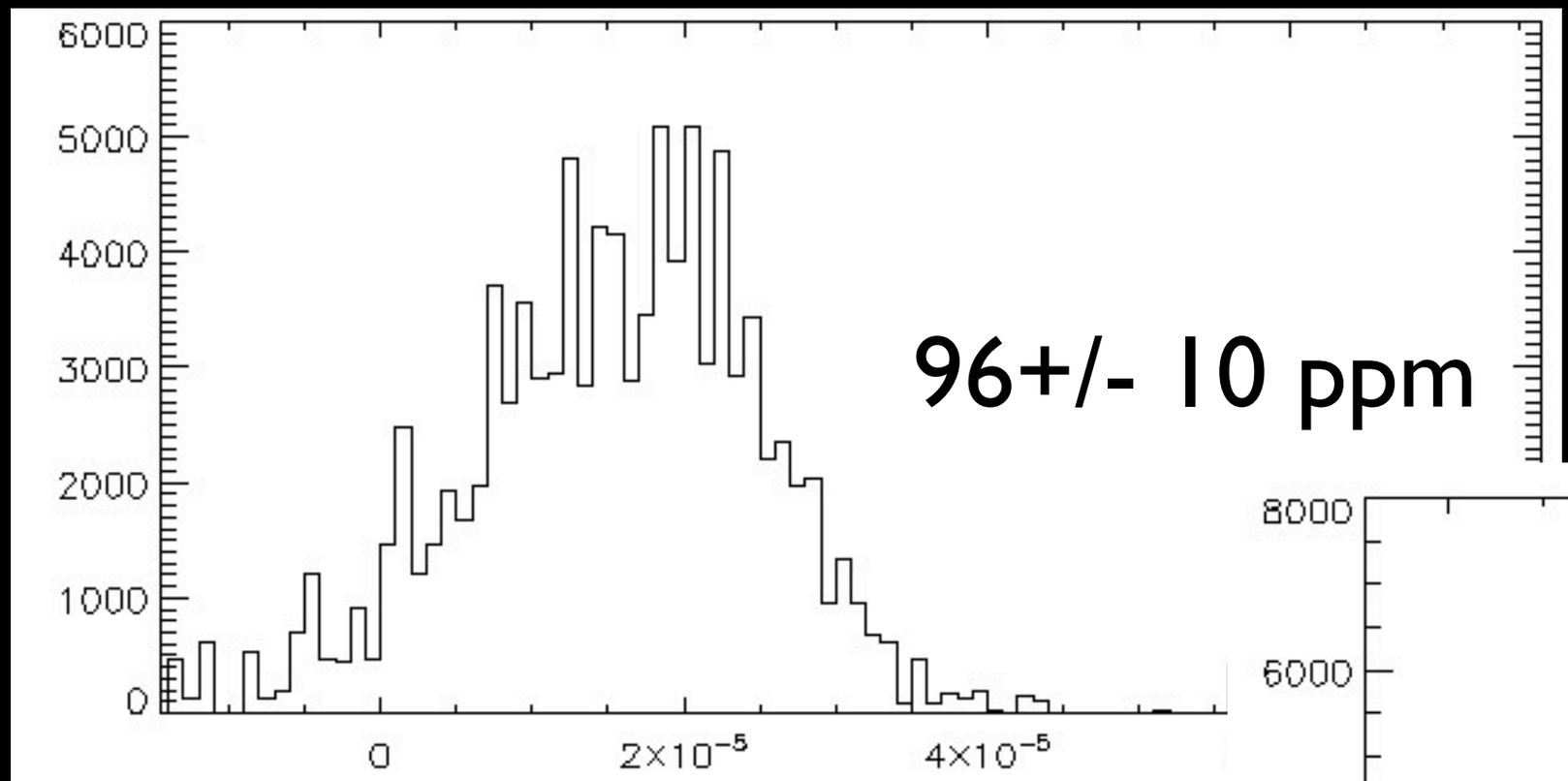


Compare to assuming white noise: white noise has much worse uncertainty

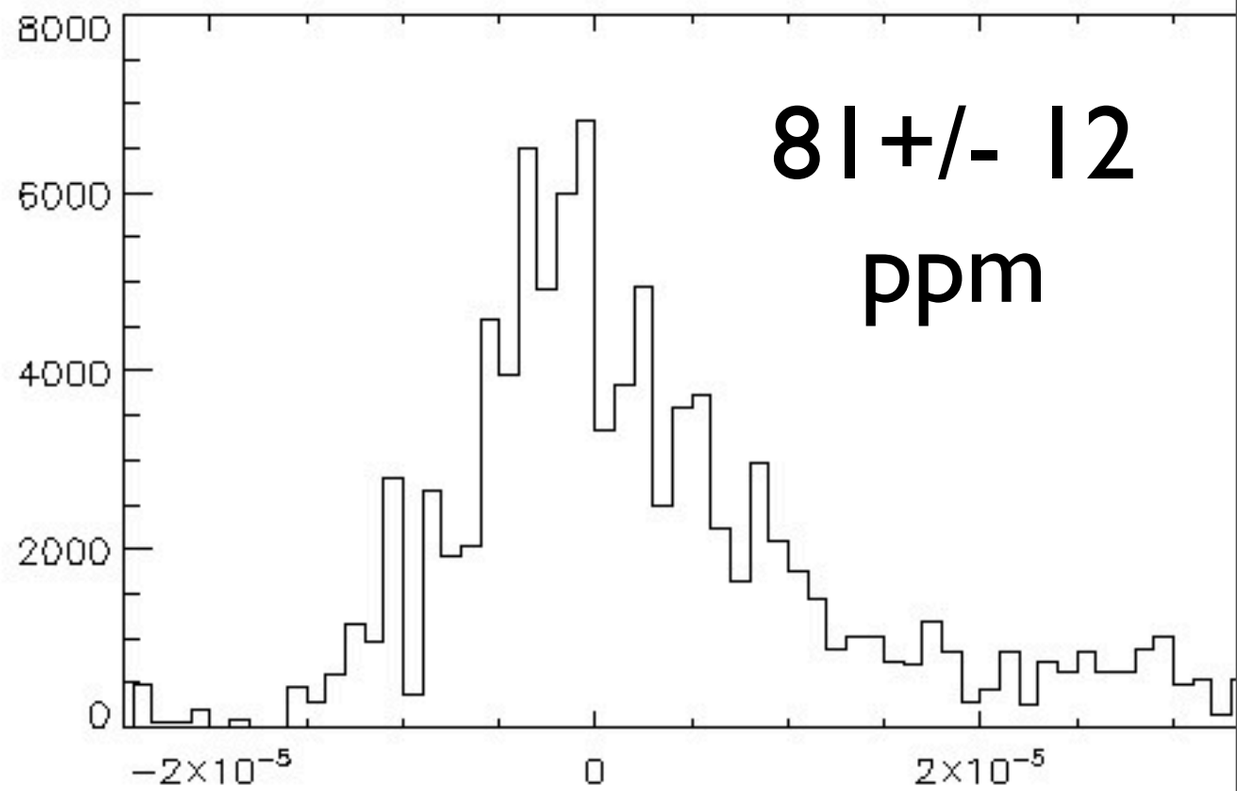




Duration is also free parameter

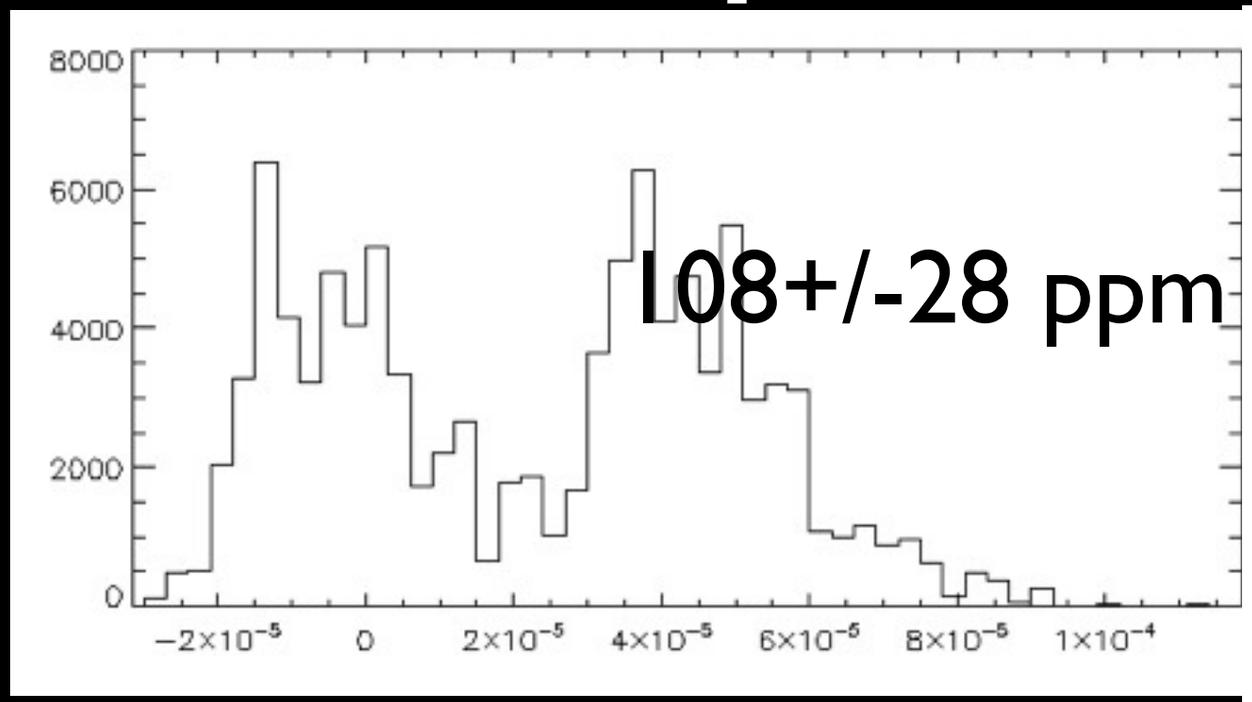


96+/- 10 ppm

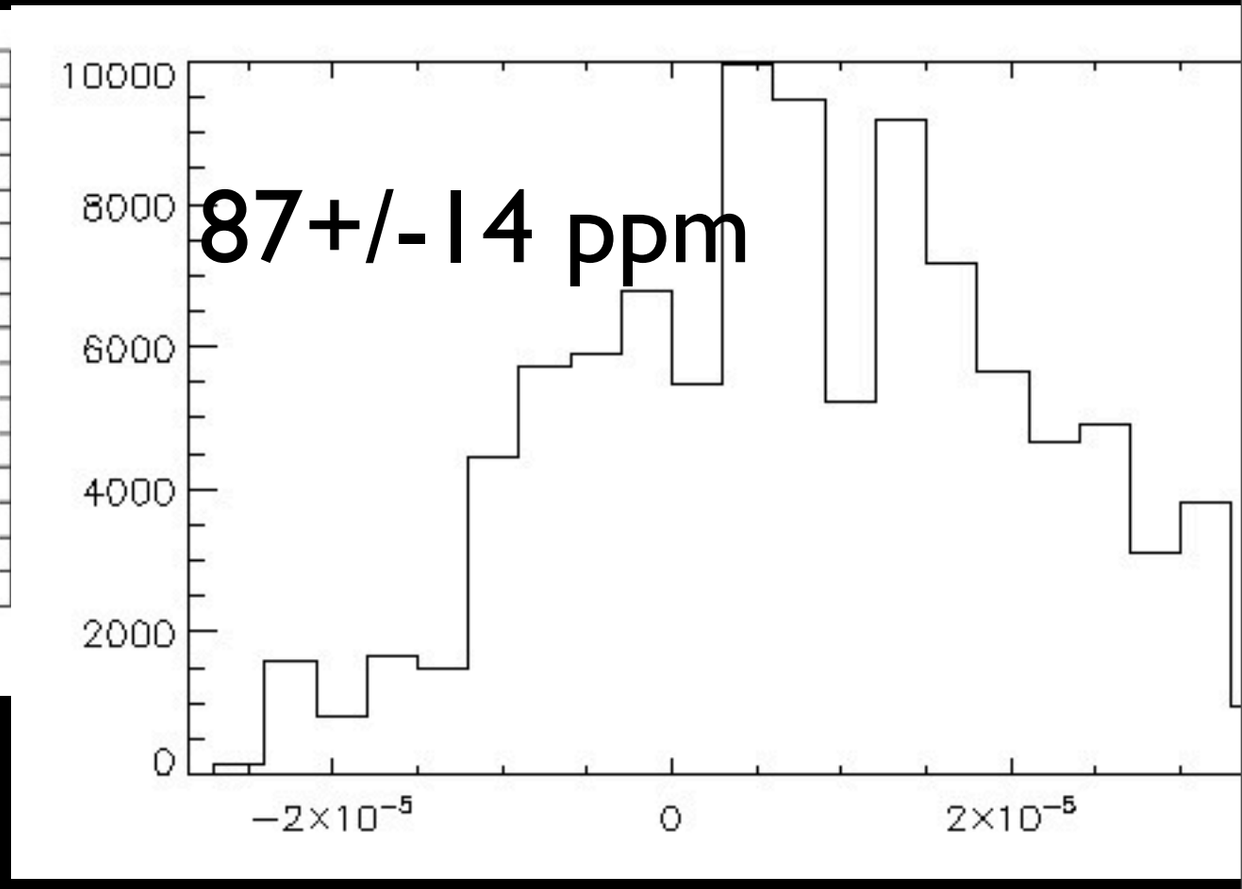


81+/- 12 ppm

Epoch/duration also free parameter



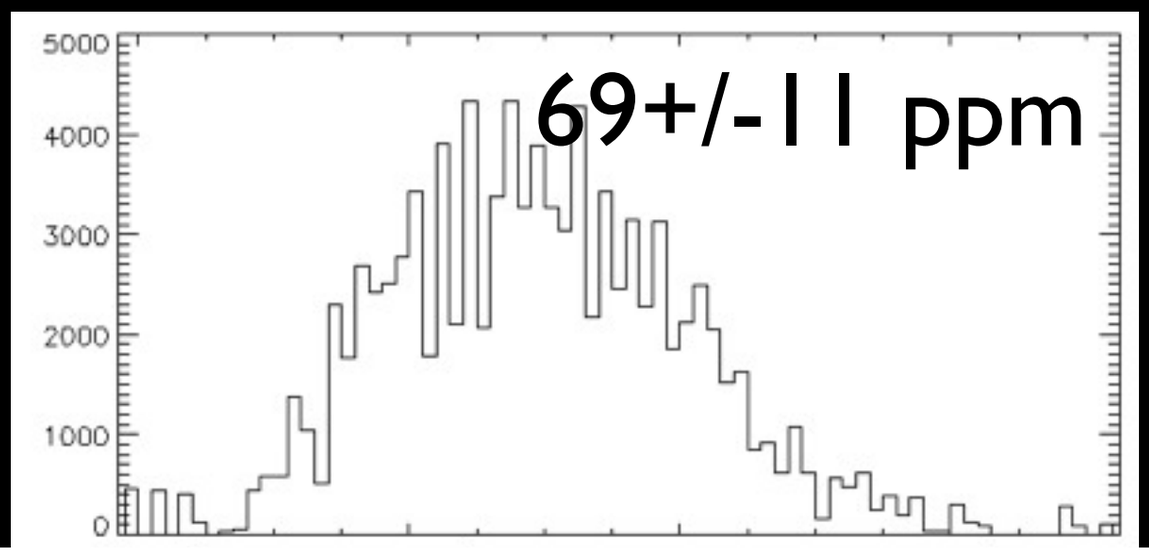
108+/-28 ppm



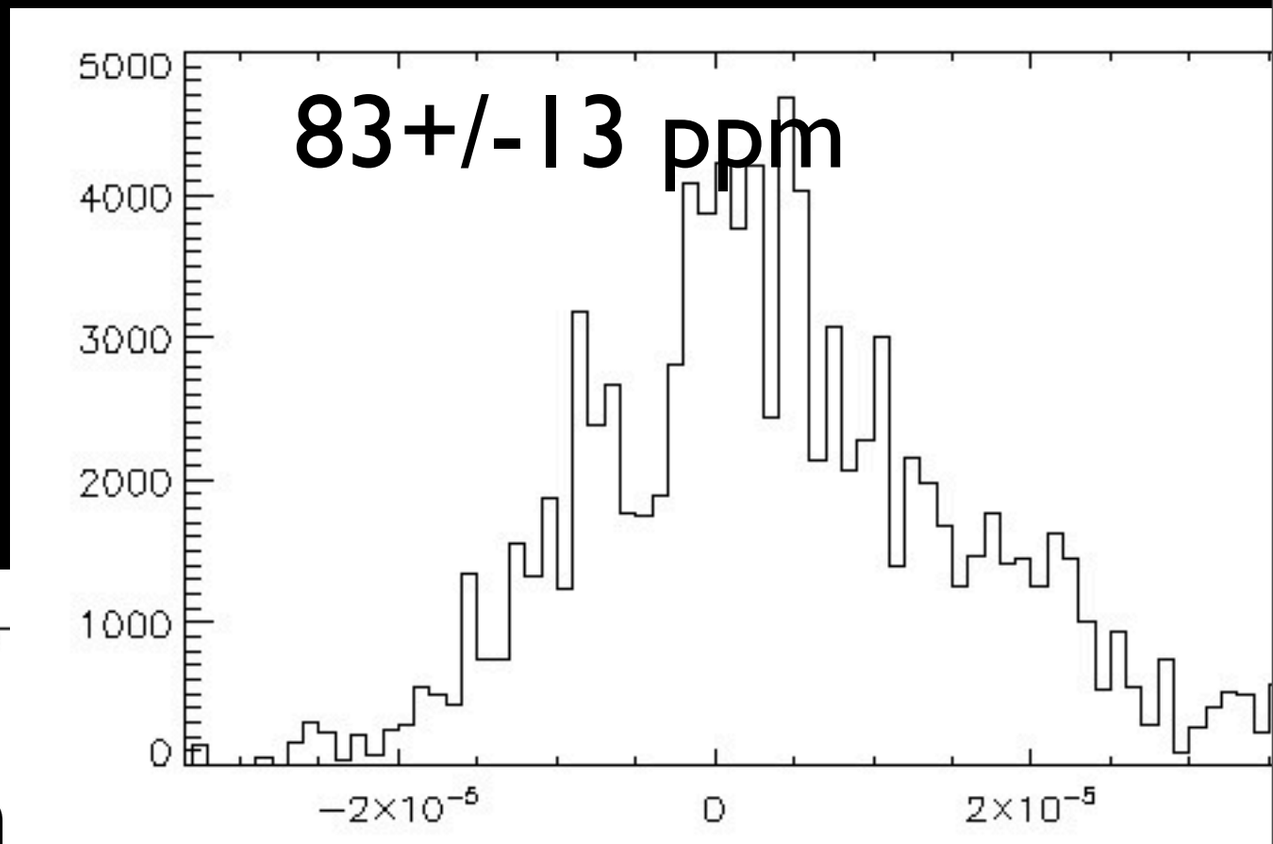
87+/-14 ppm

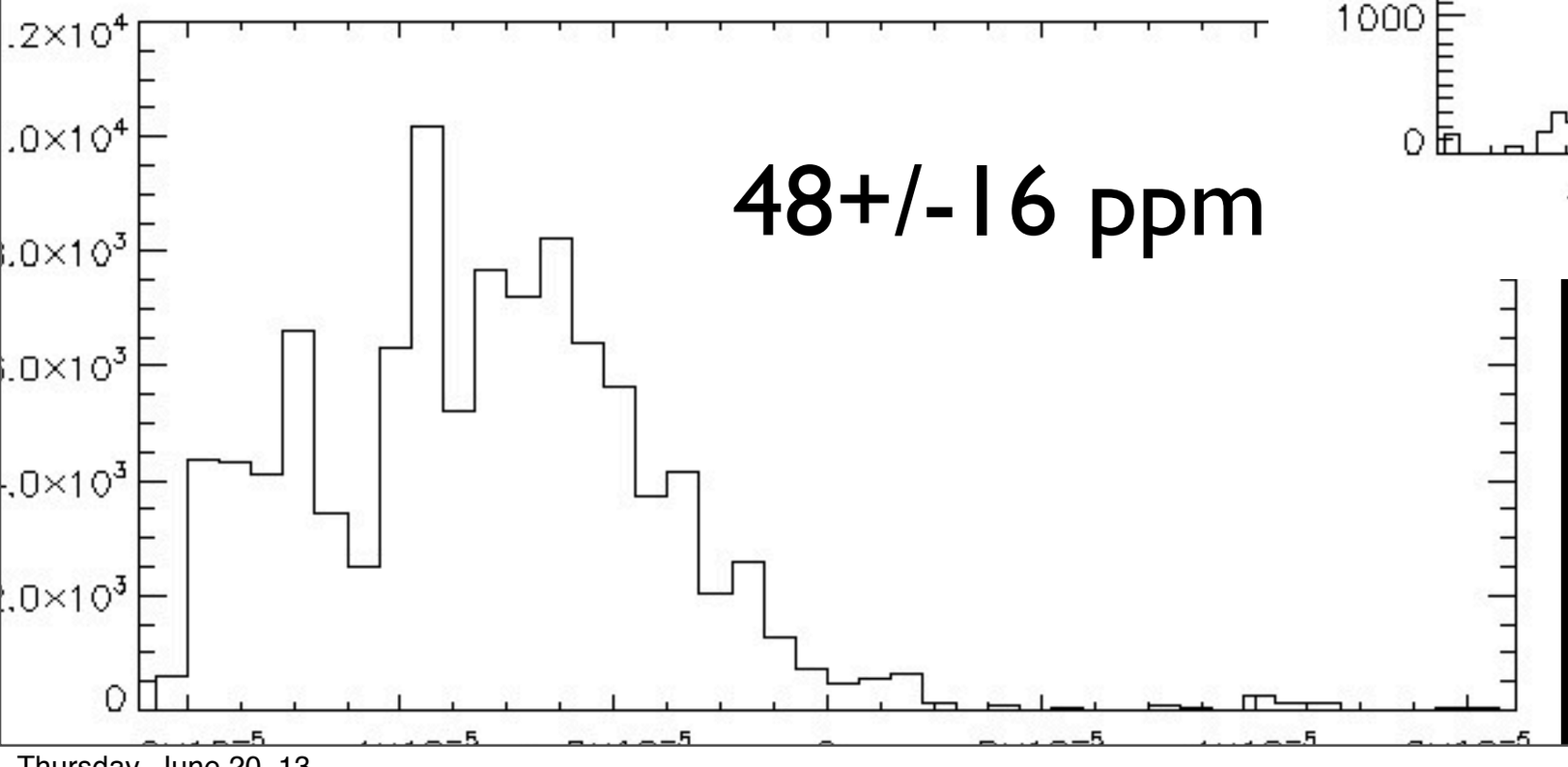
Different timespan

half



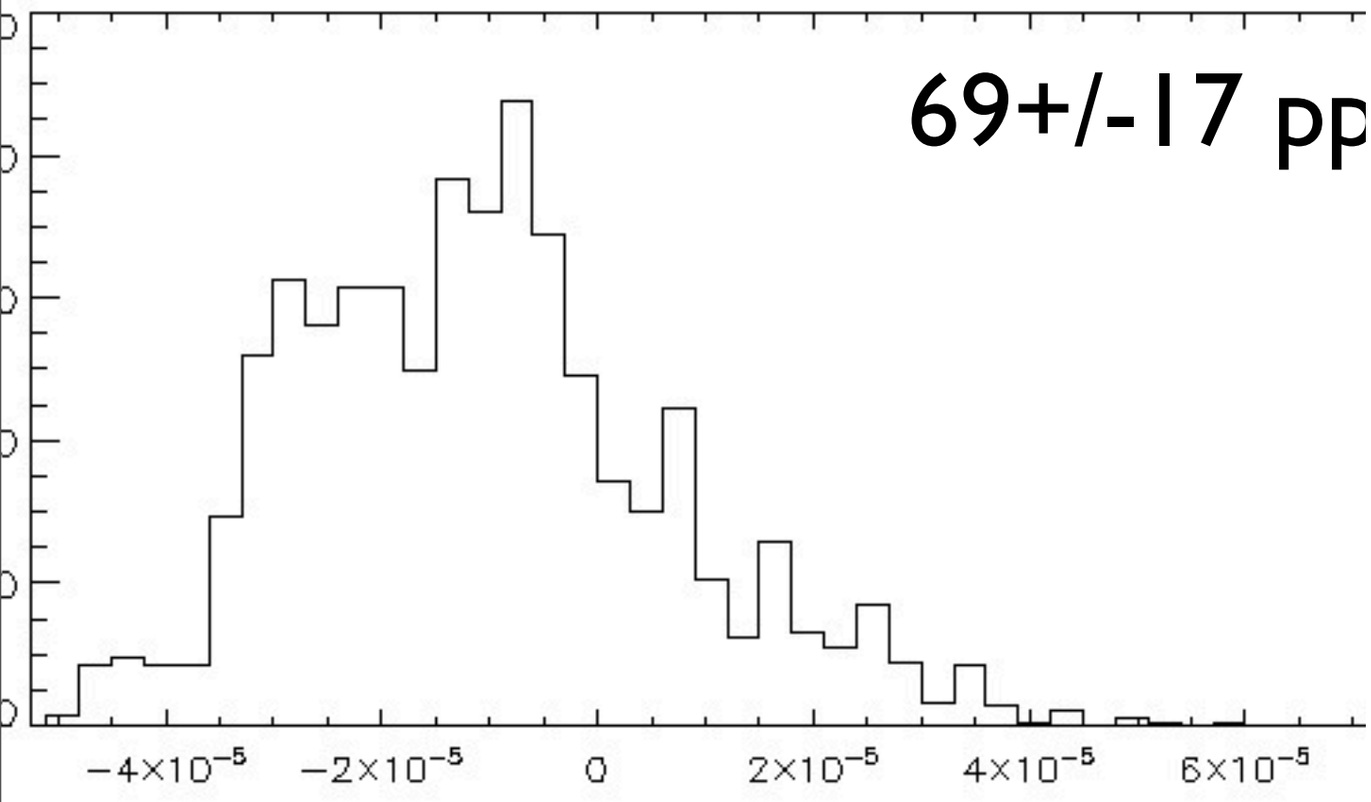
quarter



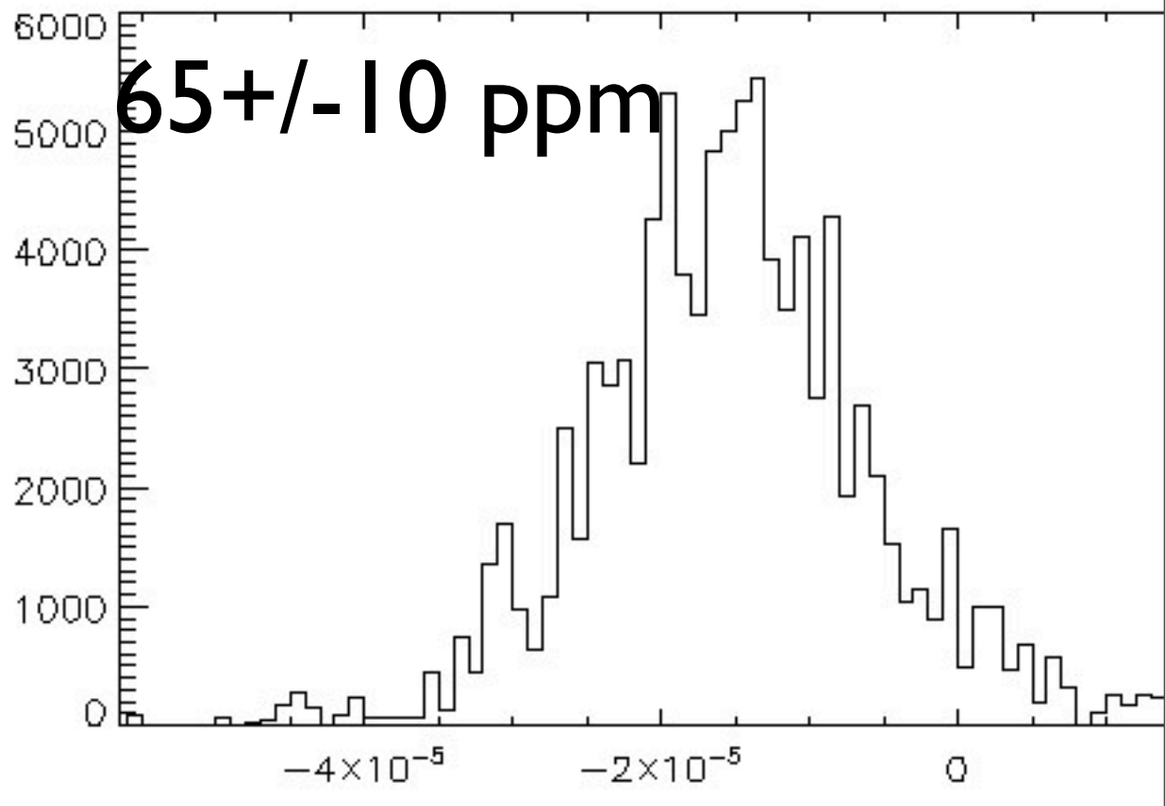


Different timespan

eighth



sixteenth



Three transits and fit for period

Text