Beam Forming Test

Furen Deng & Zijie Yu

July 9, 2020

National Astronomical Observatories of China
Chinese Academy of Sciences

single antenna

For CygA, most antennae have amplitude $A_i \approx 1.5$ after **removing noise bottom**.

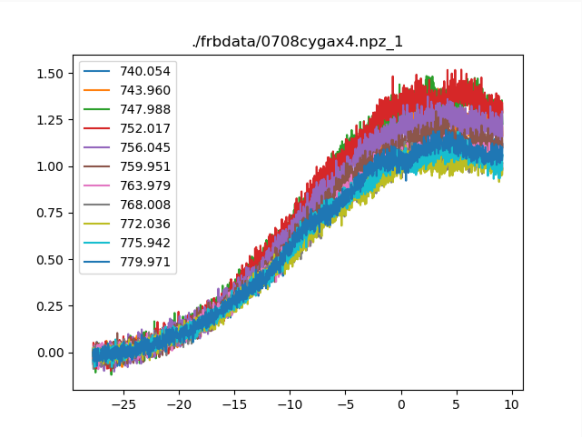

Figure 1 channel 1

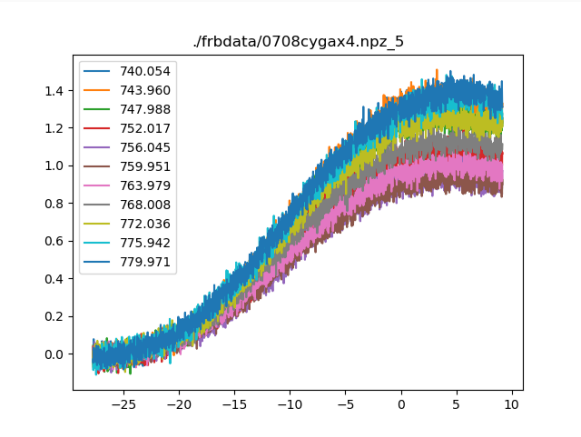

Figure 3 channel 5

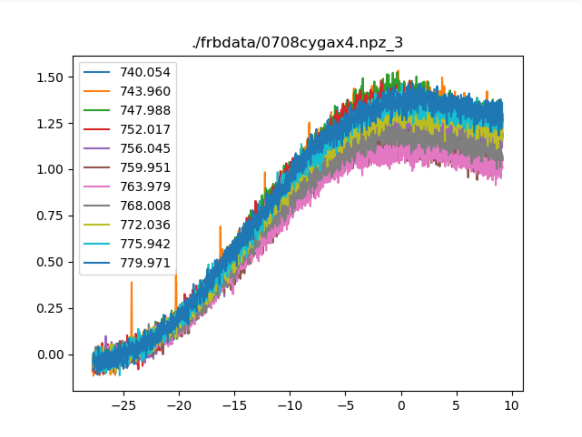

Figure 2 channel 3

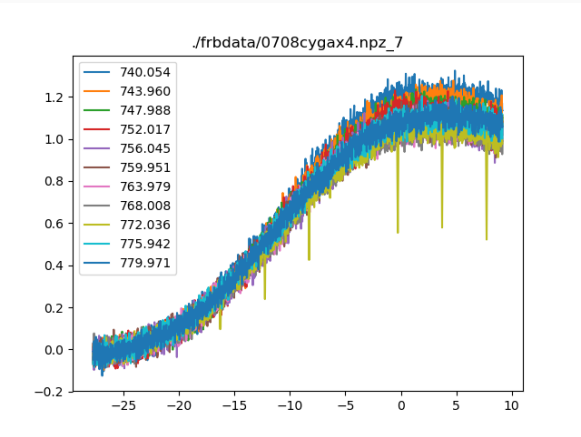

Figure 4 channel 7

Beam Forming

Then we have tried beam forming using 2 to 16 antenna (In fact, there are three bad antenna, so total **13 antenna**), we have **removed the noise bottom**

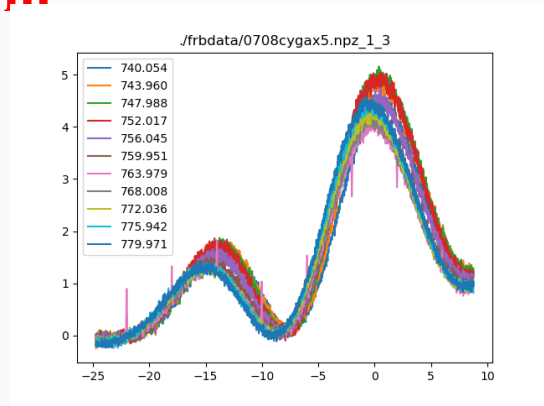

Figure 5 channel 1, 3

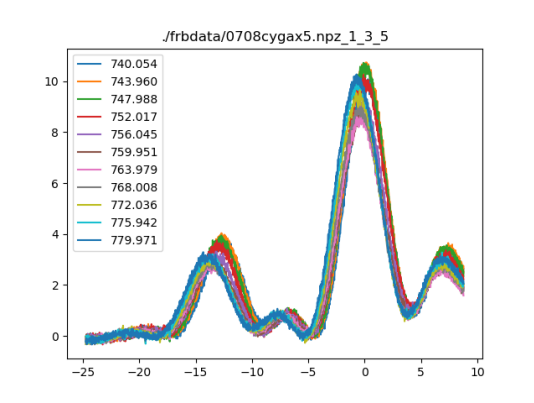

Figure 6 channel 1, 3, 5

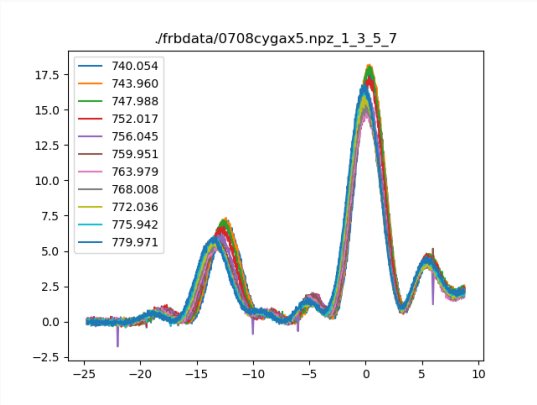

Figure 7 channel 1, 3, 5, 7

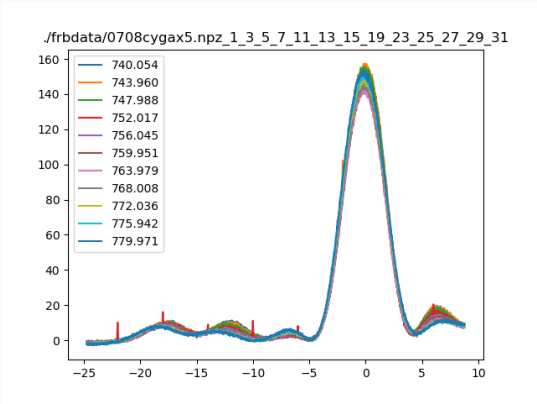

Figure 8 channel 1, 3, 5, 7, 11, 13, 15, 19, 23, 25, 27, 29, 31

Beam Forming

More antenna **doesn't improve** result.

And we've also tried to calculate beam forming maximum **from single antenna** result:

$$A_s = (\sum_{i=1}^{16} A_i^2)^{\frac{1}{2}} \quad (1)$$

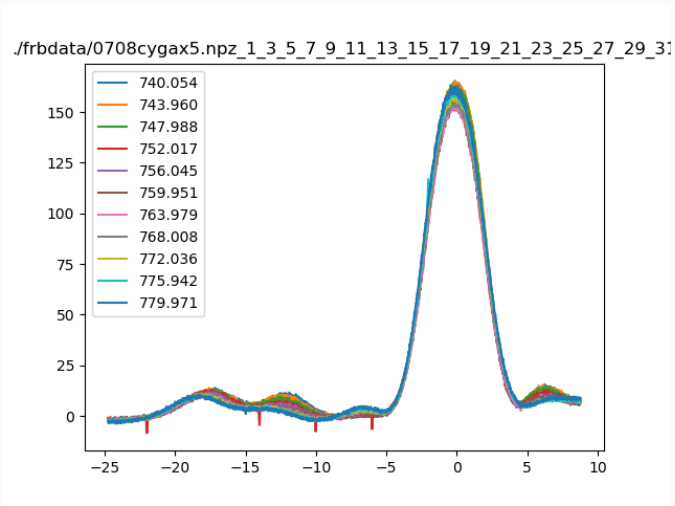

Figure 9 all channel

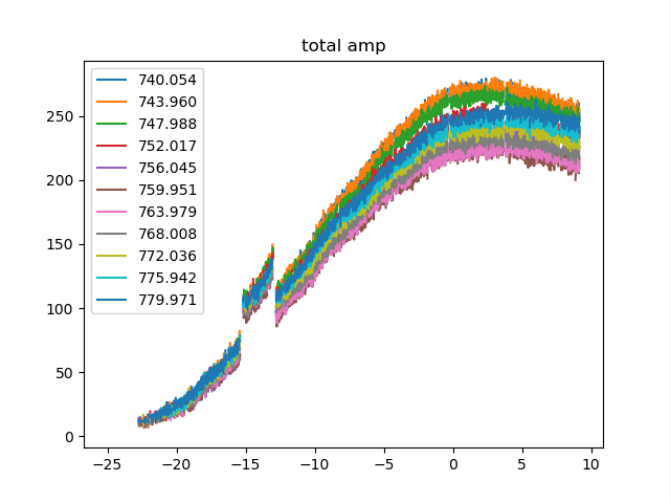

Figure 10 Maximum beam forming result from single antenna

Observing B0329+54

We use the beam forming system to observe **B0329+54**, the pulsar with flux 1.5 Jy at 400 MHz

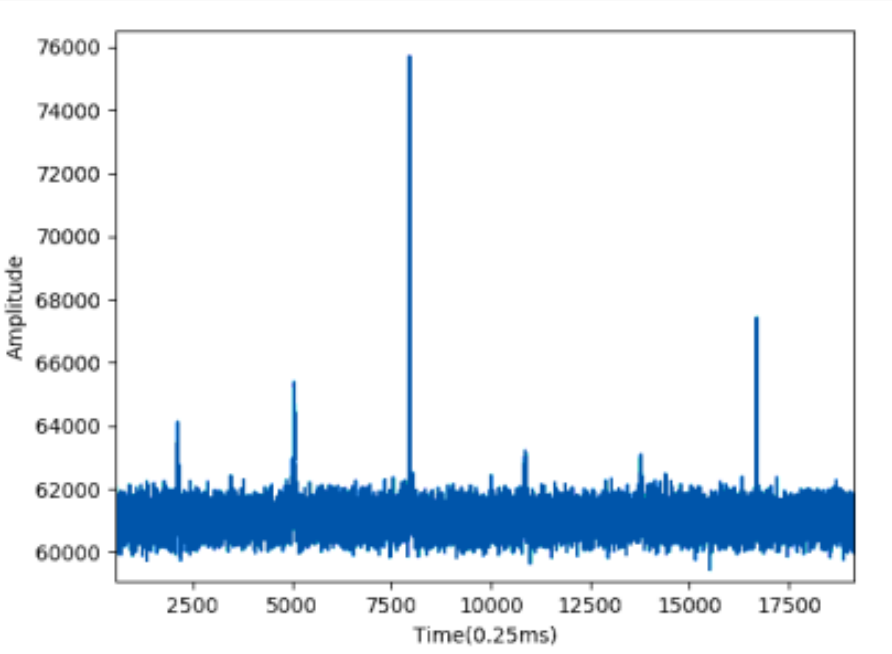

Figure 11 6 pulses

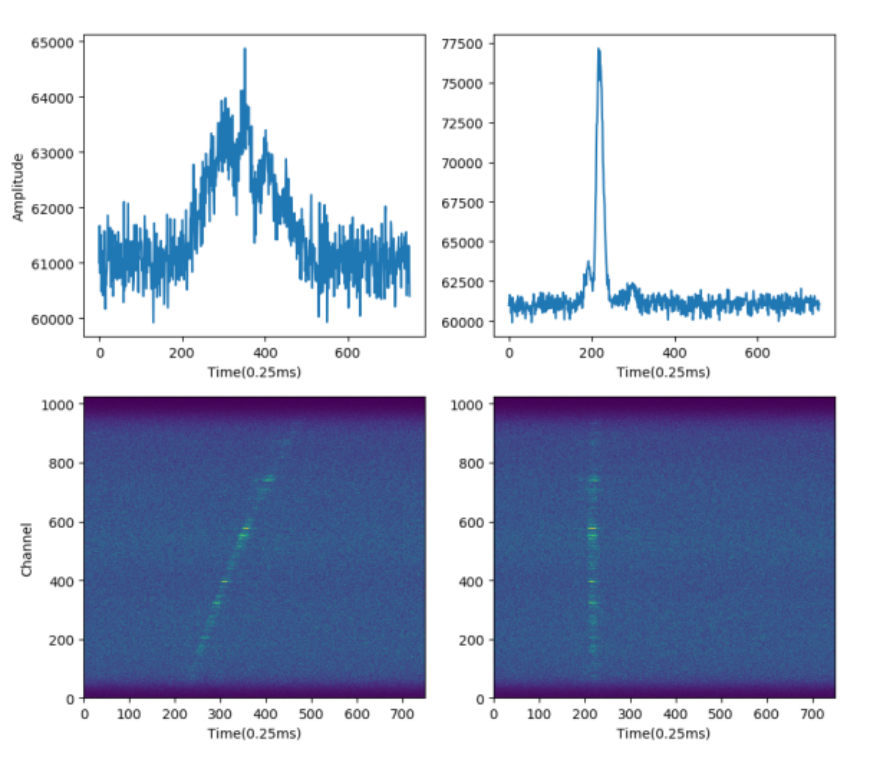

Figure 12 dedispersion result

Thanks!