Pulsar Simulator II

Analysis and Data Set

DSES Memo #1

10/3/20

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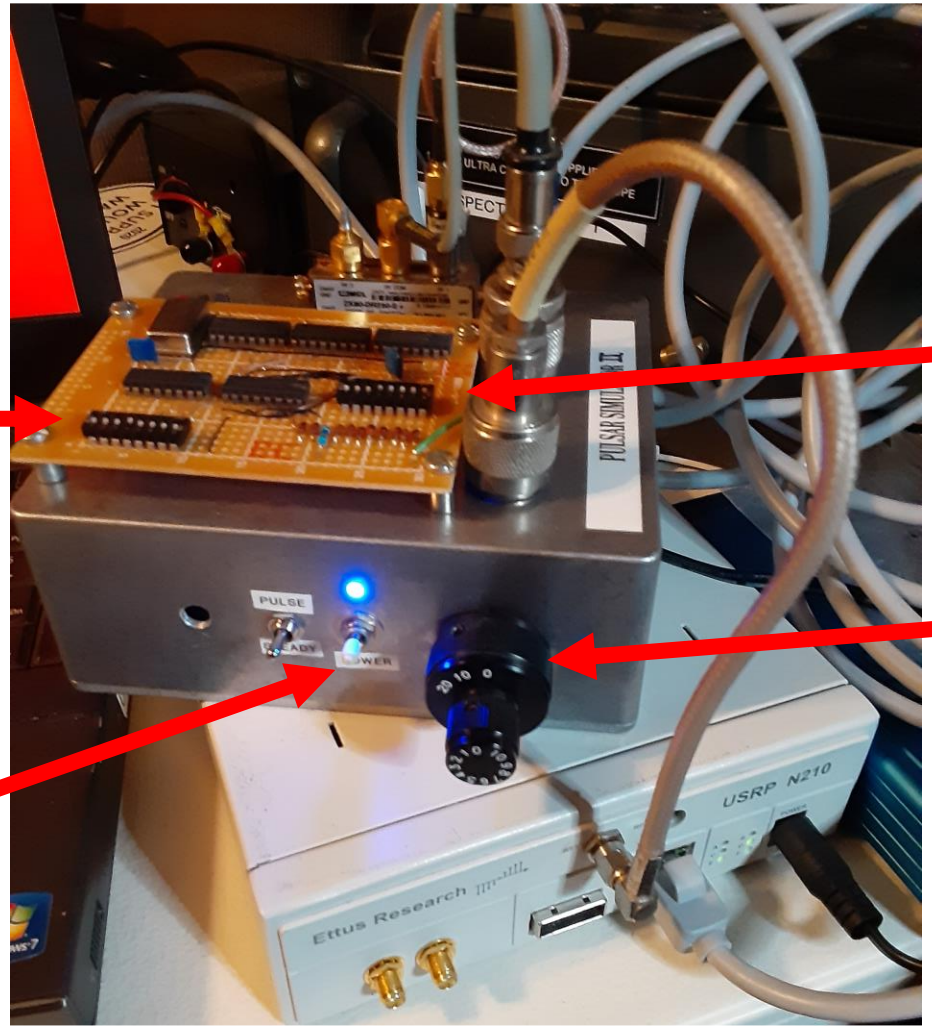
Pulsar Simulator II

- Developed by Ray Uberecken
- Each iteration of the pulsar outputs was measured using the Ettus N210 receiver and saved as a .fil file.
- Each file was processed using the PRESTO software suite.
- The results are shown in the following slides. The PRESTO command is shown in the header.
- The raw data files are available from Richard Russel.

Pulsar Simulator II



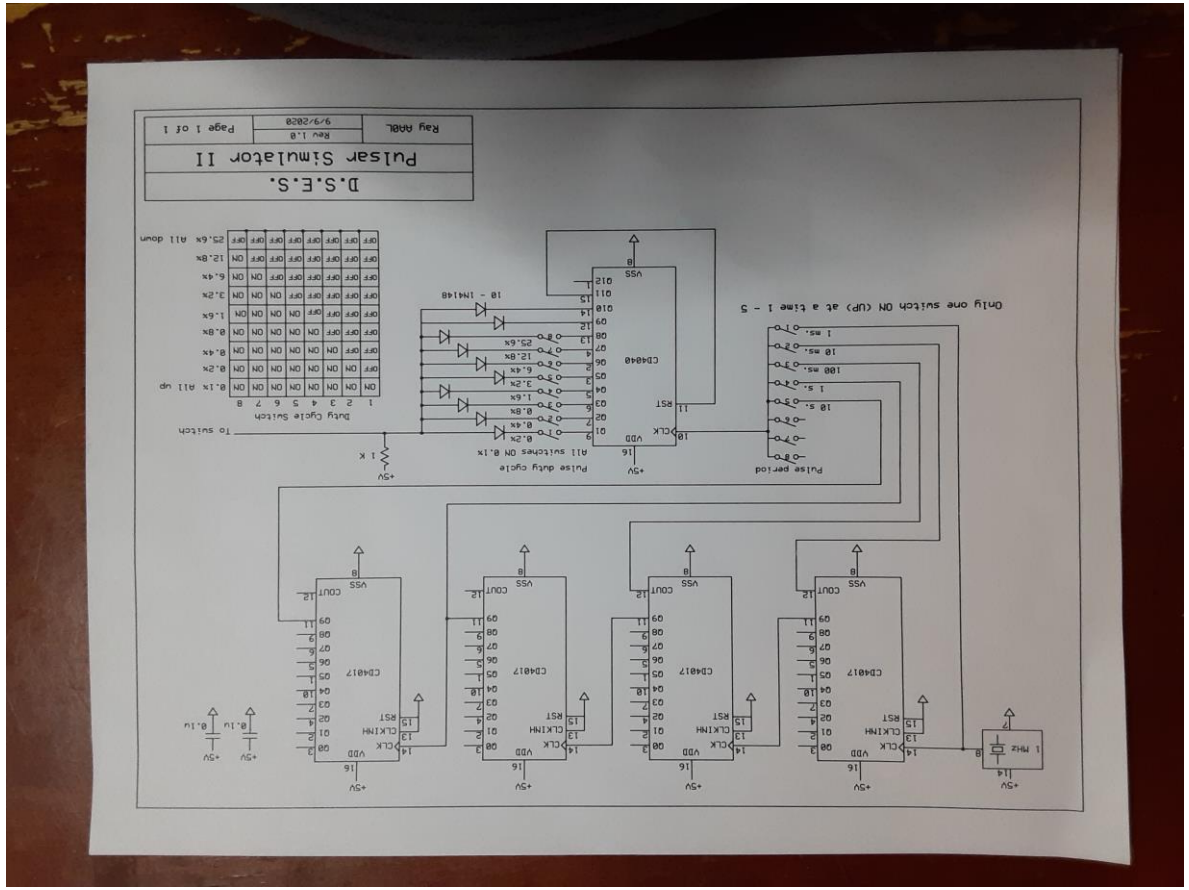
SWITCH 1

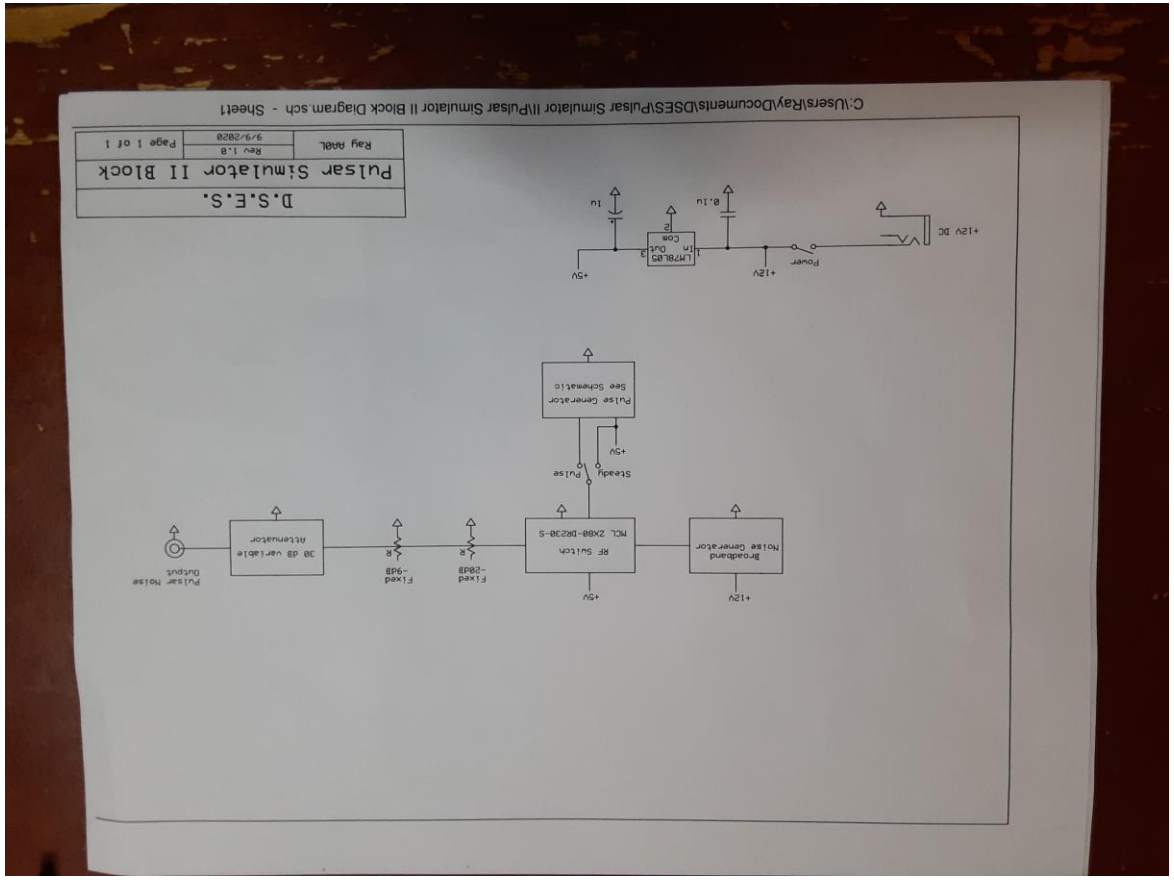
SWITCH 2

ATTENUATOR

POWER
SWITCH

Pulsar Simulator II - Schematics





Pulse and Duty Cycle Capability

The pulsar II simulator can be programmed to produce 5 periods and 9 duty cycles by selections on 2 different switches.

Switch #1 (only select 1 at a time

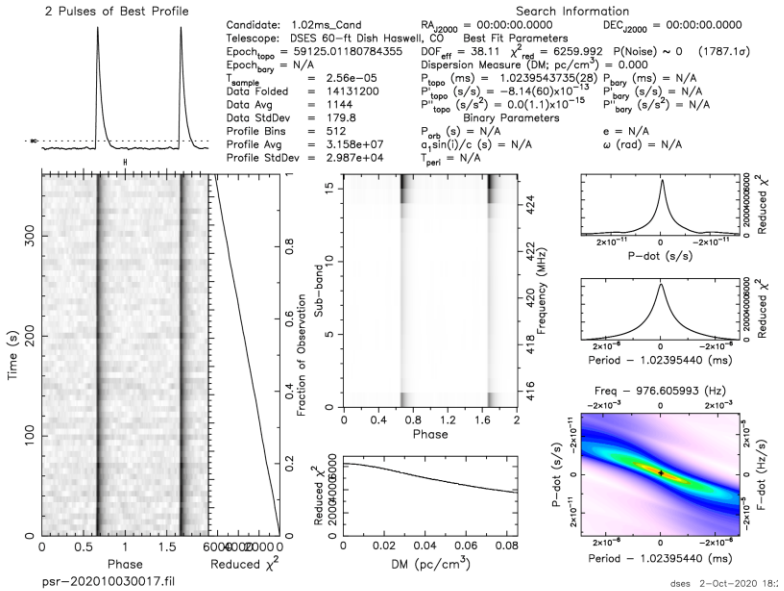
Switch #	Period (ms)
1	1
2	10
3	100
4	1,000
5	10,000

Switch #2

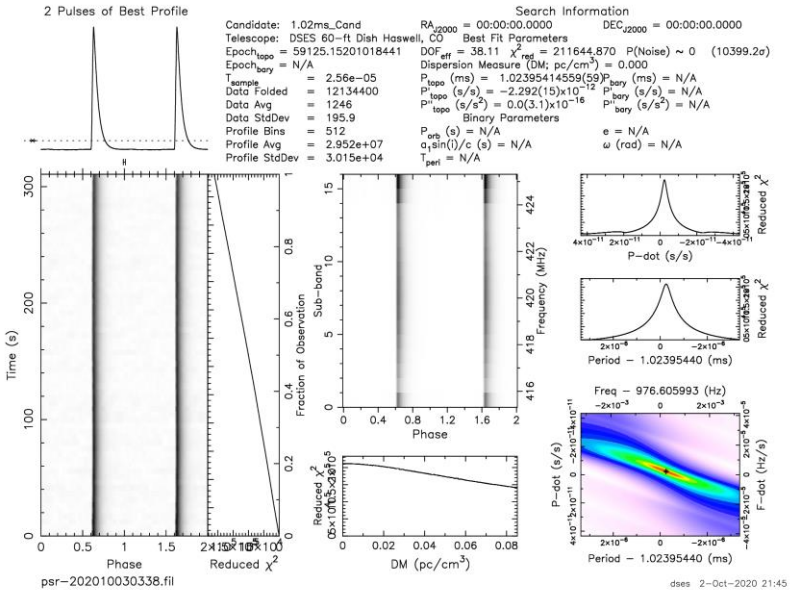
Duty Cycle	SW 1	SW2	SW 3	SW 4	SW5	SW 6	SW 7	SW 8
0.1%	1	1	1	1	1	1	1	1
0.2%	0	1	1	1	1	1	1	1
0.4%	0	0	1	1	1	1	1	1
0.8%	0	0	0	1	1	1	1	1
1.6%	0	0	0	0	1	1	1	1
3.2%	0	0	0	0	0	1	1	1
6.4%	0	0	0	0	0	0	1	1
12.8%	0	0	0	0	0	0	0	1
25.6%	0	0	0	0	0	0	0	0

1 ms Period (fbsize 16)

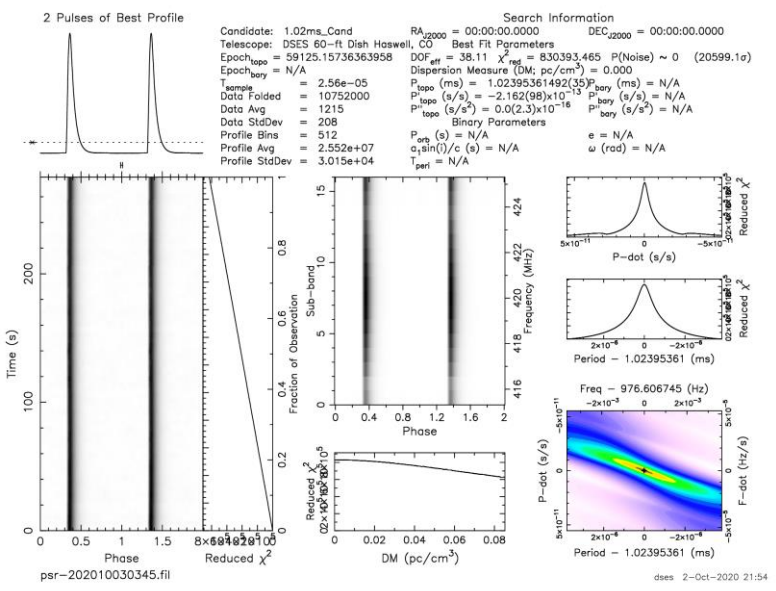
prepfold –nsub 16 –n 512 –topo –nodmsearch –dm 0 –p0.00102395360748 –fine psr- _____ .fil



1 ms 0.1%
psr-202010030017.fil



1 ms 0.2%
psr-202010030338.fil



1 ms 0.4%
psr-202010030345.fil

1 ms Period (fbsize 16)

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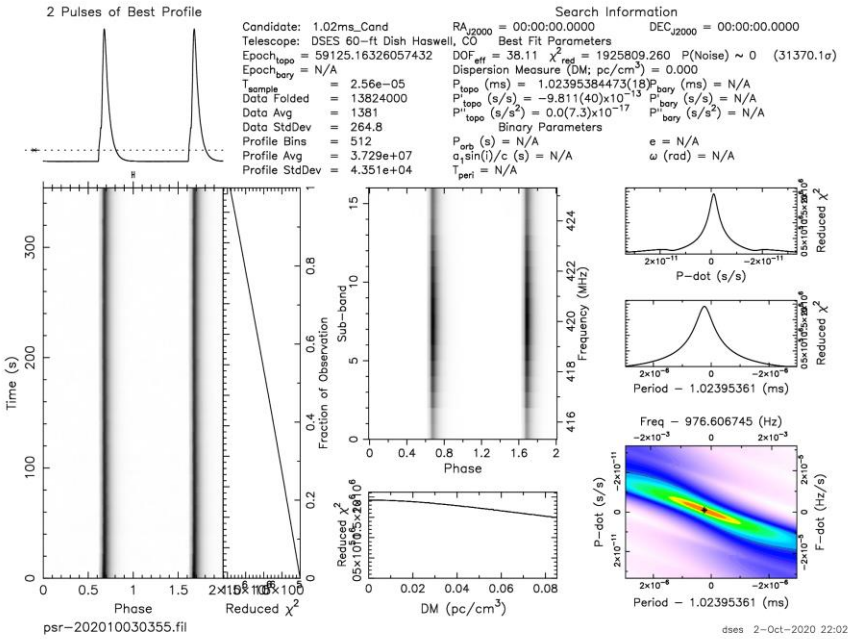
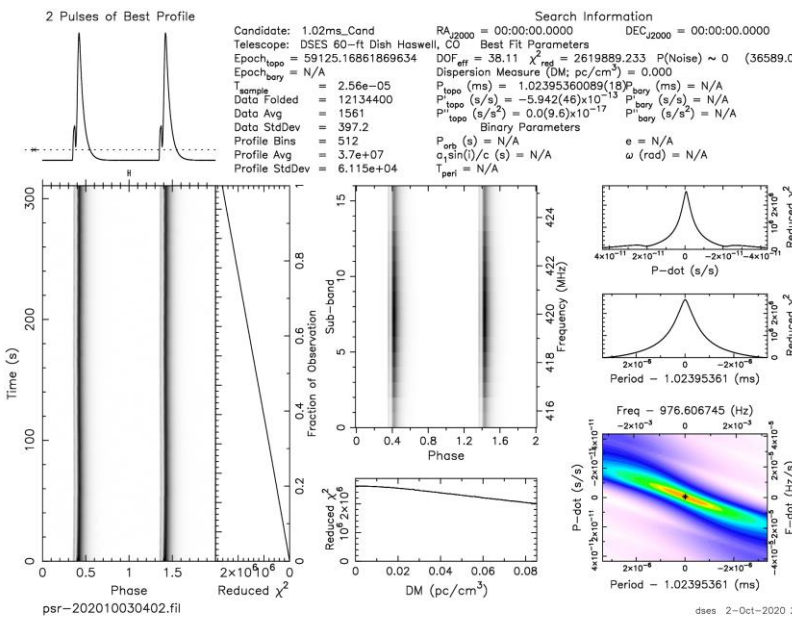


1 ms 0.8%
psr-202010030355.fil



1 ms 1.6%
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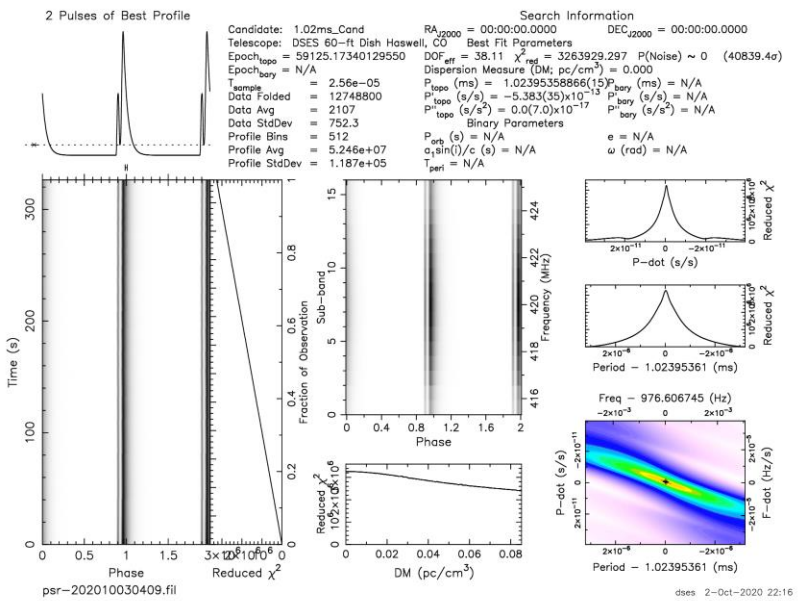

1 ms 3.2%
psr-202010030409.fil

1 ms Period (fbsize 16)

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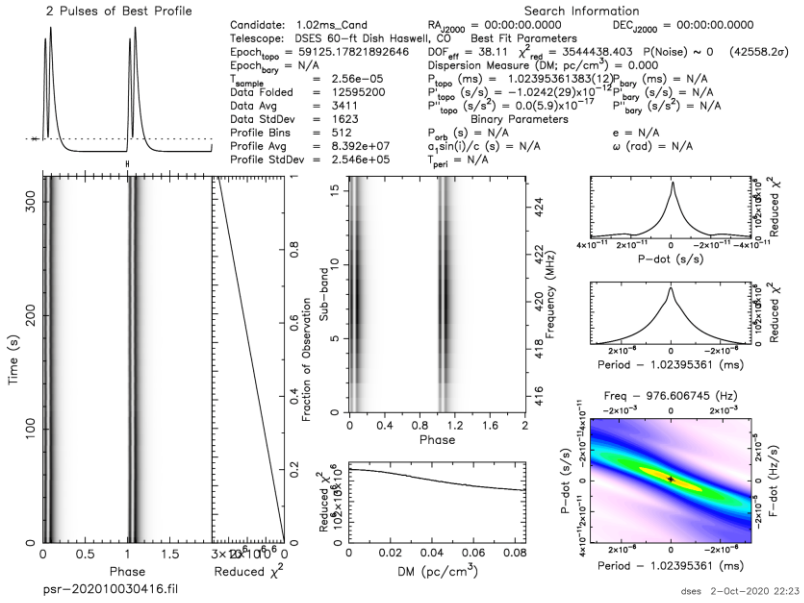
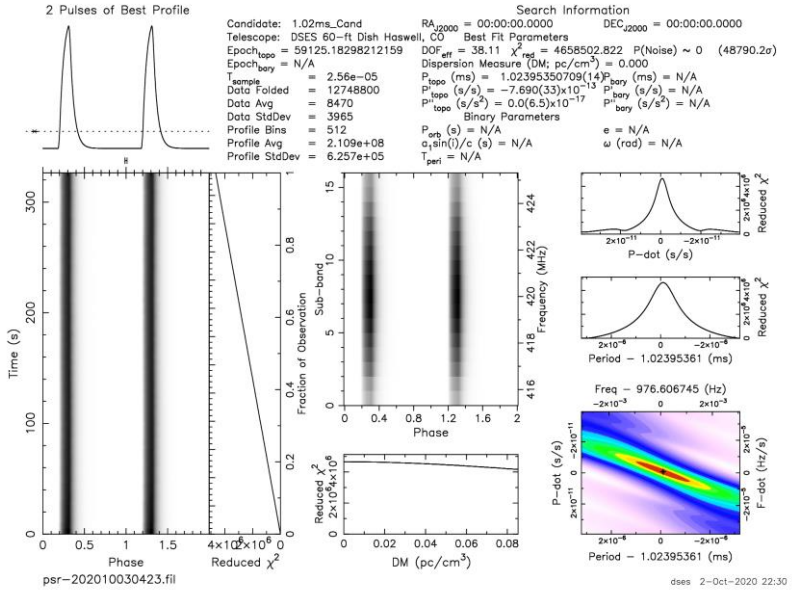


1 ms 6.4%
psr-202010030416.fil



1 ms 12.8%
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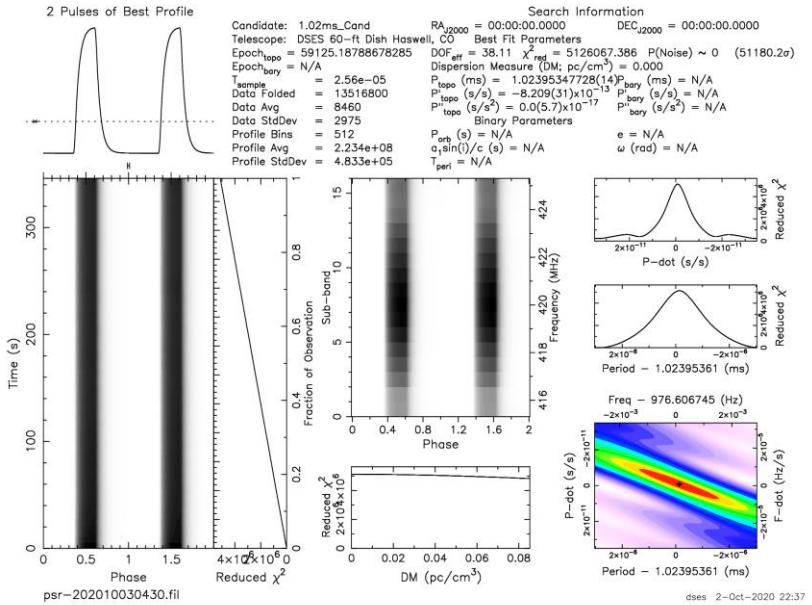

1 ms 25.6%
psr-202010030430.fil

10 ms Period (fbsize 128)

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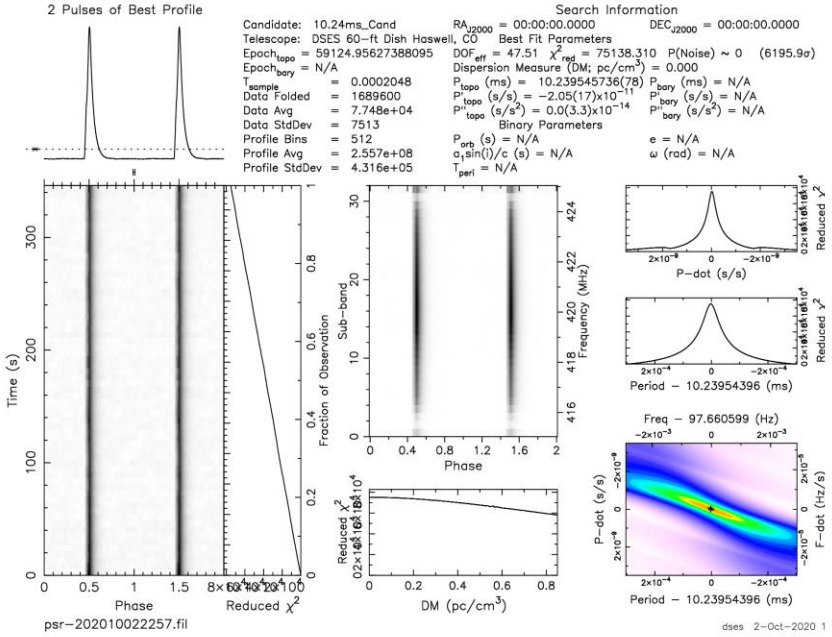
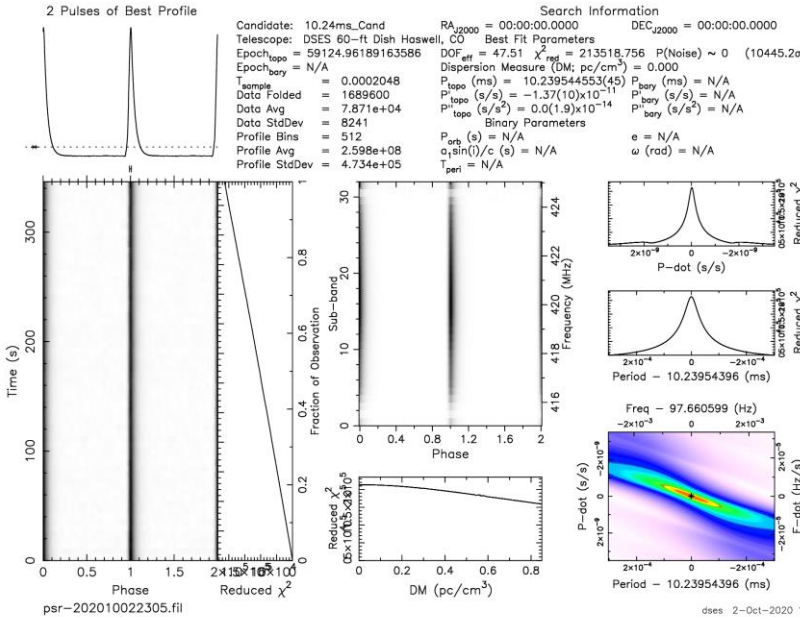
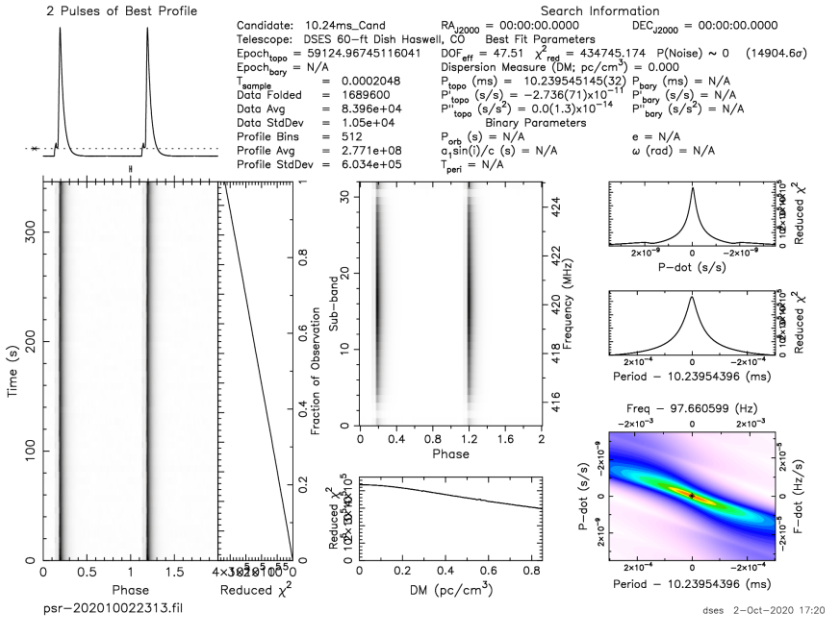


10 ms 0.1%
psr-202010022257.fil



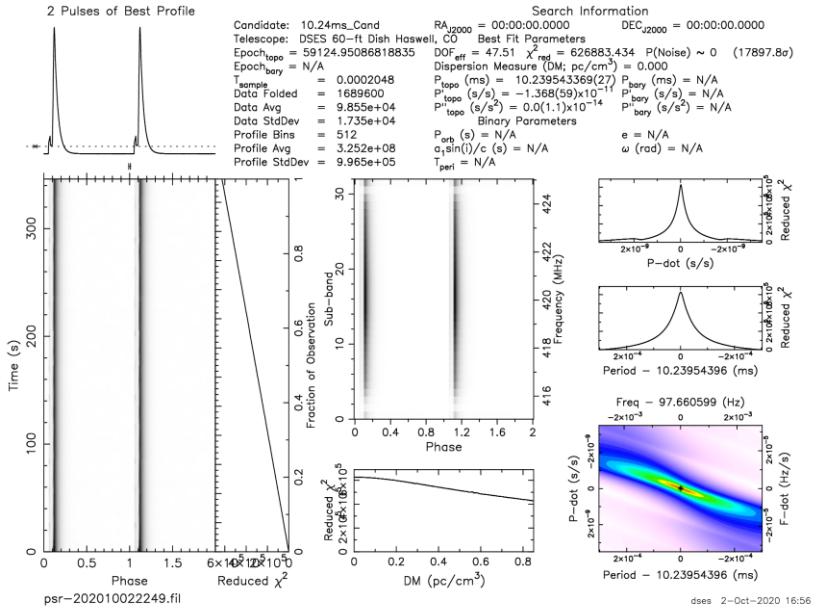
10 ms 0.2%
psr-202010022305.fil



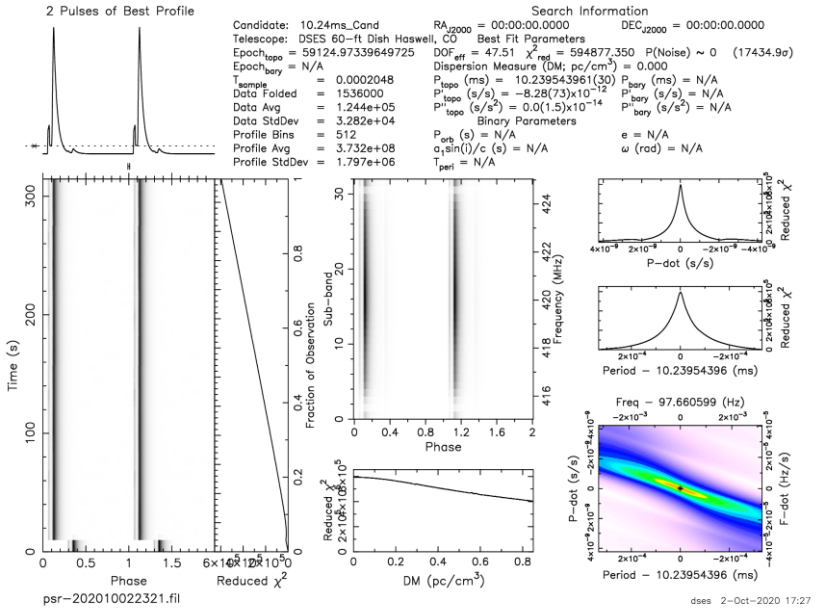
10 ms 0.4%
psr-202010022313.fil

10 ms Period (fbsize 128)

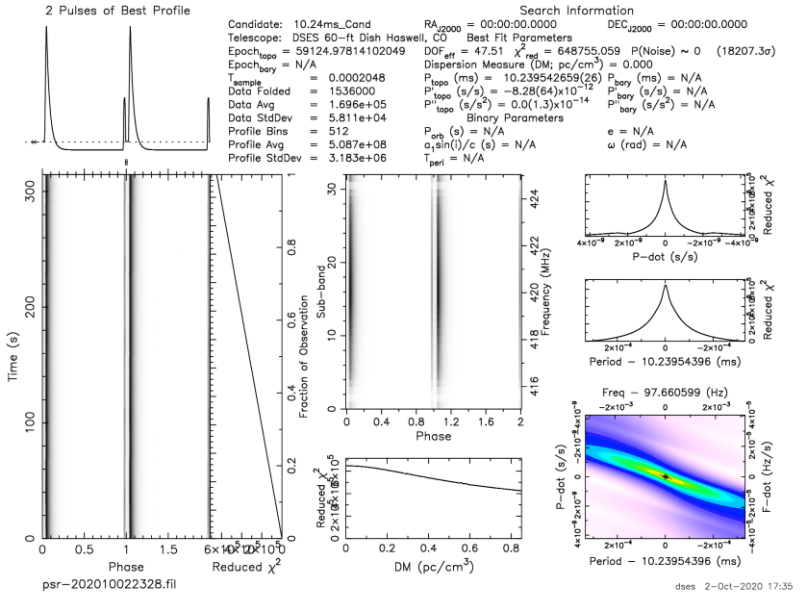
prepfold –nsub 16 –n 512 –topo –nodmsearch –dm 0 –p 0.0102395360748 –fine psr- _____ .fil



10 ms 0.8%
psr-202010022249.fil



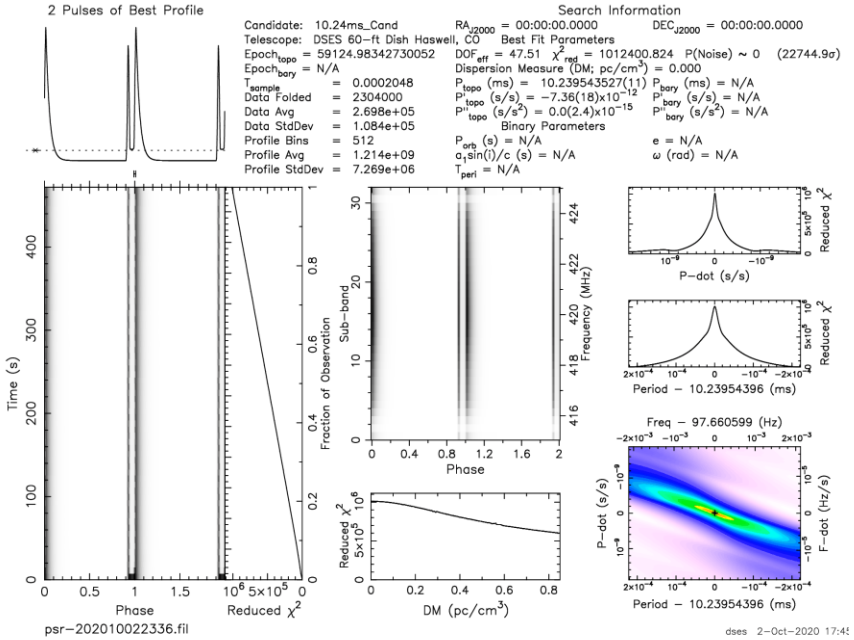
10 ms 1.6%
psr-202010022321.fil



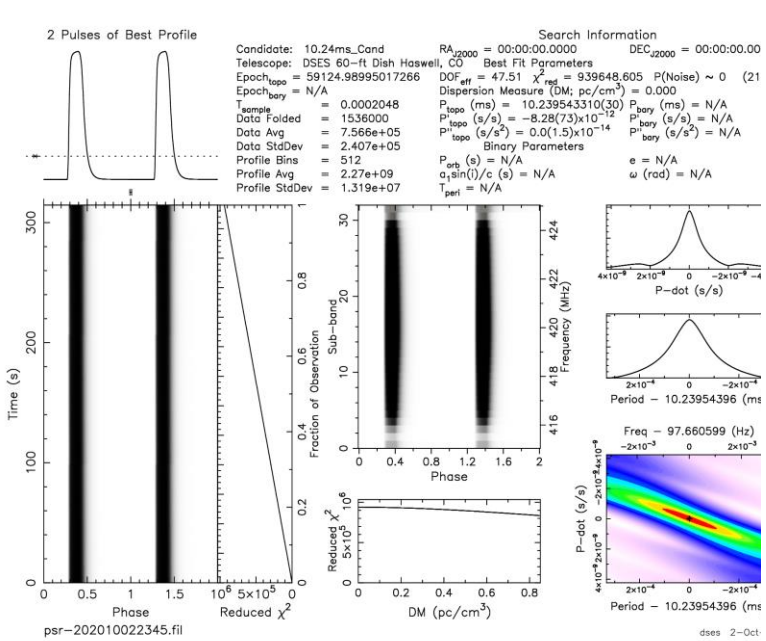
10 ms 3.2%
psr-202010022328.fil

10 ms Period (fbsize 128)

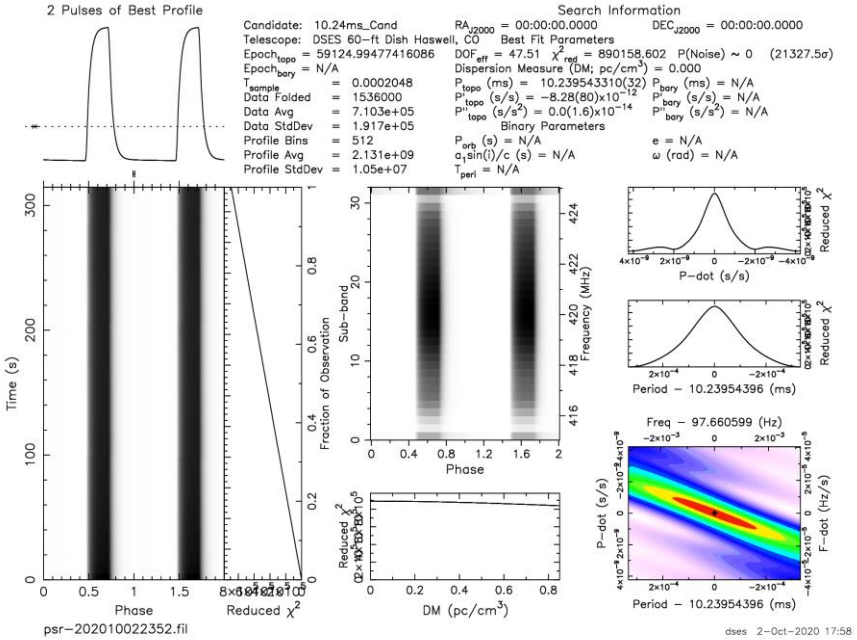
prepfold –nsub 16 –n 512 –topo –nodmsearch –dm 0 –p 0.0102395360748 –fine psr- _____ .fil



10 ms 6.4%
psr-202010022336.fil



10 ms 12.8%
psr-202010022345.fil



10 ms 25.6%
psr-202010022352.fil

100 ms Period (fbsize 1024)

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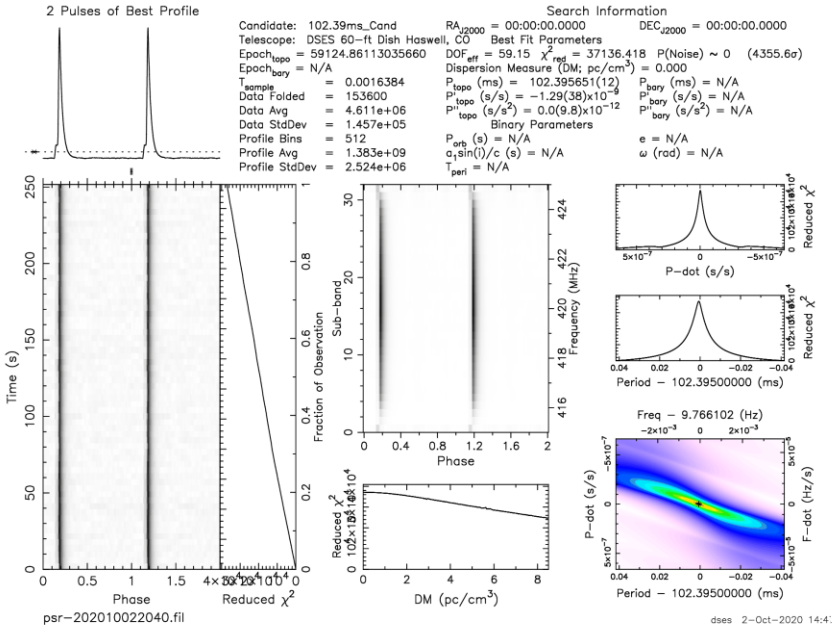

100 ms 0.1%
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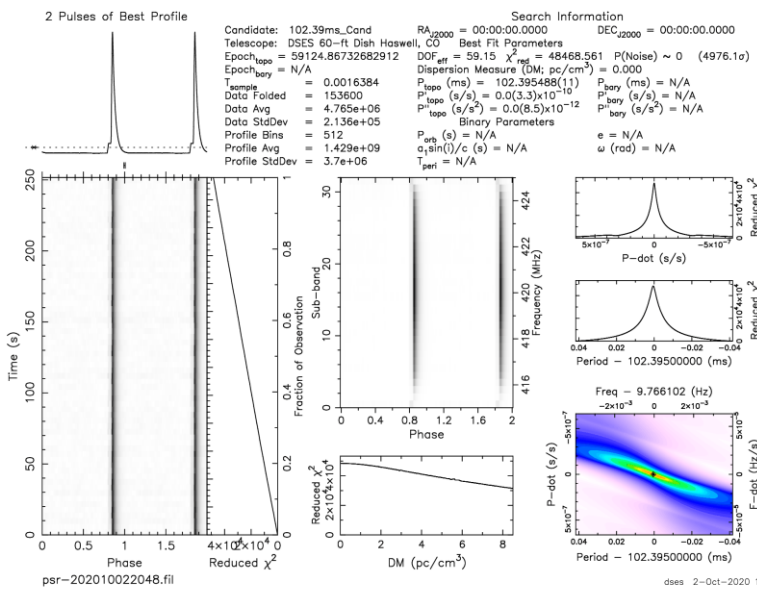

100 ms 0.2%
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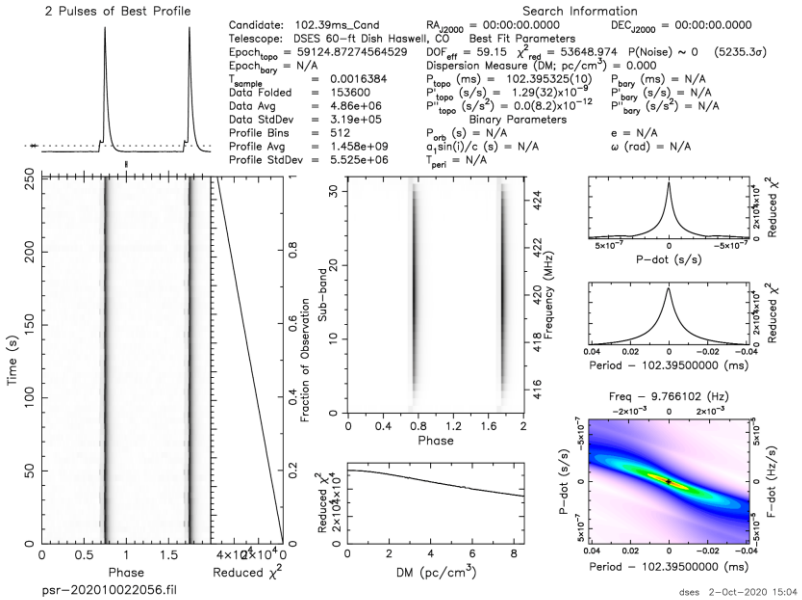
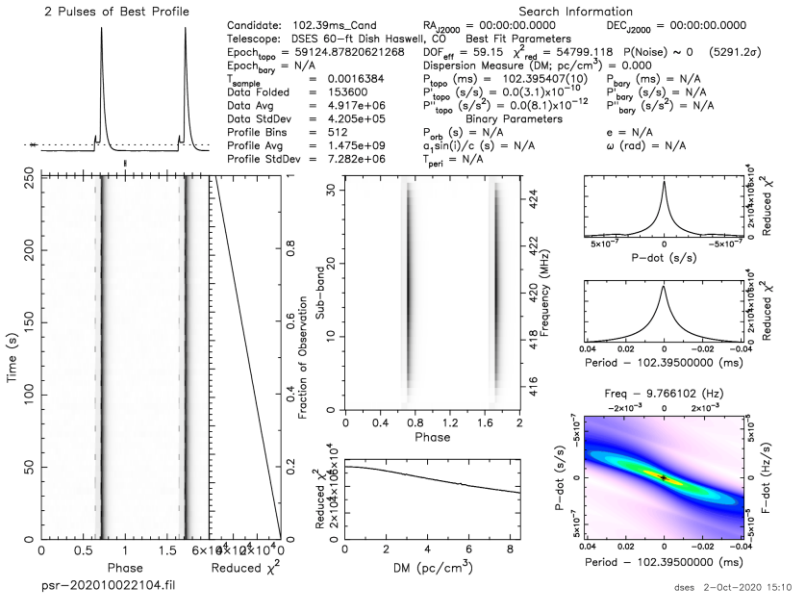


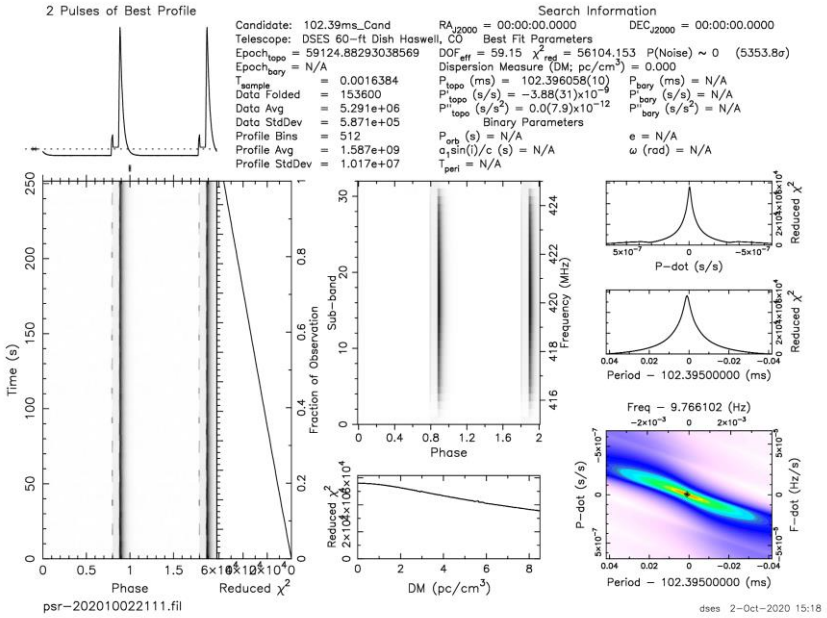
100 ms 0.4%
psr-202010022056.fil

100 ms Period (fbsize 1024)

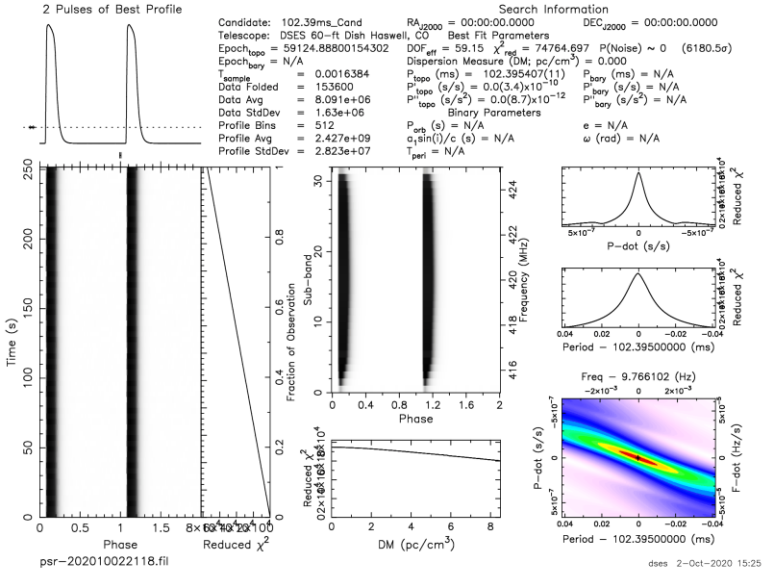
prepfold –nsub 16 –n 512 –topo –nodmsearch –dm 0 –p 0.102395360748 –fine psr- _____ .fil



100 ms 0.8%
psr-202010022104.fil



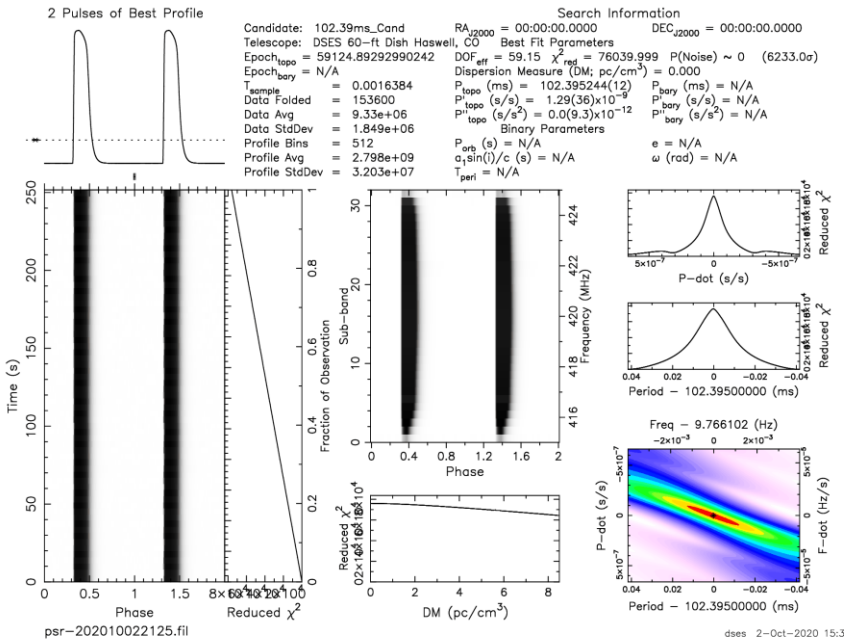
100 ms 1.6%
psr-202010022111.fil



100 ms 3.2%
psr-202010022118.fil

100 ms Period (fbsize 1024)

prepfold –nsub 16 –n 512 –topo –nodmsearch –dm 0 –p 0.102395360748 –fine psr- _____ .fil



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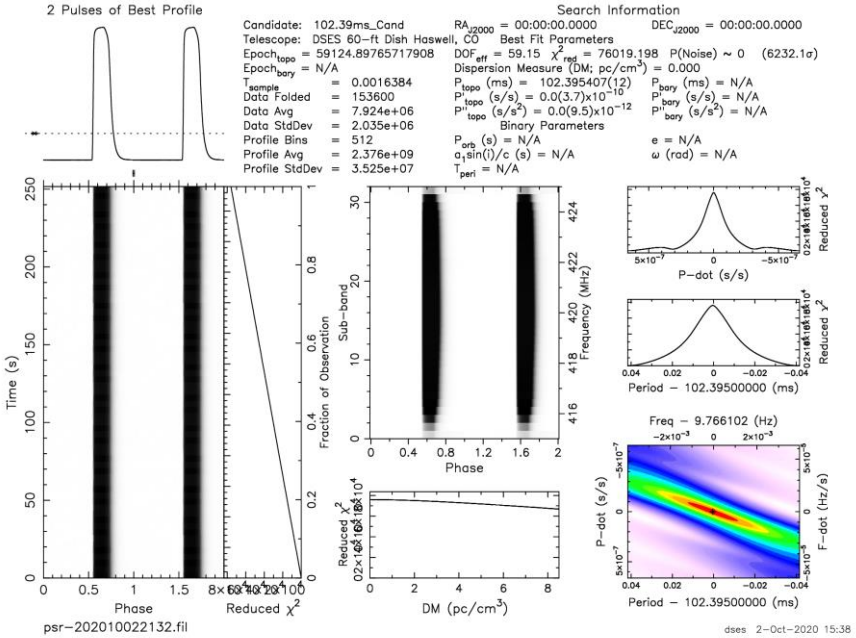

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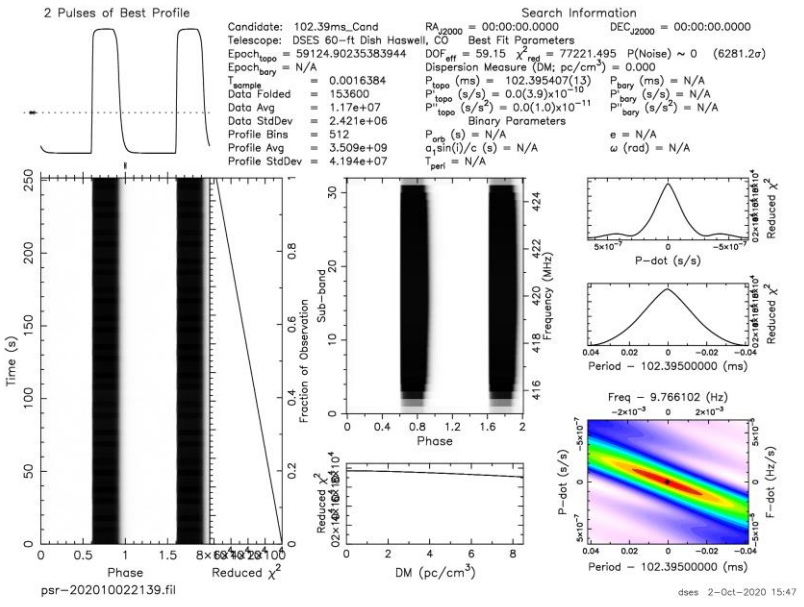
psr-202010022132.fil



100 ms 25.6%
psr-202010022139.fil

1 Second Period (fbsize 1024)

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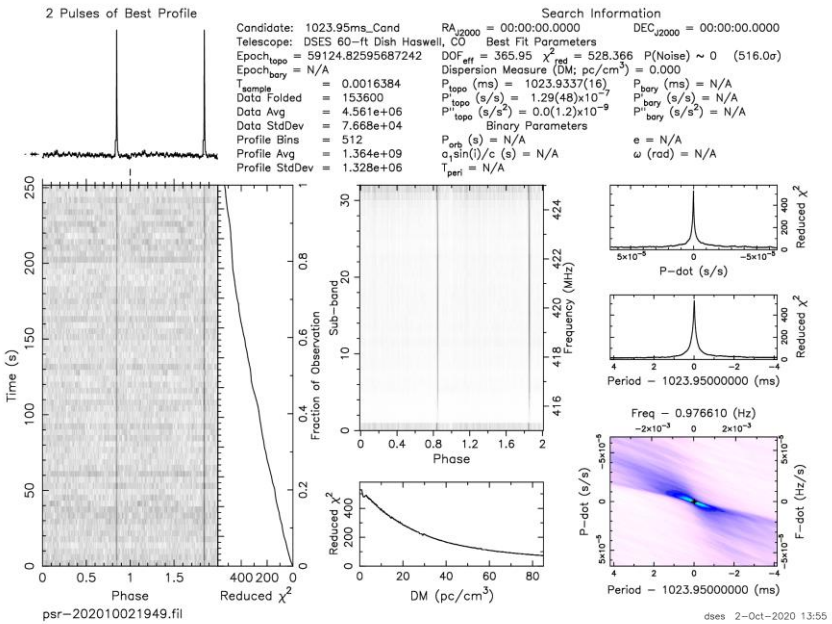
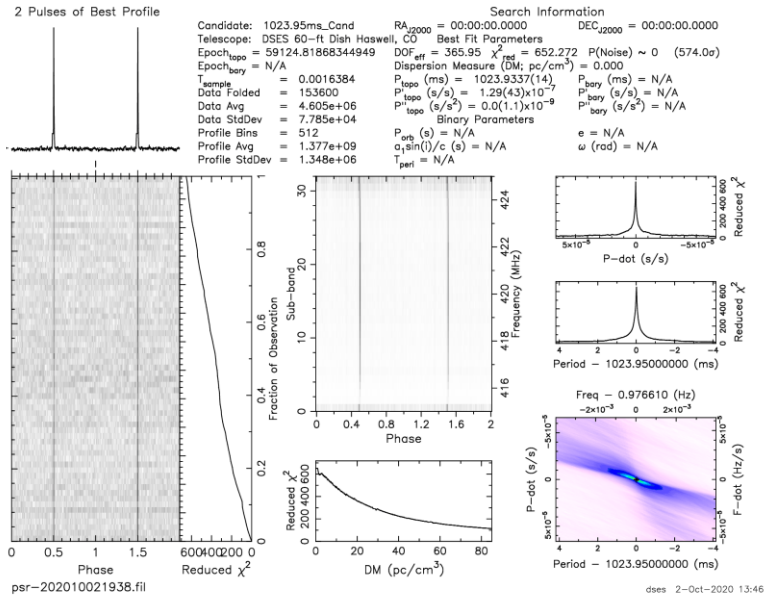


1 Sec 0.1%
psr-202010021949.fil



1 Sec 0.2%
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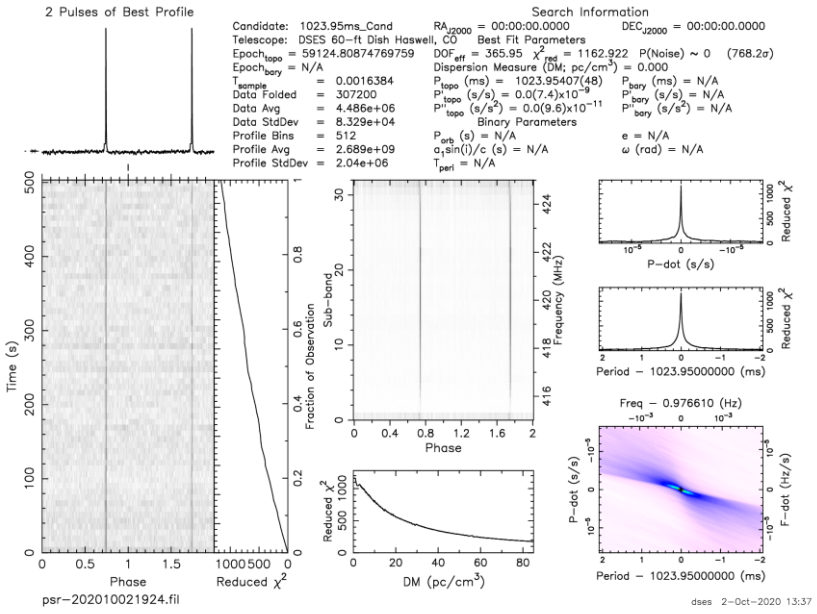

1 Sec 0.4%
psr-202010021924.fil

1 Second Period (fbsize 1024)

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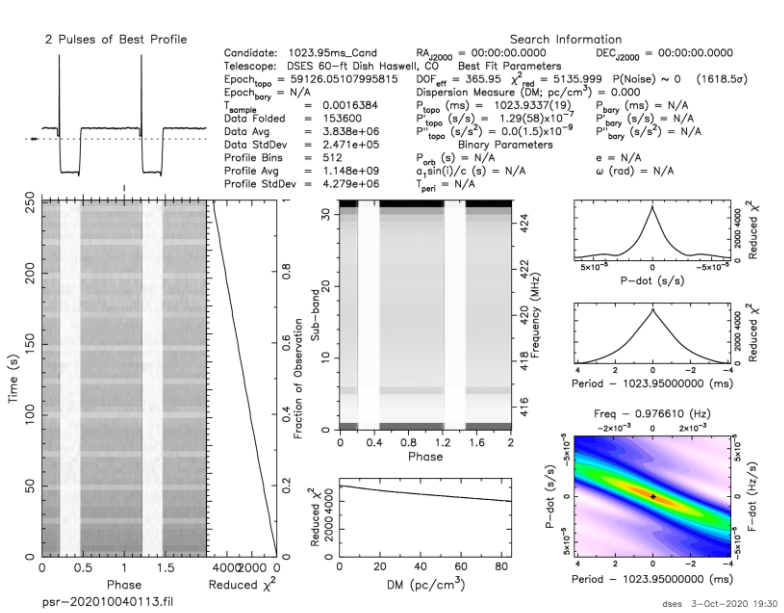
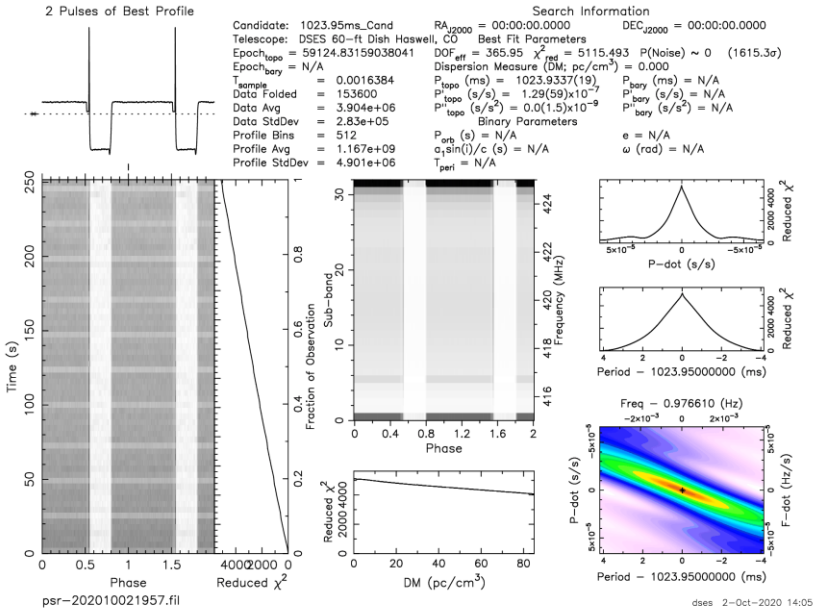
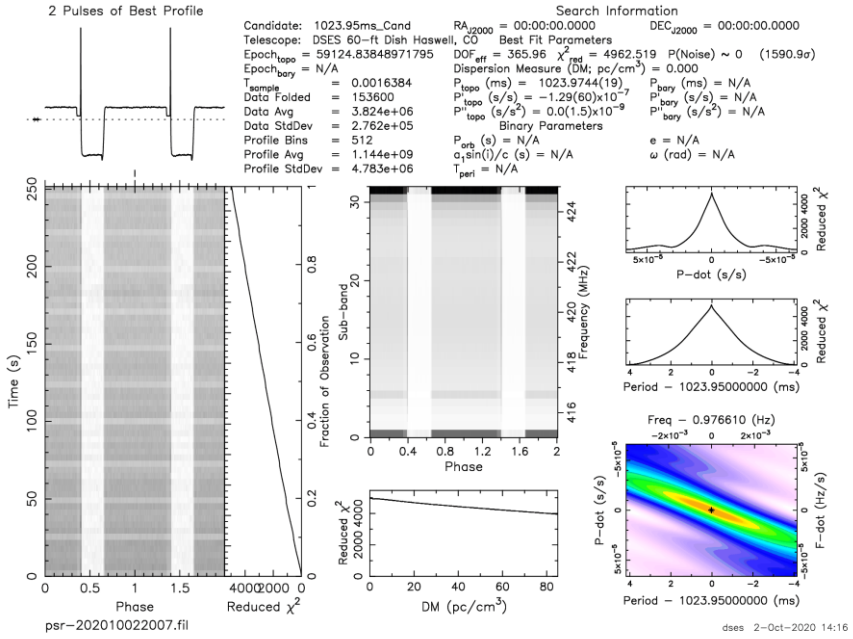


1 Sec 0.8%
psr-20201040113.fil



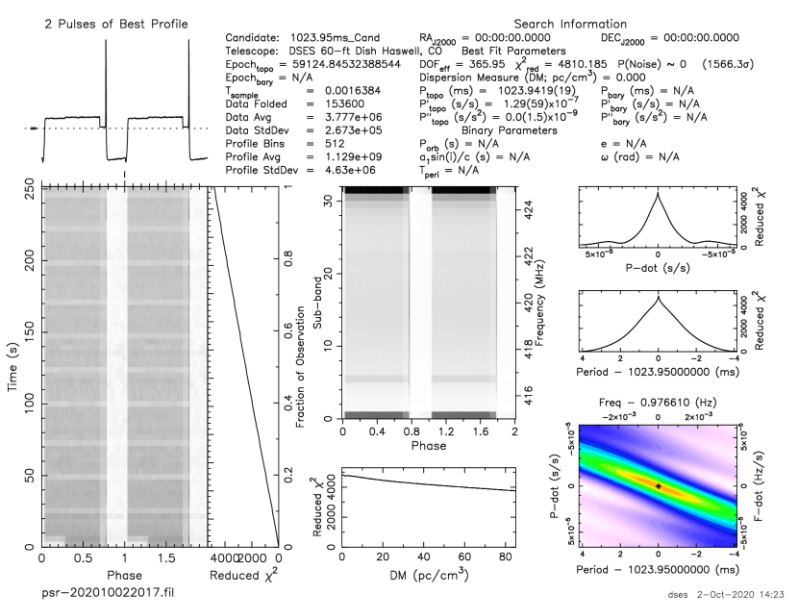
1 Sec 1.6%
psr-202010021957.fil



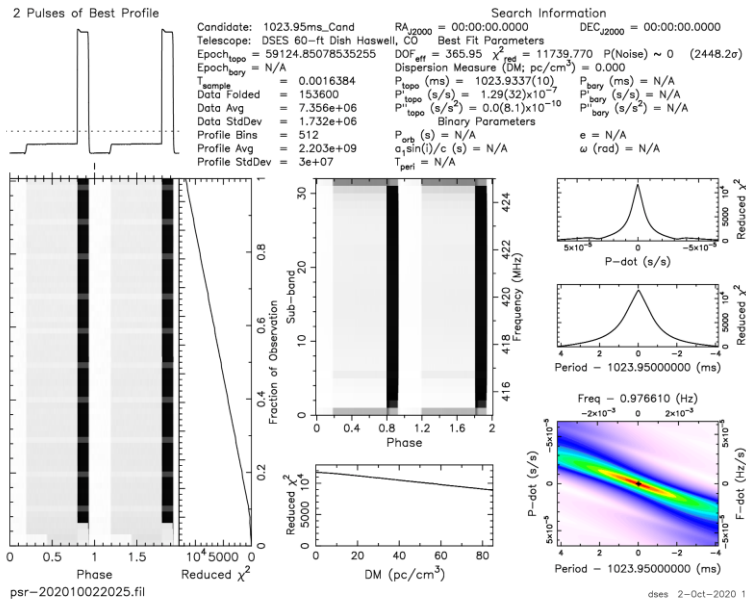
1 Sec 3.2%
psr-202010022007.fil

1 Second Period (fbsize 1024)

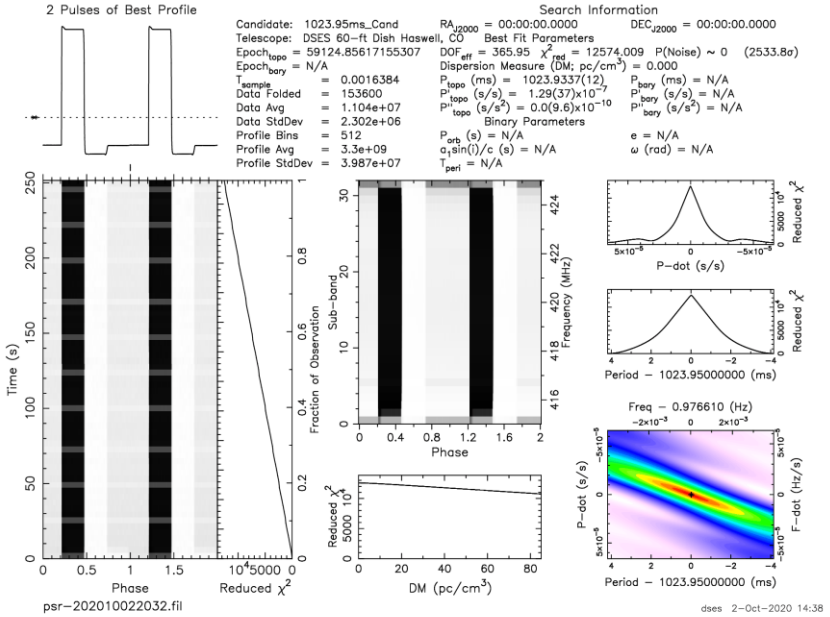
prepfold –nsub 16 –n 512 –topo –nodmsearch –dm 0 –p 1.02395360748 –fine psr- _____ .fil



1 Sec 6.4%
psr-202010022017.fil



1 Sec 12.8%
psr-202010022025.fil



1 Sec 25.6%
psr-202010022032.fil

10 Second Period (fbsize 16)

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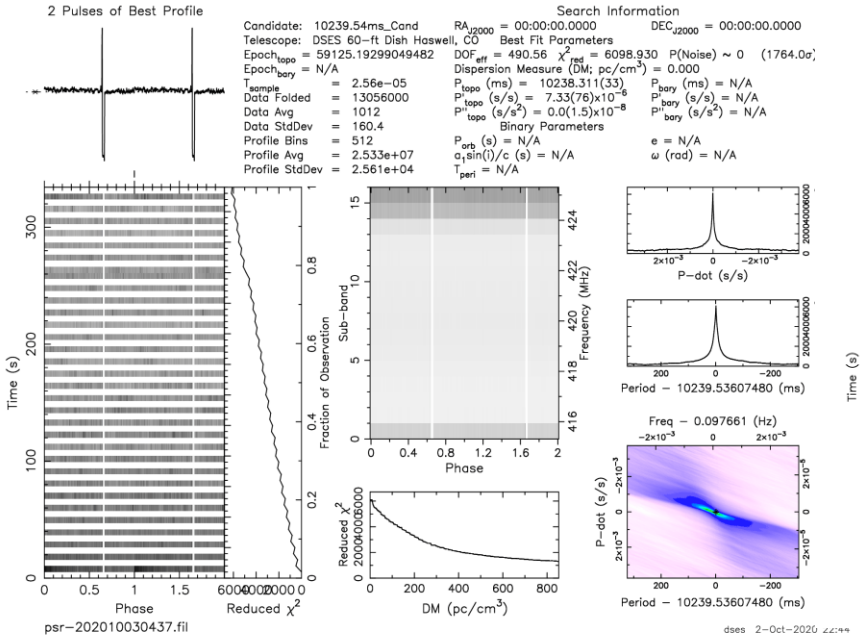

10 Sec 0.1%
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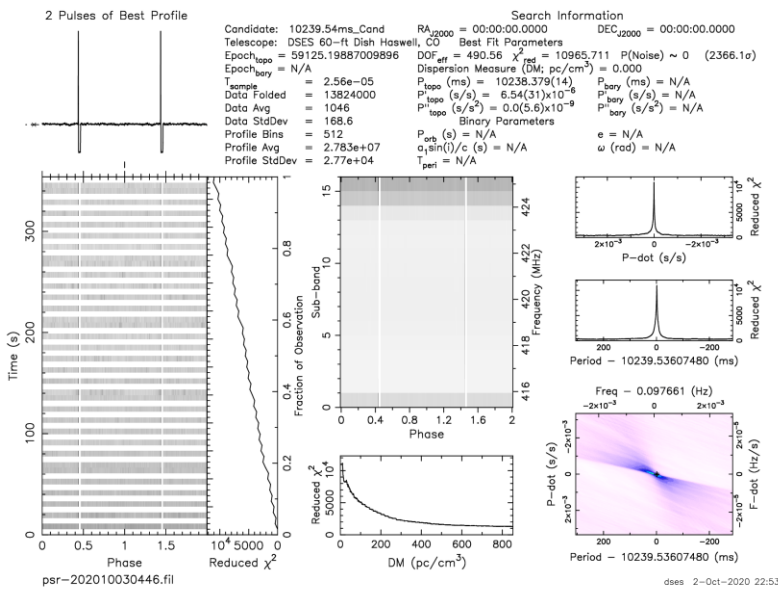

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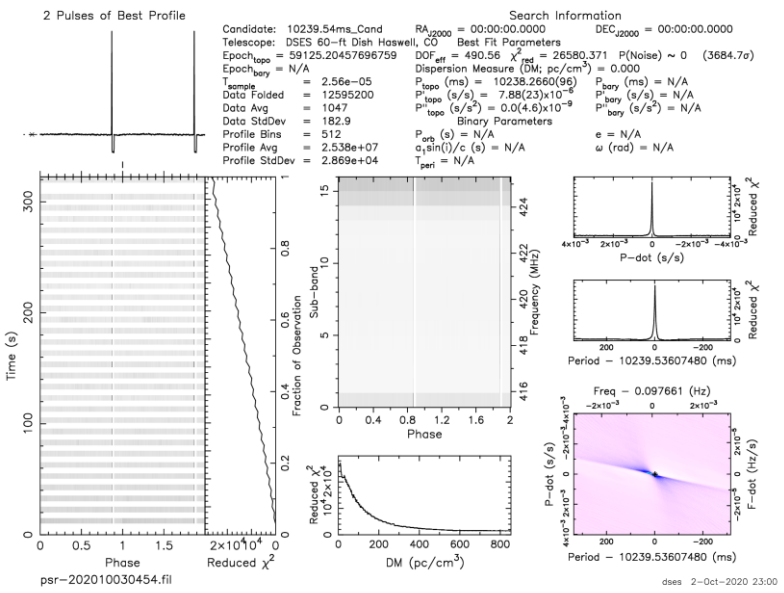

10 Sec 0.4%
psr-202010030454.fil

10 Second Period (fbsize 16)

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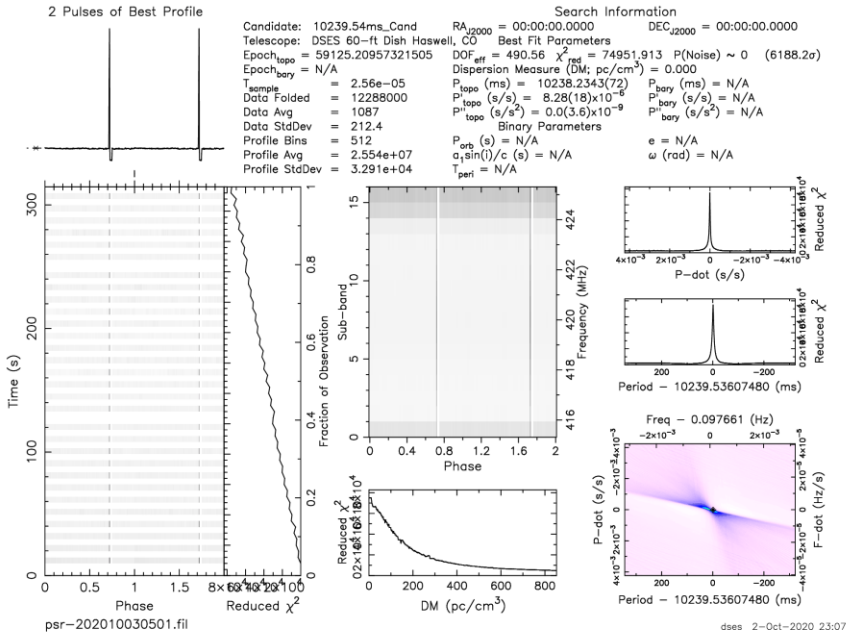
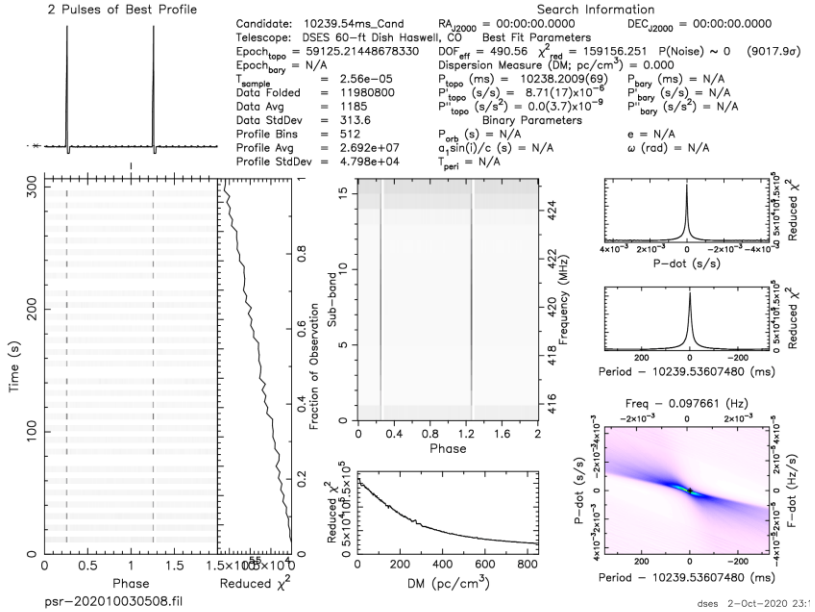
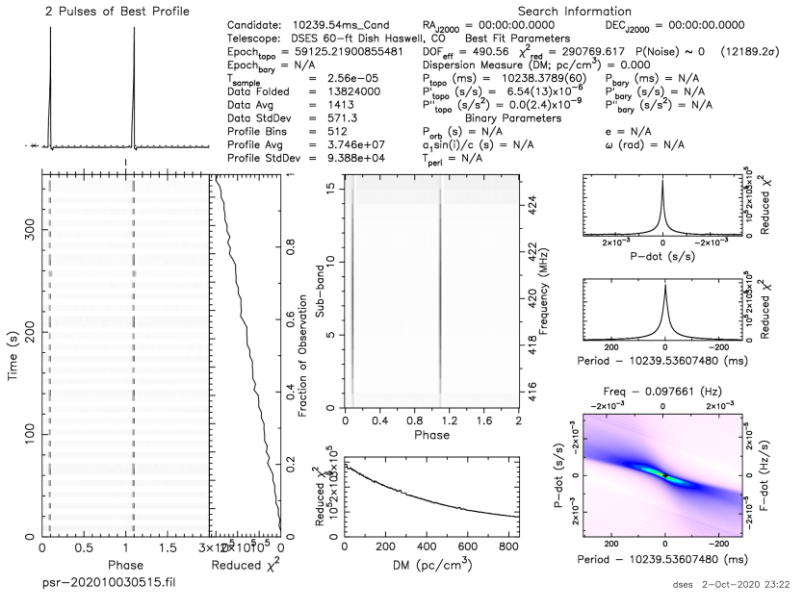


10 Sec 0.8%
psr-202010030501.fil



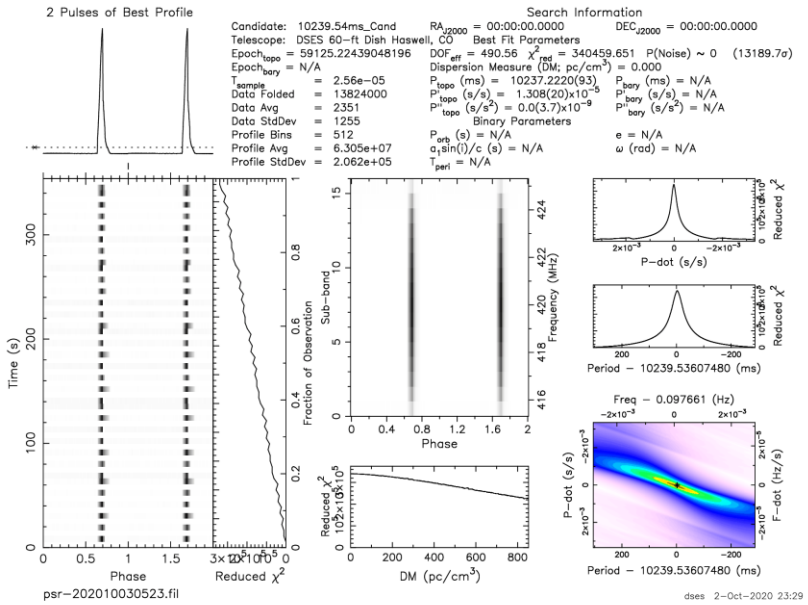
10 Sec 1.6%
psr-202010030508.fil



10 Sec 3.2%
psr-202010030515.fil

10 Second Period (fbsize 16)

prepfold –nsub 16 –n 512 –topo –nodmsearch –dm 0 –p 10.2395360748 –fine psr- _____ .fil



10 Sec 6.4%
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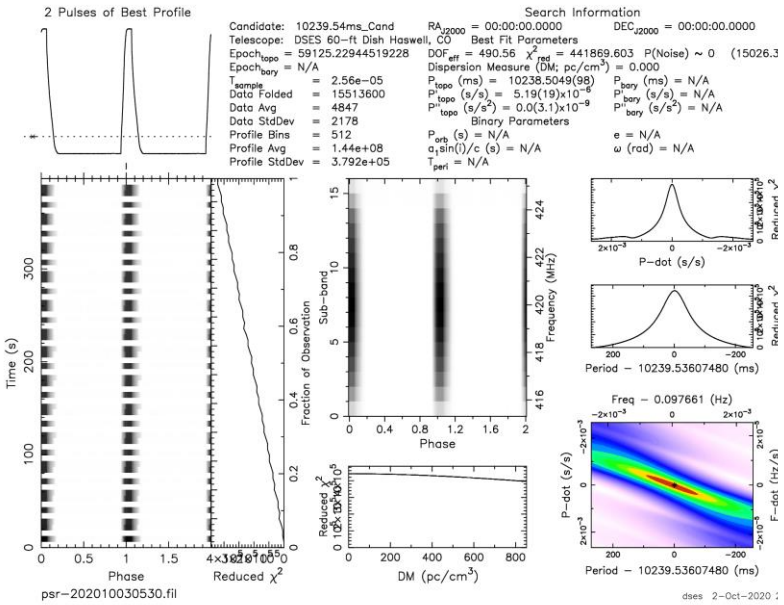

10 Sec 12.8%
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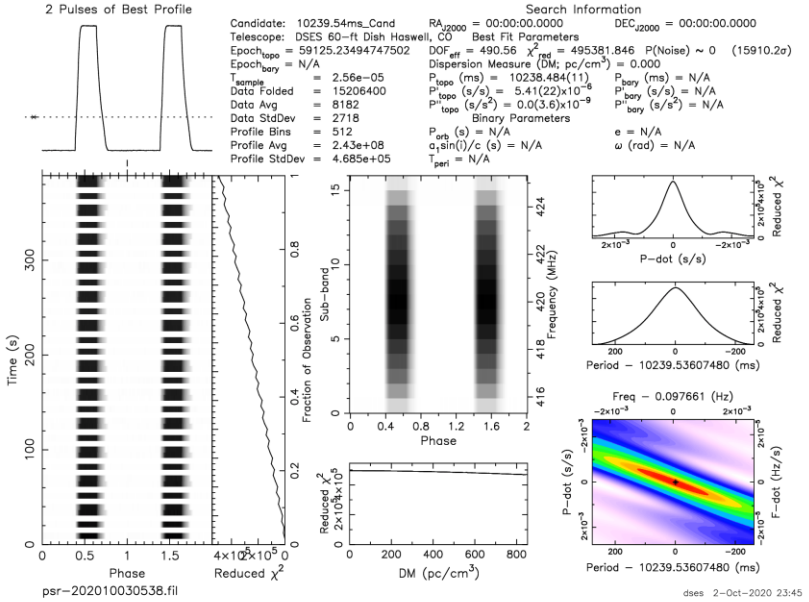

10 Sec 25.6%
psr-202010030538.fil