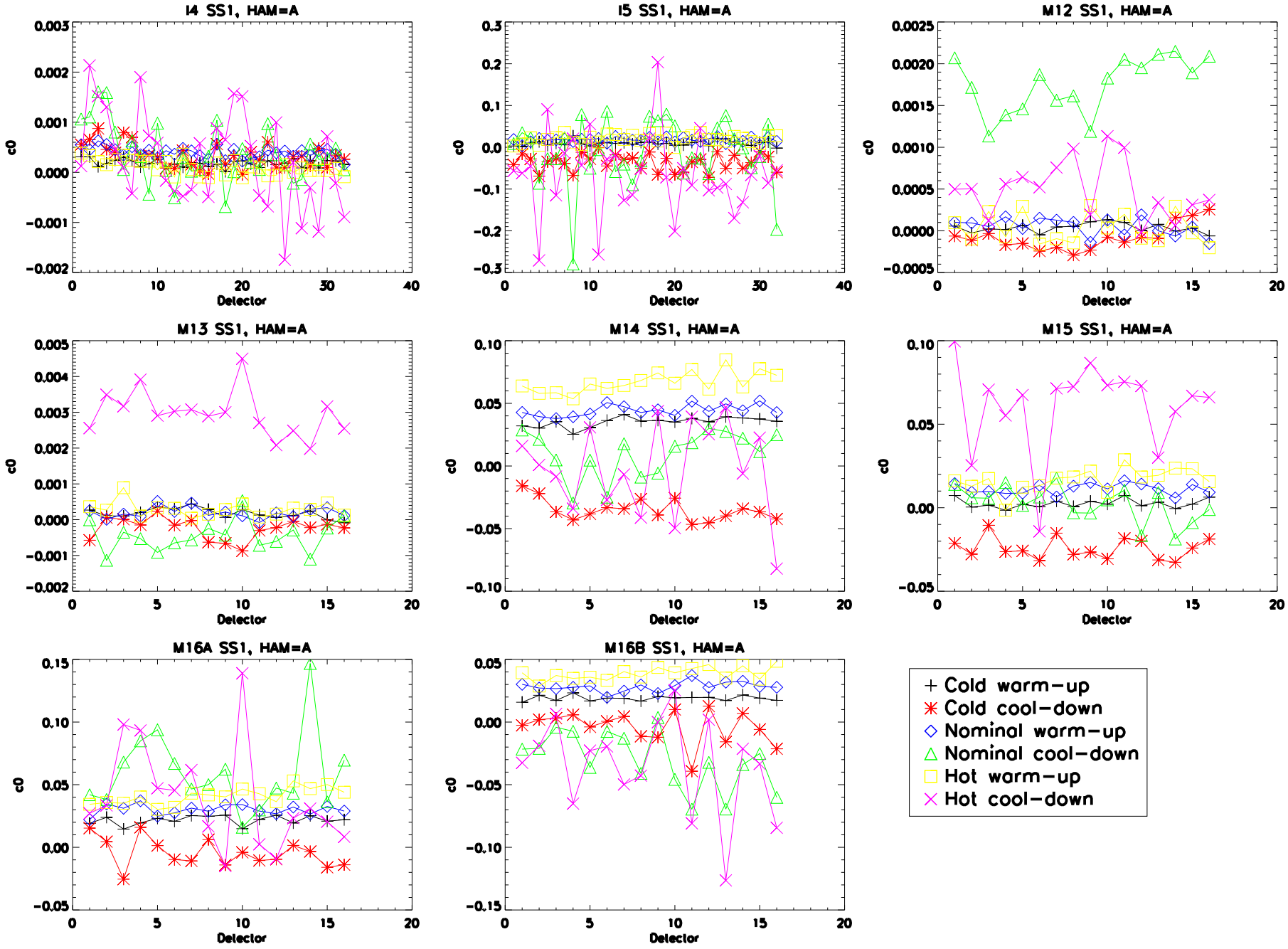
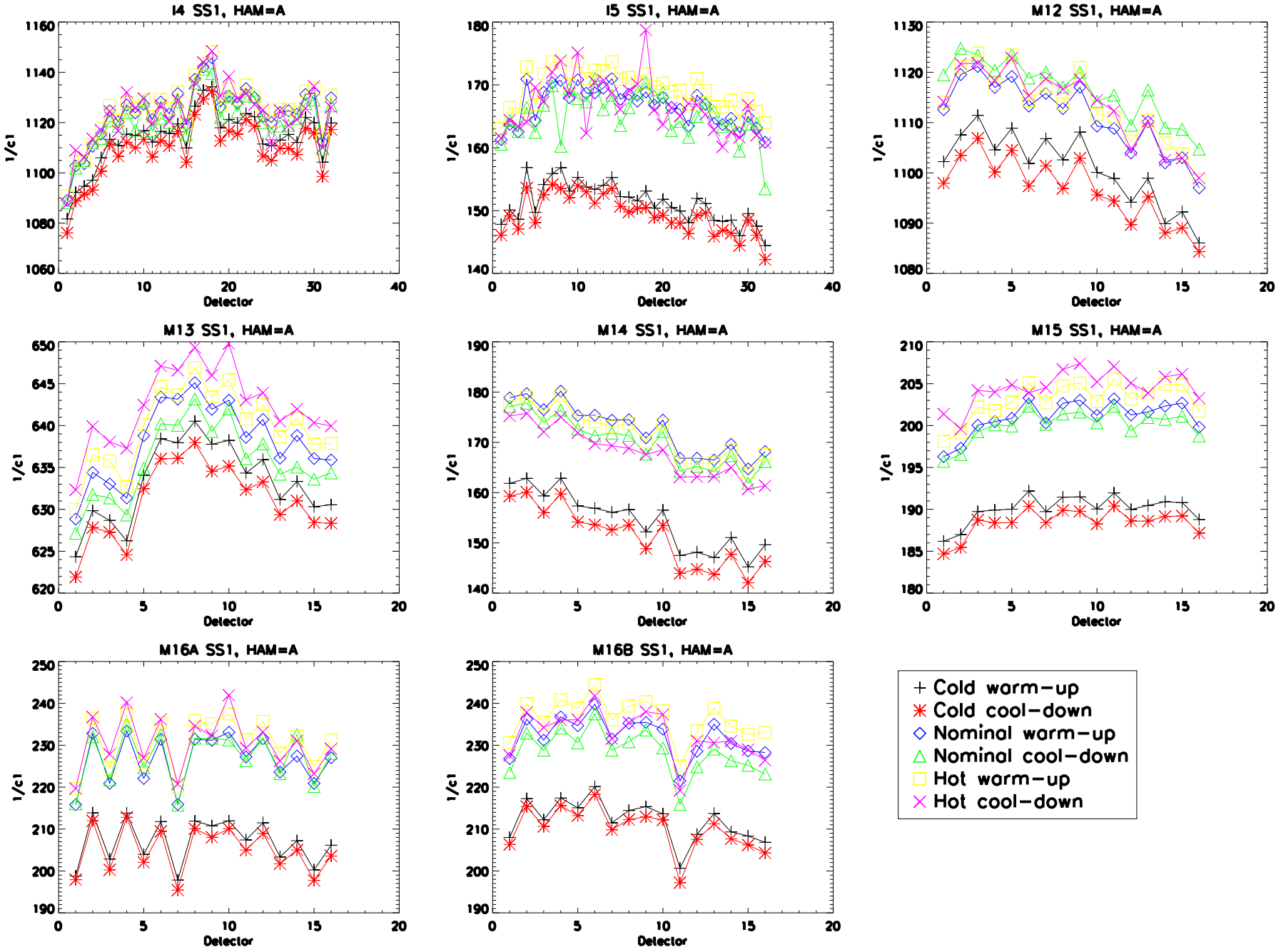
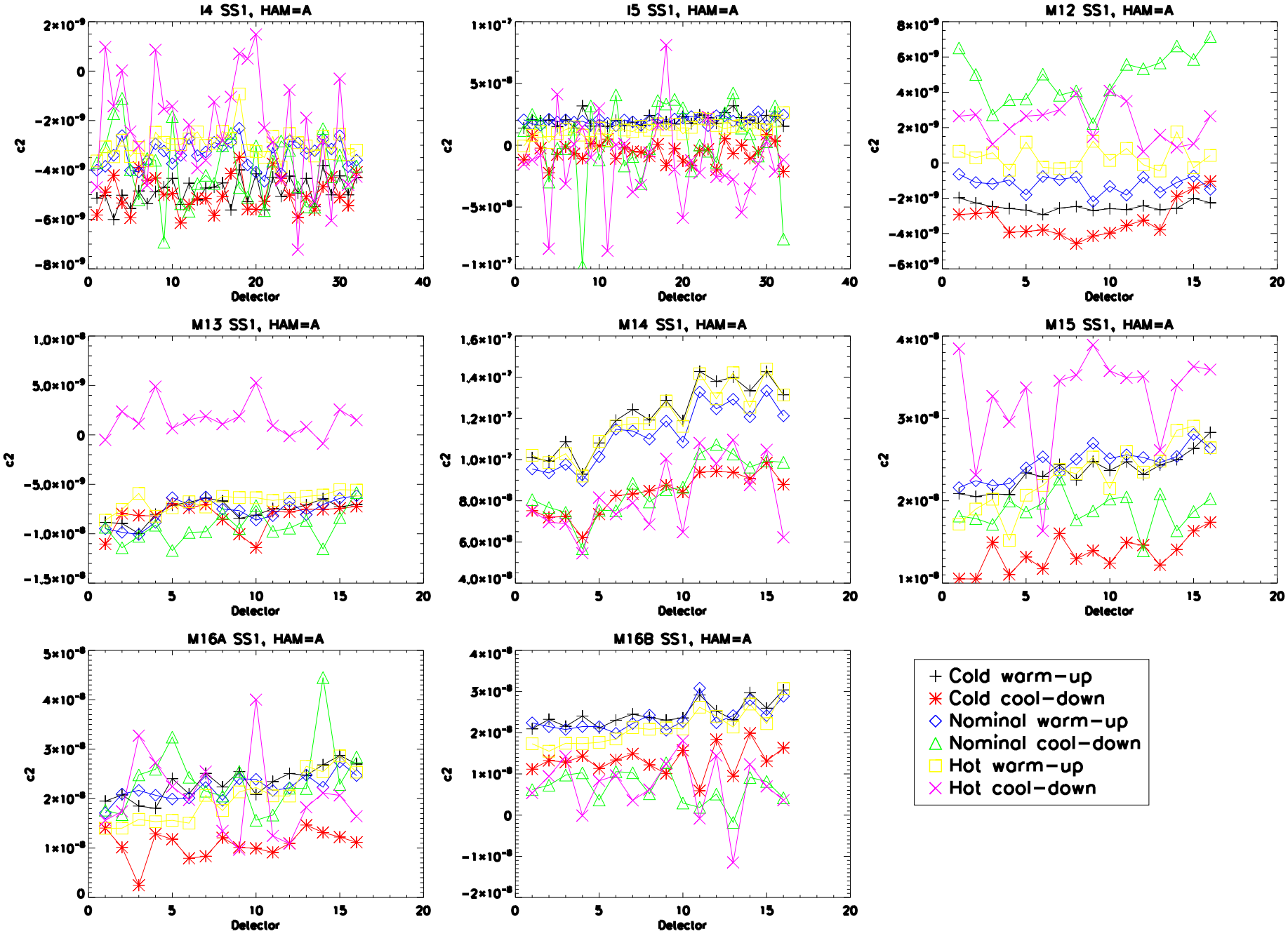
Detector Variation in c0

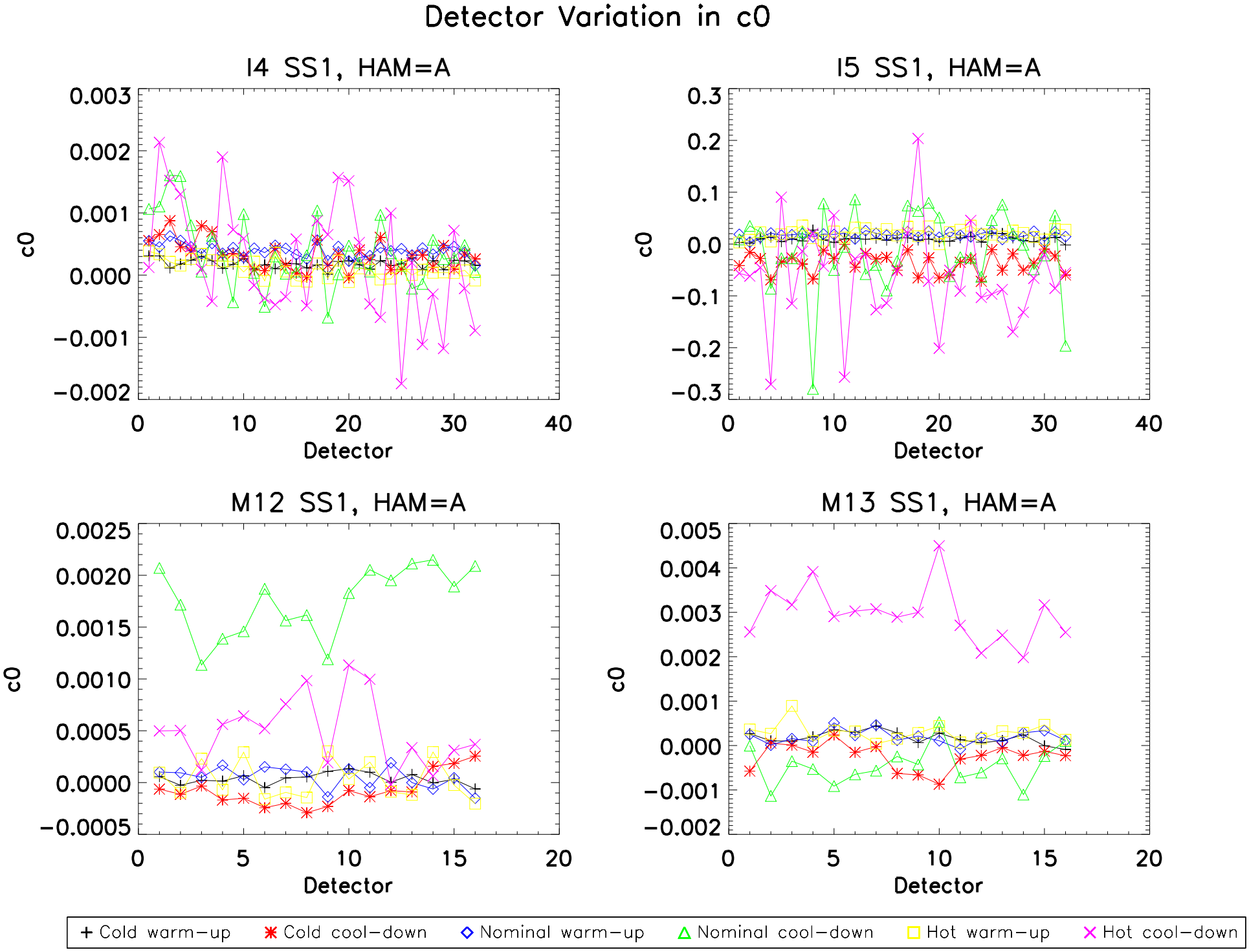


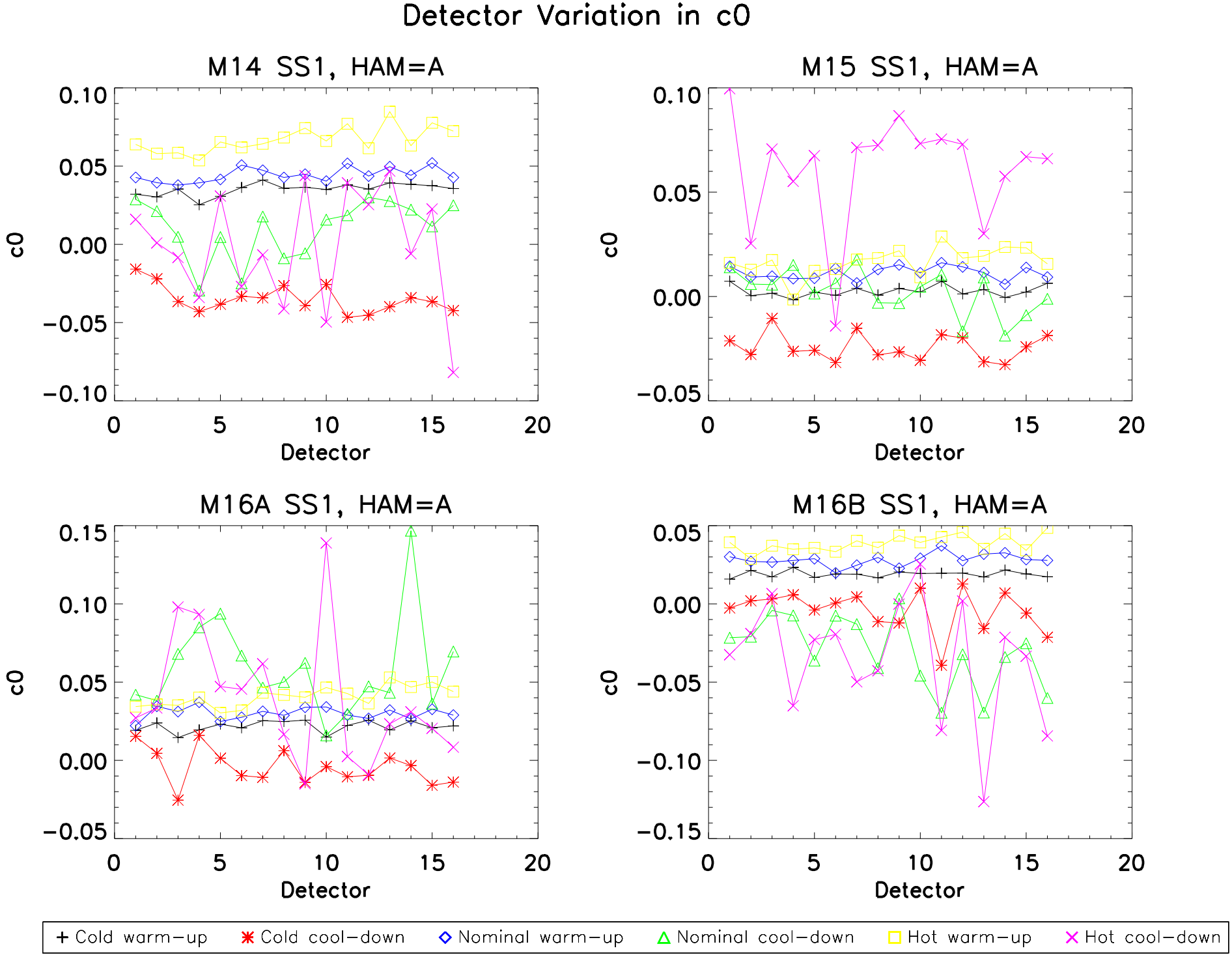
Detector Variation in 1/c1



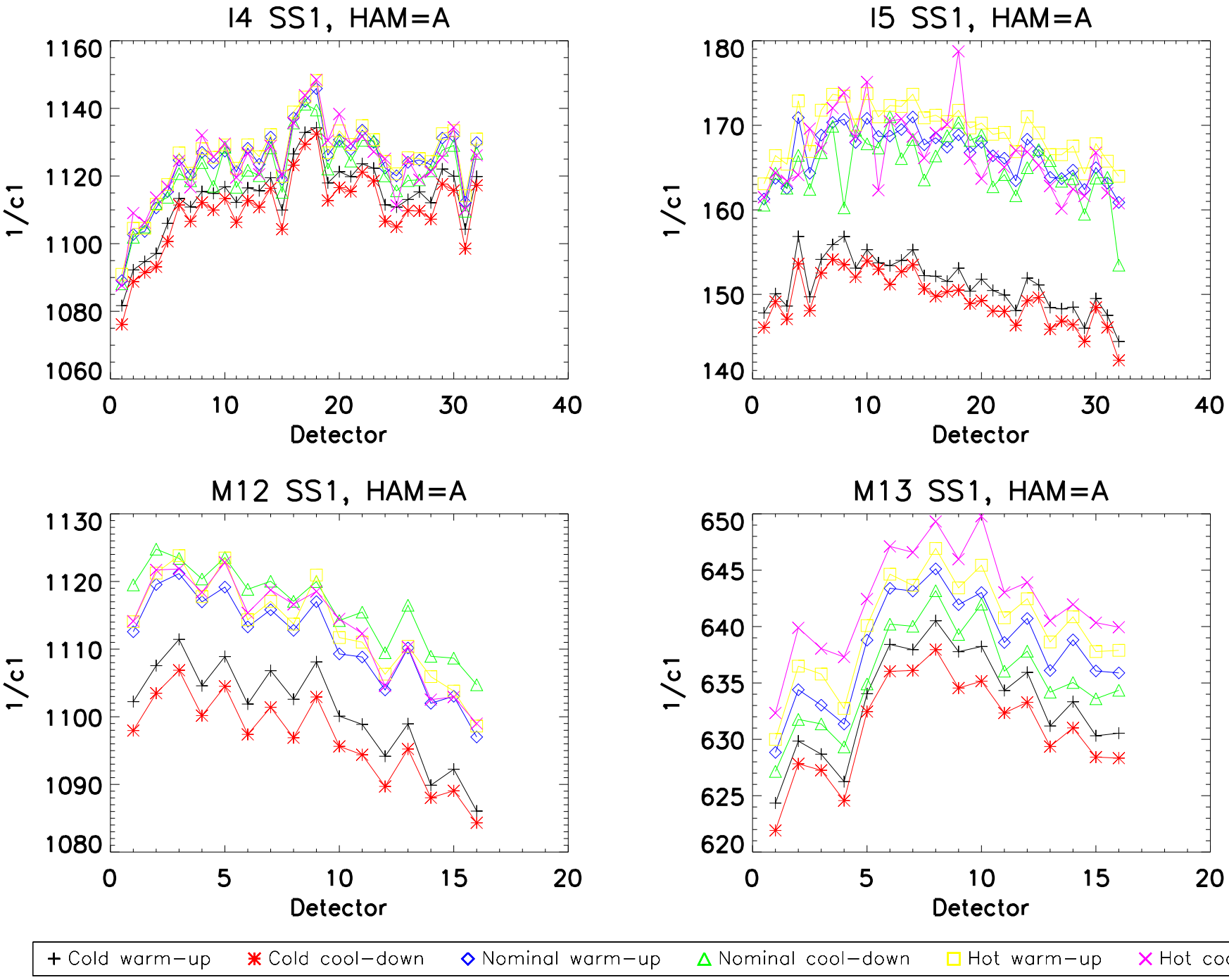
Detector Variation in c2

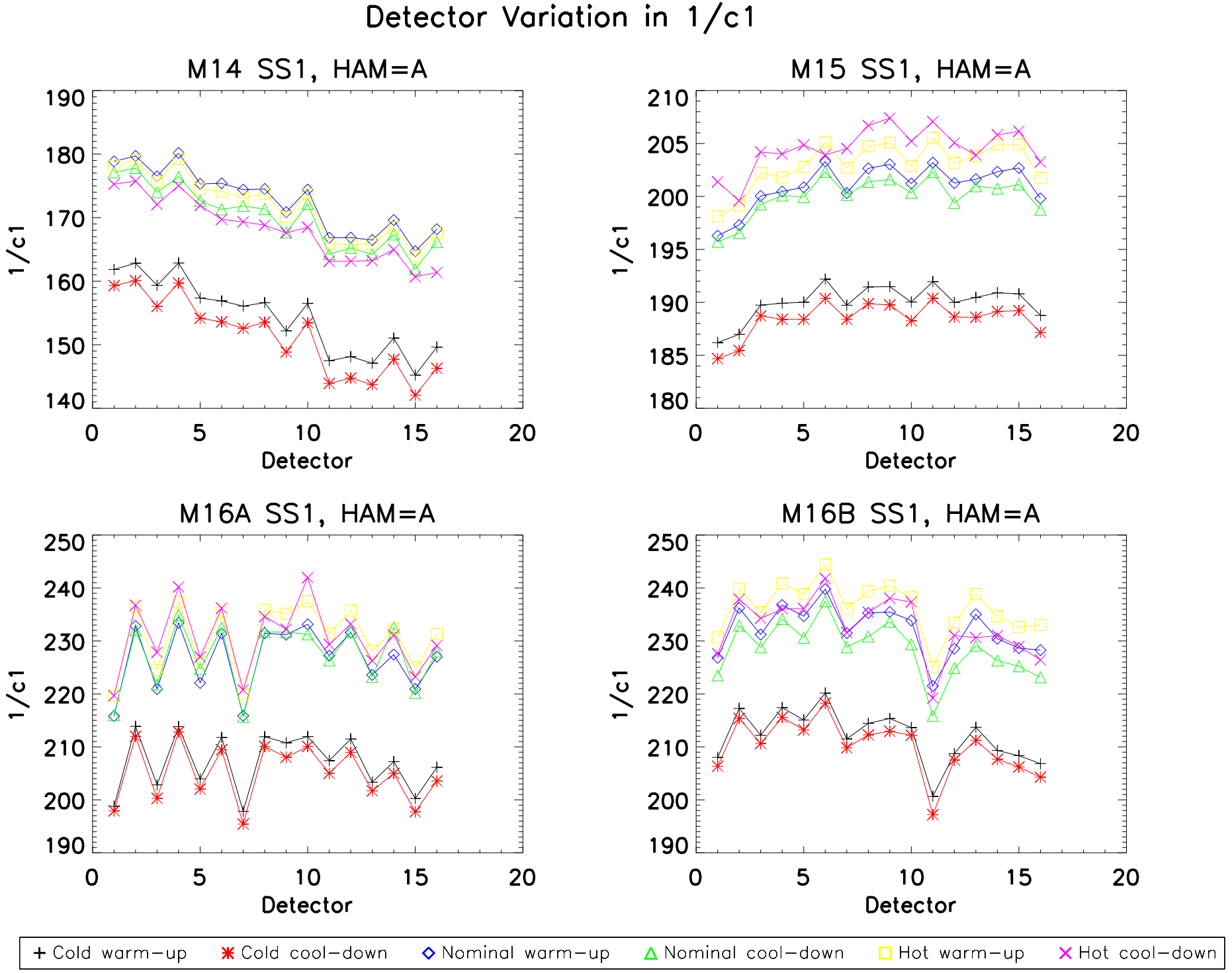


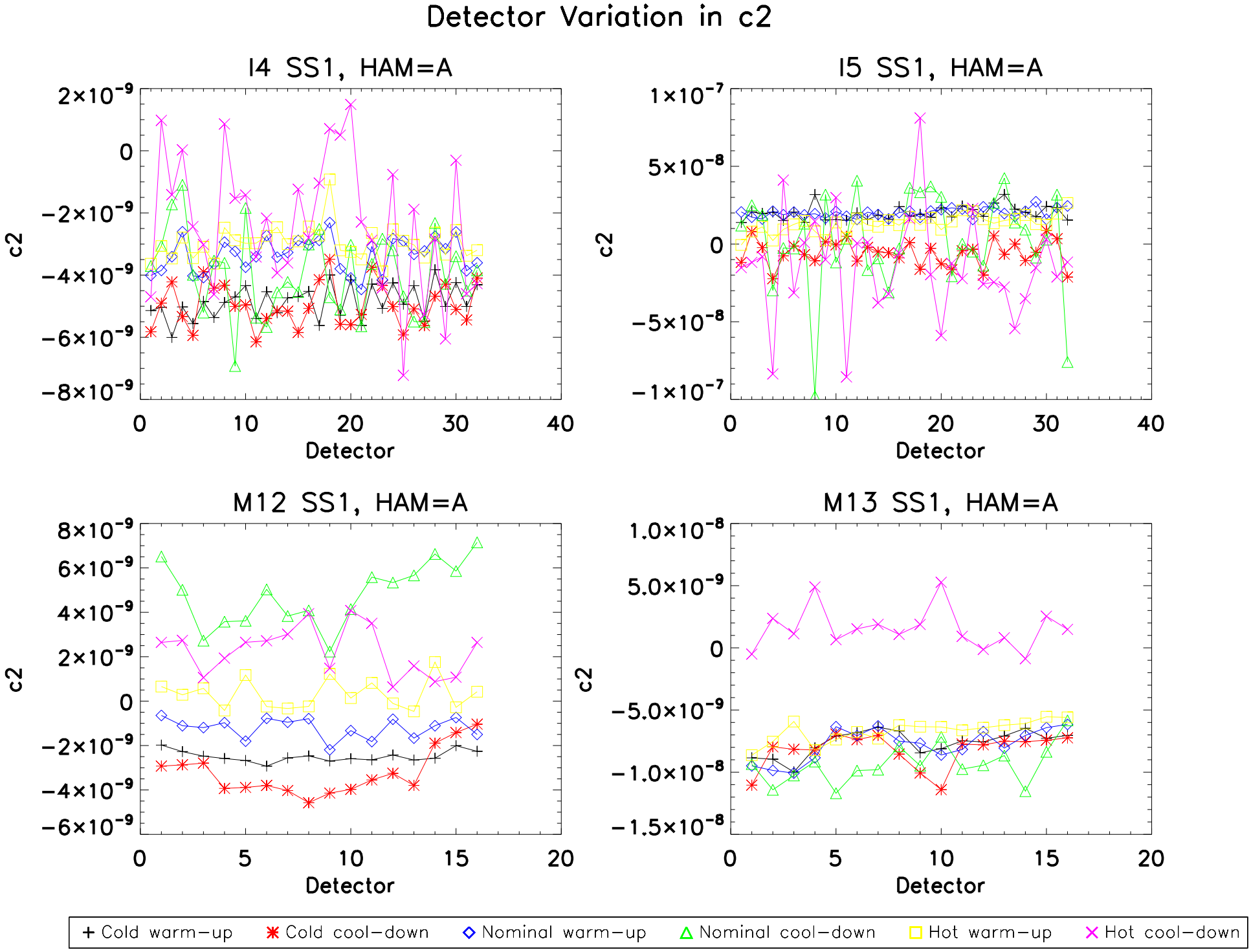

Detector Variation in c0
I4 SS1, HAM=A
I5 SS1, HAM=A
M12 SS1, HAM=A
M13 SS1, HAM=A
c0
Detector
0.003
0.002
0.001
0.000
−0.001
−0.002
0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
−0.0005
0.005
0.004
0.003
0.002
0.001
0.000
−0.001
−0.002
0
5
10
15
20
30
40
Cold warm−up
Cold cool−down
Nominal warm−up
Nominal cool−down
Hot warm−up
Hot cool−down

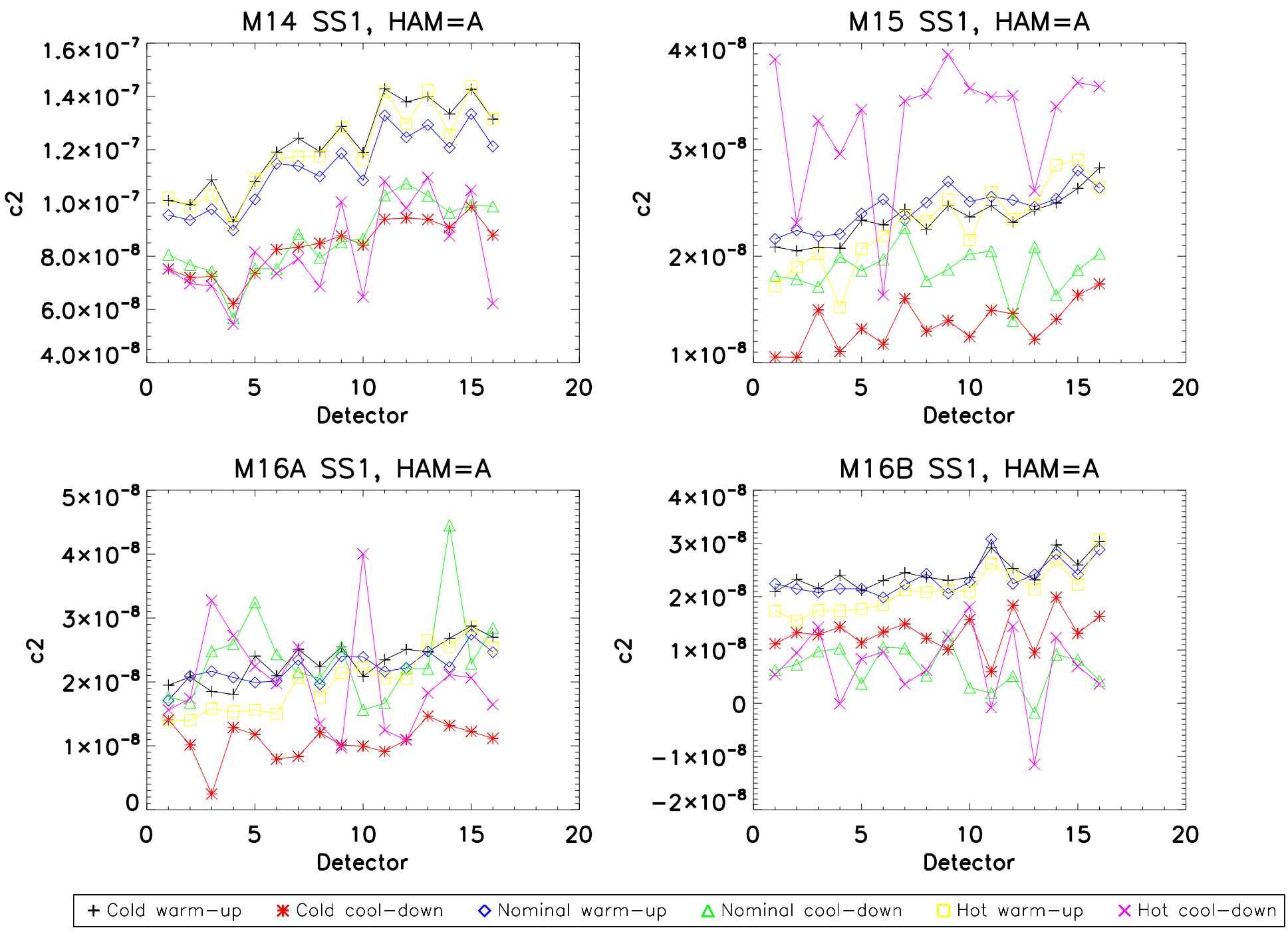

Detector Variation in c0
M14 SS1, HAM=A
M15 SS1, HAM=A
M16A SS1, HAM=A
M16B SS1, HAM=A
c0
Detector
0.10
0.05
0.00
−0.05
−0.10
0.15
−0.15
0
5
10
15
20
+ Cold warm−up
Cold cool−down
Nominal warm−up
Nominal cool−down
Hot warm−up
Hot cool−down

Detector Variation in 1/c1

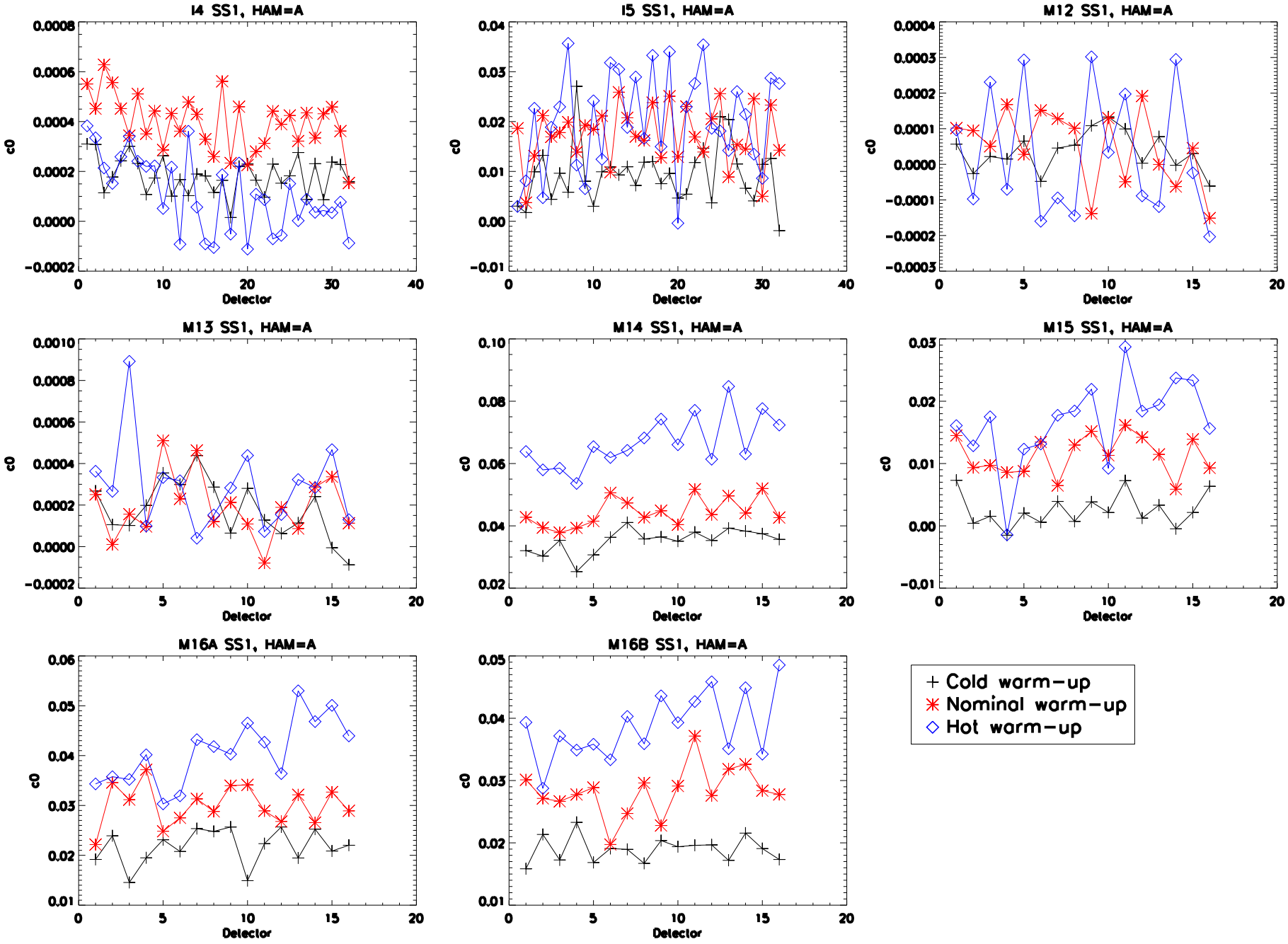



Detector Variation in 1/c1
M14 SS1, HAM=A
M15 SS1, HAM=A
M16A SS1, HAM=A
M16B SS1, HAM=A
1/c1
Detector
Cold warm−up
Cold cool−down
Nominal warm−up
Nominal cool−down
Hot warm−up
Hot cool−down

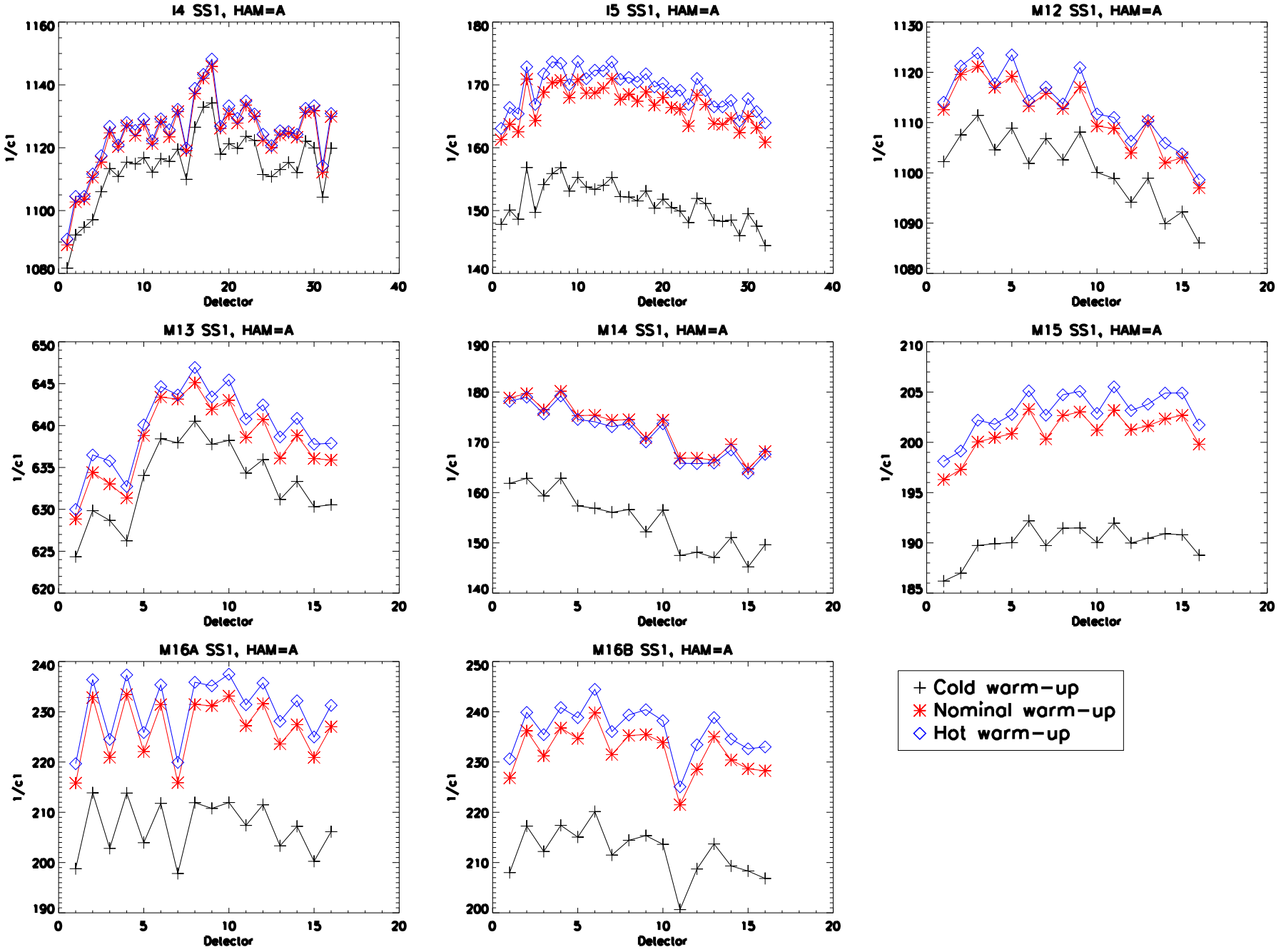

Detector Variation in c2
I4 SS1, HAM=A
I5 SS1, HAM=A
M12 SS1, HAM=A
M13 SS1, HAM=A
c2
Detector
2×10⁻⁹
0
−2×10⁻⁹
−4×10⁻⁹
−6×10⁻⁹
−8×10⁻⁹
1×10⁻⁷
5×10⁻⁸
−5×10⁻⁸
−1×10⁻⁷
8×10⁻⁹
6×10⁻⁹
4×10⁻⁹
1.0×10⁻⁸
5.0×10⁻⁹
−5.0×10⁻⁹
−1.0×10⁻⁸
−1.5×10⁻⁸
0 10 20 30 40
0 5 10 15 20
+ Cold warm−up
Cold cool−down
Nominal warm−up
Nominal cool−down
Hot warm−up
Hot cool−down


Detector Variation in c2
M14 SS1, HAM=A
M15 SS1, HAM=A
M16A SS1, HAM=A
M16B SS1, HAM=A
c2
Detector
1.6×10⁻⁷
1.4×10⁻⁷
1.2×10⁻⁷
1.0×10⁻⁷
8.0×10⁻⁸
6.0×10⁻⁸
4.0×10⁻⁸
4×10⁻⁸
3×10⁻⁸
2×10⁻⁸
1×10⁻⁸
5×10⁻⁸
0
−1×10⁻⁸
−2×10⁻⁸
0
5
10
15
20
Cold warm−up
Cold cool−down
Nominal warm−up
Nominal cool−down
Hot warm−up
Hot cool−down

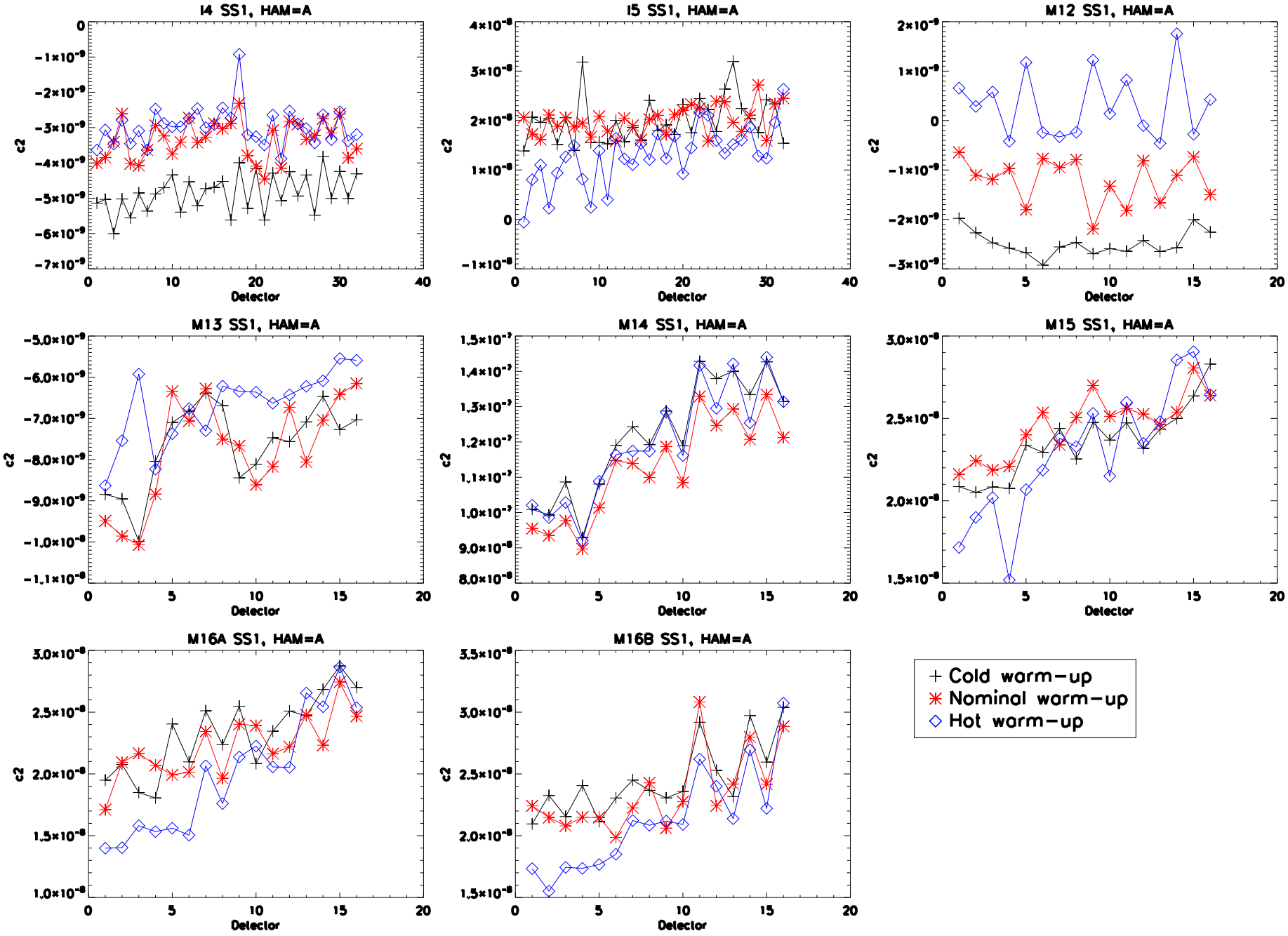
Detector Variation in c0

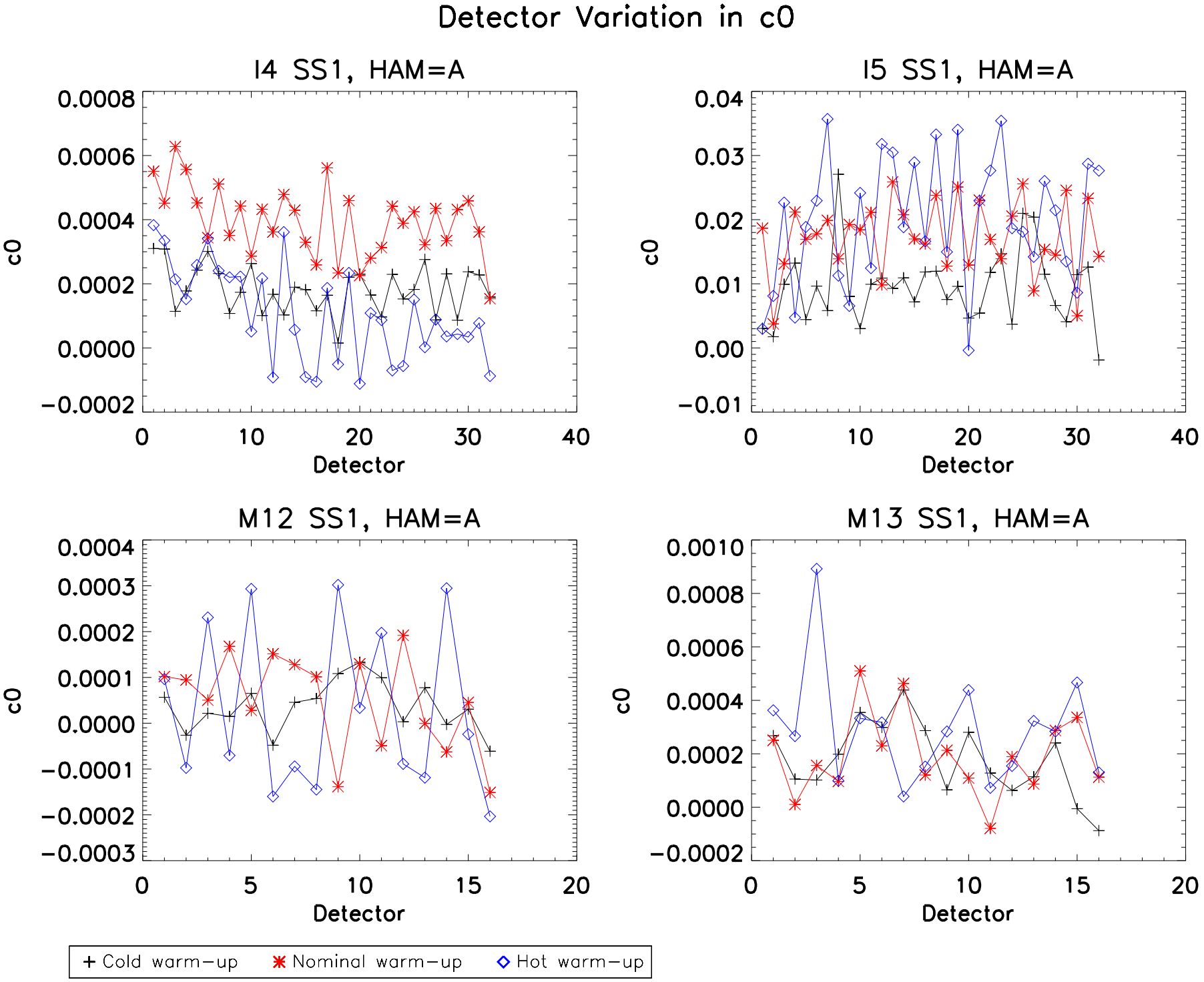


Detector Variation in 1/c1

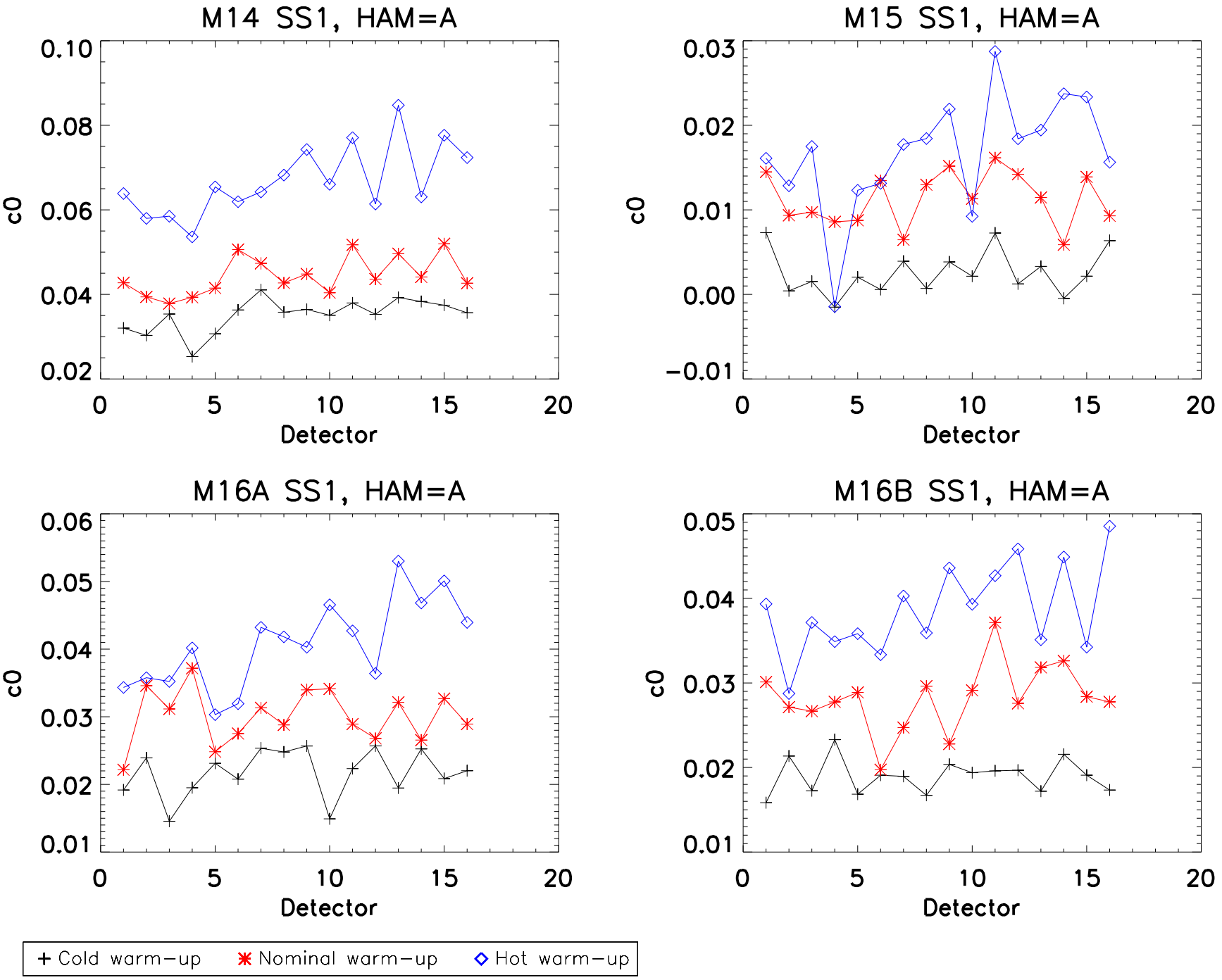


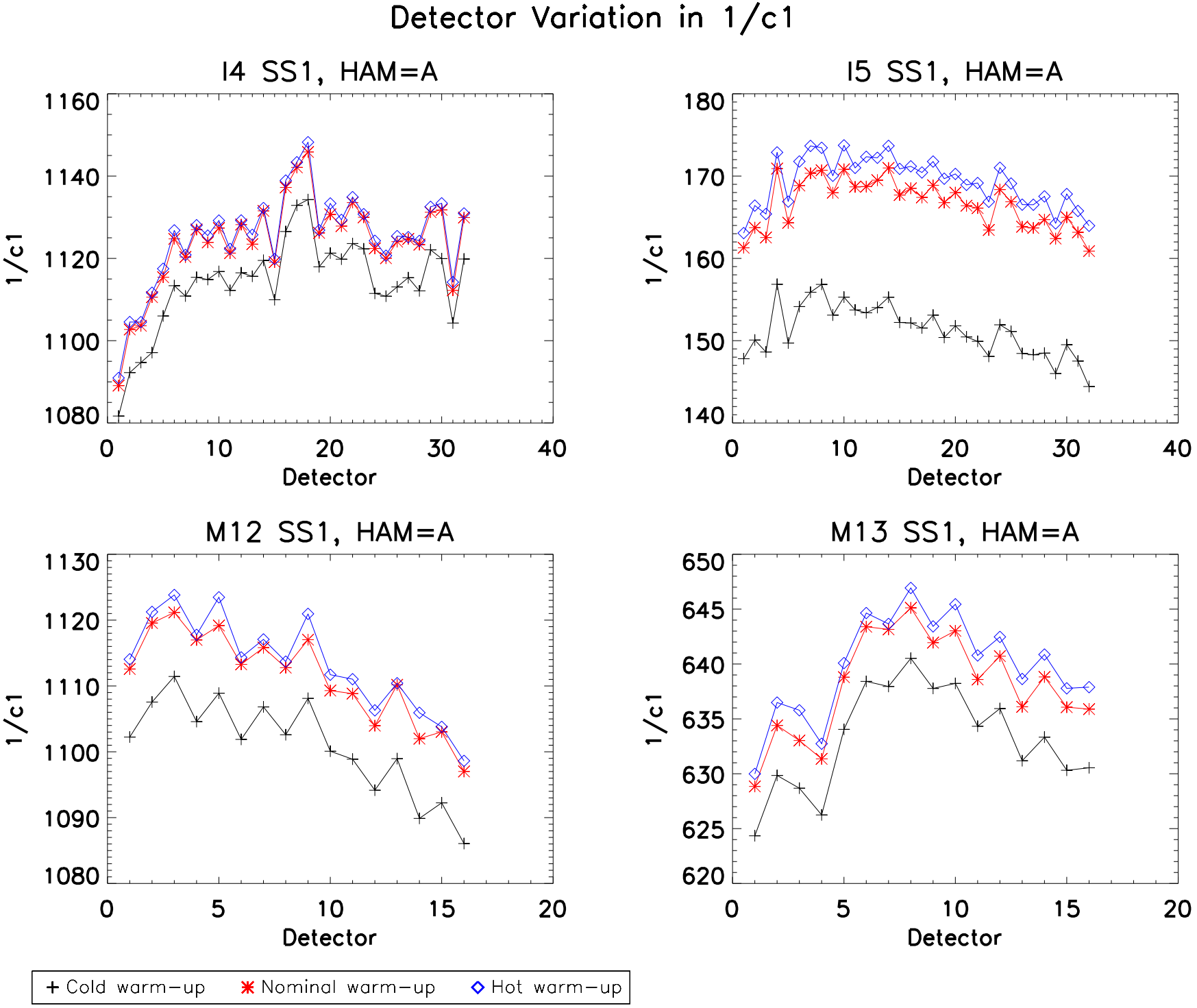
Detector Variation in c2

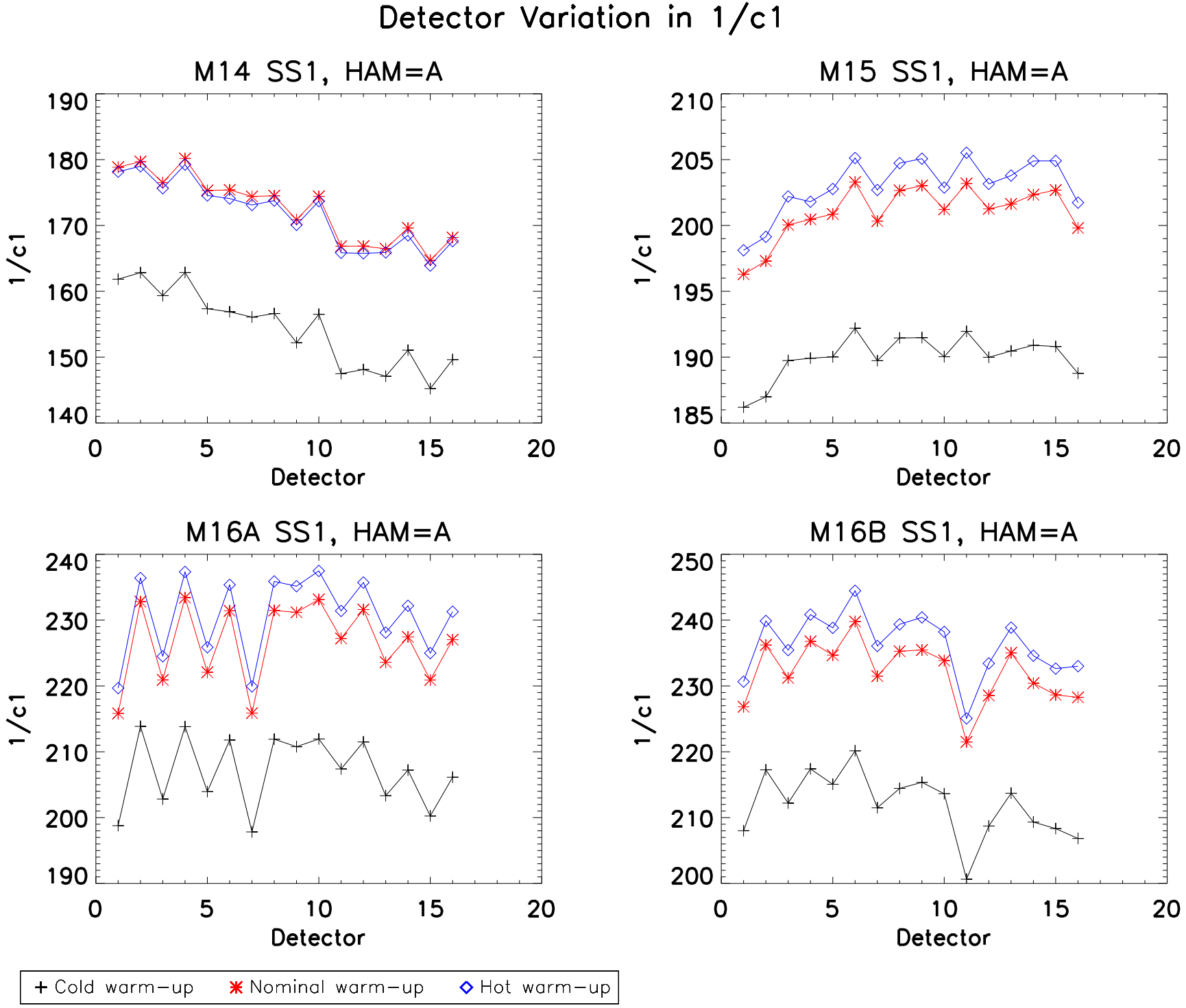


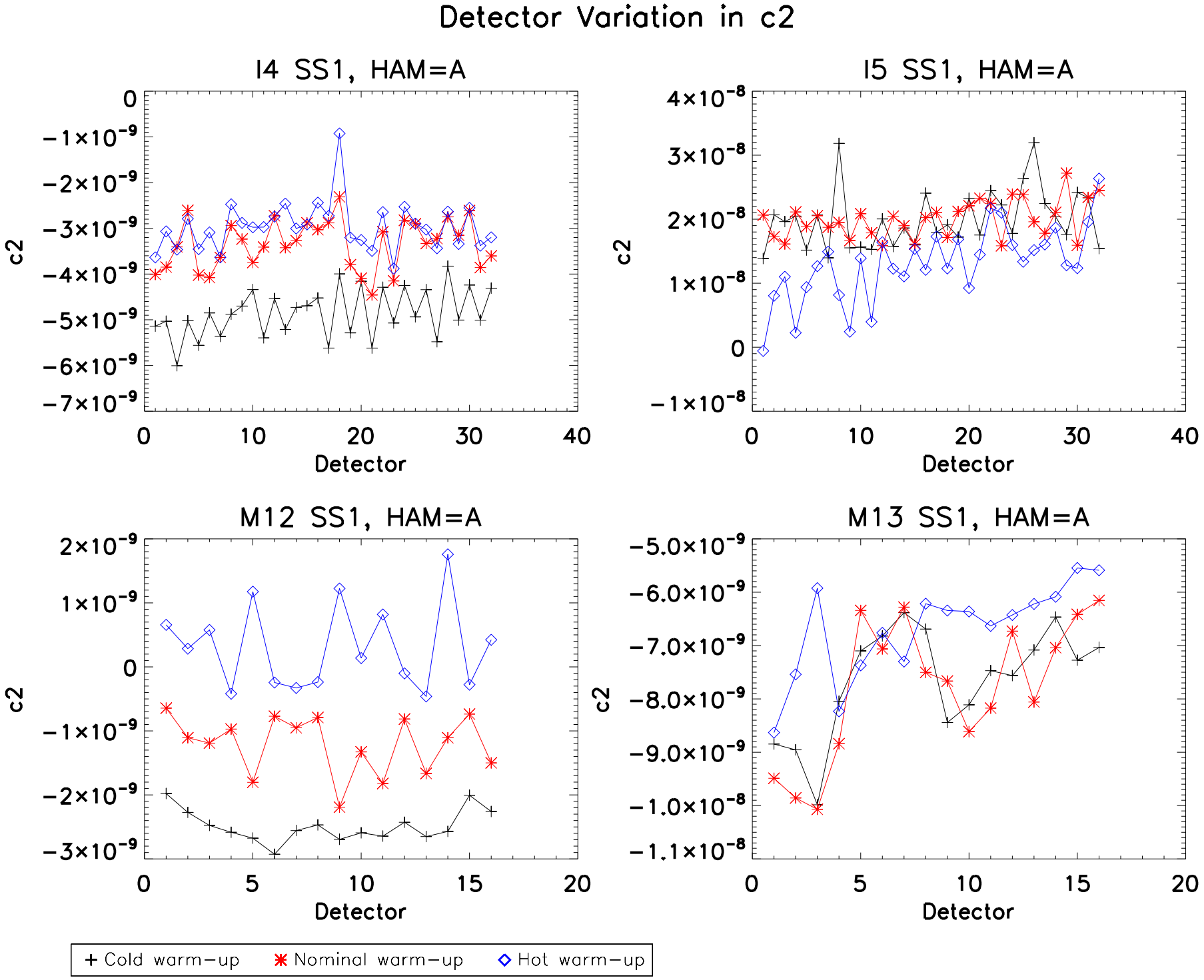

Detector Variation in c0
I4 SS1, HAM=A
I5 SS1, HAM=A
M12 SS1, HAM=A
M13 SS1, HAM=A
c0
Detector
0.0008
0.0006
0.0004
0.0002
0.0000
−0.0002
0.04
0.03
0.02
0.01
0.00
−0.01
0.0004
0.0003
0.0002
0.0001
0.0000
−0.0001
−0.0002
−0.0003
0.0010
0.0008
0.0006
0.0004
0.0002
0.0000
−0.0002
0
5
10
15
20
30
40
+ Cold warm−up
Nominal warm−up
Hot warm−up

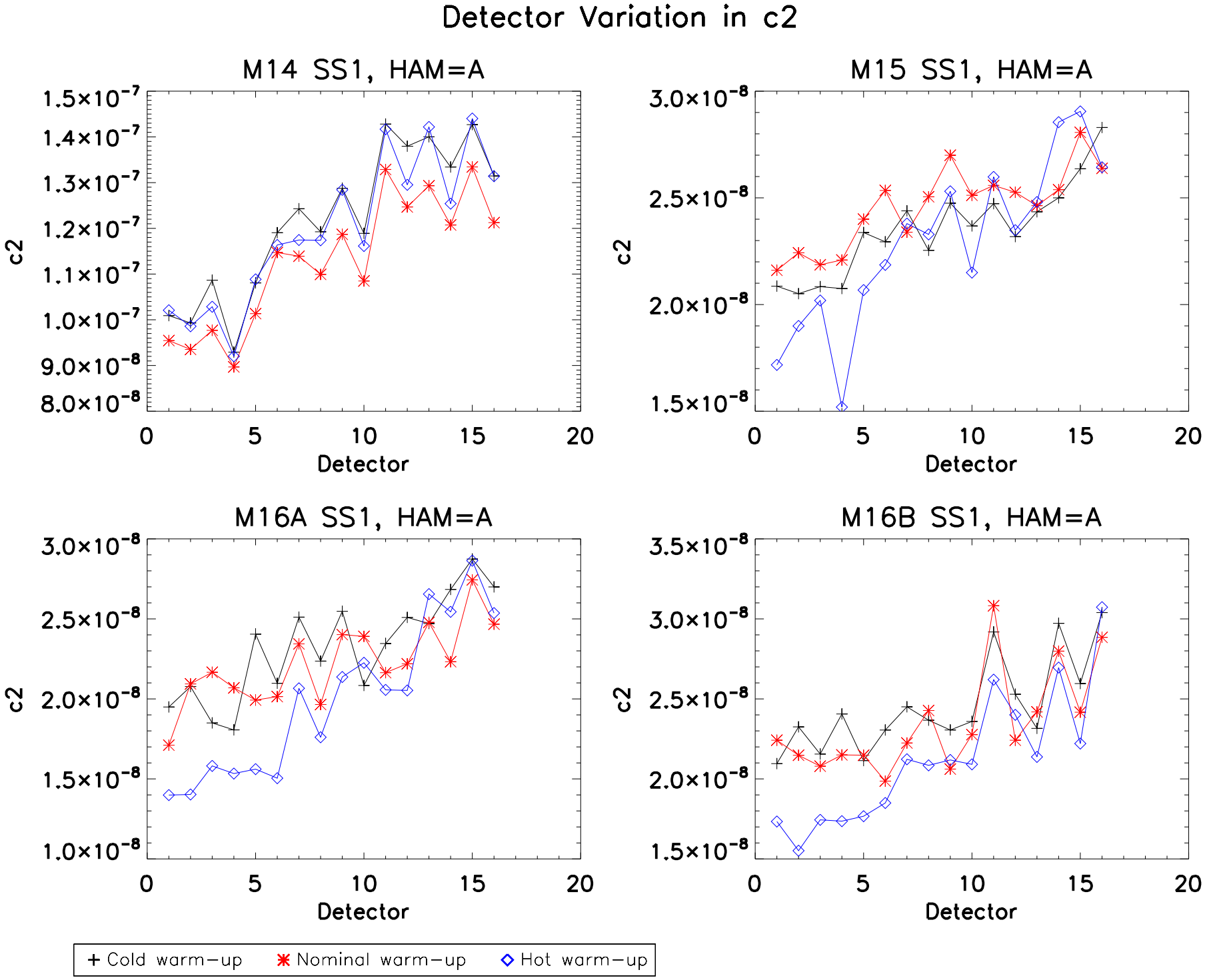
Detector Variation in c0



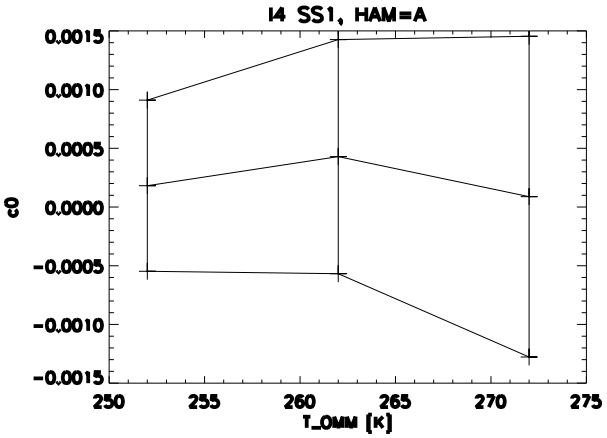

Detector Variation in 1/c1
I4 SS1, HAM=A
I5 SS1, HAM=A
M12 SS1, HAM=A
M13 SS1, HAM=A
1/c1
Detector
Cold warm-up
Nominal warm-up
Hot warm-up

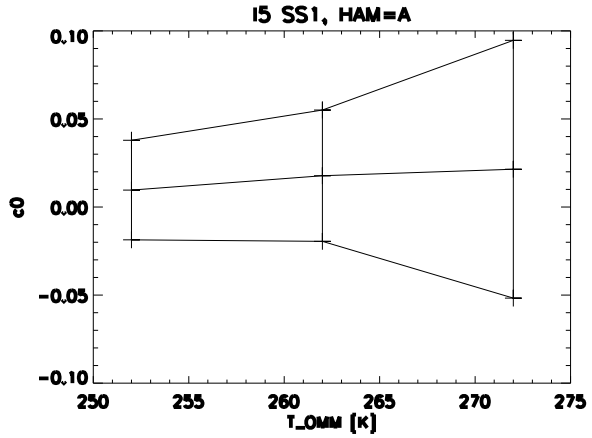

Detector Variation in 1/c1
M14 SS1, HAM=A
M15 SS1, HAM=A
M16A SS1, HAM=A
M16B SS1, HAM=A
1/c1
Detector
Cold warm-up
Nominal warm-up
Hot warm-up

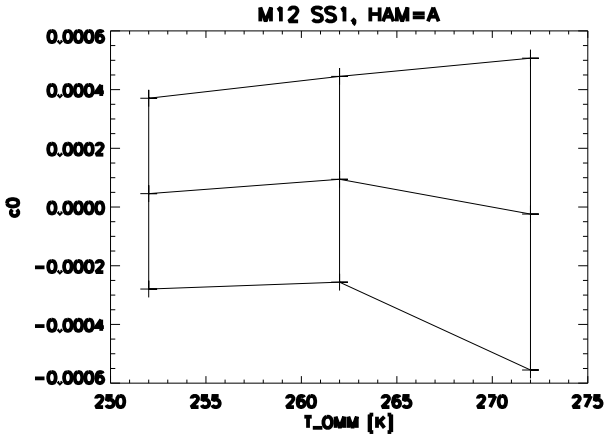

Detector Variation in c2
I4 SS1, HAM=A
I5 SS1, HAM=A
M12 SS1, HAM=A
M13 SS1, HAM=A
c2
Detector
0
−1×10⁻⁹
−2×10⁻⁹
−3×10⁻⁹
−4×10⁻⁹
−5×10⁻⁹
−6×10⁻⁹
−7×10⁻⁹
4×10⁻⁸
3×10⁻⁸
2×10⁻⁸
1×10⁻⁸
−1×10⁻⁸
2×10⁻⁹
1×10⁻⁹
−3×10⁻⁹
−5.0×10⁻⁹
−6.0×10⁻⁹
−7.0×10⁻⁹
−8.0×10⁻⁹
−9.0×10⁻⁹
−1.0×10⁻⁸
−1.1×10⁻⁸
0
10
20
30
40
5
15
Cold warm−up
Nominal warm−up
Hot warm−up

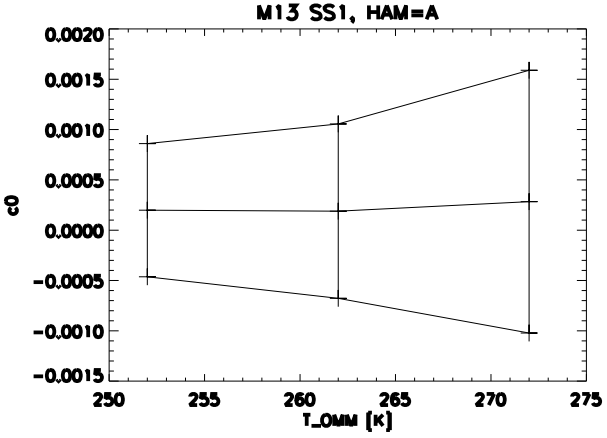

Detector Variation in c2
M14 SS1, HAM=A
M15 SS1, HAM=A
M16A SS1, HAM=A
M16B SS1, HAM=A
c2
Detector
1.5×10⁻⁷
1.4×10⁻⁷
1.3×10⁻⁷
1.2×10⁻⁷
1.1×10⁻⁷
1.0×10⁻⁷
9.0×10⁻⁸
8.0×10⁻⁸
3.0×10⁻⁸
2.5×10⁻⁸
2.0×10⁻⁸
1.5×10⁻⁸
1.0×10⁻⁸
3.5×10⁻⁸
0
5
10
15
20
Cold warm−up
Nominal warm−up
Hot warm−up

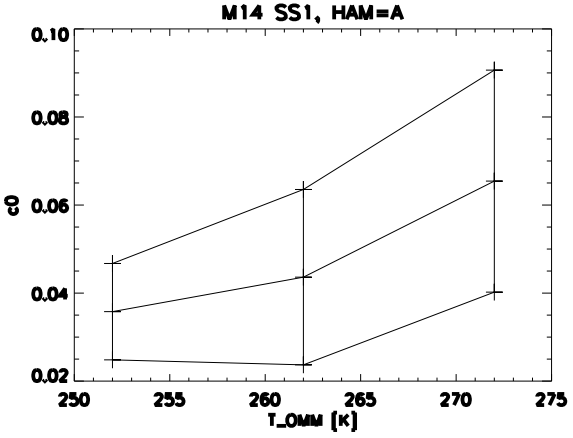
Temperature Variation in c0

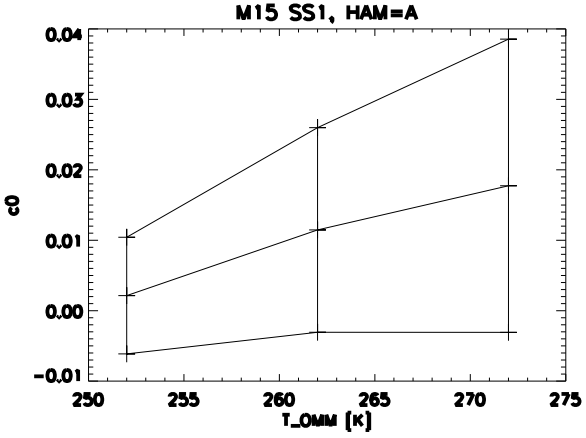


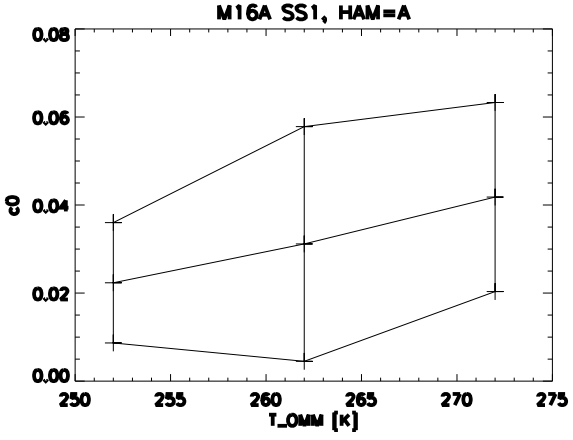


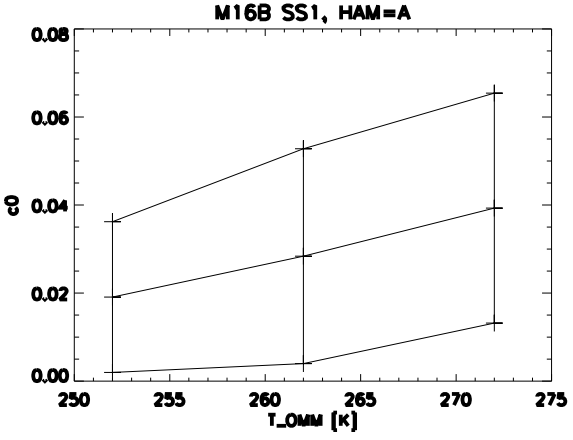




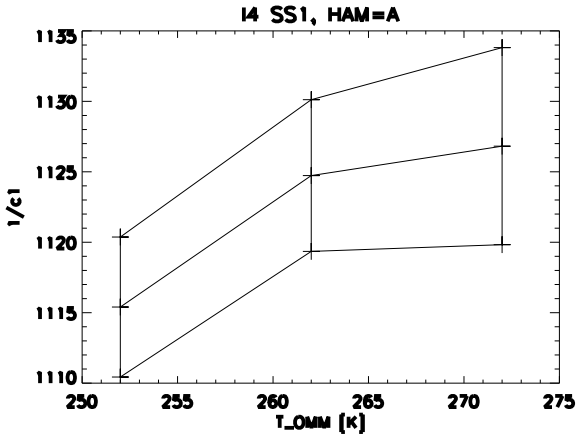


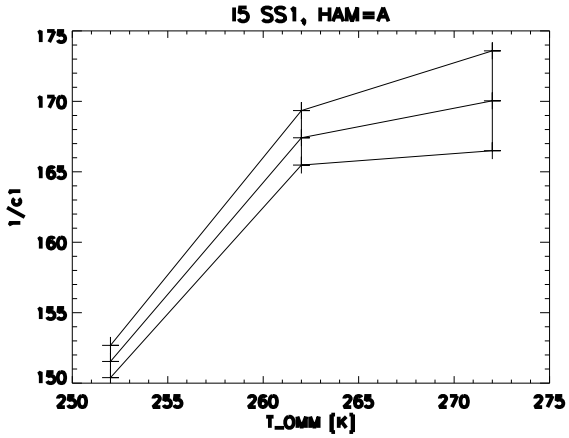


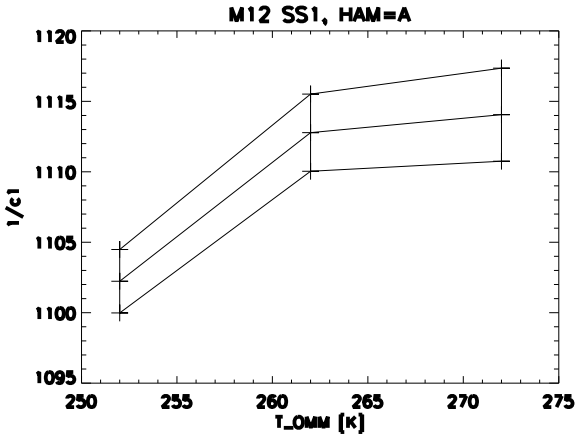


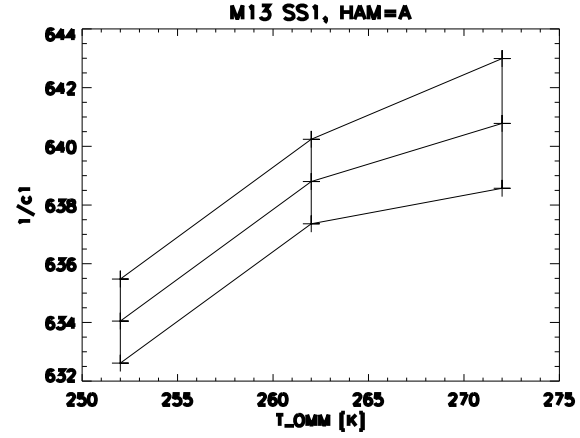


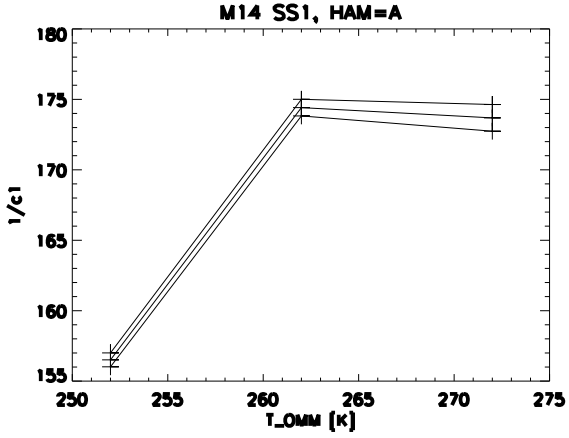
Temperature Variation in 1/c1

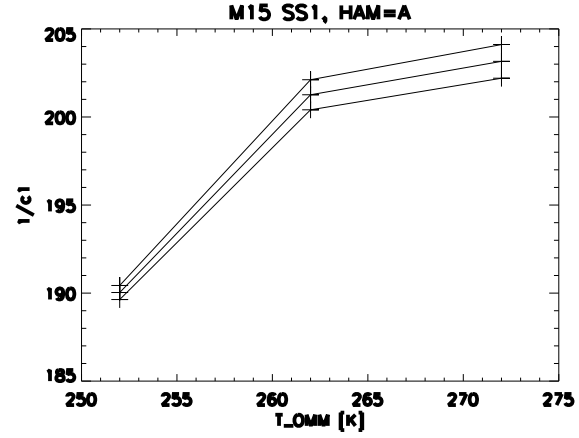


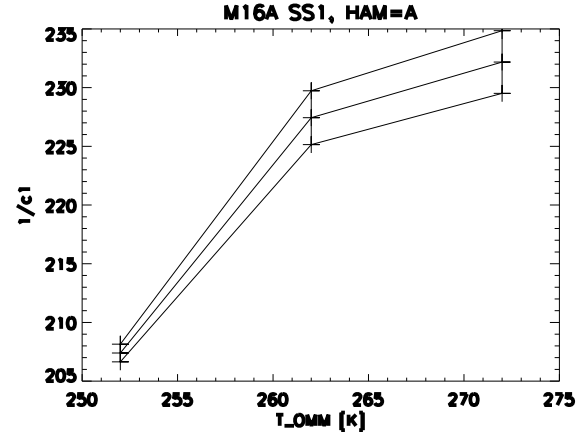


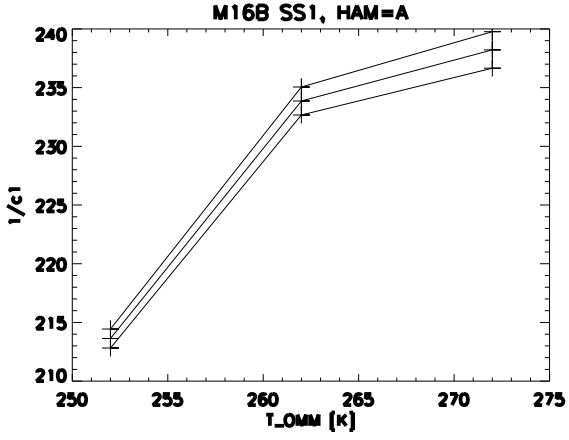




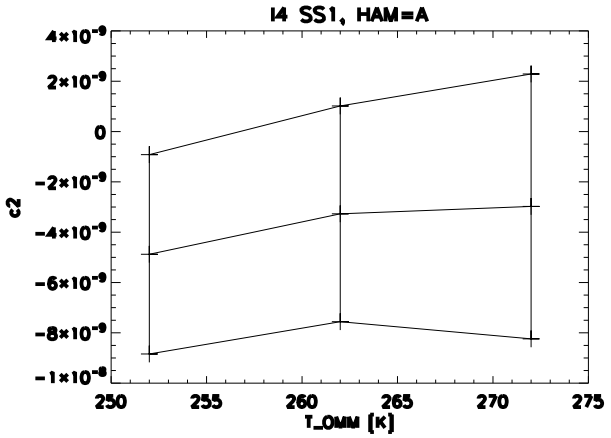


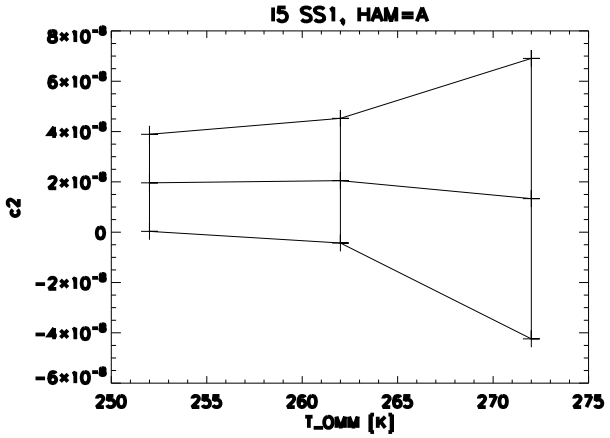


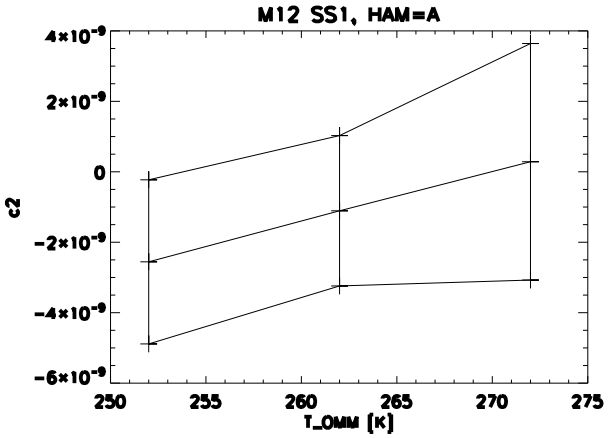


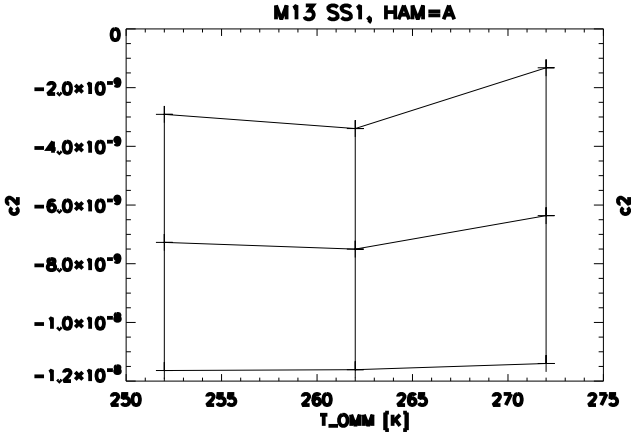


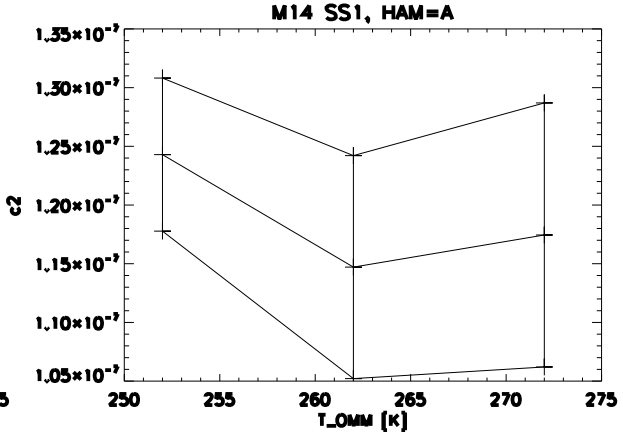
Temperature Variation in c2

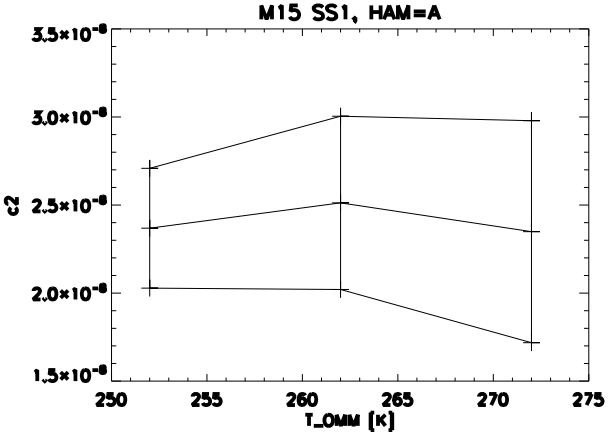


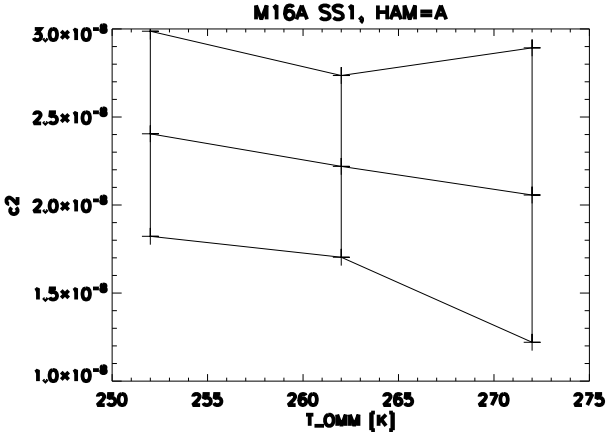


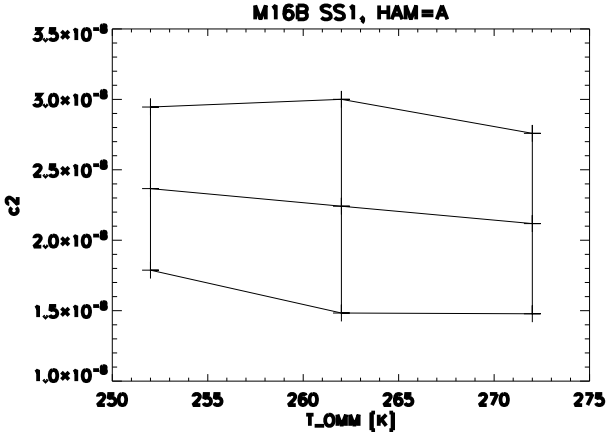




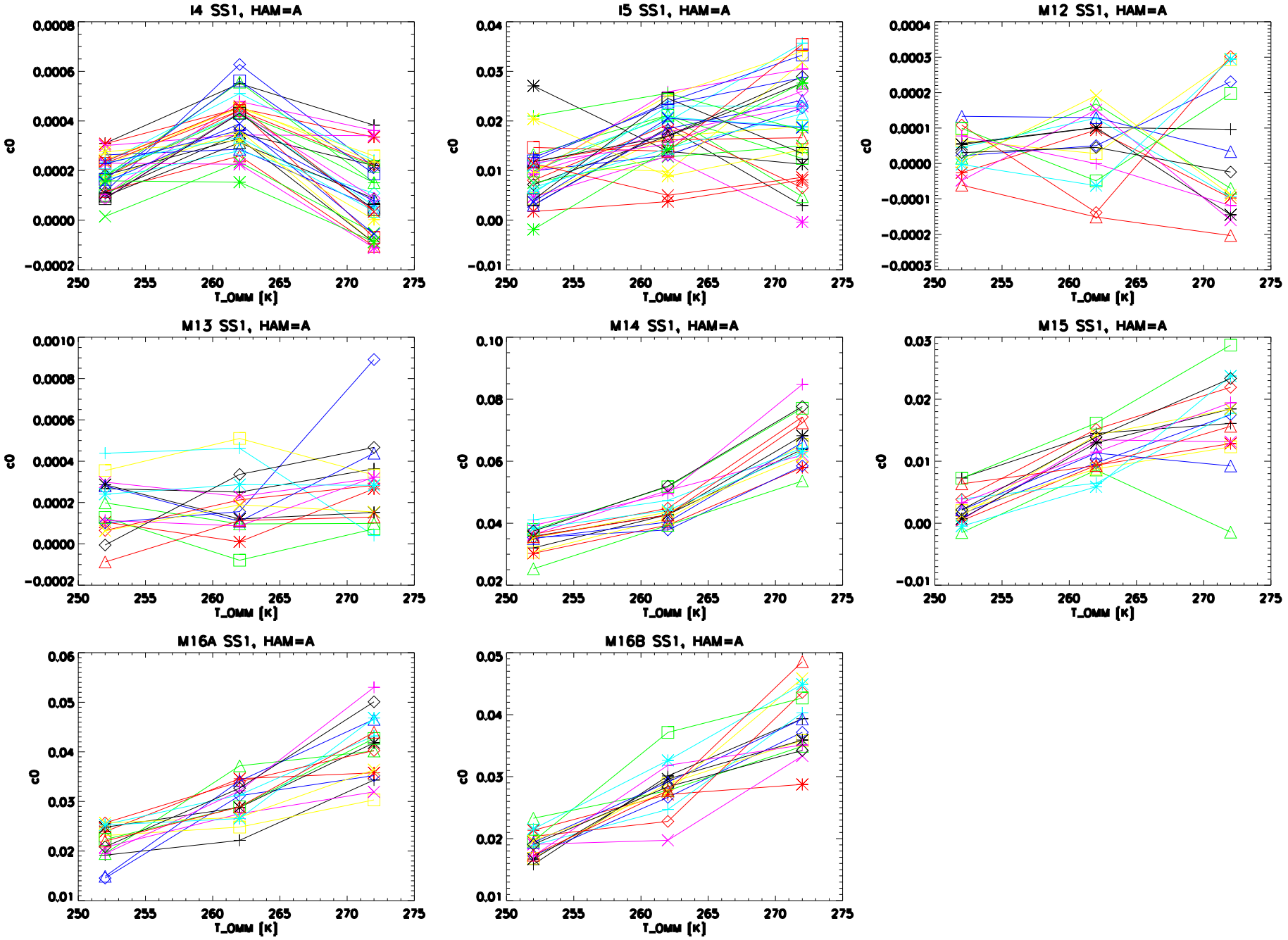




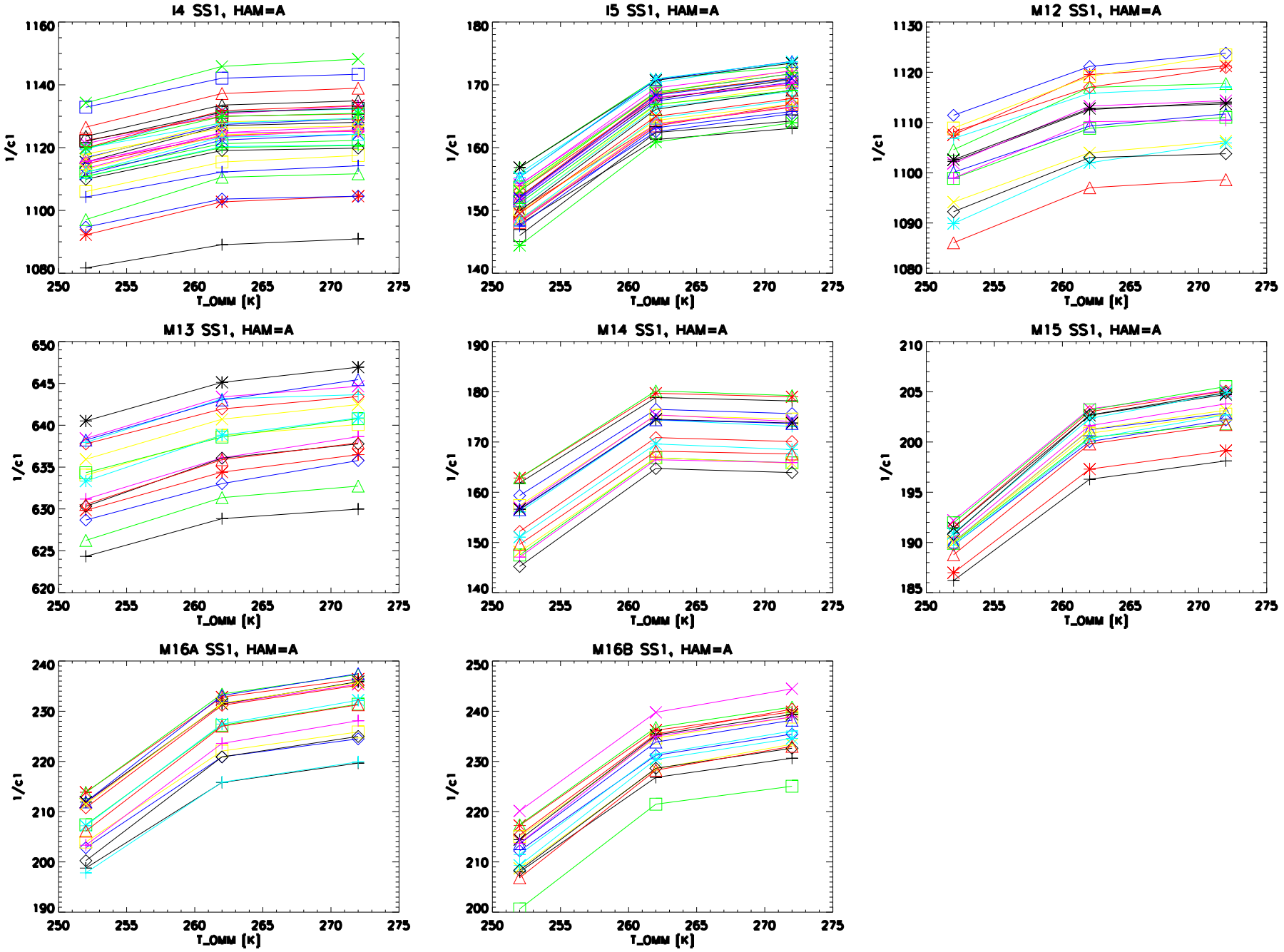




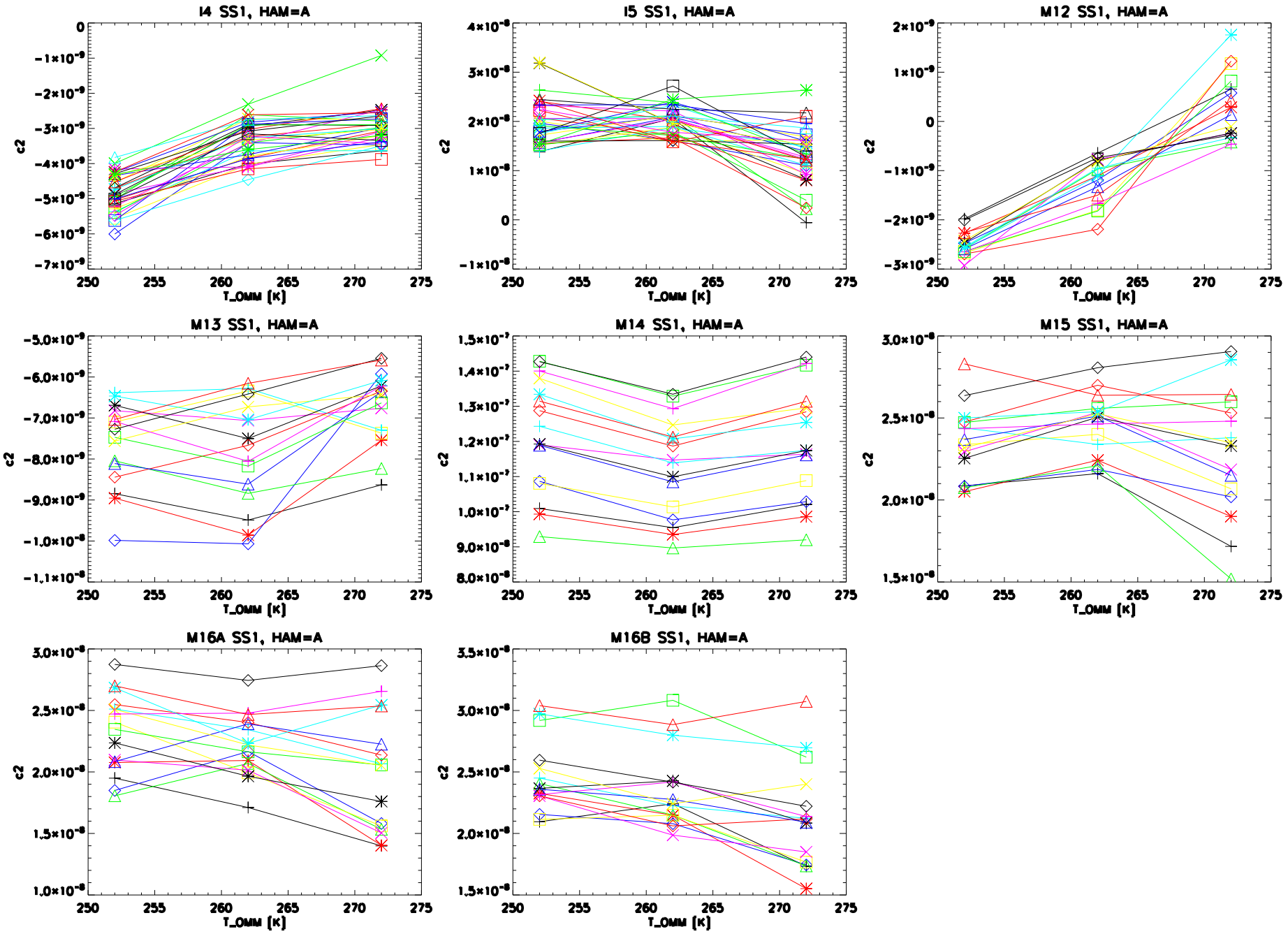
Temperature Variation in c0



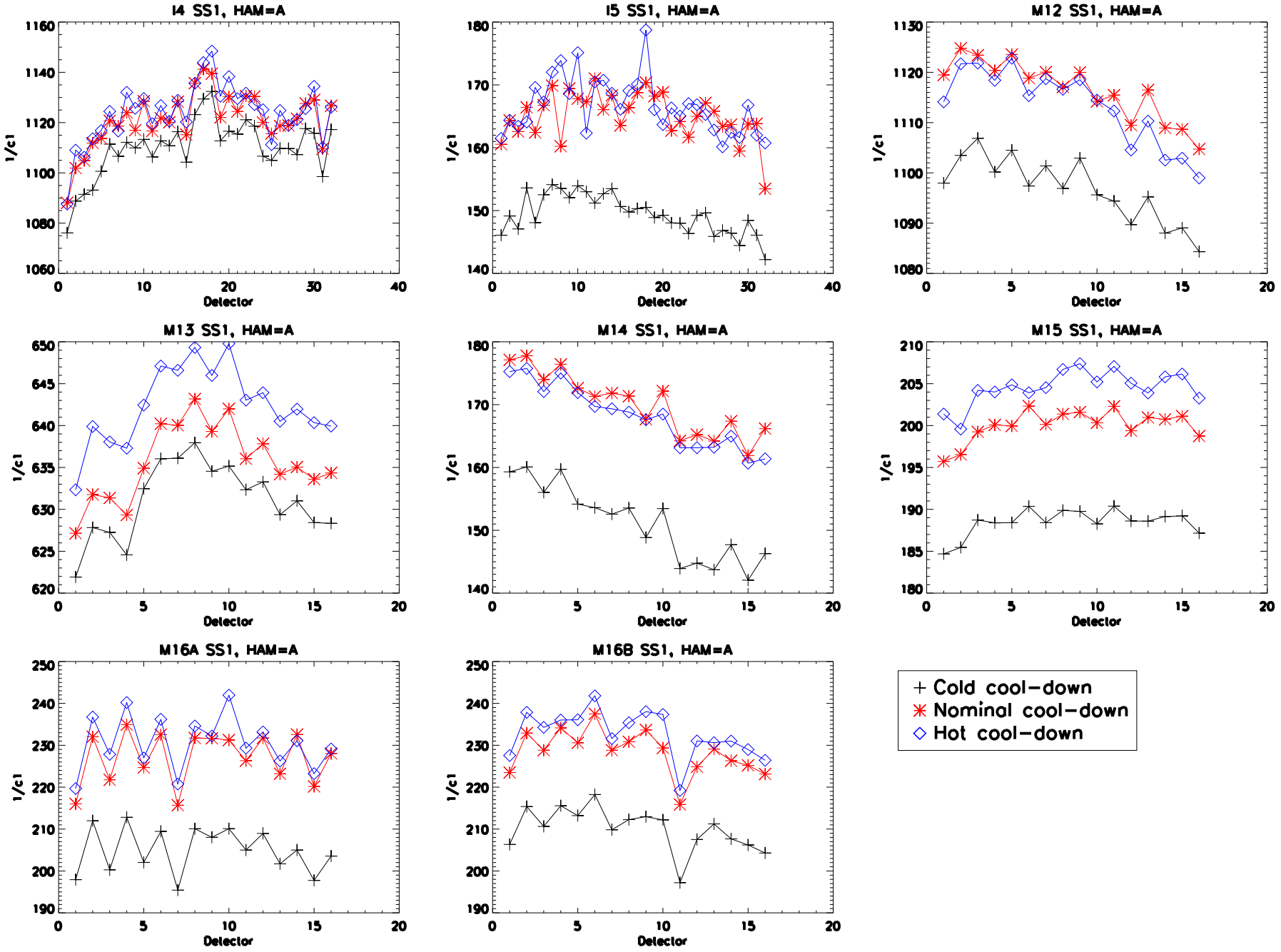
Temperature Variation in 1/c1



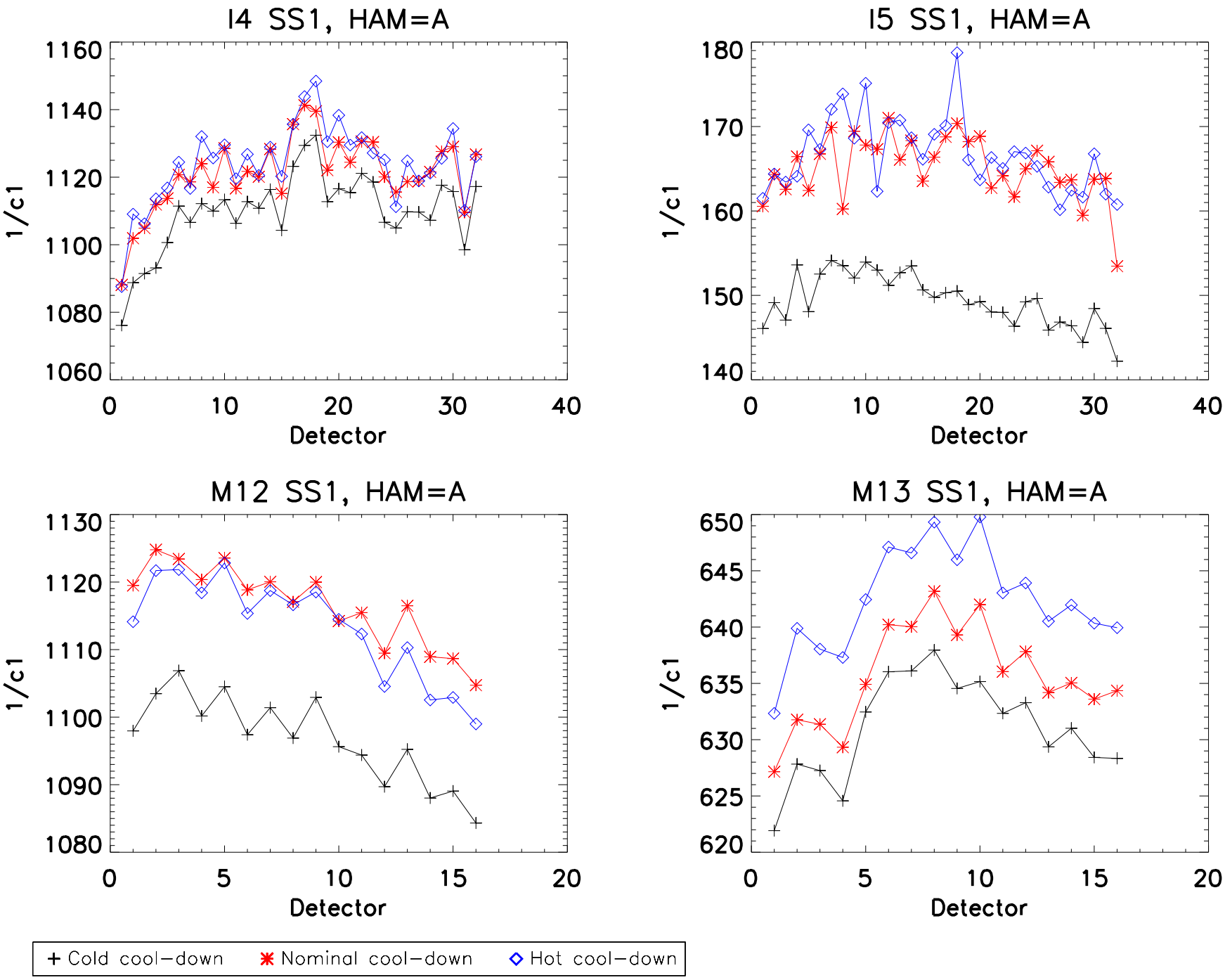
Temperature Variation in c2



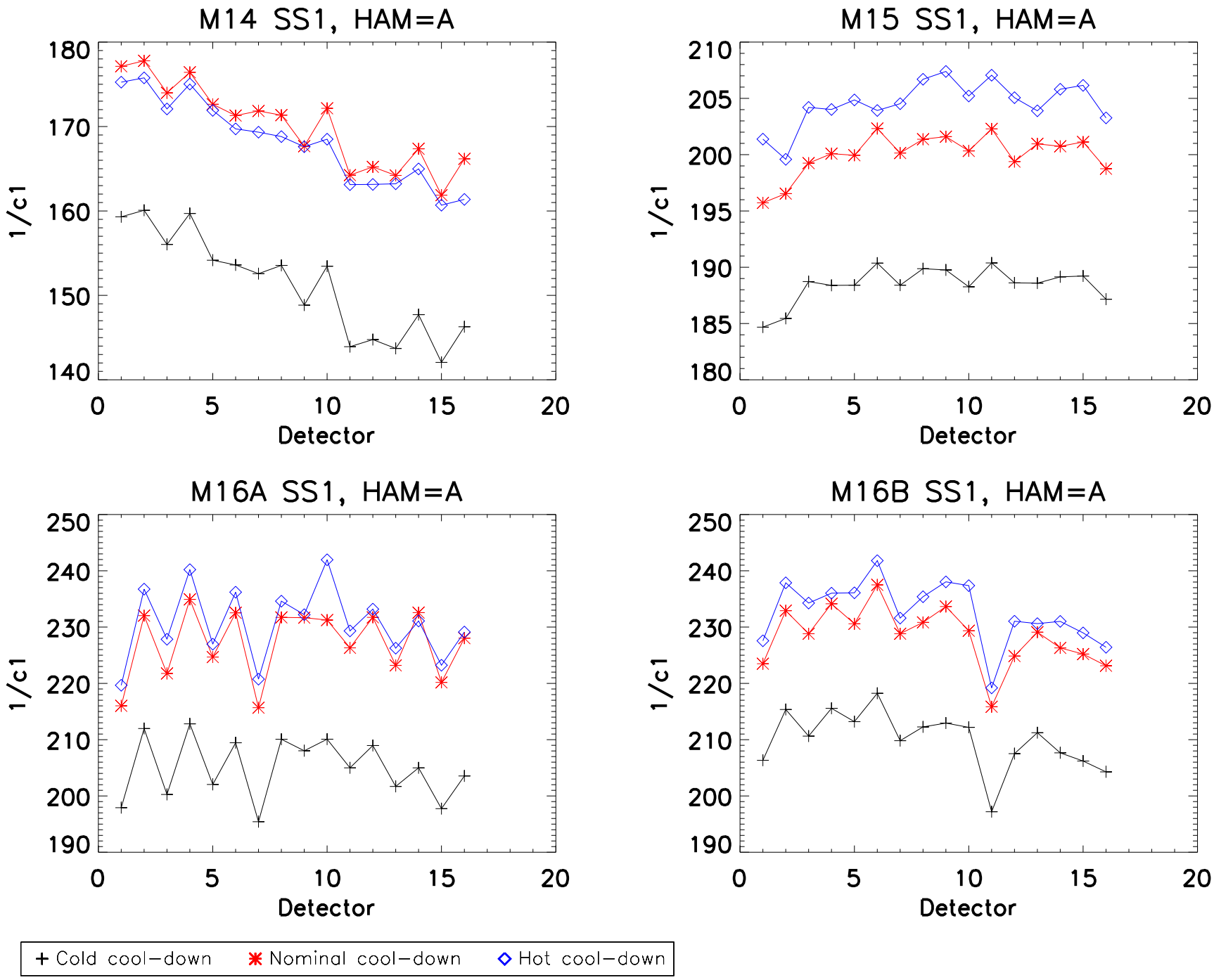
Detector Variation in Gain



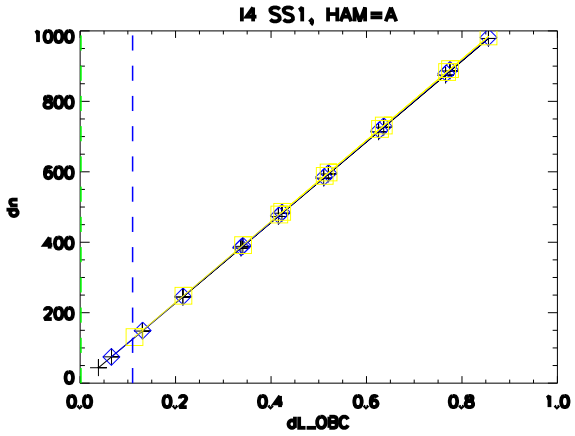
Detector Variation in Gain

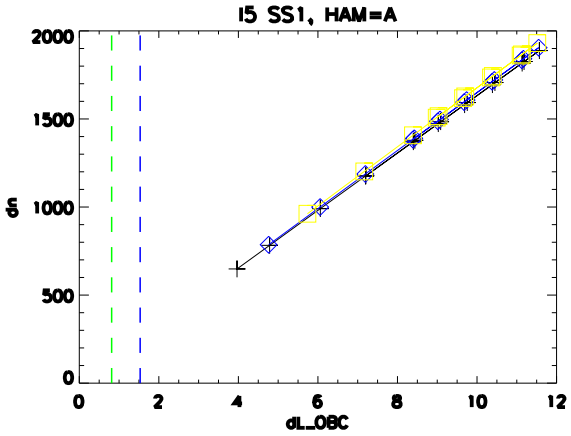


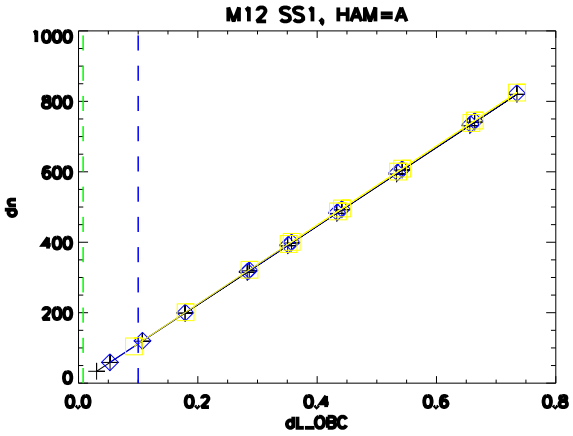
Detector Variation in Gain

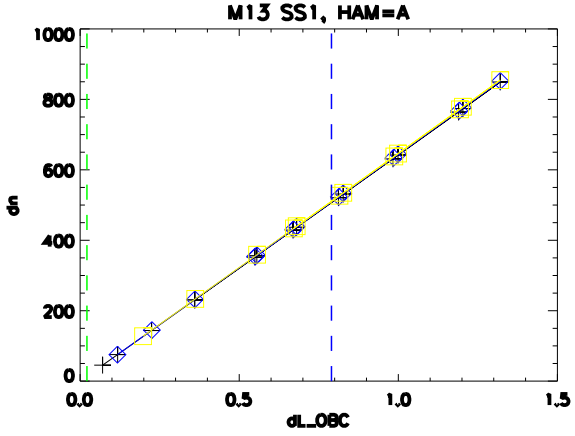


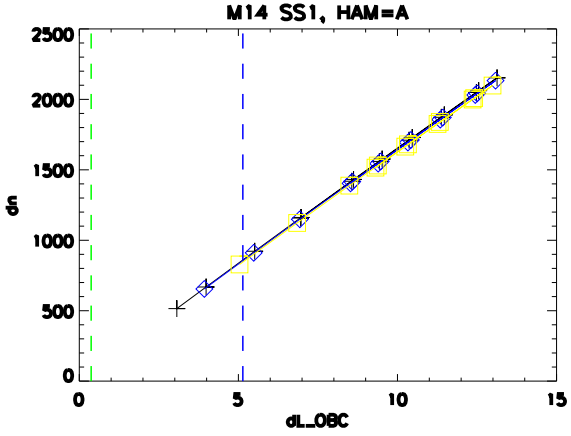
dn vs dL_OBC

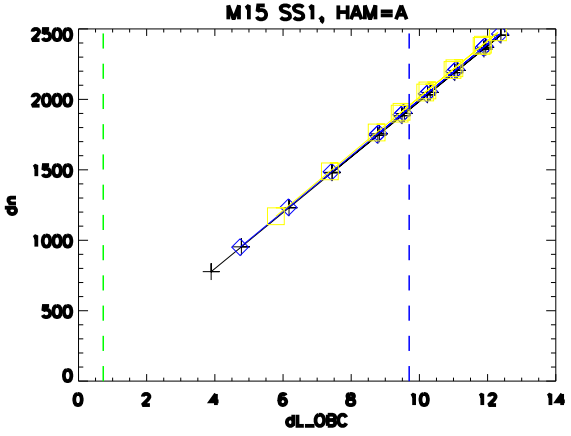

I4 SS1, HAM=A
dn
dL_OBC

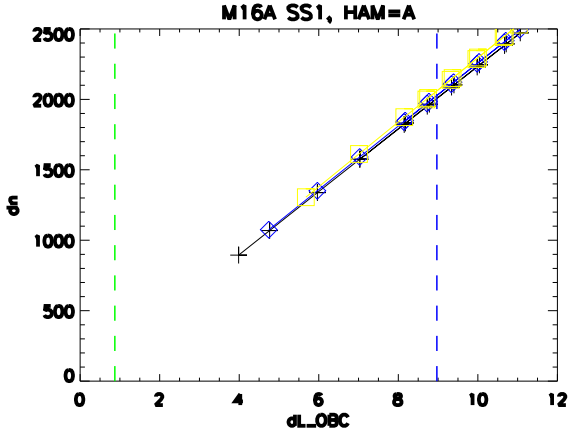

I5 SS1, HAM=A
dn
dL_OBC

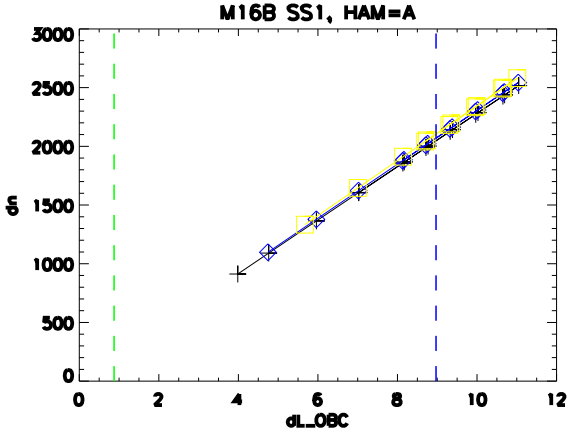

M12 SS1, HAM=A
dn
dL_OBC

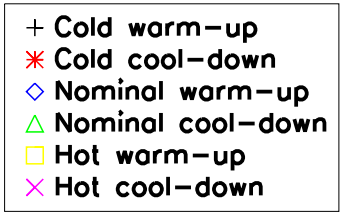

M13 SS1, HAM=A
dn
dL_OBC


M14 SS1, HAM=A
dn
dL_OBC

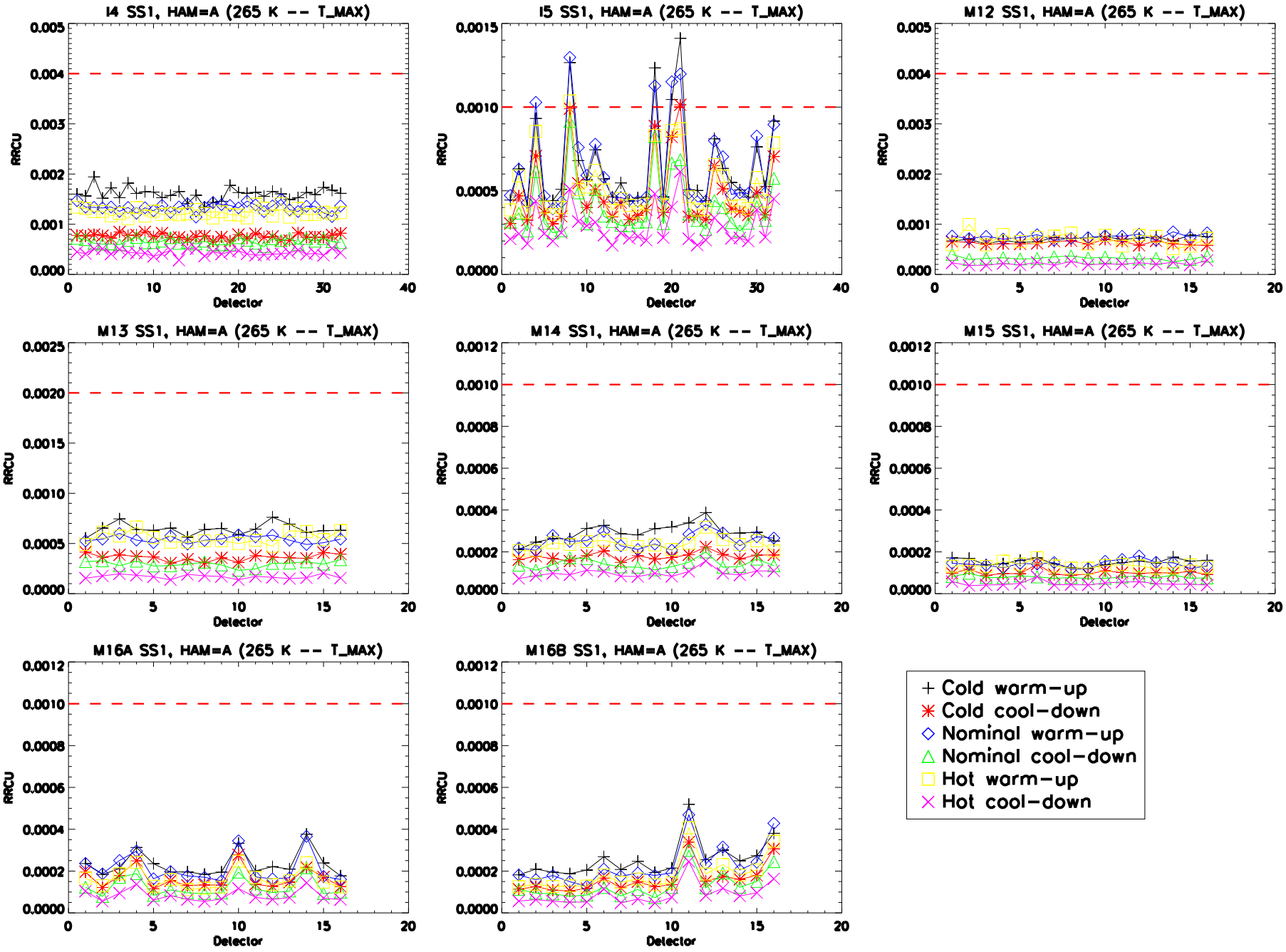

M15 SS1, HAM=A
dn
dL_OBC


M16A SS1, HAM=A
dn
dL_OBC

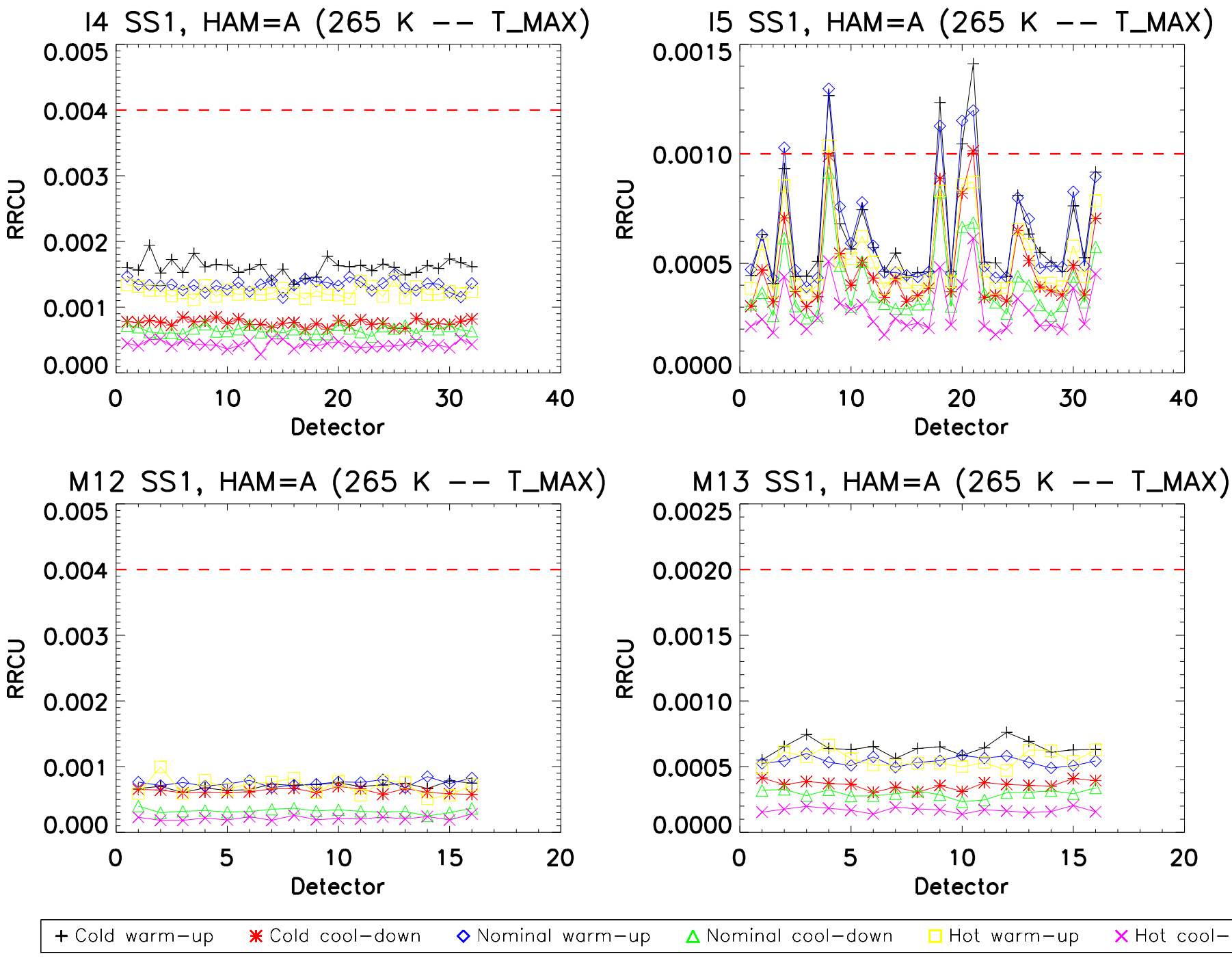

M16B SS1, HAM=A
dn
dL_OBC


Cold warm-up
Cold cool-down
Nominal warm-up
Nominal cool-down
Hot warm-up
Hot cool-down

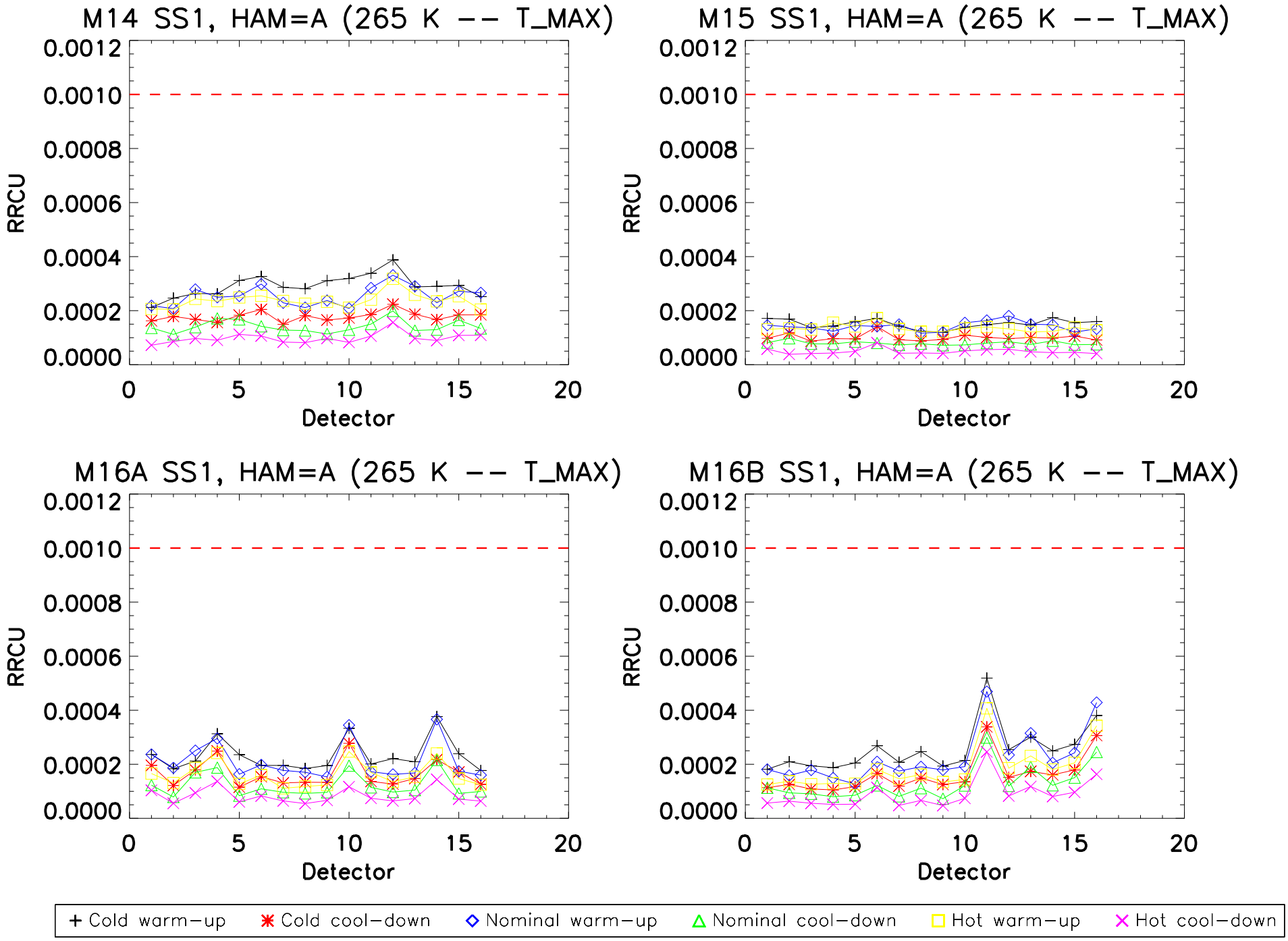
Detector Variation in RRCU



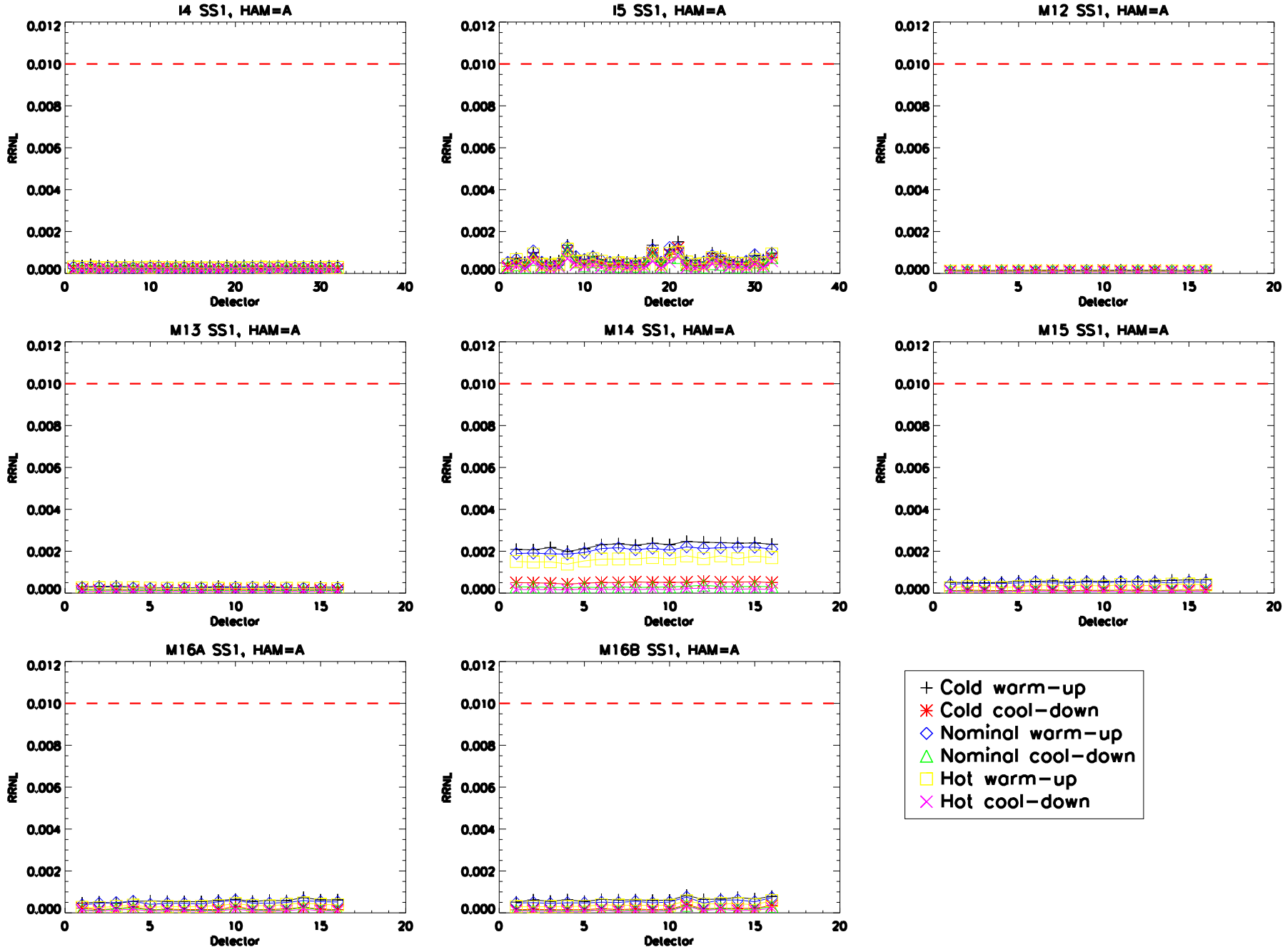
Detector Variation in RRCU

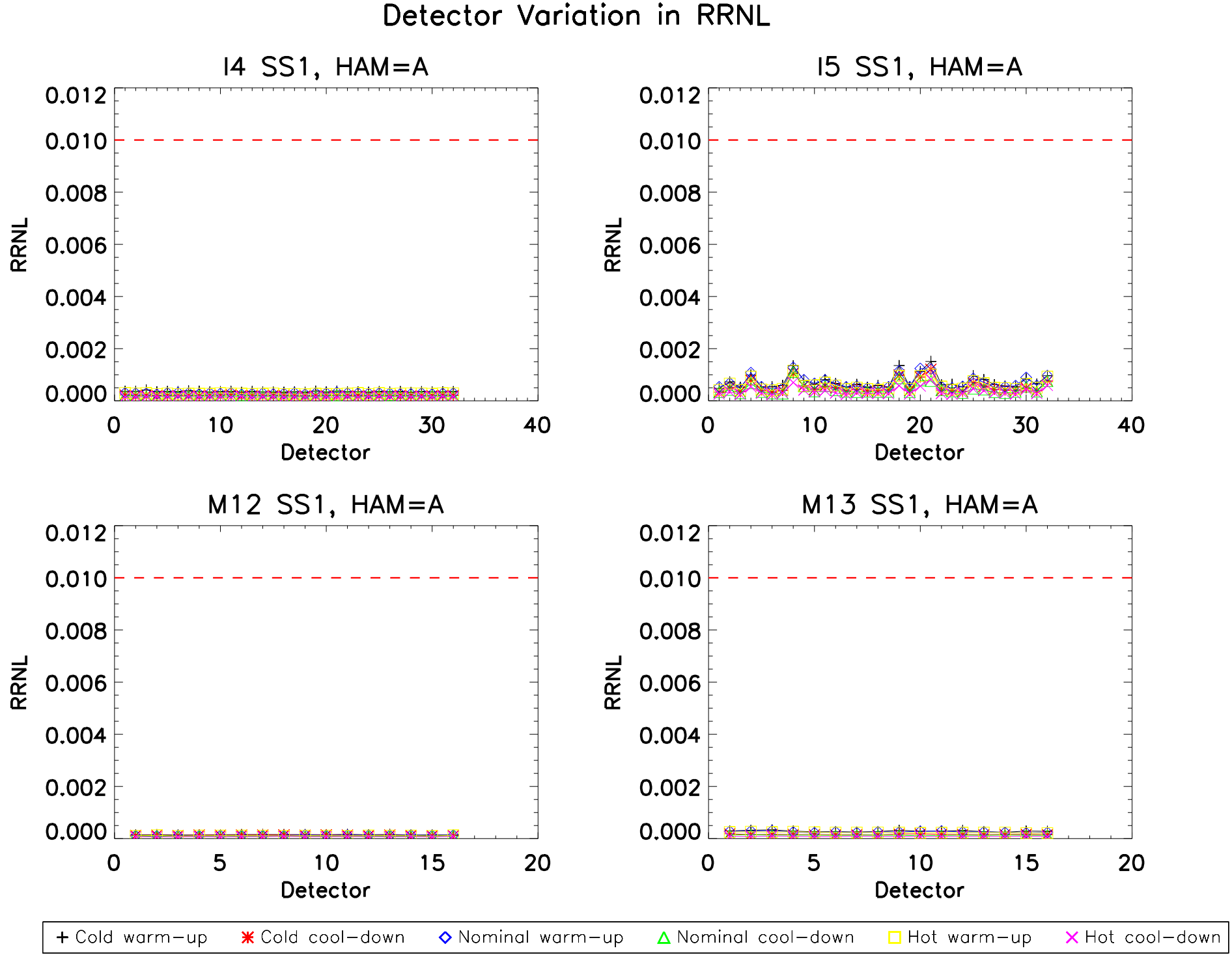


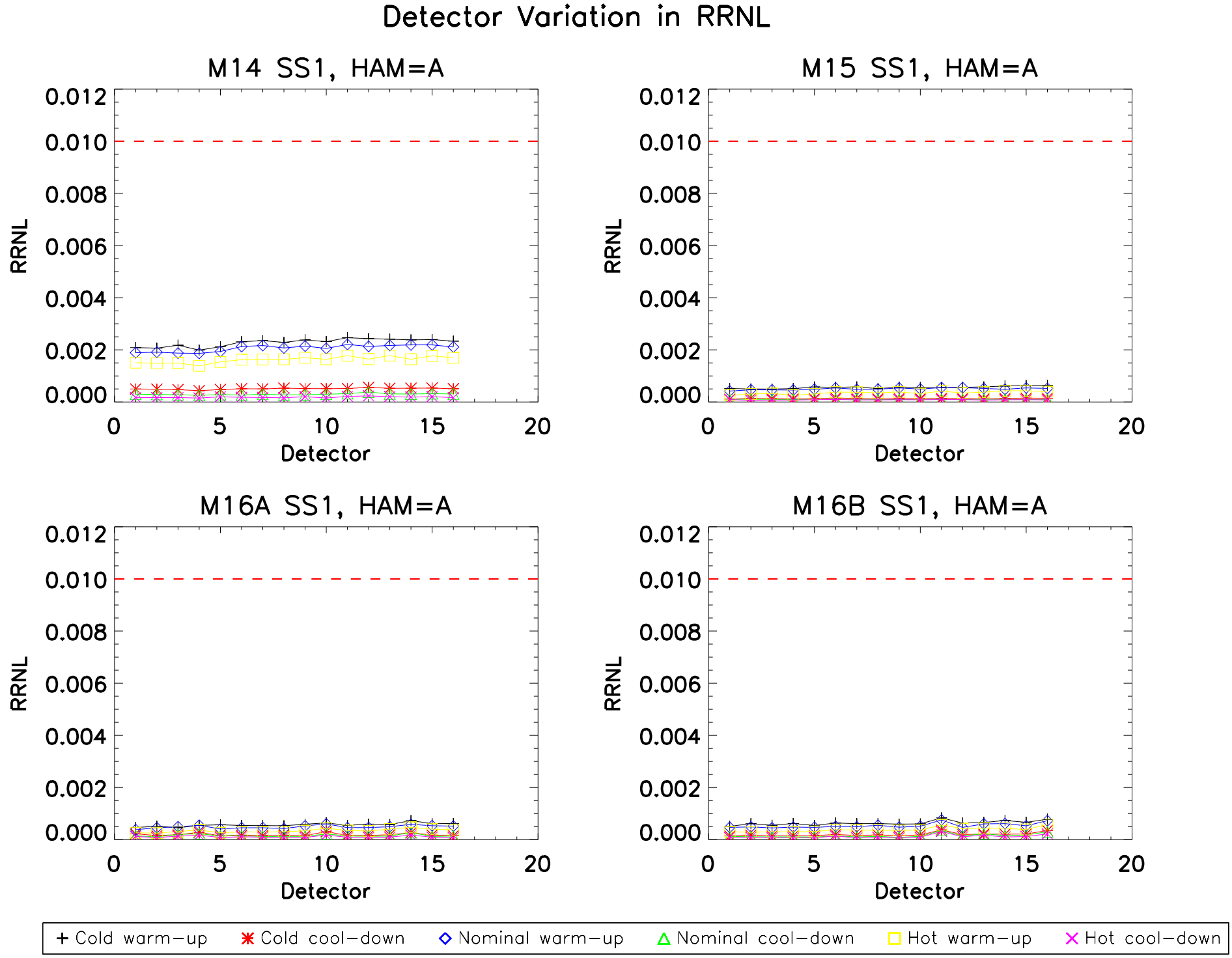
Detector Variation in RRCU



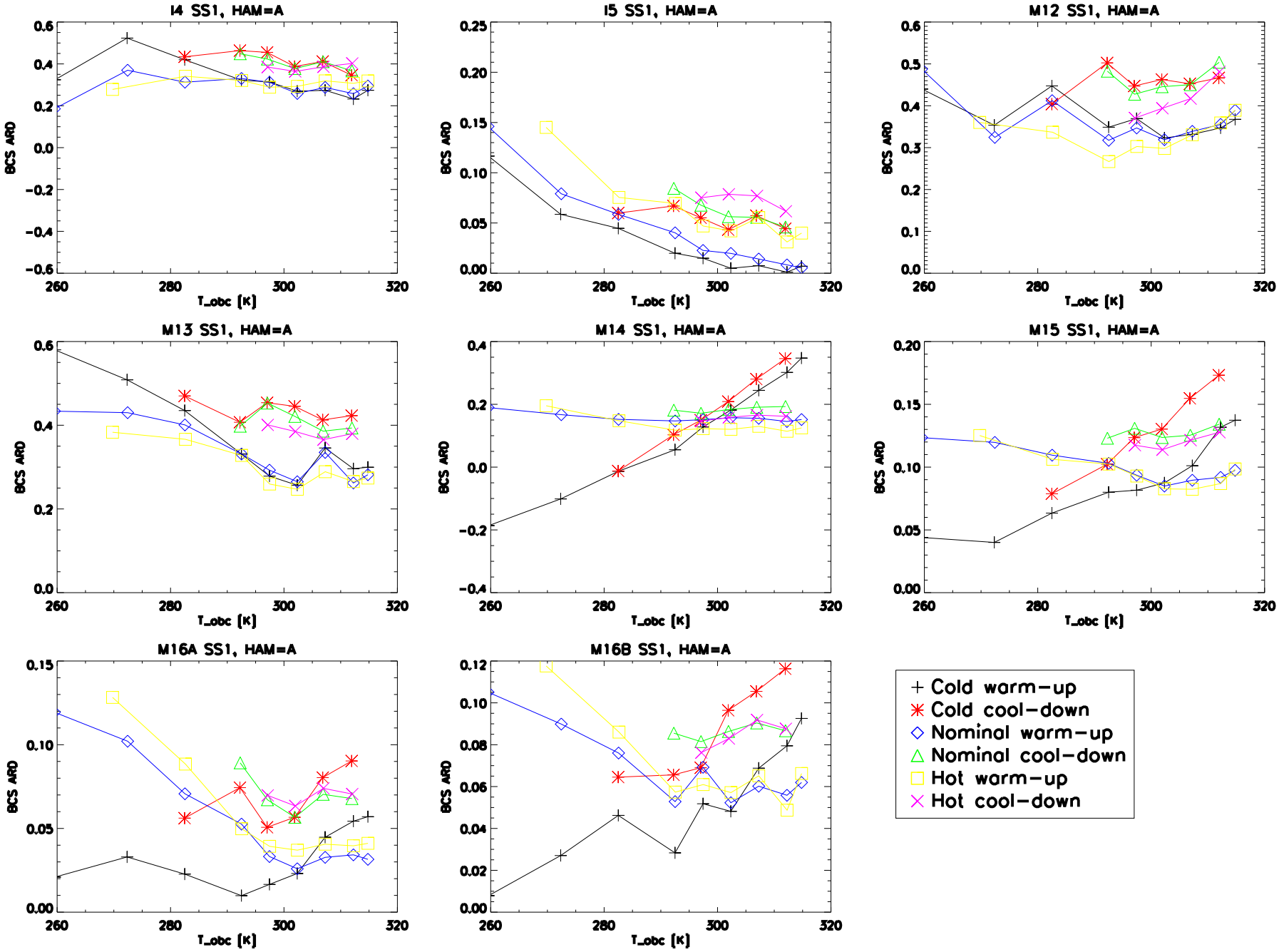
Detector Variation in RRNL



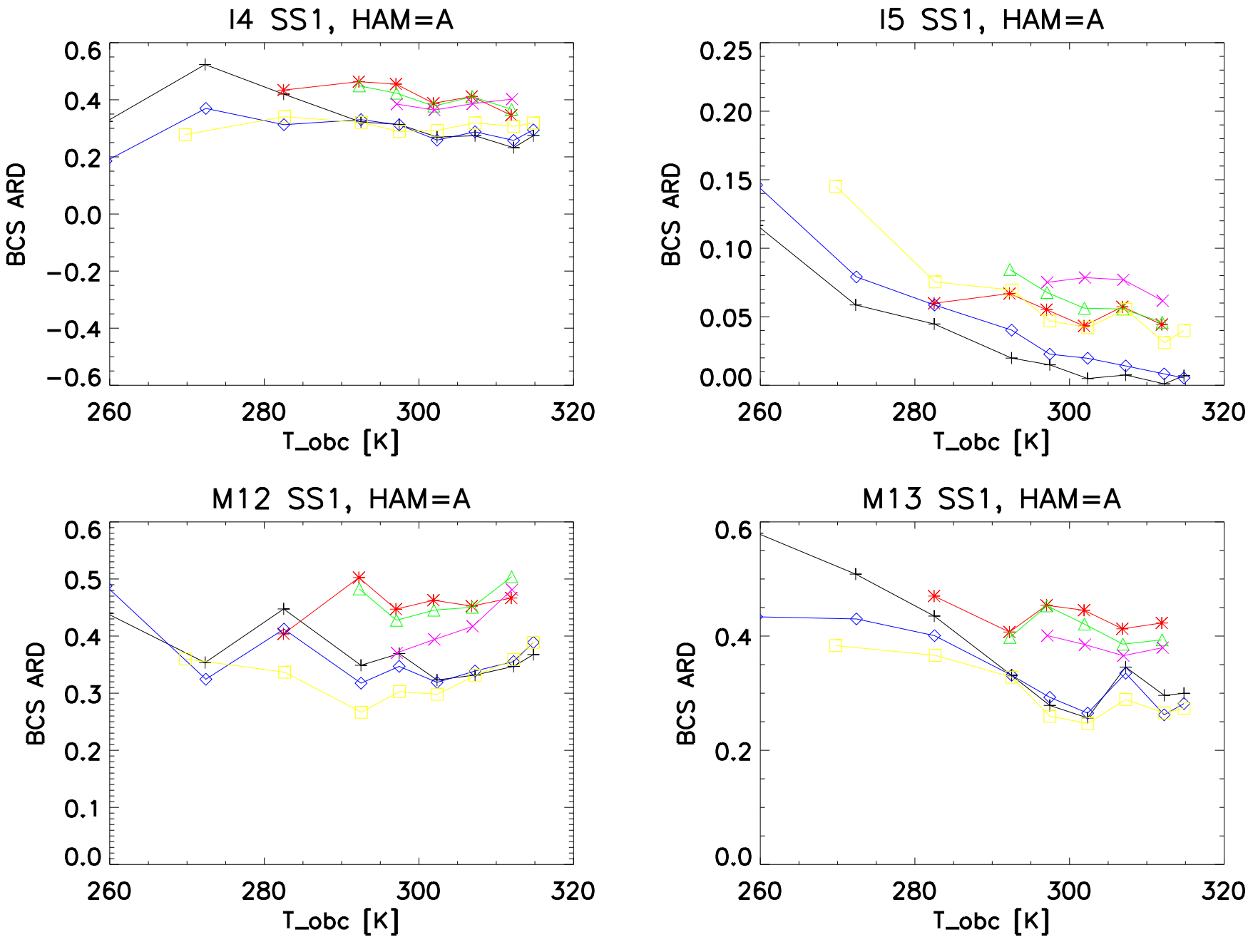

Detector Variation in RRNL
I4 SS1, HAM=A
I5 SS1, HAM=A
M12 SS1, HAM=A
M13 SS1, HAM=A
RRNL
Detector
0.012
0.010
0.008
0.006
0.004
0.002
0.000
0
5
10
15
20
30
40
+ Cold warm-up
* Cold cool-down
◇ Nominal warm-up
△ Nominal cool-down
□ Hot warm-up
× Hot cool-down


Detector Variation in RRNL
M14 SS1, HAM=A
M15 SS1, HAM=A
M16A SS1, HAM=A
M16B SS1, HAM=A
RRNL
0.012
0.010
0.008
0.006
0.004
0.002
0.000
0
5
10
15
20
Detector
Cold warm−up
Cold cool−down
Nominal warm−up
Nominal cool−down
Hot warm−up
Hot cool−down

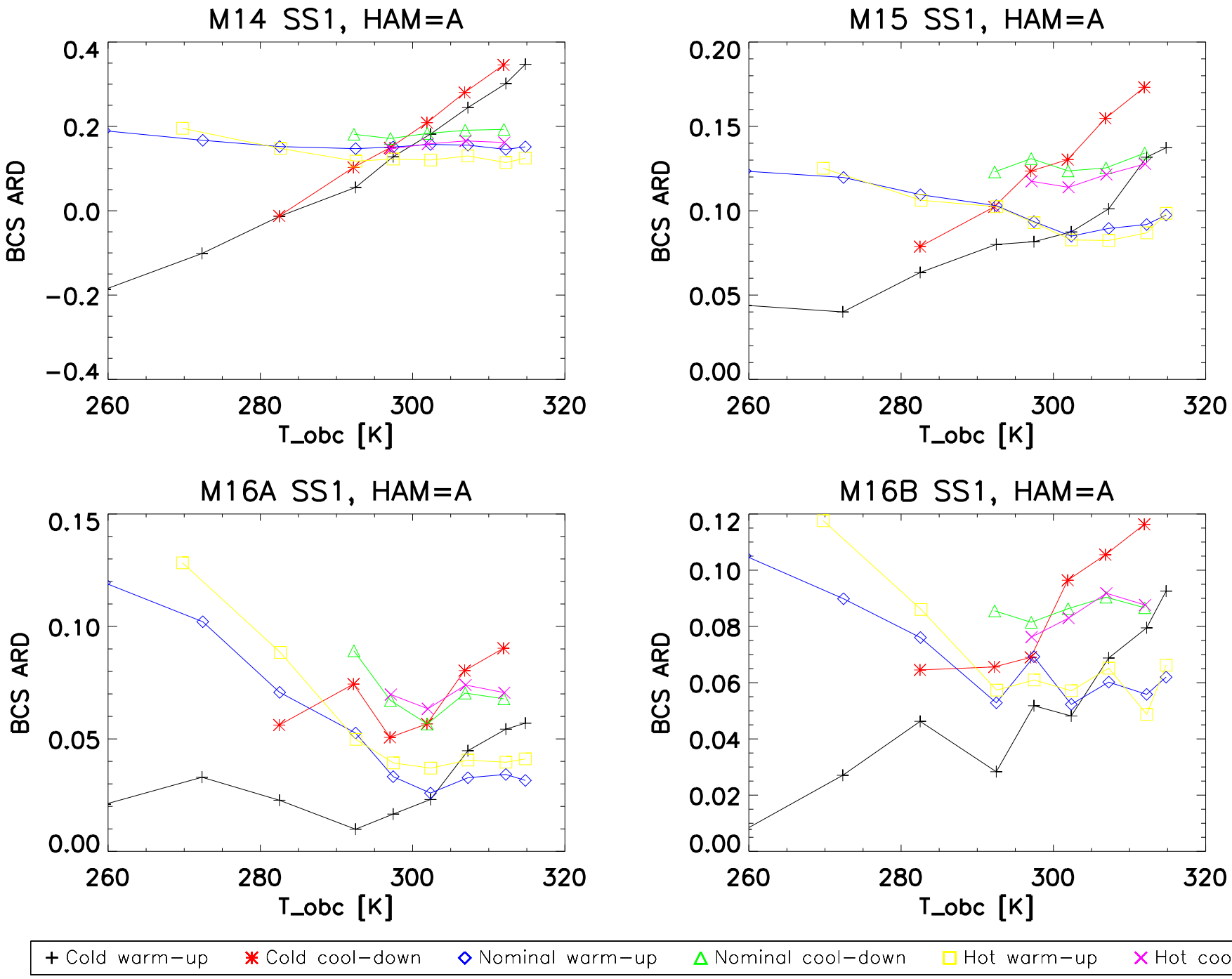
ARD vs T_obc


I4 SS1, HAM=A
I5 SS1, HAM=A
M12 SS1, HAM=A
M13 SS1, HAM=A
M14 SS1, HAM=A
M15 SS1, HAM=A
M16A SS1, HAM=A
M16B SS1, HAM=A
BCS ARD
T_obc (K)
Cold warm-up
Cold cool-down
Nominal warm-up
Nominal cool-down
Hot warm-up
Hot cool-down

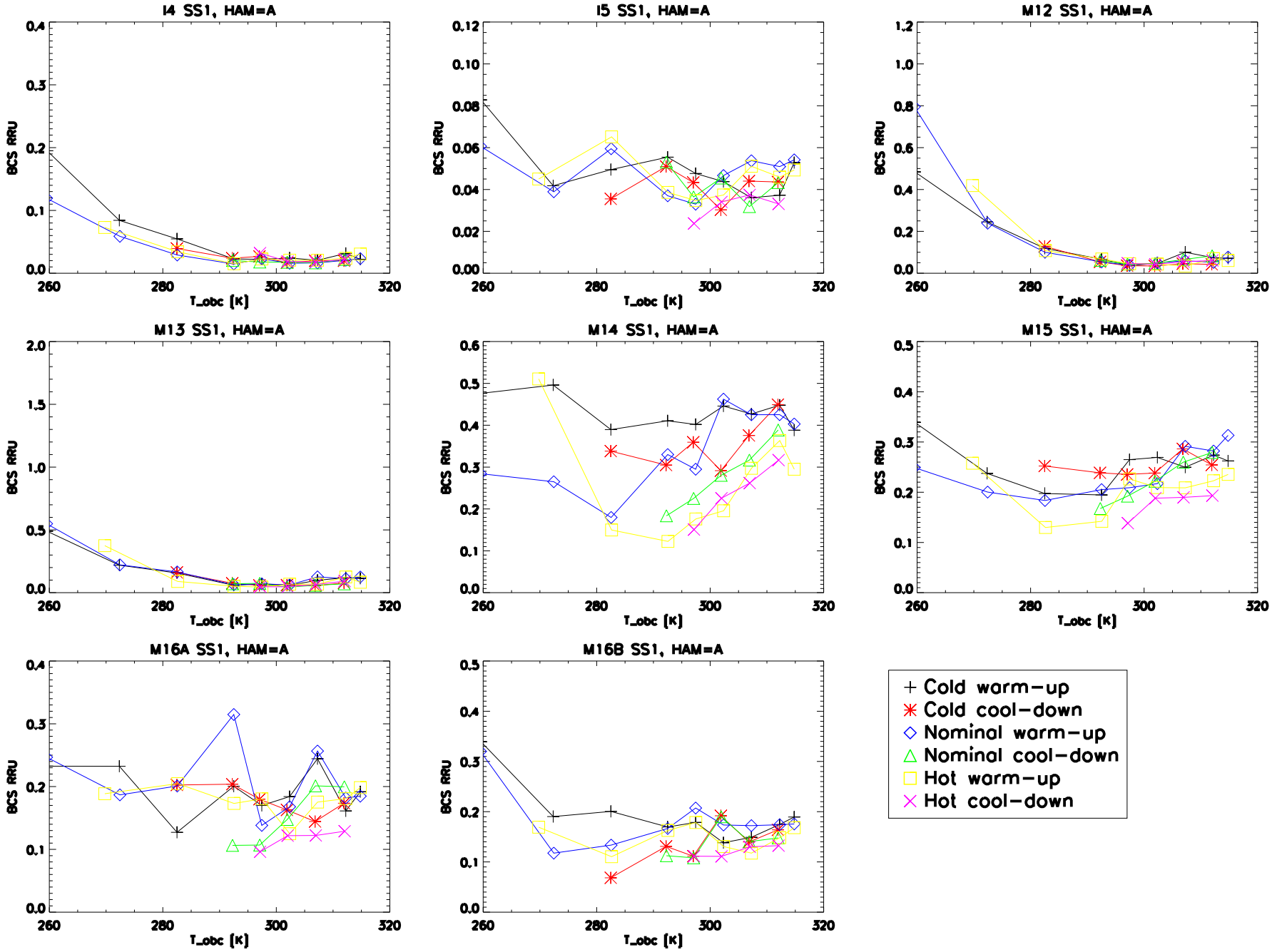
ARD vs T_obc


I4 SS1, HAM=A
I5 SS1, HAM=A
M12 SS1, HAM=A
M13 SS1, HAM=A
BCS ARD
T_obc [K]
260
280
300
320
Cold warm−up
Cold cool−down
Nominal warm−up
Nominal cool−down
Hot warm−up
Hot cool−down

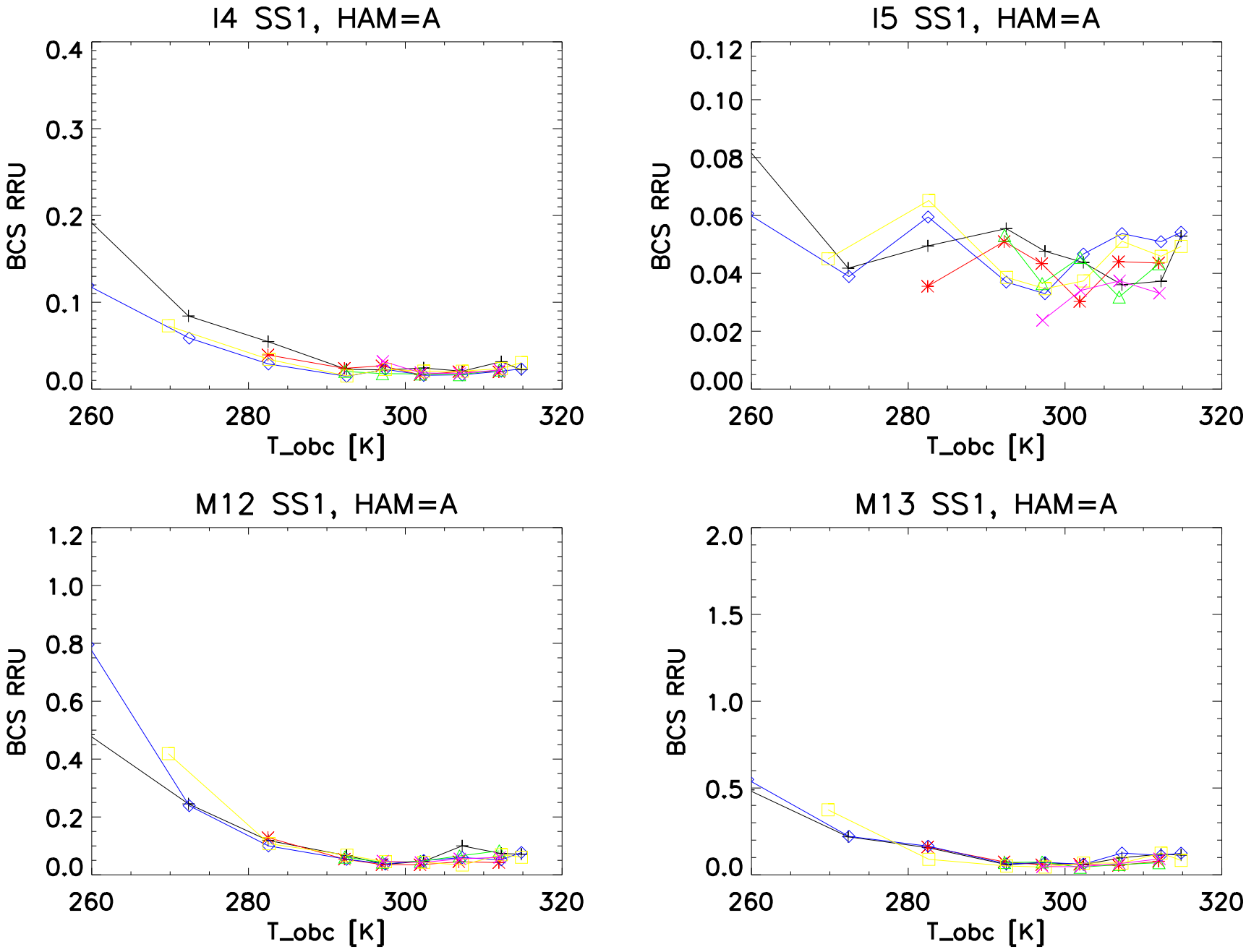
ARD vs T_obc


M14 SS1, HAM=A
M15 SS1, HAM=A
M16A SS1, HAM=A
M16B SS1, HAM=A
BCS ARD
T_obc [K]
0.4
0.2
0.0
−0.2
−0.4
0.20
0.15
0.10
0.05
0.00
0.12
0.08
0.06
0.04
0.02
260
280
300
320
+ Cold warm−up
Cold cool−down
Nominal warm−up
Nominal cool−down
Hot warm−up
Hot cool−down

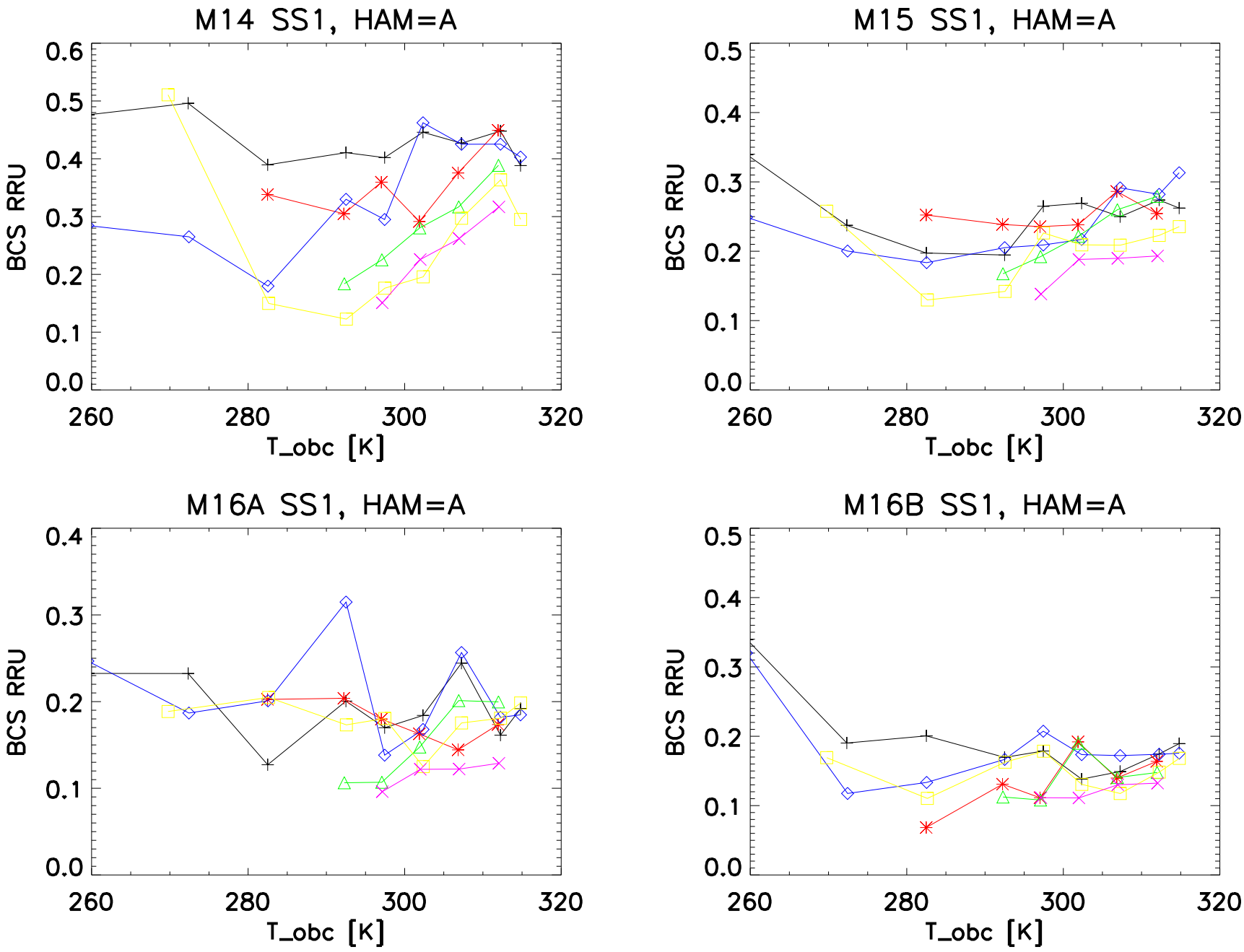
RRU vs T_obc


I4 SS1, HAM=A
I5 SS1, HAM=A
M12 SS1, HAM=A
M13 SS1, HAM=A
M14 SS1, HAM=A
M15 SS1, HAM=A
M16A SS1, HAM=A
M16B SS1, HAM=A
BCS RRU
T_obc (K)
Cold warm-up
Cold cool-down
Nominal warm-up
Nominal cool-down
Hot warm-up
Hot cool-down

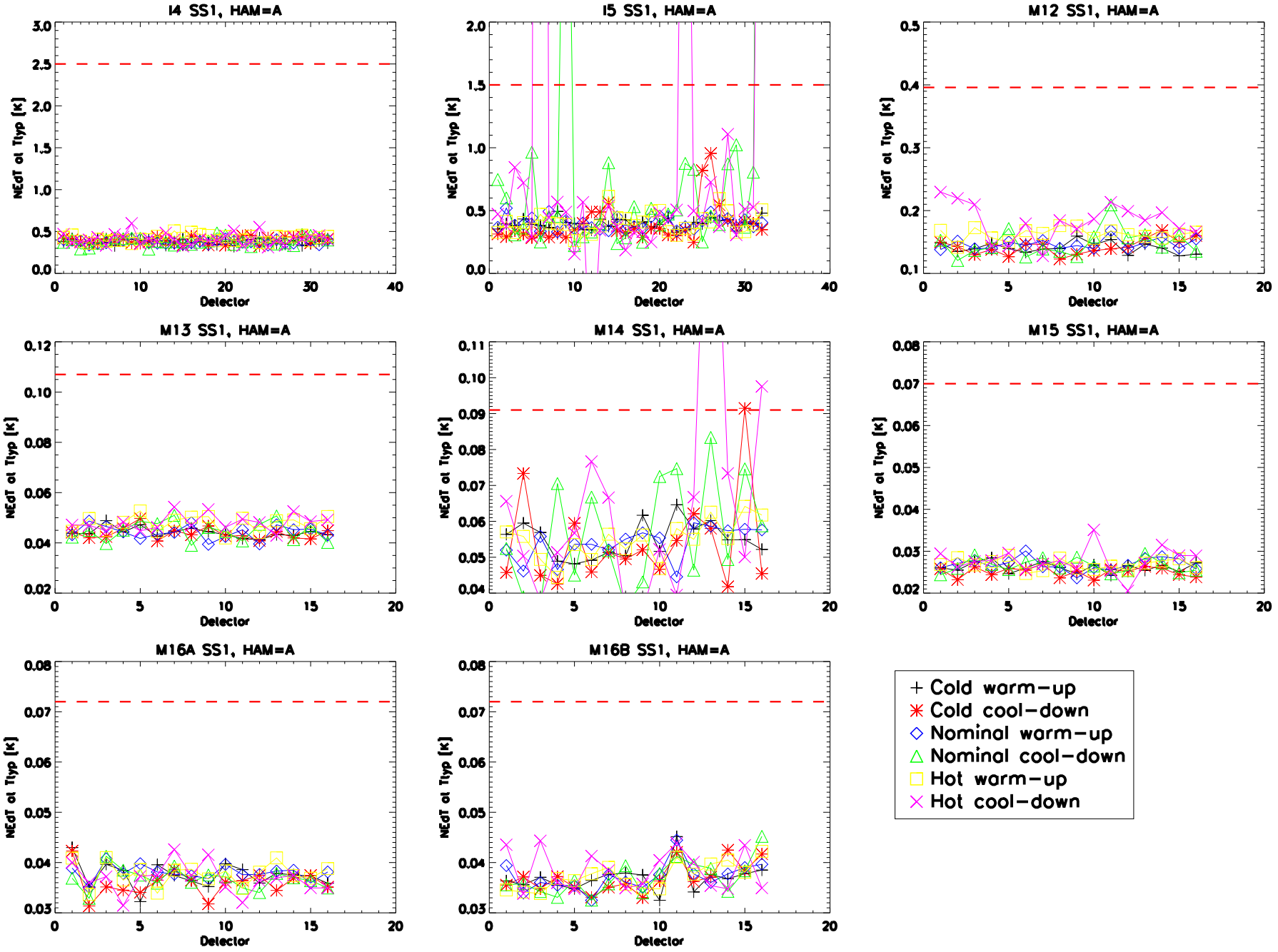
RRU vs T_obc

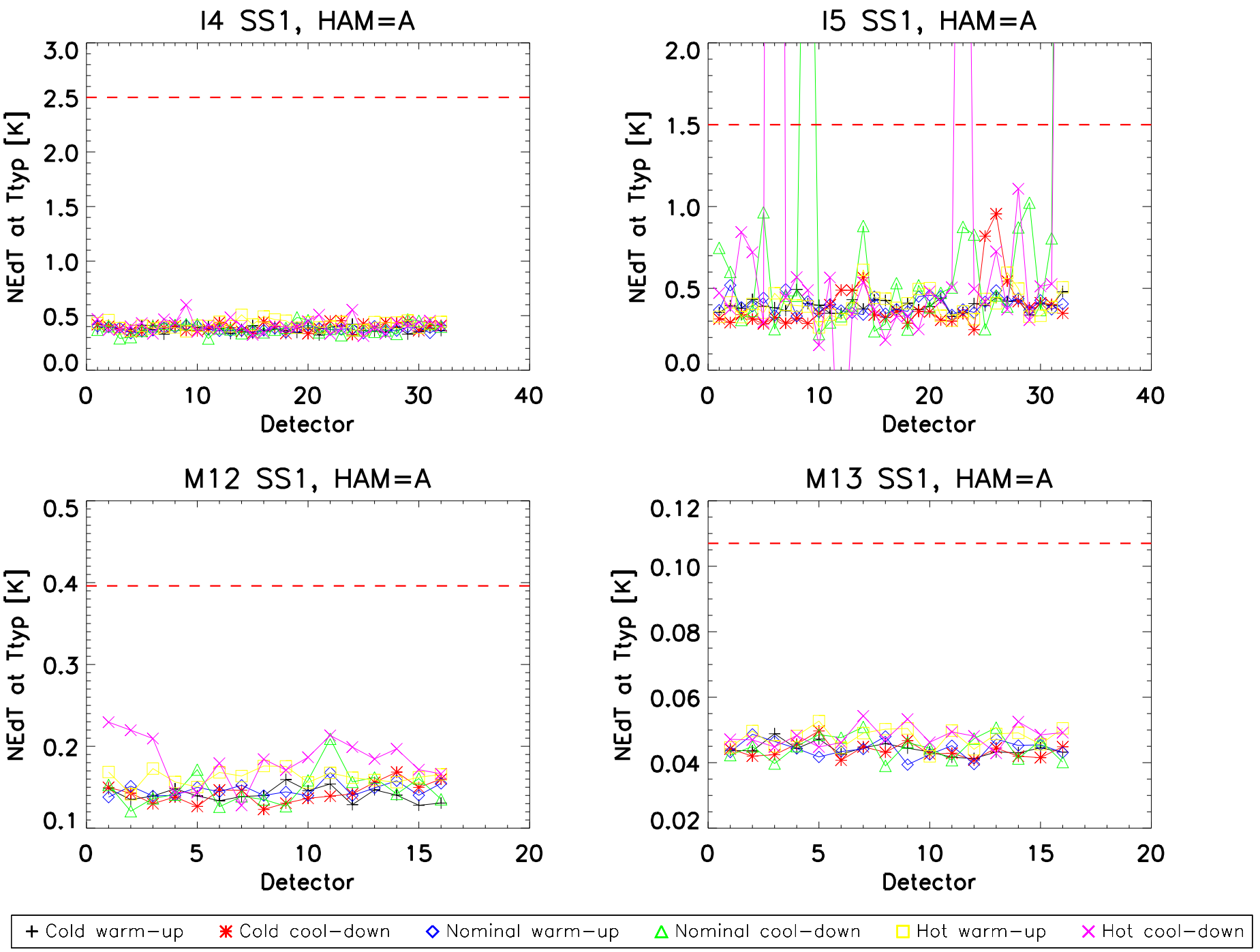

I4 SS1, HAM=A
I5 SS1, HAM=A
M12 SS1, HAM=A
M13 SS1, HAM=A
BCS RRU
T_obc [K]
0.0
0.1
0.2
0.3
0.4
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.4
0.6
0.8
1.0
1.2
0.5
1.5
2.0
260
280
300
320
Cold warm-up
Cold cool-down
Nominal warm-up
Nominal cool-down
Hot warm-up
Hot cool-down

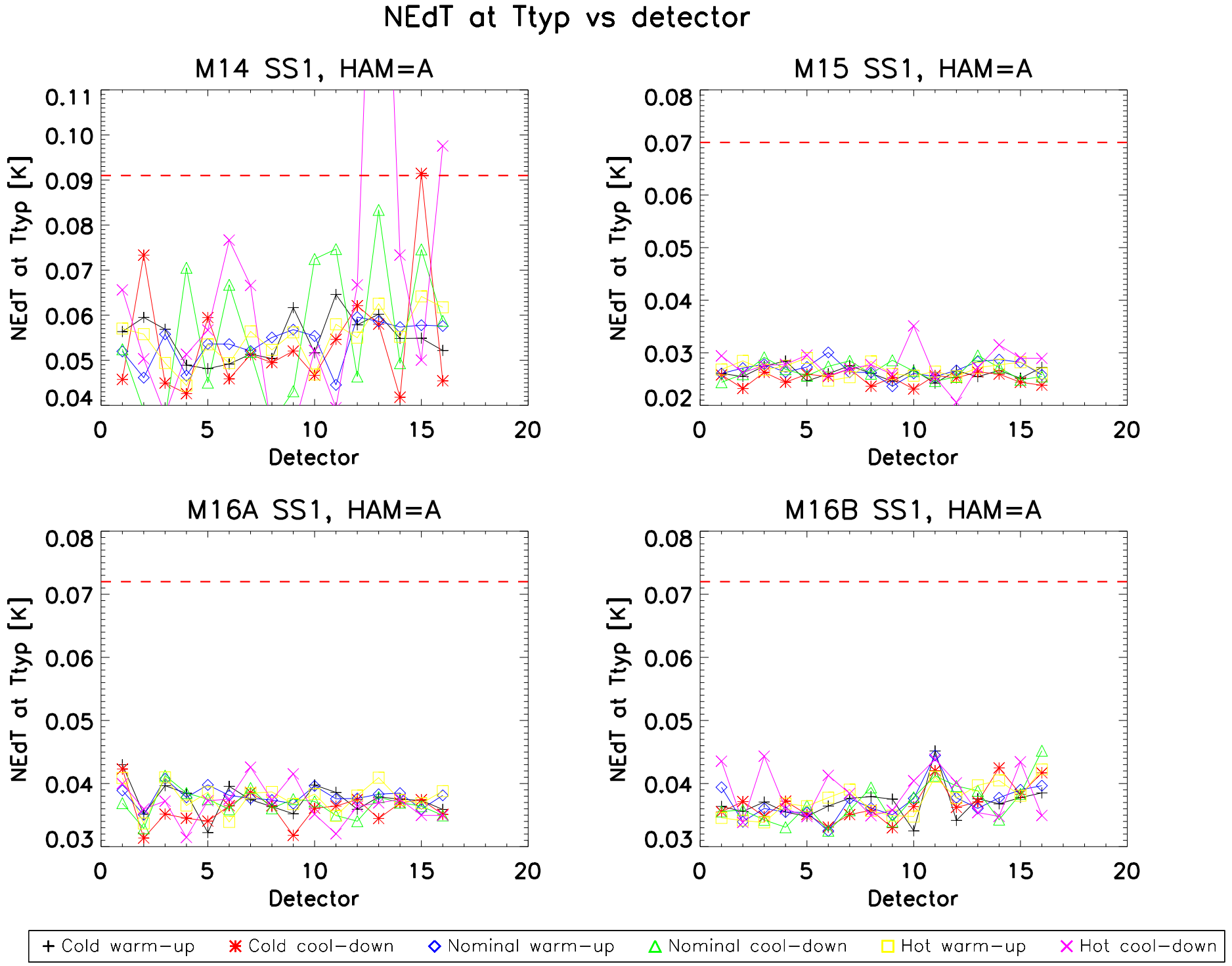
RRU vs T_obc


M14 SS1, HAM=A
M15 SS1, HAM=A
M16A SS1, HAM=A
M16B SS1, HAM=A
BCS RRU
T_obc [K]
Cold warm-up
Cold cool-down
Nominal warm-up
Nominal cool-down
Hot warm-up
Hot cool-down

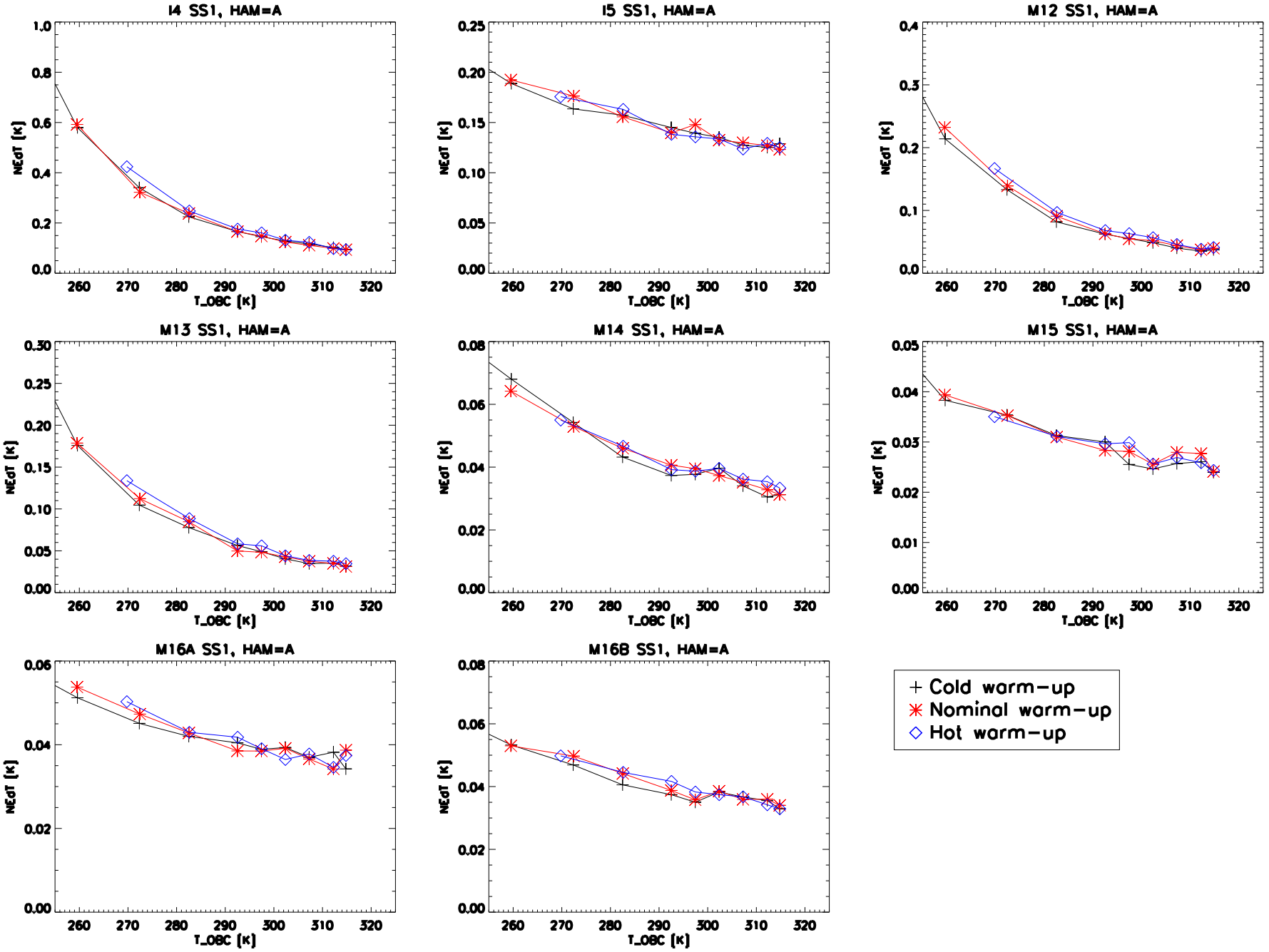
NEdT at Ttyp vs detector



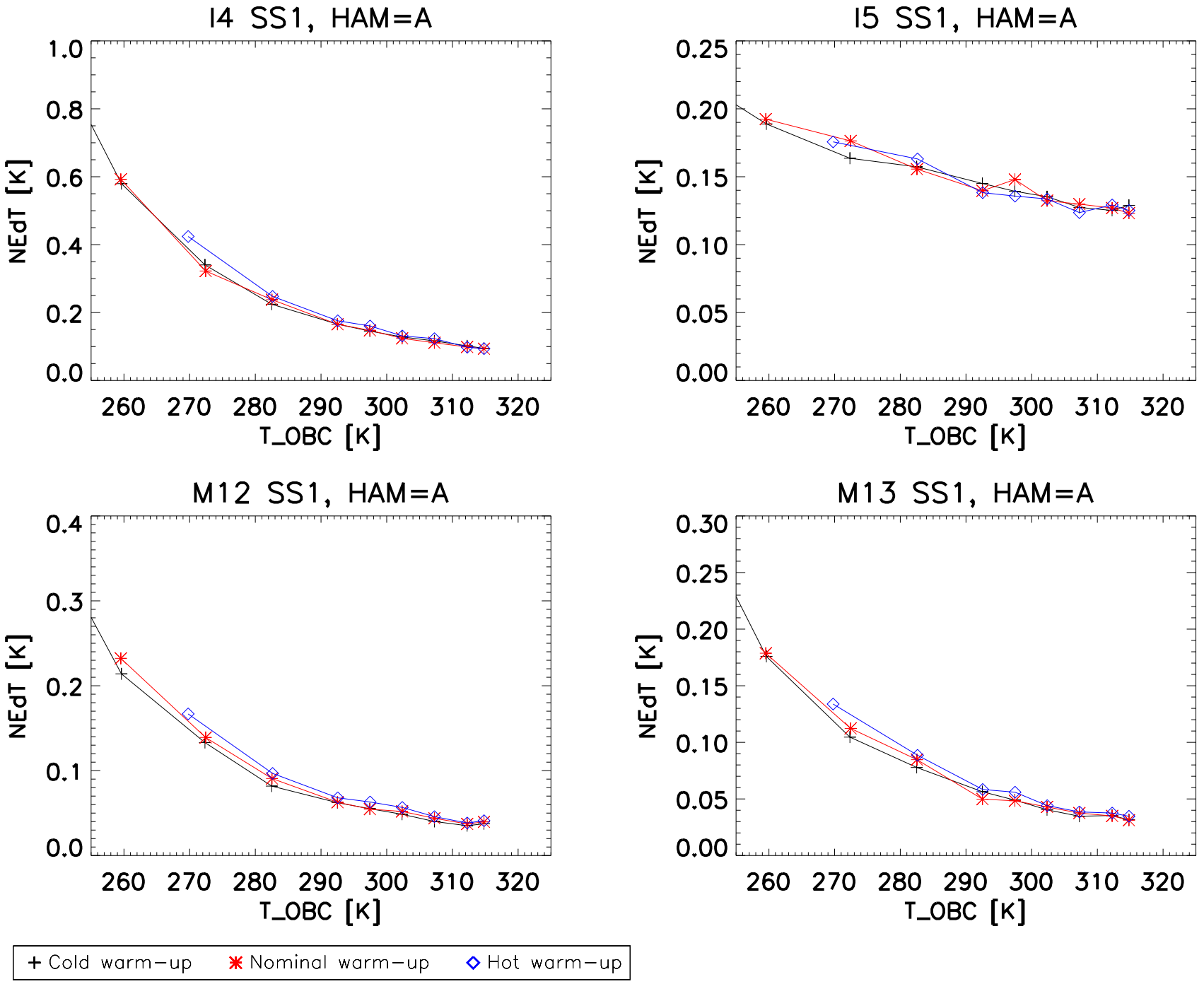

NEdT at Ttyp vs detector
I4 SS1, HAM=A
I5 SS1, HAM=A
M12 SS1, HAM=A
M13 SS1, HAM=A
NEdT at Ttyp [K]
Detector
Cold warm−up
Cold cool−down
Nominal warm−up
Nominal cool−down
Hot warm−up
Hot cool−down


NEdT at Ttyp vs detector
M14 SS1, HAM=A
M15 SS1, HAM=A
M16A SS1, HAM=A
M16B SS1, HAM=A
NEdT at Ttyp [K]
Detector
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0
5
10
15
20
Cold warm−up
Cold cool−down
Nominal warm−up
Nominal cool−down
Hot warm−up
Hot cool−down

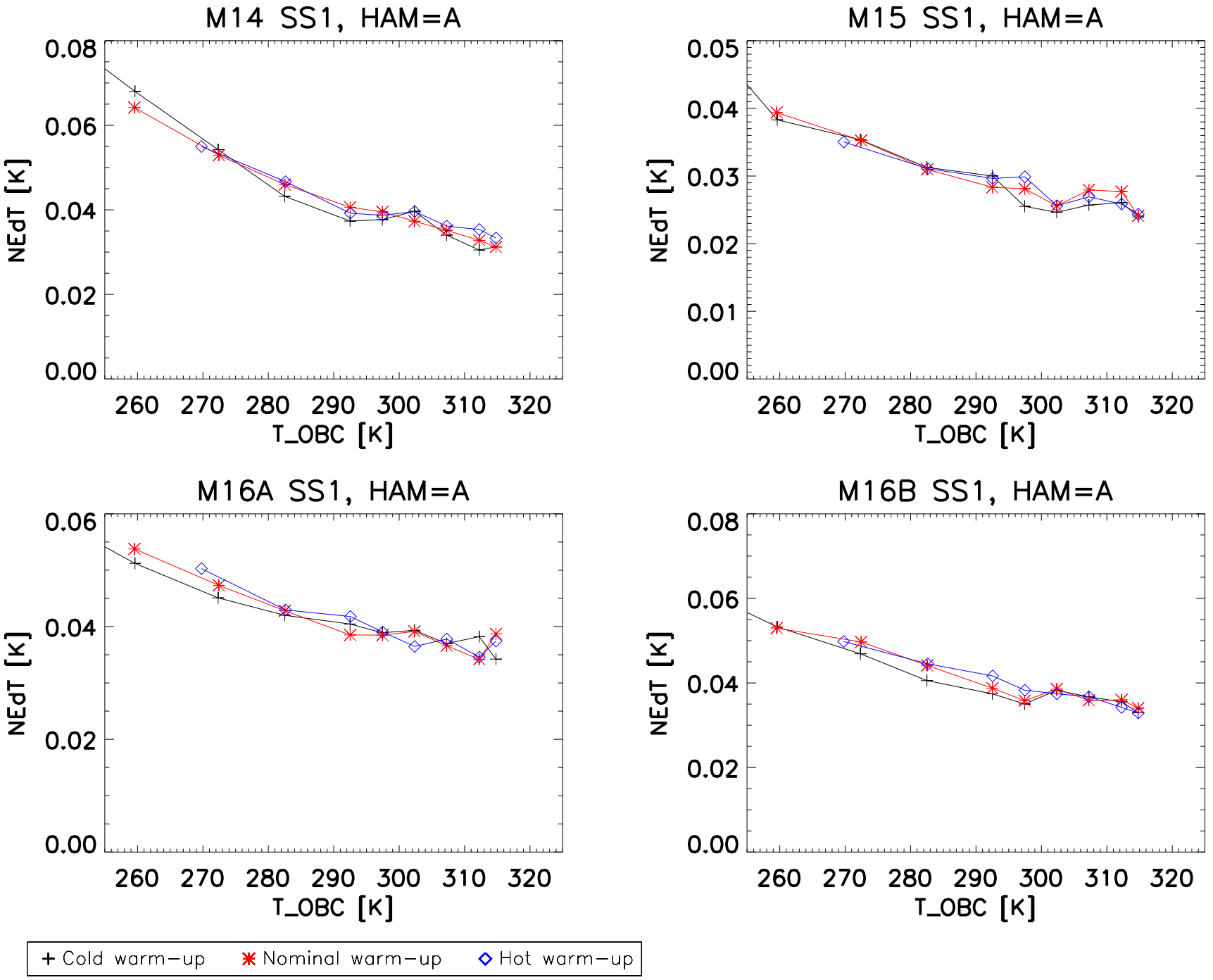
NEdT vs T_OBC

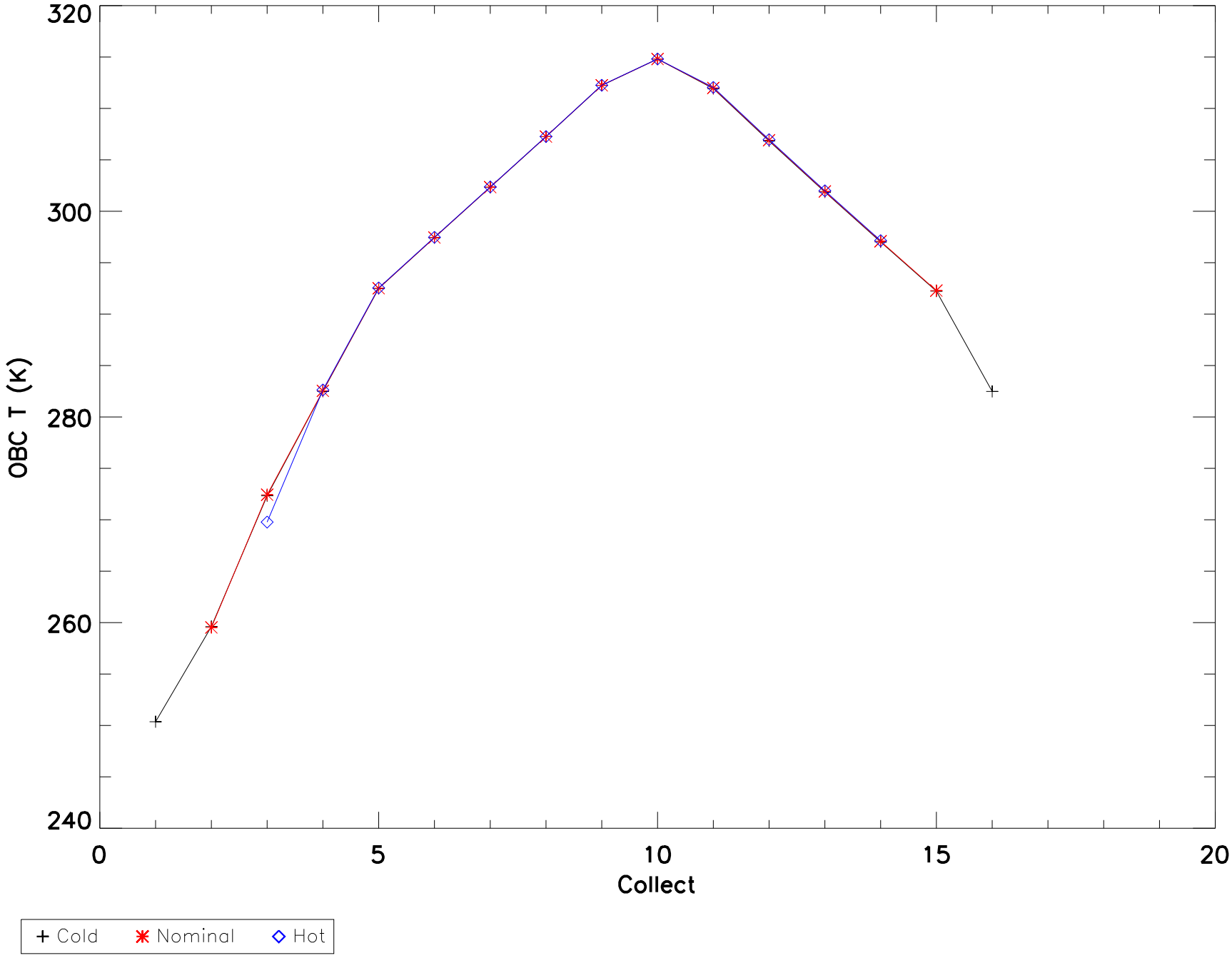

I4 SS1, HAM=A
I5 SS1, HAM=A
M12 SS1, HAM=A
M13 SS1, HAM=A
M14 SS1, HAM=A
M15 SS1, HAM=A
M16A SS1, HAM=A
M16B SS1, HAM=A
NEdT [K]
T_OBC [K]
Cold warm-up
Nominal warm-up
Hot warm-up

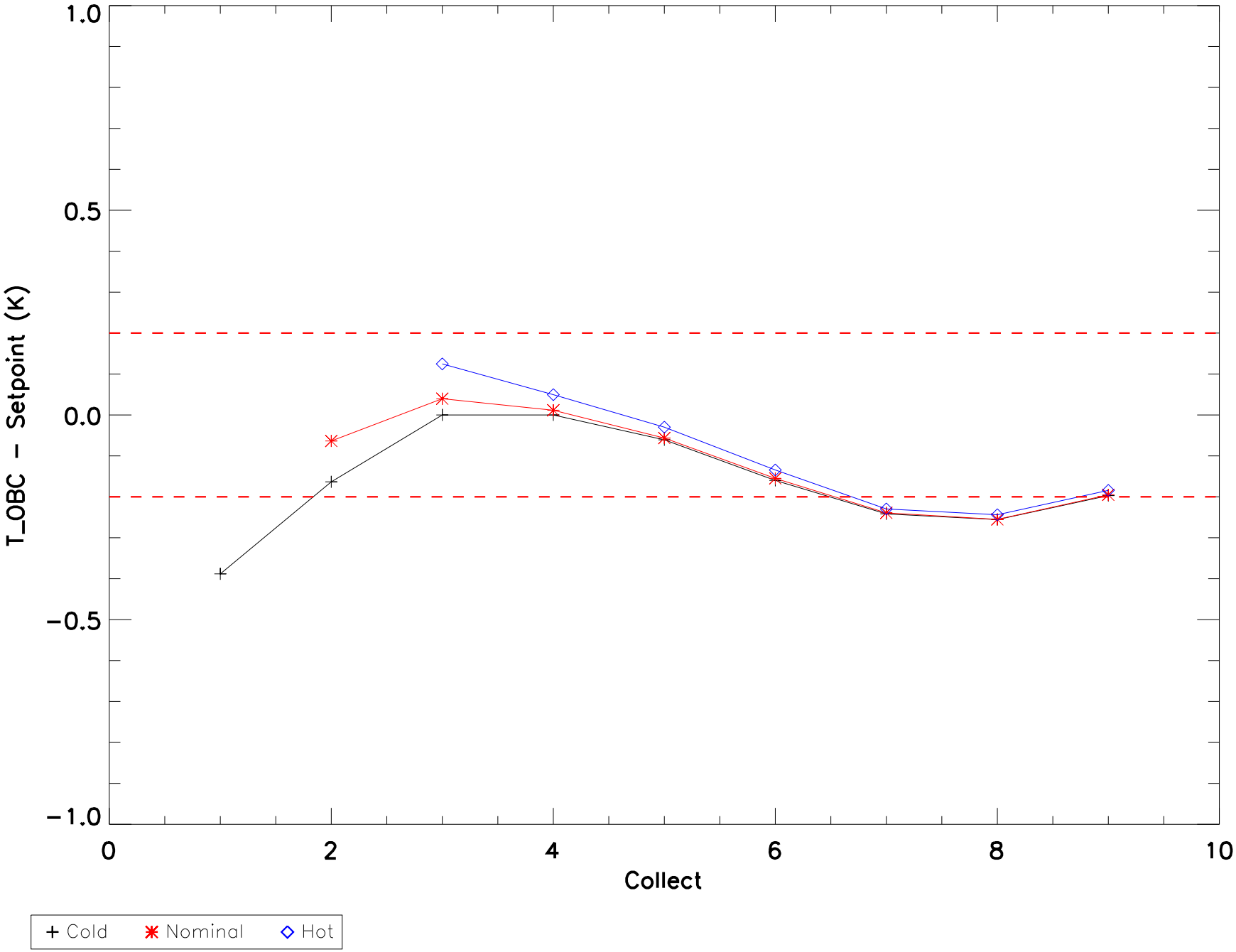
NEdT vs T_OBC

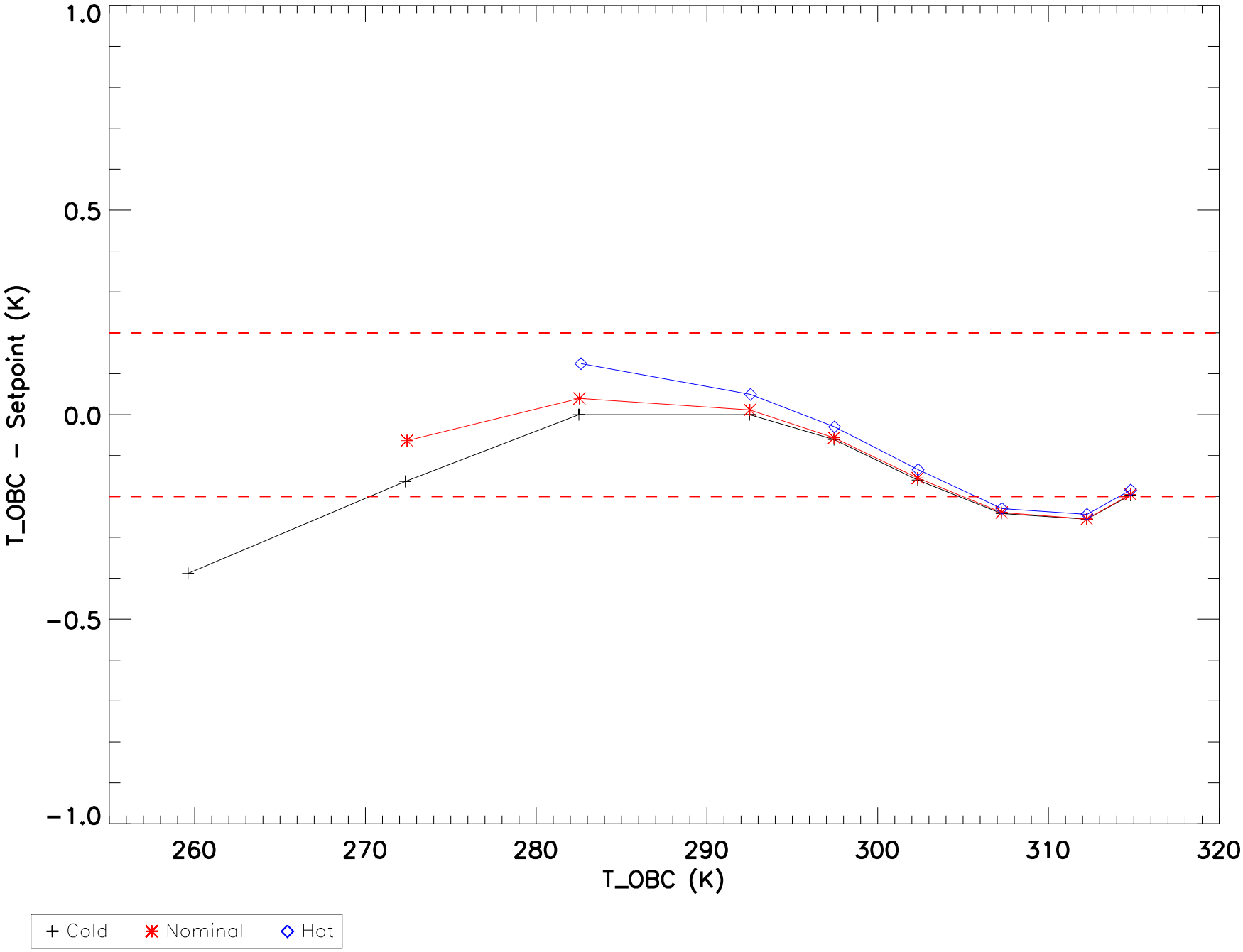

I4 SS1, HAM=A
I5 SS1, HAM=A
M12 SS1, HAM=A
M13 SS1, HAM=A
NEdT [K]
T_OBC [K]
260 270 280 290 300 310 320
0.0 0.2 0.4 0.6 0.8 1.0
0.00 0.05 0.10 0.15 0.20 0.25
0.0 0.1 0.2 0.3 0.4
0.00 0.05 0.10 0.15 0.20 0.25 0.30
+ Cold warm-up
* Nominal warm-up
◇ Hot warm-up

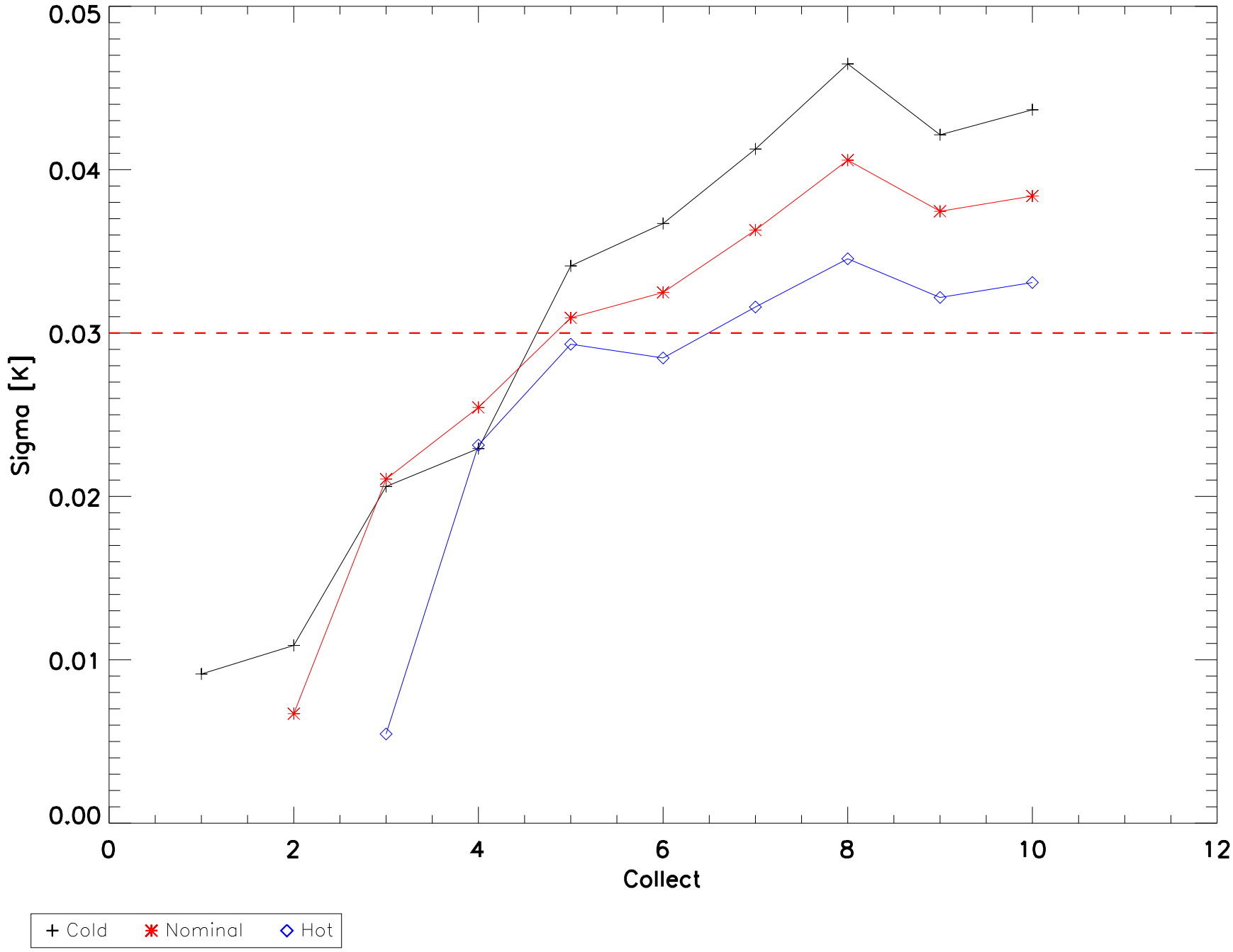
NEdT vs T_OBC

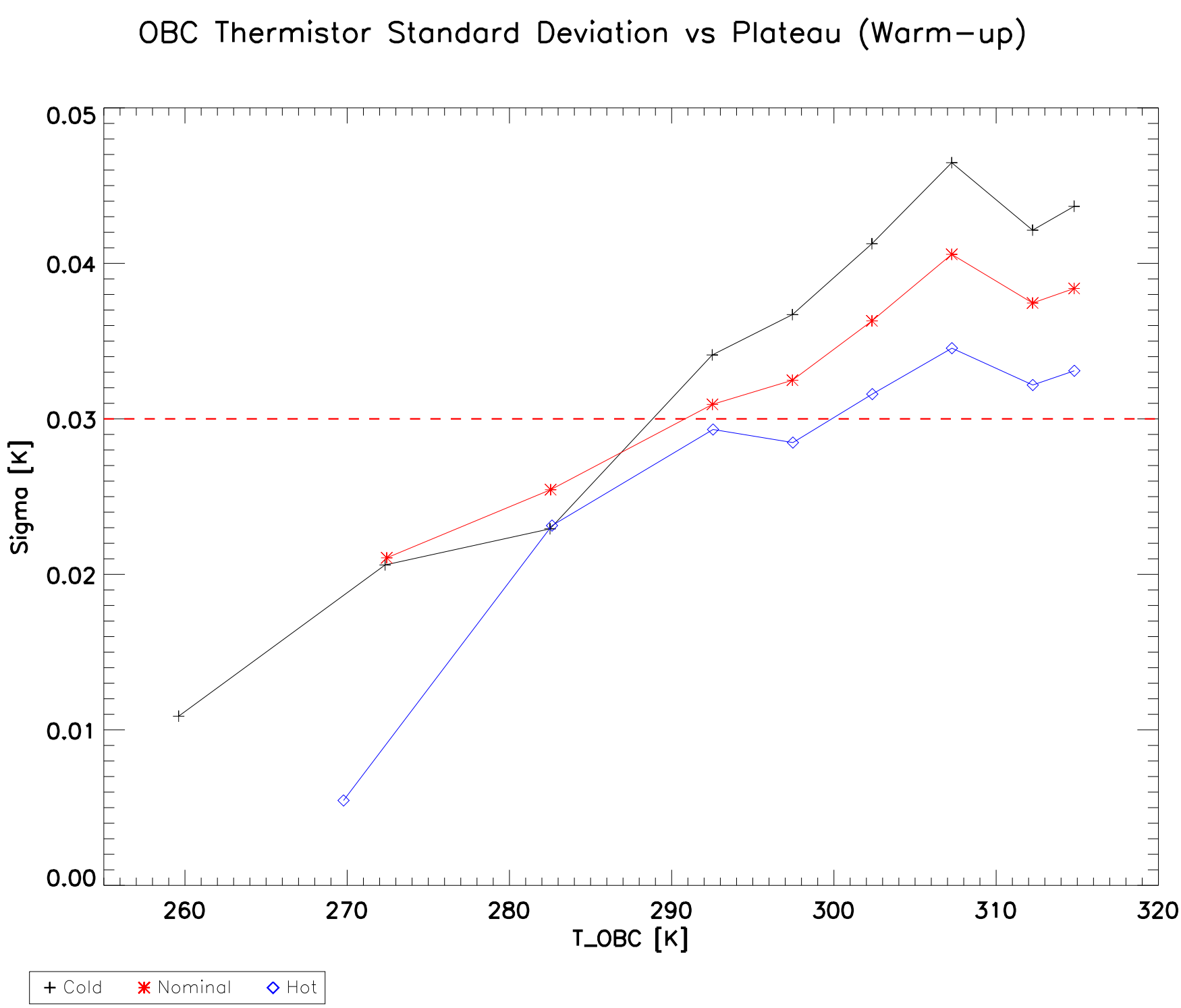

M14 SS1, HAM=A
M15 SS1, HAM=A
M16A SS1, HAM=A
M16B SS1, HAM=A
NEdT [K]
T_OBC [K]
0.00
0.02
0.04
0.06
0.08
0.01
0.03
0.05
260
270
280
290
300
310
320
+ Cold warm-up
* Nominal warm-up
◇ Hot warm-up

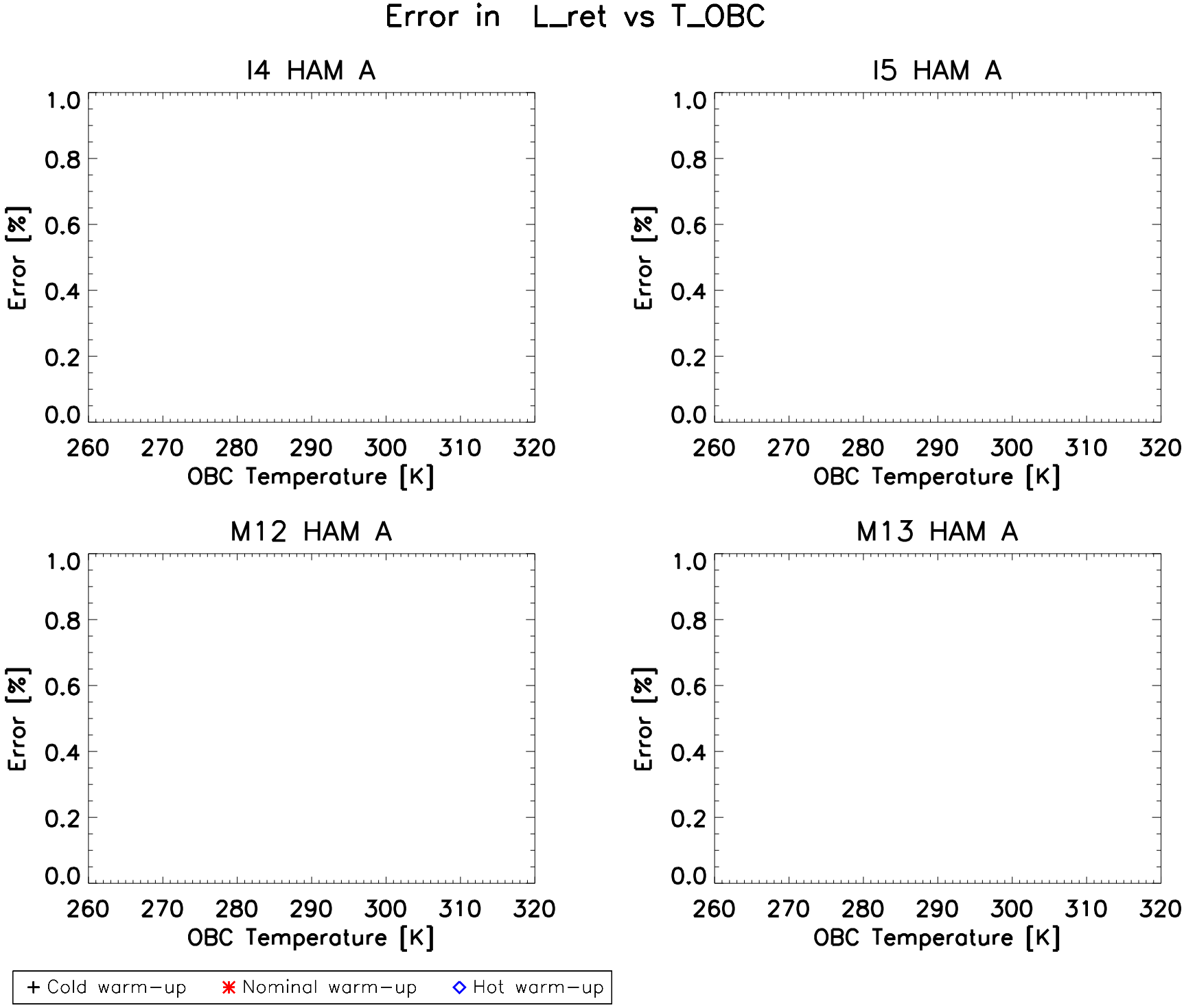

OBC Temperature vs Plateau
320
300
280
260
240
OBC T (K)
0
5
10
15
20
Collect
Cold
Nominal
Hot

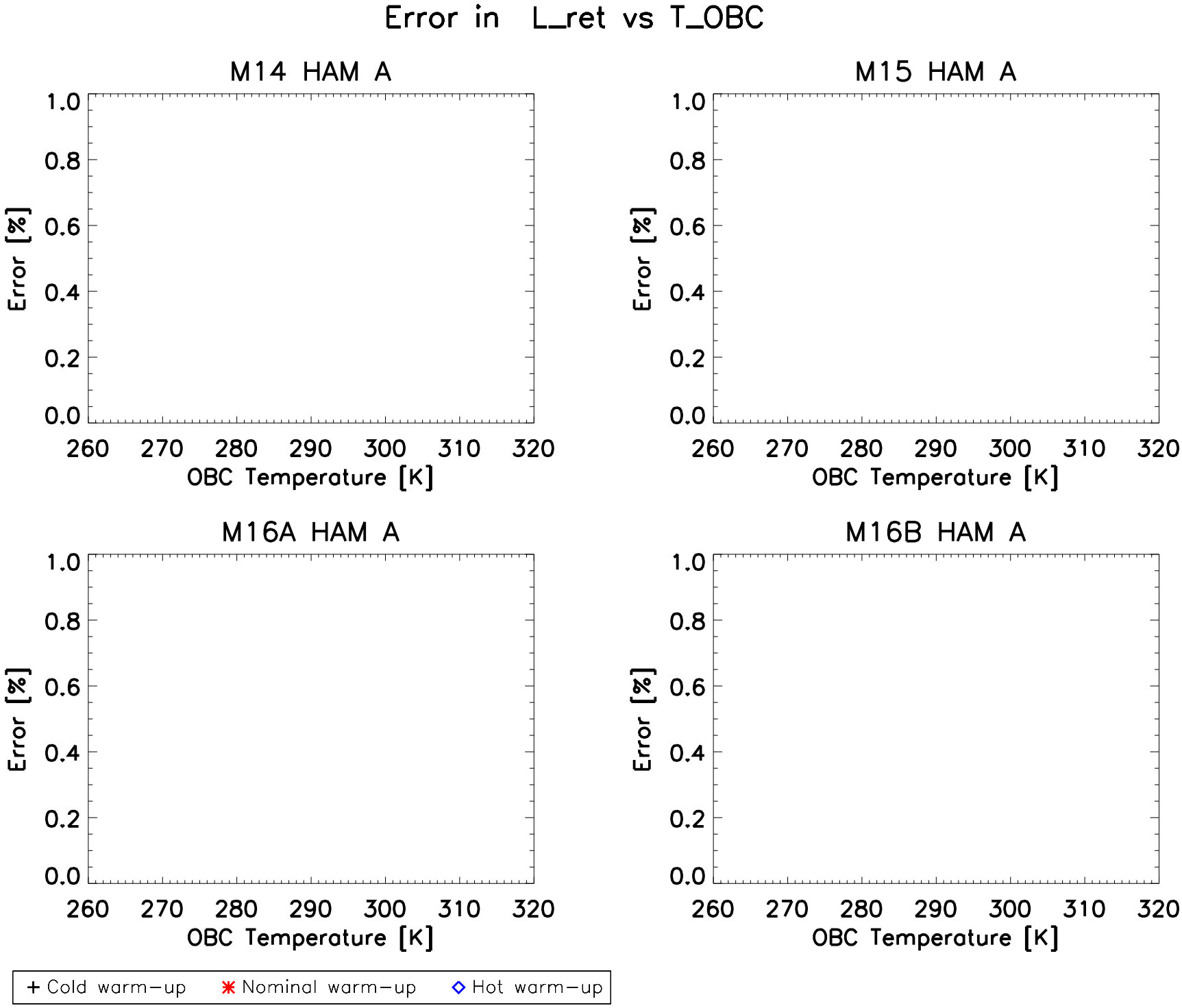

Deviation of OBC Temperature from Setpoint vs Plateau
T_OBC – Setpoint (K)
1.0
0.5
0.0
−0.5
−1.0
0
2
4
6
8
10
Collect
Cold
Nominal
Hot


Deviation of OBC Temperature from Setpoint vs Plateau
1.0
0.5
0.0
−0.5
−1.0
T_OBC − Setpoint (K)
260
270
280
290
300
310
320
T_OBC (K)
Cold
Nominal
Hot


OBC Thermistor Standard Deviation vs Plateau (Warm-up)
0.05
0.04
0.03
0.02
0.01
0.00
Sigma [K]
0
2
4
6
8
10
12
Collect
Cold
Nominal
Hot


OBC Thermistor Standard Deviation vs Plateau (Warm-up)
0.05
0.04
0.03
0.02
0.01
0.00
Sigma [K]
260
270
280
290
300
310
320
T_OBC [K]
Cold
Nominal
Hot


Error in L_ret vs T_OBC
I4 HAM A
I5 HAM A
M12 HAM A
M13 HAM A
Error [%]
OBC Temperature [K]
0.0
0.2
0.4
0.6
0.8
1.0
260
270
280
290
300
310
320
Cold warm-up
Nominal warm-up
Hot warm-up


Error in L_ret vs T_OBC
M14 HAM A
M15 HAM A
M16A HAM A
M16B HAM A
Error [%]
OBC Temperature [K]
0.0
0.2
0.4
0.6
0.8
1.0
260
270
280
290
300
310
320
Cold warm-up
Nominal warm-up
Hot warm-up