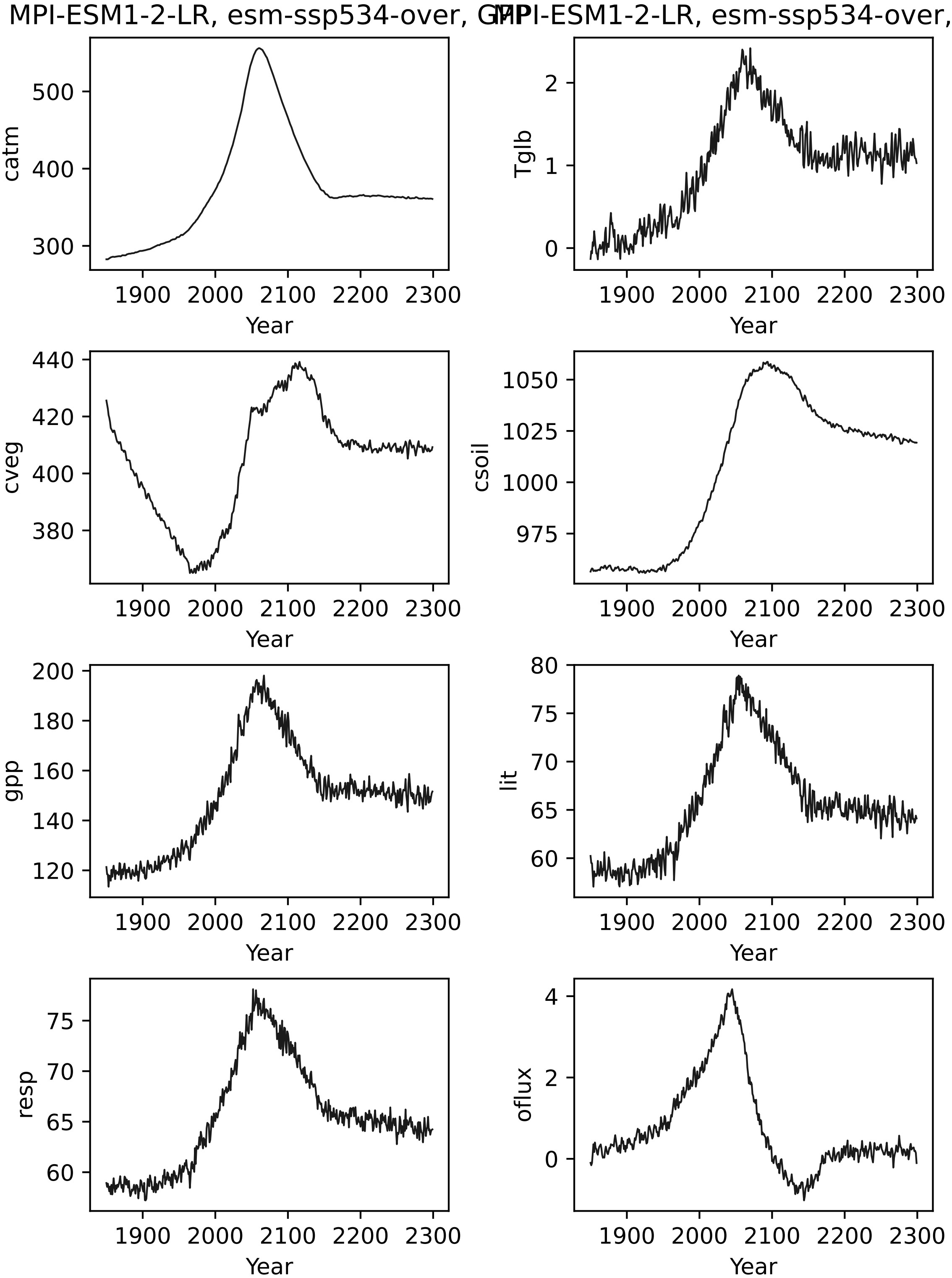
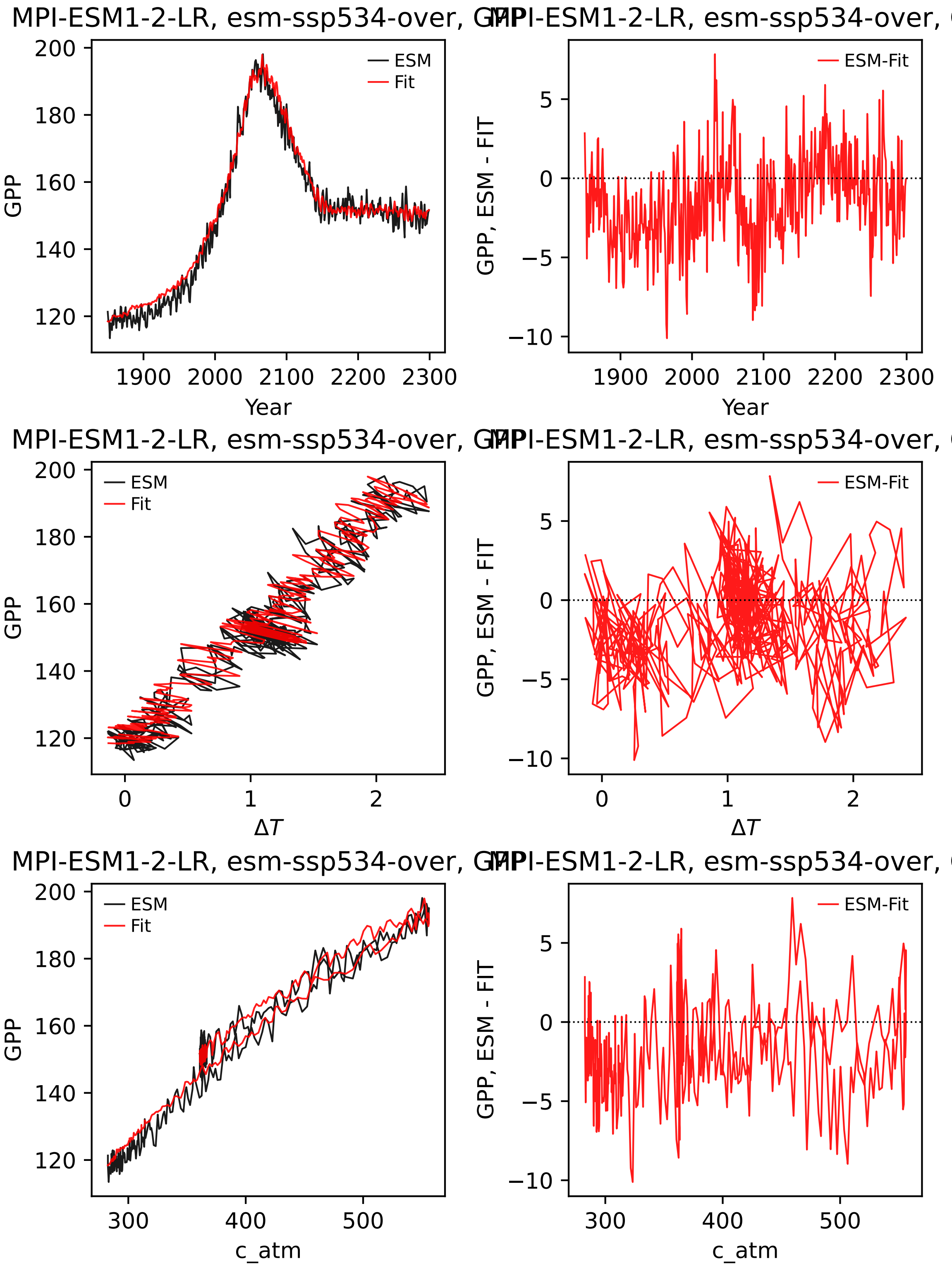
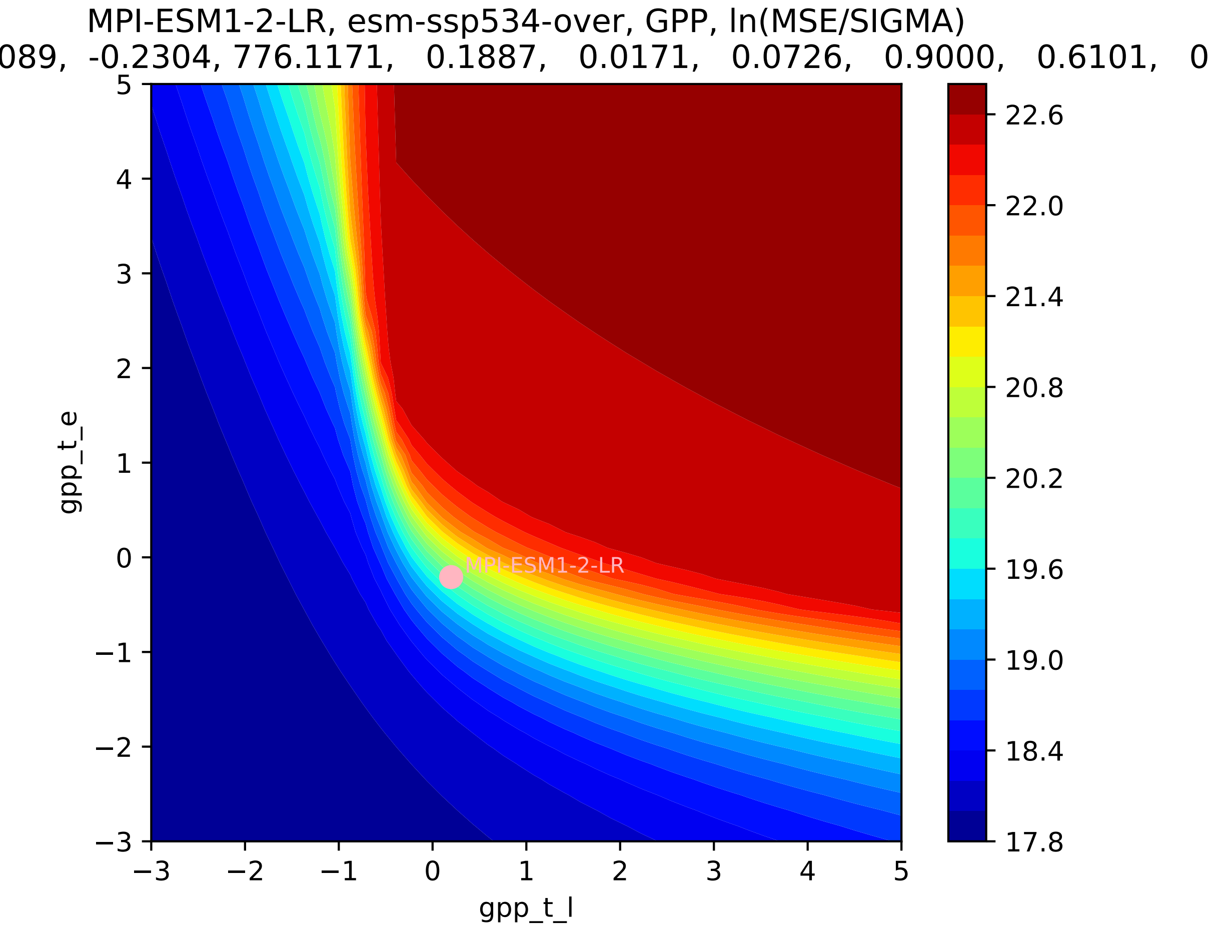
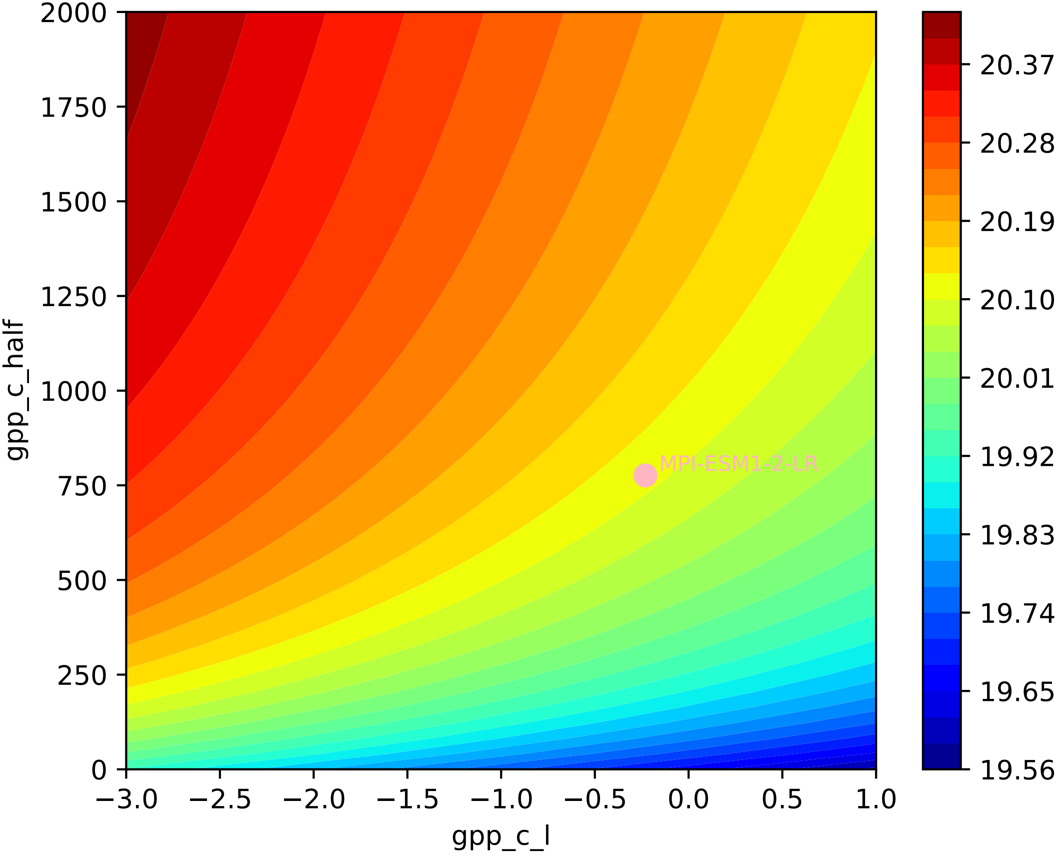
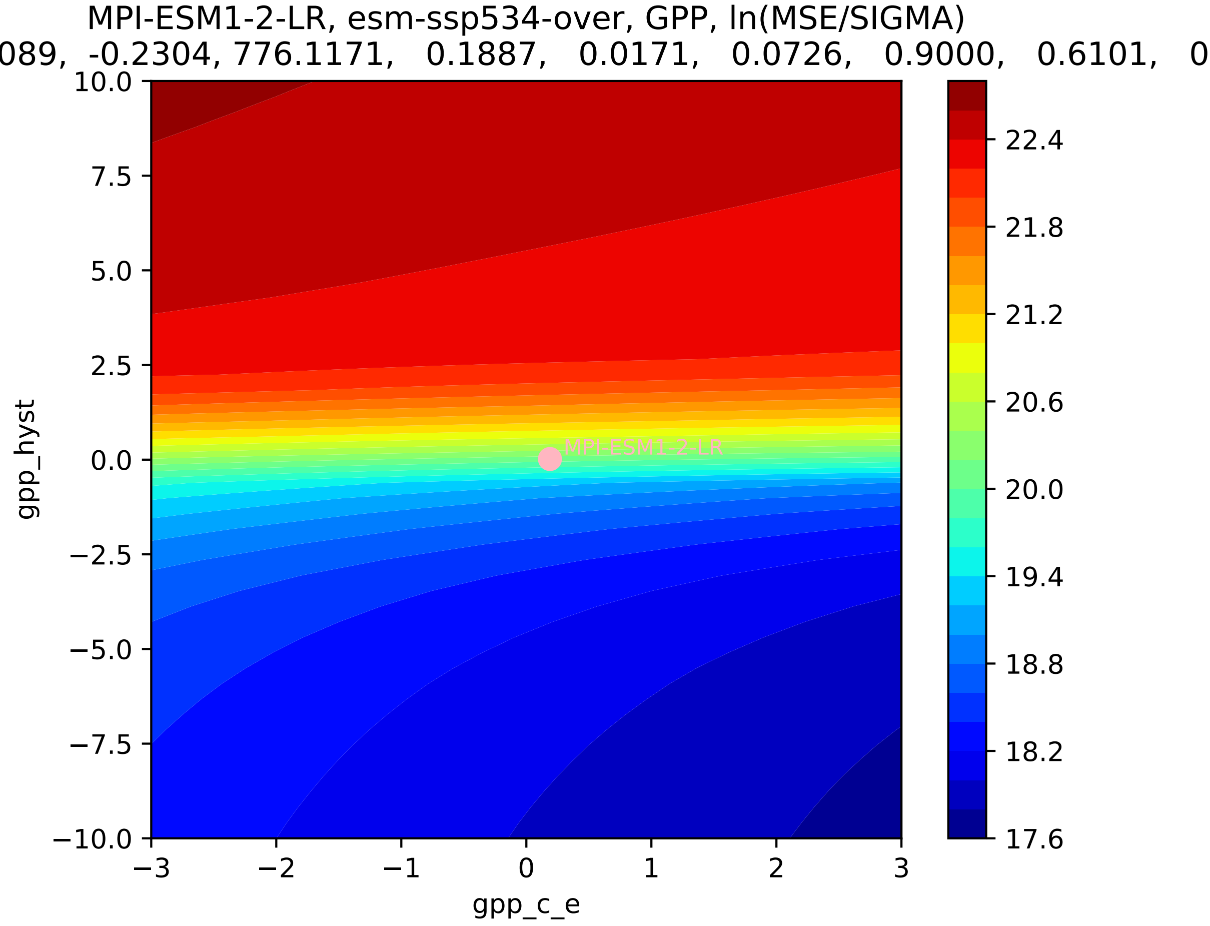

MPI-ESM1-2-LR, esm-ssp534-over, GMP
MPI-ESM1-2-LR, esm-ssp534-over,
catm
300
400
500
Tglb
0
1
2
cveg
380
400
420
440
csoil
975
1000
1025
1050
gpp
120
140
160
180
200
lit
60
65
70
75
80
resp
60
65
70
75
oflux
0
2
4
1900
2000
2100
2200
2300
Year

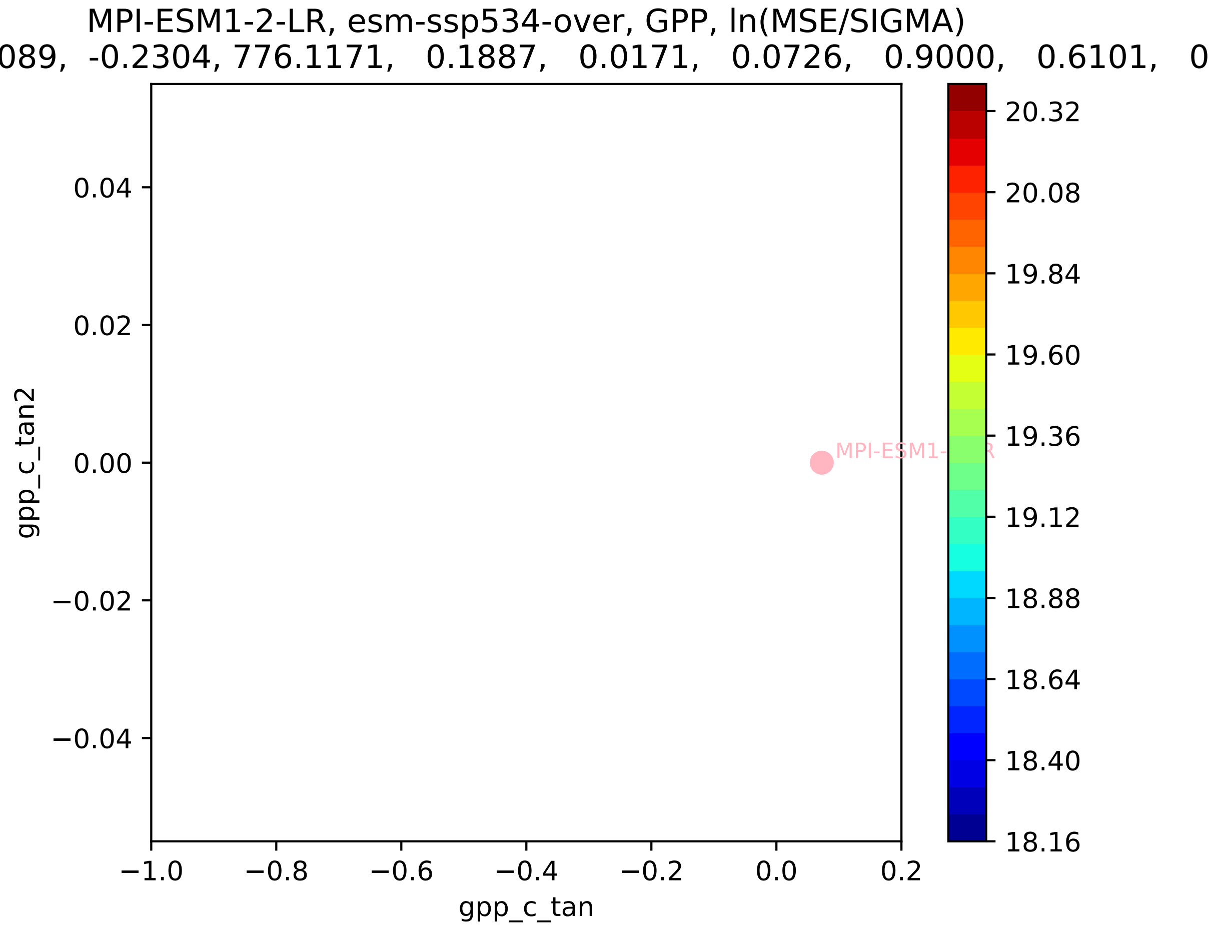

MPI-ESM1-2-LR, esm-ssp534-over, GPP
MPI-ESM1-2-LR, esm-ssp534-over, G
ESM
Fit
ESM-Fit
GPP
GPP, ESM - FIT
Year
ΔT
c_atm
200
180
160
140
120
5
0
−5
−10
1900
2000
2100
2200
2300
0
1
2
300
400
500


MPI-ESM1-2-LR, esm-ssp534-over, GPP, ln(MSE/SIGMA)
089, -0.2304, 776.1171, 0.1887, 0.0171, 0.0726, 0.9000, 0.6101, 0
gpp_t_e
gpp_t_l
5
4
3
2
1
0
−1
−2
−3
−3
−2
−1
0
1
2
3
4
5
MPI-ESM1-2-LR
22.6
22.0
21.4
20.8
20.2
19.6
19.0
18.4
17.8



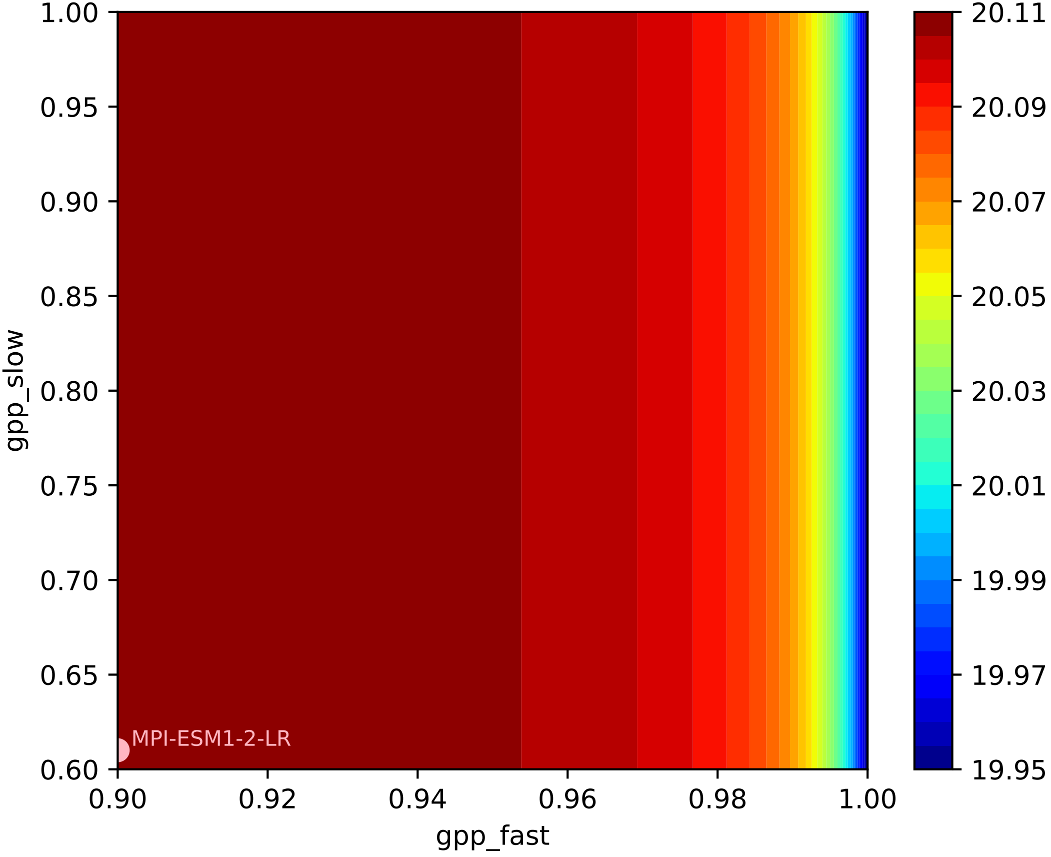
MPI-ESM1-2-LR, esm-ssp534-over, GPP, ln(MSE/SIGMA)
089, -0.2304, 776.1171,   0.1887,   0.0171,   0.0726,   0.9000,   0.6101,   0

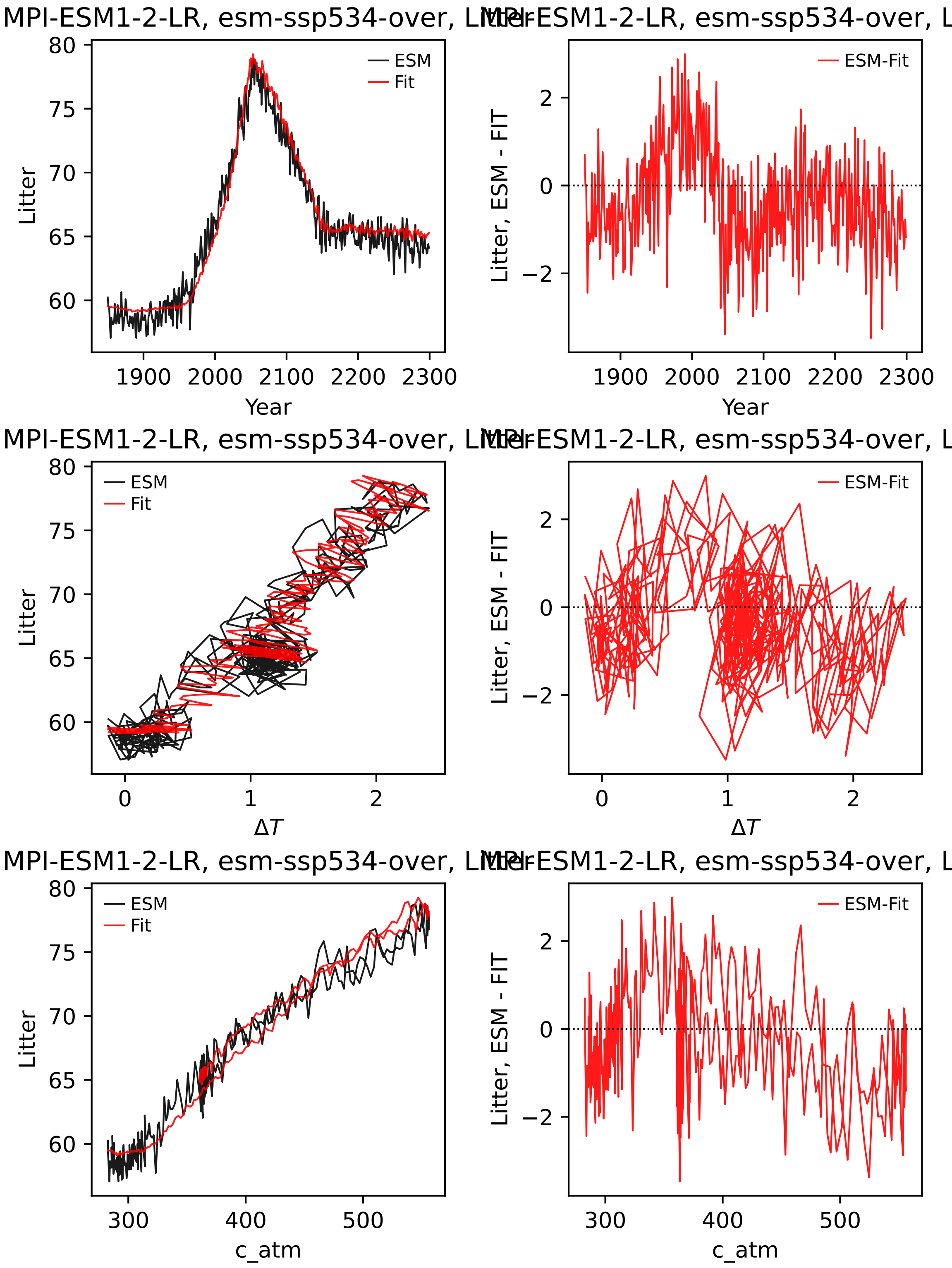

MPI-ESM1-2-LR, esm-ssp534-over, GPP, ln(MSE/SIGMA)
089, -0.2304, 776.1171, 0.1887, 0.0171, 0.0726, 0.9000, 0.6101, 0
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
gpp_hyst
−3
−2
−1
0
1
2
3
gpp_c_e
MPI-ESM1-2-LR
22.4
21.8
21.2
20.6
20.0
19.4
18.8
18.2
17.6

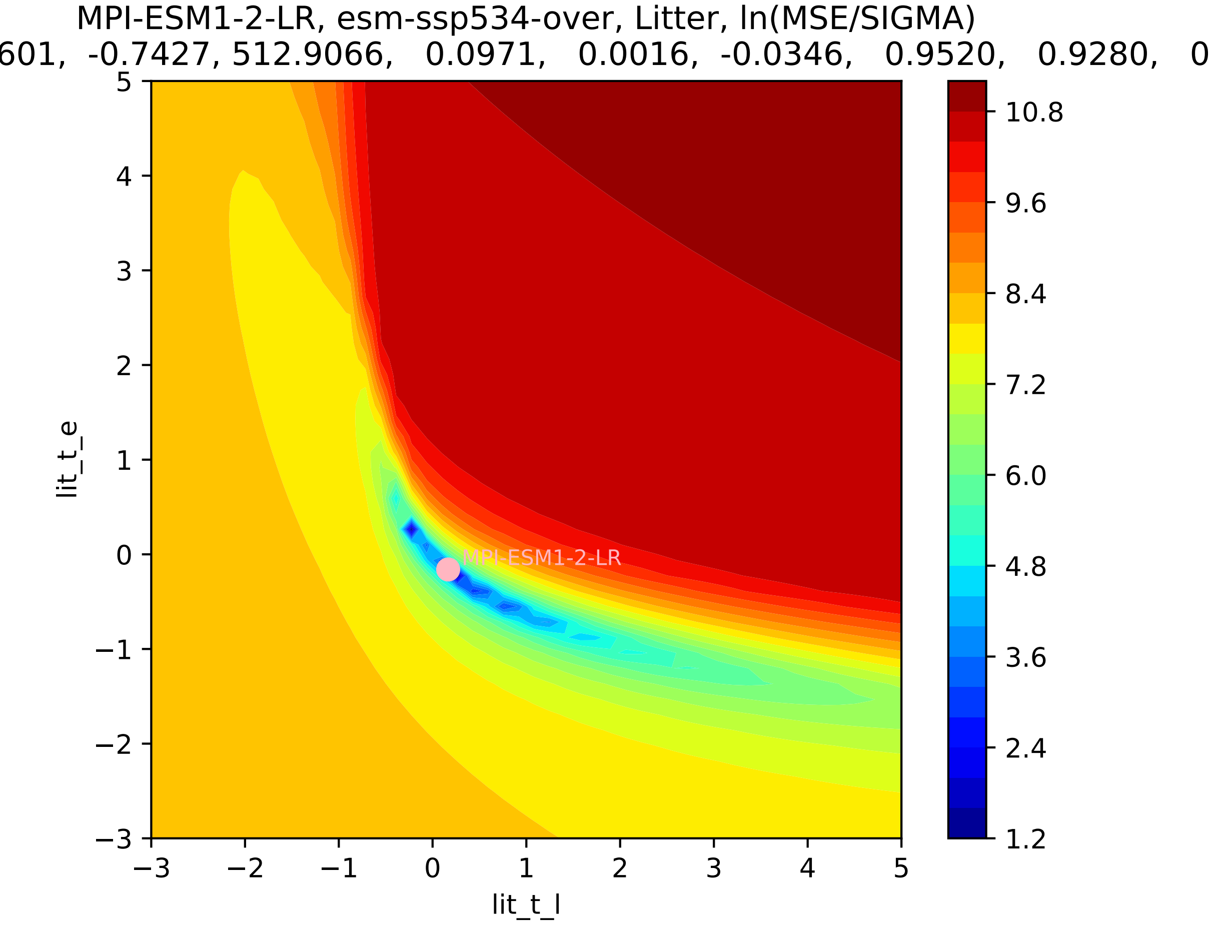

MPI-ESM1-2-LR, esm-ssp534-over, GPP, ln(MSE/SIGMA)
089, -0.2304, 776.1171, 0.1887, 0.0171, 0.0726, 0.9000, 0.6101, 0
gpp_c_tan2
0.04
0.02
0.00
−0.02
−0.04
gpp_c_tan
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
0.2
MPI-ESM1-
20.32
20.08
19.84
19.60
19.36
19.12
18.88
18.64
18.40
18.16

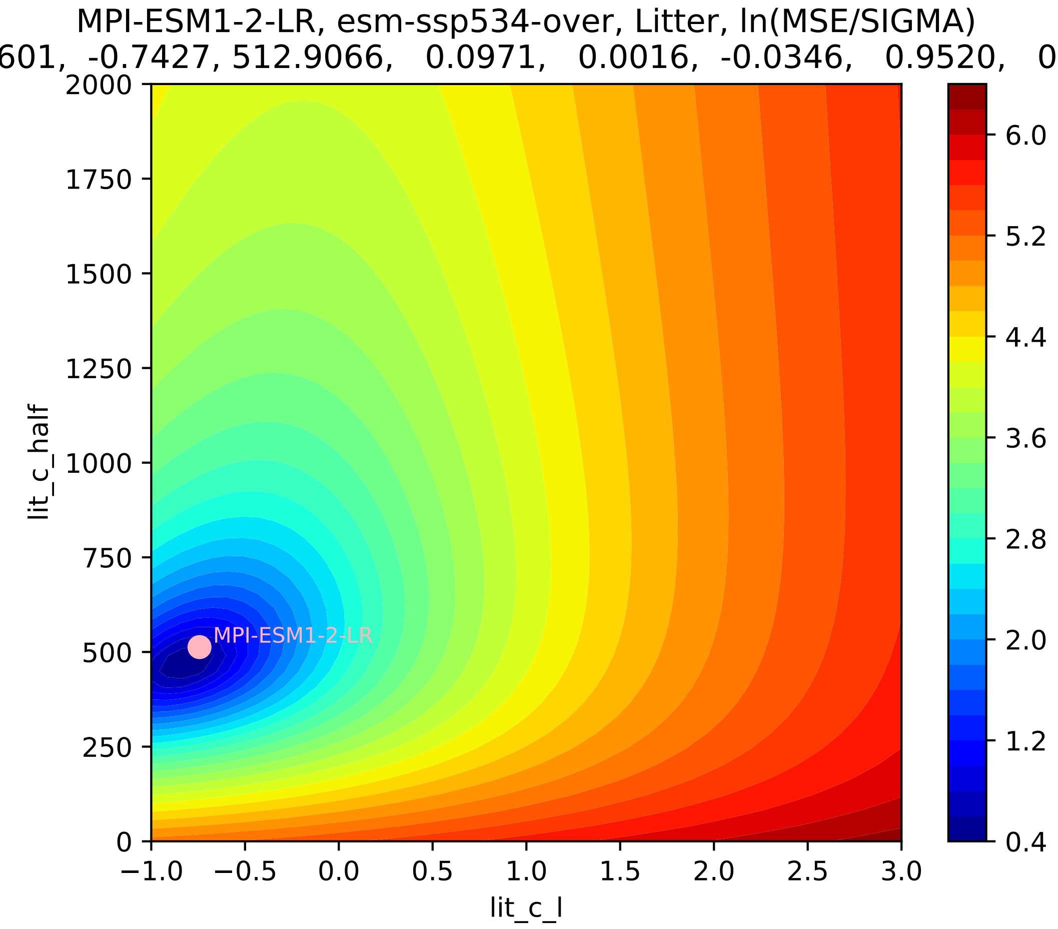
MPI-ESM1-2-LR, esm-ssp534-over, GPP, ln(MSE/SIGMA)

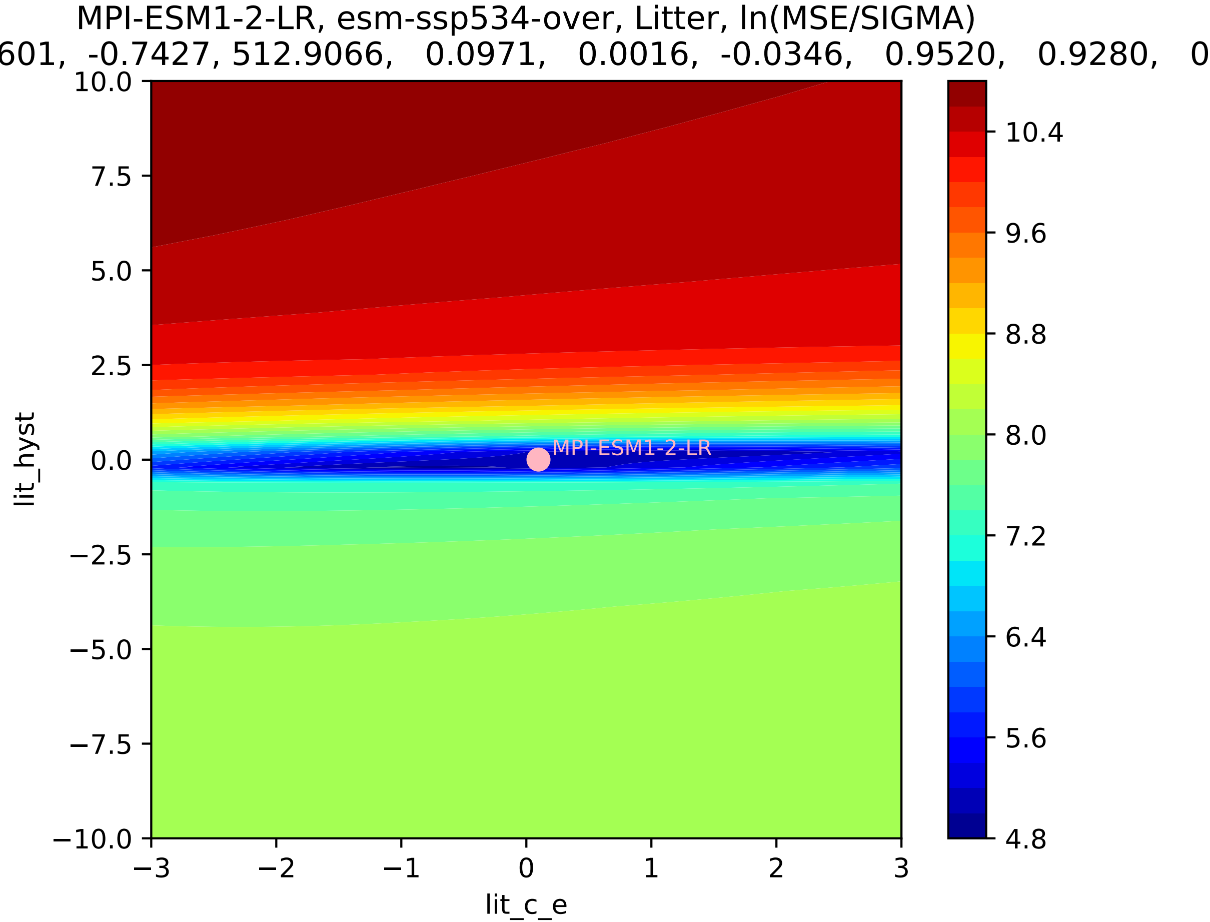
089, -0.2304, 776.1171, 0.1887, 0.0171, 0.0726, 0.9000, 0.6101, 0




MPI-ESM1-2-LR, esm-ssp534-over, Litter
MPI-ESM1-2-LR, esm-ssp534-over, L
Litter
Year
ESM
Fit
Litter, ESM - FIT
ESM-Fit
80
75
70
65
60
1900
2000
2100
2200
2300
2
0
−2
MPI-ESM1-2-LR, esm-ssp534-over, Litter
MPI-ESM1-2-LR, esm-ssp534-over, L
Litter
ΔT
0
1
2
ESM
Fit
Litter, ESM - FIT
ESM-Fit
MPI-ESM1-2-LR, esm-ssp534-over, Litter
MPI-ESM1-2-LR, esm-ssp534-over, L
Litter
c_atm
300
400
500
ESM
Fit
Litter, ESM - FIT
ESM-Fit

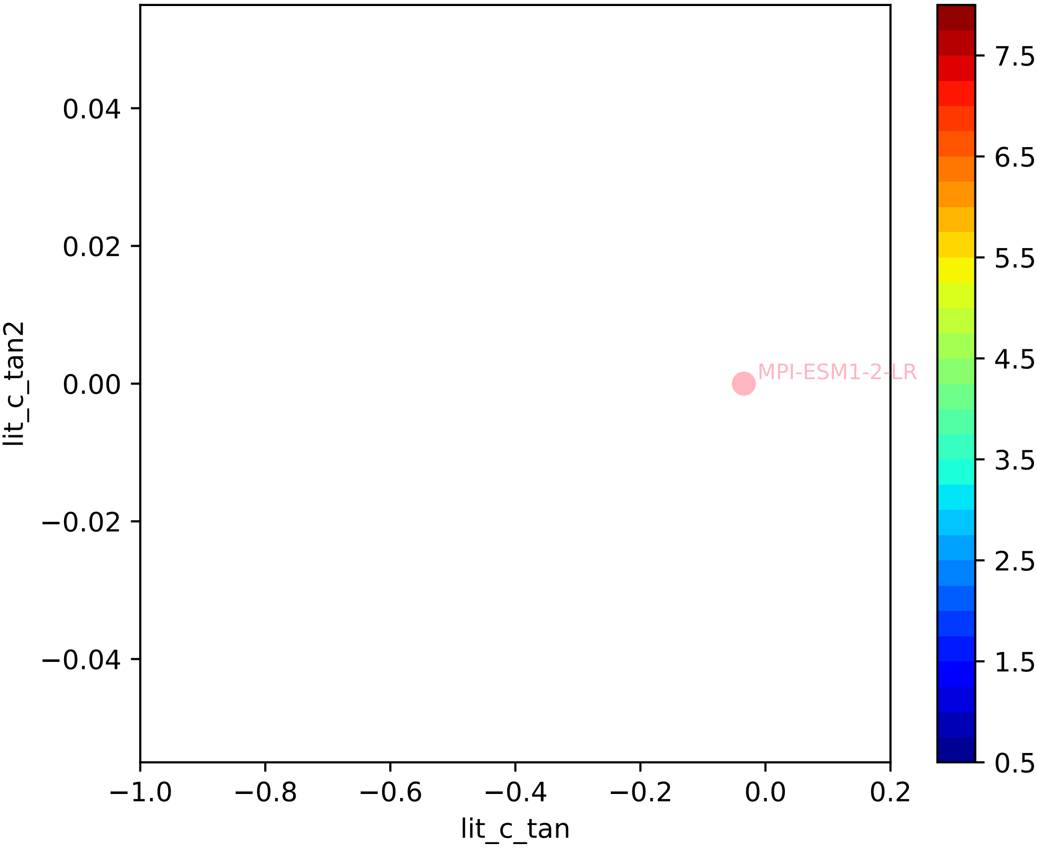

MPI-ESM1-2-LR, esm-ssp534-over, Litter, ln(MSE/SIGMA)
601, -0.7427, 512.9066, 0.0971, 0.0016, -0.0346, 0.9520, 0.9280, 0
MPI-ESM1-2-LR
lit_t_e
lit_t_l
5
4
3
2
1
0
−1
−2
−3
−3
−2
−1
0
1
2
3
4
5
10.8
9.6
8.4
7.2
6.0
4.8
3.6
2.4
1.2


MPI-ESM1-2-LR, esm-ssp534-over, Litter, ln(MSE/SIGMA)
601, -0.7427, 512.9066, 0.0971, 0.0016, -0.0346, 0.9520, 0.9280, 0
lit_c_half
2000
1750
1500
1250
1000
750
500
250
0
MPI-ESM1-2-LR
−1.0
−0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
lit_c_l
6.0
5.2
4.4
3.6
2.8
2.0
1.2
0.4



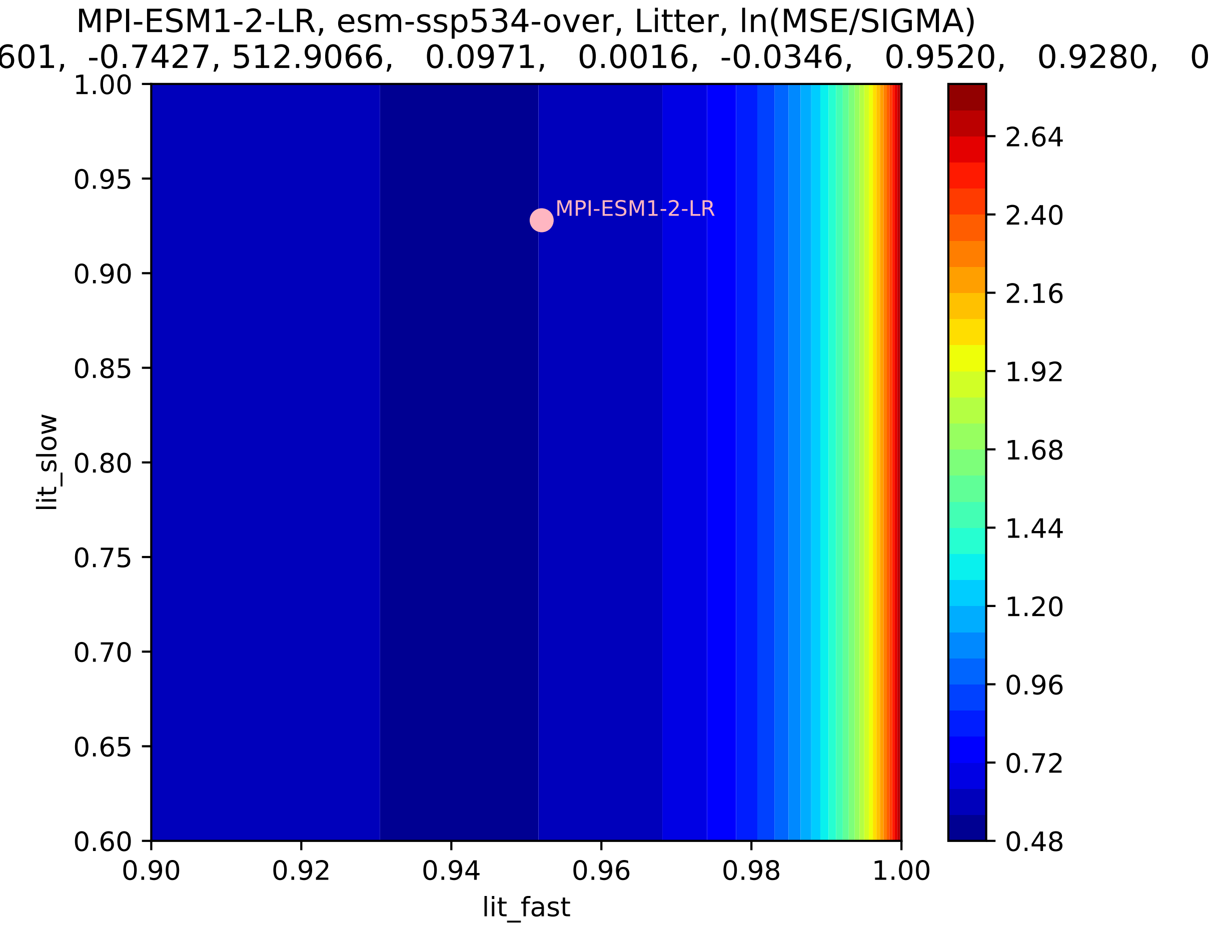
MPI-ESM1-2-LR, esm-ssp534-over, Litter, ln(MSE/SIGMA)

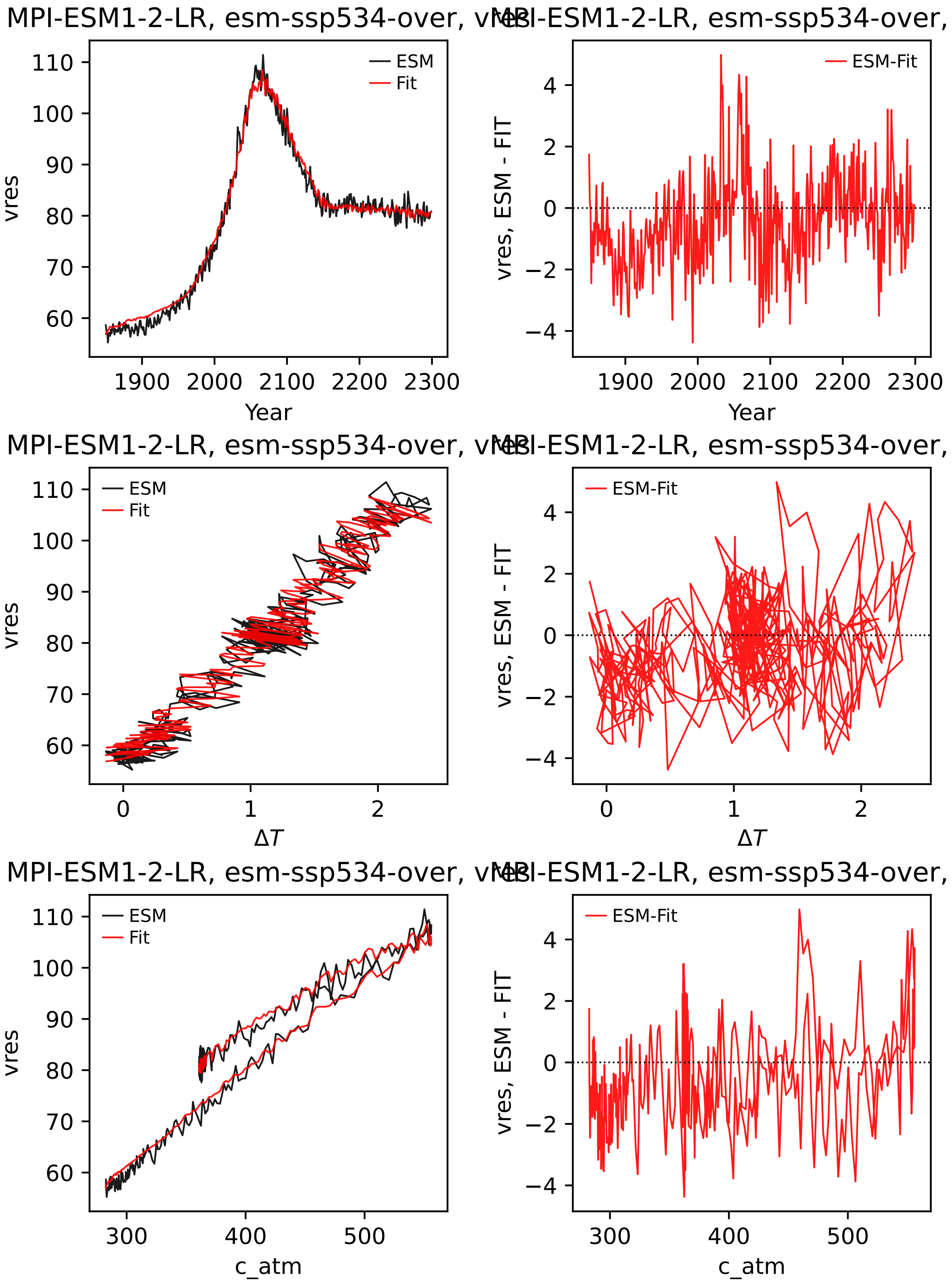
601, -0.7427, 512.9066, 0.0971, 0.0016, -0.0346, 0.9520, 0.9280, 0

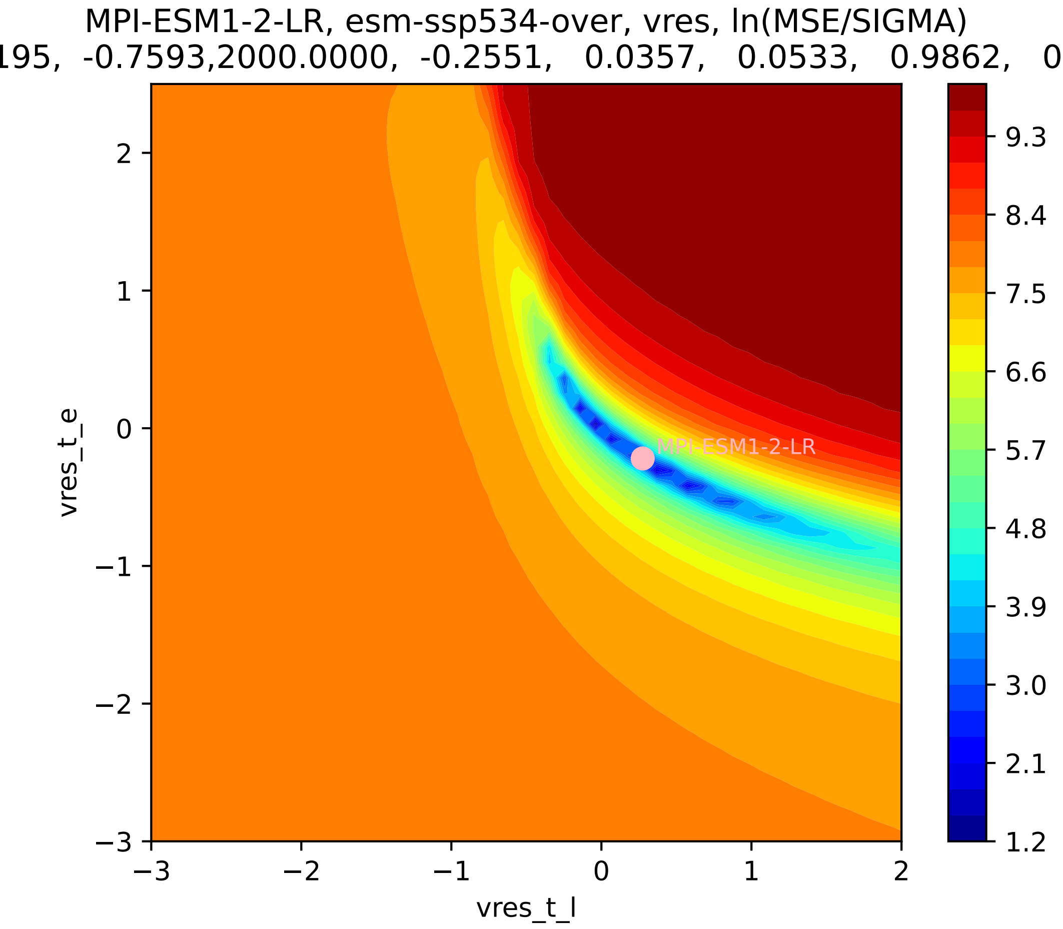


MPI-ESM1-2-LR, esm-ssp534-over, Litter, ln(MSE/SIGMA)

601, -0.7427, 512.9066, 0.0971, 0.0016, -0.0346, 0.9520, 0.9280, 0

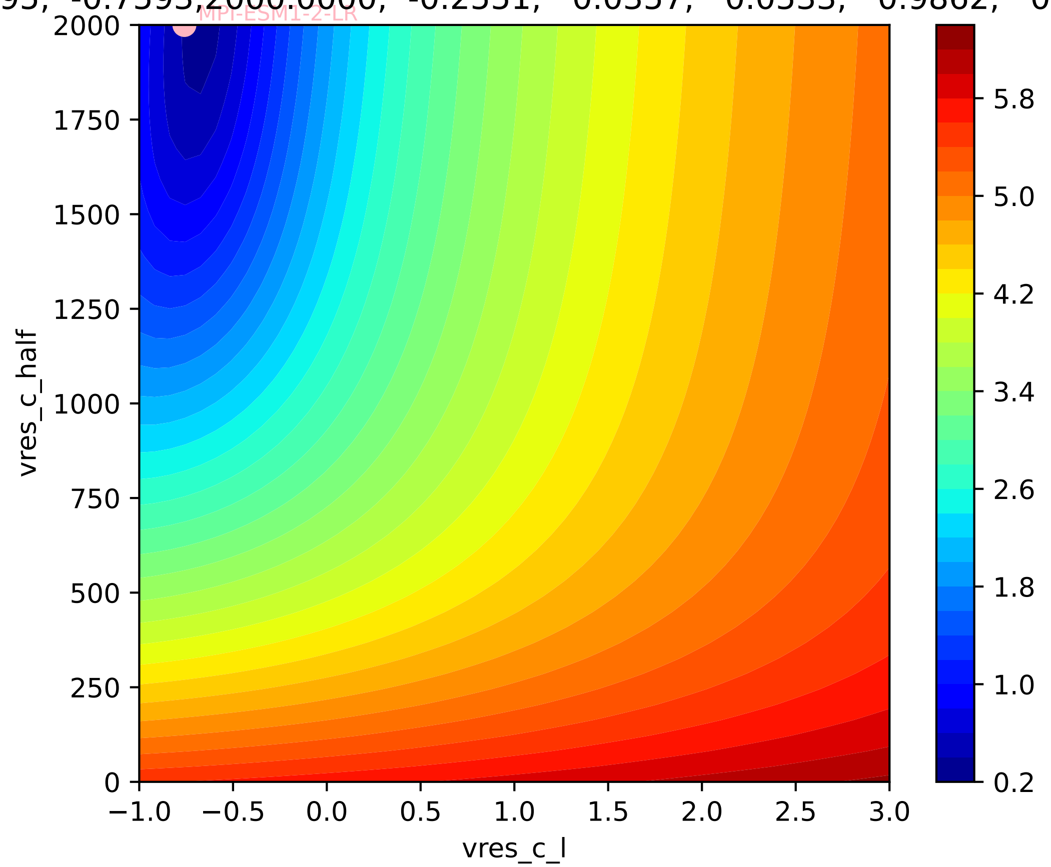

MPI-ESM1-2-LR, esm-ssp534-over, Litter, ln(MSE/SIGMA)
601, -0.7427, 512.9066, 0.0971, 0.0016, -0.0346, 0.9520, 0.9280, 0
MPI-ESM1-2-LR
lit_slow
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
lit_fast
0.90
0.92
0.94
0.96
0.98
1.00
2.64
2.40
2.16
1.92
1.68
1.44
1.20
0.96
0.72
0.48


MPI-ESM1-2-LR, esm-ssp534-over, vres
MPI-ESM1-2-LR, esm-ssp534-over, v
ESM
Fit
ESM-Fit
vres
vres, ESM - FIT
110
100
90
80
70
60
4
2
0
−2
−4
1900
2000
2100
2200
2300
Year
0
1
2
ΔT
300
400
500
c_atm


MPI-ESM1-2-LR, esm-ssp534-over, vres, ln(MSE/SIGMA)
195, -0.7593,2000.0000, -0.2551, 0.0357, 0.0533, 0.9862, 0.6856, 0
MPI-ESM1-2-LR
vres_t_e
vres_t_l
2
1
0
−1
−2
−3
−3
−2
−1
0
1
2
9.3
8.4
7.5
6.6
5.7
4.8
3.9
3.0
2.1
1.2

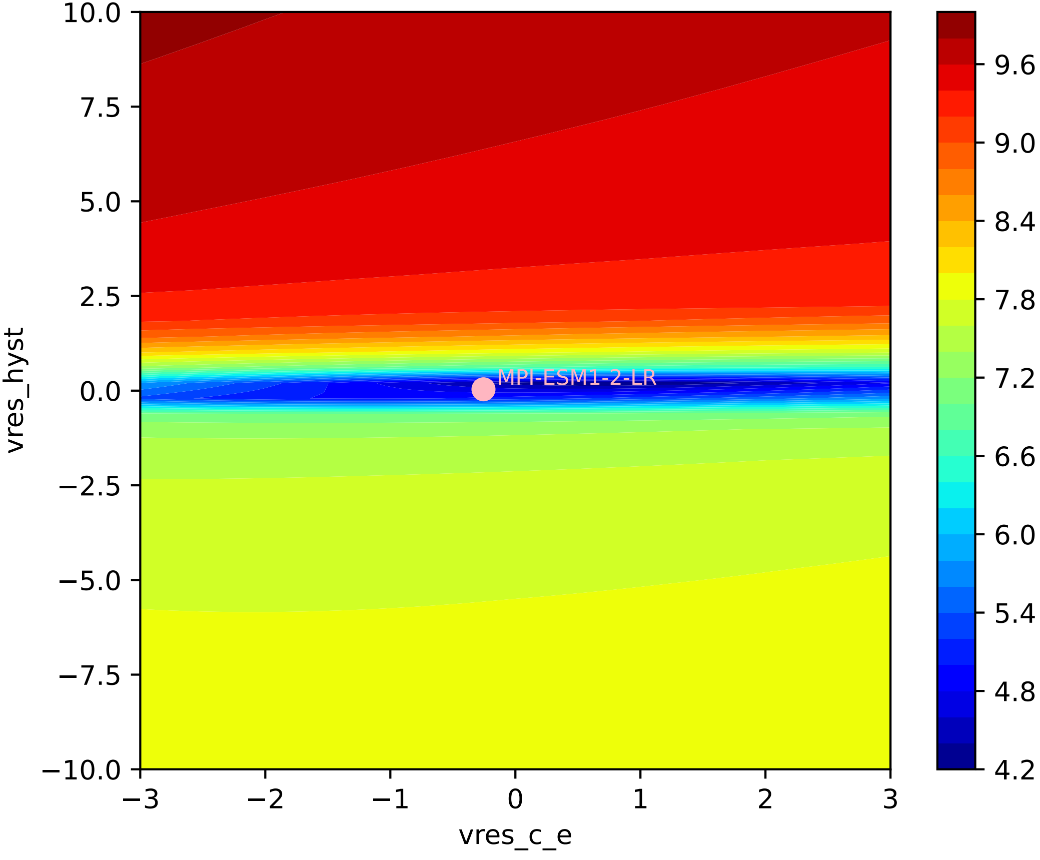
MPI-ESM1-2-LR, esm-ssp534-over, vres, ln(MSE/SIGMA)

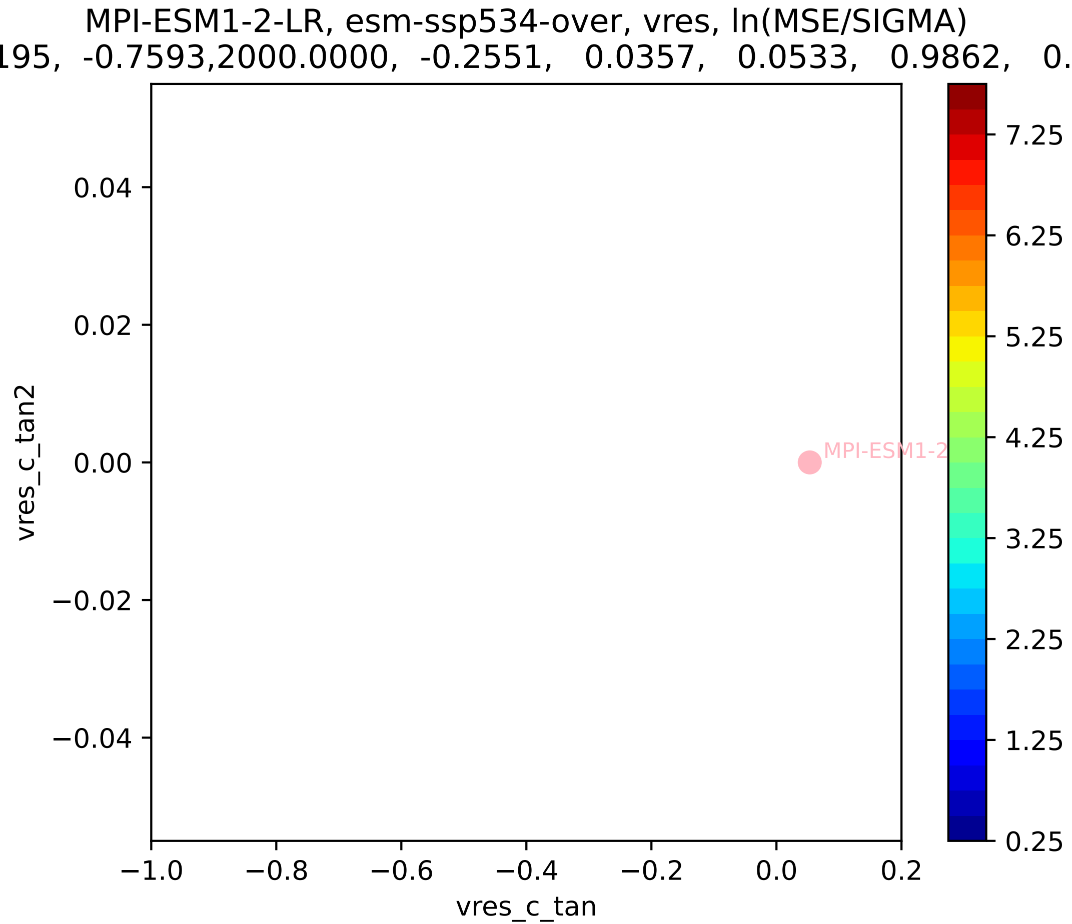
195, -0.7593,2000.0000, -0.2551,   0.0357,   0.0533,   0.9862,   0.6856,   0

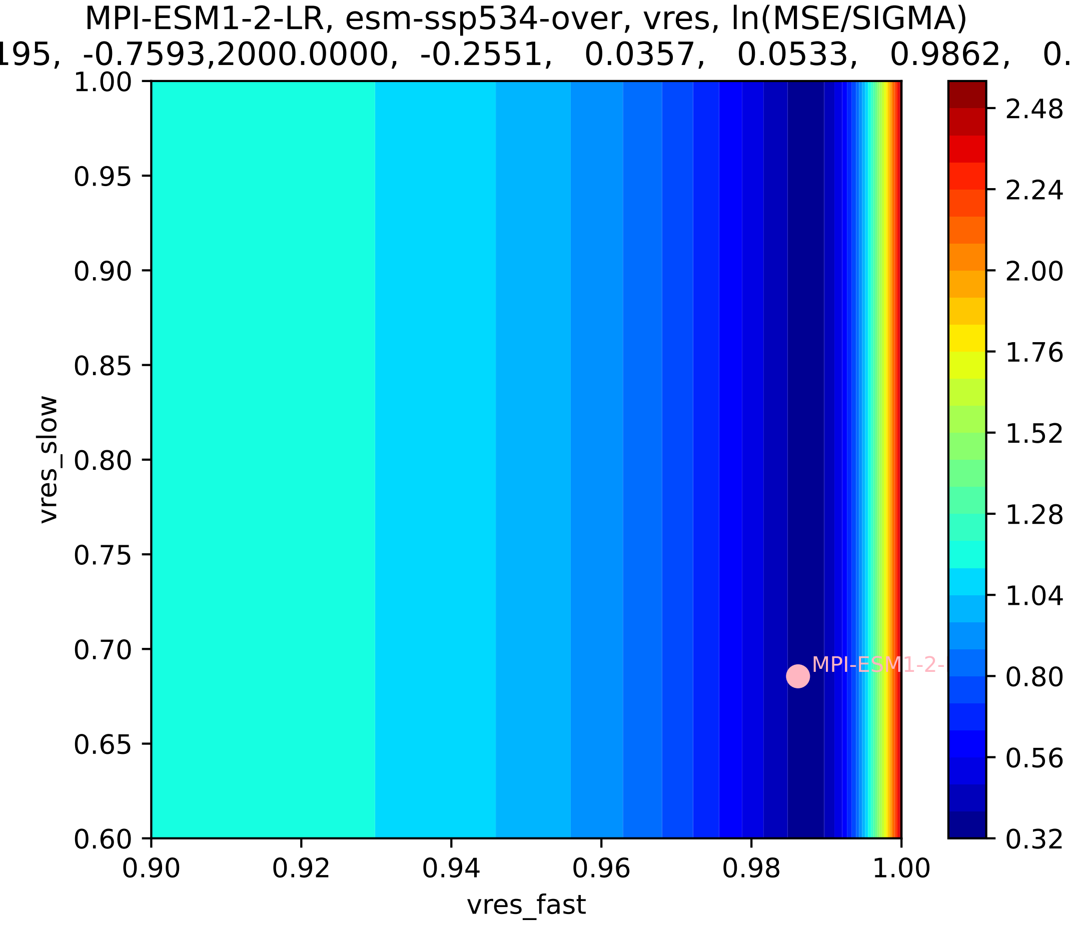


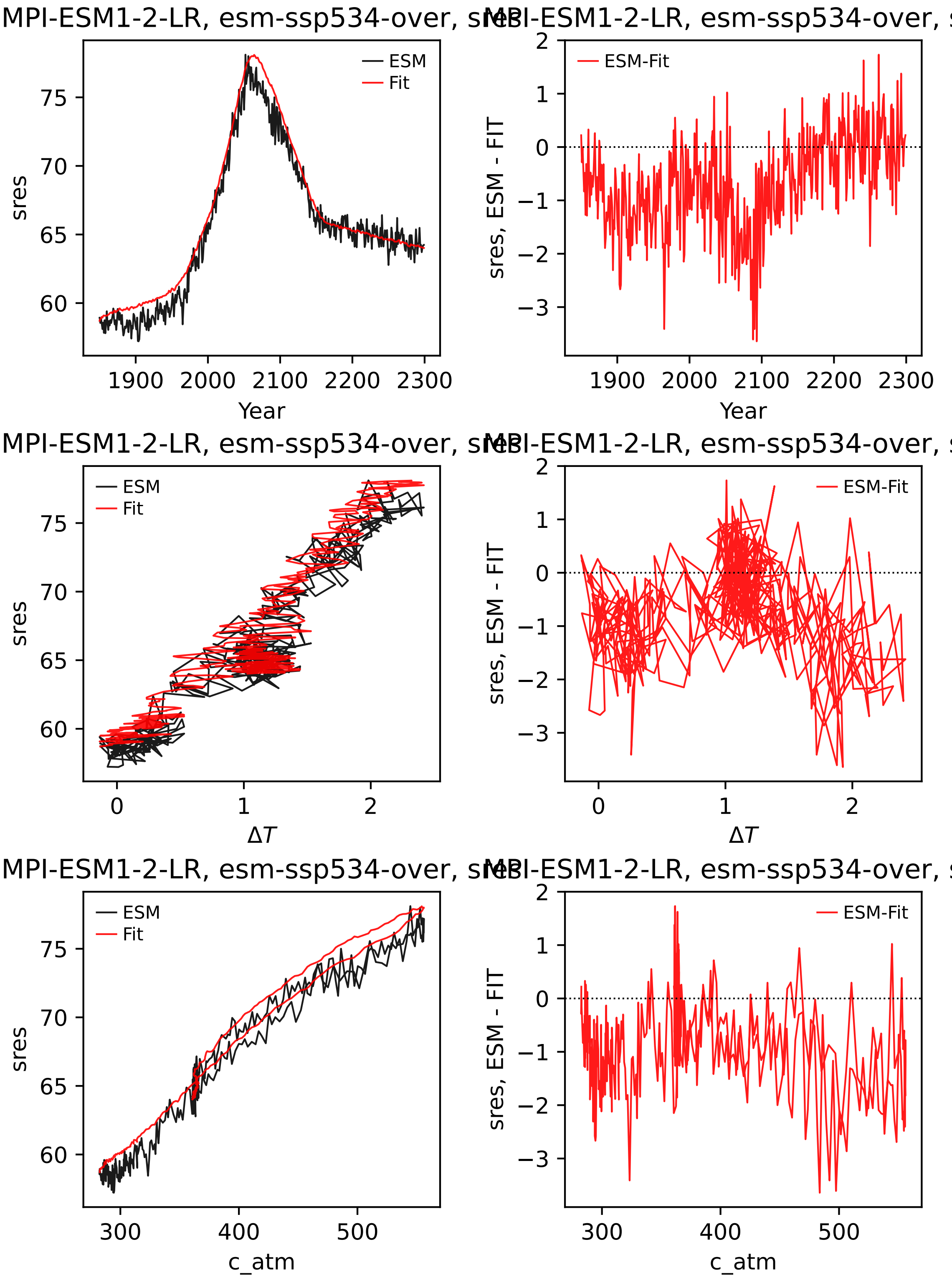
MPI-ESM1-2-LR, esm-ssp534-over, vres, ln(MSE/SIGMA)

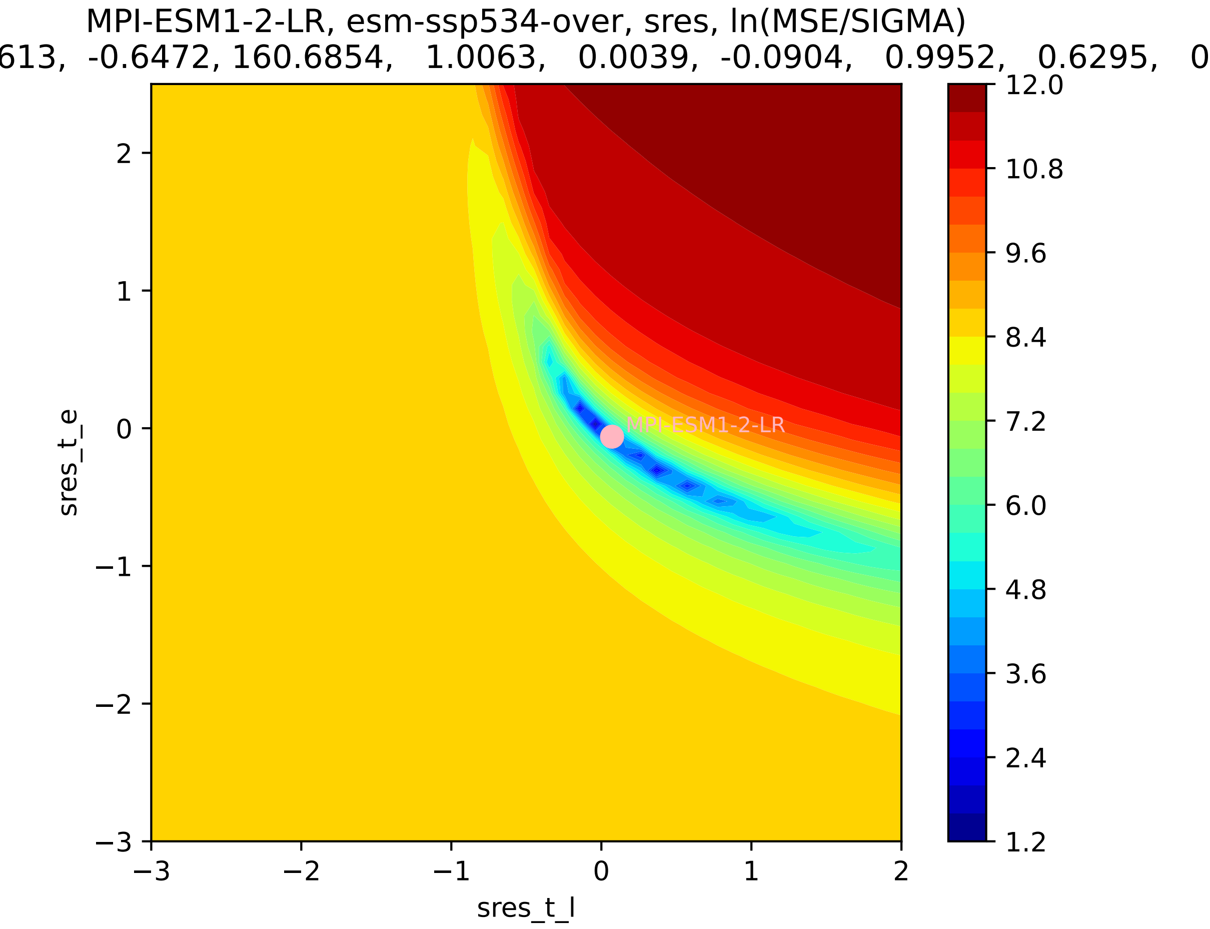
195, -0.7593,2000.0000, -0.2551,   0.0357,   0.0533,   0.9862,   0.6856,   0

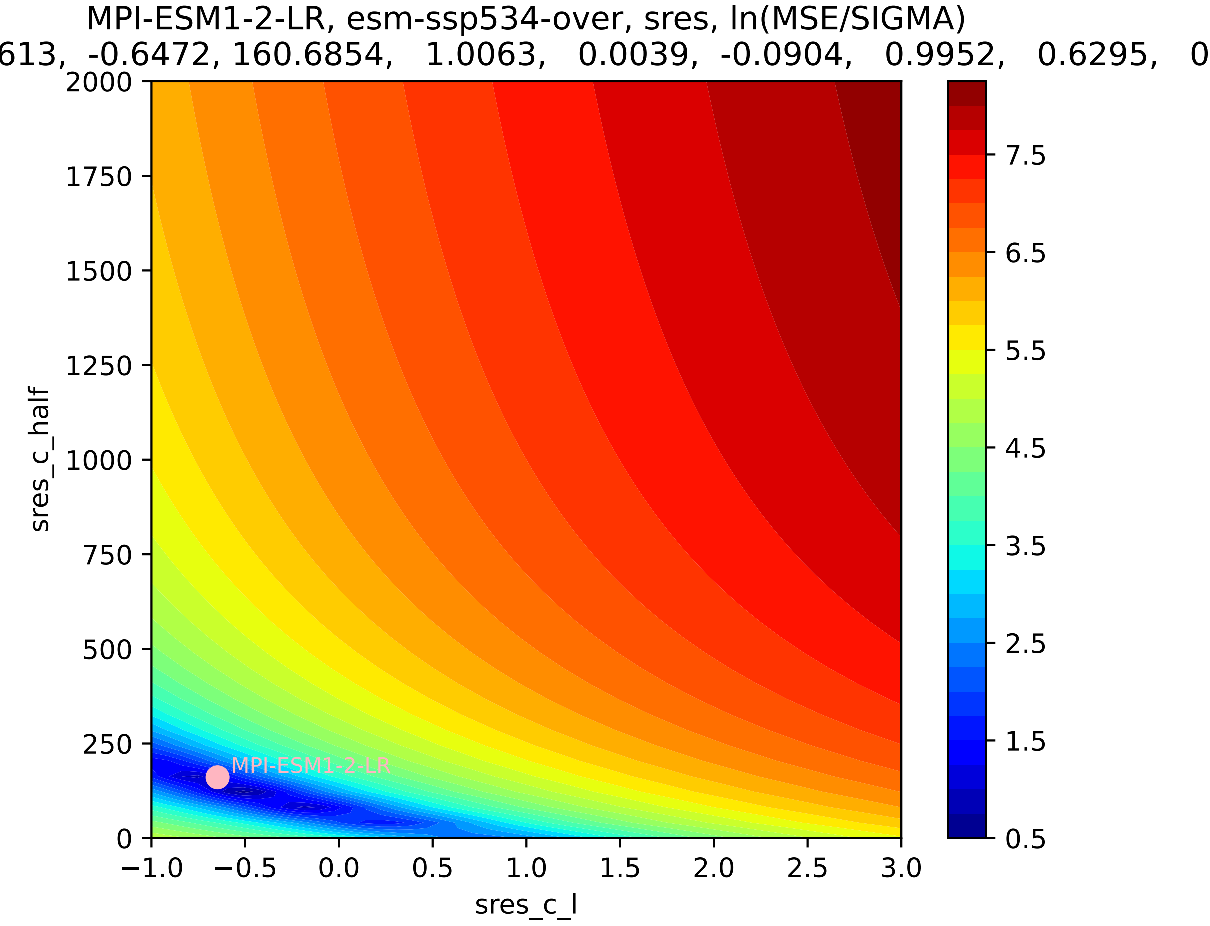


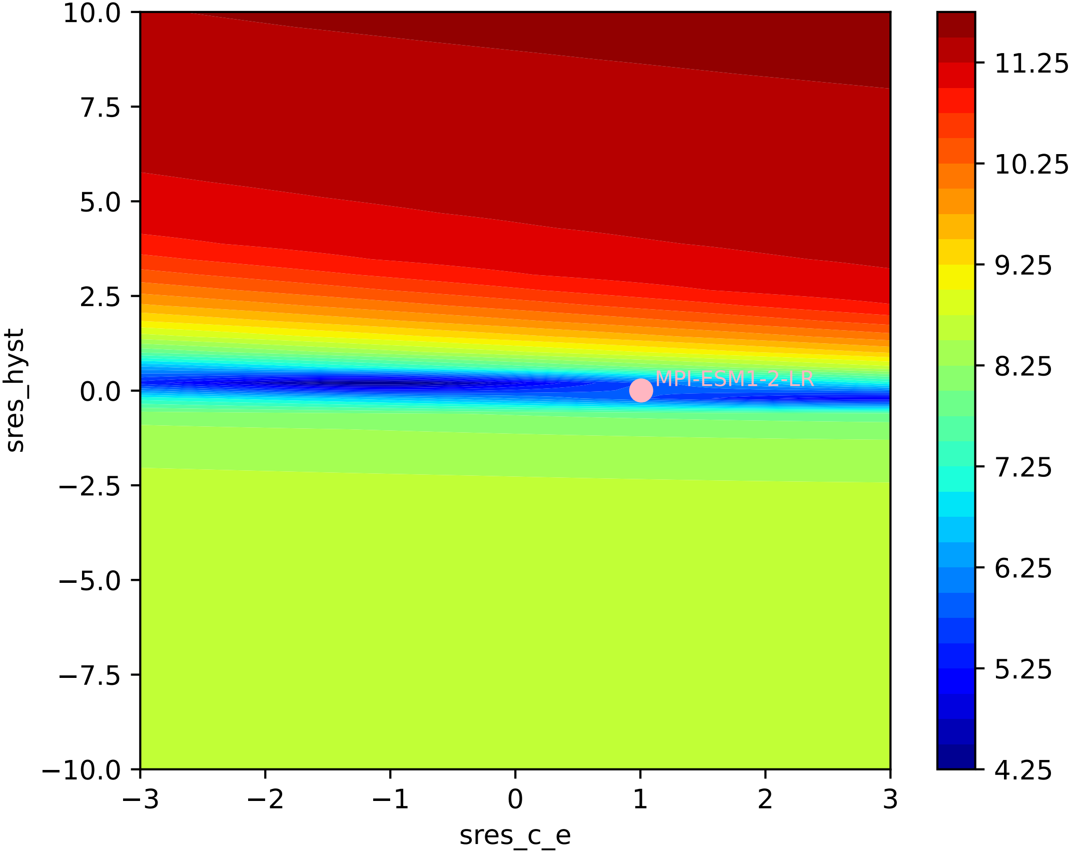

MPI-ESM1-2-LR, esm-ssp534-over, vres, ln(MSE/SIGMA)
195, -0.7593,2000.0000, -0.2551,   0.0357,   0.0533,   0.9862,   0.6856,   0
vres_c_tan2
0.04
0.02
0.00
−0.02
−0.04
vres_c_tan
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
0.2
MPI-ESM1-2
7.25
6.25
5.25
4.25
3.25
2.25
1.25
0.25


MPI-ESM1-2-LR, esm-ssp534-over, vres, ln(MSE/SIGMA)
195, -0.7593,2000.0000, -0.2551, 0.0357, 0.0533, 0.9862, 0.6856, 0
vres_slow
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
vres_fast
0.90
0.92
0.94
0.96
0.98
1.00
MPI-ESM1-2-
2.48
2.24
2.00
1.76
1.52
1.28
1.04
0.80
0.56
0.32


MPI-ESM1-2-LR, esm-ssp534-over, sres
MPI-ESM1-2-LR, esm-ssp534-over, s
ESM
Fit
sres
60
65
70
75
1900
2000
2100
2200
2300
Year
ESM-Fit
sres, ESM - FIT
−3
−2
−1
0
1
2
1900
2000
2100
2200
2300
Year
MPI-ESM1-2-LR, esm-ssp534-over, sres
MPI-ESM1-2-LR, esm-ssp534-over, s
ESM
Fit
sres
60
65
70
75
0
1
2
ΔT
ESM-Fit
sres, ESM - FIT
−3
−2
−1
0
1
2
0
1
2
ΔT
MPI-ESM1-2-LR, esm-ssp534-over, sres
MPI-ESM1-2-LR, esm-ssp534-over, s
ESM
Fit
sres
60
65
70
75
300
400
500
c_atm
ESM-Fit
sres, ESM - FIT
−3
−2
−1
0
1
2
300
400
500
c_atm


MPI-ESM1-2-LR, esm-ssp534-over, sres, ln(MSE/SIGMA)
613, -0.6472, 160.6854, 1.0063, 0.0039, -0.0904, 0.9952, 0.6295, 0
sres_t_e
sres_t_l
2
1
0
−1
−2
−3
−3
−2
−1
0
1
2
MPI-ESM1-2-LR
12.0
10.8
9.6
8.4
7.2
6.0
4.8
3.6
2.4
1.2

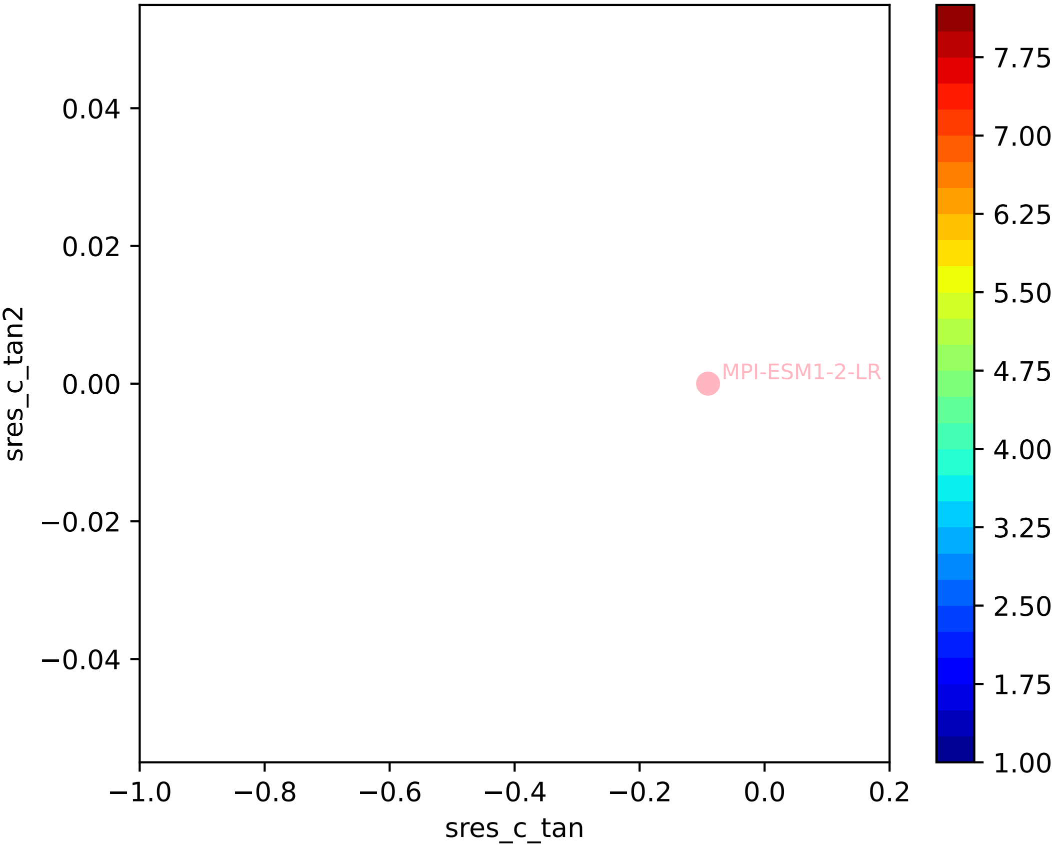

MPI-ESM1-2-LR, esm-ssp534-over, sres, ln(MSE/SIGMA)
613, -0.6472, 160.6854, 1.0063, 0.0039, -0.0904, 0.9952, 0.6295, 0
2000
1750
1500
1250
1000
750
500
250
0
sres_c_half
−1.0
−0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
sres_c_l
MPI-ESM1-2-LR
7.5
6.5
5.5
4.5
3.5
2.5
1.5
0.5



MPI-ESM1-2-LR, esm-ssp534-over, sres, ln(MSE/SIGMA)

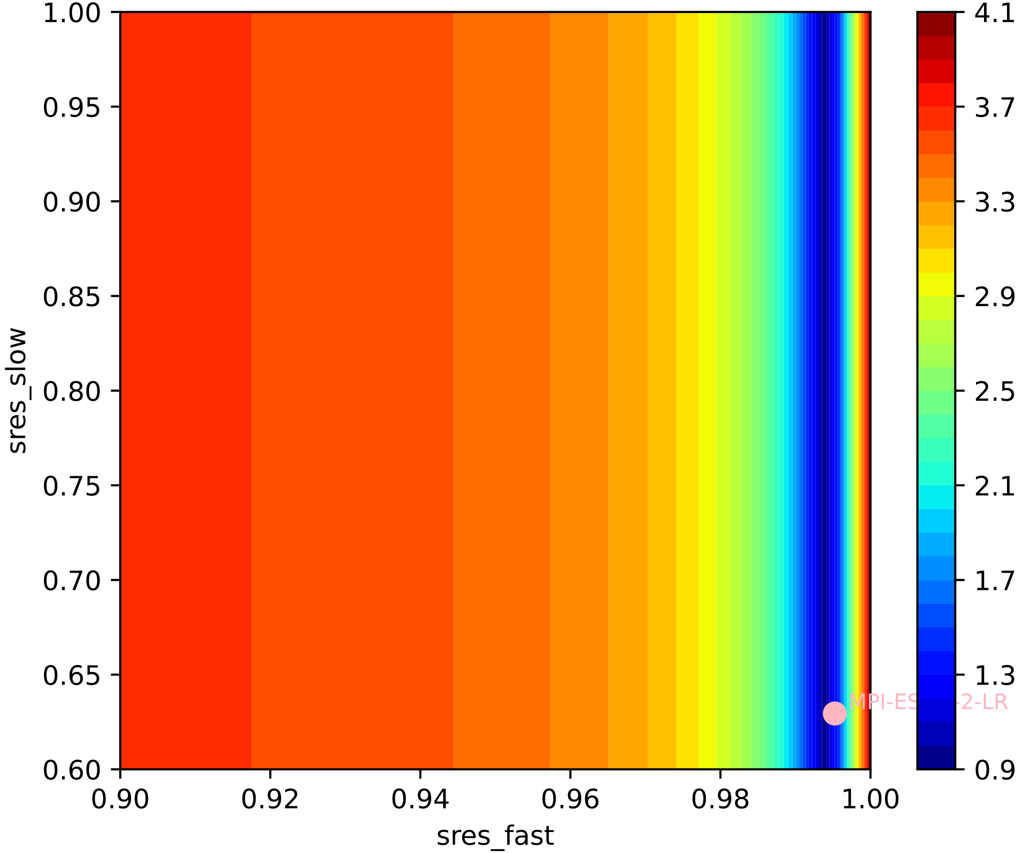
613, -0.6472, 160.6854, 1.0063, 0.0039, -0.0904, 0.9952, 0.6295, 0

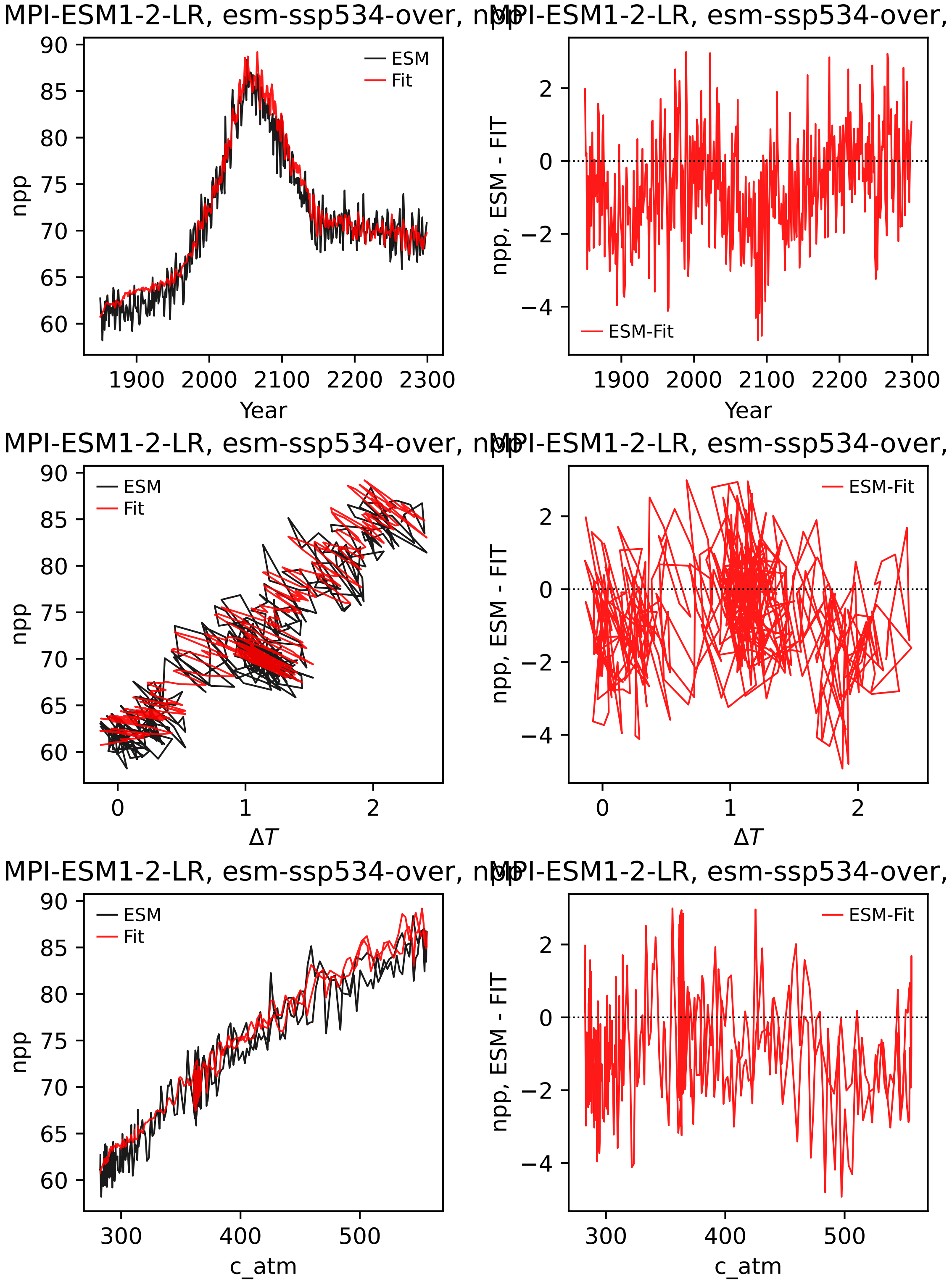
MPI-ESM1-2-LR, esm-ssp534-over, sres, ln(MSE/SIGMA)
613, -0.6472, 160.6854, 1.0063, 0.0039, -0.0904, 0.9952, 0.6295, 0

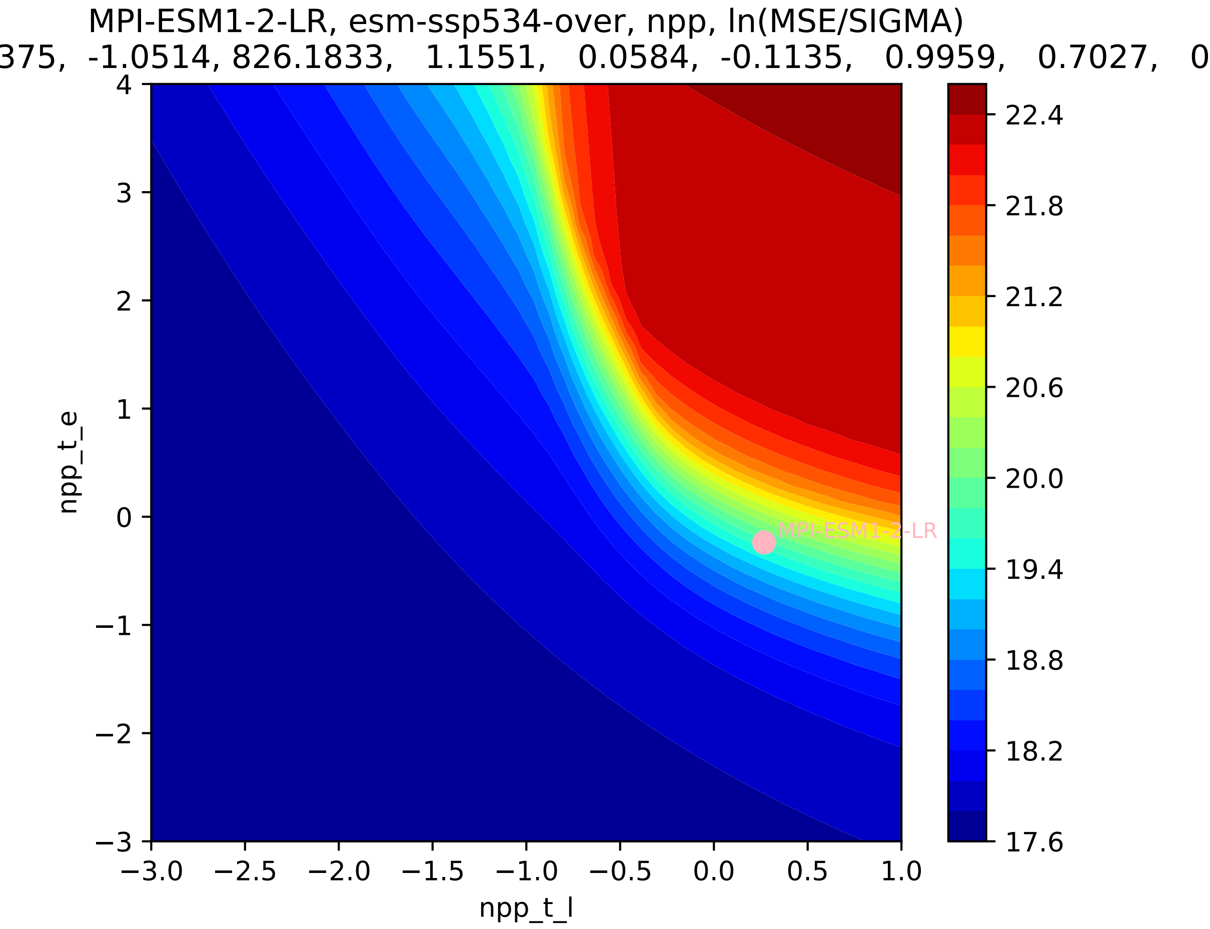


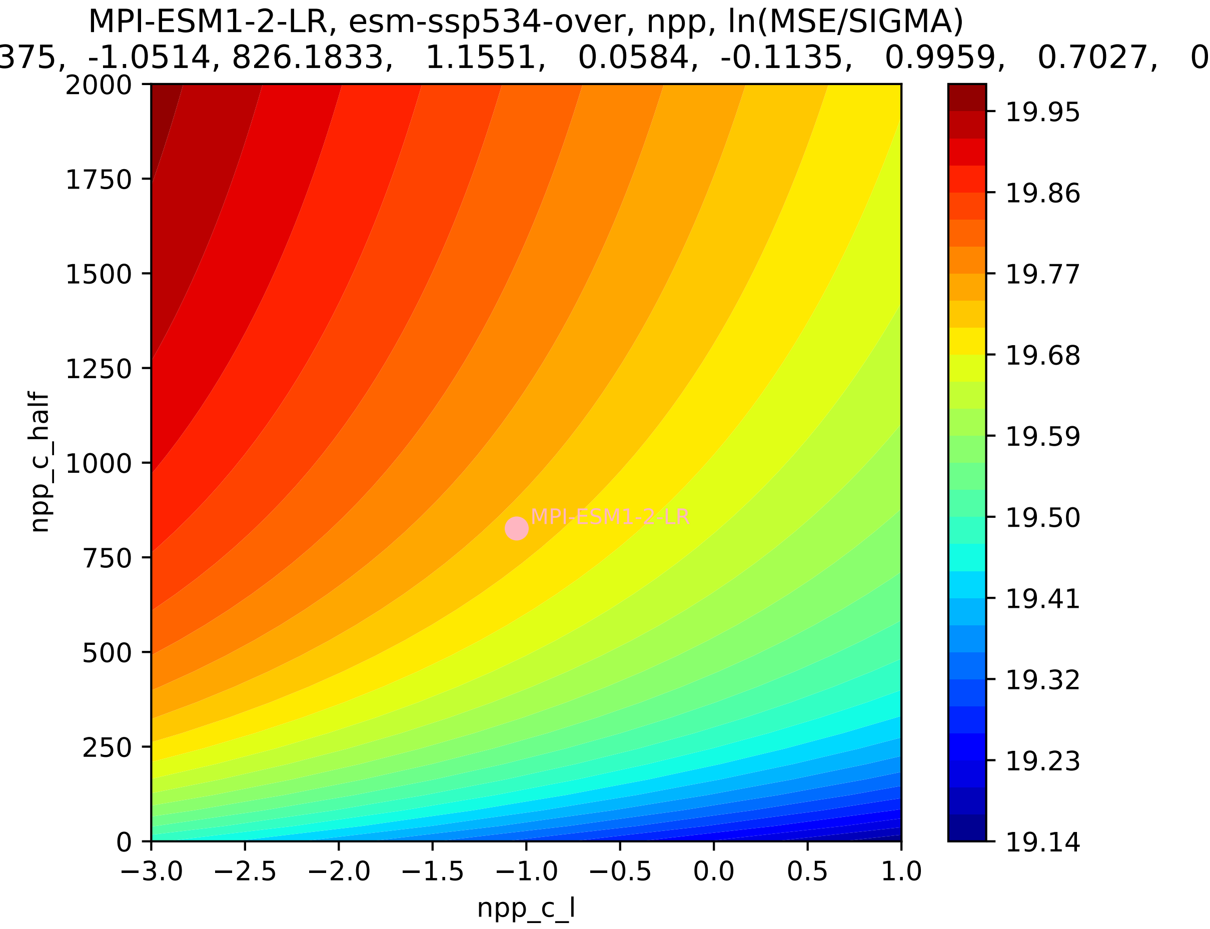
MPI-ESM1-2-LR, esm-ssp534-over, sres, ln(MSE/SIGMA)

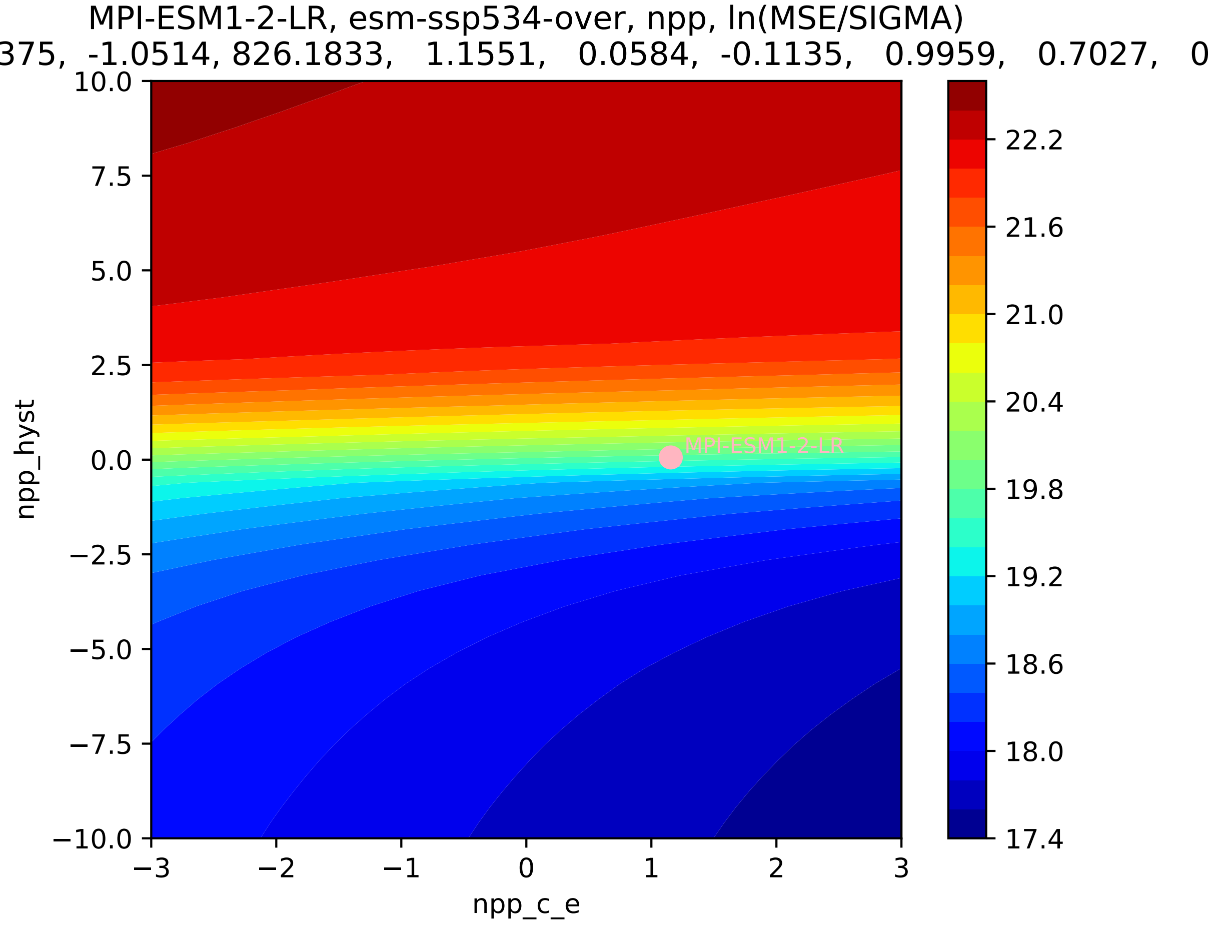
613, -0.6472, 160.6854, 1.0063, 0.0039, -0.0904, 0.9952, 0.6295, 0

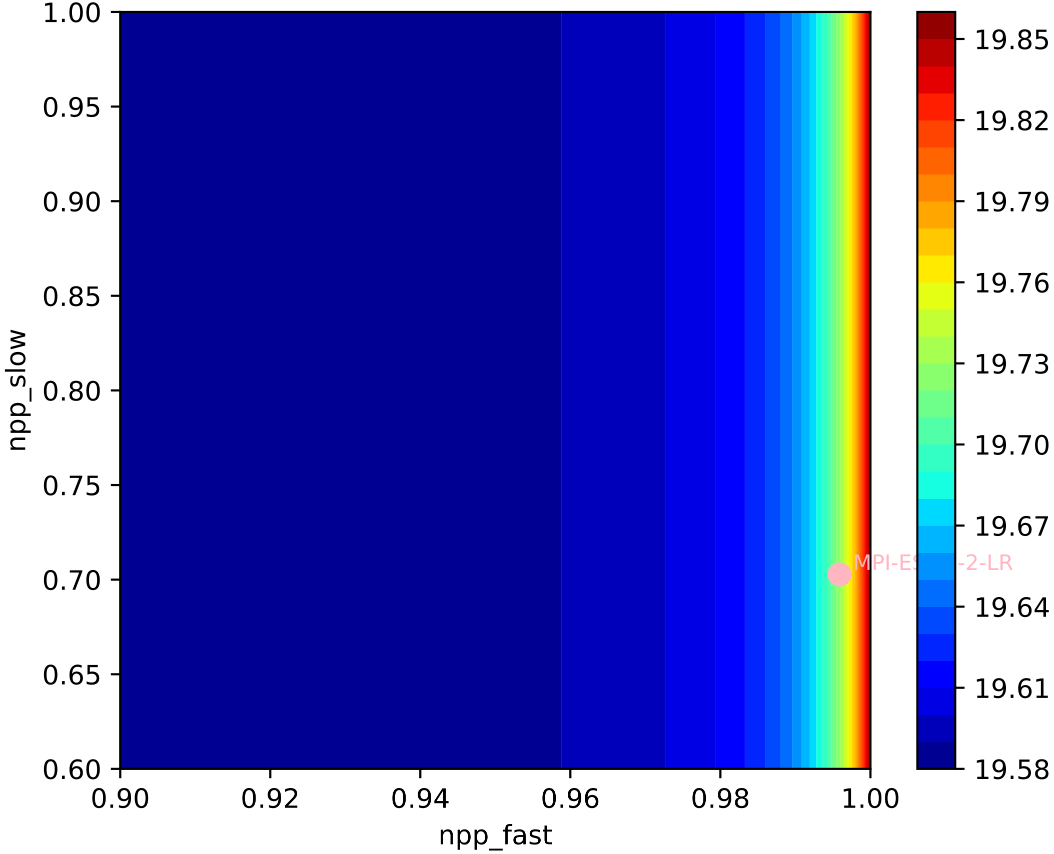



MPI-ESM1-2-LR, esm-ssp534-over, npp
MPI-ESM1-2-LR, esm-ssp534-over,
npp
Year
ESM
Fit
1900
2000
2100
2200
2300
60
65
70
75
80
85
90
npp, ESM - FIT
ESM-Fit
−4
−2
0
2
MPI-ESM1-2-LR, esm-ssp534-over, npp
MPI-ESM1-2-LR, esm-ssp534-over,
ΔT
0
1
2
MPI-ESM1-2-LR, esm-ssp534-over, npp
MPI-ESM1-2-LR, esm-ssp534-over,
c_atm
300
400
500

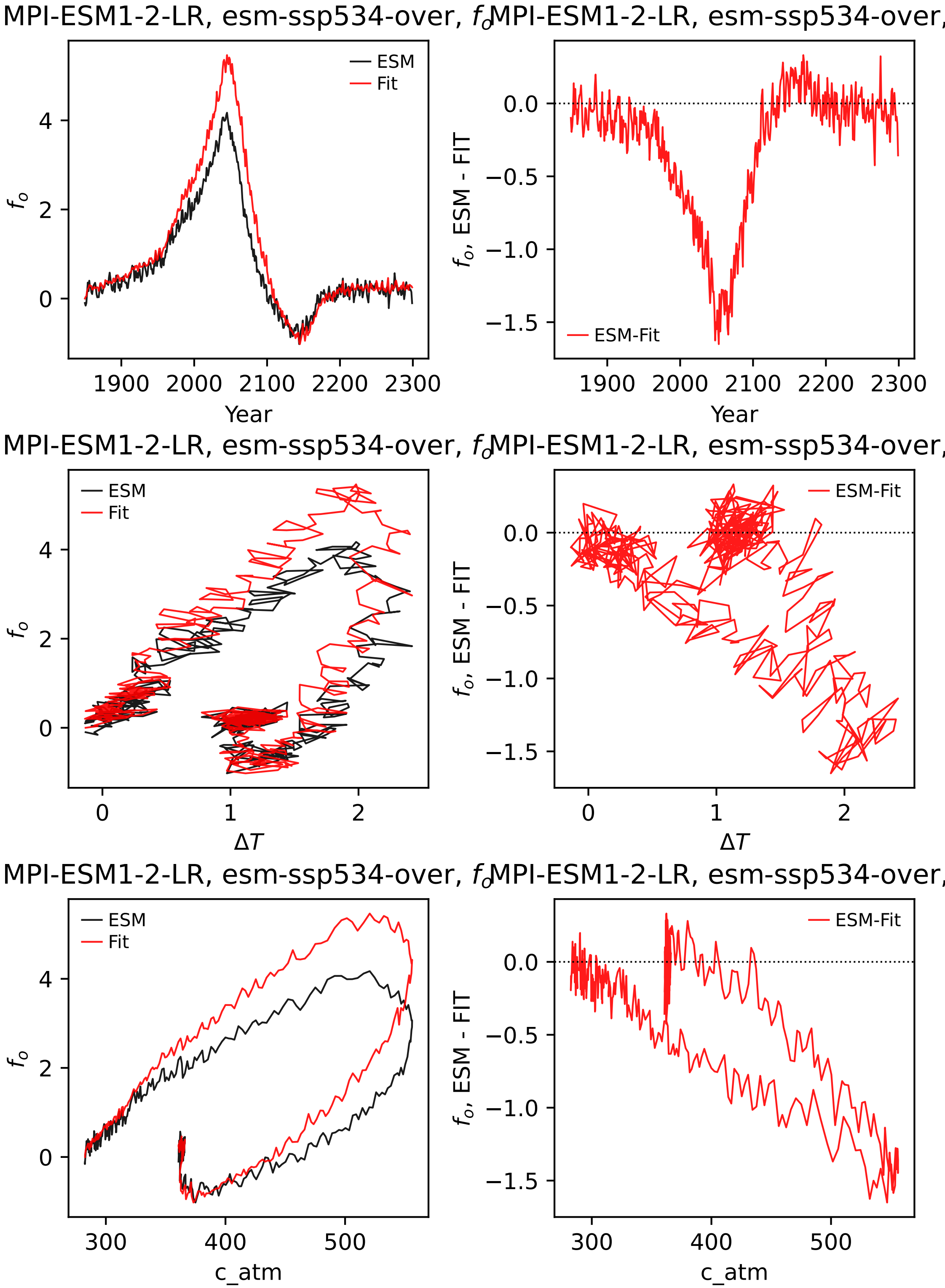

MPI-ESM1-2-LR, esm-ssp534-over, npp, ln(MSE/SIGMA)
375, -1.0514, 826.1833, 1.1551, 0.0584, -0.1135, 0.9959, 0.7027, 0
npp_t_e
npp_t_l
4
3
2
1
0
−1
−2
−3
−3.0
−2.5
−2.0
−1.5
−1.0
−0.5
0.0
0.5
1.0
MPI-ESM1-2-LR
22.4
21.8
21.2
20.6
20.0
19.4
18.8
18.2
17.6

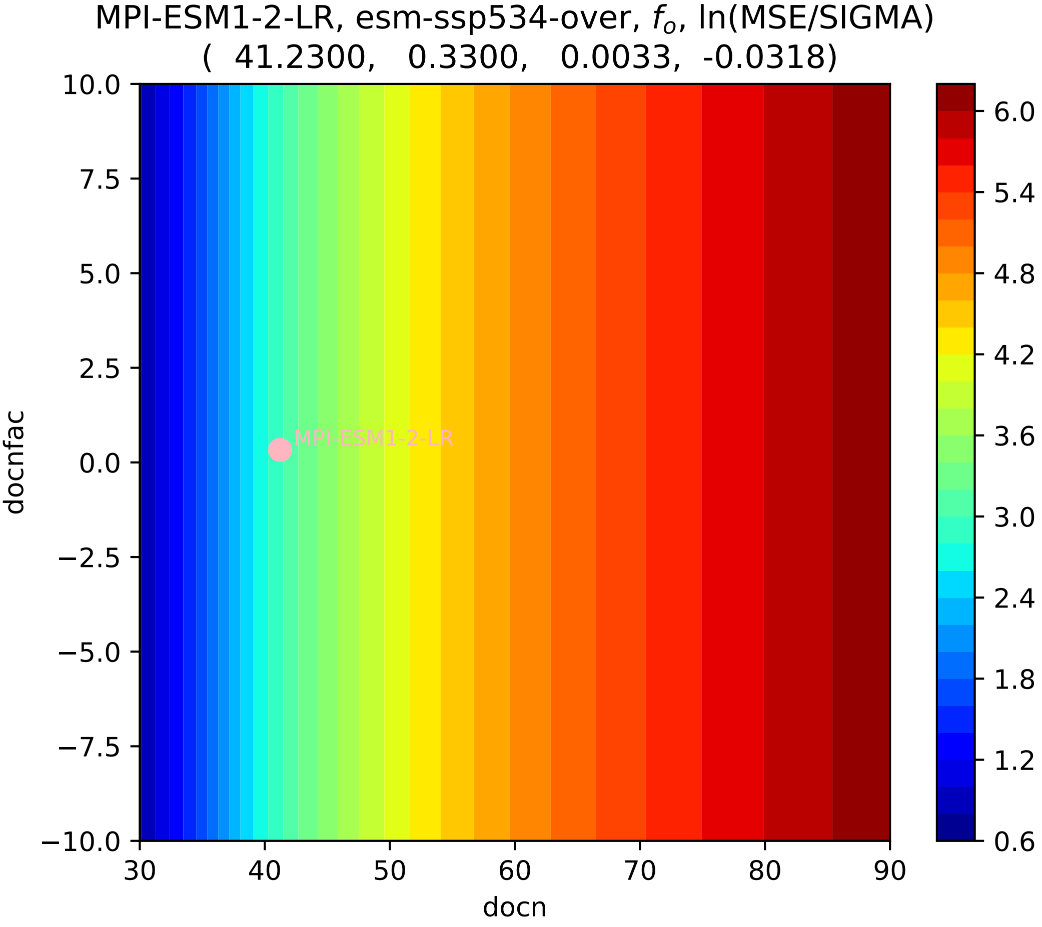

MPI-ESM1-2-LR, esm-ssp534-over, npp, ln(MSE/SIGMA)
375, -1.0514, 826.1833, 1.1551, 0.0584, -0.1135, 0.9959, 0.7027, 0
2000
1750
1500
1250
1000
750
500
250
0
npp_c_half
−3.0
−2.5
−2.0
−1.5
−1.0
−0.5
0.0
0.5
1.0
npp_c_l
MPI-ESM1-2-LR
19.95
19.86
19.77
19.68
19.59
19.50
19.41
19.32
19.23
19.14

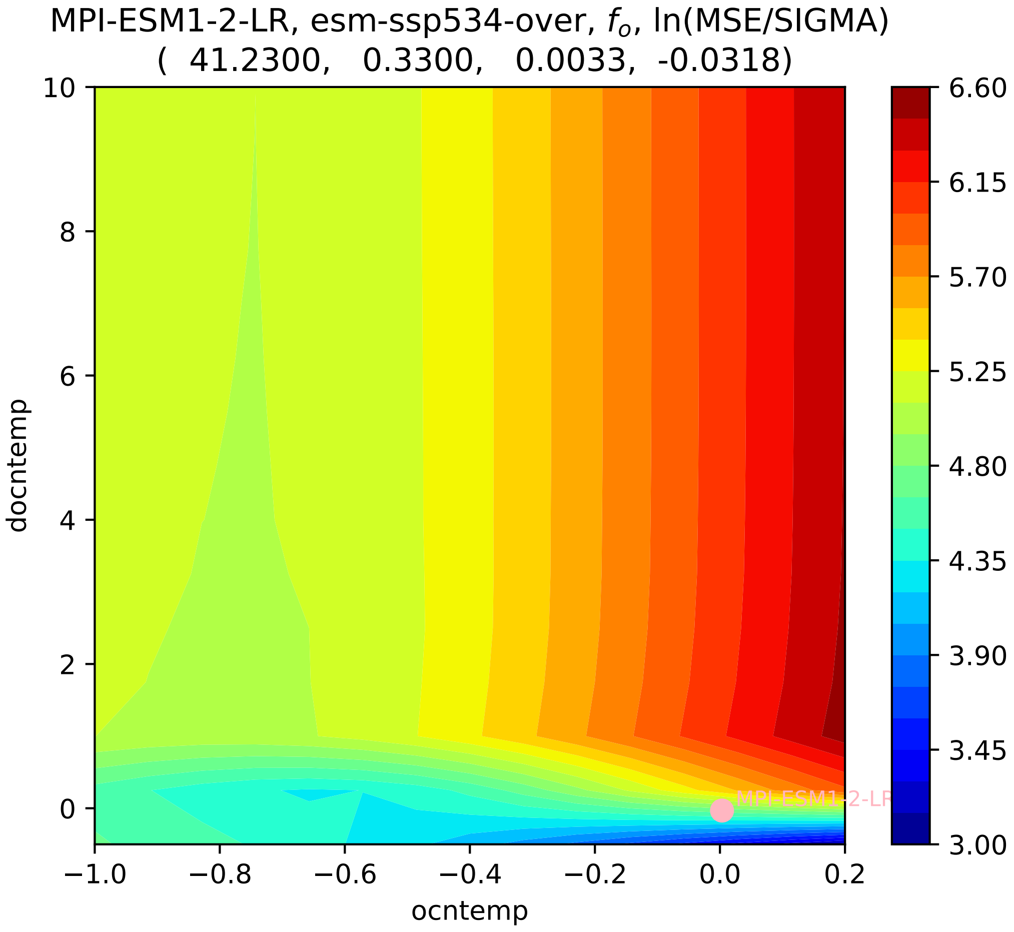

MPI-ESM1-2-LR, esm-ssp534-over, npp, ln(MSE/SIGMA)
375, -1.0514, 826.1833, 1.1551, 0.0584, -0.1135, 0.9959, 0.7027, 0
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
npp_hyst
−3
−2
−1
0
1
2
3
npp_c_e
MPI-ESM1-2-LR
22.2
21.6
21.0
20.4
19.8
19.2
18.6
18.0
17.4


MPI-ESM1-2-LR, esm-ssp534-over, npp, ln(MSE/SIGMA)

375, -1.0514, 826.1833, 1.1551, 0.0584, -0.1135, 0.9959, 0.7027, 0


MPI-ESM1-2-LR, esm-ssp534-over, f_o
MPI-ESM1-2-LR, esm-ssp534-over,
ESM
Fit
f_o
4
2
0
1900
2000
2100
2200
2300
Year
ESM-Fit
f_o, ESM - FIT
0.0
−0.5
−1.0
−1.5
1900
2000
2100
2200
2300
Year
MPI-ESM1-2-LR, esm-ssp534-over, f_o
MPI-ESM1-2-LR, esm-ssp534-over,
ESM
Fit
f_o
4
2
0
0
1
2
ΔT
ESM-Fit
f_o, ESM - FIT
0.0
−0.5
−1.0
−1.5
0
1
2
ΔT
MPI-ESM1-2-LR, esm-ssp534-over, f_o
MPI-ESM1-2-LR, esm-ssp534-over,
ESM
Fit
f_o
4
2
0
300
400
500
c_atm
ESM-Fit
f_o, ESM - FIT
0.0
−0.5
−1.0
−1.5
300
400
500
c_atm


MPI-ESM1-2-LR, esm-ssp534-over, f_o, ln(MSE/SIGMA)
(41.2300, 0.3300, 0.0033, -0.0318)
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
docnfac
30
40
50
60
70
80
90
docn
MPI-ESM1-2-LR
6.0
5.4
4.8
4.2
3.6
3.0
2.4
1.8
1.2
0.6


MPI-ESM1-2-LR, esm-ssp534-over, f_o, ln(MSE/SIGMA)
(41.2300, 0.3300, 0.0033, -0.0318)
10
8
6
4
2
0
docntemp
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
0.2
ocntemp
MPI-ESM1-2-LR
6.60
6.15
5.70
5.25
4.80
4.35
3.90
3.45
3.00