

Delay between profile and first or second DM analysis

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At ADMT 30 Nov 2017

## Questions:

1) How often do we presently revisit DMQC ?

2) What would be the implications of having the target changed to

First DMQC at  $t = 12$  months

Second DMQC at  $t = 36$  months instead of 24 months

Audit performed on archived index files up to September 2017.

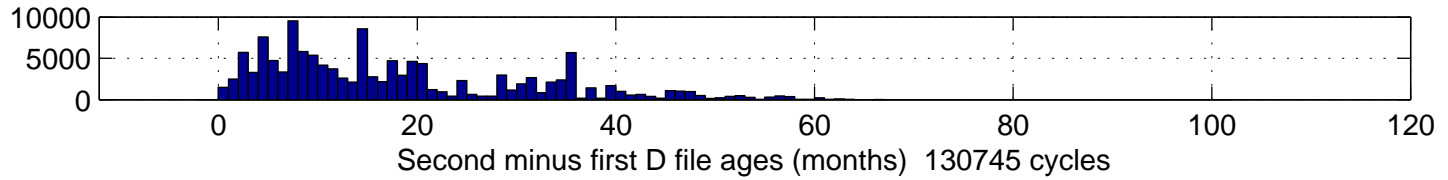
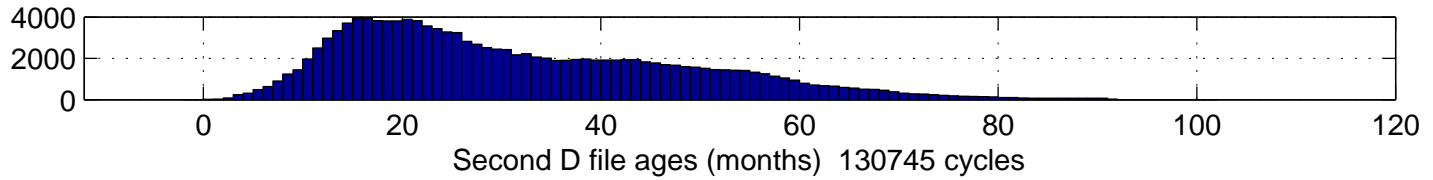
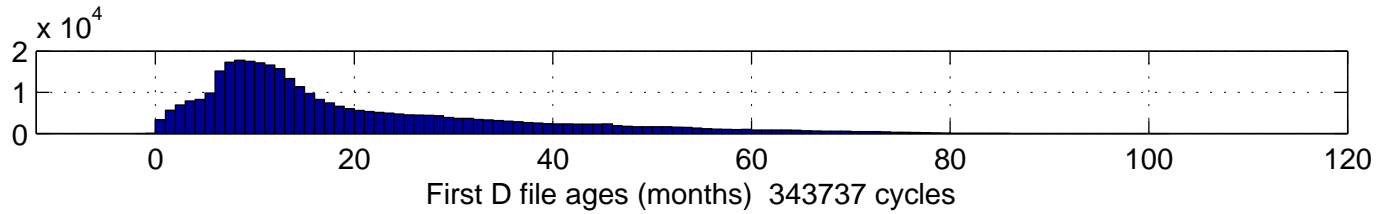
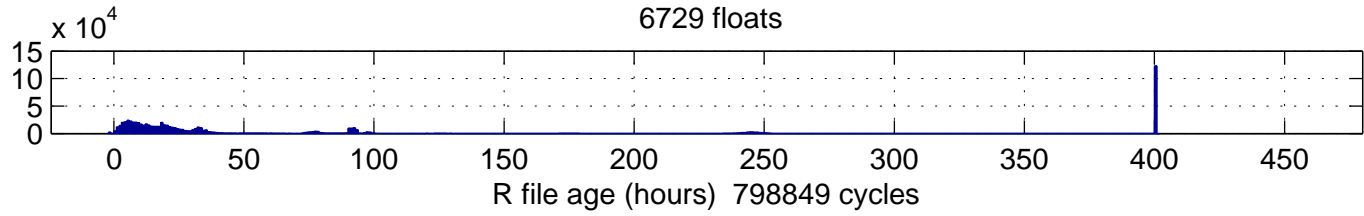
What are we presently achieving ?

First and Second DMQC inferred from dates on which data mode is D and the file had a changed “update date” in the index files.

Have examined first appearance of D, and the elapsed time to the second appearance of D.

Floats deployed from 2010 01 01 to 2018 01 01

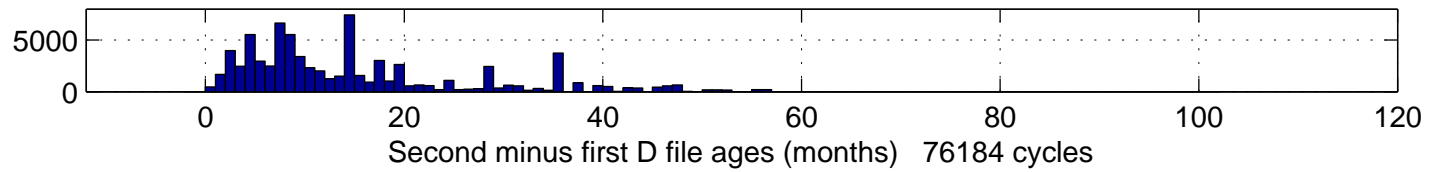
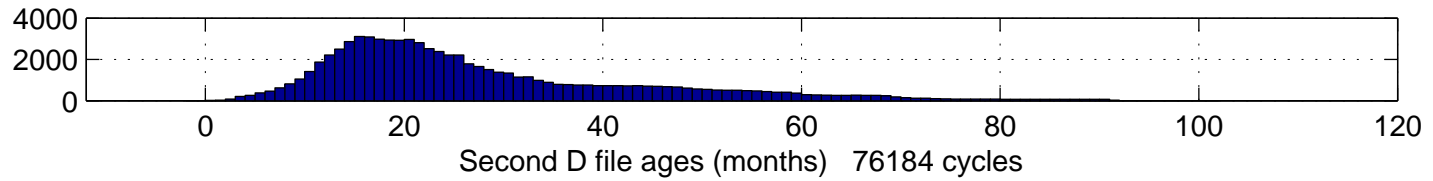
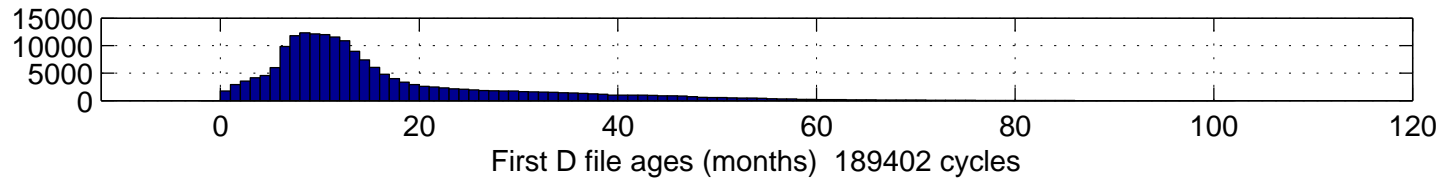
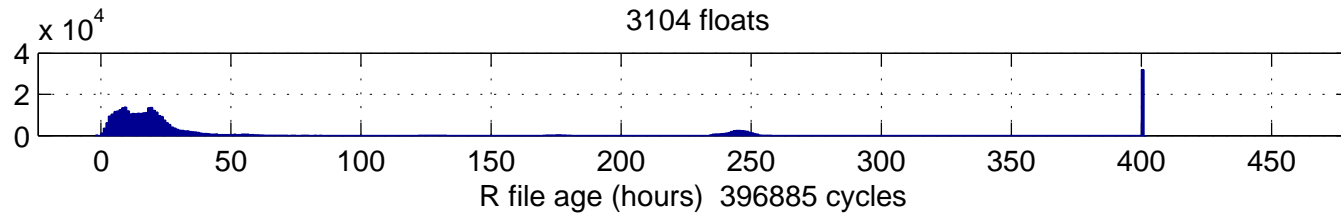
dac = all  
6729 floats



Floats deployed from 2010 01 01 to 2018 01 01

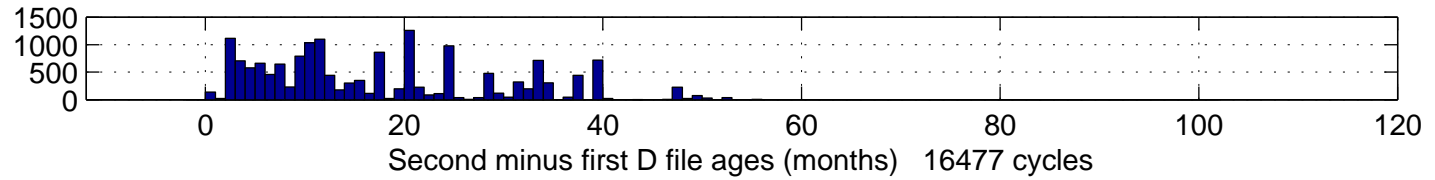
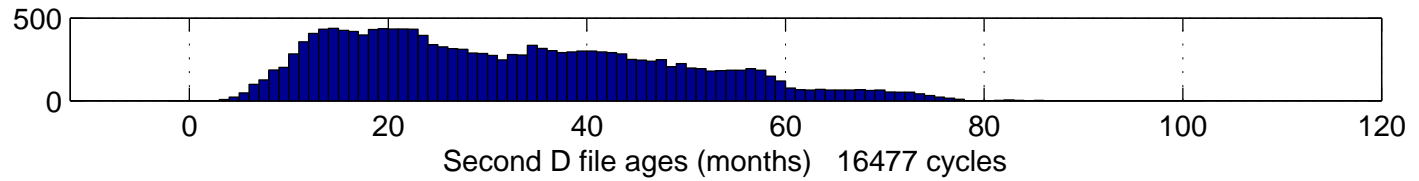
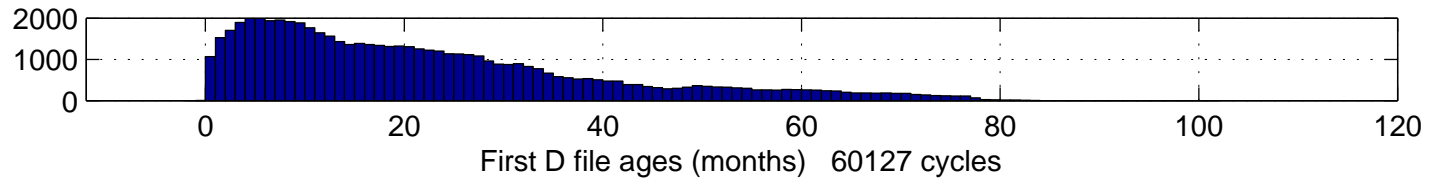
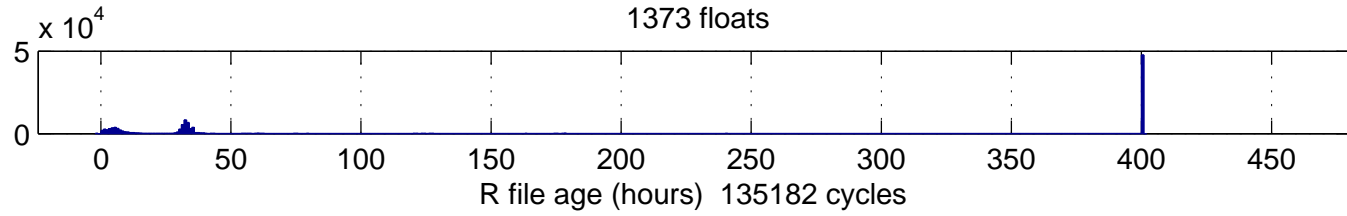
dac = AO

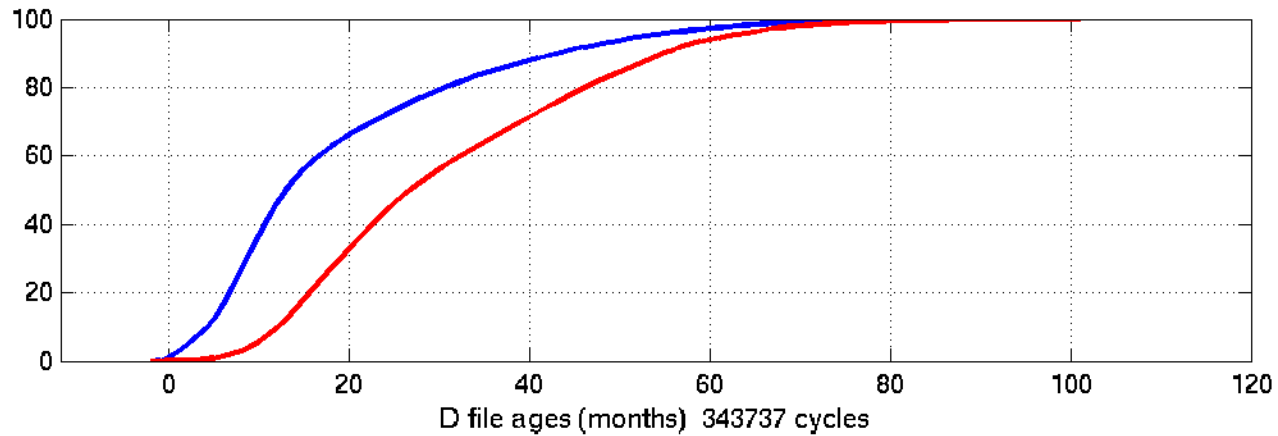
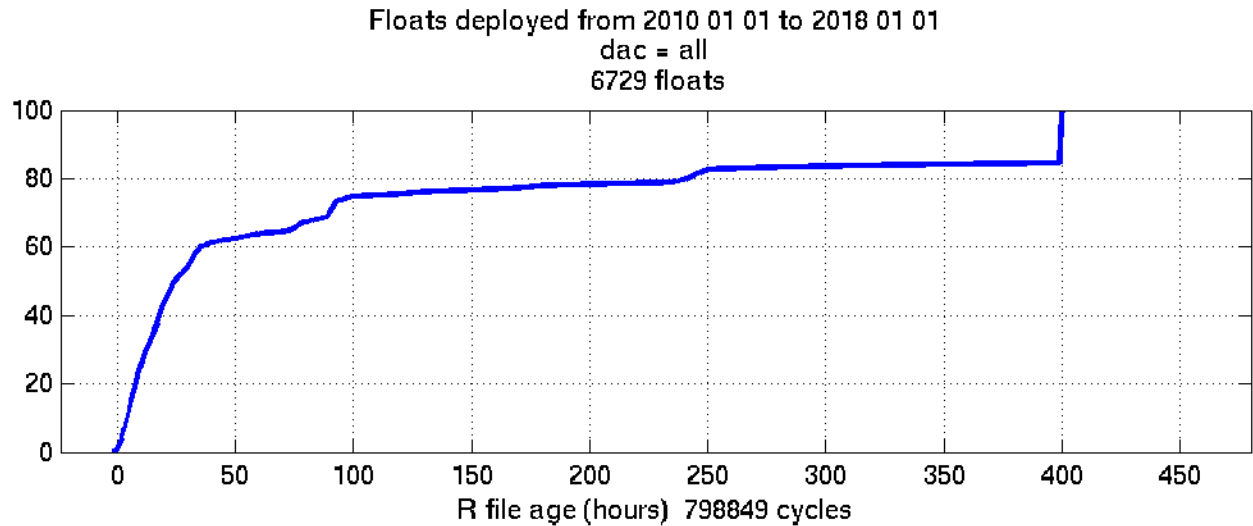
3104 floats



Floats deployed from 2010 01 01 to 2018 01 01

dac = IF  
1373 floats





Elapsed time from cycle time until first (b) or second (r) D file

Floats deployed 2000 – 2017

DAC = all



Questions:

What decisions are being made at 10,36,72,108 cycles after deployment ?

Examine PSAL adjustment as recorded in index file

Histograms show stats for all D cycles, dominated by zero adjustments, and then for adjustments larger than a threshold of 0.005 or 0.01

Note: histograms show the zero adjustments in the column to the right of zero.

## Audit on Sep 2017 archived index file

### Floats deployed 2000 to 2017

7501 floats out of 12964 floats have a D file at cycle 10

6683 floats out of 12964 floats have a D file at cycle 36

5348 floats out of 12964 floats have a D file at cycle 72

4012 floats out of 12964 floats have a D file at cycle 108

### Floats deployed 2010 to 2017

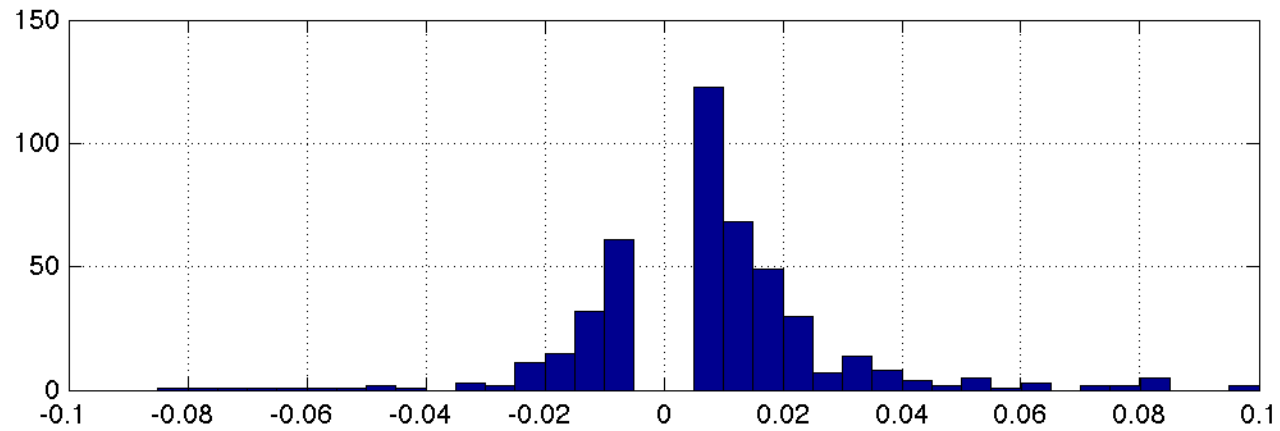
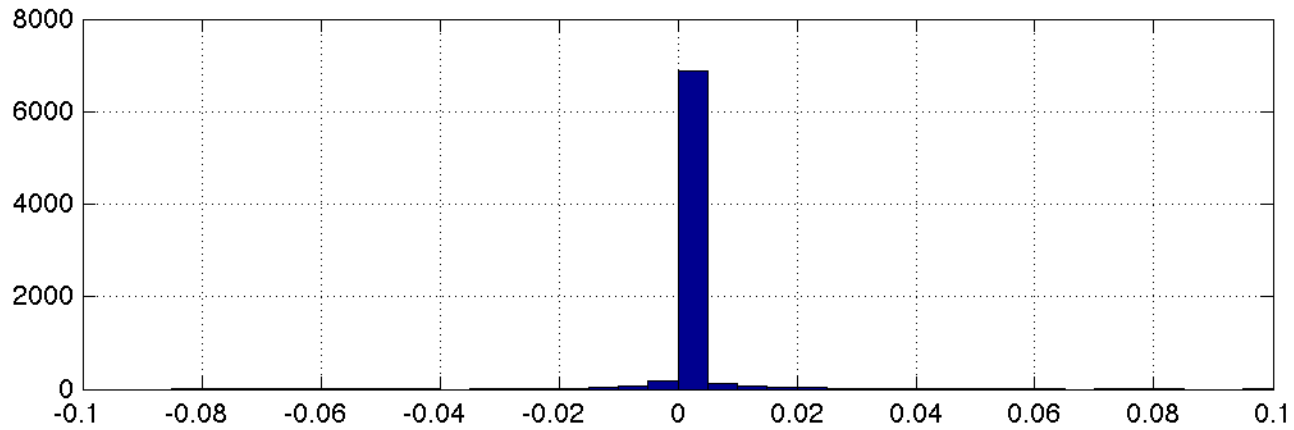
3075 floats out of 6719 floats have a D file at cycle 10

2710 floats out of 6719 floats have a D file at cycle 36

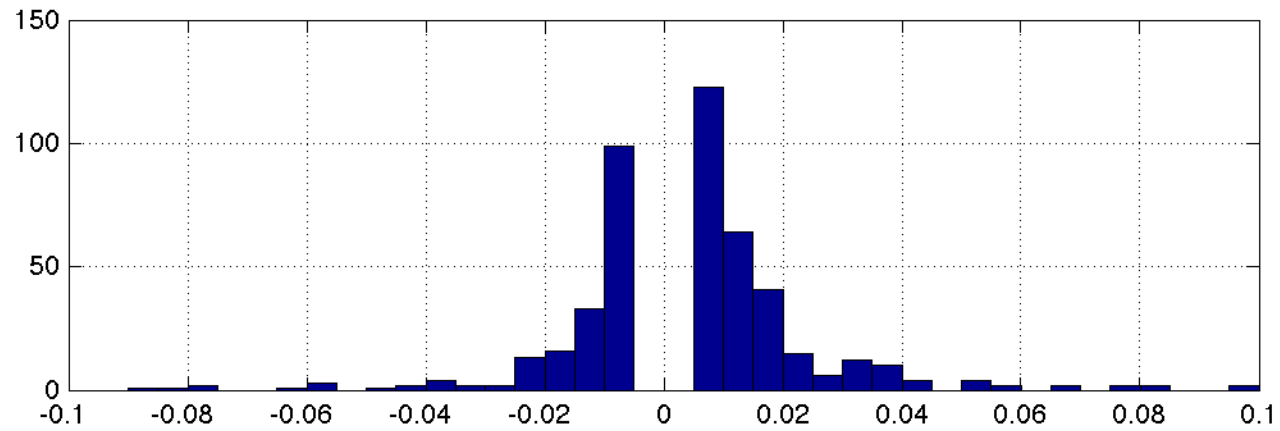
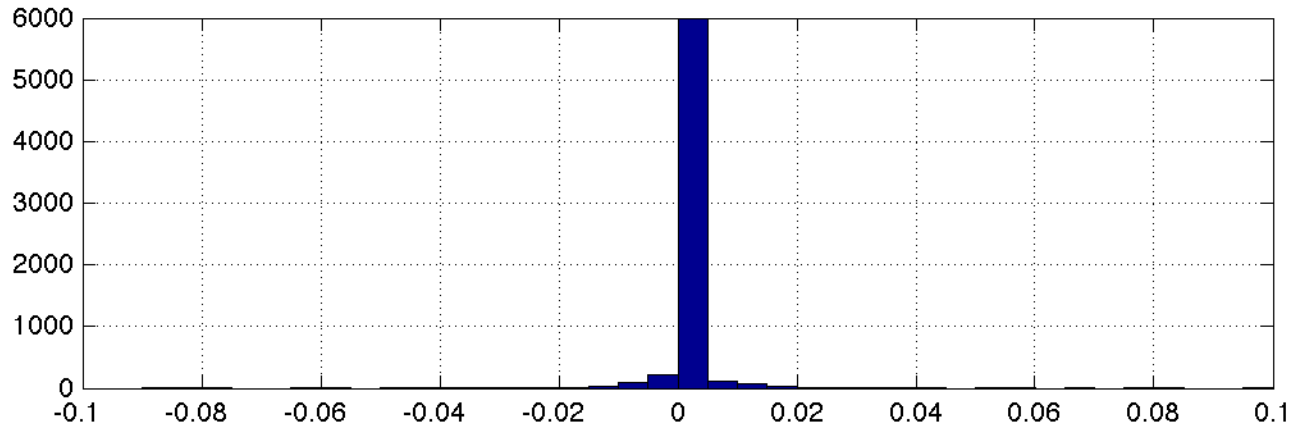
1961 floats out of 6719 floats have a D file at cycle 72

1285 floats out of 6719 floats have a D file at cycle 108

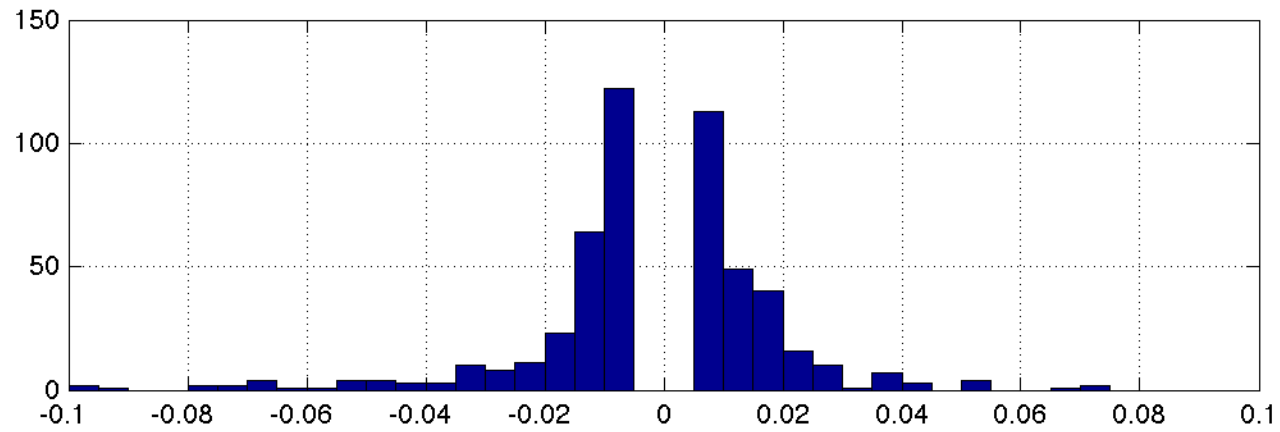
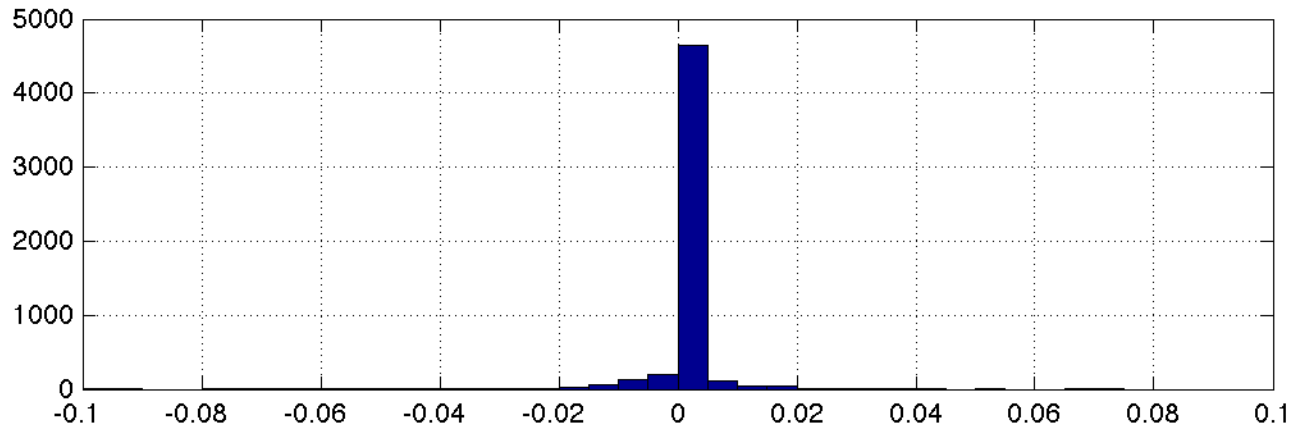
DAC: all  
Distribution of adjustments at cycle 010, and of adjustments > 0.005  
N = 7501 / 460



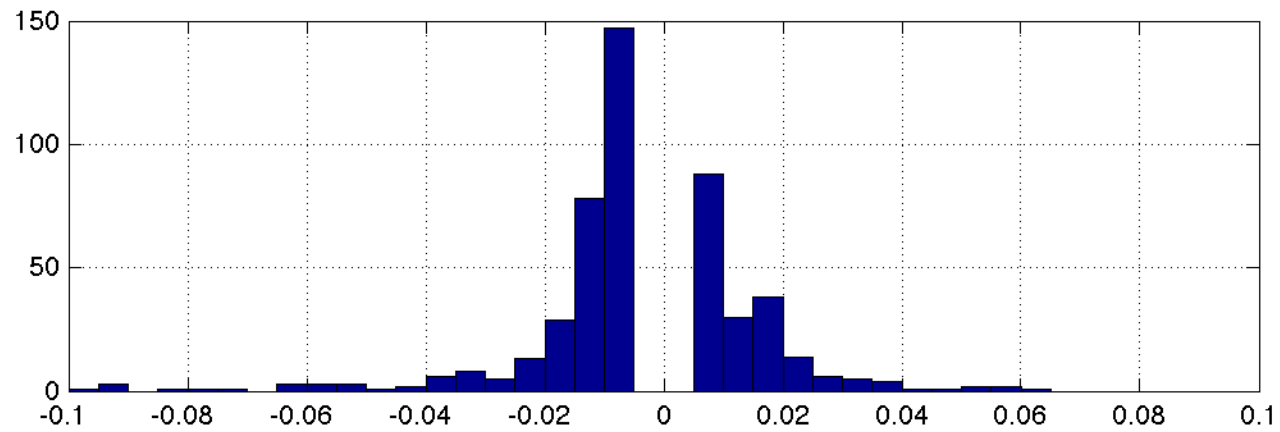
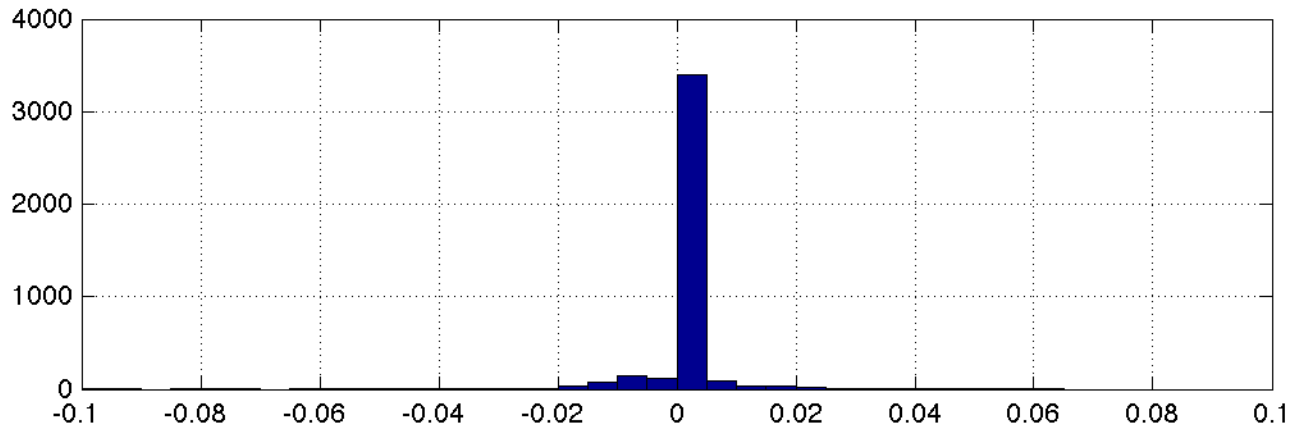
DAC: all  
Distribution of adjustments at cycle 036, and of adjustments > 0.005  
N = 6683 / 469



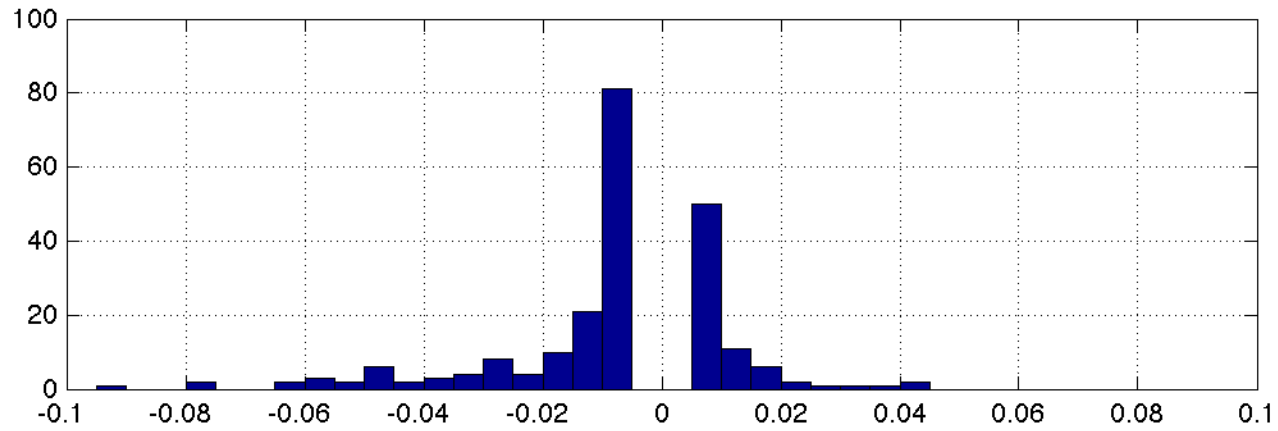
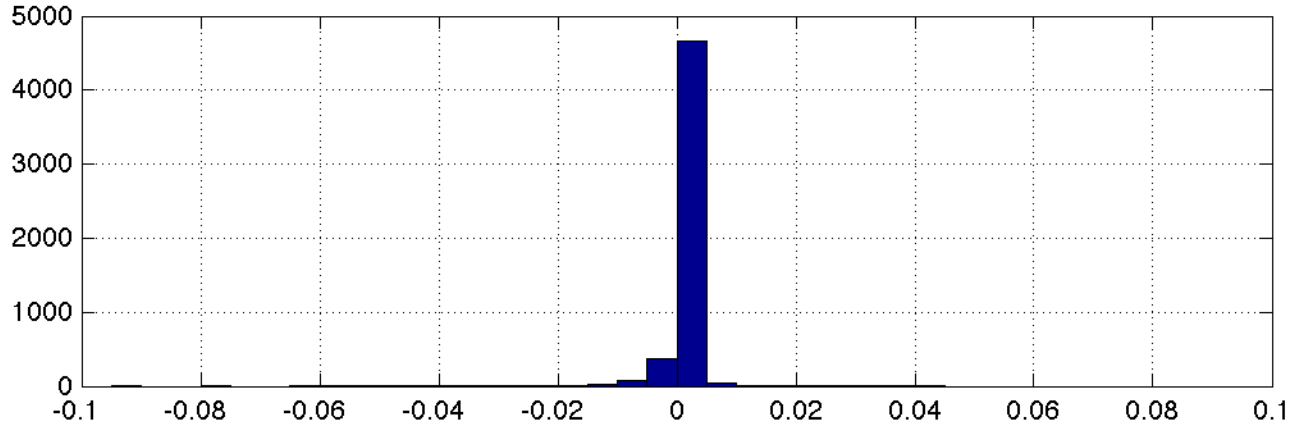
DAC: all  
Distribution of adjustments at cycle 072, and of adjustments > 0.005  
N = 5348 / 511



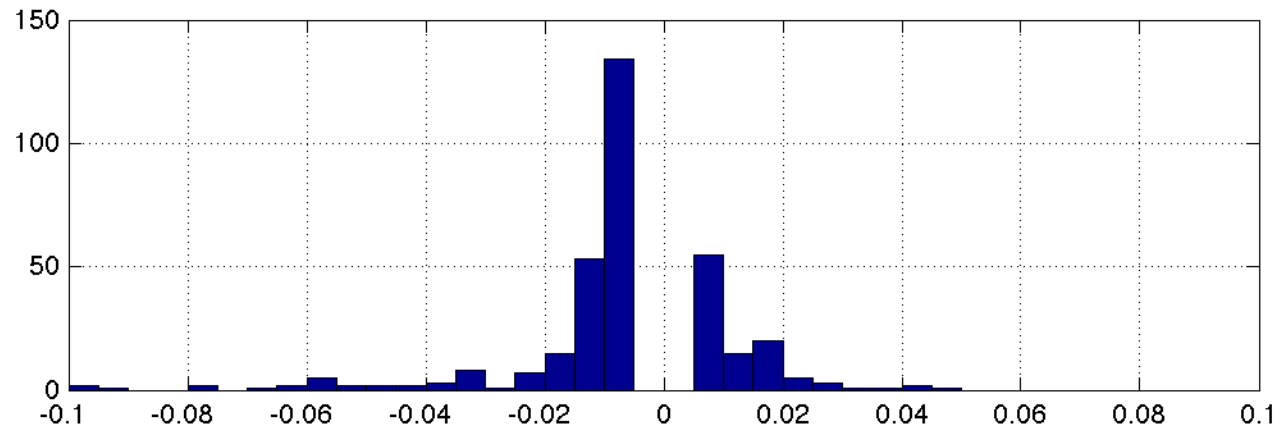
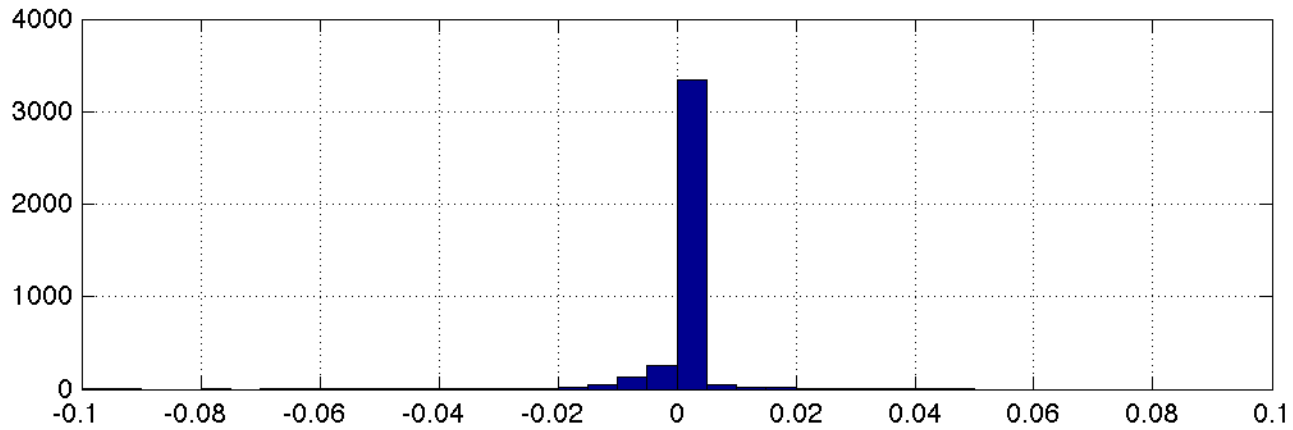
DAC: all  
Distribution of adjustments at cycle 108, and of adjustments > 0.005  
N = 4012 / 497



DAC: all  
Distribution of changed adjustment from 036 to 072, and of changes > 0.005  
N = 5249 / 223

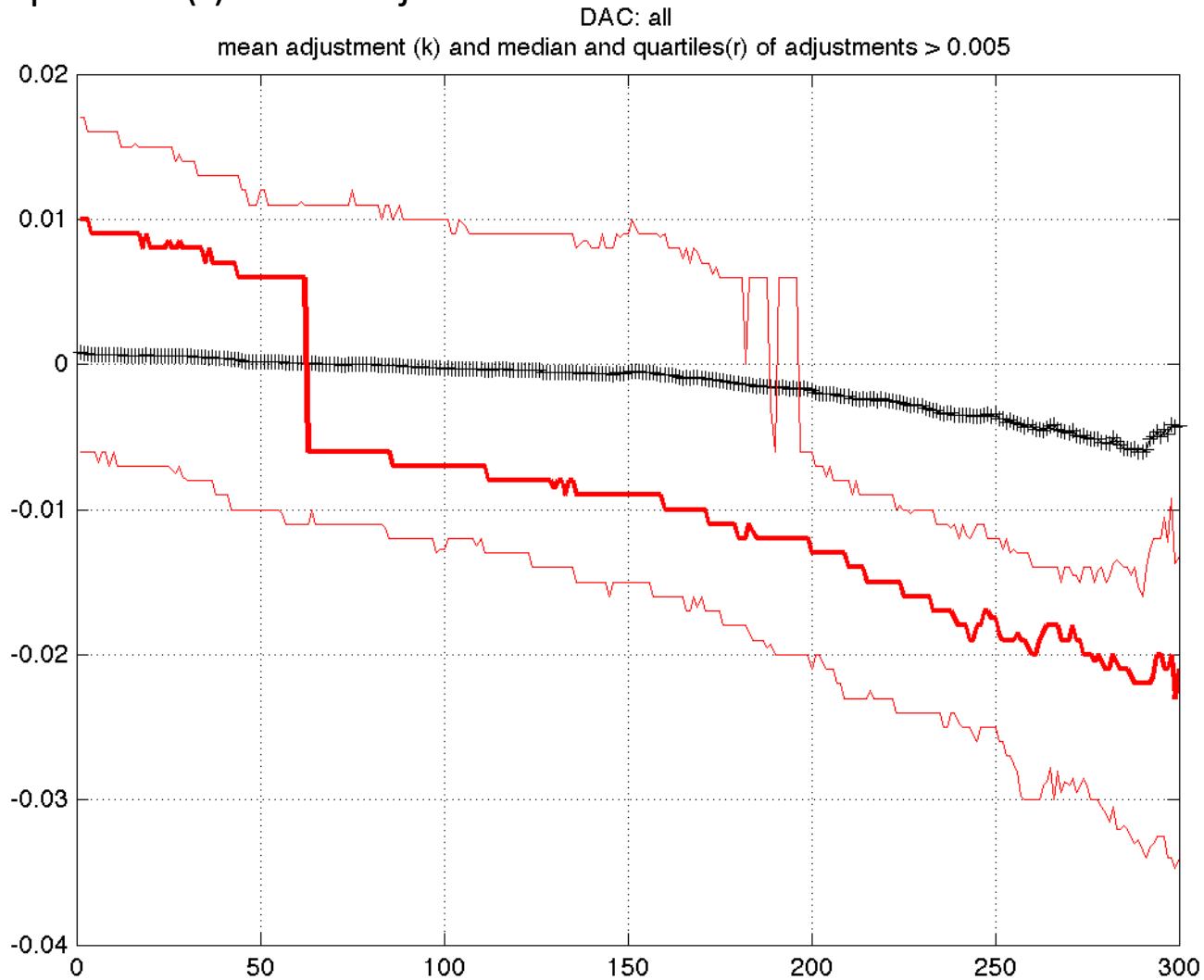


DAC: all  
Distribution of changed adjustment from 036 to 108, and of changes > 0.005  
N = 3937 / 343





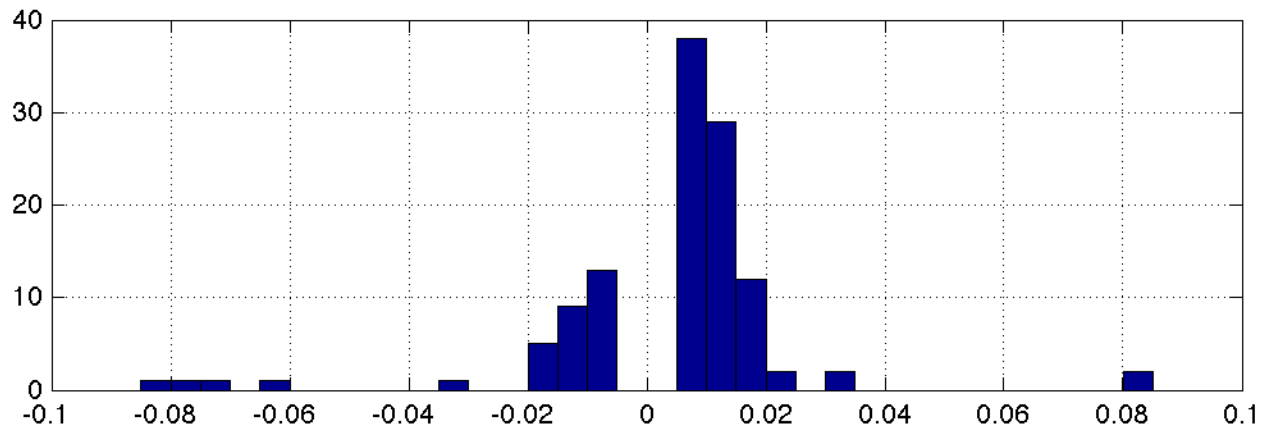
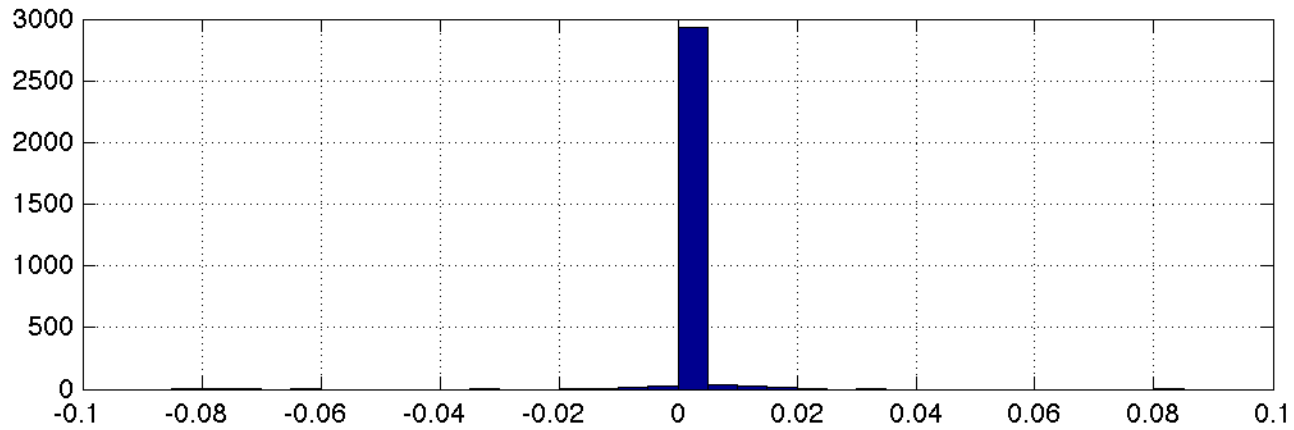
Mean PSAL adjustment (k), strongly biased towards zero by the dominant adjustments = 0  
Median and quartiles (r) of the adjustments > 0.005



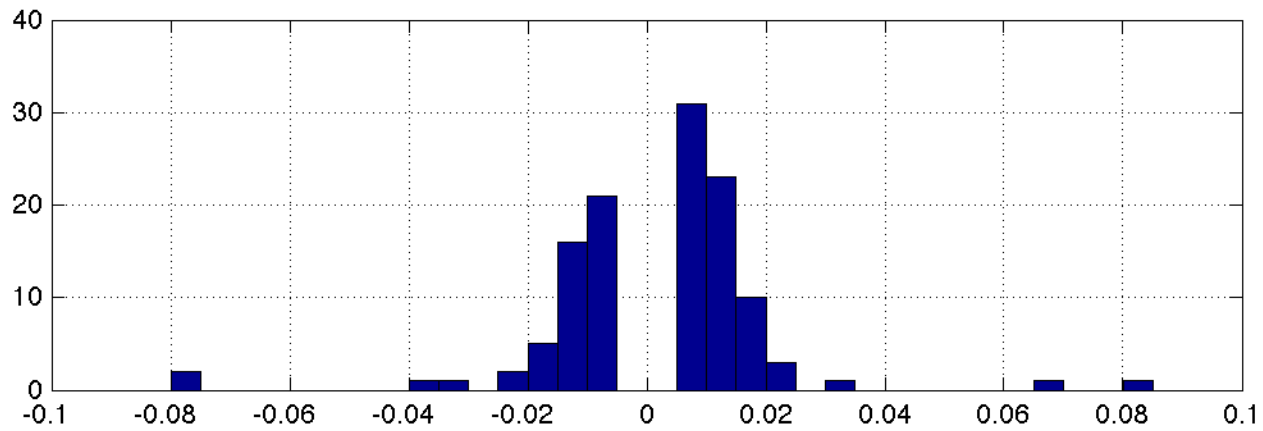
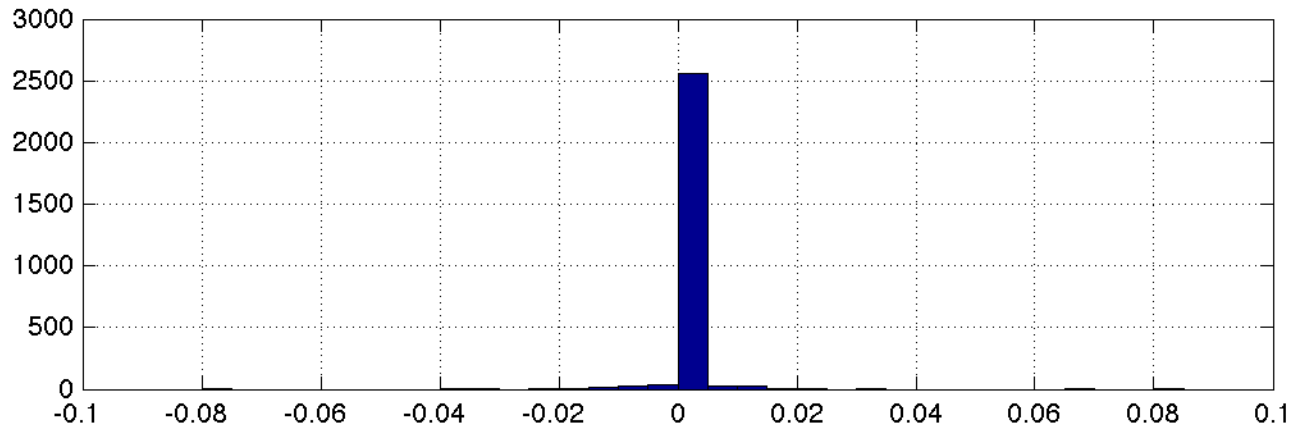
Floats deployed 2010 – 2017

DAC = all

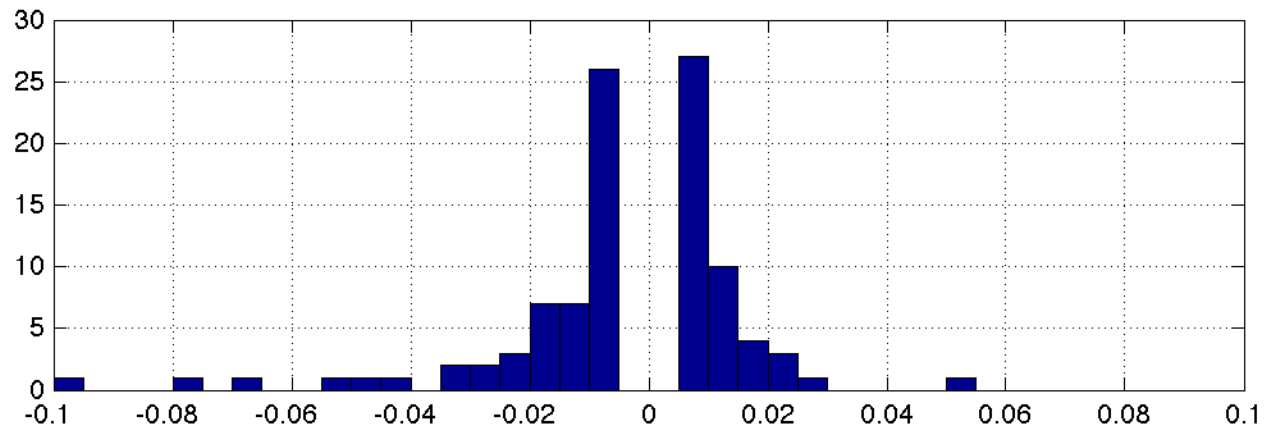
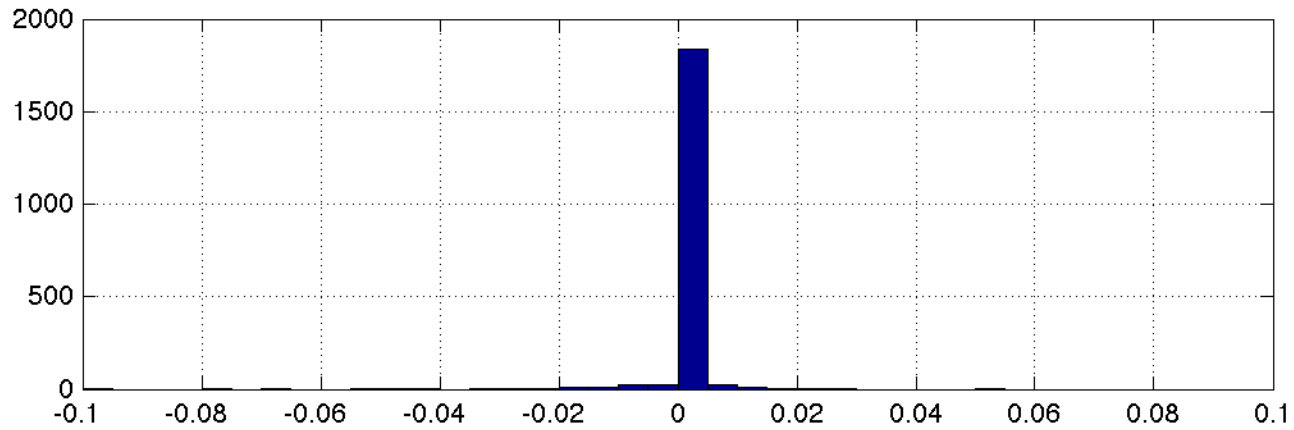
DAC: all  
Distribution of adjustments at cycle 010, and of adjustments > 0.005  
N = 3075 / 117



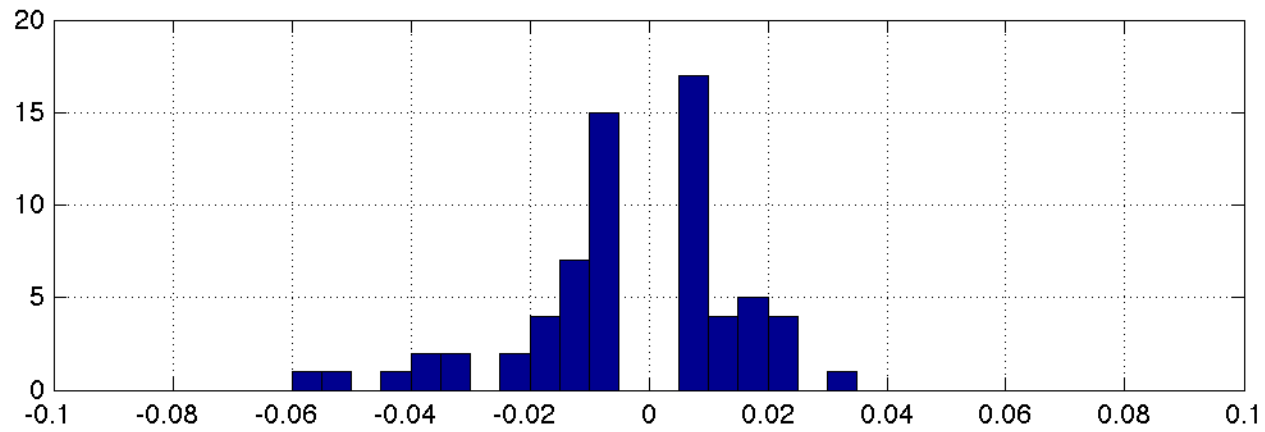
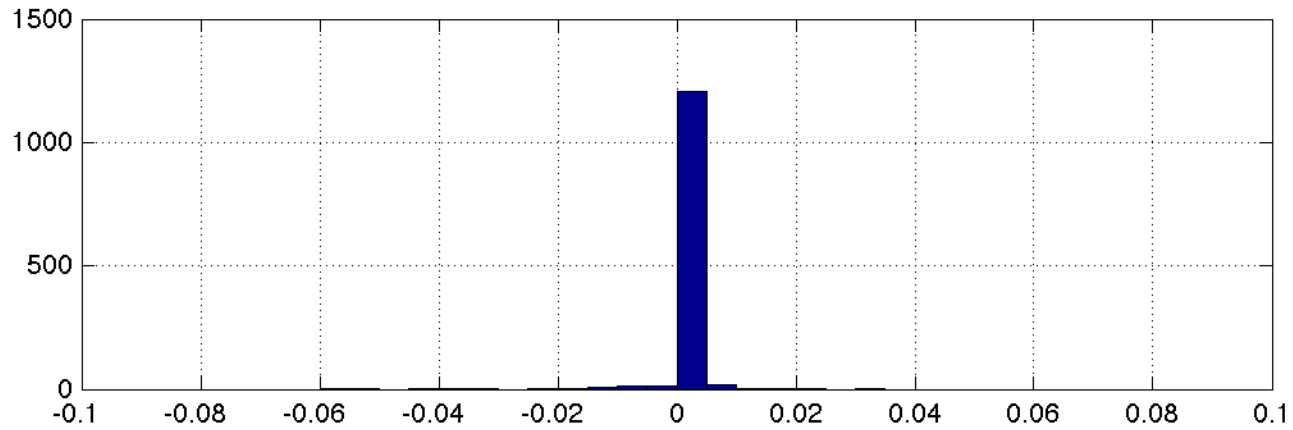
DAC: all  
Distribution of adjustments at cycle 036, and of adjustments > 0.005  
N = 2710 / 118



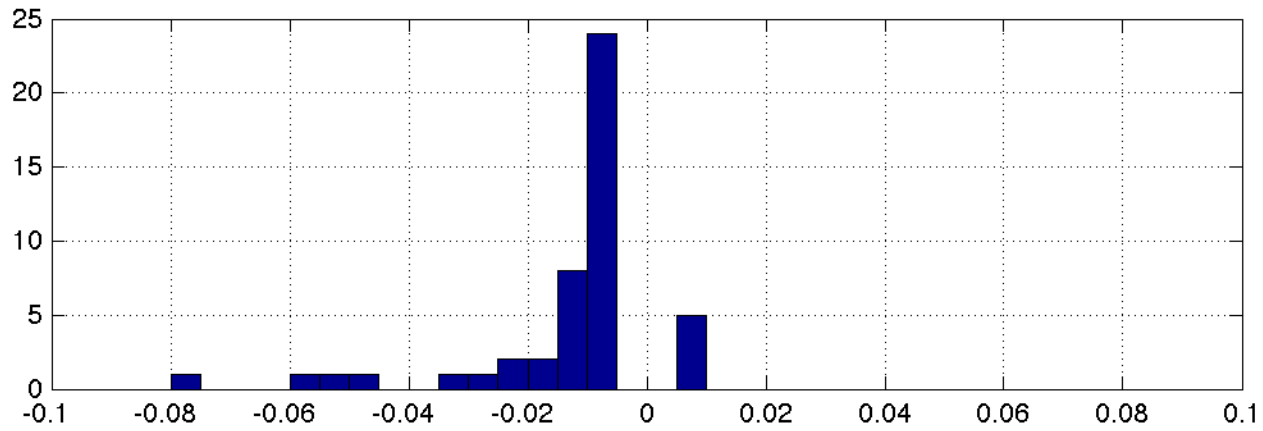
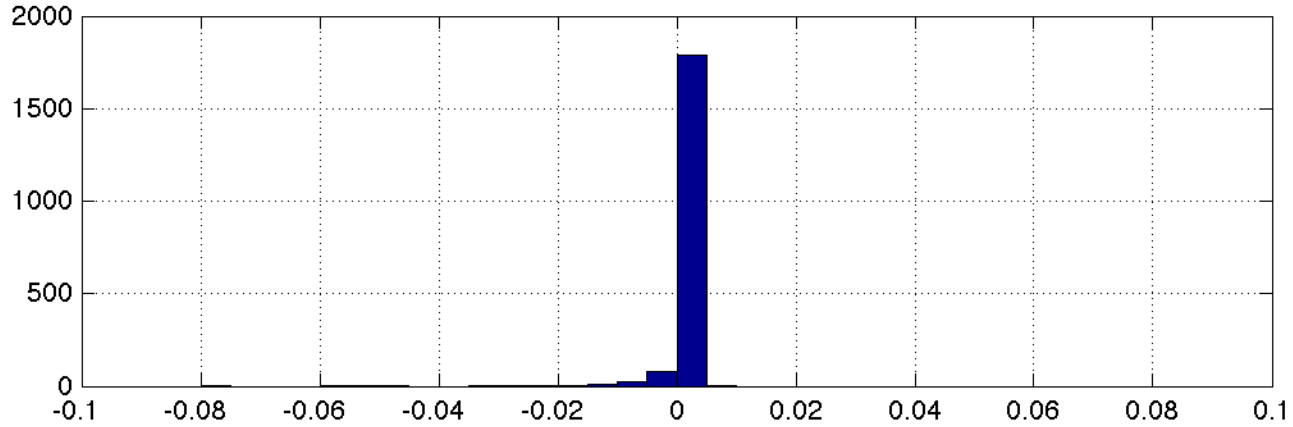
DAC: all  
Distribution of adjustments at cycle 072, and of adjustments > 0.005  
N = 1961 / 99



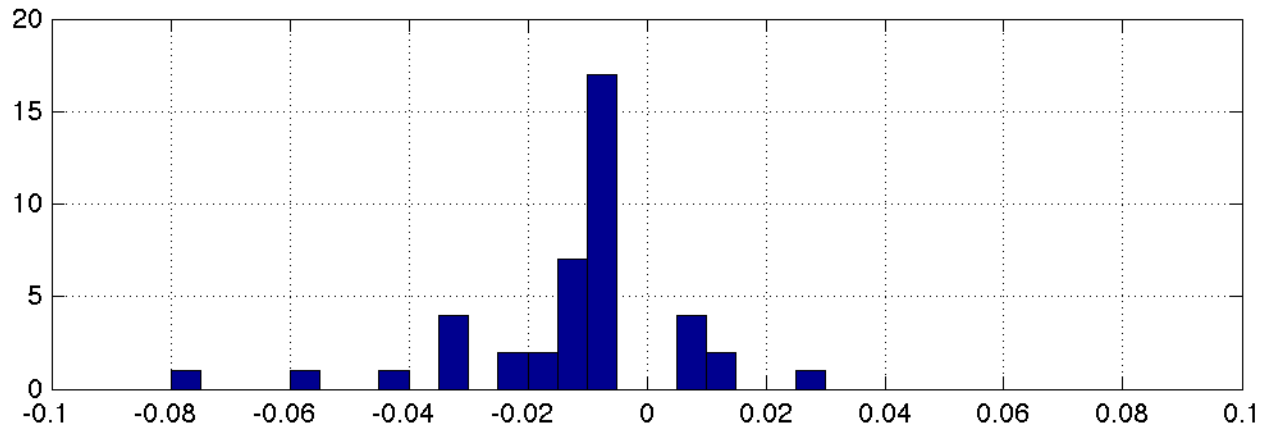
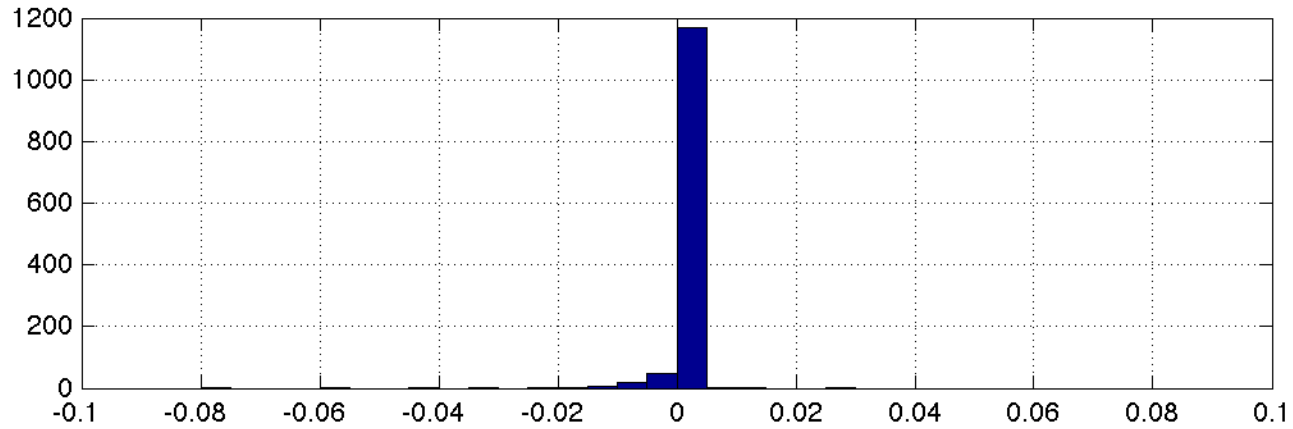
DAC: all  
Distribution of adjustments at cycle 108, and of adjustments > 0.005  
N = 1285 / 66



DAC: all  
Distribution of changed adjustment from 036 to 072, and of changes > 0.005  
N = 1918 / 47

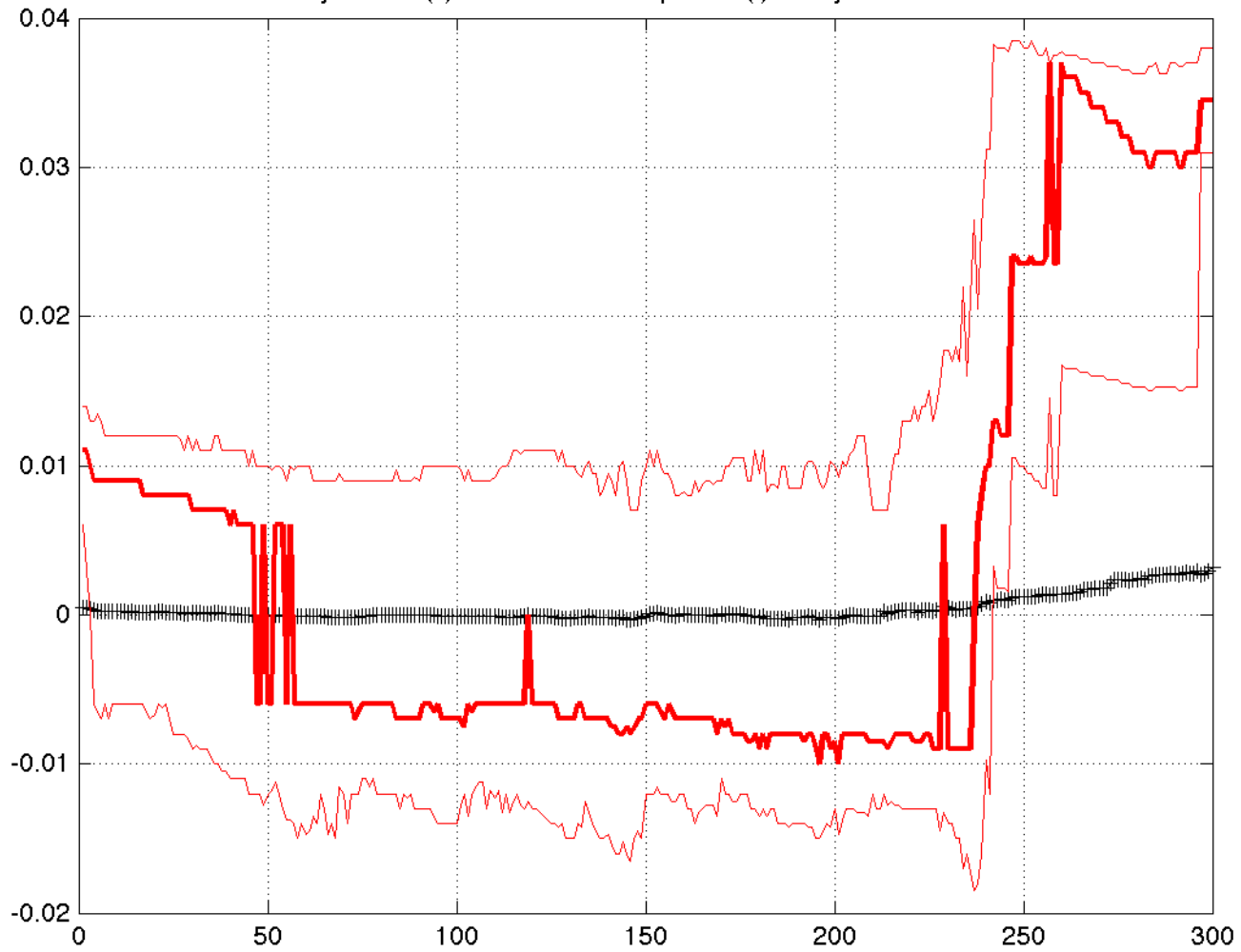


DAC: all  
Distribution of changed adjustment from 036 to 108, and of changes > 0.005  
N = 1257 / 42





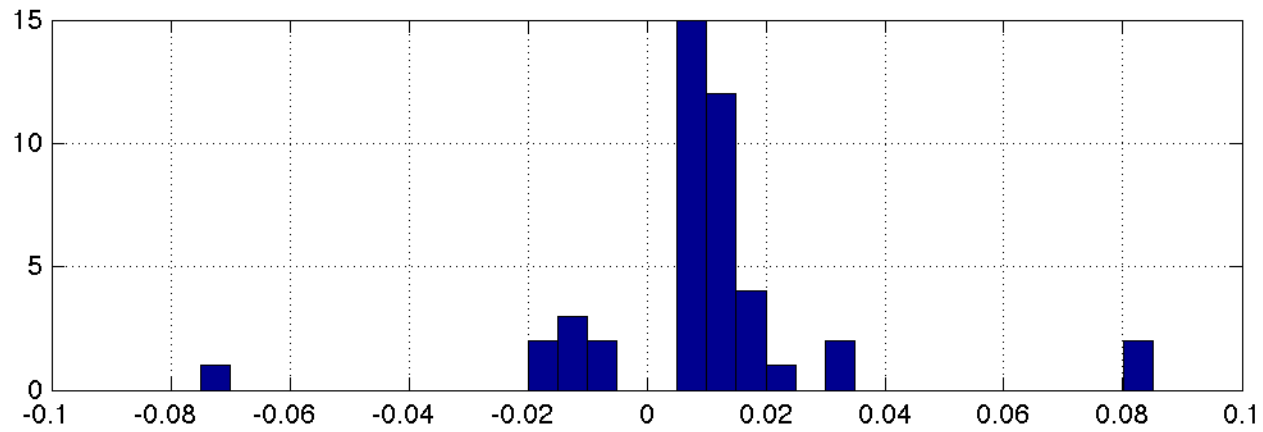
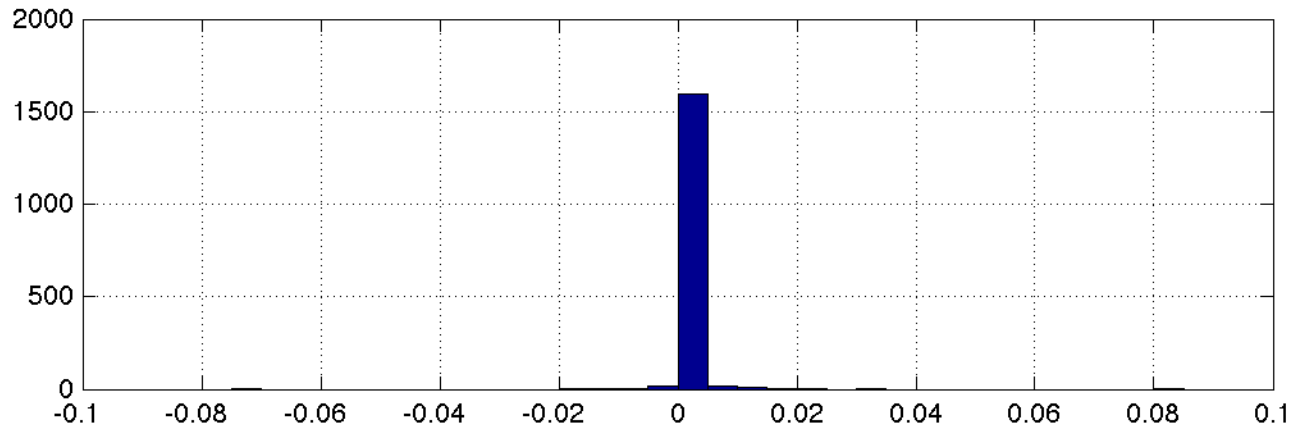
DAC: all  
mean adjustment (k) and median and quartiles(r) of adjustments > 0.005



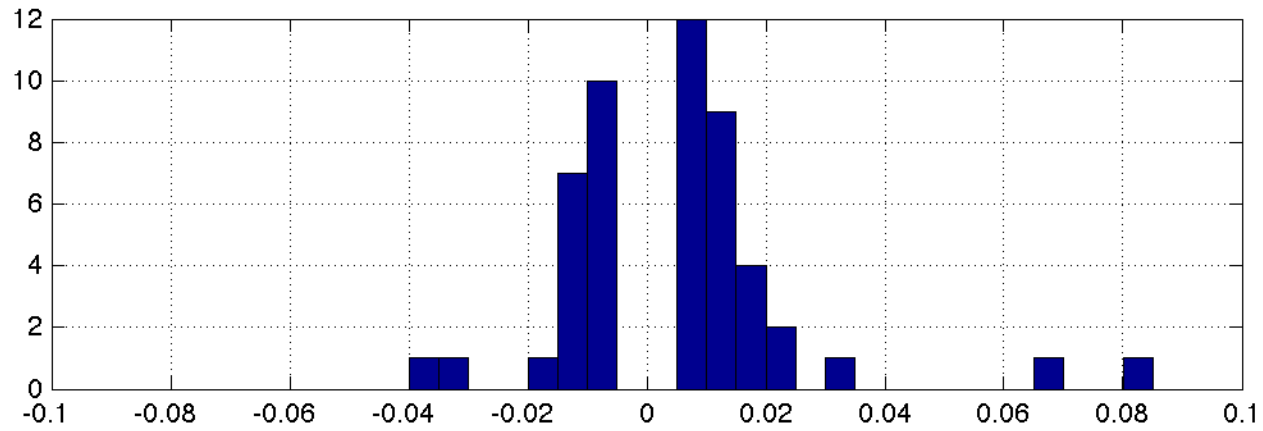
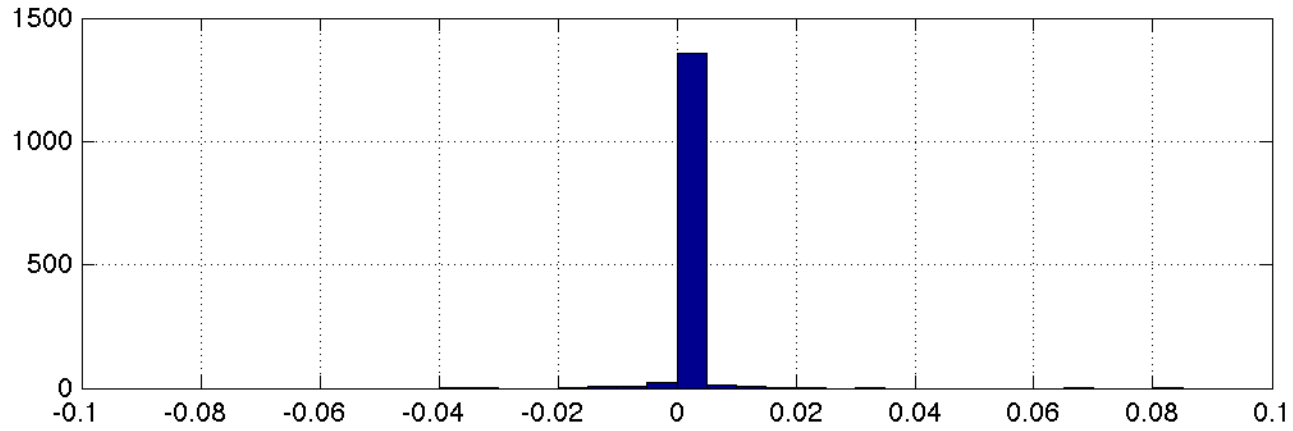
Floats deployed 2010 – 2017

DAC = AO

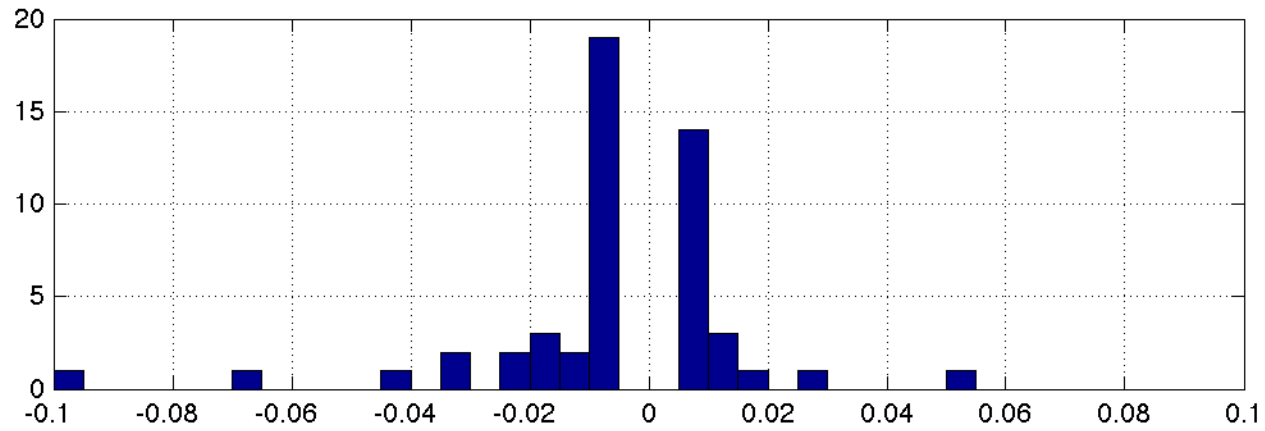
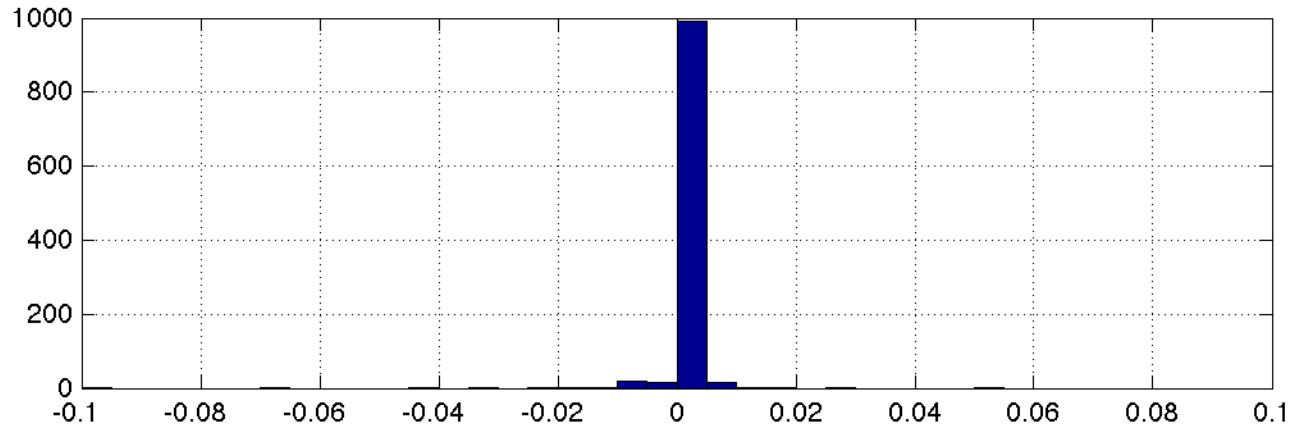
DAC: AC  
Distribution of adjustments at cycle 010, and of adjustments > 0.005  
N = 1652 / 44



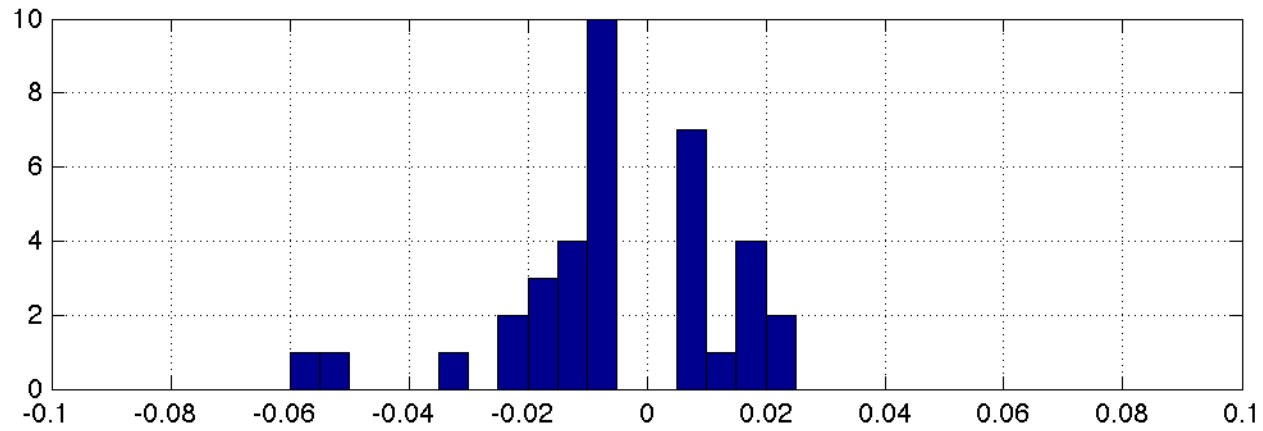
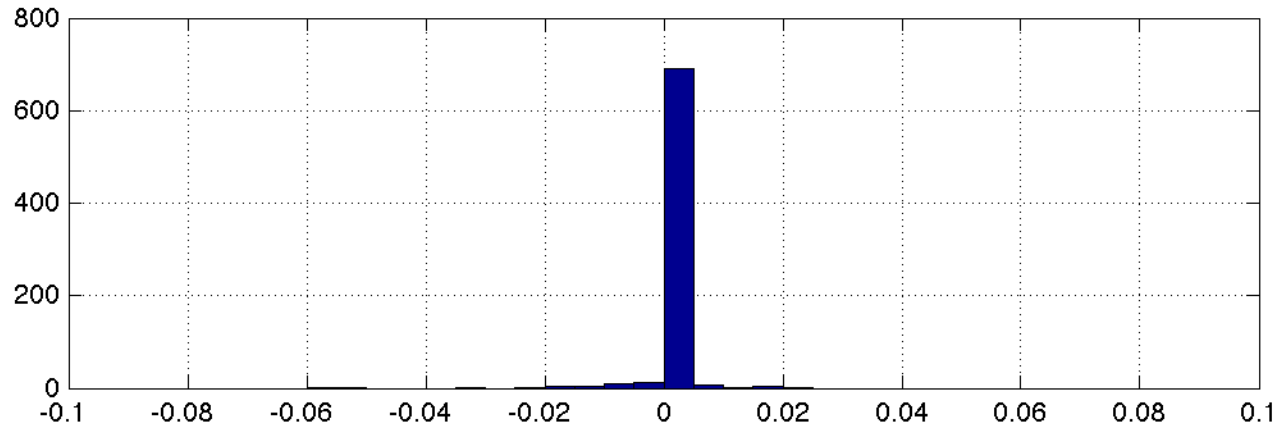
DAC: AC  
Distribution of adjustments at cycle 036, and of adjustments > 0.005  
N = 1429 / 50



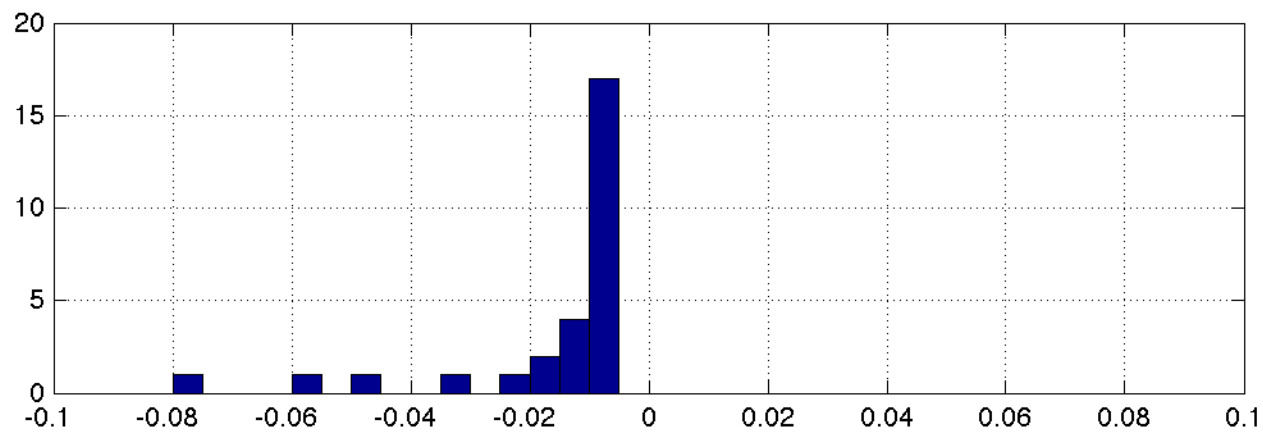
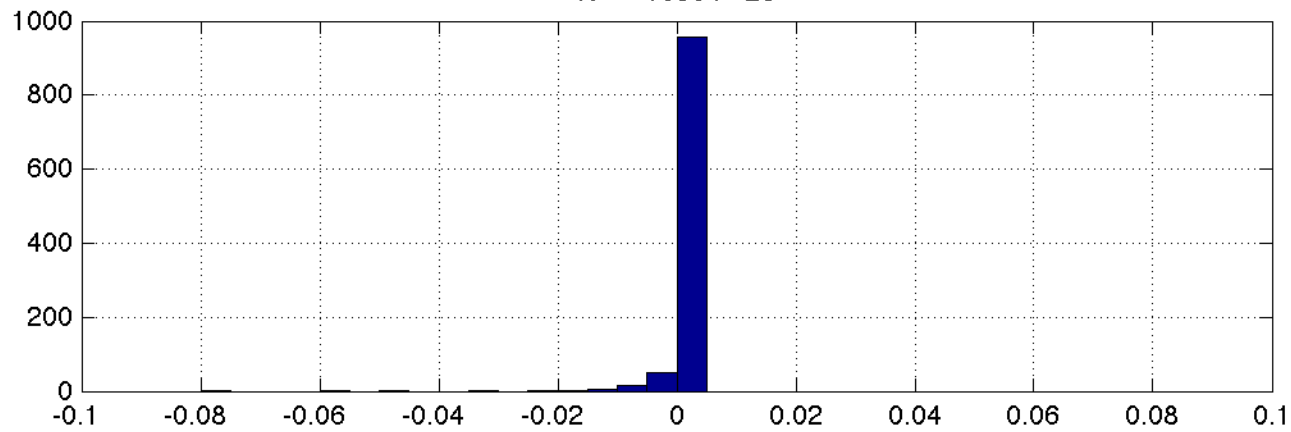
DAC: AC  
Distribution of adjustments at cycle 072, and of adjustments > 0.005  
N = 1055 / 51



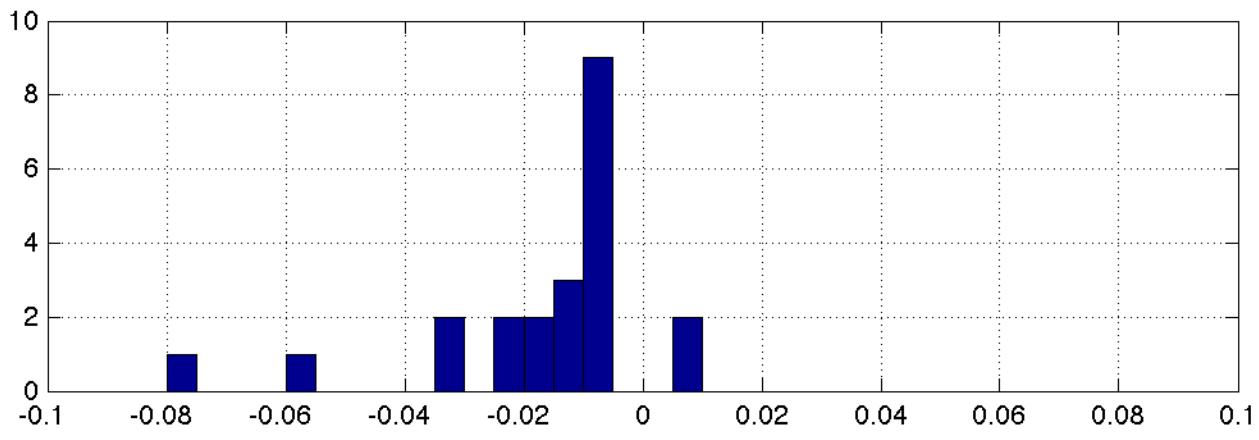
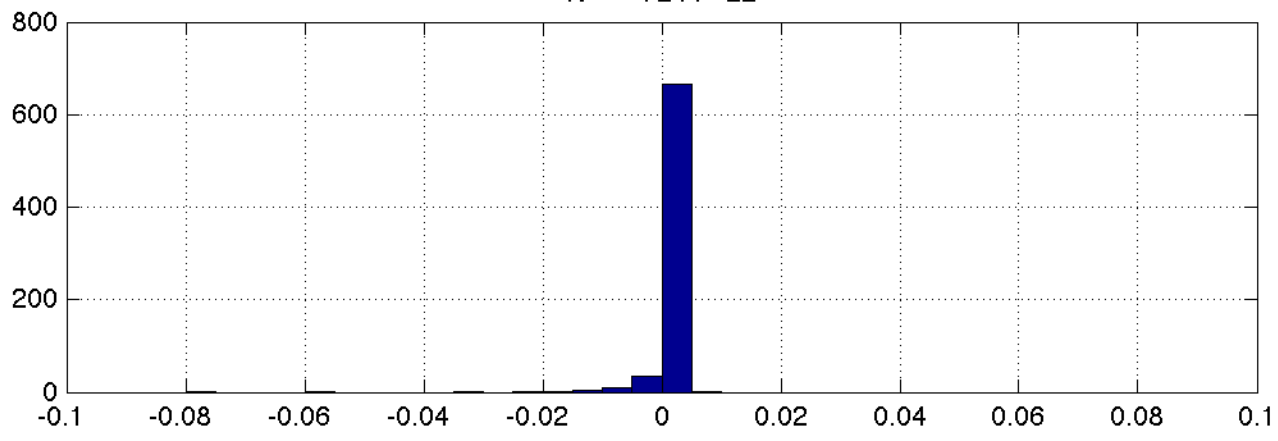
DAC: AC  
Distribution of adjustments at cycle 108, and of adjustments > 0.005  
N = 738 / 36



DAC: AC  
Distribution of changed adjustment from 036 to 072, and of changes > 0.005  
N = 1036 / 28

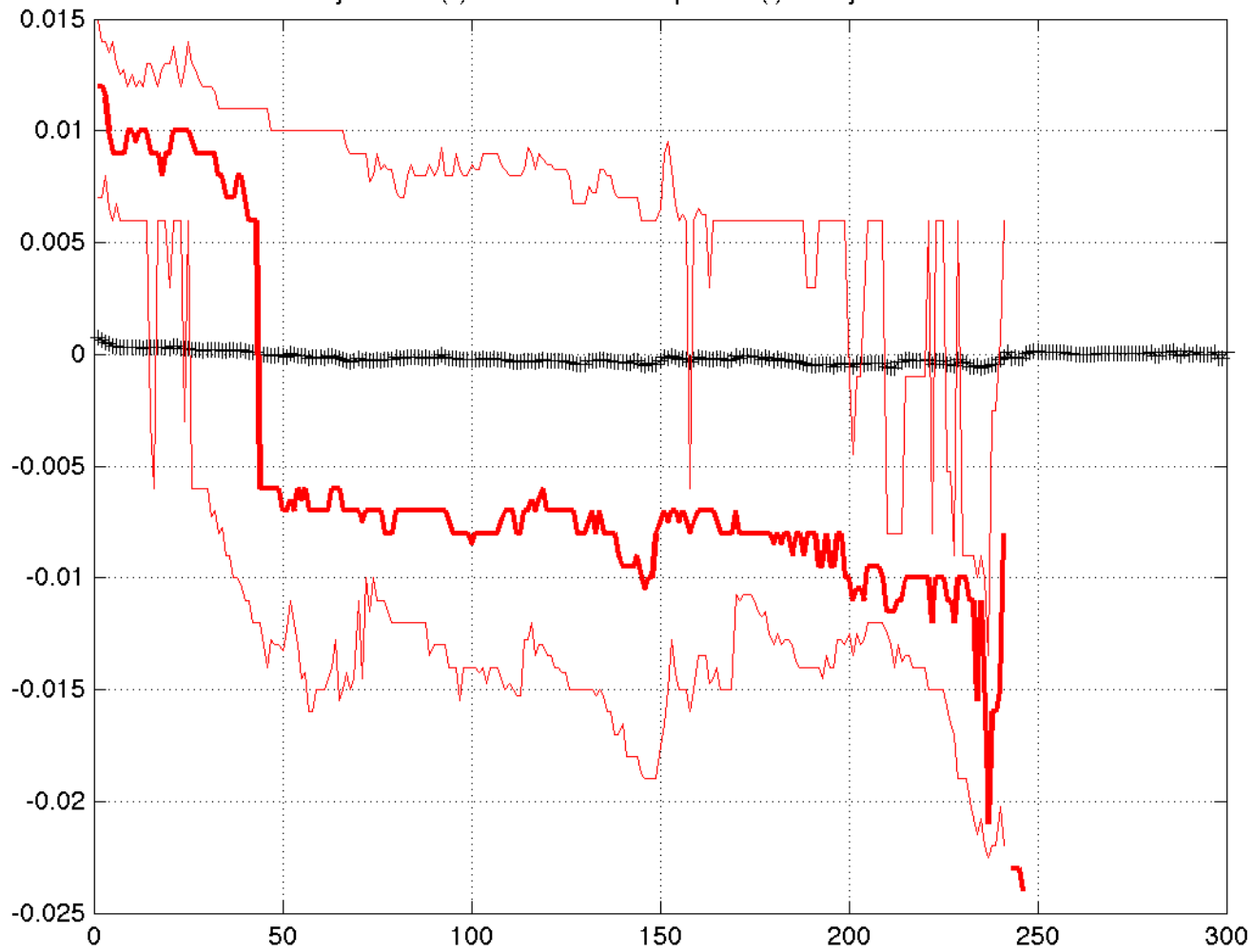


DAC: AC  
Distribution of changed adjustment from 036 to 108, and of changes > 0.005  
N = 724 / 22





DAC: AC  
mean adjustment (k) and median and quartiles(r) of adjustments > 0.005





## Conclusions/notes

- 1) At cycle 10, more adjustments are  $> 0$  than  $< 0$
- 2) As the floats age, the balance swings towards  $\text{adj} < 0$
- 3) Floats deployed since 2010

118/2710 had  $\text{adj} > 0.005$  at  $\text{cyc} = 36$  (4.3%)

99/1961 had  $\text{adj} > 0.005$  at  $\text{cyc} = 72$  (5.0 %)

66/1285 had  $\text{adj} > 0.005$  at  $\text{cyc} = 108$  (5.1 %)

47/1918 had change of  $\text{adj}$  from  $\text{cyc} = 36$  to 72 (2.5 %)

42/1257 had change of  $\text{adj}$  from  $\text{cyc} = 36$  to 108 (3.3 %)