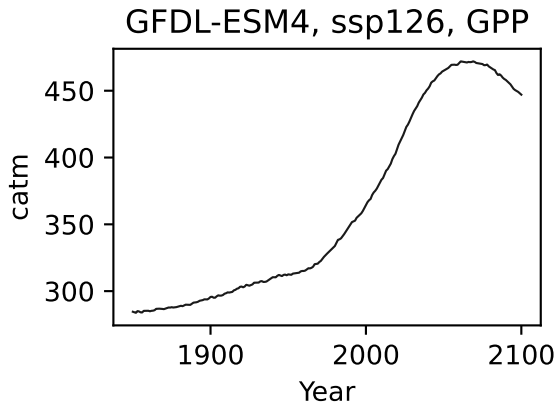
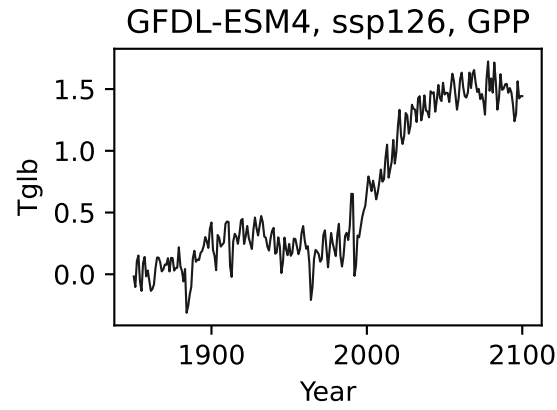
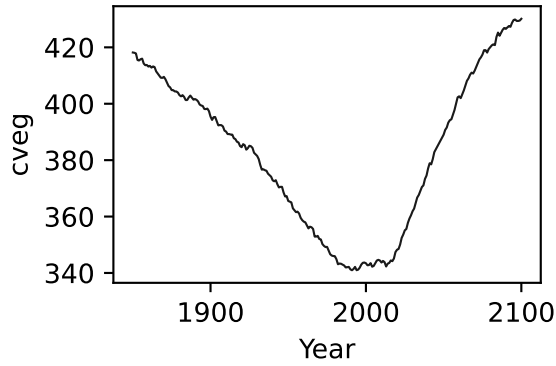
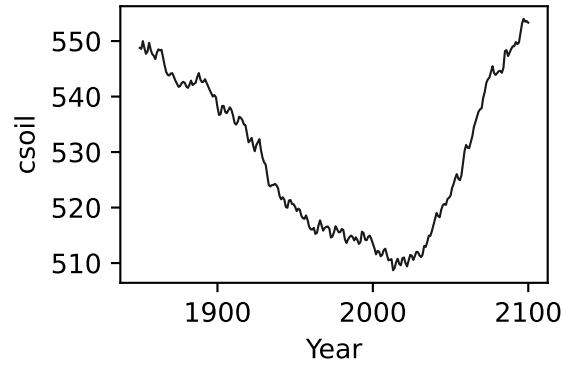
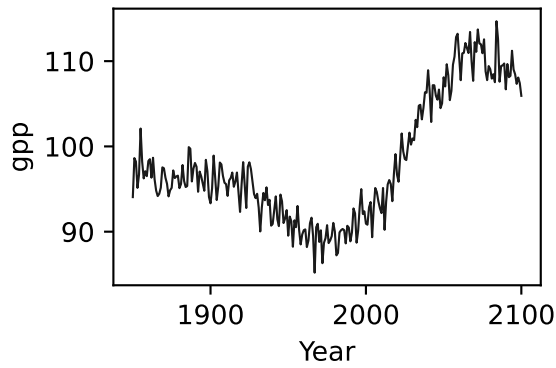
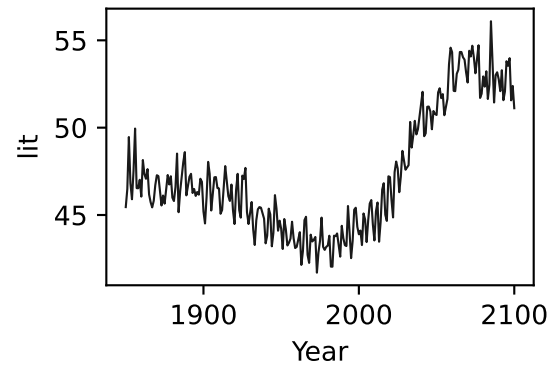

GFDL-ESM4, ssp126, GPP
catm
450
400
350
300
1900
2000
2100
Year

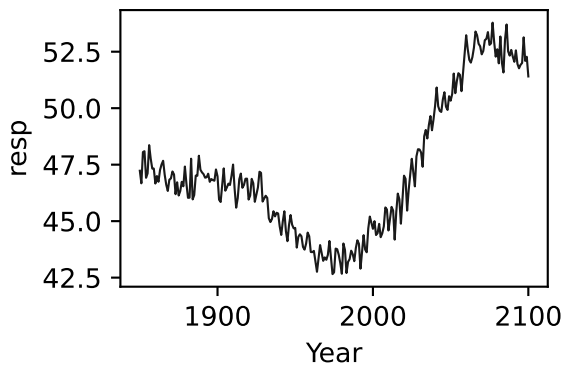

GFDL-ESM4, ssp126, GPP
Tglb
1.5
1.0
0.5
0.0
1900
2000
2100
Year

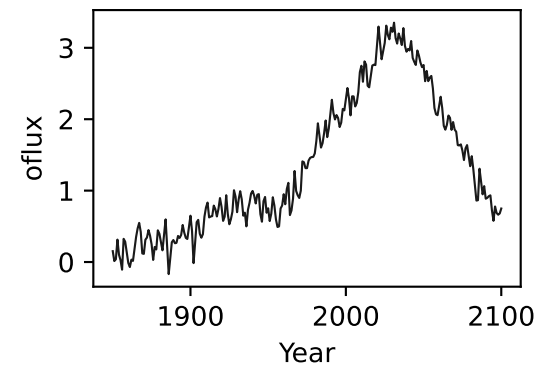

cveg
420
400
380
360
340
1900
2000
2100
Year

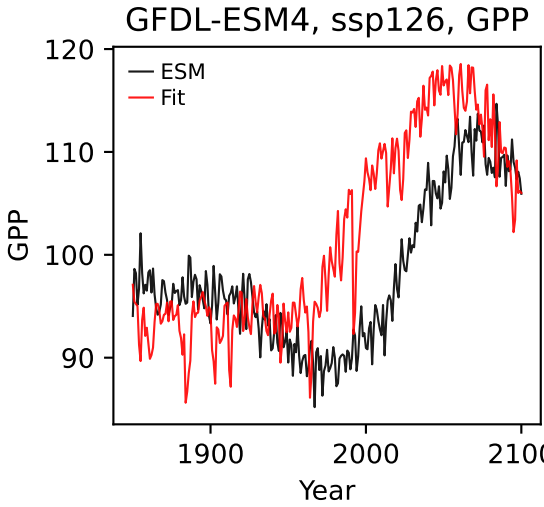

csoil
550
540
530
520
510
1900
2000
2100
Year

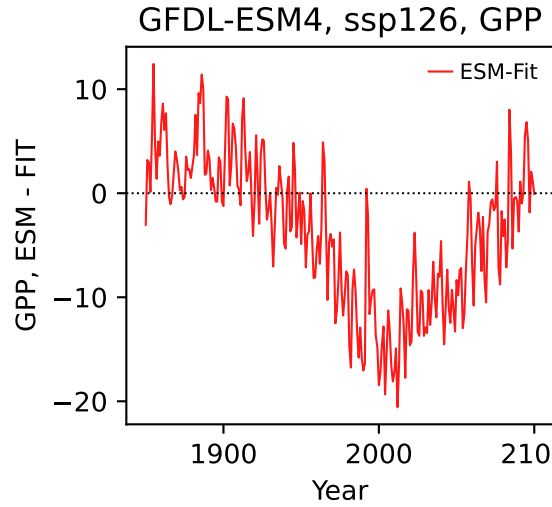

gpp
110
100
90
1900
2000
2100
Year

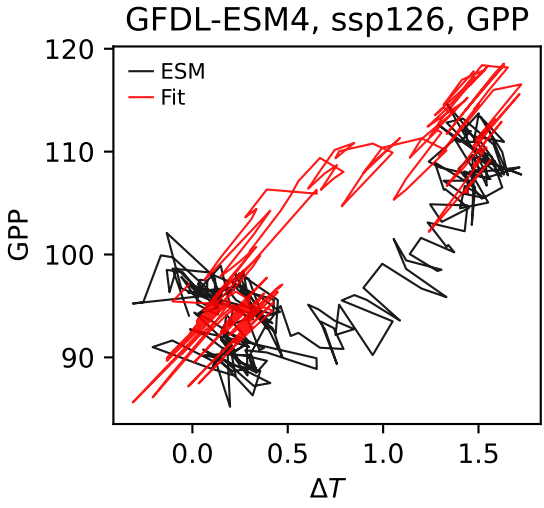

lit
55
50
45
1900
2000
2100
Year

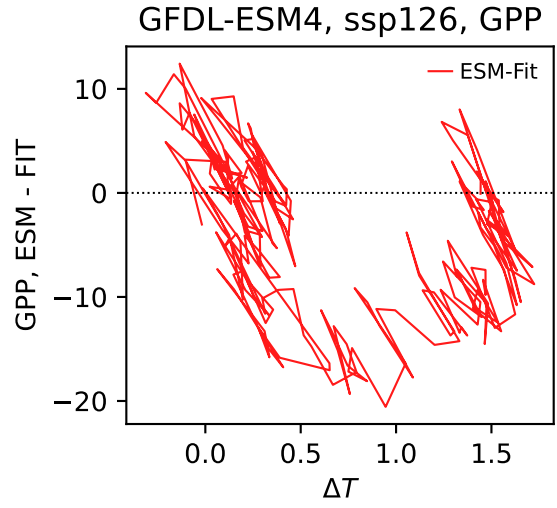

resp
52.5
50.0
47.5
45.0
42.5
1900
2000
2100
Year

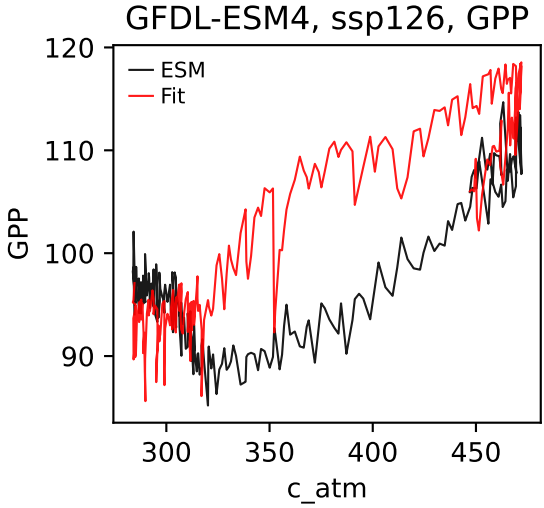

oflux
3
2
1
0
1900
2000
2100
Year

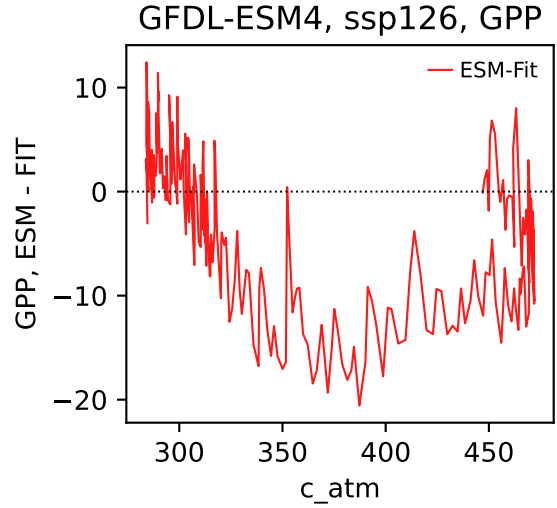

GFDL-ESM4, ssp126, GPP
ESM
Fit
GPP
Year
120
110
100
90
1900
2000
2100

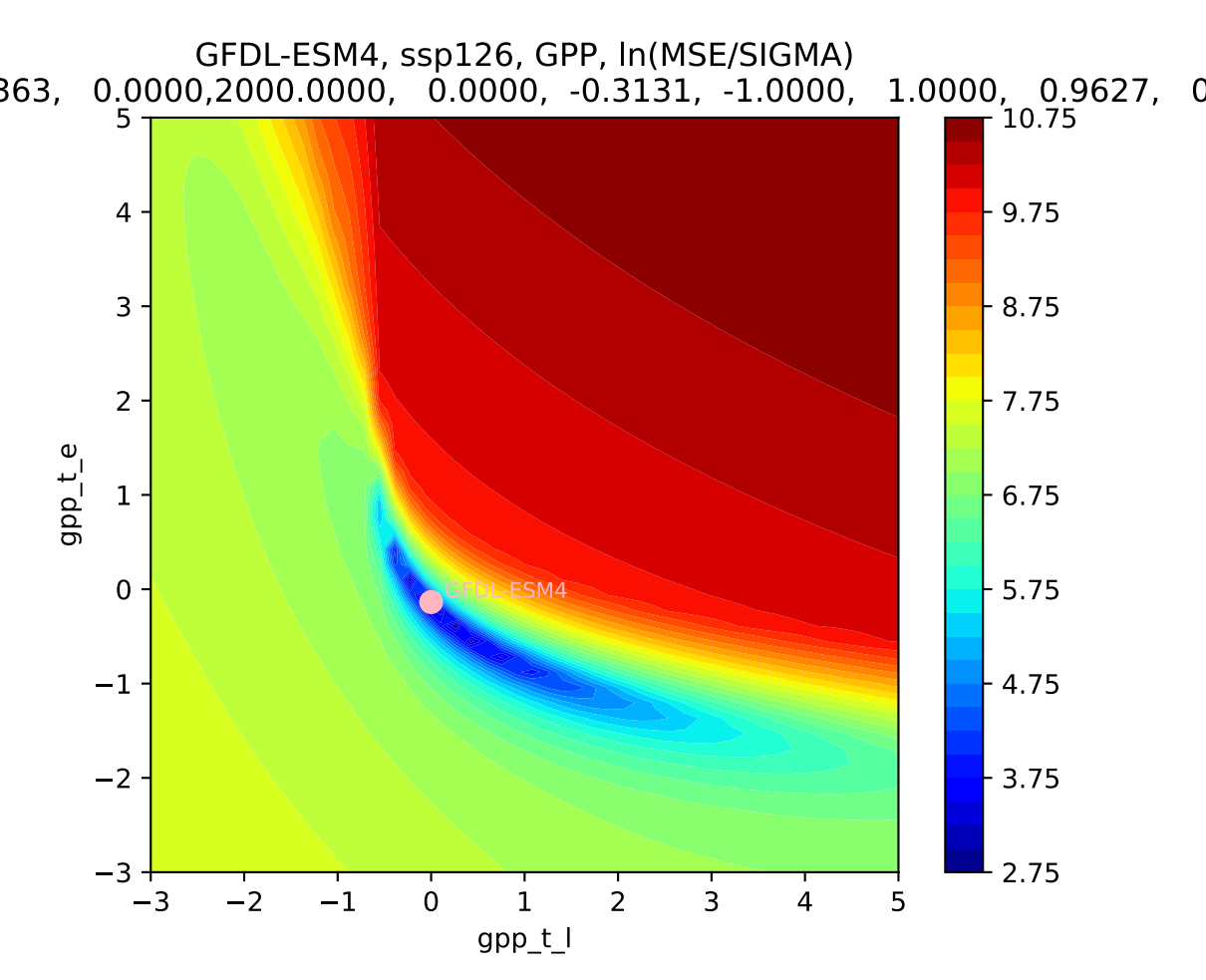

GFDL-ESM4, ssp126, GPP
ESM-Fit
GPP, ESM - FIT
Year
10
0
−10
−20
1900
2000
2100

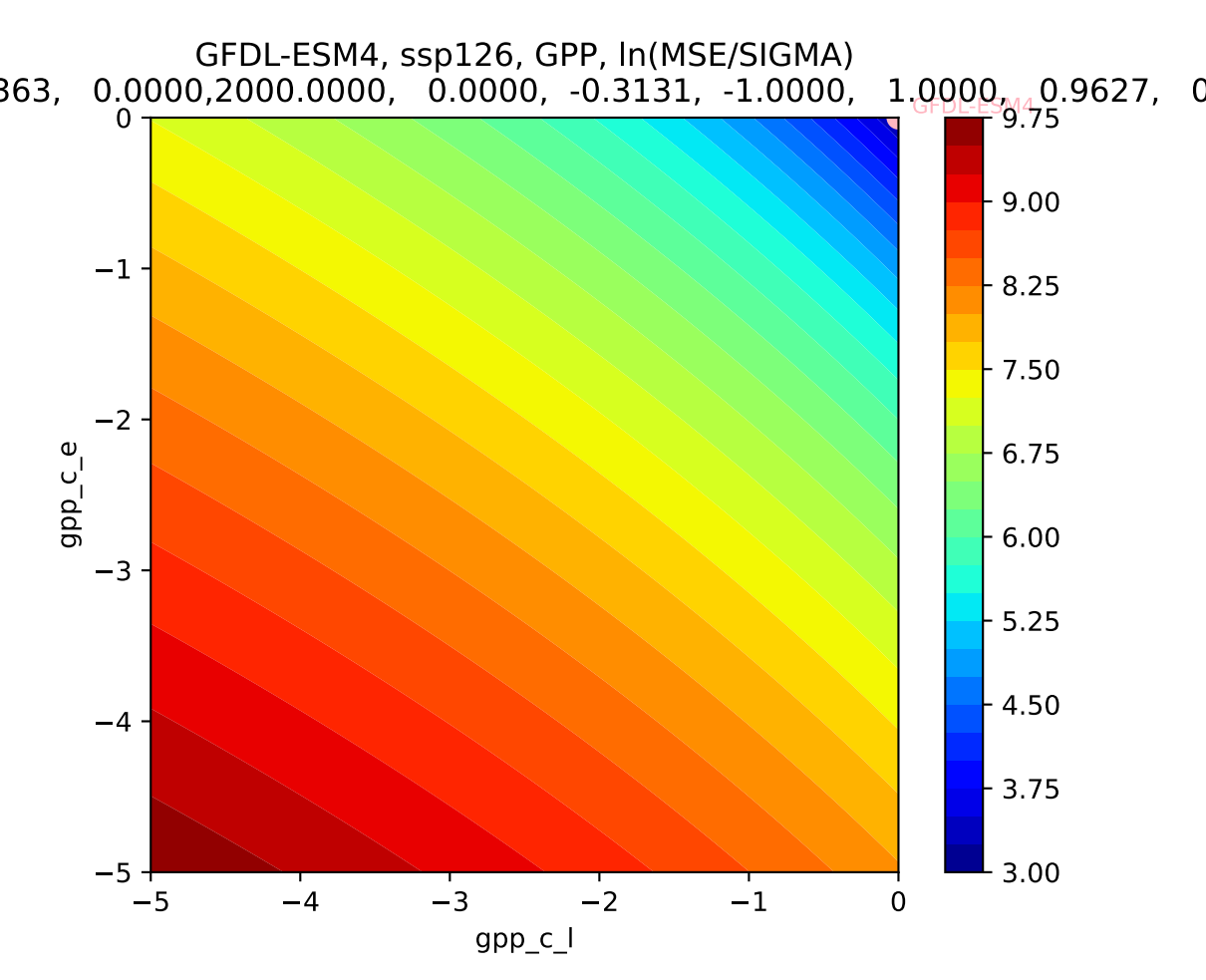

GFDL-ESM4, ssp126, GPP
ESM
Fit
GPP
ΔT
120
110
100
90
0.0
0.5
1.0
1.5

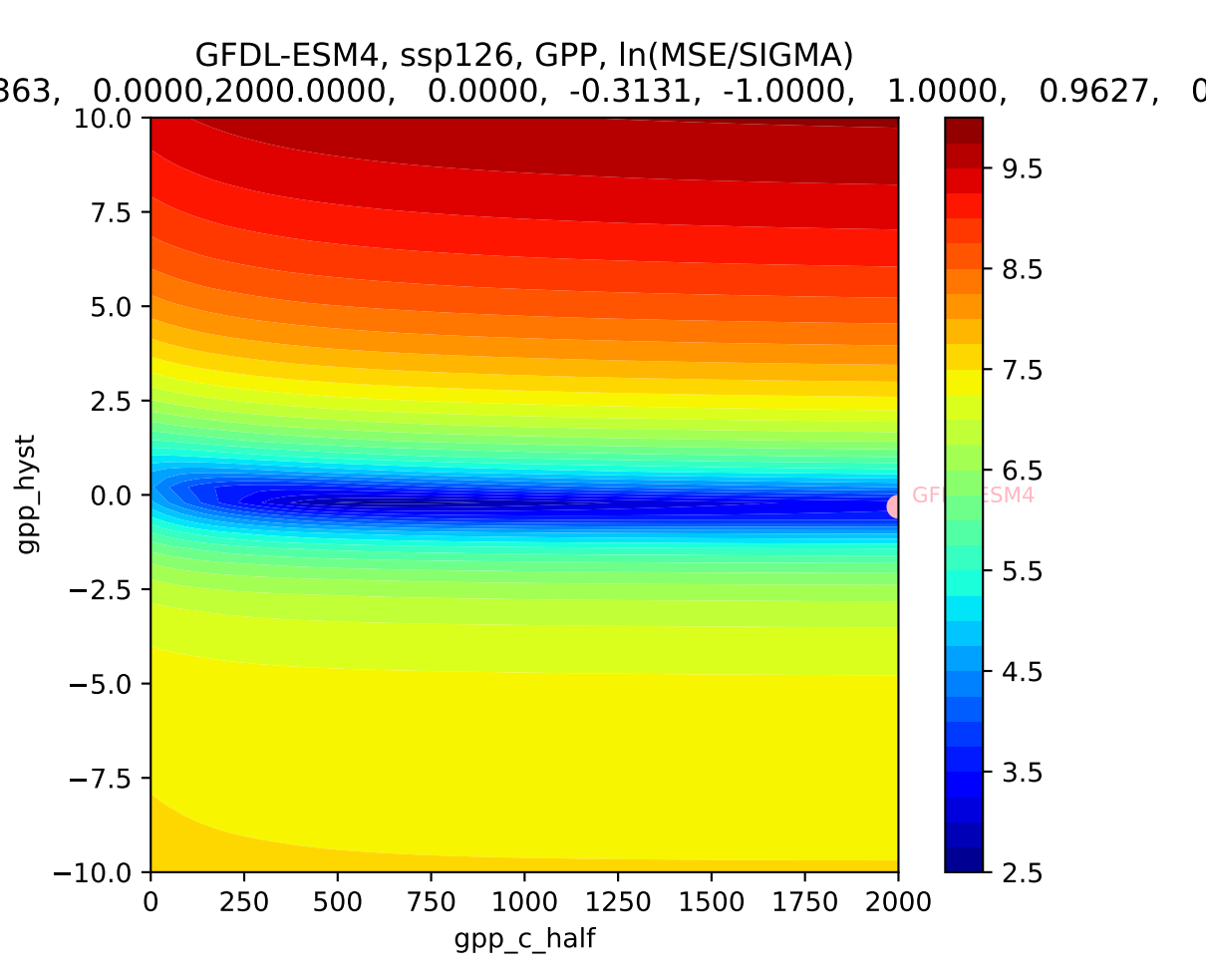

GFDL-ESM4, ssp126, GPP
ESM-Fit
GPP, ESM - FIT
ΔT
10
0
−10
−20
0.0
0.5
1.0
1.5

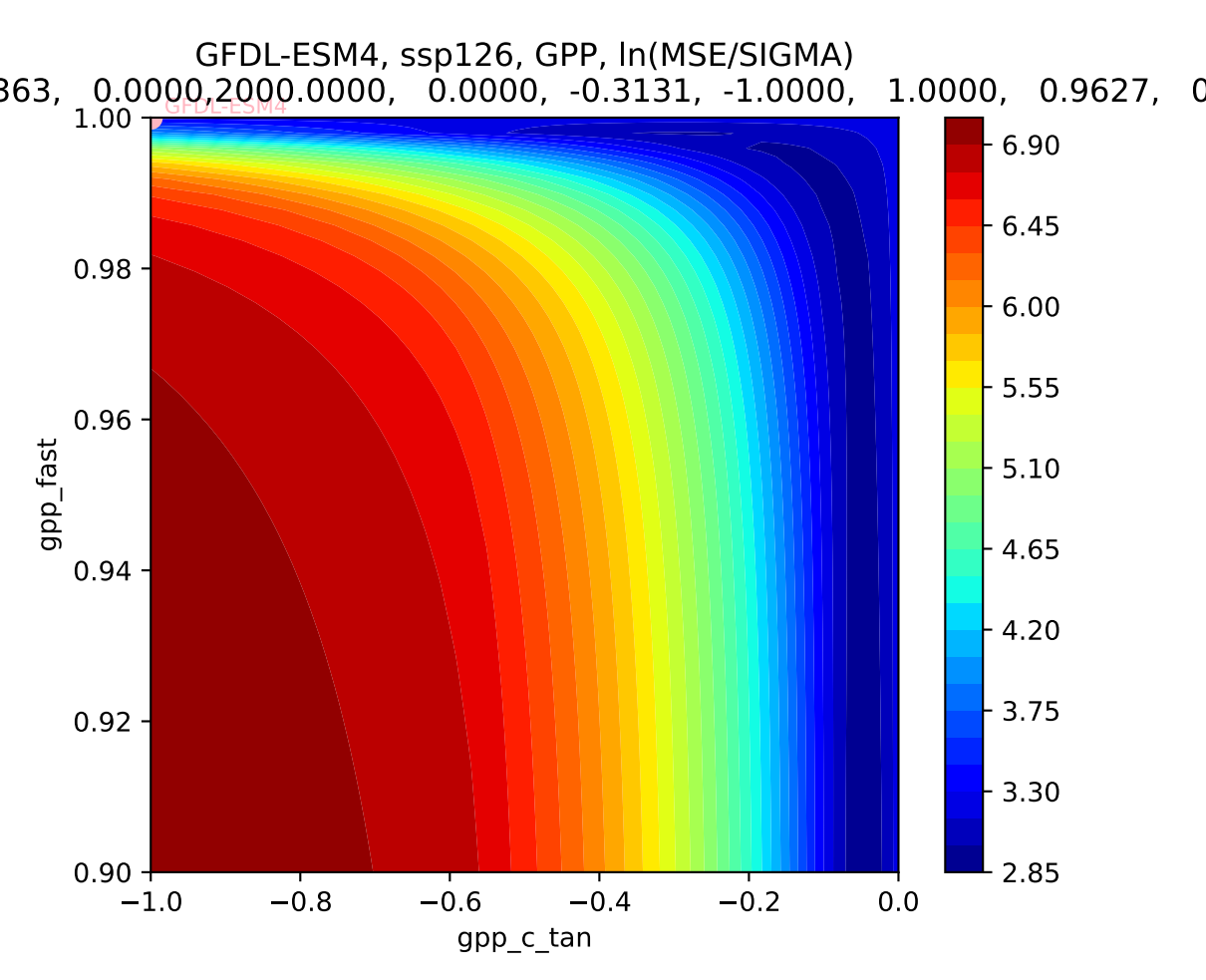

GFDL-ESM4, ssp126, GPP
ESM
Fit
GPP
c_atm
120
110
100
90
300
350
400
450

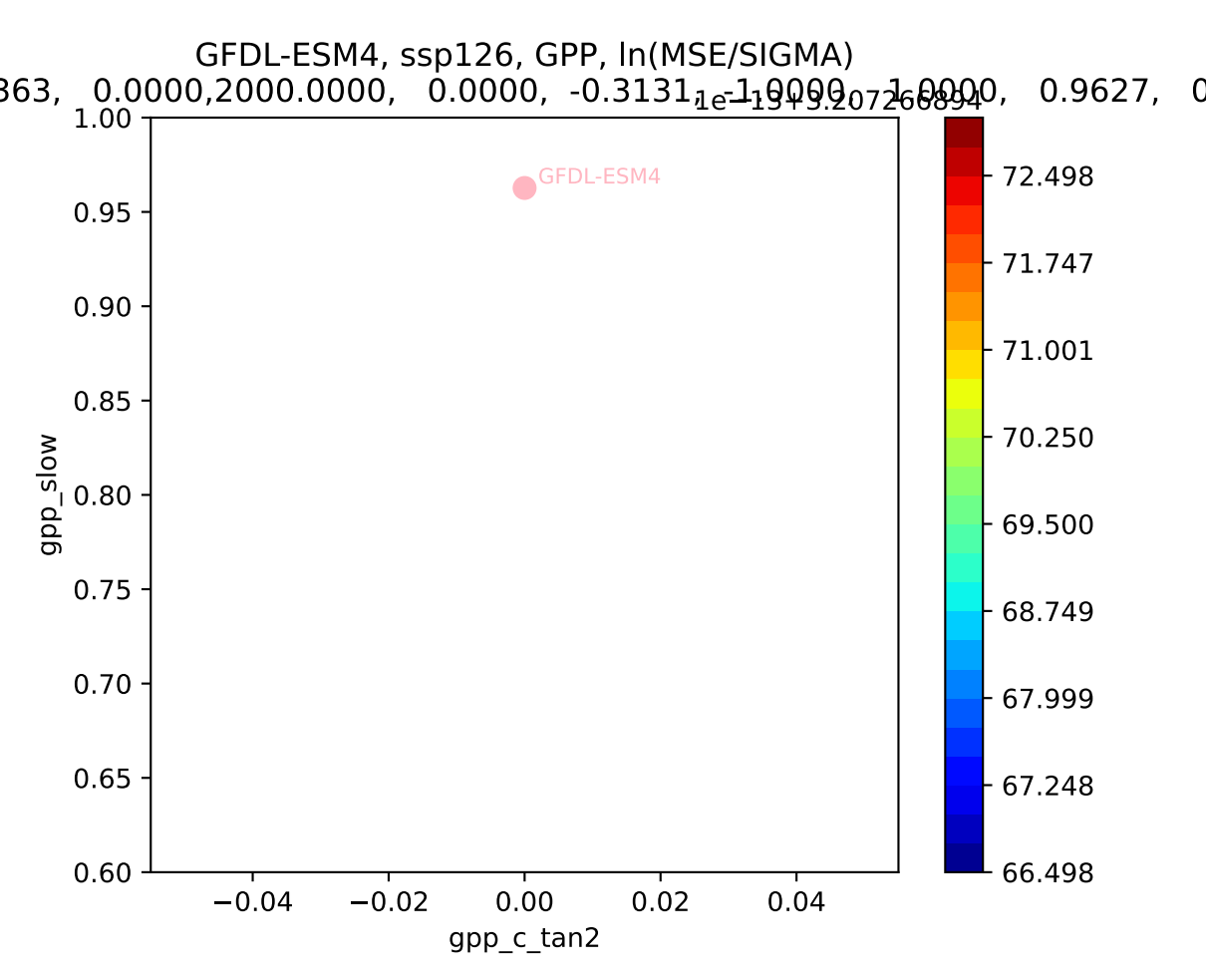

GFDL-ESM4, ssp126, GPP
ESM-Fit
GPP, ESM - FIT
c_atm
10
0
−10
−20
300
350
400
450

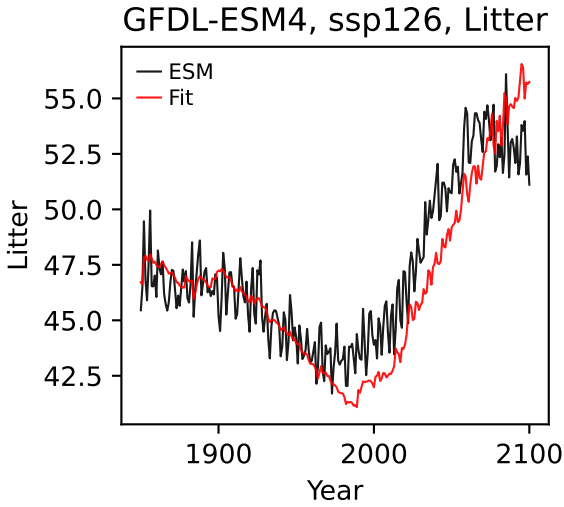

GFDL-ESM4, ssp126, GPP, ln(MSE/SIGMA)
363, 0.0000,2000.0000, 0.0000, -0.3131, -1.0000, 1.0000, 0.9627, 0
GFDL-ESM4
gpp_t_e
gpp_t_l
5
4
3
2
1
0
−1
−2
−3
−3
−2
−1
0
1
2
3
4
5
10.75
9.75
8.75
7.75
6.75
5.75
4.75
3.75
2.75

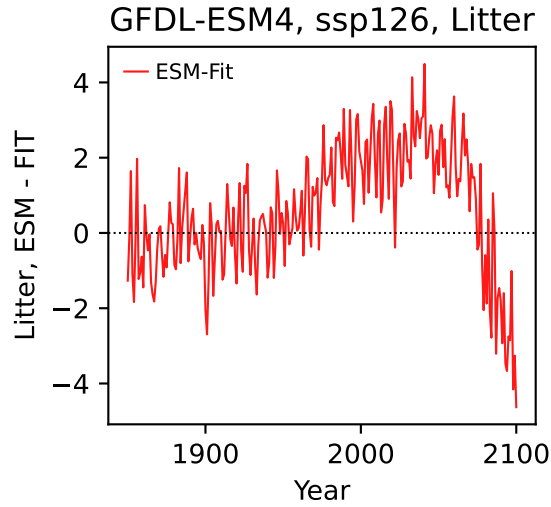

GFDL-ESM4, ssp126, GPP, ln(MSE/SIGMA)
363, 0.0000,2000.0000, 0.0000, -0.3131, -1.0000, 1.0000, 0.9627, 0
GFDL-ESM4
gpp_c_e
gpp_c_l
0
−1
−2
−3
−4
−5
9.75
9.00
8.25
7.50
6.75
6.00
5.25
4.50
3.75
3.00

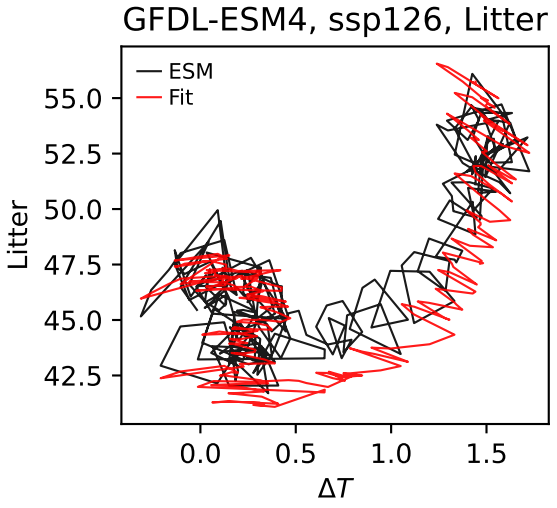

GFDL-ESM4, ssp126, GPP, ln(MSE/SIGMA)
363, 0.0000,2000.0000, 0.0000, -0.3131, -1.0000, 1.0000, 0.9627, 0
gpp_hyst
gpp_c_half
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
0
250
500
750
1000
1250
1500
1750
2000
9.5
8.5
7.5
6.5
5.5
4.5
3.5
2.5

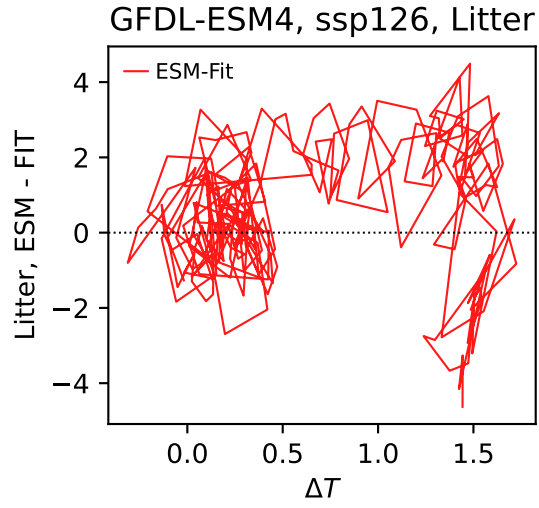

GFDL-ESM4, ssp126, GPP, ln(MSE/SIGMA)
363, 0.0000,2000.0000, 0.0000, -0.3131, -1.0000, 1.0000, 0.9627, 0
GFDL-ESM4
1.00
0.98
0.96
0.94
0.92
0.90
gpp_fast
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
gpp_c_tan
6.90
6.45
6.00
5.55
5.10
4.65
4.20
3.75
3.30
2.85

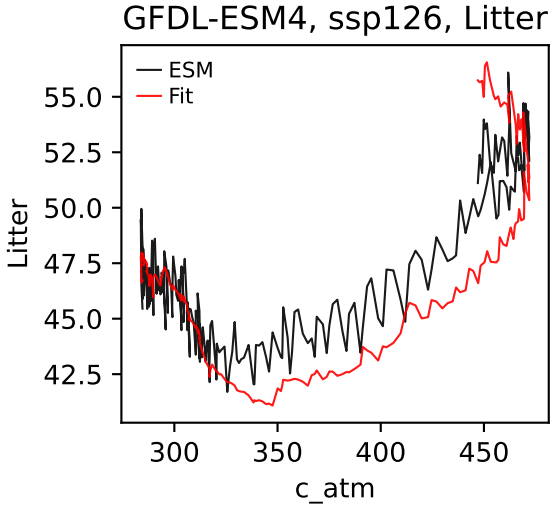

GFDL-ESM4, ssp126, GPP, ln(MSE/SIGMA)
363, 0.0000,2000.0000, 0.0000, -0.3131, -1.0000, 1.0000, 0.9627, 0
1e−15+3.207266894
GFDL-ESM4
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
gpp_slow
−0.04
−0.02
0.00
0.02
0.04
gpp_c_tan2
72.498
71.747
71.001
70.250
69.500
68.749
67.999
67.248
66.498

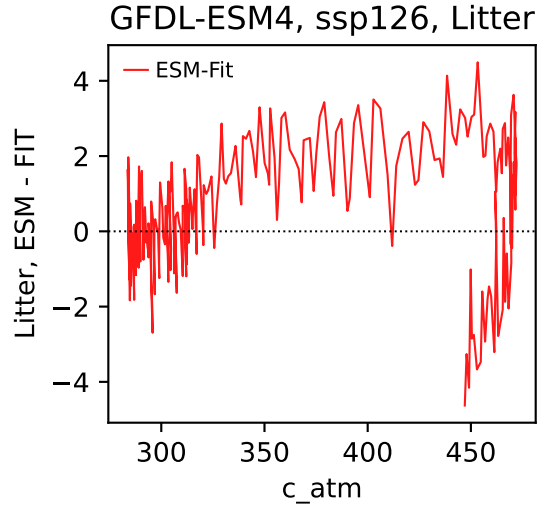

GFDL-ESM4, ssp126, Litter
ESM
Fit
Litter
Year

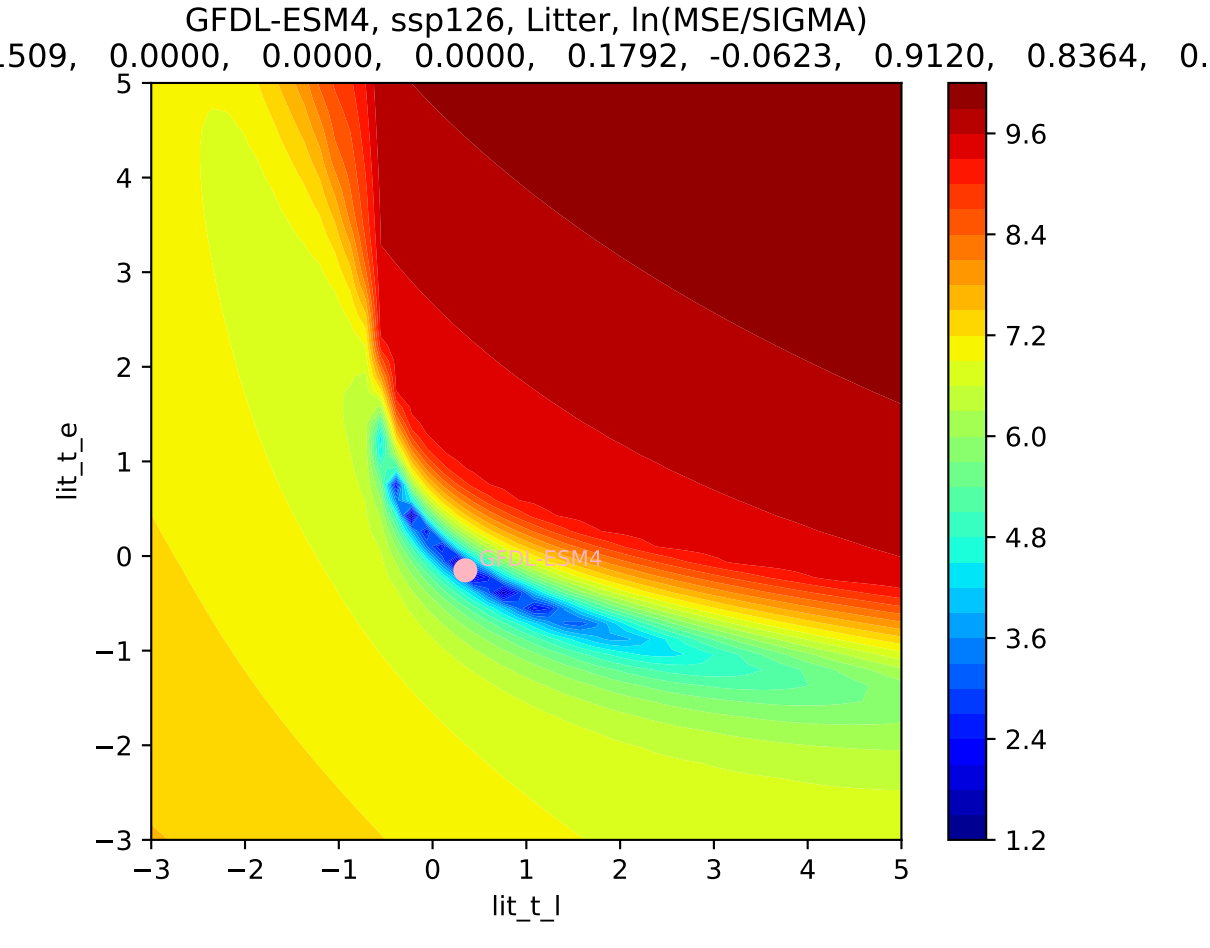

GFDL-ESM4, ssp126, Litter
ESM-Fit
Litter, ESM - FIT
Year

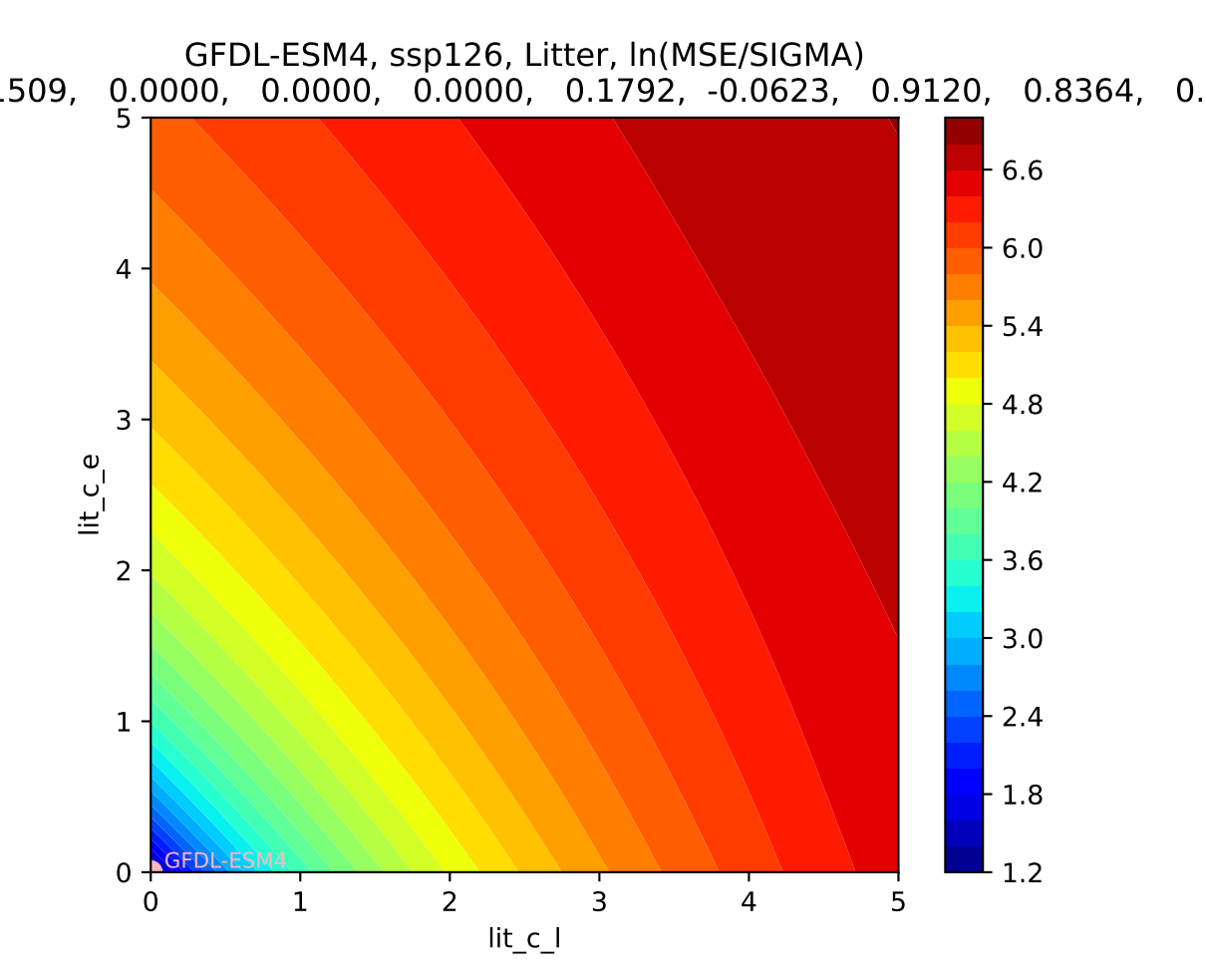

GFDL-ESM4, ssp126, Litter
ESM
Fit
Litter
ΔT

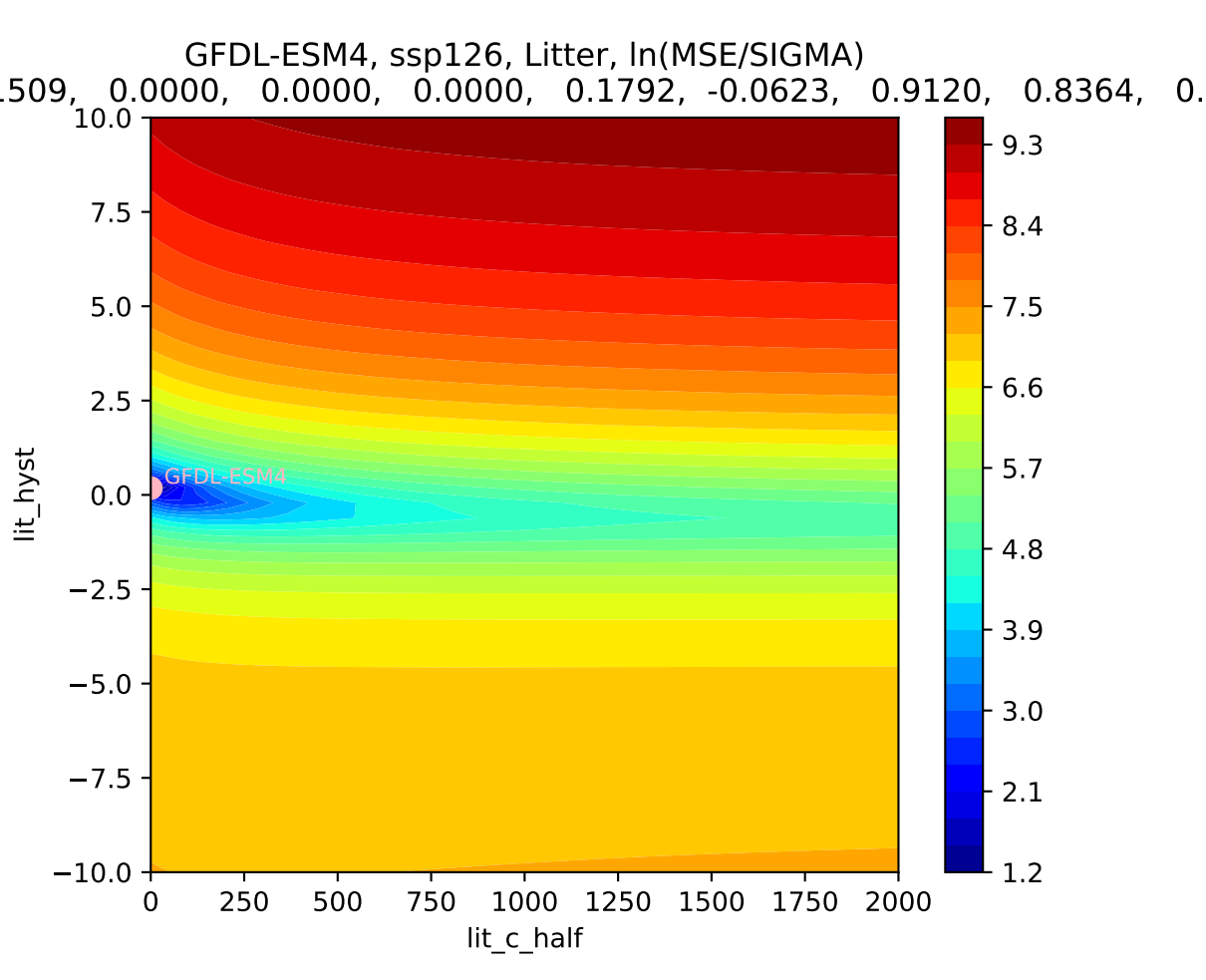

GFDL-ESM4, ssp126, Litter
ESM-Fit
Litter, ESM - FIT
ΔT

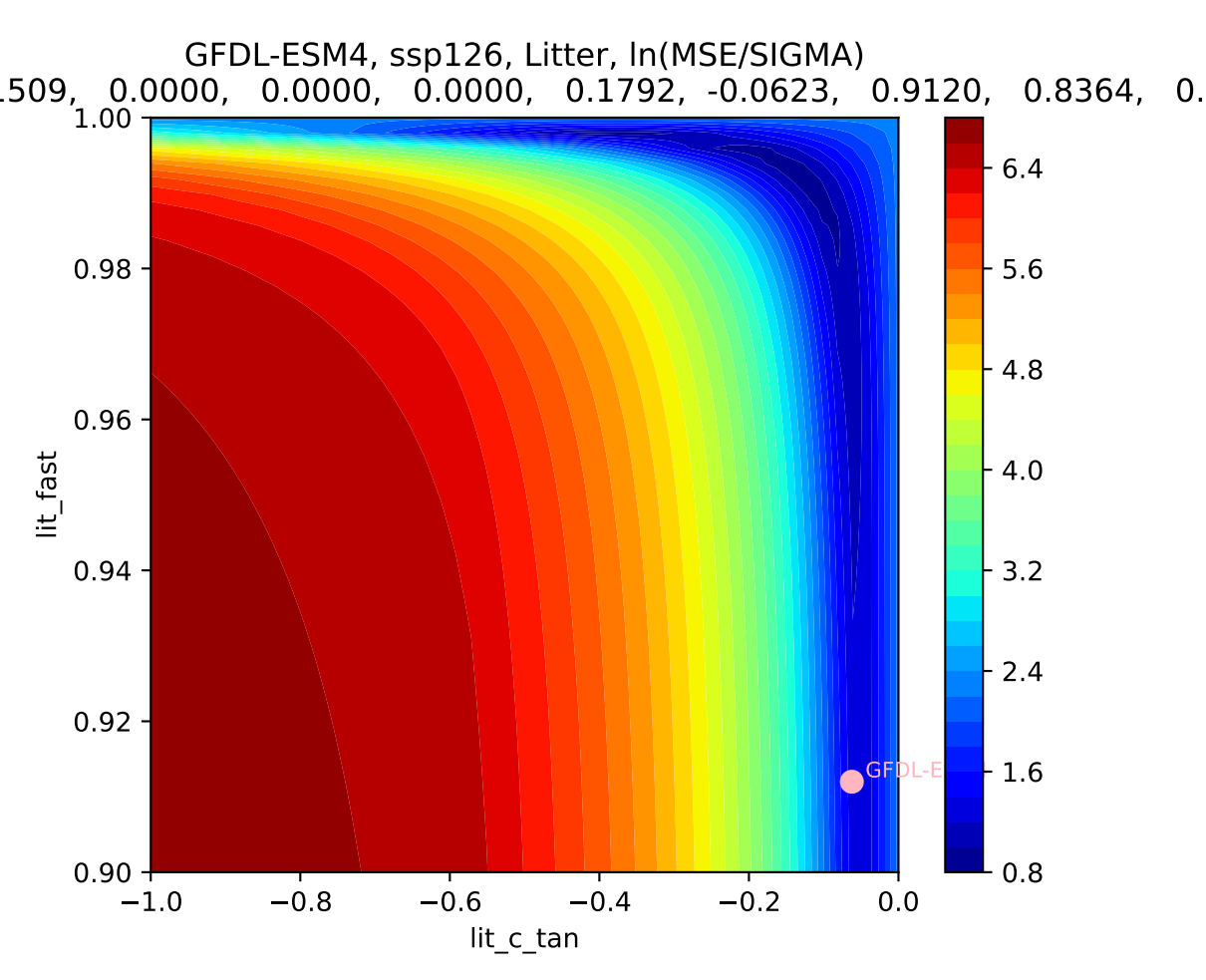

GFDL-ESM4, ssp126, Litter
ESM
Fit
Litter
c_atm

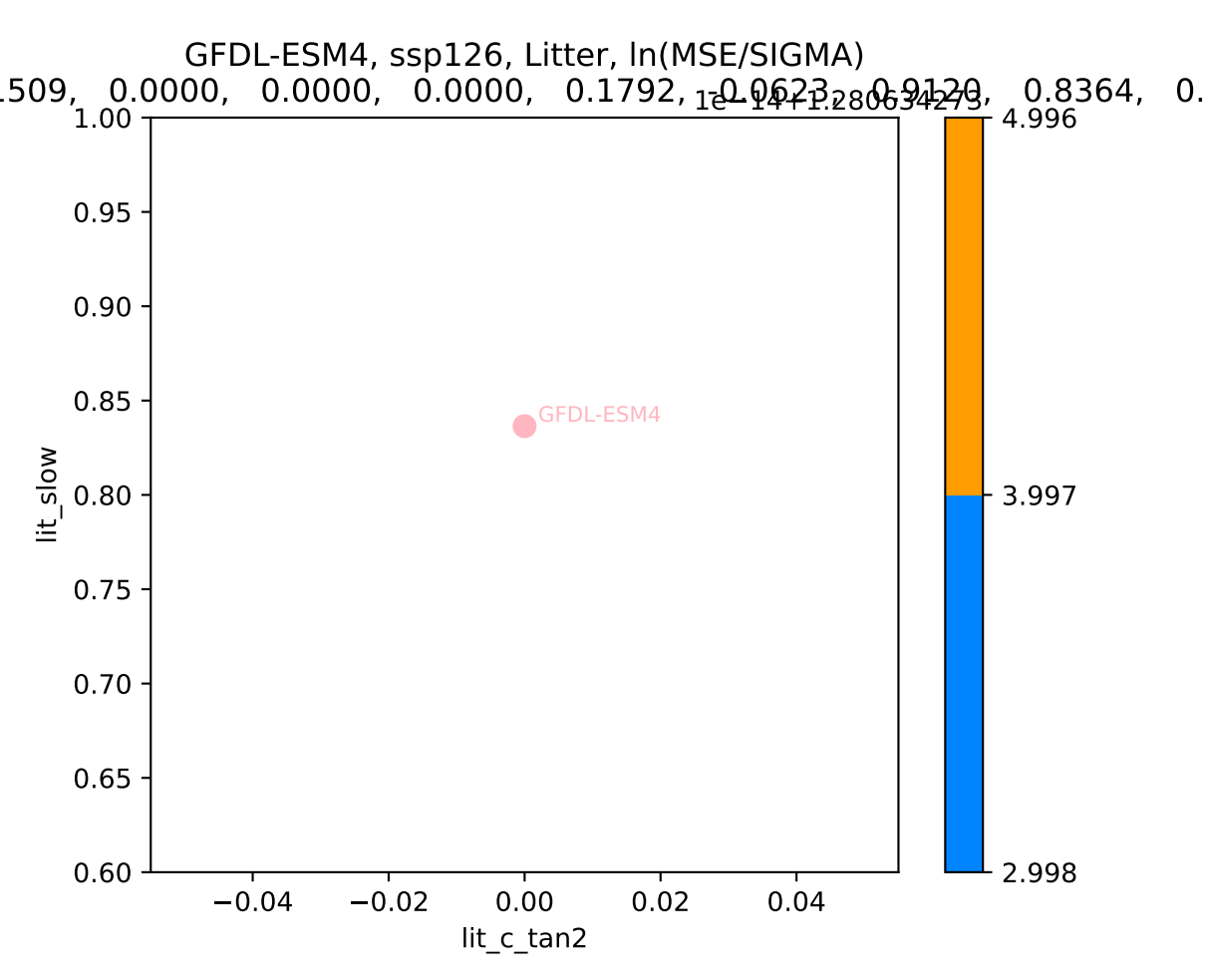

GFDL-ESM4, ssp126, Litter
ESM-Fit
Litter, ESM - FIT
c_atm

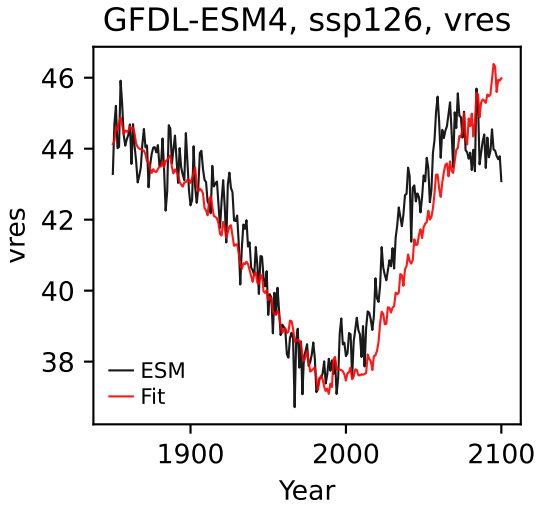

GFDL-ESM4, ssp126, Litter, ln(MSE/SIGMA)
1509, 0.0000, 0.0000, 0.0000, 0.1792, -0.0623, 0.9120, 0.8364, 0.
GFDL-ESM4
lit_t_e
lit_t_l
5
4
3
2
1
0
−1
−2
−3
−3
−2
−1
0
1
2
3
4
5
9.6
8.4
7.2
6.0
4.8
3.6
2.4
1.2

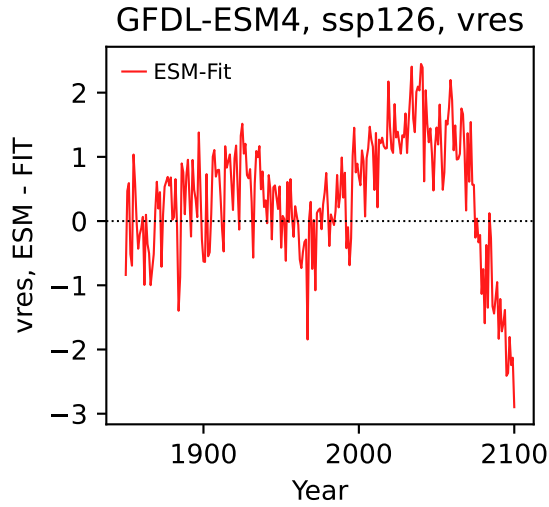

GFDL-ESM4, ssp126, Litter, ln(MSE/SIGMA)
1509, 0.0000, 0.0000, 0.0000, 0.1792, -0.0623, 0.9120, 0.8364, 0.
lit_c_e
lit_c_l
GFDL-ESM4
0
1
2
3
4
5
6.6
6.0
5.4
4.8
4.2
3.6
3.0
2.4
1.8
1.2

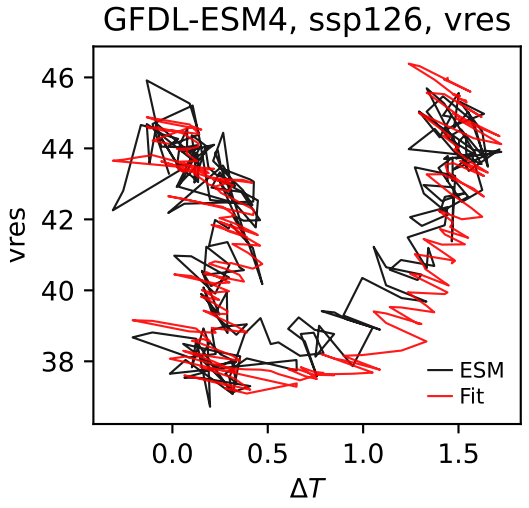

GFDL-ESM4, ssp126, Litter, ln(MSE/SIGMA)
1509, 0.0000, 0.0000, 0.0000, 0.1792, -0.0623, 0.9120, 0.8364, 0.
GFDL-ESM4
lit_hyst
lit_c_half
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
0
250
500
750
1000
1250
1500
1750
2000
9.3
8.4
7.5
6.6
5.7
4.8
3.9
3.0
2.1
1.2

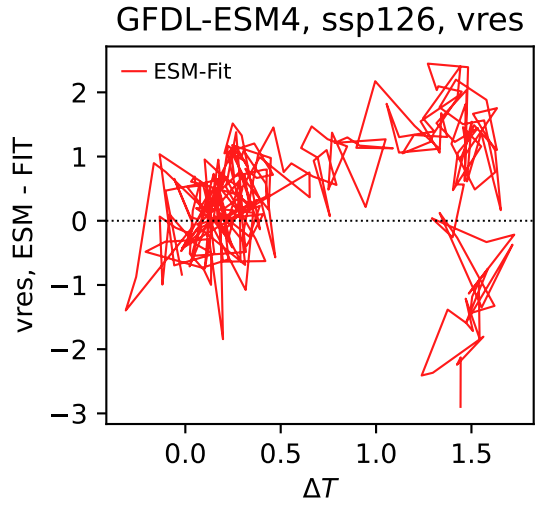

GFDL-ESM4, ssp126, Litter, ln(MSE/SIGMA)
1509, 0.0000, 0.0000, 0.0000, 0.1792, -0.0623, 0.9120, 0.8364, 0.
1.00
0.98
0.96
0.94
0.92
0.90
lit_fast
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
lit_c_tan
6.4
5.6
4.8
4.0
3.2
2.4
1.6
0.8
GFDL-E

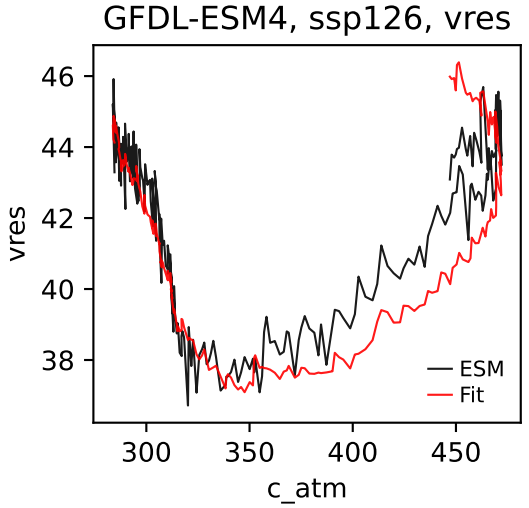

GFDL-ESM4, ssp126, Litter, ln(MSE/SIGMA)
1509, 0.0000, 0.0000, 0.0000, 0.1792, -0.0623, 0.9120, 0.8364, 0.
1e−14+1.280634273
GFDL-ESM4
lit_slow
lit_c_tan2
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
−0.04
−0.02
0.00
0.02
0.04
4.996
3.997
2.998

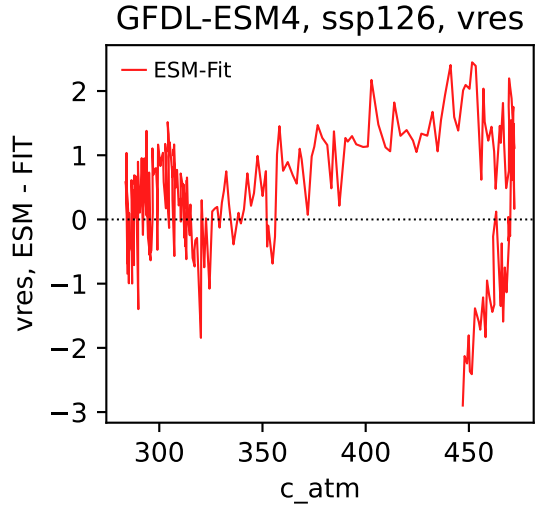

GFDL-ESM4, ssp126, vres
vres
Year
ESM
Fit

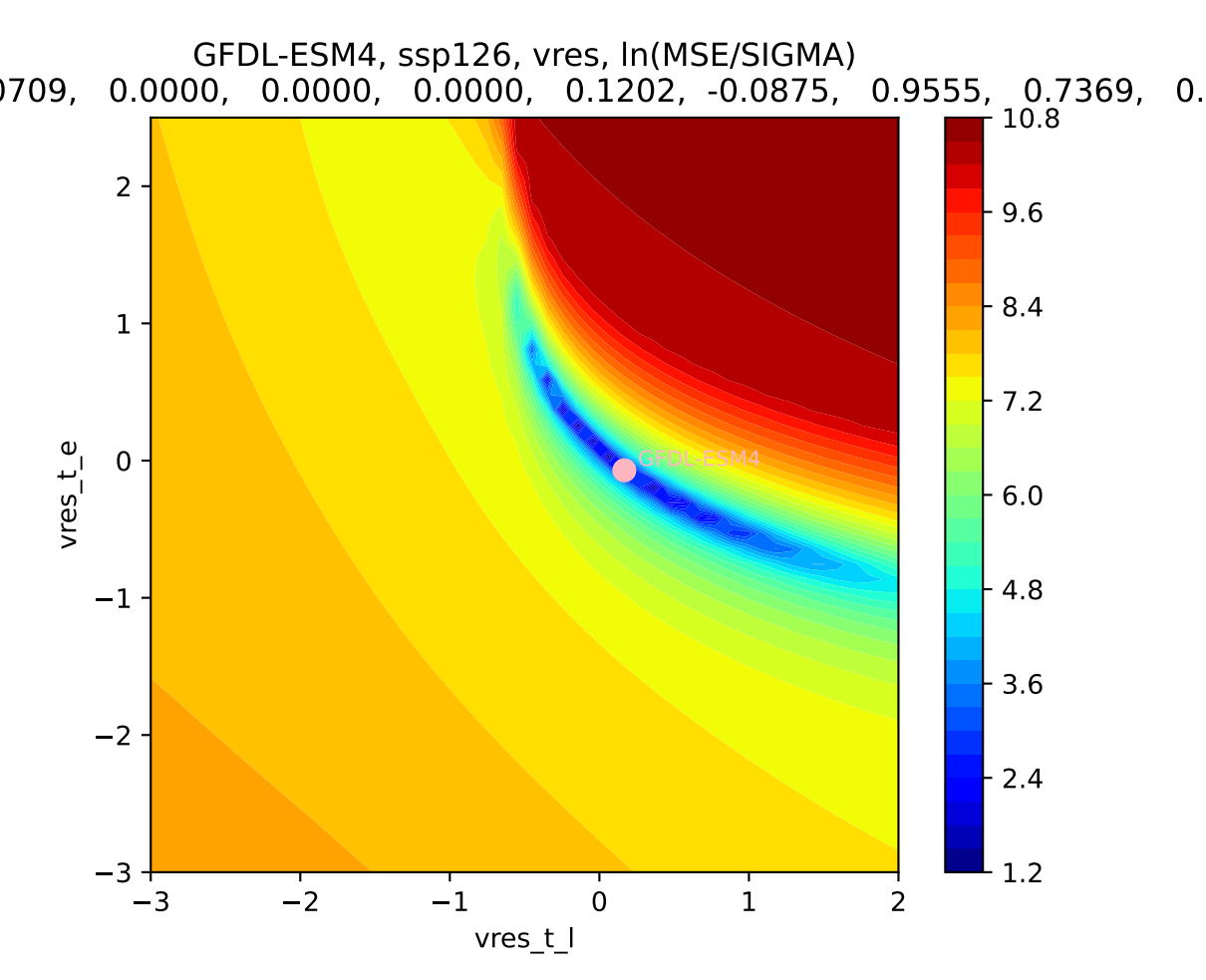

GFDL-ESM4, ssp126, vres
vres, ESM - FIT
Year
ESM-Fit

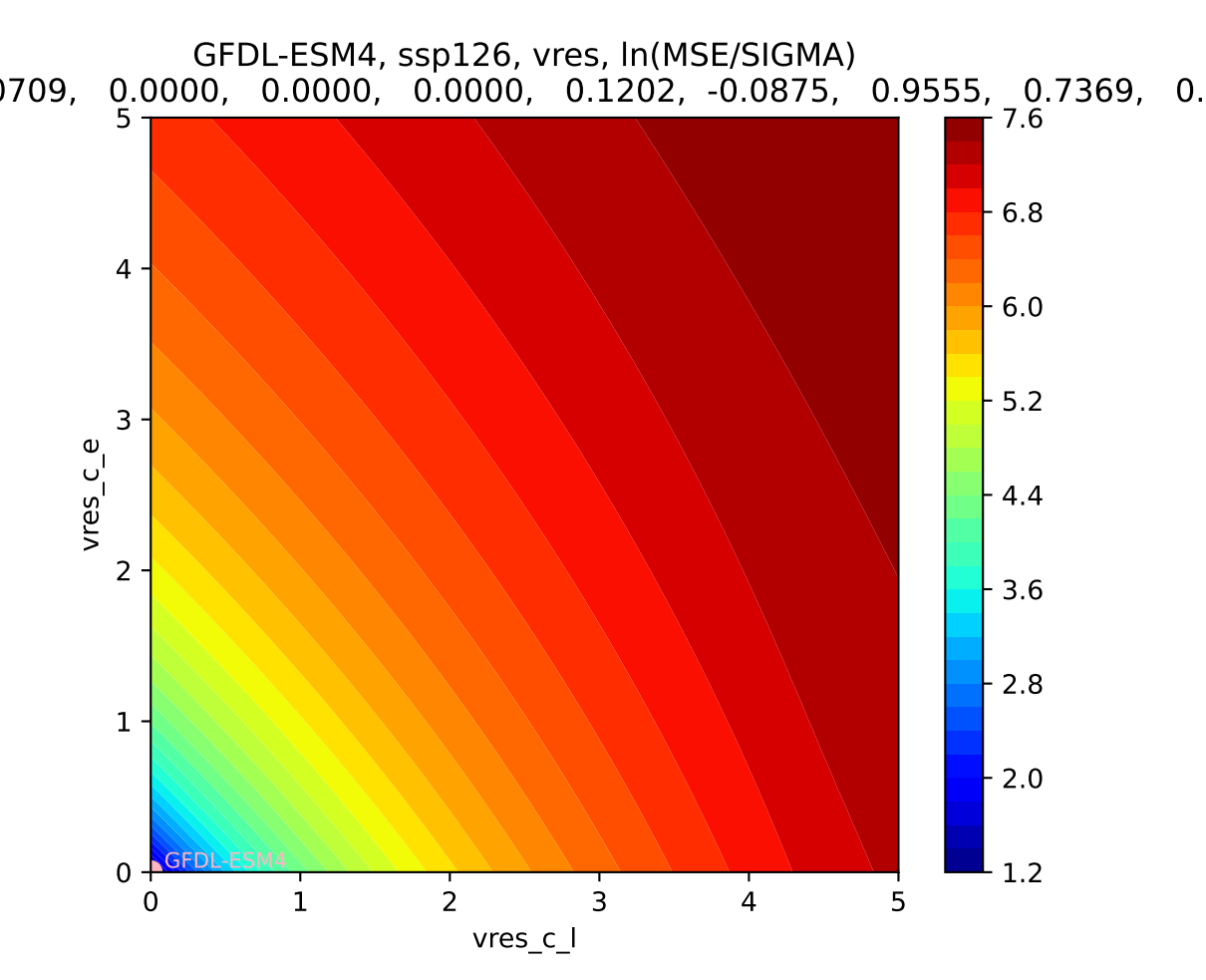

GFDL-ESM4, ssp126, vres
vres
ΔT
ESM
Fit

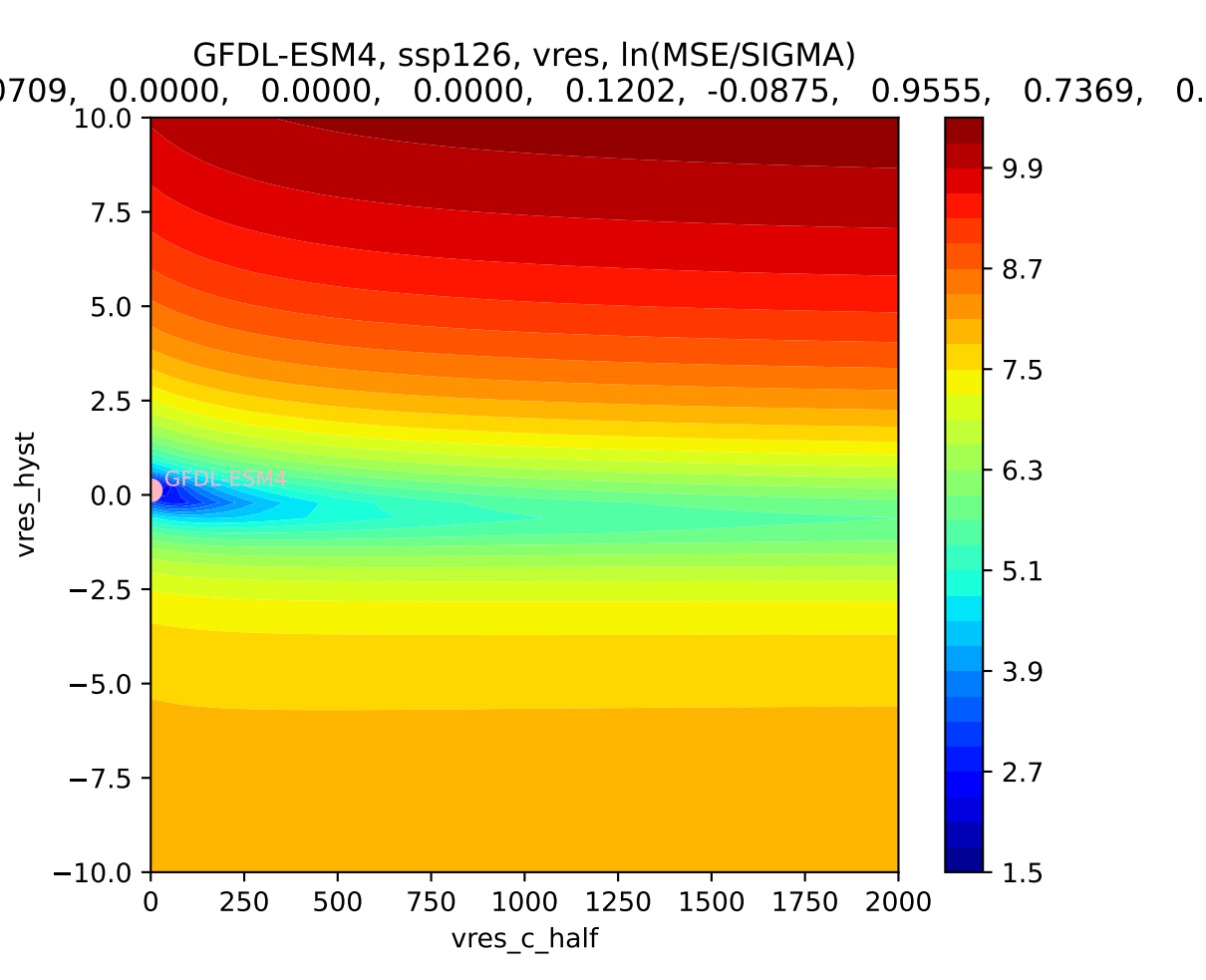

GFDL-ESM4, ssp126, vres
vres, ESM - FIT
ΔT
ESM-Fit


GFDL-ESM4, ssp126, vres
vres
c_atm
ESM
Fit


GFDL-ESM4, ssp126, vres
vres, ESM - FIT
c_atm
ESM-Fit


GFDL-ESM4, ssp126, vres, ln(MSE/SIGMA)
0709, 0.0000, 0.0000, 0.0000, 0.1202, -0.0875, 0.9555, 0.7369, 0.
GFDL-ESM4
vres_t_e
vres_t_l
−3
−2
−1
0
1
2
10.8
9.6
8.4
7.2
6.0
4.8
3.6
2.4
1.2


GFDL-ESM4, ssp126, vres, ln(MSE/SIGMA)
0709, 0.0000, 0.0000, 0.0000, 0.1202, -0.0875, 0.9555, 0.7369, 0.
vres_c_e
vres_c_l
GFDL-ESM4
0
1
2
3
4
5
7.6
6.8
6.0
5.2
4.4
3.6
2.8
2.0
1.2


GFDL-ESM4, ssp126, vres, ln(MSE/SIGMA)
0709, 0.0000, 0.0000, 0.0000, 0.1202, -0.0875, 0.9555, 0.7369, 0.
GFDL-ESM4
vres_hyst
vres_c_half
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
0
250
500
750
1000
1250
1500
1750
2000
9.9
8.7
7.5
6.3
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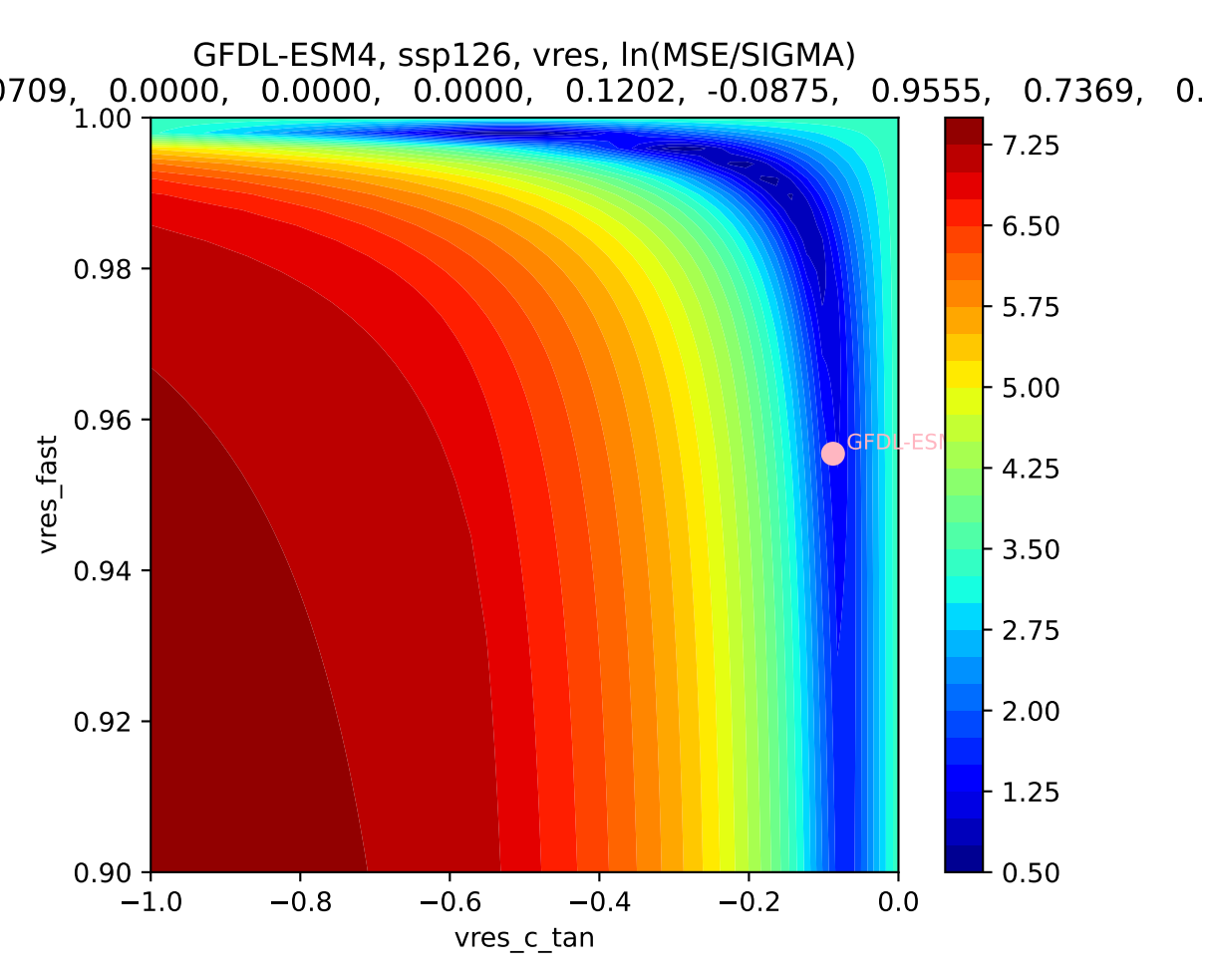
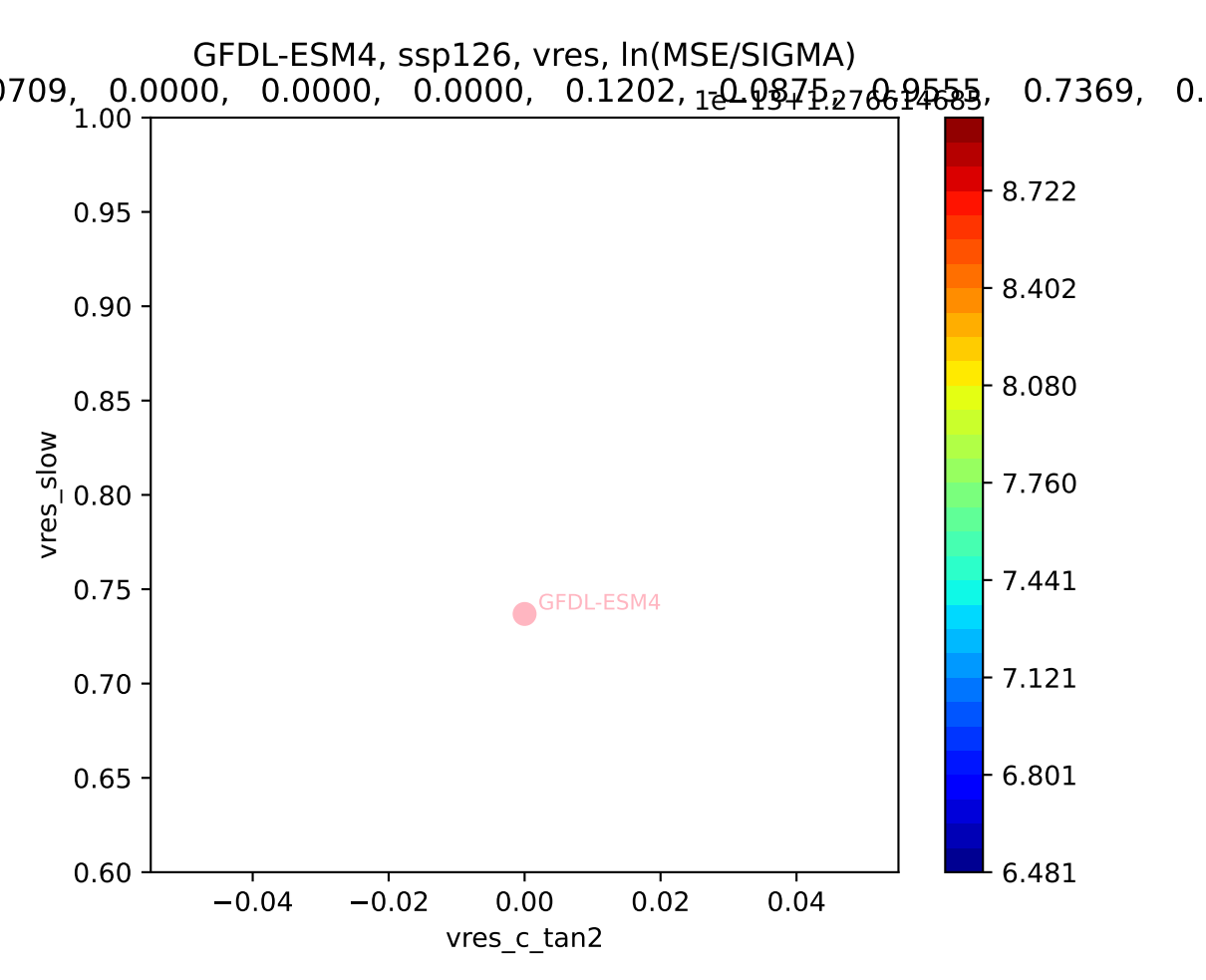
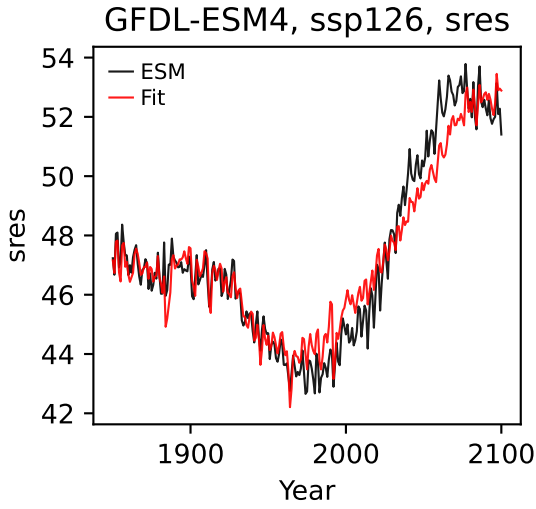
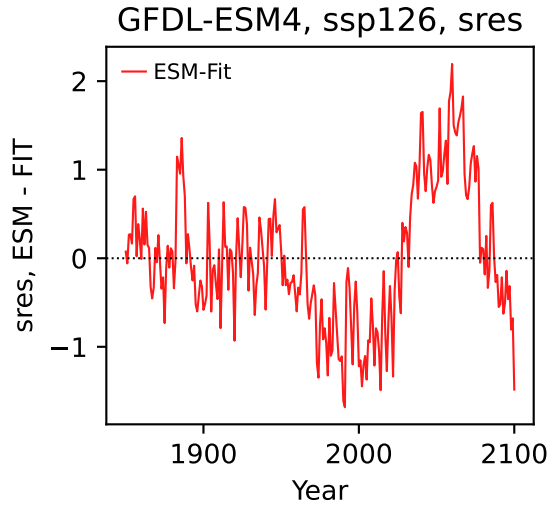
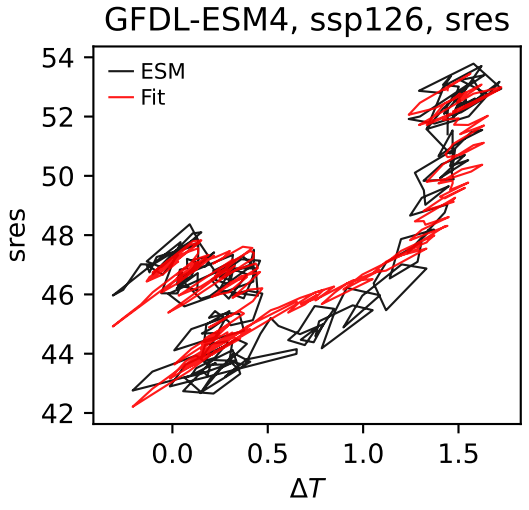
3.9
2.7
1.5

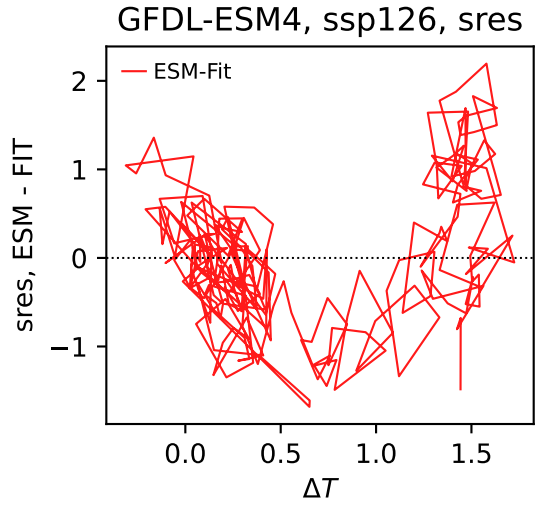

GFDL-ESM4, ssp126, vres, ln(MSE/SIGMA)
0709, 0.0000, 0.0000, 0.0000, 0.1202, -0.0875, 0.9555, 0.7369, 0.
1.00
0.98
0.96
0.94
0.92
0.90
vres_fast
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
vres_c_tan
7.25
6.50
5.75
5.00
4.25
3.50
2.75
2.00
1.25
0.50

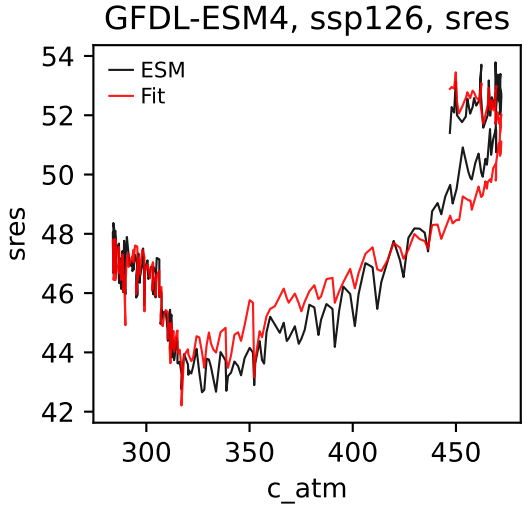

GFDL-ESM4, ssp126, vres, ln(MSE/SIGMA)
0709, 0.0000, 0.0000, 0.0000, 0.1202, -0.0875, 0.9555, 0.7369, 0.
1e−15+1.27661468
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
vres_slow
GFDL-ESM4
−0.04
−0.02
0.00
0.02
0.04
vres_c_tan2
8.722
8.402
8.080
7.760
7.441
7.121
6.801
6.481

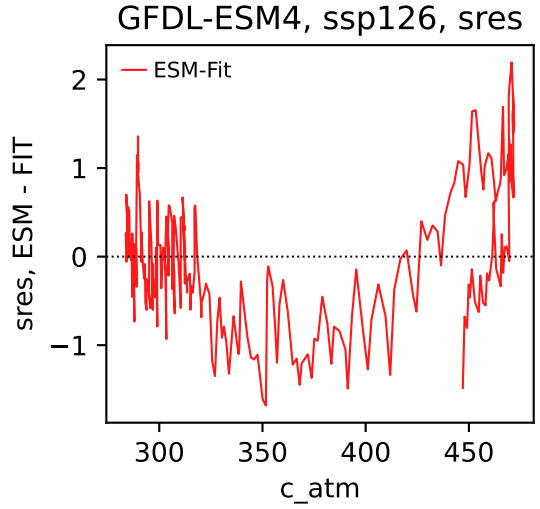

GFDL-ESM4, ssp126, sres
ESM
Fit
sres
Year

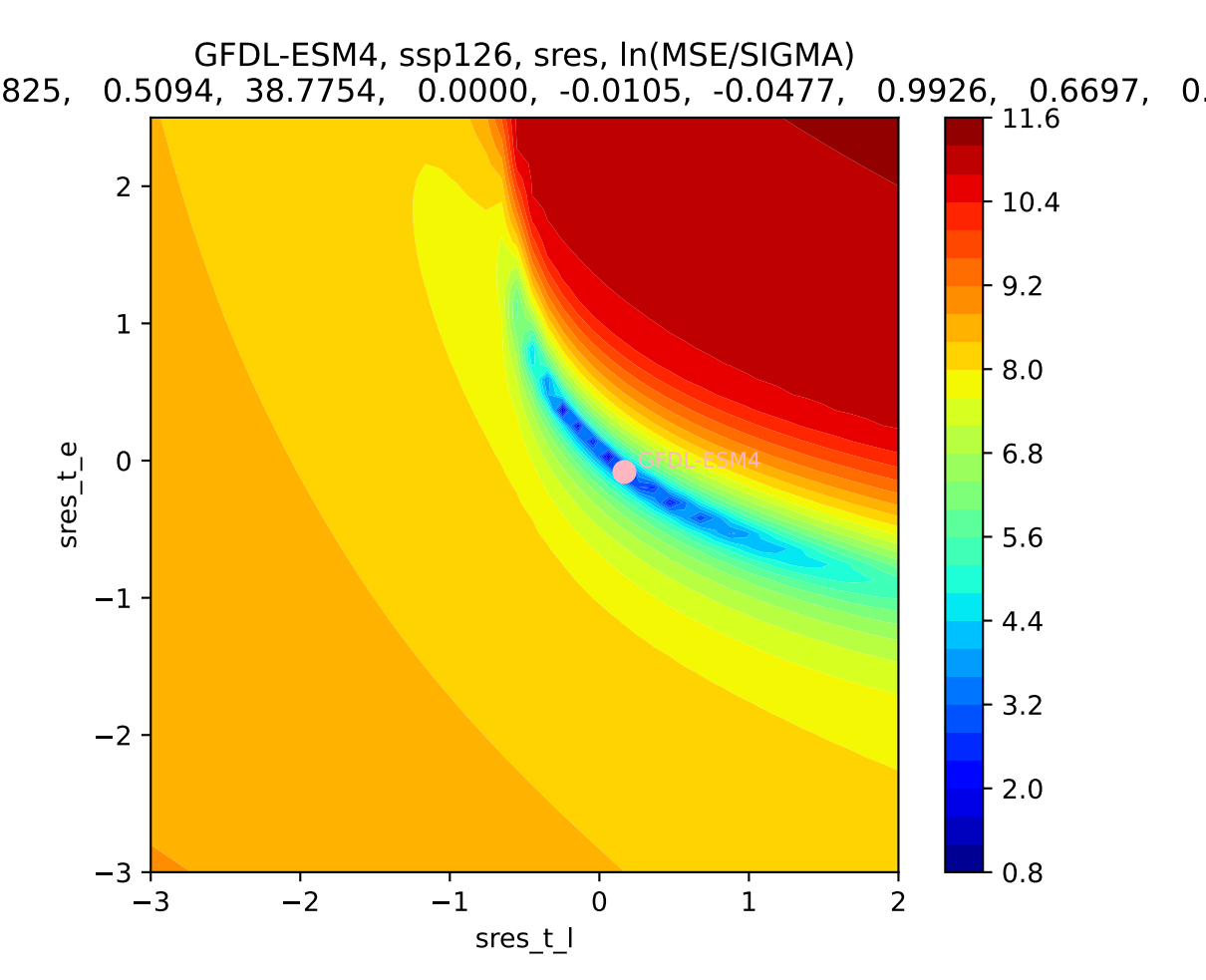

GFDL-ESM4, ssp126, sres
ESM-Fit
sres, ESM - FIT
Year

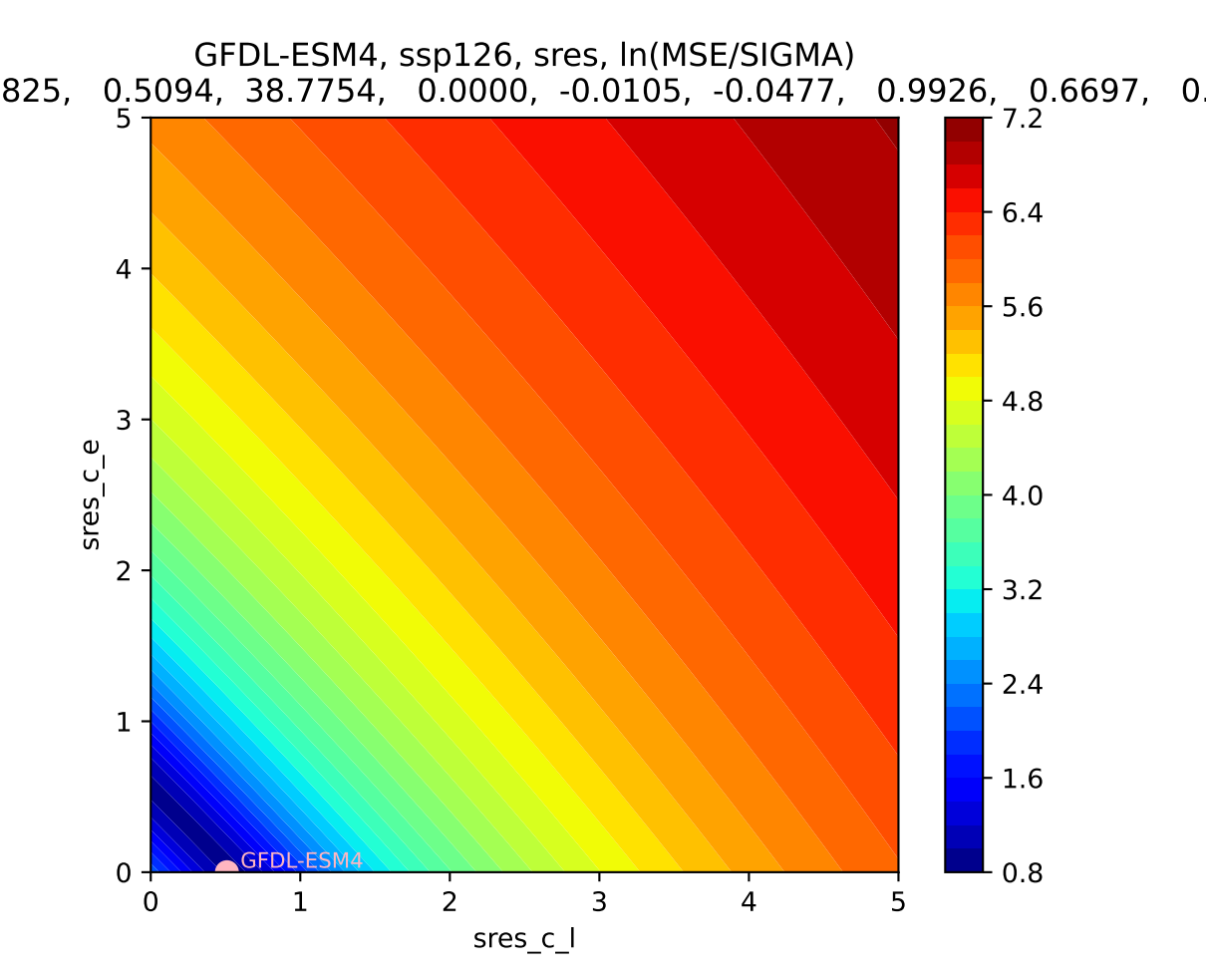

GFDL-ESM4, ssp126, sres
ESM
Fit
sres
ΔT

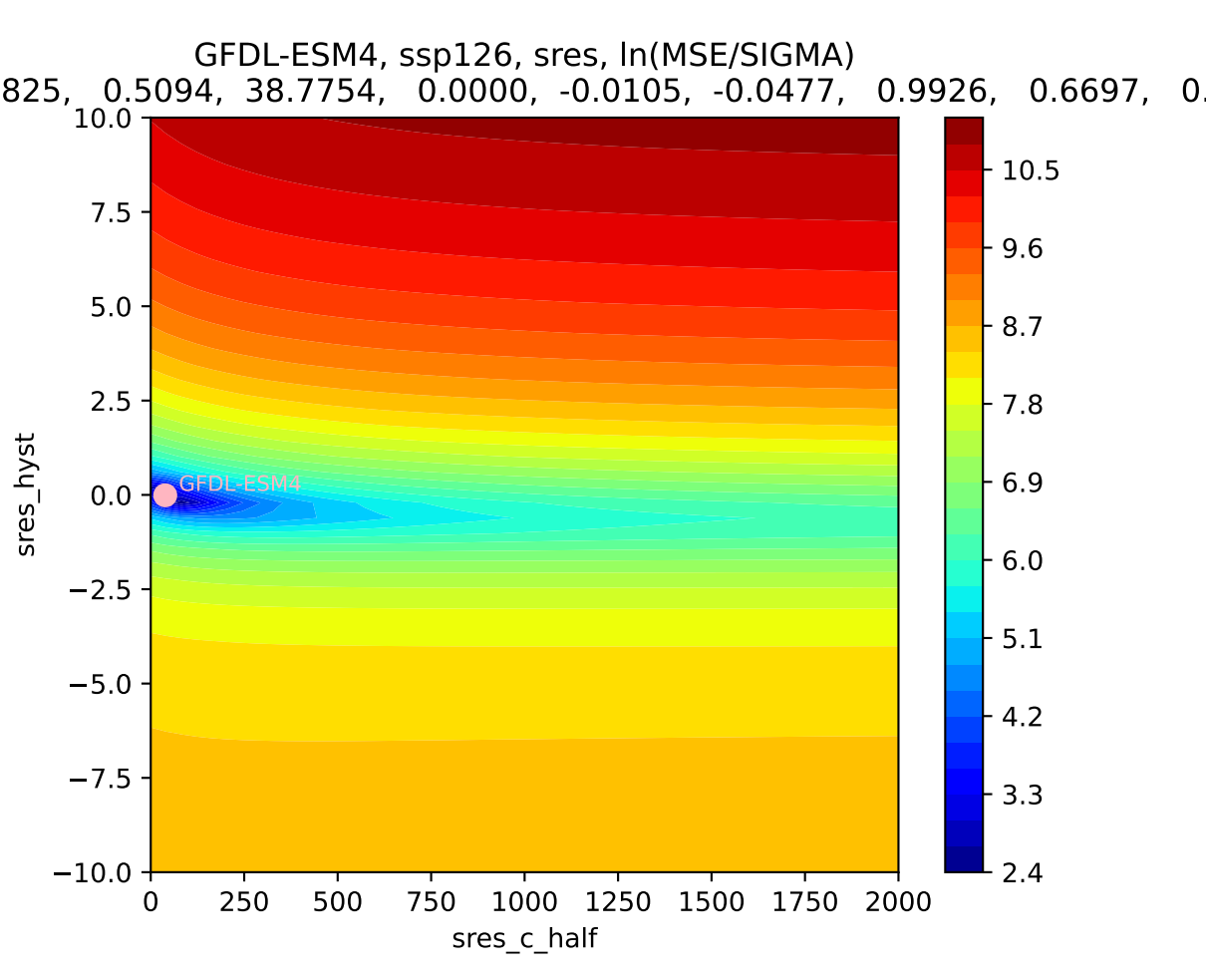

GFDL-ESM4, ssp126, sres
ESM-Fit
sres, ESM - FIT
ΔT

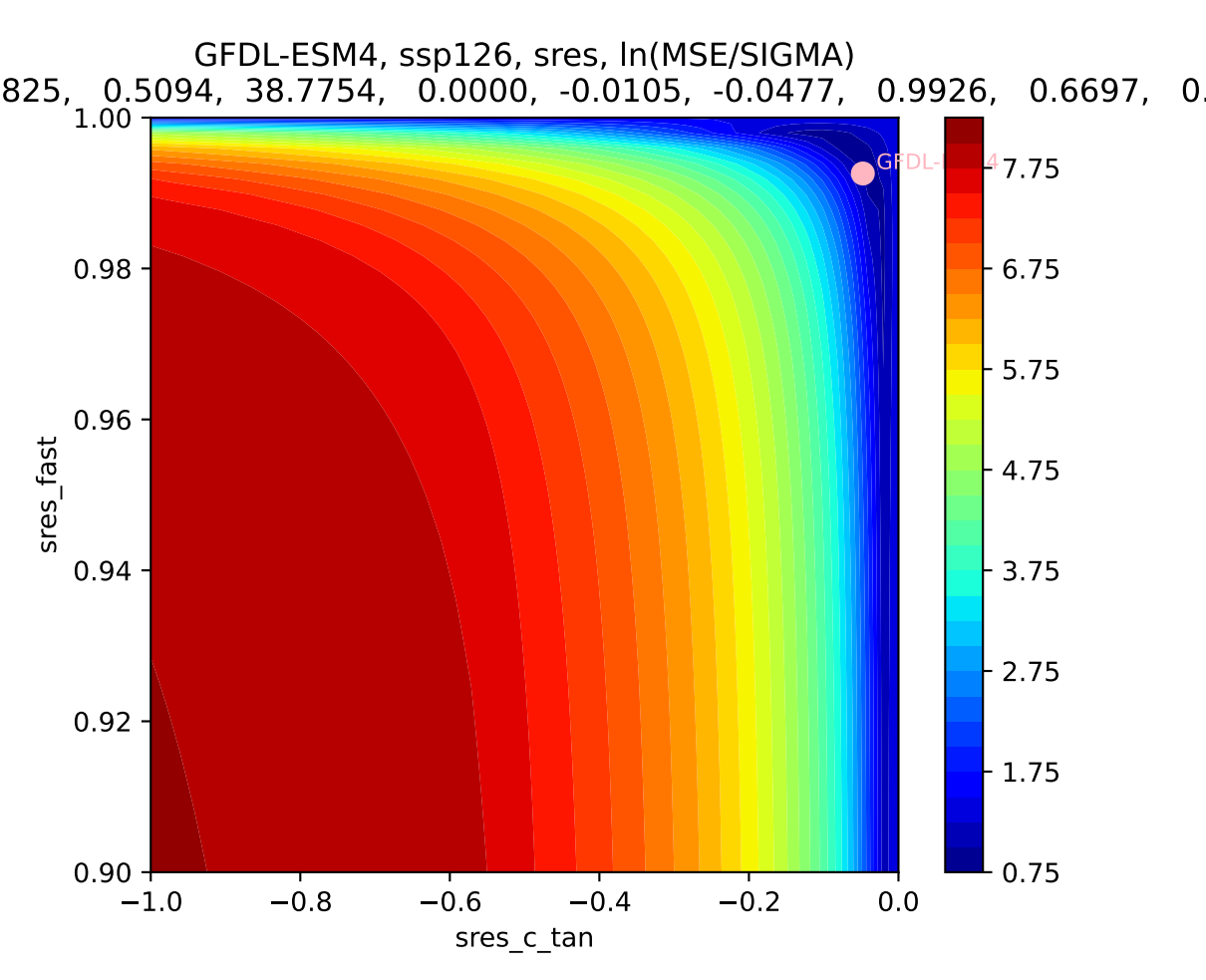

GFDL-ESM4, ssp126, sres
ESM
Fit
sres
c_atm

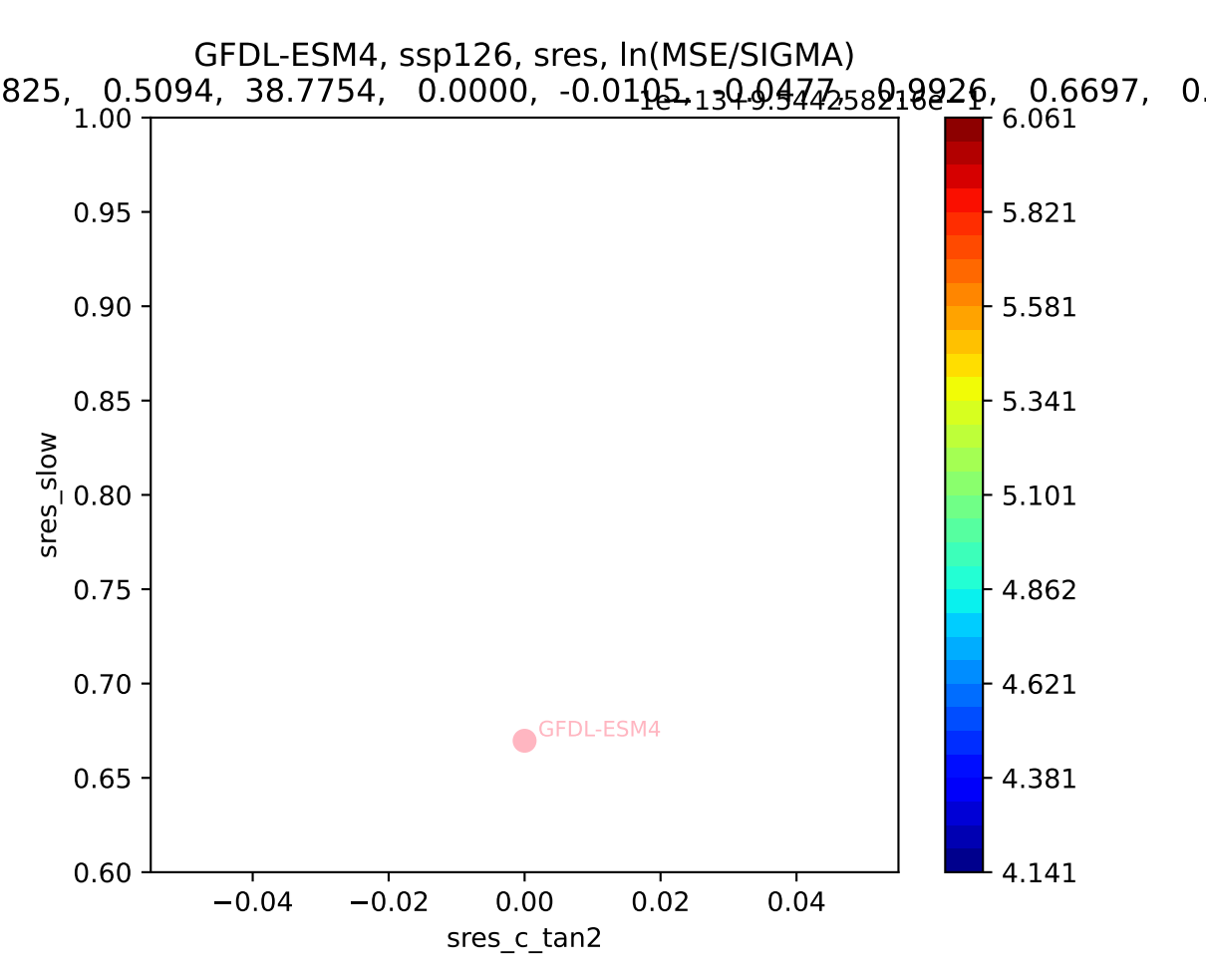

GFDL-ESM4, ssp126, sres
ESM-Fit
sres, ESM - FIT
c_atm

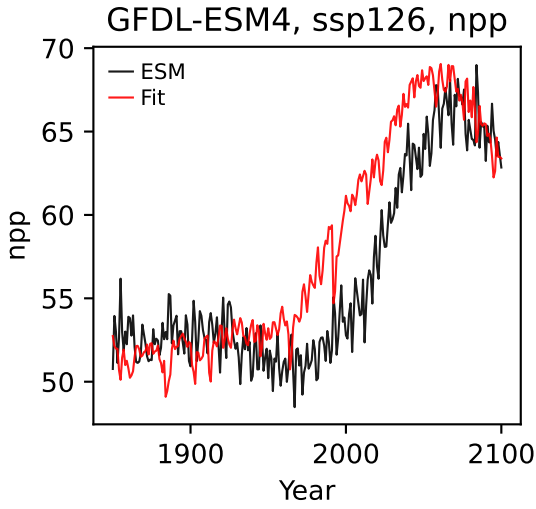

GFDL-ESM4, ssp126, sres, ln(MSE/SIGMA)
825, 0.5094, 38.7754, 0.0000, -0.0105, -0.0477, 0.9926, 0.6697, 0.
GFDL-ESM4
sres_t_e
sres_t_l
−3
−2
−1
0
1
2
11.6
10.4
9.2
8.0
6.8
5.6
4.4
3.2
2.0
0.8

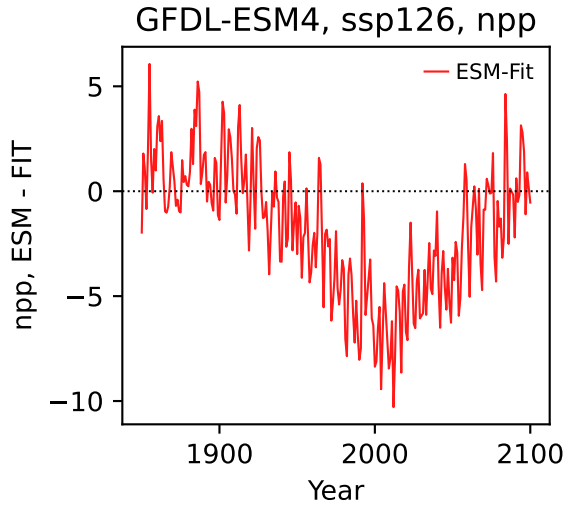

GFDL-ESM4, ssp126, sres, ln(MSE/SIGMA)
825, 0.5094, 38.7754, 0.0000, -0.0105, -0.0477, 0.9926, 0.6697, 0.
sres_c_e
sres_c_l
GFDL-ESM4
0
1
2
3
4
5
0.8
1.6
2.4
3.2
4.0
4.8
5.6
6.4
7.2

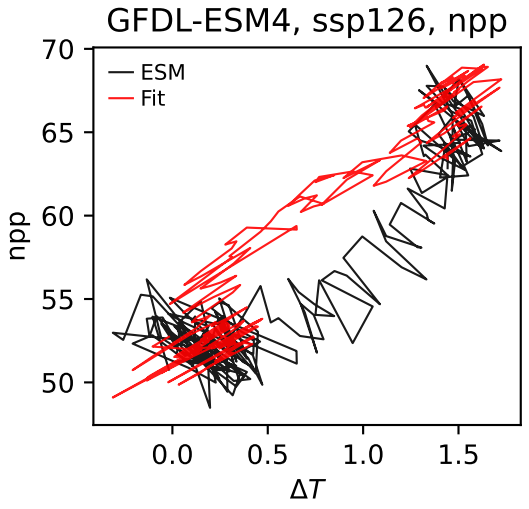

GFDL-ESM4, ssp126, sres, ln(MSE/SIGMA)
825, 0.5094, 38.7754, 0.0000, -0.0105, -0.0477, 0.9926, 0.6697, 0.
GFDL-ESM4
sres_hyst
sres_c_half
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
0
250
500
750
1000
1250
1500
1750
2000
10.5
9.6
8.7
7.8
6.9
6.0
5.1
4.2
3.3
2.4

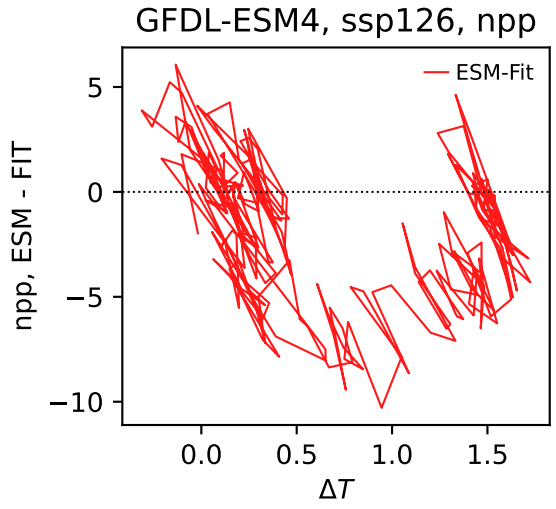

GFDL-ESM4, ssp126, sres, ln(MSE/SIGMA)
825, 0.5094, 38.7754, 0.0000, -0.0105, -0.0477, 0.9926, 0.6697, 0.
GFDL-
4
1.00
0.98
0.96
0.94
0.92
0.90
sres_fast
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
sres_c_tan
7.75
6.75
5.75
4.75
3.75
2.75
1.75
0.75

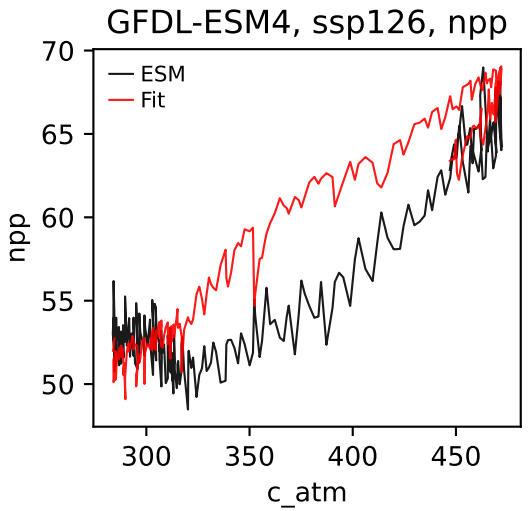

GFDL-ESM4, ssp126, sres, ln(MSE/SIGMA)
825, 0.5094, 38.7754, 0.0000, -0.0105, -0.0477, 0.9926, 0.6697, 0.
1e+13+9.544258216e-1
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
sres_slow
GFDL-ESM4
−0.04
−0.02
0.00
0.02
0.04
sres_c_tan2
6.061
5.821
5.581
5.341
5.101
4.862
4.621
4.381
4.141

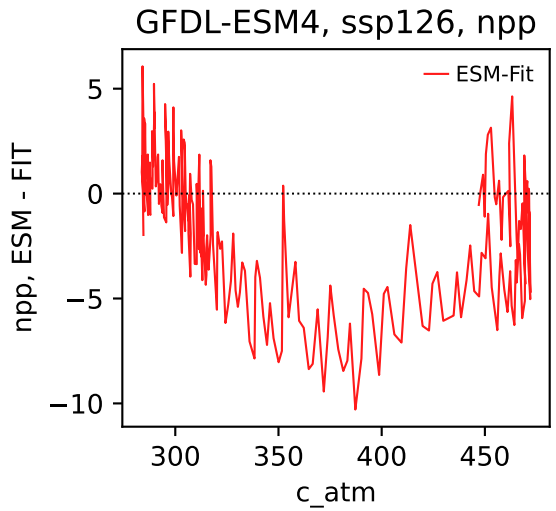

GFDL-ESM4, ssp126, npp
ESM
Fit
npp
Year

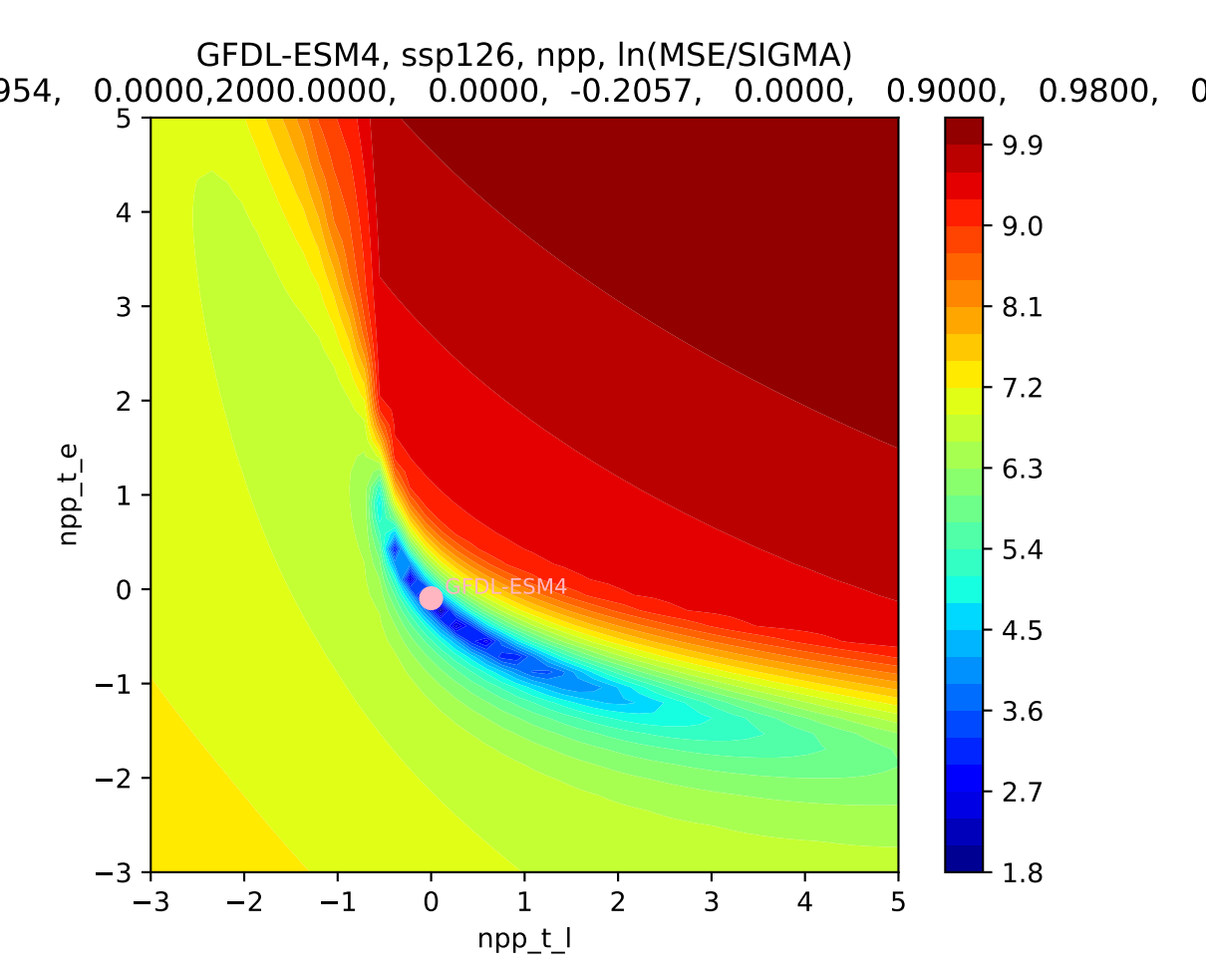

GFDL-ESM4, ssp126, npp
ESM-Fit
npp, ESM - FIT
Year

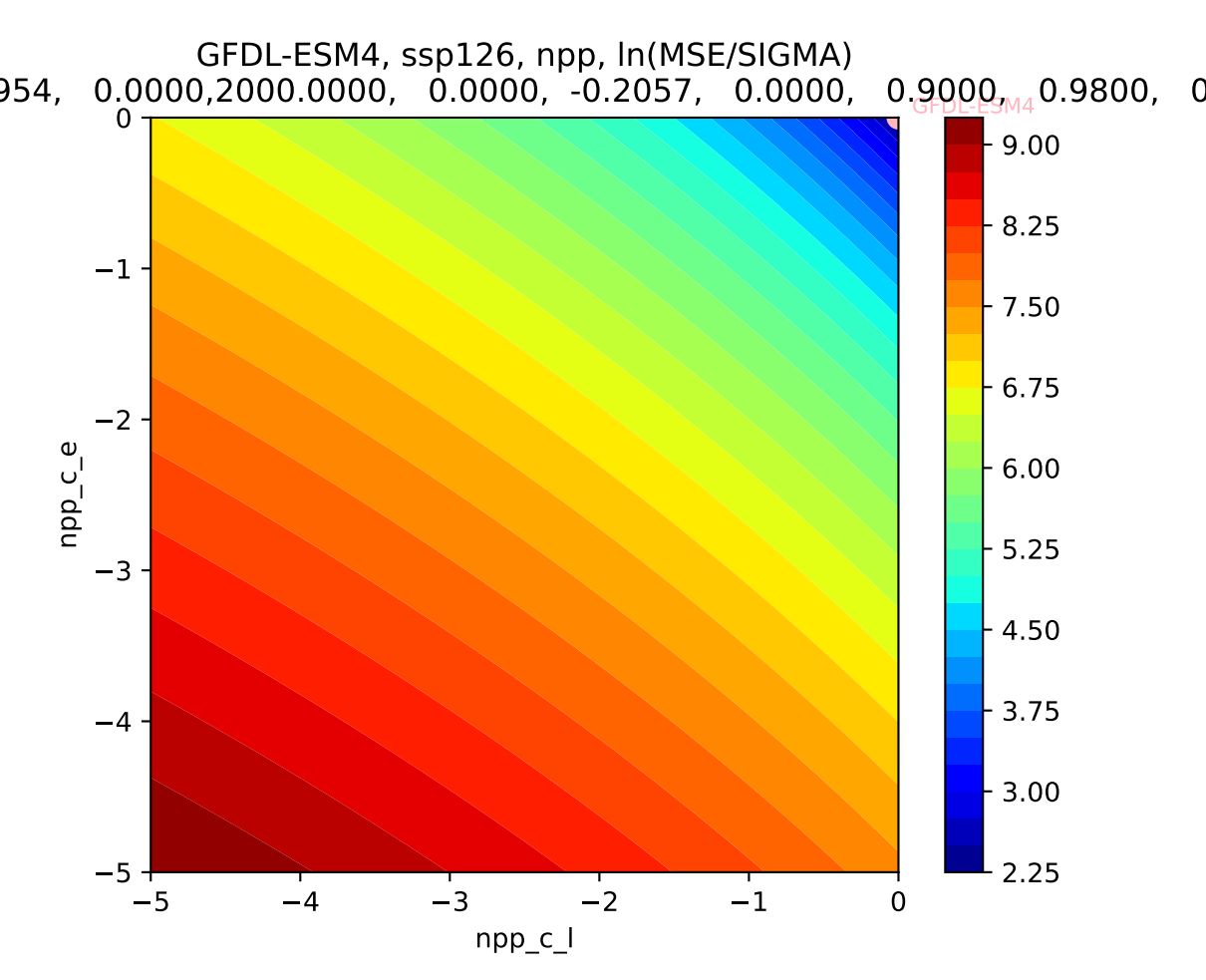

GFDL-ESM4, ssp126, npp
ESM
Fit
npp
ΔT

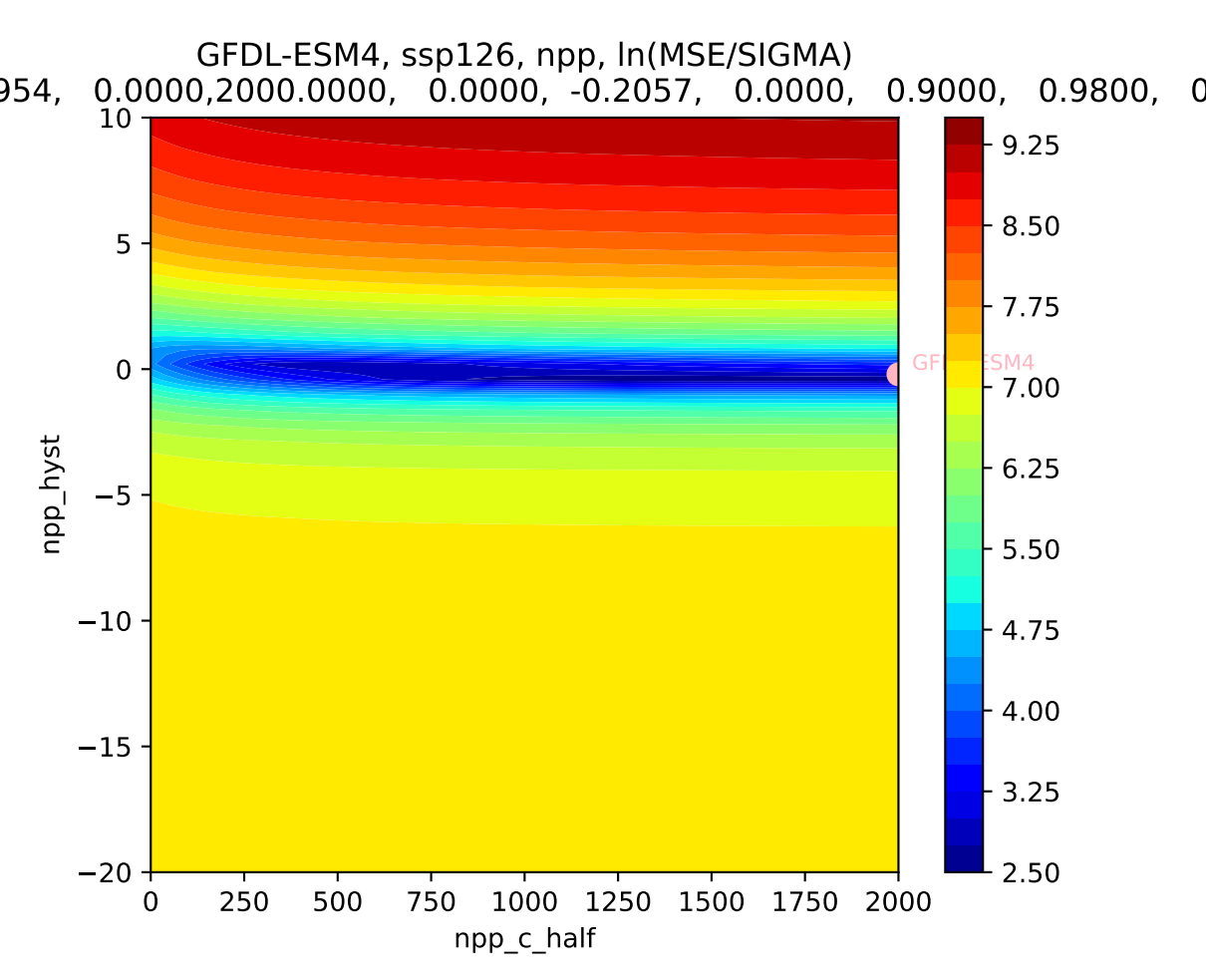

GFDL-ESM4, ssp126, npp
ESM-Fit
npp, ESM - FIT
ΔT


GFDL-ESM4, ssp126, npp
ESM
Fit
npp
c_atm


GFDL-ESM4, ssp126, npp
ESM-Fit
npp, ESM - FIT
c_atm


GFDL-ESM4, ssp126, npp, ln(MSE/SIGMA)
954, 0.0000,2000.0000, 0.0000, -0.2057, 0.0000, 0.9000, 0.9800, 0
GFDL-ESM4
npp_t_e
npp_t_l
5
4
3
2
1
0
−1
−2
−3
−3
−2
−1
0
1
2
3
4
5
9.9
9.0
8.1
7.2
6.3
5.4
4.5
3.6
2.7
1.8


GFDL-ESM4, ssp126, npp, ln(MSE/SIGMA)
954, 0.0000,2000.0000, 0.0000, -0.2057, 0.0000, 0.9000, 0.9800, 0
GFDL-ESM4
9.00
8.25
7.50
6.75
6.00
5.25
4.50
3.75
3.00
2.25
npp_c_e
0
−1
−2
−3
−4
−5
npp_c_l
−5
−4
−3
−2
−1
0


GFDL-ESM4, ssp126, npp, ln(MSE/SIGMA)
954, 0.0000,2000.0000, 0.0000, -0.2057, 0.0000, 0.9000, 0.9800, 0
npp_hyst
npp_c_half
10
5
0
−5
−10
−15
−20
0
250
500
750
1000
1250
1500
1750
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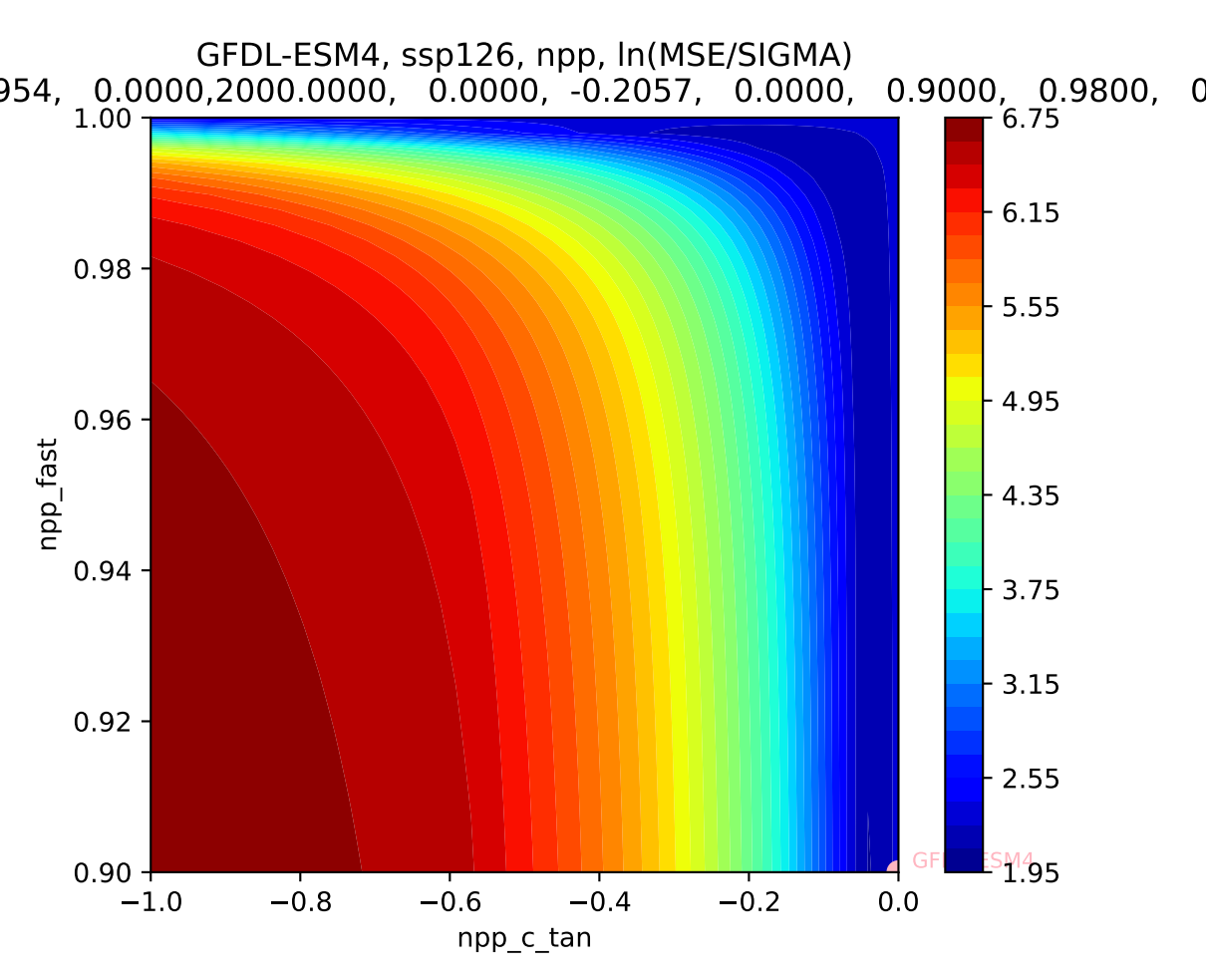
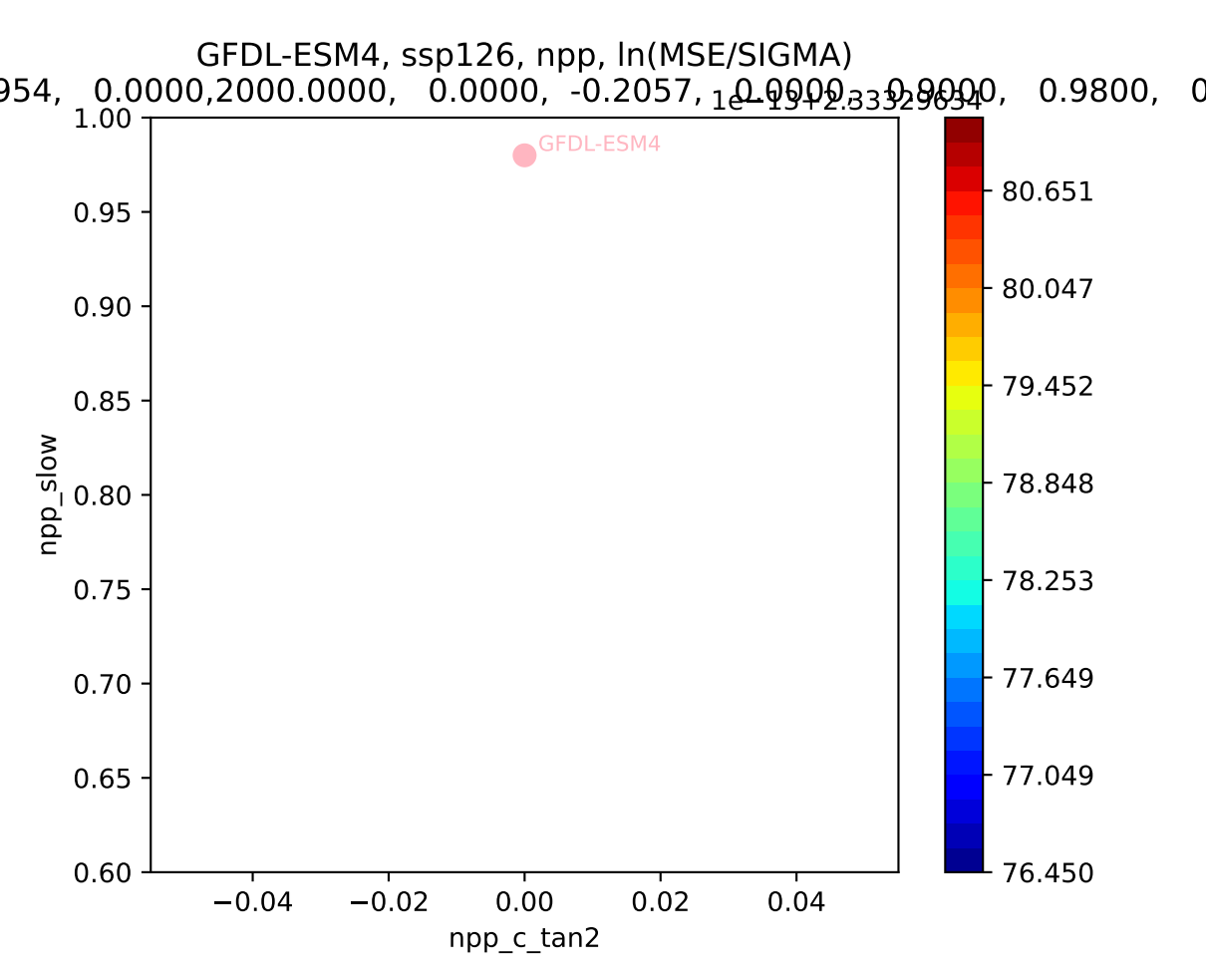
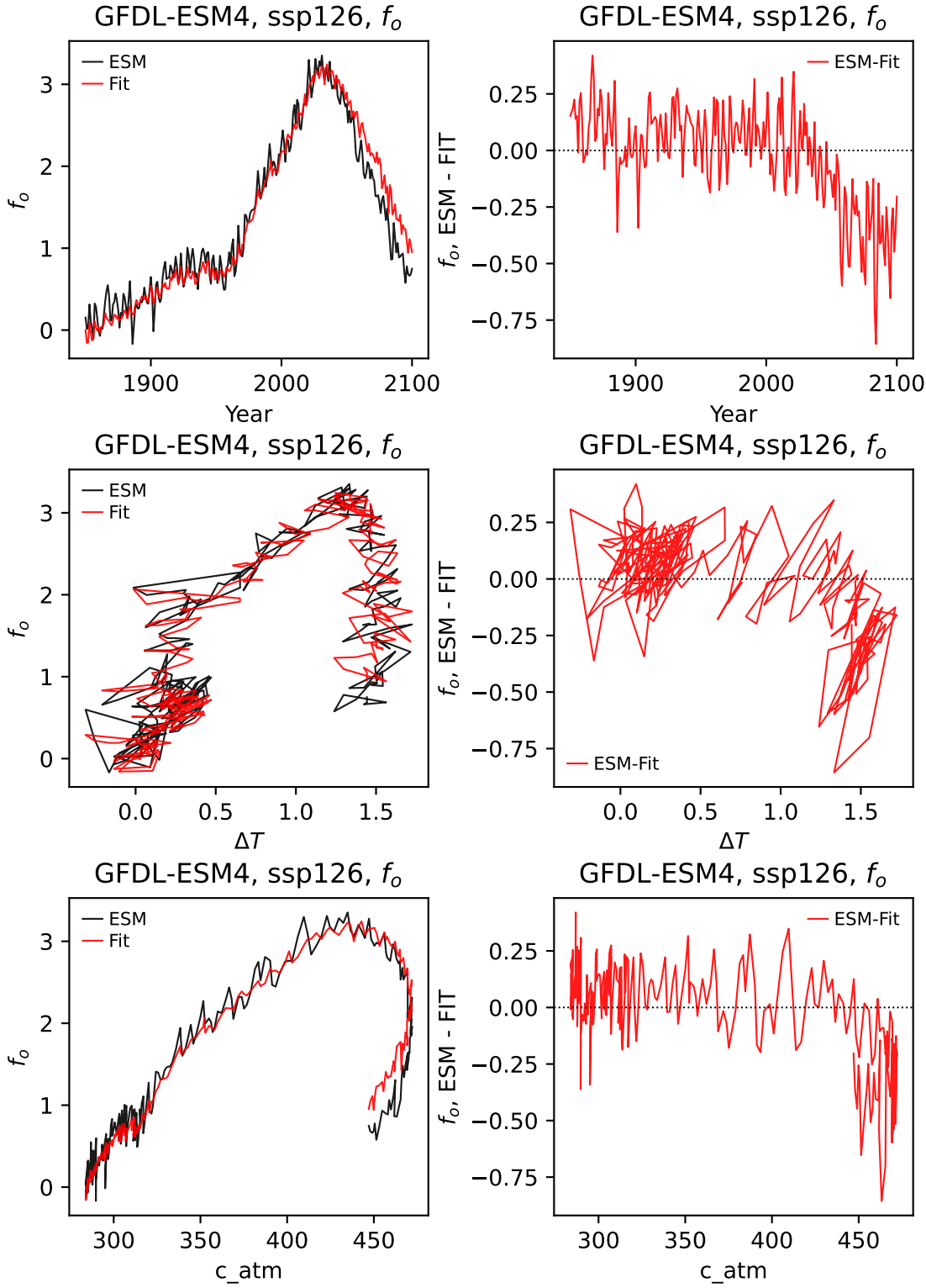
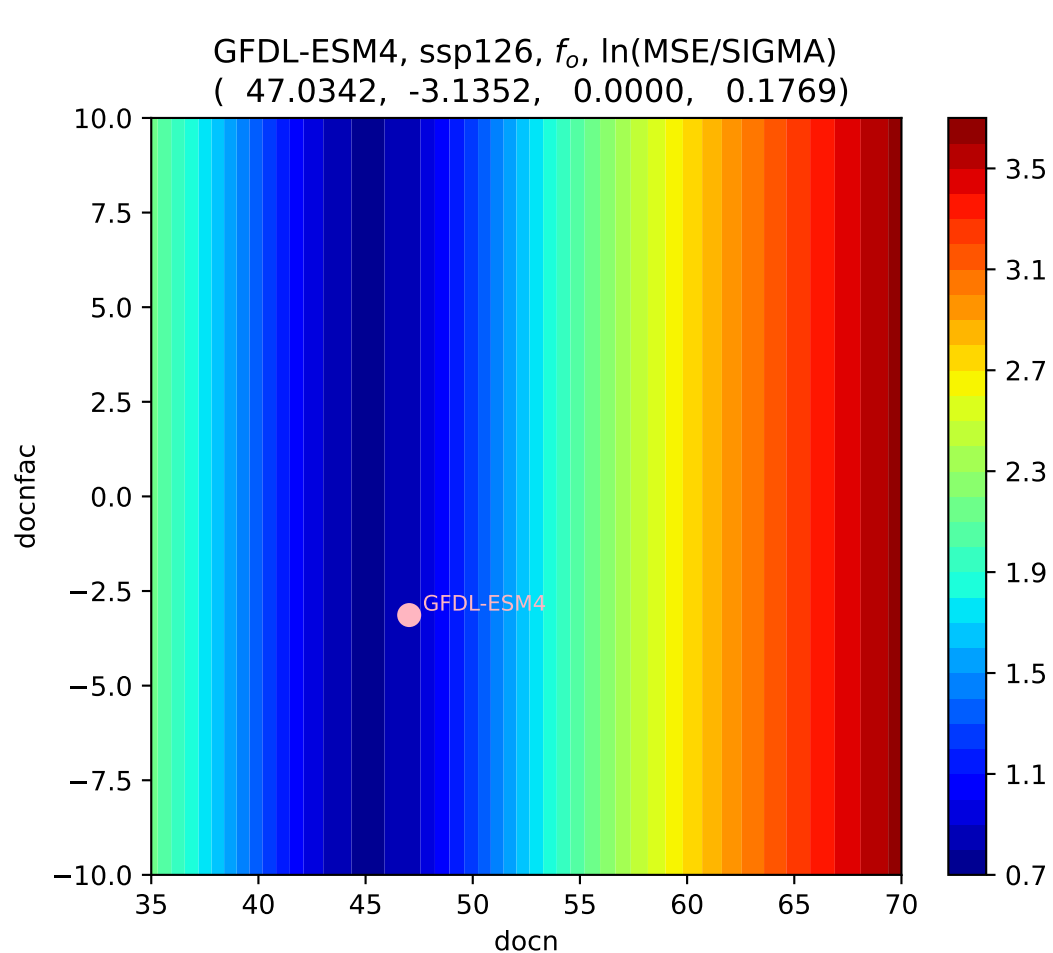
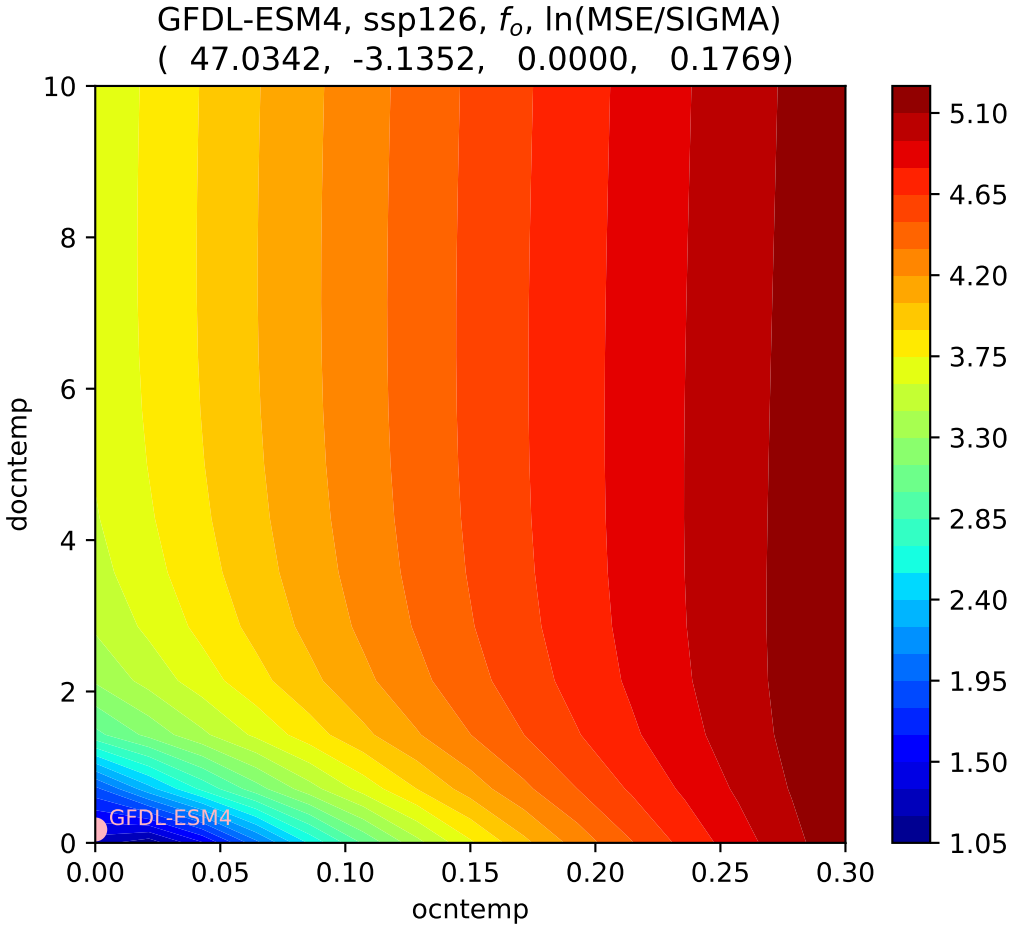
4.00
3.25
2.50


GFDL-ESM4, ssp126, npp, ln(MSE/SIGMA)
954, 0.0000,2000.0000, 0.0000, -0.2057, 0.0000, 0.9000, 0.9800, 0
1.00
0.98
0.96
0.94
0.92
0.90
npp_fast
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
npp_c_tan
6.75
6.15
5.55
4.95
4.35
3.75
3.15
2.55
1.95


GFDL-ESM4, ssp126, npp, ln(MSE/SIGMA)
954, 0.0000,2000.0000, 0.0000, -0.2057, 0.0000, 0.9000, 0.9800, 0
1e−13+2.3332634
GFDL-ESM4
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
npp_slow
−0.04
−0.02
0.00
0.02
0.04
npp_c_tan2
80.651
80.047
79.452
78.848
78.253
77.649
77.049
76.450


GFDL-ESM4, ssp126, f_o
ESM
Fit
f_o
Year
GFDL-ESM4, ssp126, f_o
ESM-Fit
f_o, ESM - FIT
Year
GFDL-ESM4, ssp126, f_o
ESM
Fit
f_o
ΔT
GFDL-ESM4, ssp126, f_o
ESM-Fit
f_o, ESM - FIT
ΔT
GFDL-ESM4, ssp126, f_o
ESM
Fit
f_o
c_atm
GFDL-ESM4, ssp126, f_o
ESM-Fit
f_o, ESM - FIT
c_atm


GFDL-ESM4, ssp126, f_o, ln(MSE/SIGMA)
(47.0342, -3.1352, 0.0000, 0.1769)
GFDL-ESM4
docn
docnfac
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
35
40
45
50
55
60
65
70
3.5
3.1
2.7
2.3
1.9
1.5
1.1
0.7


GFDL-ESM4, ssp126, f_o, ln(MSE/SIGMA)
(47.0342, -3.1352, 0.0000, 0.1769)
docntemp
ocntemp
GFDL-ESM4
0
2
4
6
8
10
0.00
0.05
0.10
0.15
0.20
0.25
0.30
5.10
4.65
4.20
3.75
3.30
2.85
2.40
1.95
1.50
1.05