

FAST DATA ANALYZE (FAST's DATA)

This is an analyze for 543 pulsars in FAST's data.

$$\sigma_j = 0.2W\sqrt{\frac{P}{W}}$$
$$\sigma_r = \frac{WT_s}{GS\sqrt{2*df*t}}\sqrt{\frac{W}{P-W}}$$

P(ms)
W(degree)
S(mJy)
FAST
G=16.5K/Jy
Ts=20K
df=800Mhz
Parkes
G=0.8K/Jy
Ts=28K
df=300Mhz

Dominant Noise

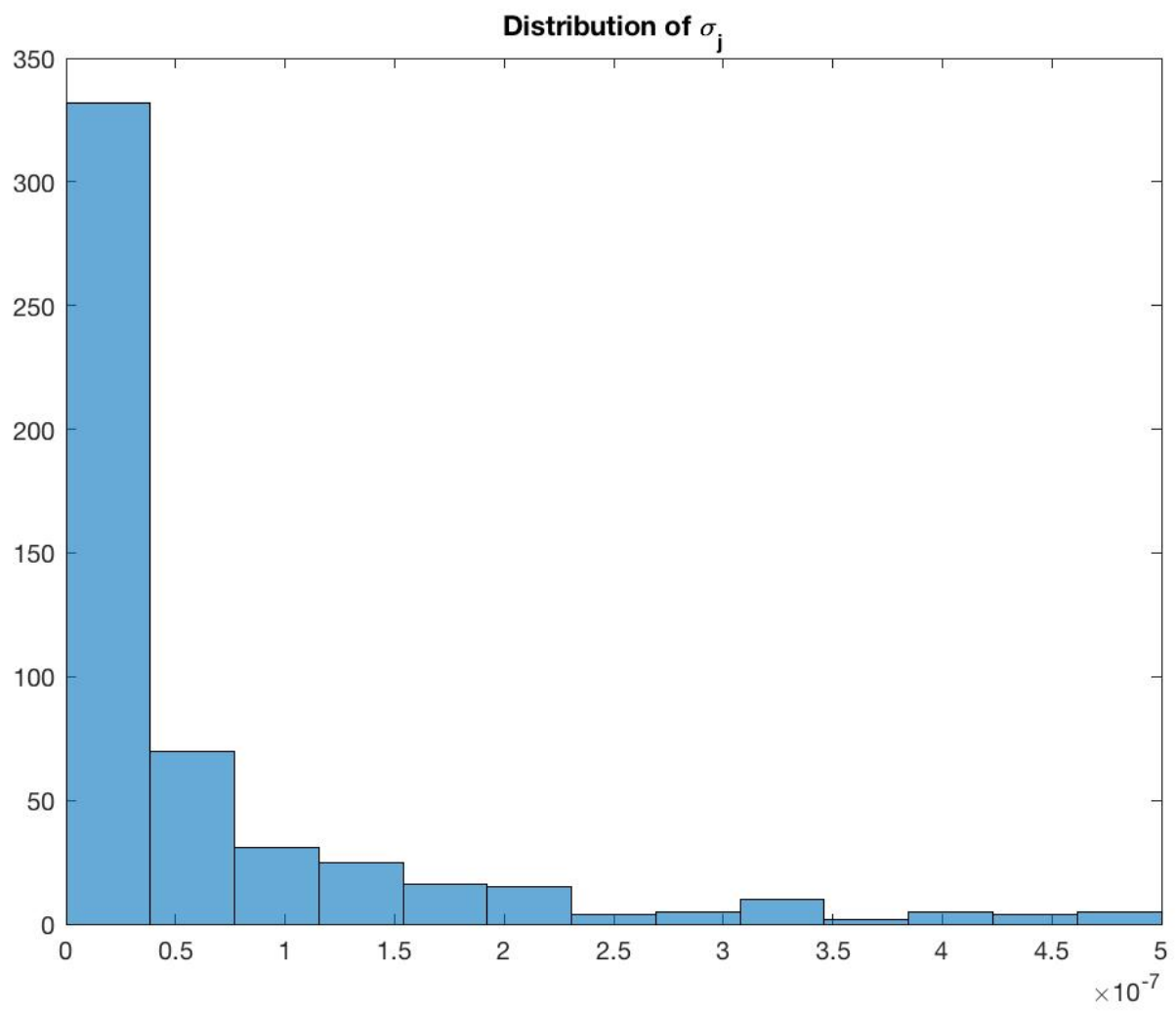
From analyzing the data, I find in FAST it is the Jitter Noise dominate, while in Parkes it is Radiometer Noise.

Distribution of Noise

These distributions only shows the results in the $5 * 10^{-7}$ s.

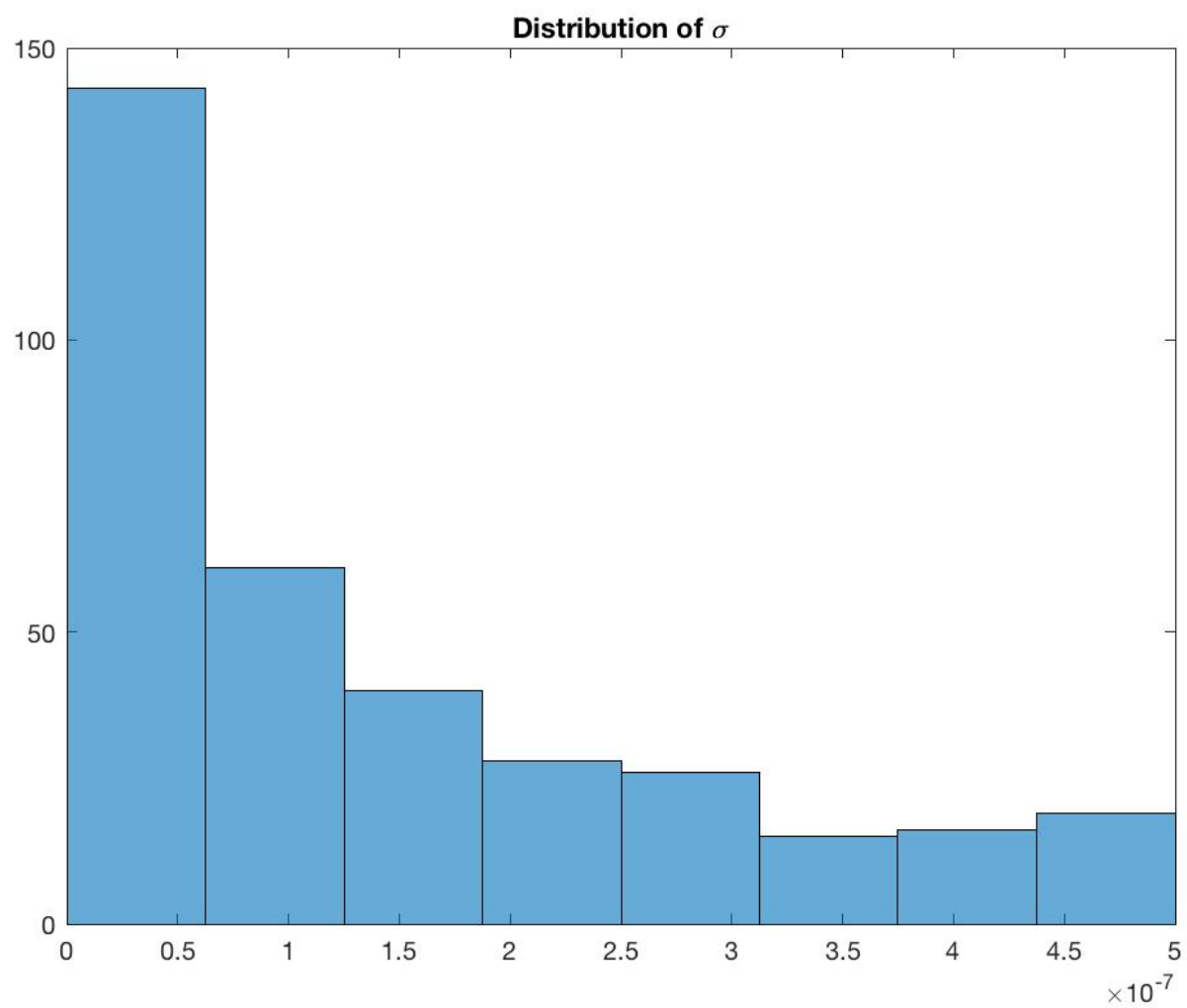
$$\sigma_j$$

Because σ_j is irrelative to the observer, so it is the same for FAST and Parkes.

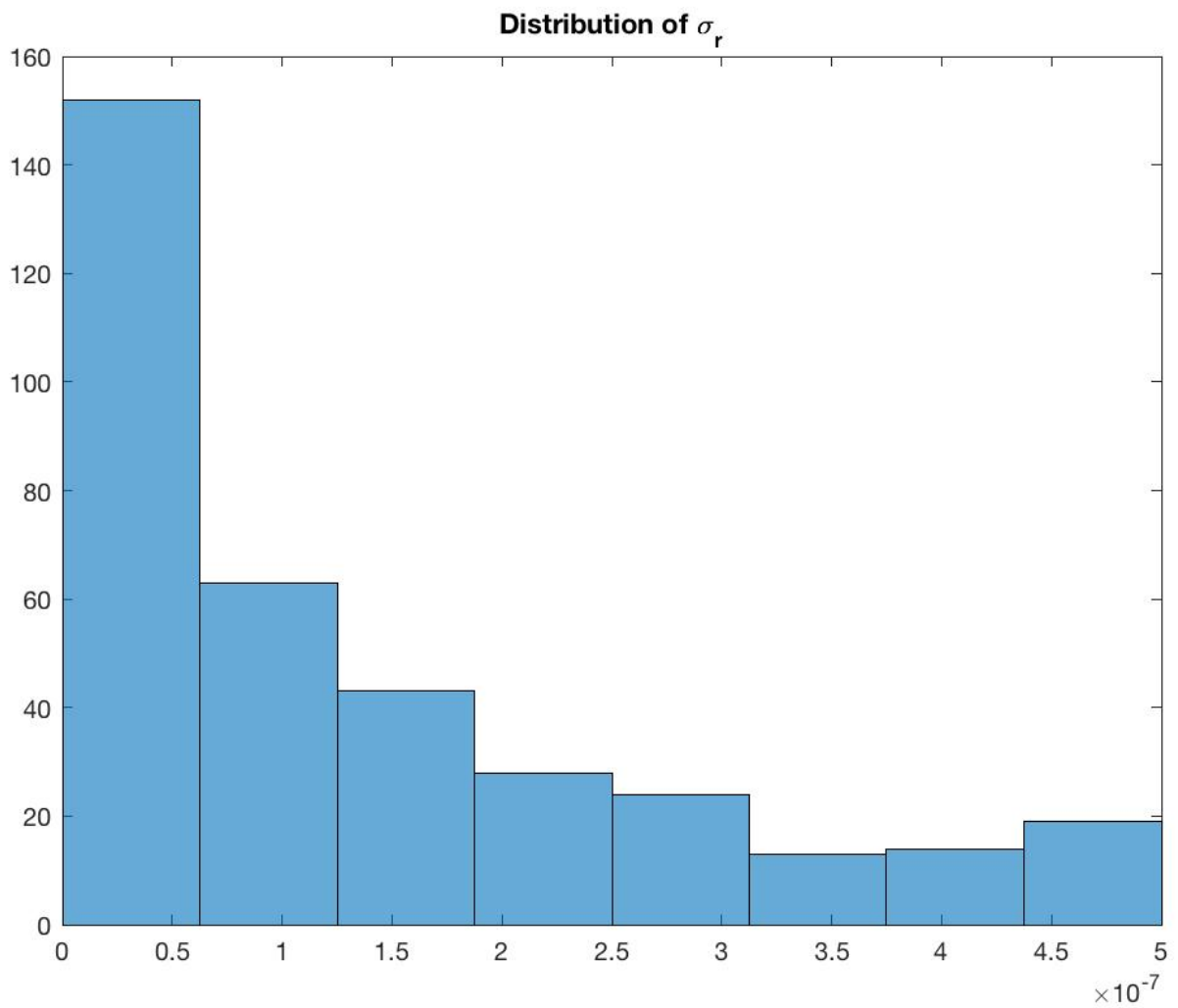


FAST

The distribution of total σ for FAST.



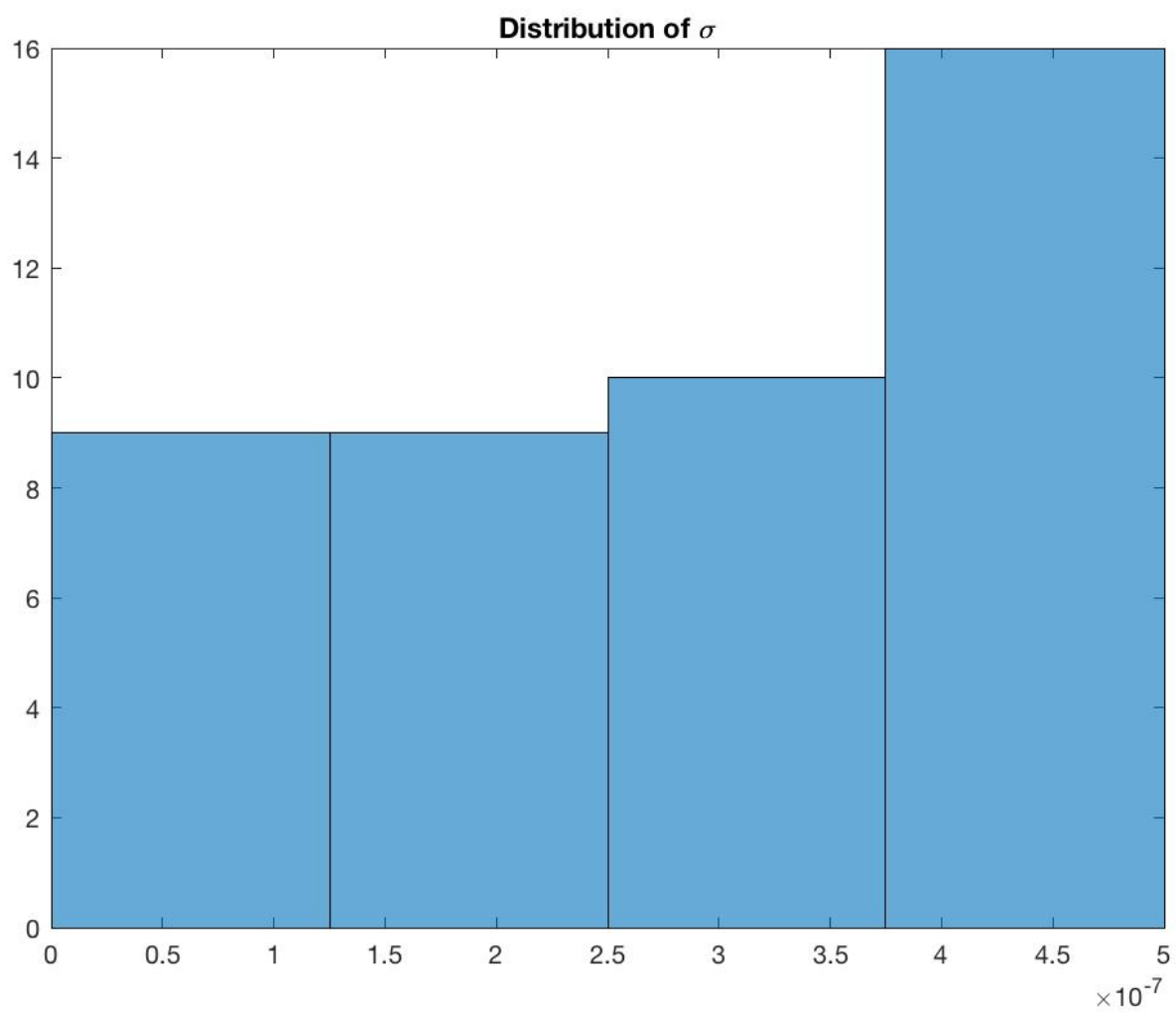
The distribution of σ_r



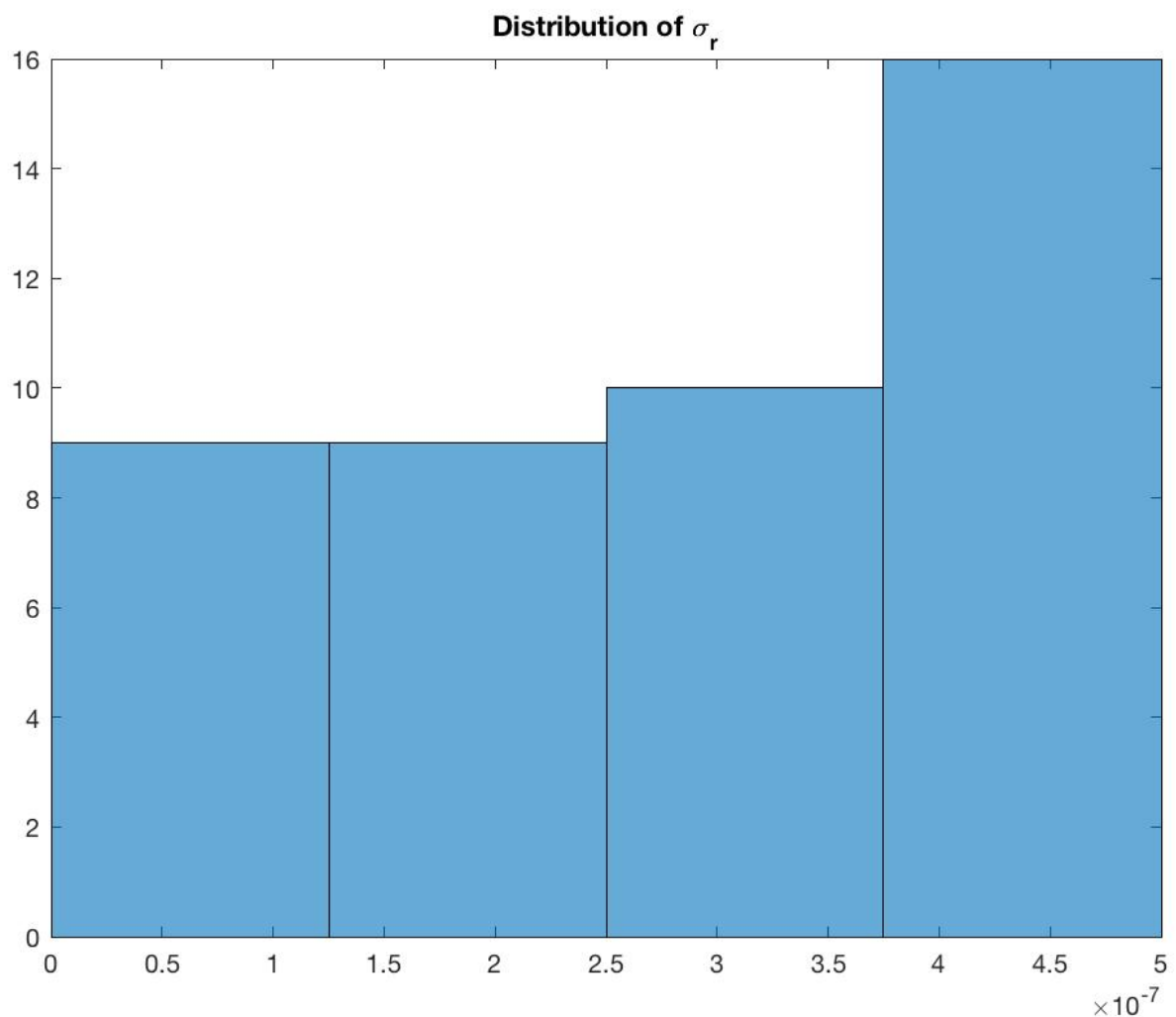
Parkes

For Parkes, the distribution of total σ is almost the same as FAST's, but the distribution of σ_r is disparate.

Distribution of σ



Distribution of σ_r



Detail number

The number of pulsars in fast less than 100ns is 184
The number of pulsars in fast less than 200ns is 250
The number of pulsars in fast less than 500ns is 348
The number of pulsars in Parkes less than 100ns is 9
The number of pulsars in Parkes less than 200ns is 14
The number of pulsars in Parkes less than 500ns is 44

Distribution in the Sky

