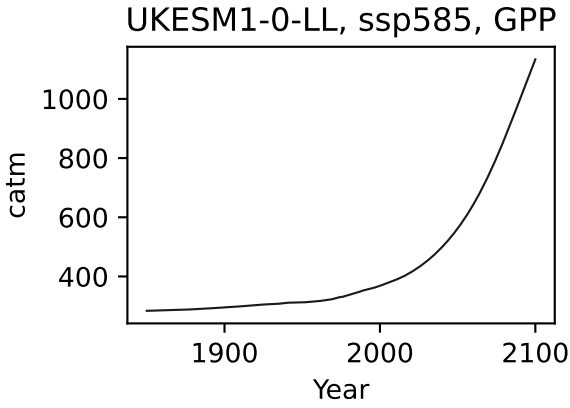
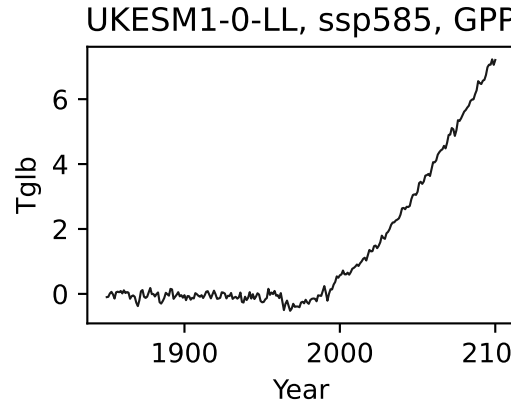
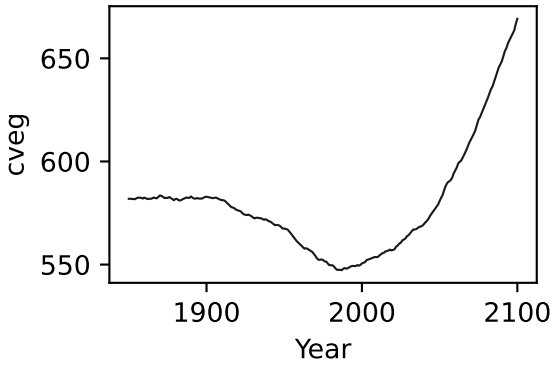
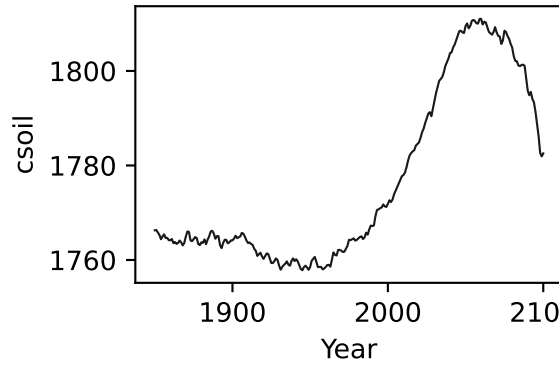
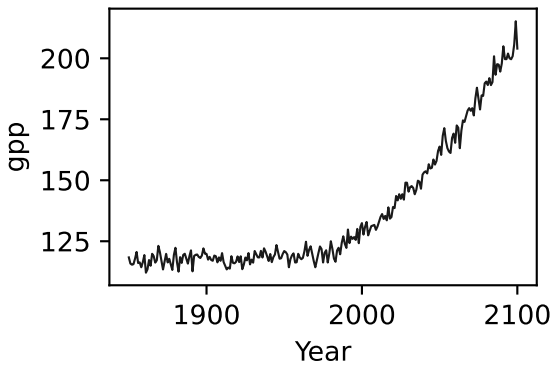
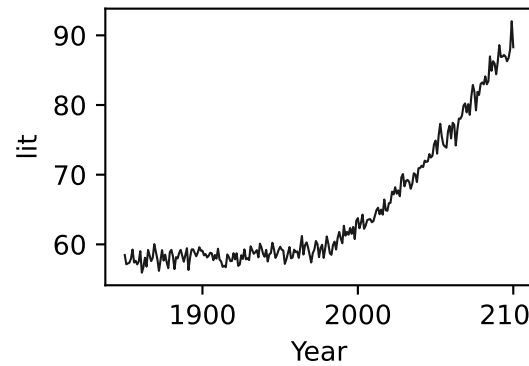

UKESM1-0-LL, ssp585, GPP
catm
1000
800
600
400
1900
2000
2100
Year

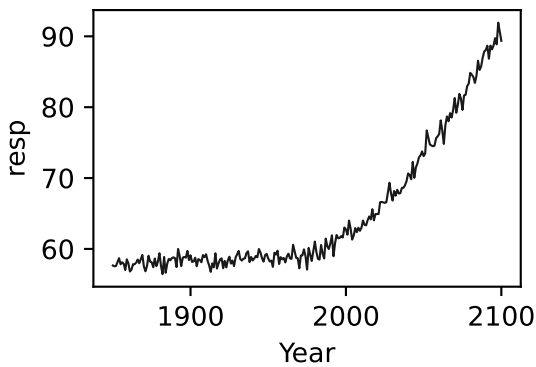

UKESM1-0-LL, ssp585, GPP
Tglb
6
4
2
0
1900
2000
2100
Year

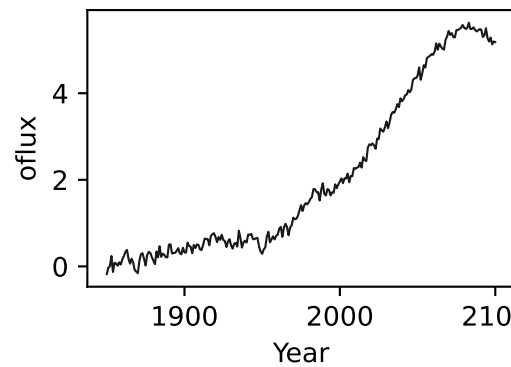

cveg
650
600
550
1900
2000
2100
Year

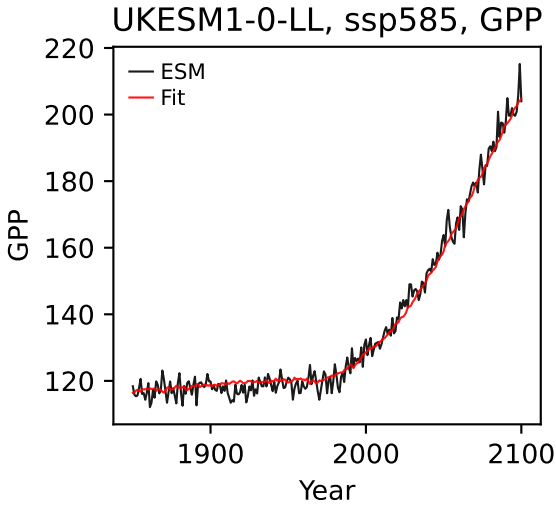

csoil
1800
1780
1760
1900
2000
2100
Year

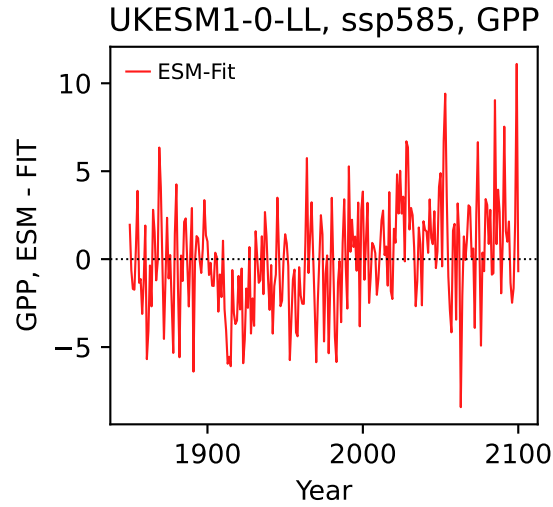

gpp
200
175
150
125
1900
2000
2100
Year

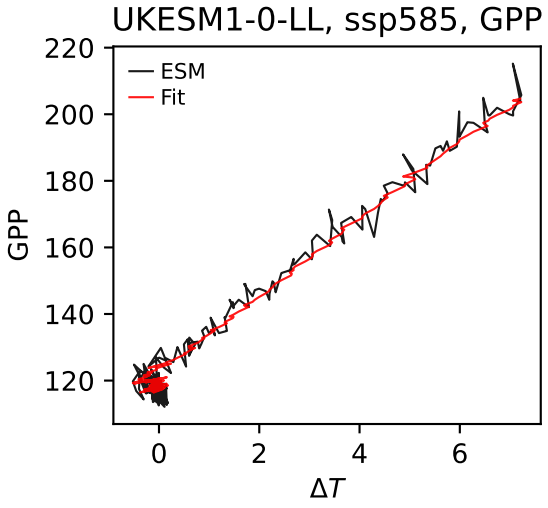

lit
90
80
70
60
1900
2000
2100
Year

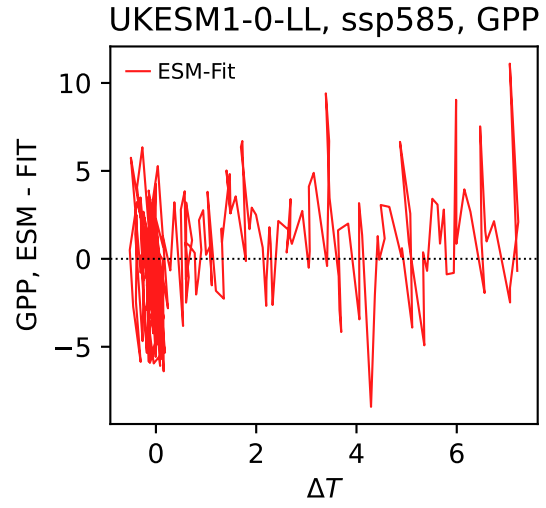

resp
90
80
70
60
1900
2000
2100
Year

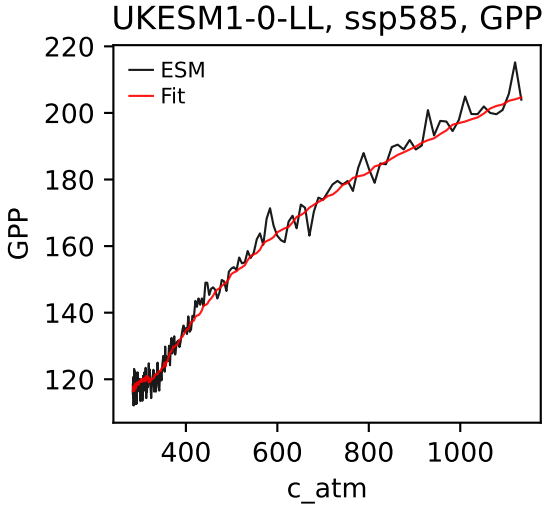

oflux
4
2
0
1900
2000
2100
Year

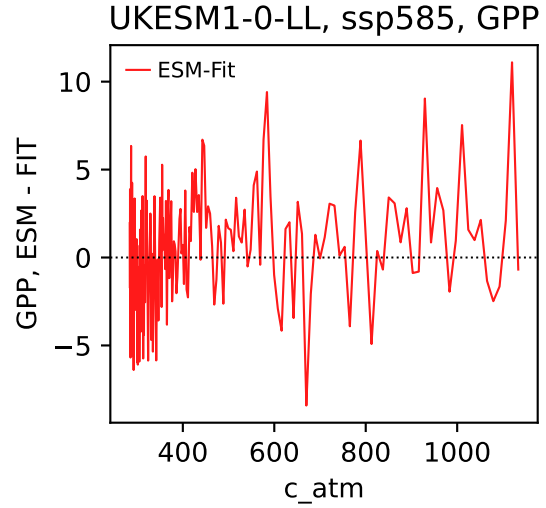

UKESM1-0-LL, ssp585, GPP
ESM
Fit
GPP
Year

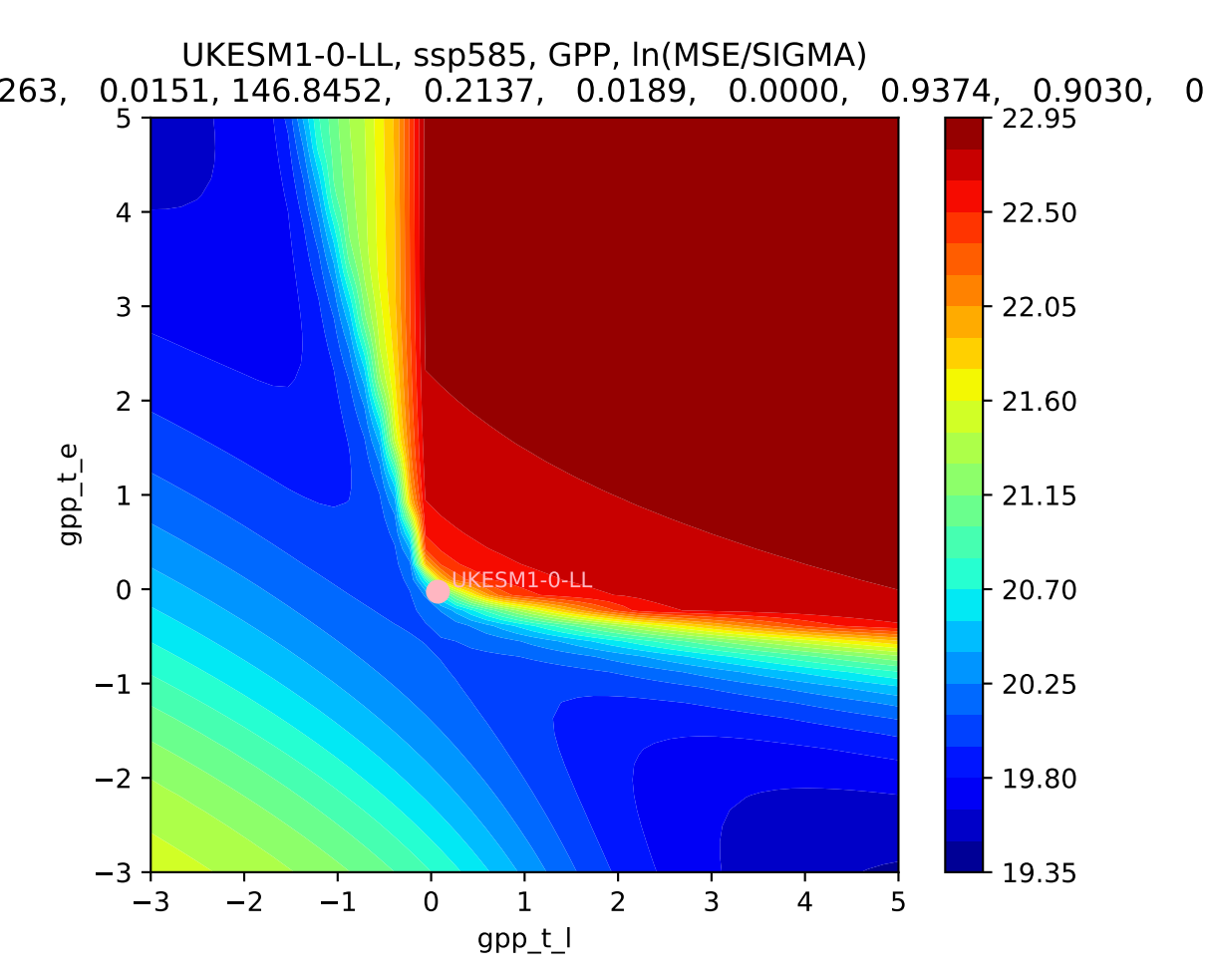

UKESM1-0-LL, ssp585, GPP
ESM-Fit
GPP, ESM - FIT
Year

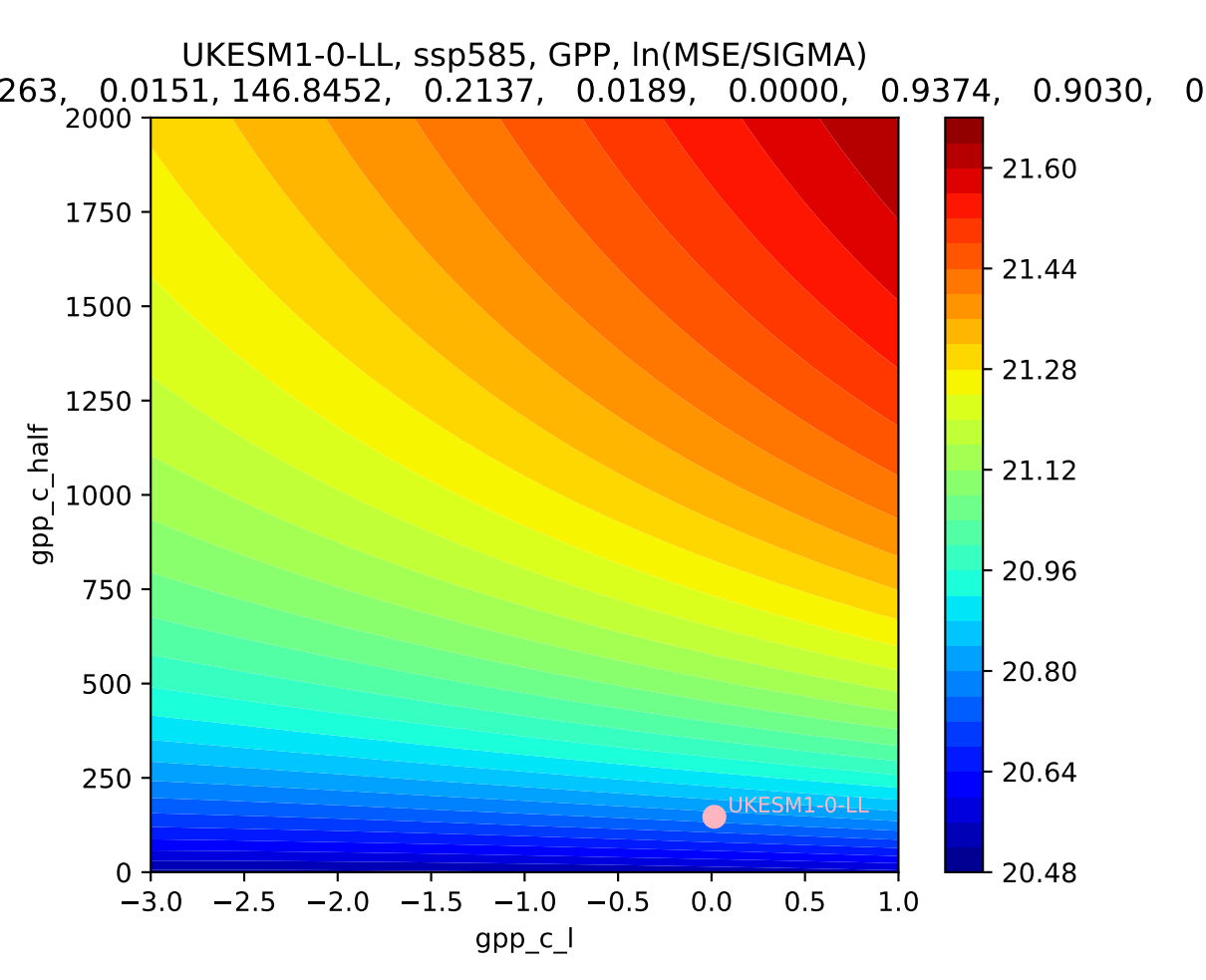

UKESM1-0-LL, ssp585, GPP
ESM
Fit
GPP
ΔT

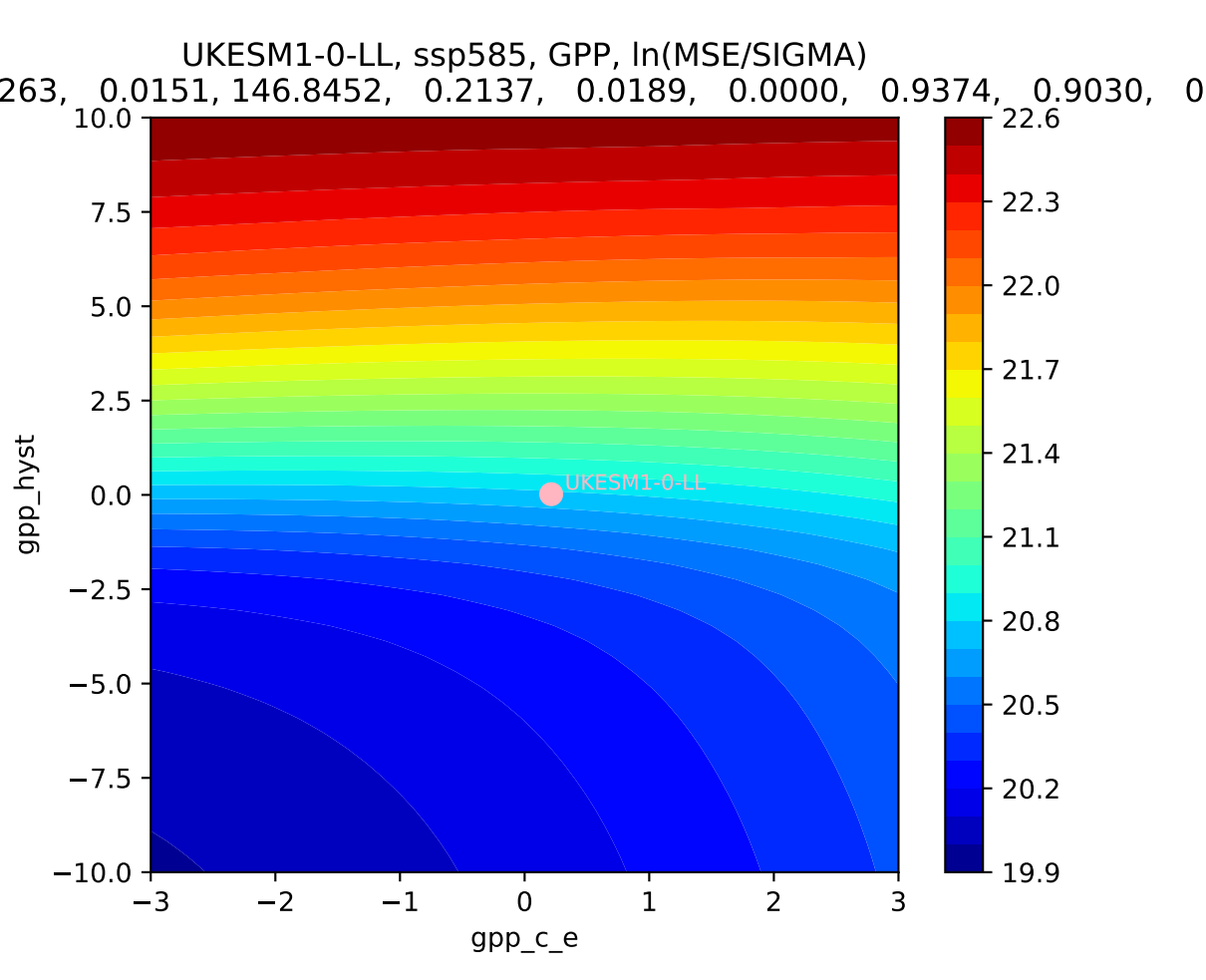

UKESM1-0-LL, ssp585, GPP
ESM-Fit
GPP, ESM - FIT
ΔT

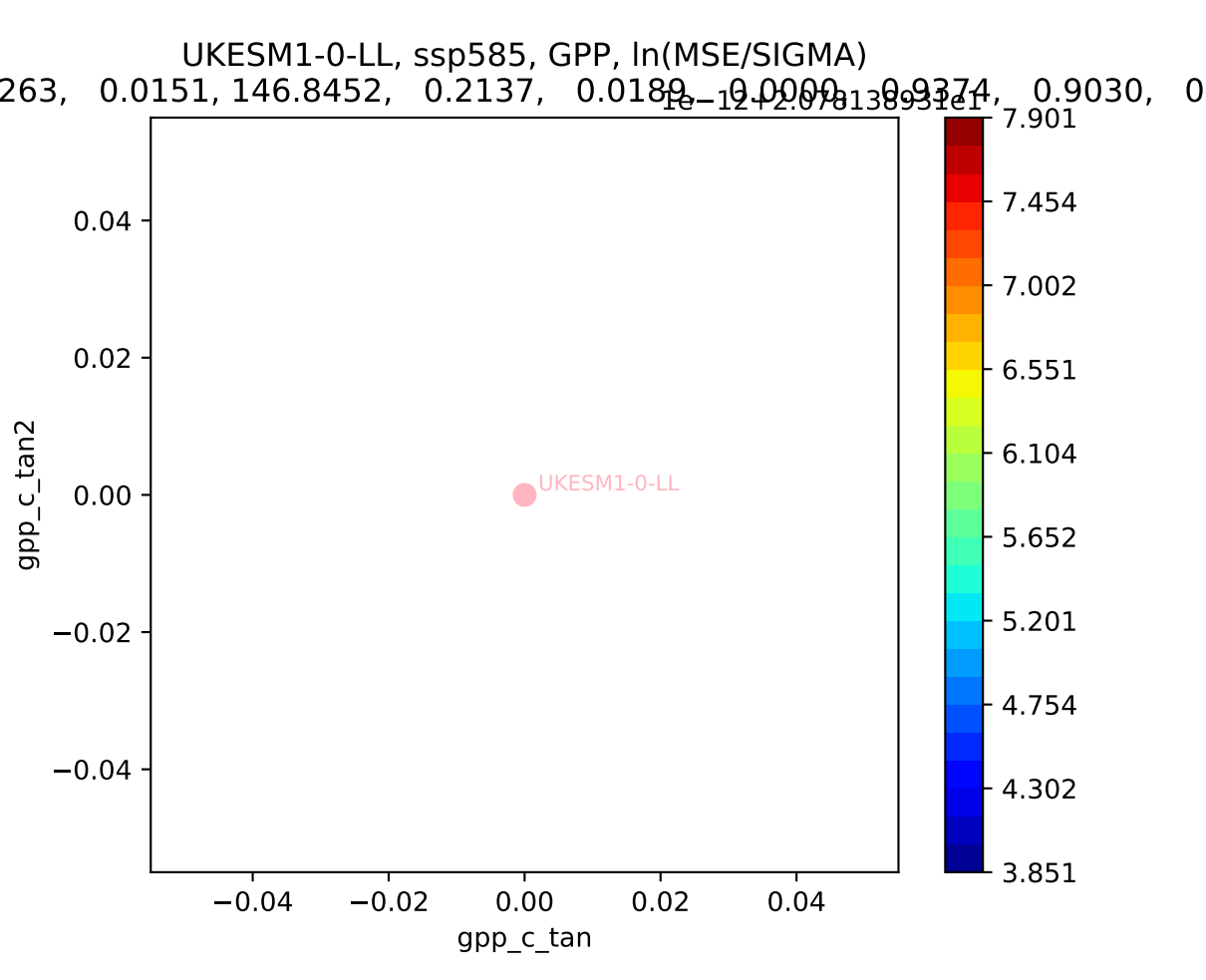

UKESM1-0-LL, ssp585, GPP
ESM
Fit
GPP
c_atm

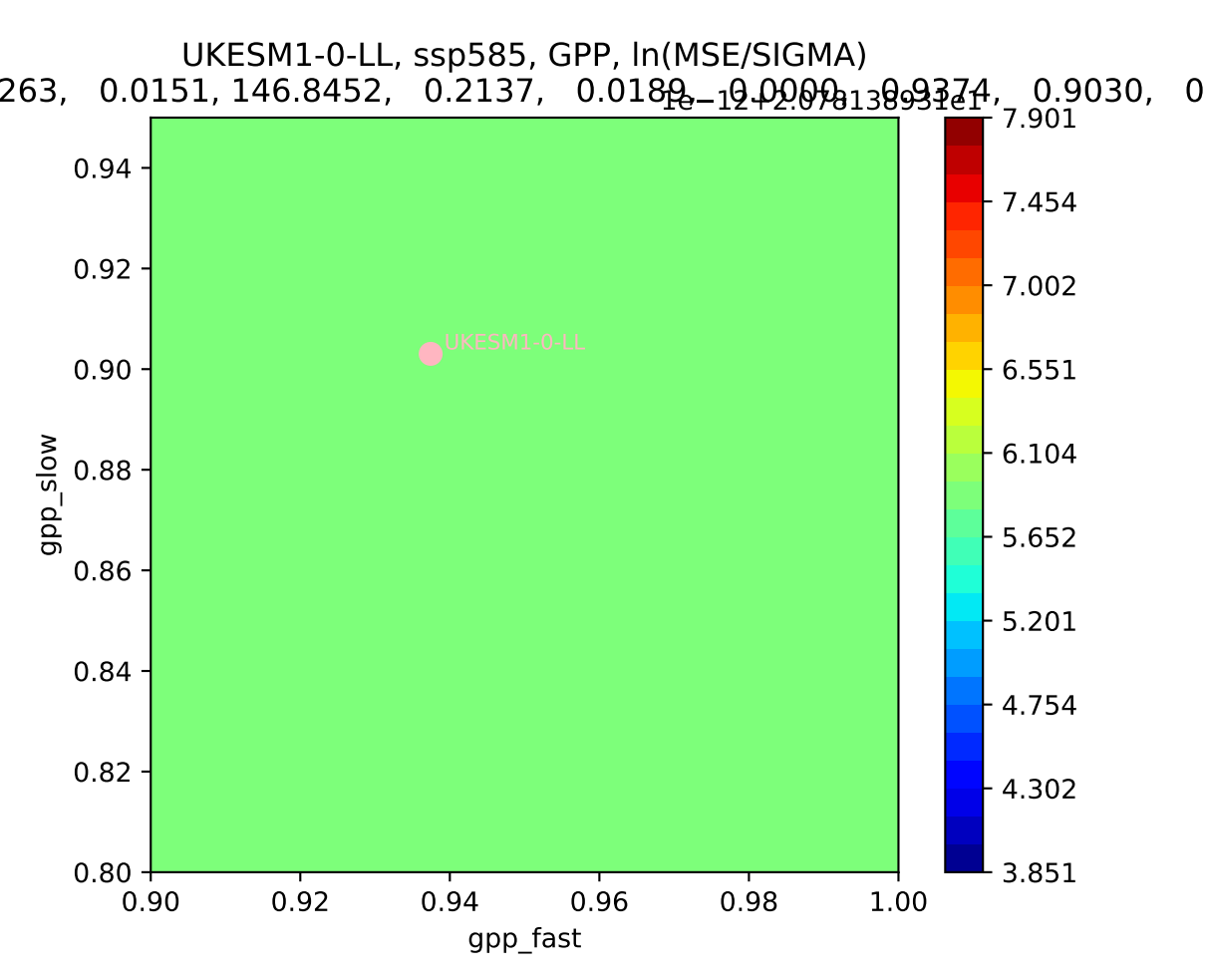

UKESM1-0-LL, ssp585, GPP
ESM-Fit
GPP, ESM - FIT
c_atm

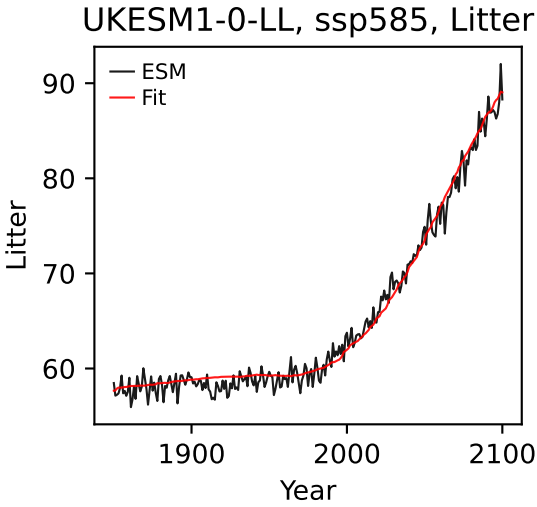

UKESM1-0-LL, ssp585, GPP, ln(MSE/SIGMA)
263, 0.0151, 146.8452, 0.2137, 0.0189, 0.0000, 0.9374, 0.9030, 0
UKESM1-0-LL
gpp_t_e
gpp_t_l
5
4
3
2
1
0
−1
−2
−3
−3
−2
−1
0
1
2
3
4
5
22.95
22.50
22.05
21.60
21.15
20.70
20.25
19.80
19.35

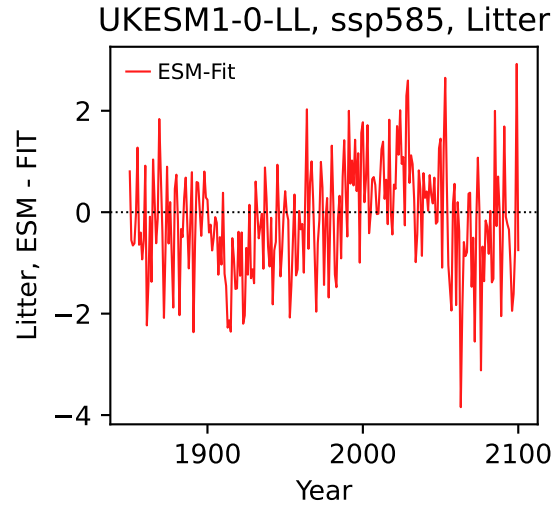

UKESM1-0-LL, ssp585, GPP, ln(MSE/SIGMA)
263, 0.0151, 146.8452, 0.2137, 0.0189, 0.0000, 0.9374, 0.9030, 0
gpp_c_half
gpp_c_l
UKESM1-0-LL
2000
1750
1500
1250
1000
750
500
250
0
−3.0
−2.5
−2.0
−1.5
−1.0
−0.5
0.0
0.5
1.0
21.60
21.44
21.28
21.12
20.96
20.80
20.64
20.48

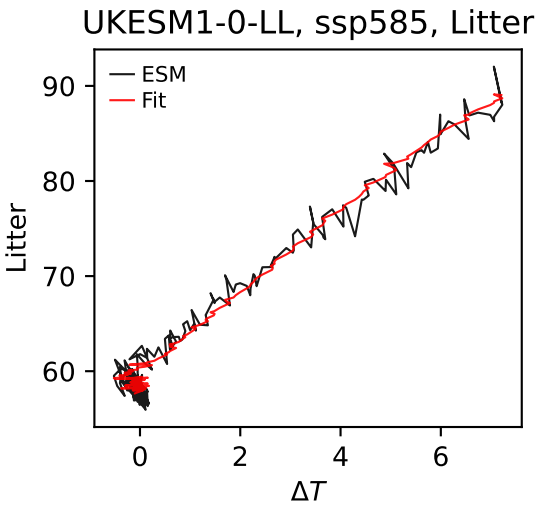

UKESM1-0-LL, ssp585, GPP, ln(MSE/SIGMA)
263, 0.0151, 146.8452, 0.2137, 0.0189, 0.0000, 0.9374, 0.9030, 0
UKESM1-0-LL
gpp_hyst
gpp_c_e
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
−3
−2
−1
0
1
2
3
22.6
22.3
22.0
21.7
21.4
21.1
20.8
20.5
20.2
19.9

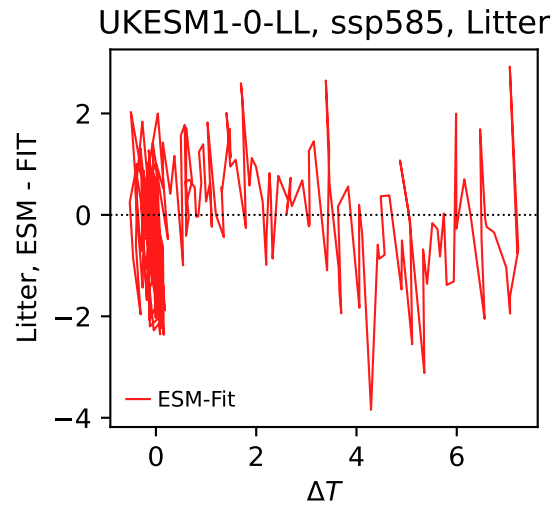

UKESM1-0-LL, ssp585, GPP, ln(MSE/SIGMA)
263, 0.0151, 146.8452, 0.2137, 0.0189, 0.0000, 0.9374, 0.9030, 0
1e−12+2.078138931e1
7.901
7.454
7.002
6.551
6.104
5.652
5.201
4.754
4.302
3.851
UKESM1-0-LL
gpp_c_tan2
0.04
0.02
0.00
−0.02
−0.04
gpp_c_tan
−0.04
−0.02
0.00
0.02
0.04

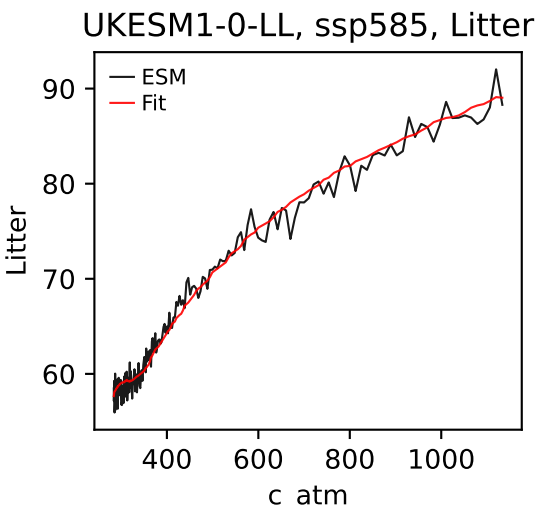

UKESM1-0-LL, ssp585, GPP, ln(MSE/SIGMA)
263, 0.0151, 146.8452, 0.2137, 0.0189, 0.0000, 0.9374, 0.9030, 0
1e−12+2.078138931e1
UKESM1-0-LL
gpp_slow
gpp_fast
0.80
0.82
0.84
0.86
0.88
0.90
0.92
0.94
0.90
0.92
0.94
0.96
0.98
1.00
7.901
7.454
7.002
6.551
6.104
5.652
5.201
4.754
4.302
3.851

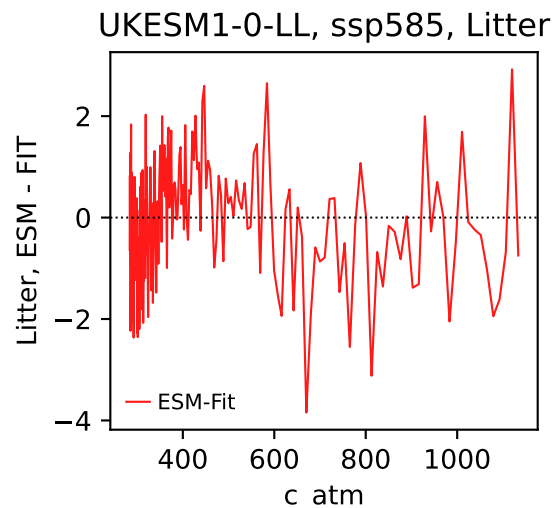

UKESM1-0-LL, ssp585, Litter
ESM
Fit
Litter
Year

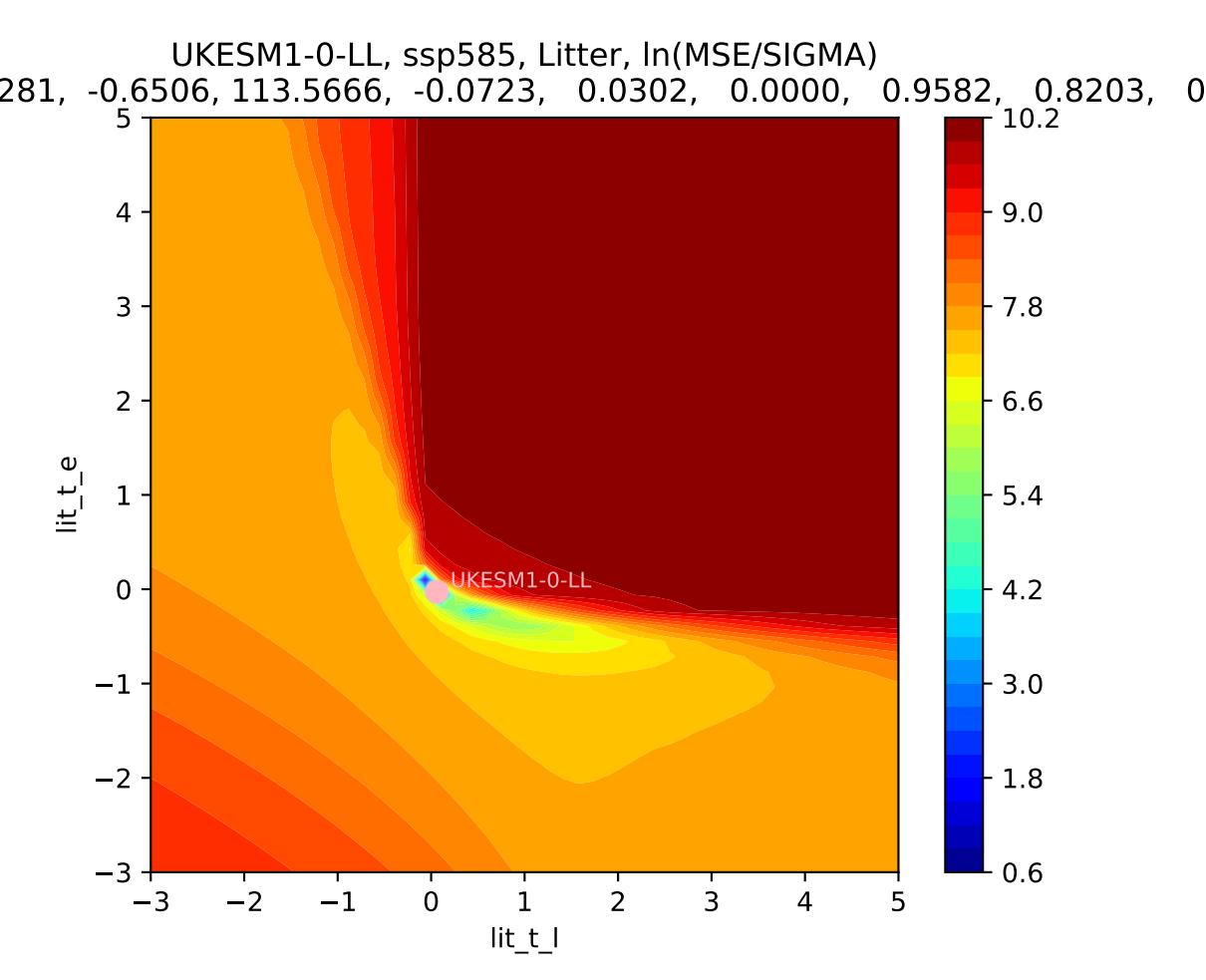

UKESM1-0-LL, ssp585, Litter
ESM-Fit
Litter, ESM - FIT
Year

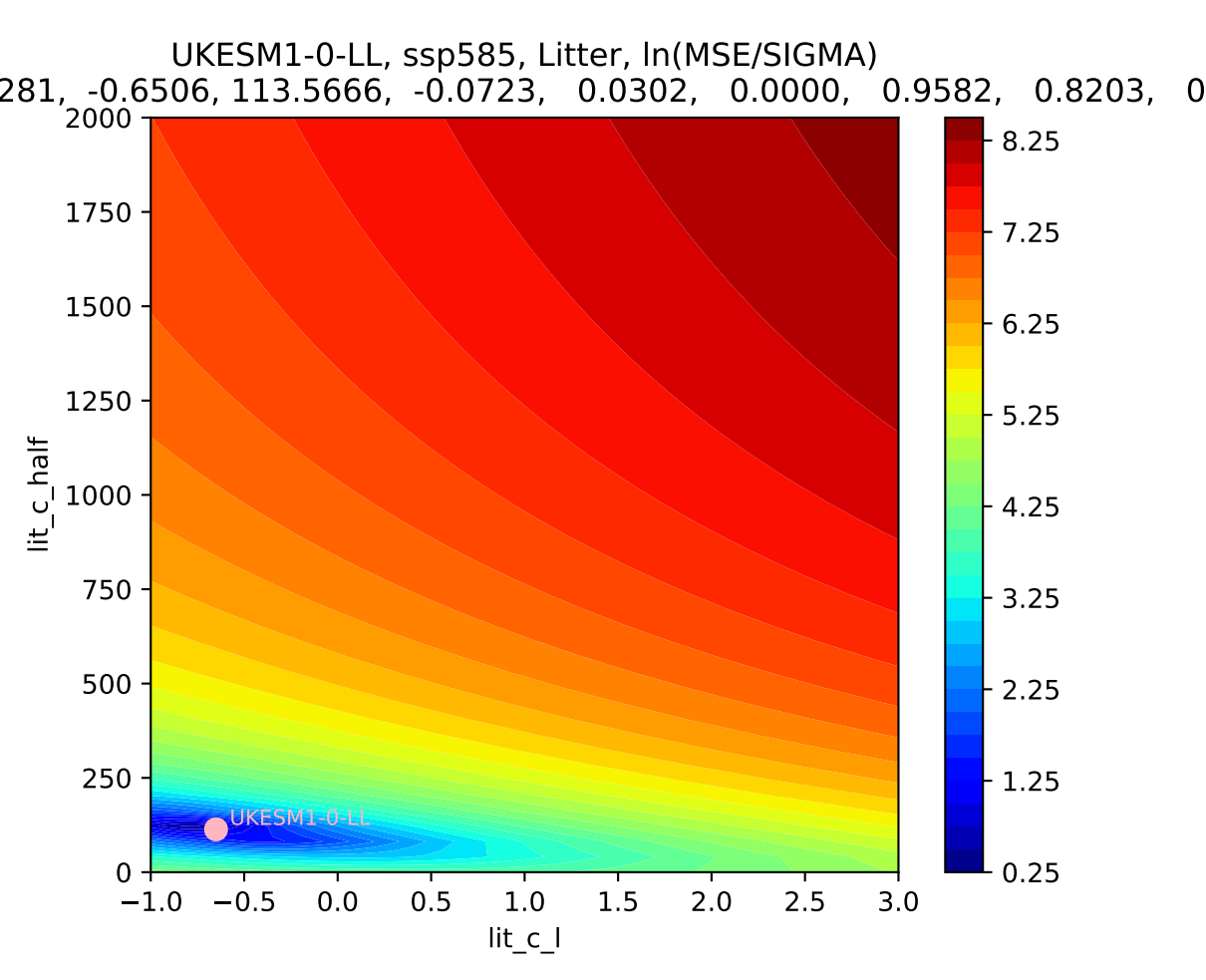

UKESM1-0-LL, ssp585, Litter
ESM
Fit
Litter
ΔT

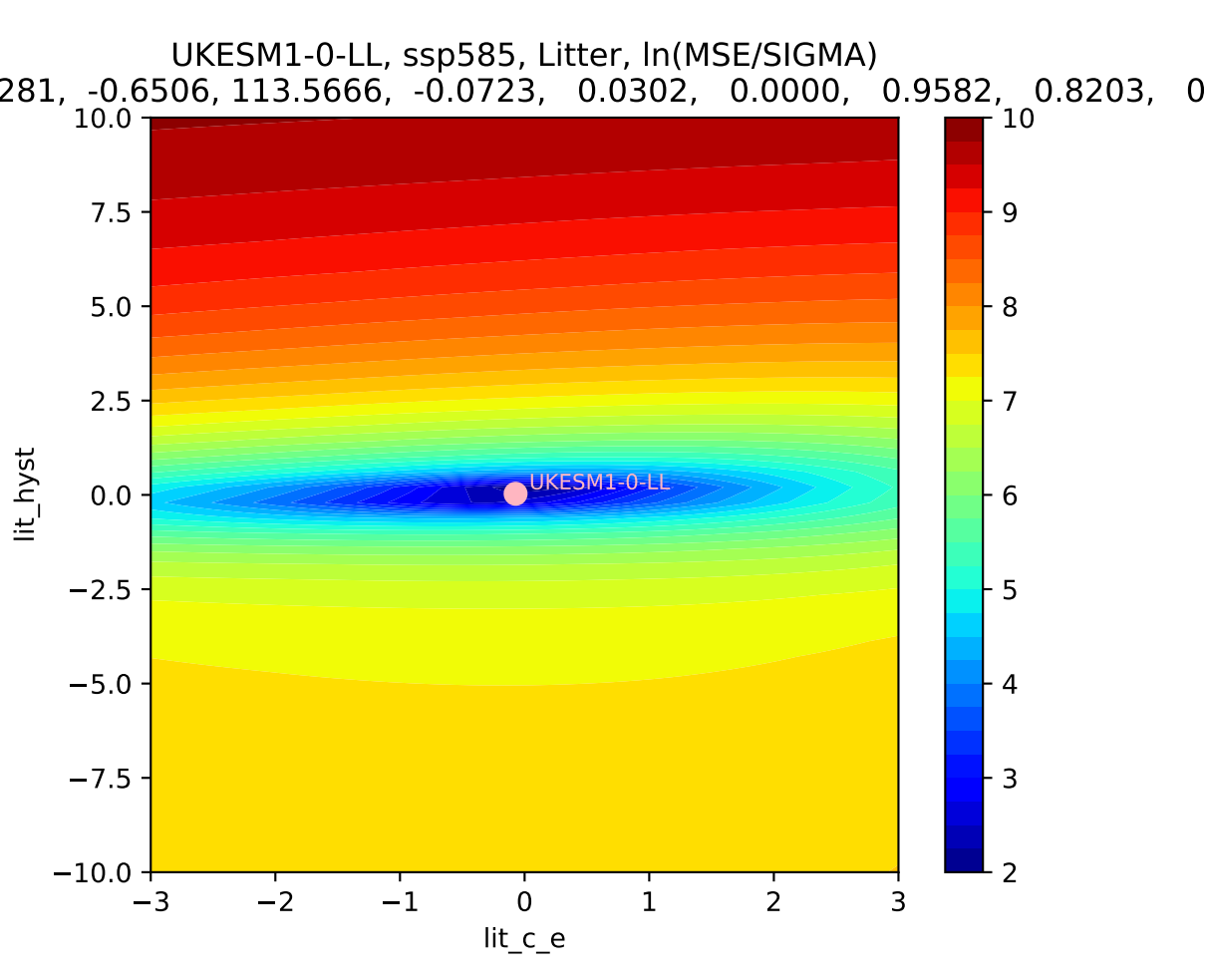

UKESM1-0-LL, ssp585, Litter
ESM-Fit
Litter, ESM - FIT
ΔT

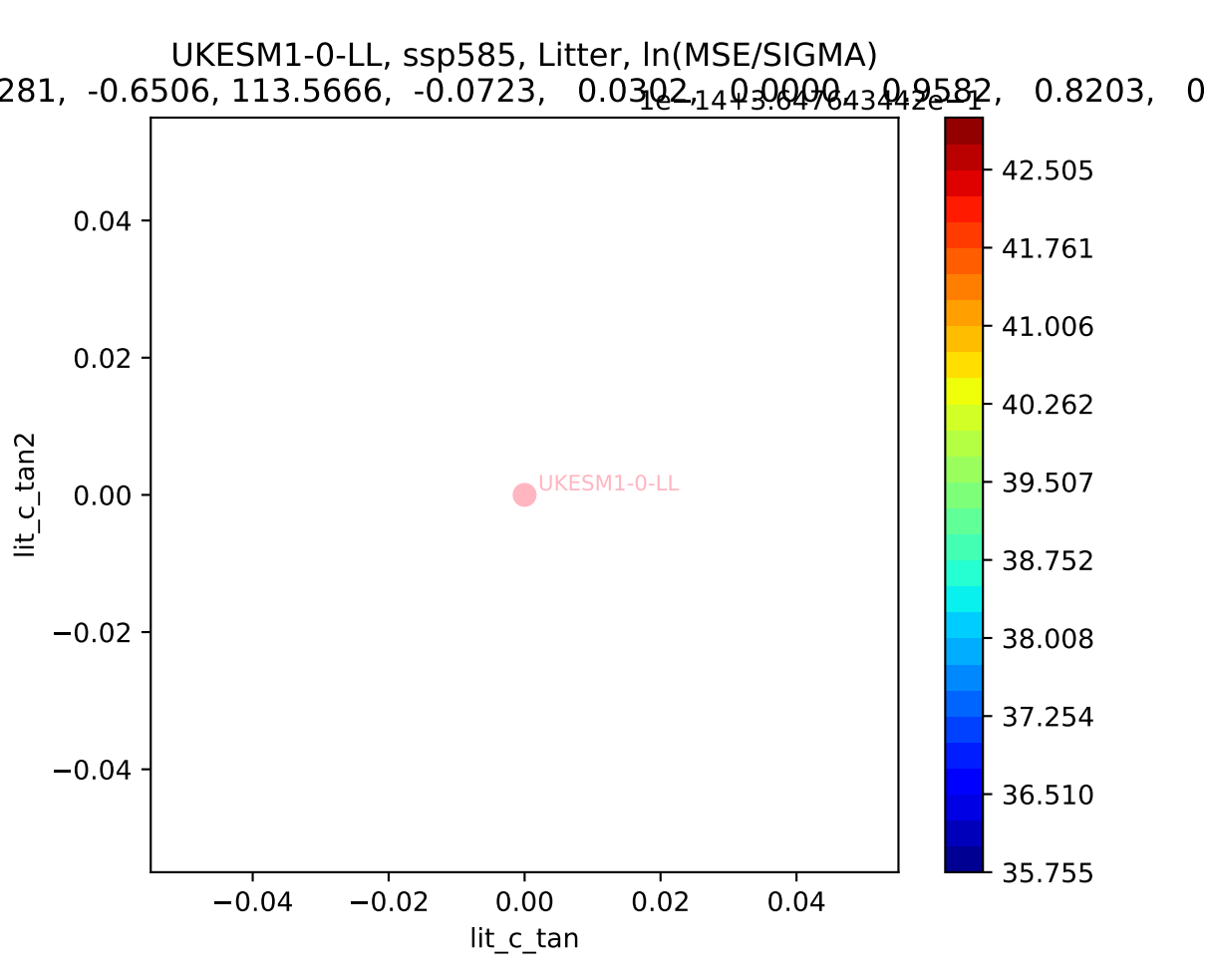

UKESM1-0-LL, ssp585, Litter
ESM
Fit
Litter
c_atm

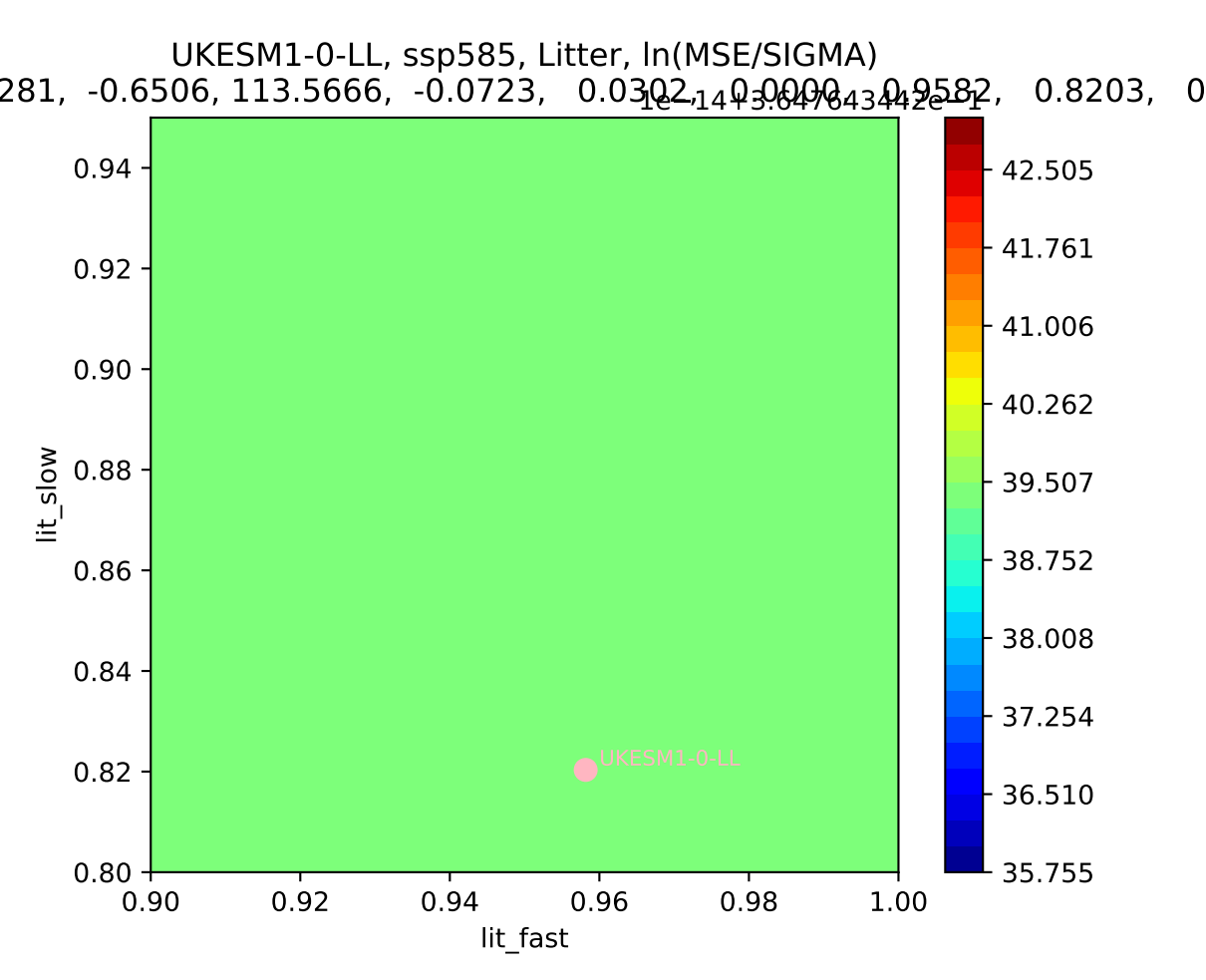

UKESM1-0-LL, ssp585, Litter
ESM-Fit
Litter, ESM - FIT
c_atm

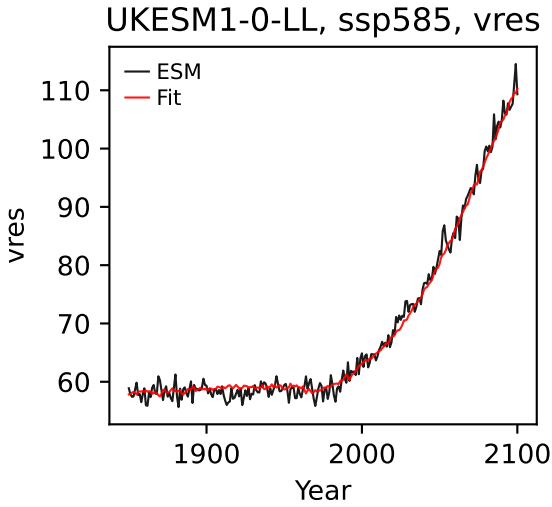

UKESM1-0-LL, ssp585, Litter, ln(MSE/SIGMA)
281, -0.6506, 113.5666, -0.0723, 0.0302, 0.0000, 0.9582, 0.8203, 0
UKESM1-0-LL
lit_t_e
lit_t_l
5
4
3
2
1
0
−1
−2
−3
−3
−2
−1
0
1
2
3
4
5
10.2
9.0
7.8
6.6
5.4
4.2
3.0
1.8
0.6

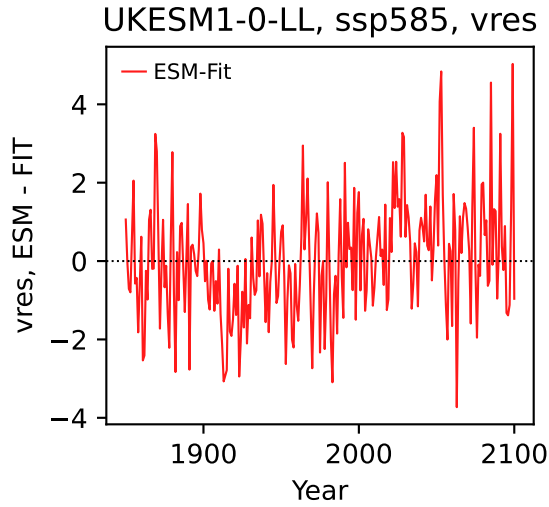

UKESM1-0-LL, ssp585, Litter, ln(MSE/SIGMA)
281, -0.6506, 113.5666, -0.0723, 0.0302, 0.0000, 0.9582, 0.8203, 0
lit_c_half
lit_c_l
UKESM1-0-LL
2000
1750
1500
1250
1000
750
500
250
0
−1.0
−0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
8.25
7.25
6.25
5.25
4.25
3.25
2.25
1.25
0.25

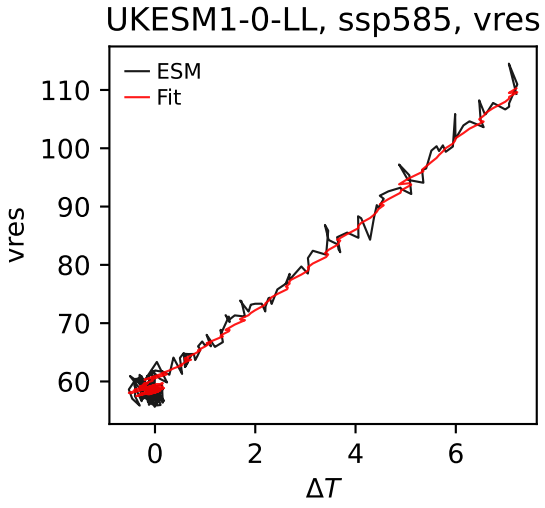

UKESM1-0-LL, ssp585, Litter, ln(MSE/SIGMA)
281, -0.6506, 113.5666, -0.0723, 0.0302, 0.0000, 0.9582, 0.8203, 0
UKESM1-0-LL
lit_hyst
lit_c_e
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
−3
−2
−1
0
1
2
3
10
9
8
7
6
5
4
3
2

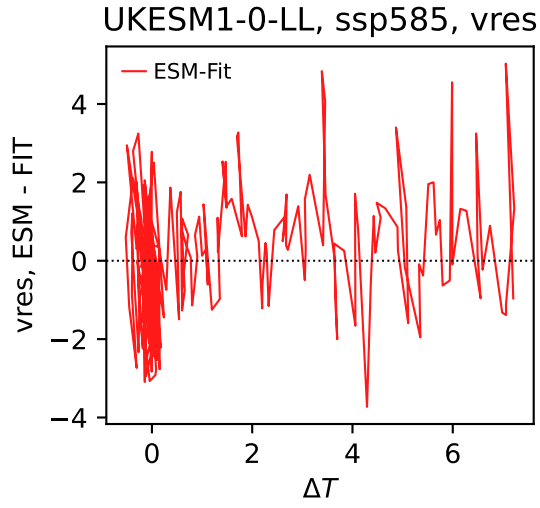

UKESM1-0-LL, ssp585, Litter, ln(MSE/SIGMA)
281, -0.6506, 113.5666, -0.0723, 0.0302, 0.0000, 0.9582, 0.8203, 0
1e−14+3.647643442e−1
UKESM1-0-LL
lit_c_tan2
lit_c_tan
0.04
0.02
0.00
−0.02
−0.04
42.505
41.761
41.006
40.262
39.507
38.752
38.008
37.254
36.510
35.755

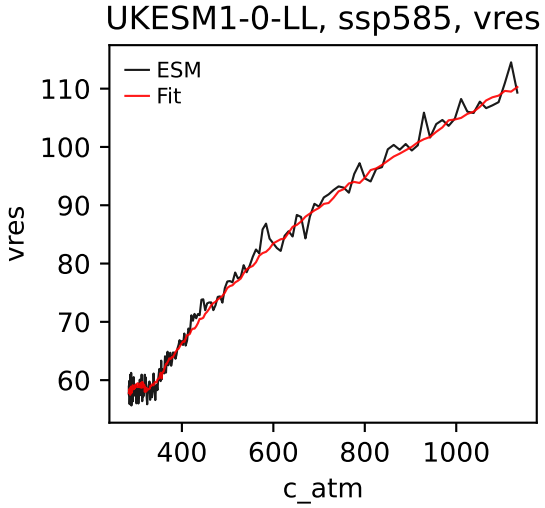

UKESM1-0-LL, ssp585, Litter, ln(MSE/SIGMA)
281, -0.6506, 113.5666, -0.0723, 0.0302, 0.0000, 0.9582, 0.8203, 0
1e−14+3.647643442e−1
0.94
0.92
0.90
0.88
0.86
0.84
0.82
0.80
lit_slow
0.90
0.92
0.94
0.96
0.98
1.00
lit_fast
UKESM1-0-LL
42.505
41.761
41.006
40.262
39.507
38.752
38.008
37.254
36.510
35.755

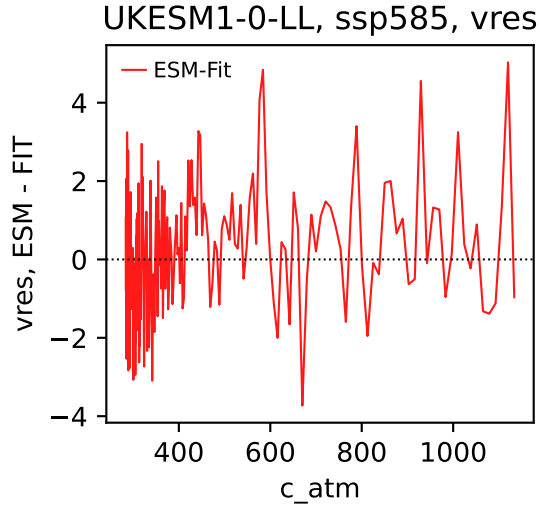

UKESM1-0-LL, ssp585, vres
ESM
Fit
vres
Year

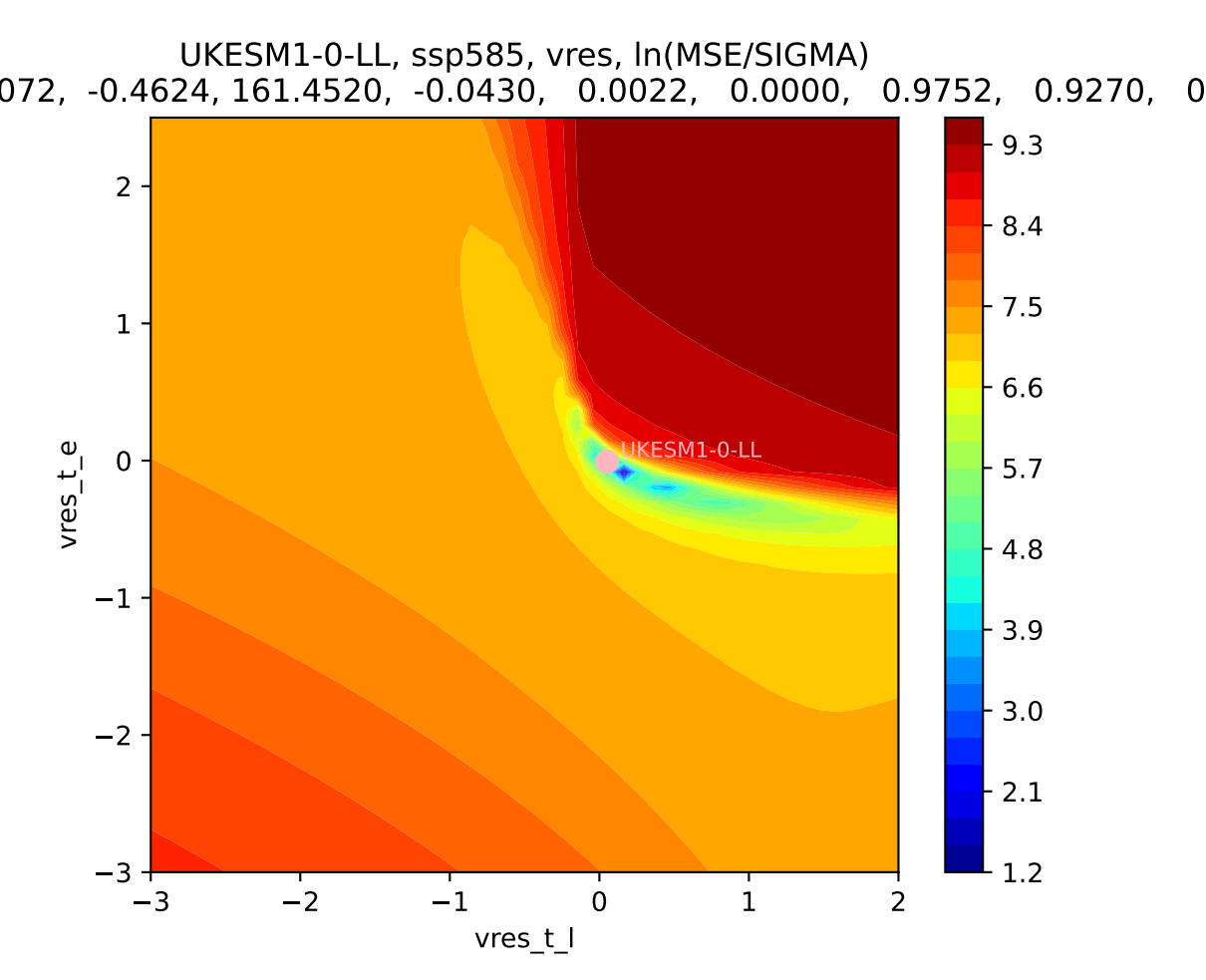

UKESM1-0-LL, ssp585, vres
ESM-Fit
vres, ESM - FIT
Year

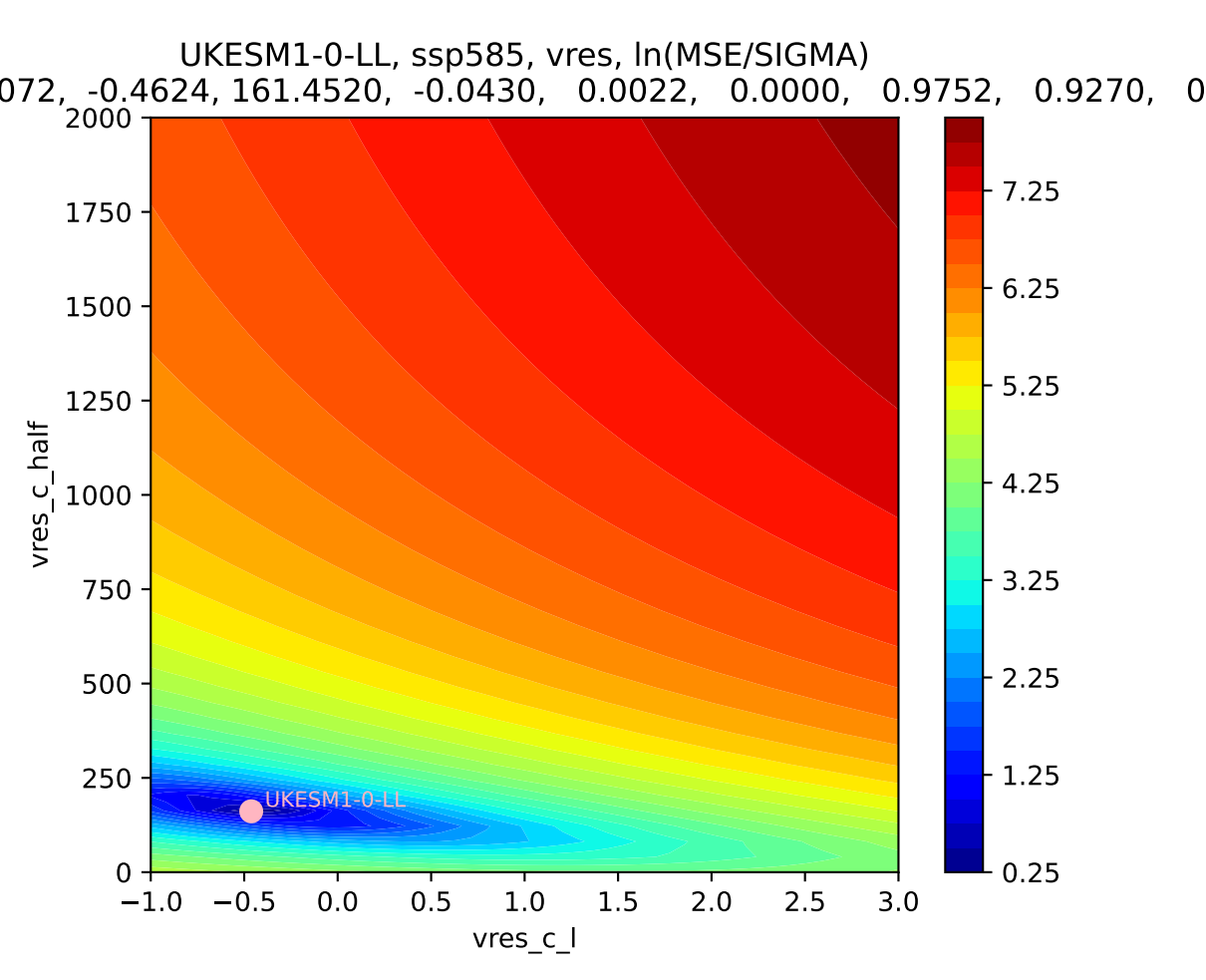

UKESM1-0-LL, ssp585, vres
ESM
Fit
vres
ΔT

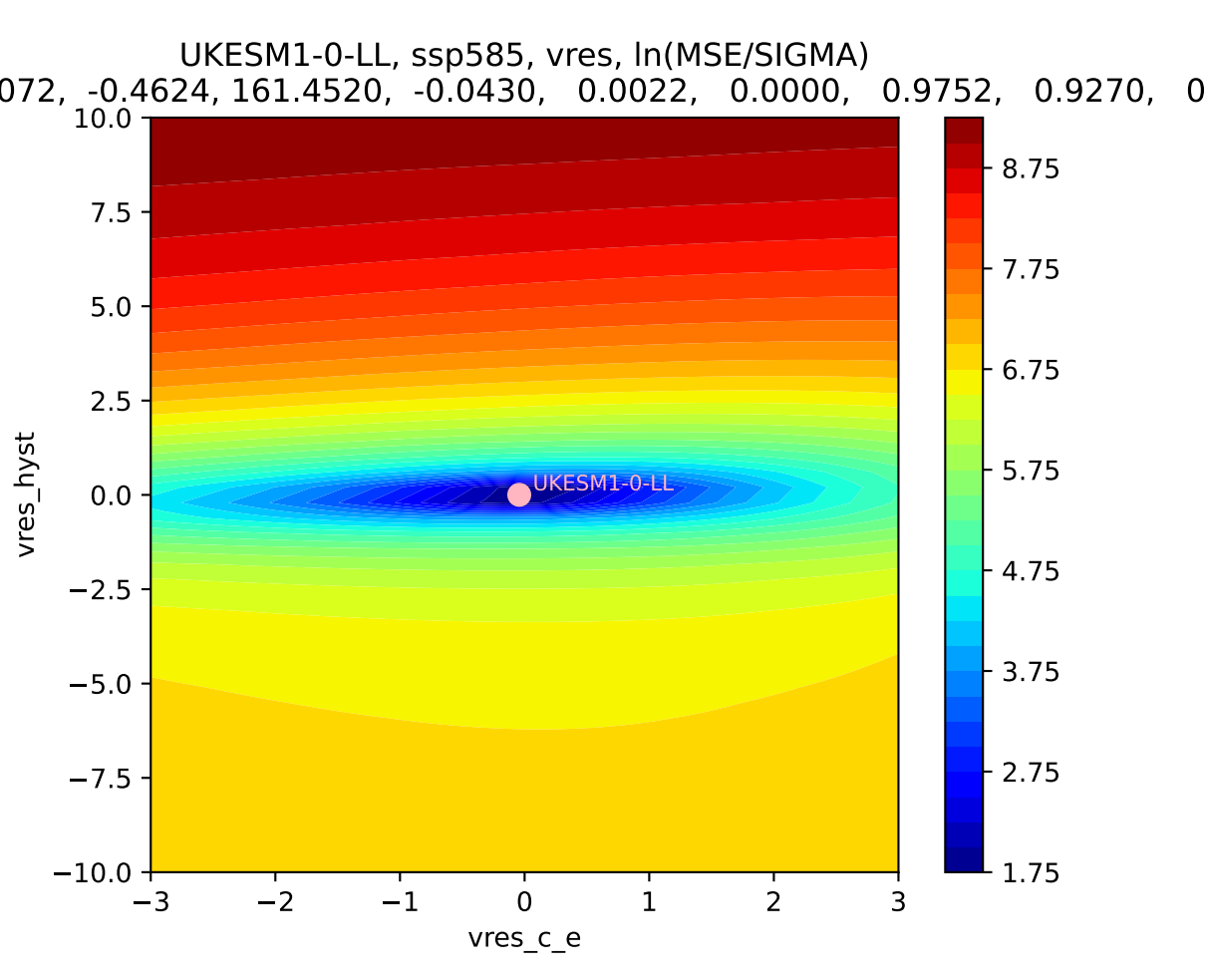

UKESM1-0-LL, ssp585, vres
ESM-Fit
vres, ESM - FIT
ΔT


UKESM1-0-LL, ssp585, vres
ESM
Fit
vres
c_atm


UKESM1-0-LL, ssp585, vres
ESM-Fit
vres, ESM - FIT
c_atm


UKESM1-0-LL, ssp585, vres, ln(MSE/SIGMA)
072, -0.4624, 161.4520, -0.0430, 0.0022, 0.0000, 0.9752, 0.9270, 0
UKESM1-0-LL
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


UKESM1-0-LL, ssp585, vres, ln(MSE/SIGMA)
072, -0.4624, 161.4520, -0.0430, 0.0022, 0.0000, 0.9752, 0.9270, 0
vres_c_half
vres_c_l
UKESM1-0-LL
2000
1750
1500
1250
1000
750
500
250
0
−1.0
−0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
7.25
6.25
5.25
4.25
3.25
2.25
1.25
0.25


UKESM1-0-LL, ssp585, vres, ln(MSE/SIGMA)
072, -0.4624, 161.4520, -0.0430, 0.0022, 0.0000, 0.9752, 0.9270, 0
UKESM1-0-LL
vres_hyst
vres_c_e
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
−3
−2
−1
0
1
2
3
8.75
7.75
6.75
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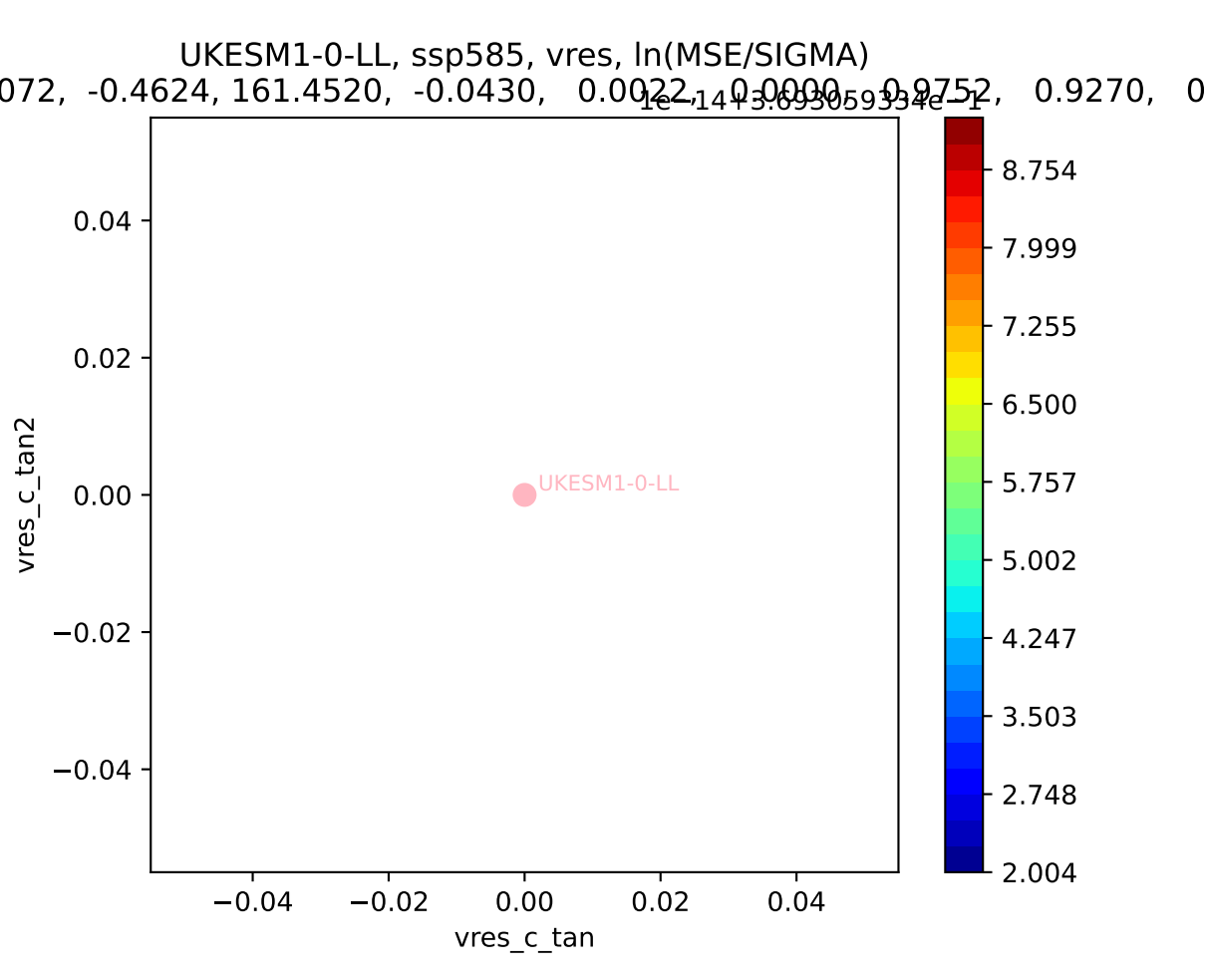
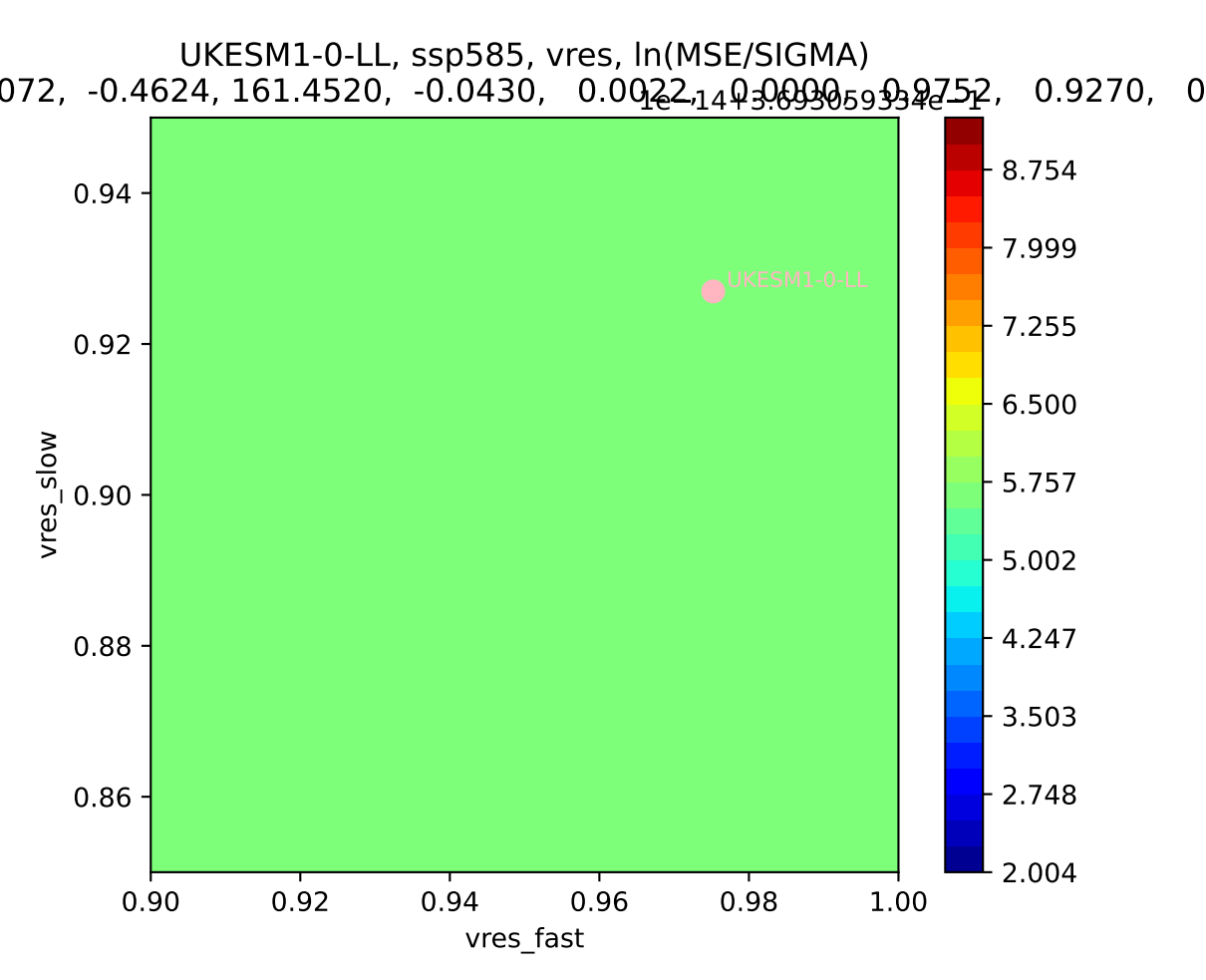
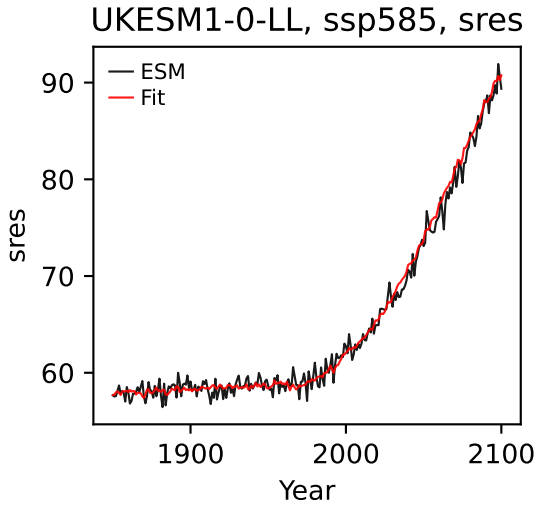
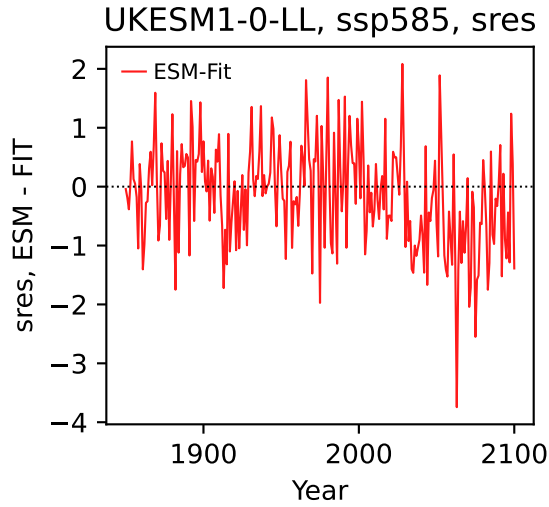
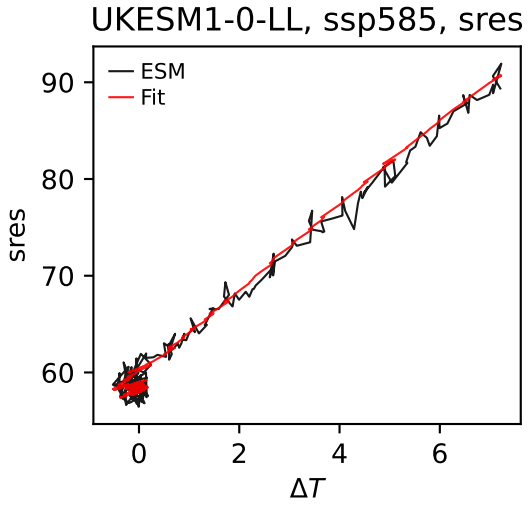
3.75
2.75
1.75

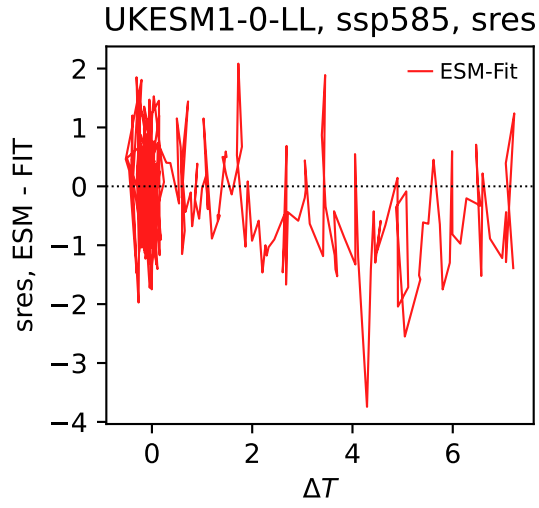

UKESM1-0-LL, ssp585, vres, ln(MSE/SIGMA)
072, -0.4624, 161.4520, -0.0430, 0.0022, 0.0000, 0.9752, 0.9270, 0
1e−14+3.693059334e−1
UKESM1-0-LL
vres_c_tan2
vres_c_tan
0.04
0.02
0.00
−0.02
−0.04
8.754
7.999
7.255
6.500
5.757
5.002
4.247
3.503
2.748
2.004

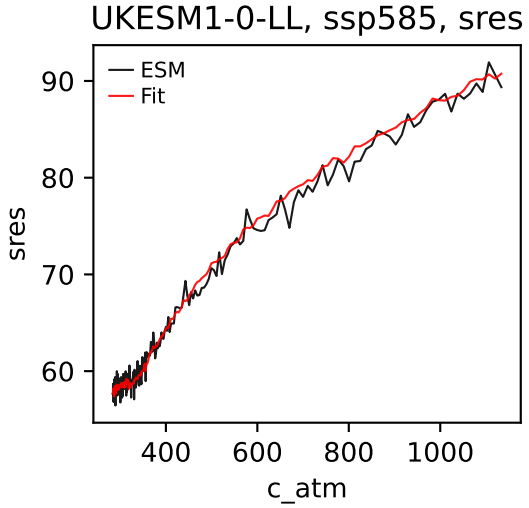

UKESM1-0-LL, ssp585, vres, ln(MSE/SIGMA)
072, -0.4624, 161.4520, -0.0430, 0.0022, 0.0000, 0.9752, 0.9270, 0
1e−14+3.693059334e−1
UKESM1-0-LL
0.94
0.92
0.90
0.88
0.86
vres_slow
0.90
0.92
0.94
0.96
0.98
1.00
vres_fast
8.754
7.999
7.255
6.500
5.757
5.002
4.247
3.503
2.748
2.004

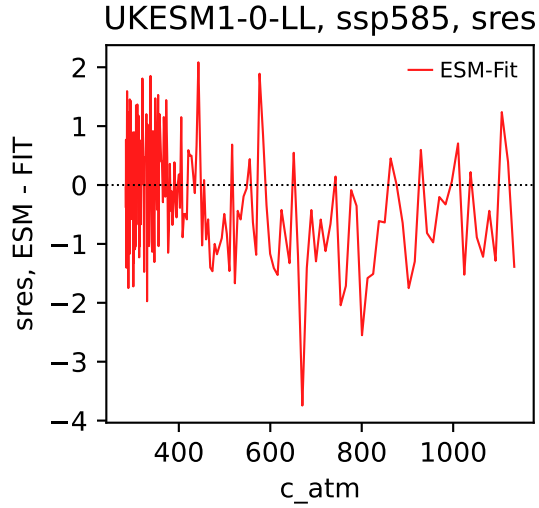

UKESM1-0-LL, ssp585, sres
ESM
Fit
sres
Year

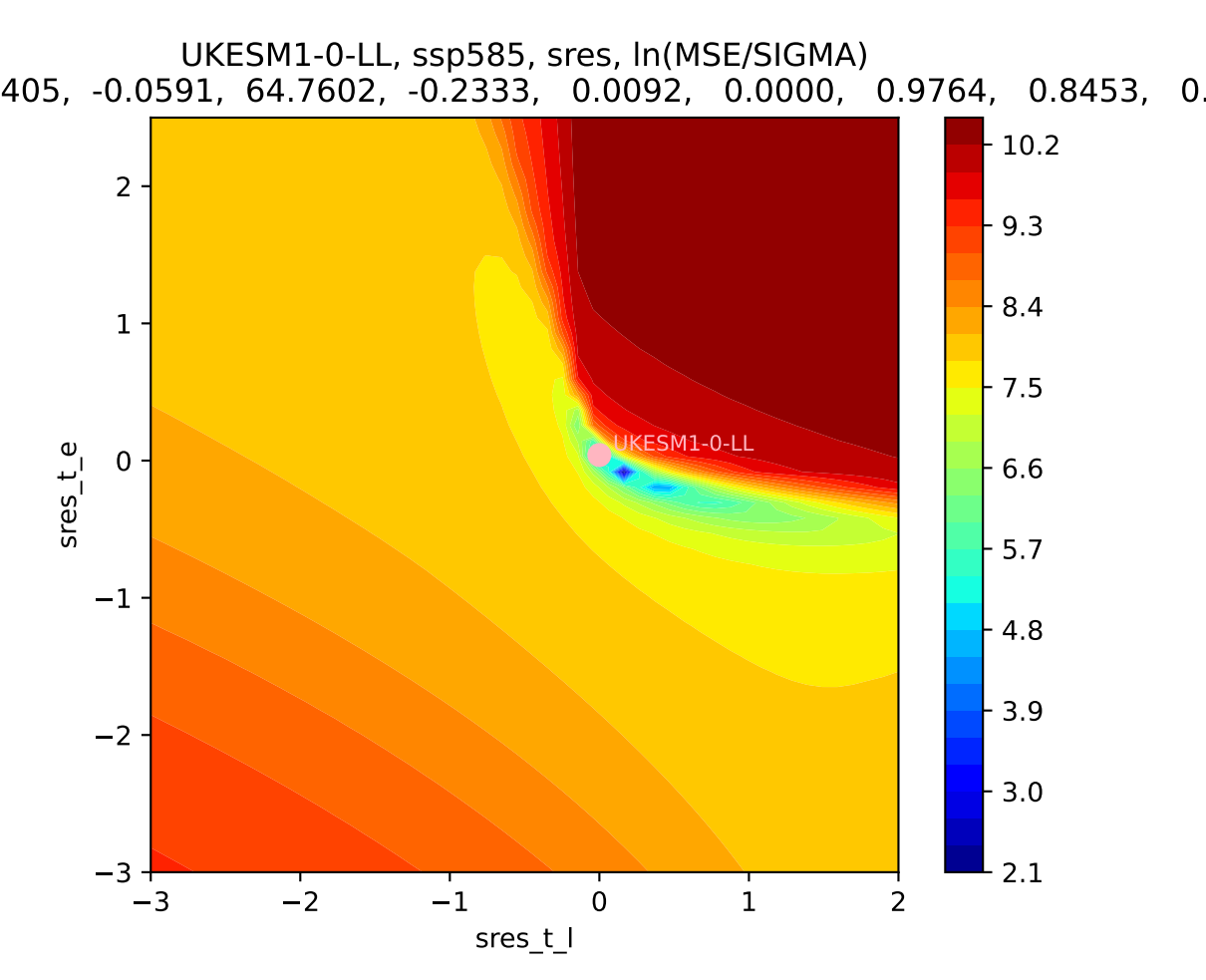

UKESM1-0-LL, ssp585, sres
ESM-Fit
sres, ESM - FIT
Year

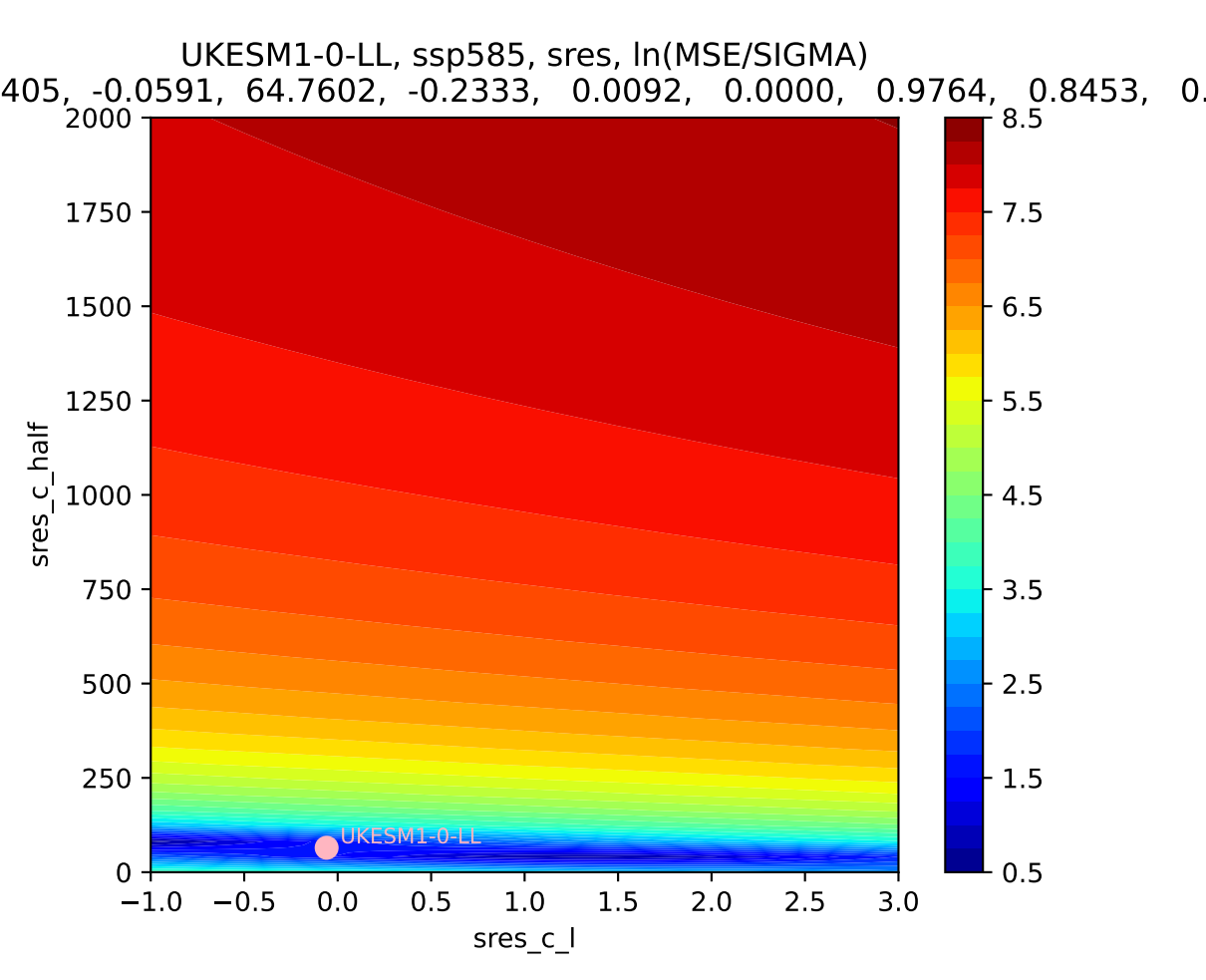

UKESM1-0-LL, ssp585, sres
ESM
Fit
sres
ΔT

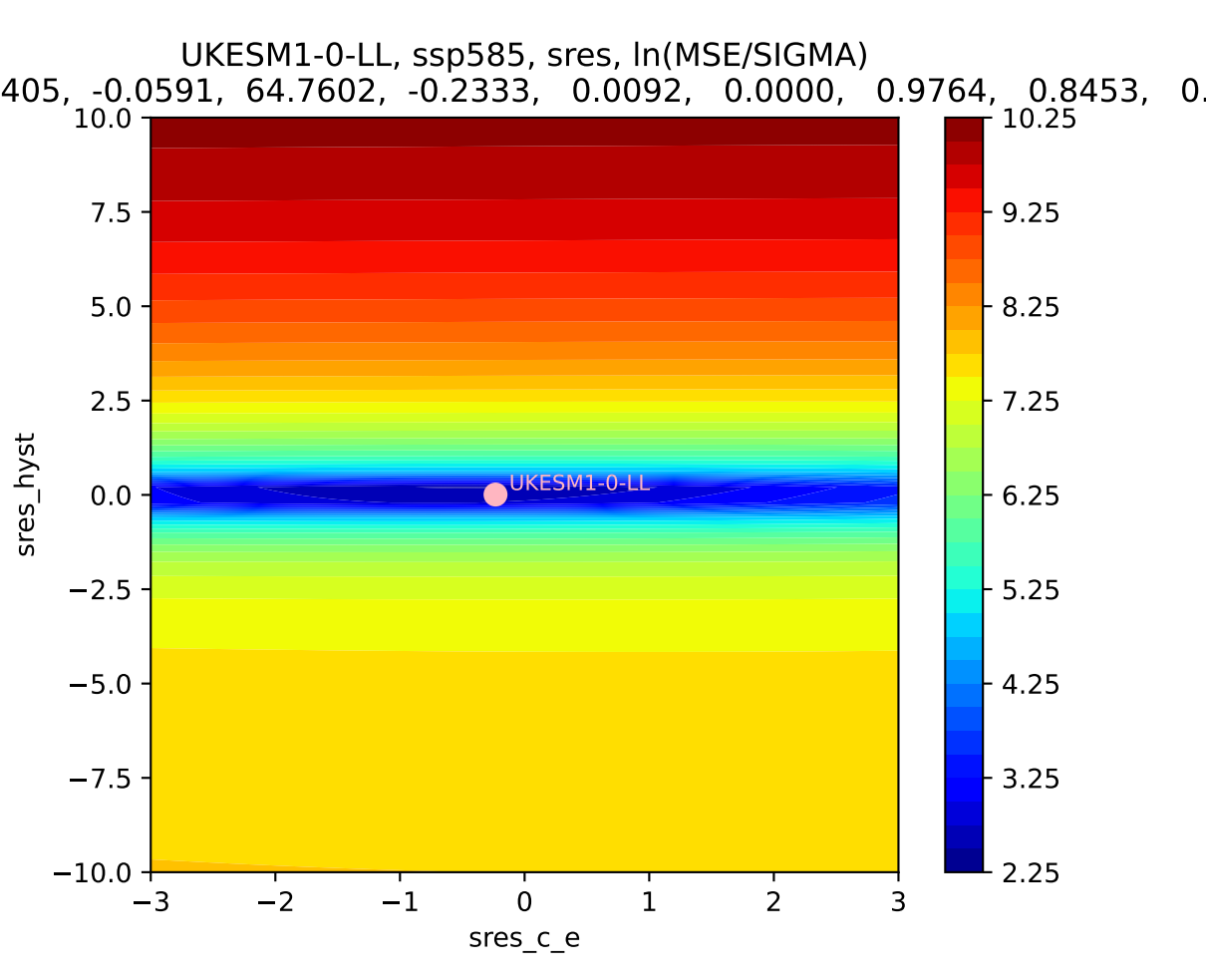

UKESM1-0-LL, ssp585, sres
ESM-Fit
sres, ESM - FIT
ΔT

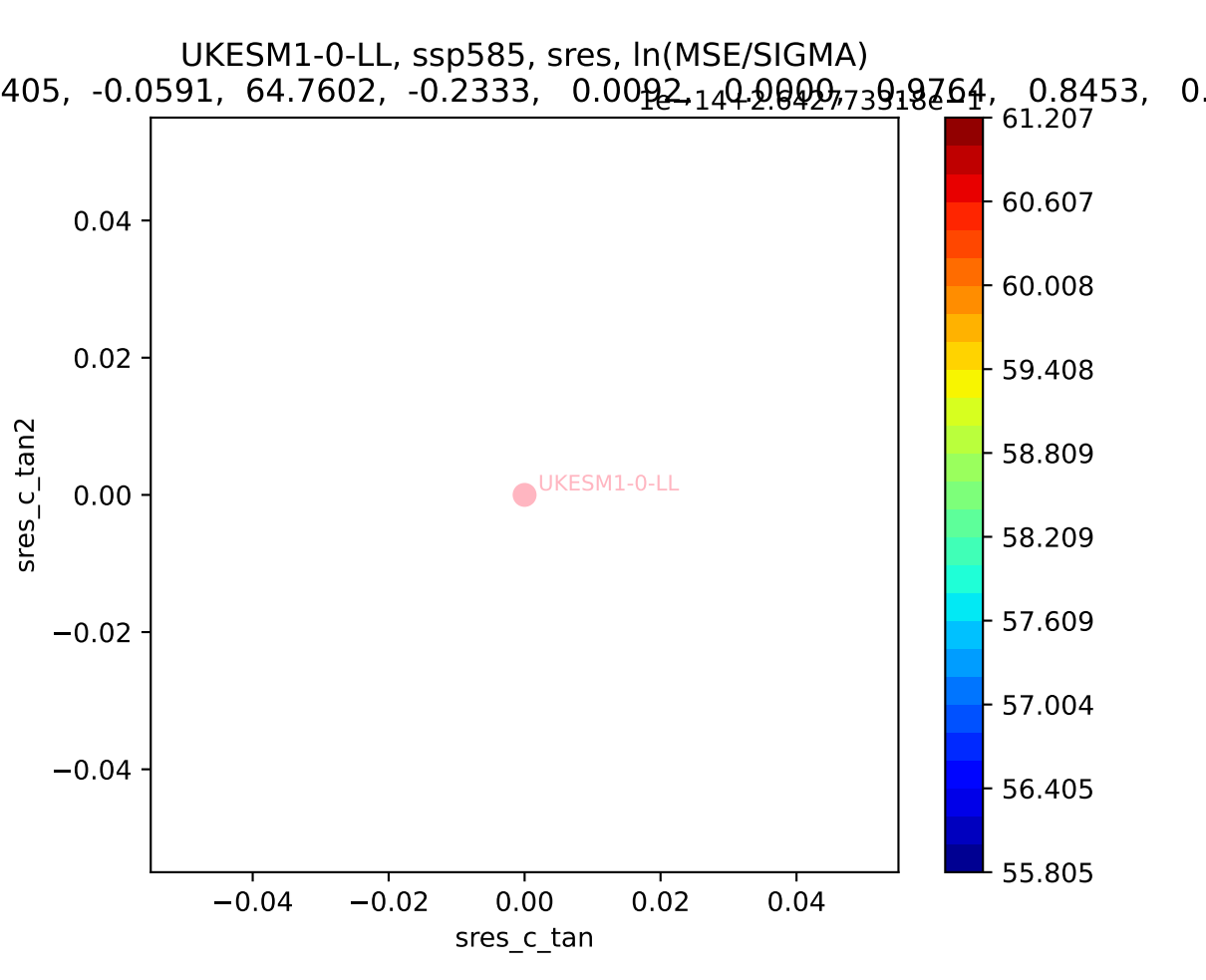

UKESM1-0-LL, ssp585, sres
ESM
Fit
sres
c_atm

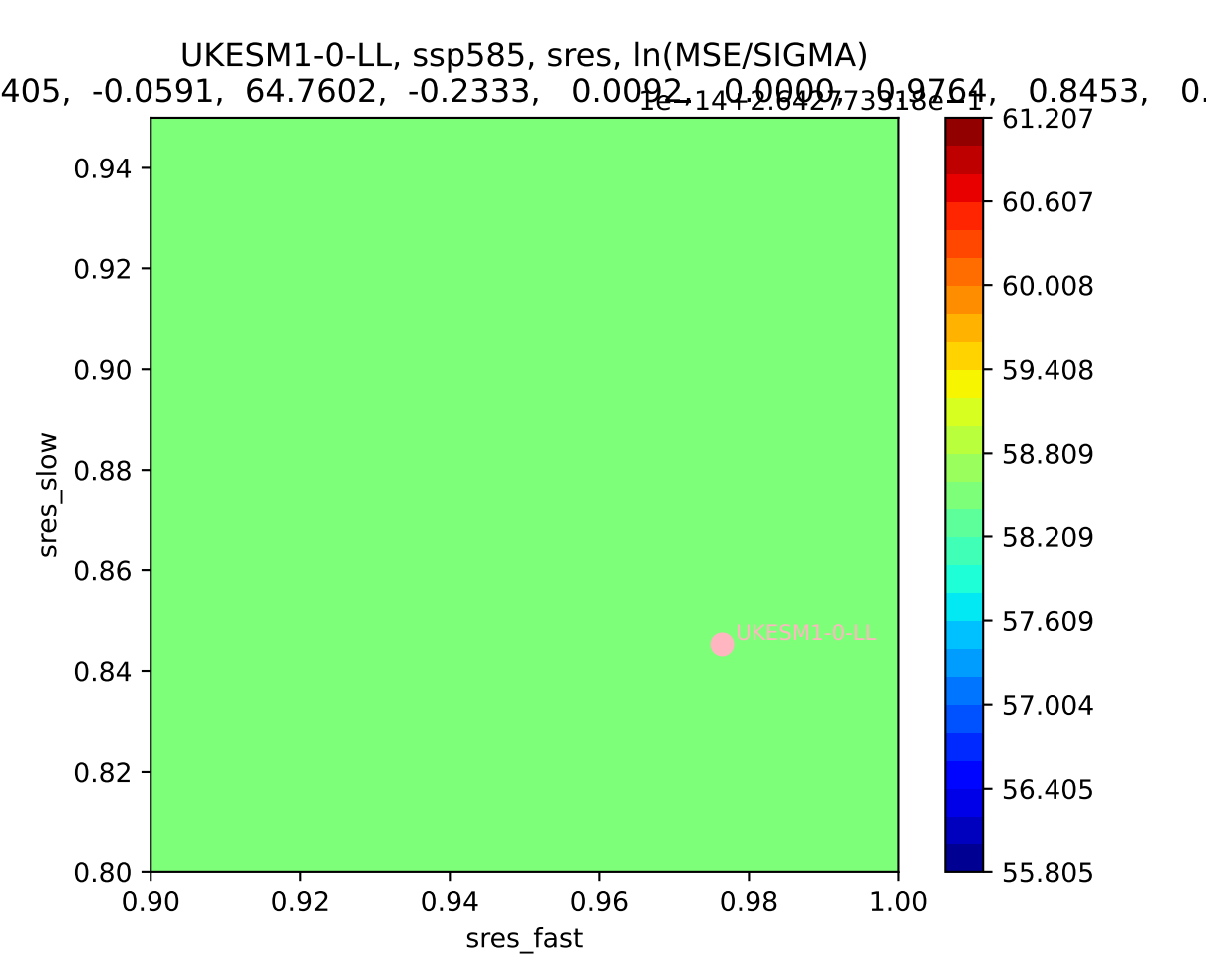

UKESM1-0-LL, ssp585, sres
ESM-Fit
sres, ESM - FIT
c_atm

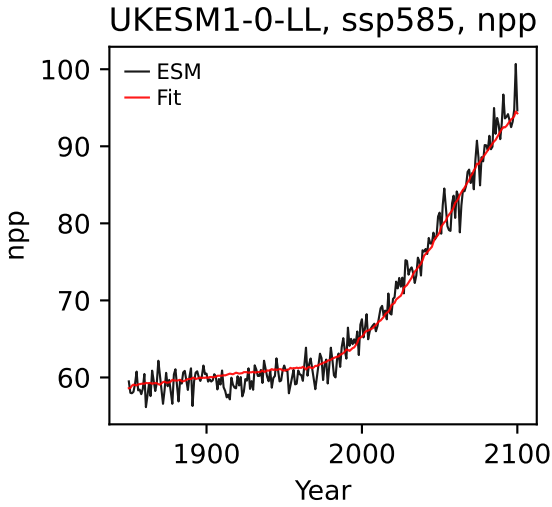

UKESM1-0-LL, ssp585, sres, ln(MSE/SIGMA)
405, -0.0591, 64.7602, -0.2333, 0.0092, 0.0000, 0.9764, 0.8453, 0.
UKESM1-0-LL
sres_t_e
sres_t_l
−3
−2
−1
0
1
2
10.2
9.3
8.4
7.5
6.6
5.7
4.8
3.9
3.0
2.1

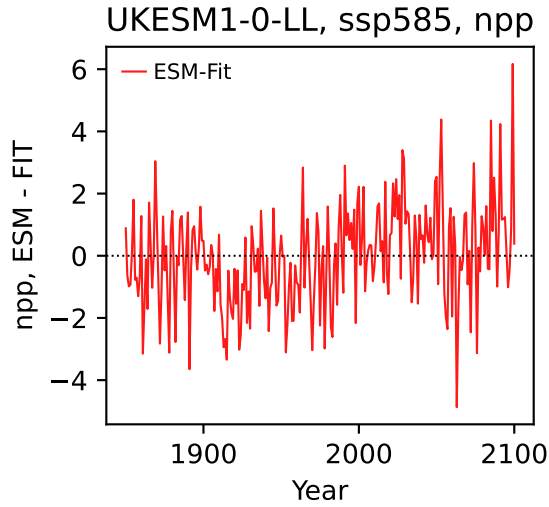

UKESM1-0-LL, ssp585, sres, ln(MSE/SIGMA)
405, -0.0591, 64.7602, -0.2333, 0.0092, 0.0000, 0.9764, 0.8453, 0.
sres_c_half
sres_c_l
UKESM1-0-LL
2000
1750
1500
1250
1000
750
500
250
0
−1.0
−0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
8.5
7.5
6.5
5.5
4.5
3.5
2.5
1.5
0.5

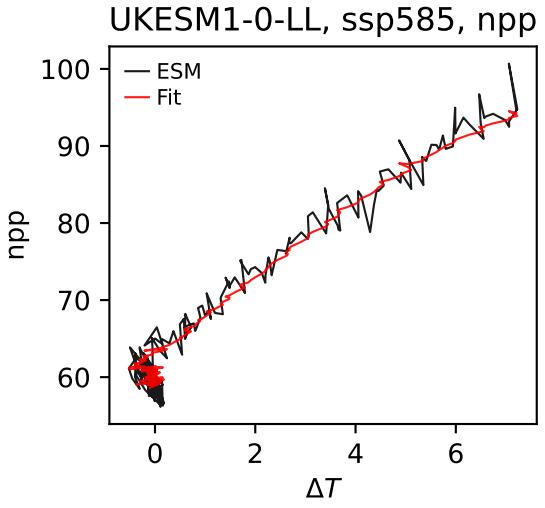

UKESM1-0-LL, ssp585, sres, ln(MSE/SIGMA)
405, -0.0591, 64.7602, -0.2333, 0.0092, 0.0000, 0.9764, 0.8453, 0.
UKESM1-0-LL
sres_hyst
sres_c_e
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
−3
−2
−1
0
1
2
3
10.25
9.25
8.25
7.25
6.25
5.25
4.25
3.25
2.25

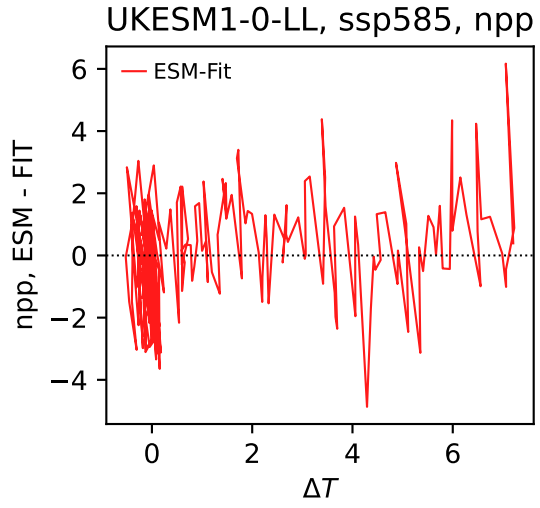

UKESM1-0-LL, ssp585, sres, ln(MSE/SIGMA)
405, -0.0591, 64.7602, -0.2333, 0.0092, 0.0000, 0.9764, 0.8453, 0.
1e−14 +2.642773518e−1
61.207
60.607
60.008
59.408
58.809
58.209
57.609
57.004
56.405
55.805
0.04
0.02
0.00
−0.02
−0.04
sres_c_tan2
UKESM1-0-LL
−0.04
−0.02
0.00
0.02
0.04
sres_c_tan

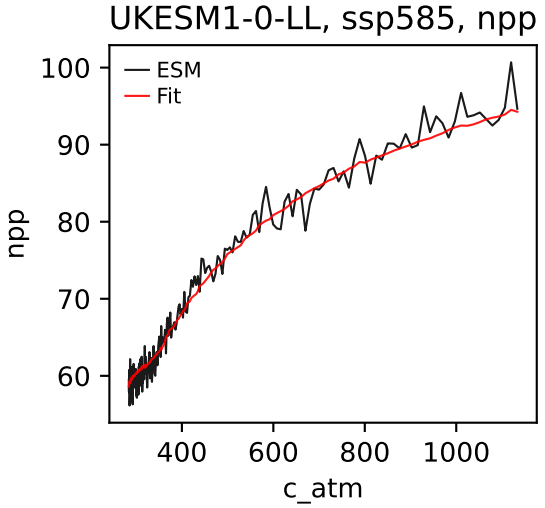

UKESM1-0-LL, ssp585, sres, ln(MSE/SIGMA)
405, -0.0591, 64.7602, -0.2333, 0.0092, 0.0000, 0.9764, 0.8453, 0.
1e−14 +2.642773518e−1
61.207
60.607
60.008
59.408
58.809
58.209
57.609
57.004
56.405
55.805
0.94
0.92
0.90
0.88
0.86
0.84
0.82
0.80
sres_slow
UKESM1-0-LL
0.90
0.92
0.94
0.96
0.98
1.00
sres_fast

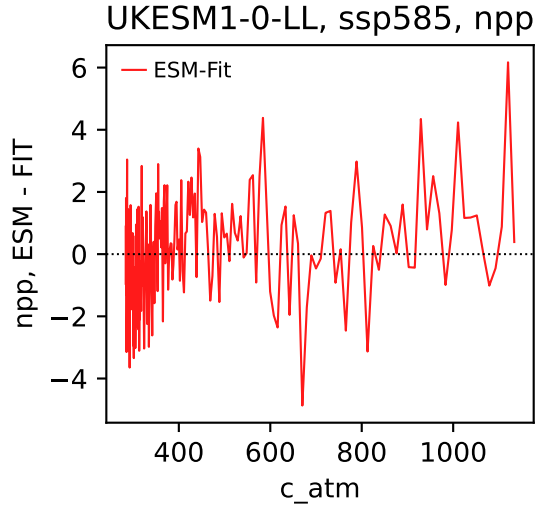

UKESM1-0-LL, ssp585, npp
ESM
Fit
npp
Year

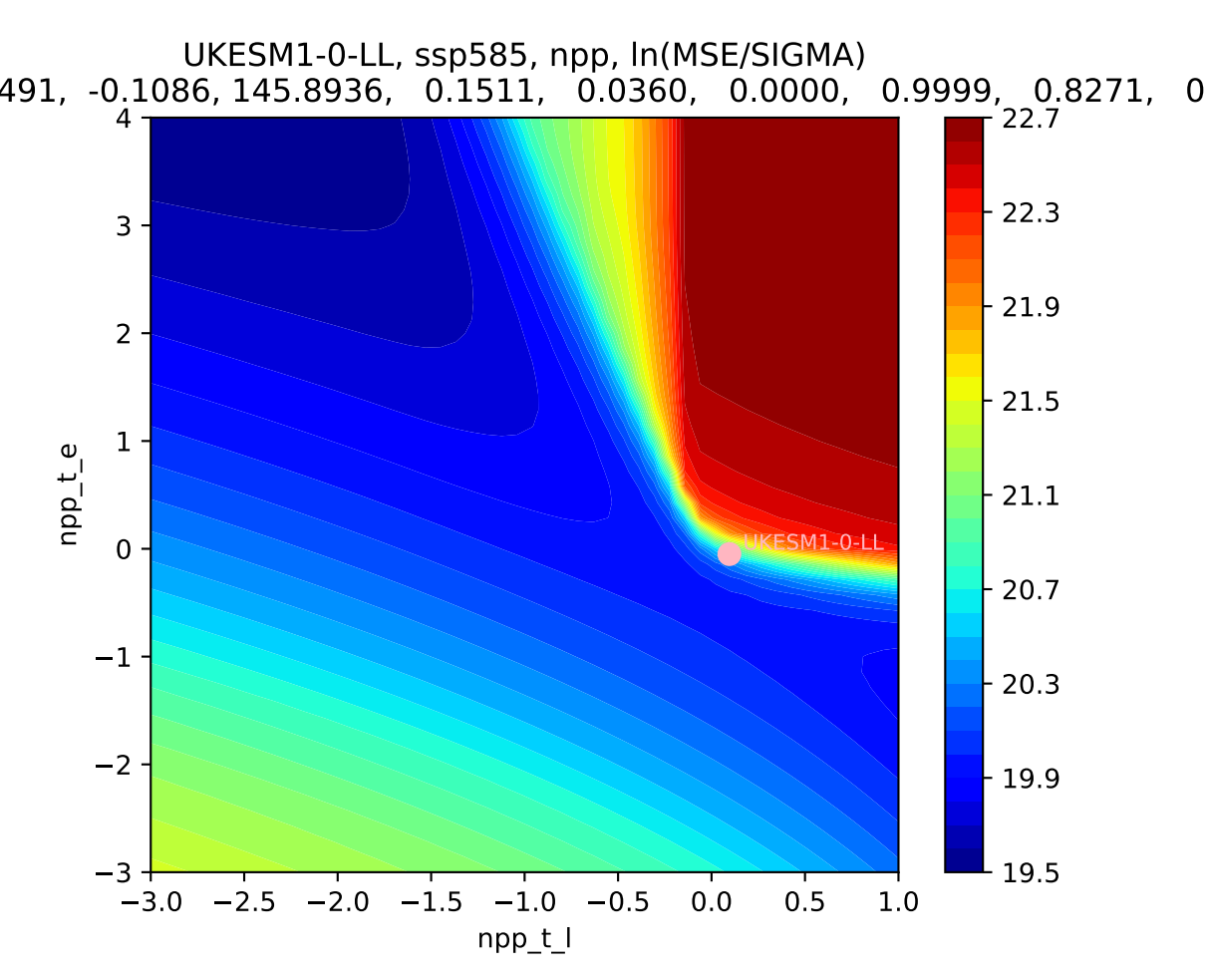

UKESM1-0-LL, ssp585, npp
ESM-Fit
npp, ESM - FIT
Year

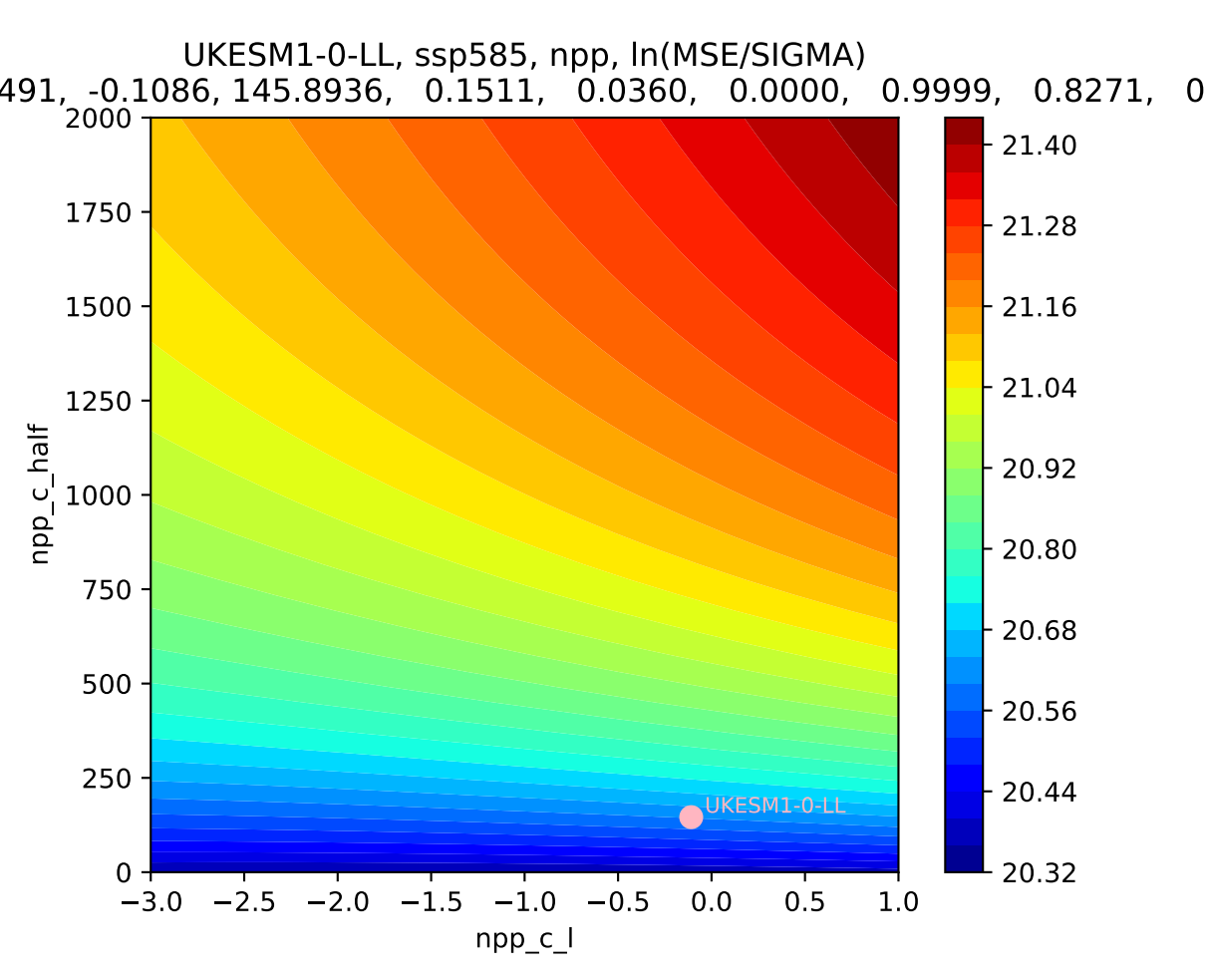

UKESM1-0-LL, ssp585, npp
ESM
Fit
npp
ΔT

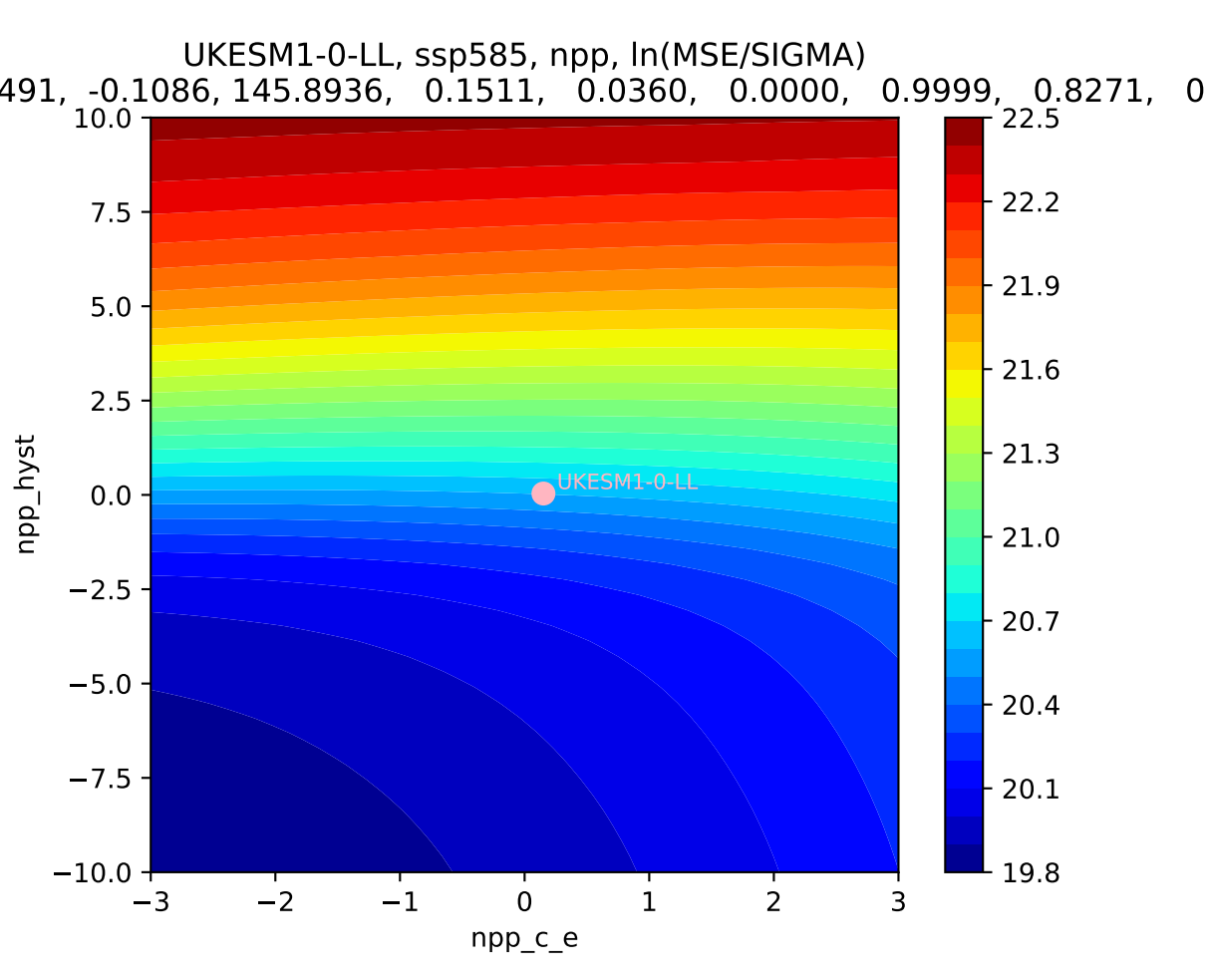

UKESM1-0-LL, ssp585, npp
ESM-Fit
npp, ESM - FIT
ΔT

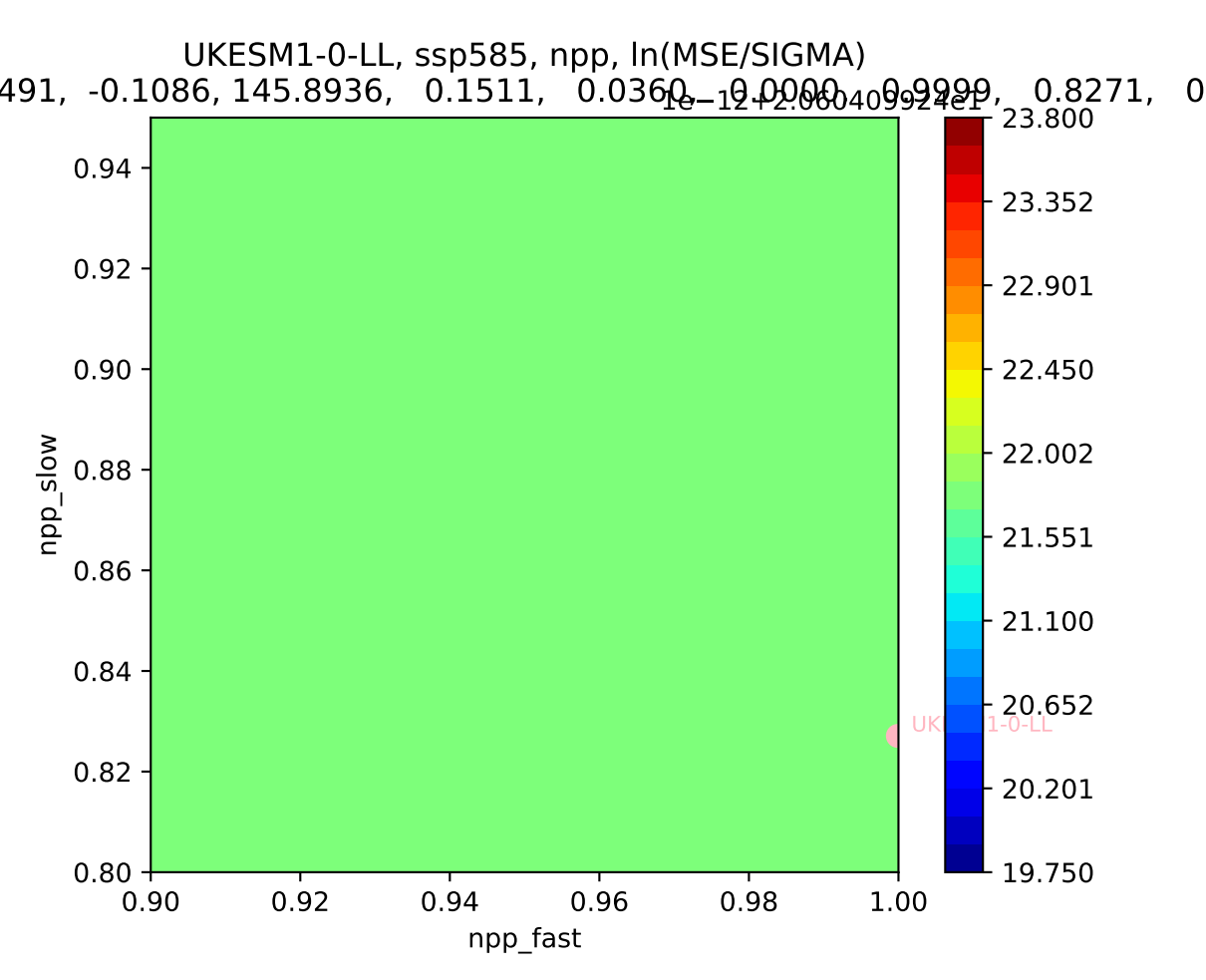

UKESM1-0-LL, ssp585, npp
ESM
Fit
npp
c_atm

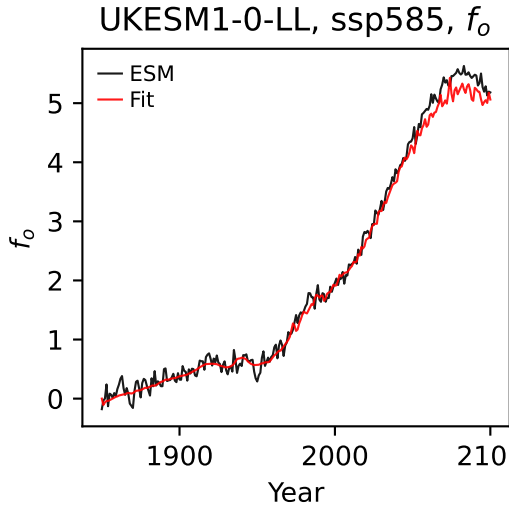

UKESM1-0-LL, ssp585, npp
ESM-Fit
npp, ESM - FIT
c_atm

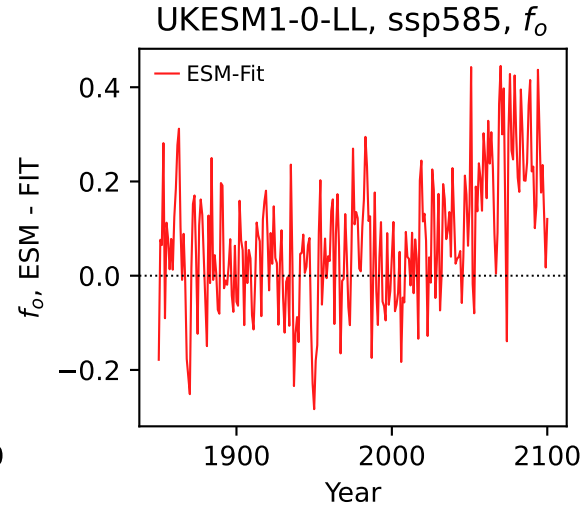

UKESM1-0-LL, ssp585, npp, ln(MSE/SIGMA)
491, -0.1086, 145.8936, 0.1511, 0.0360, 0.0000, 0.9999, 0.8271, 0
UKESM1-0-LL
npp_t_e
npp_t_l
4
3
2
1
0
−1
−2
−3
−3.0
−2.5
−2.0
−1.5
−1.0
−0.5
0.0
0.5
1.0
22.7
22.3
21.9
21.5
21.1
20.7
20.3
19.9
19.5

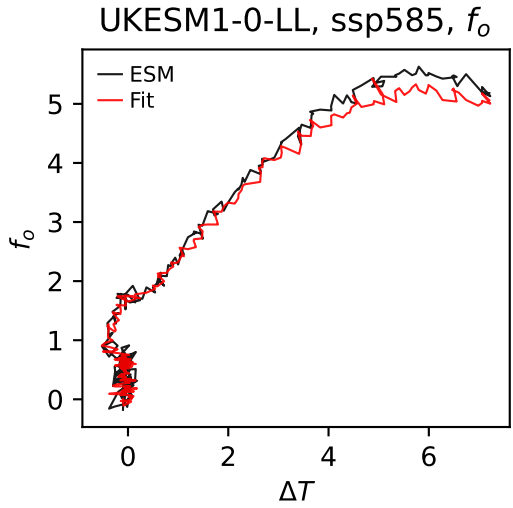

UKESM1-0-LL, ssp585, npp, ln(MSE/SIGMA)
491, -0.1086, 145.8936, 0.1511, 0.0360, 0.0000, 0.9999, 0.8271, 0
npp_c_half
npp_c_l
UKESM1-0-LL
2000
1750
1500
1250
1000
750
500
250
0
−3.0
−2.5
−2.0
−1.5
−1.0
−0.5
0.0
0.5
1.0
21.40
21.28
21.16
21.04
20.92
20.80
20.68
20.56
20.44
20.32

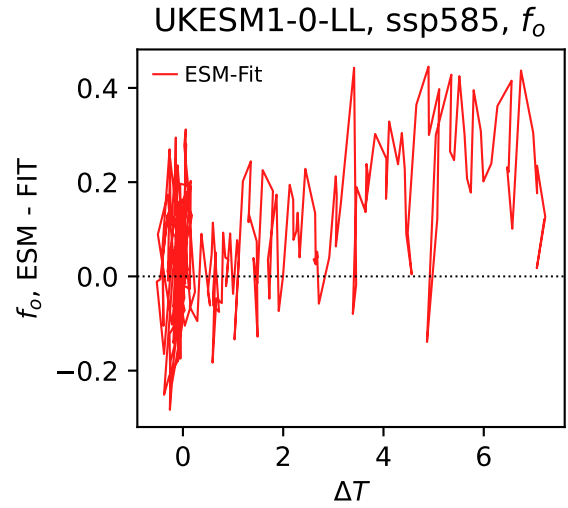

UKESM1-0-LL, ssp585, npp, ln(MSE/SIGMA)
491, -0.1086, 145.8936, 0.1511, 0.0360, 0.0000, 0.9999, 0.8271, 0
UKESM1-0-LL
npp_hyst
npp_c_e
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
−3
−2
−1
0
1
2
3
22.5
22.2
21.9
21.6
21.3
21.0
20.7
20.4
20.1
19.8

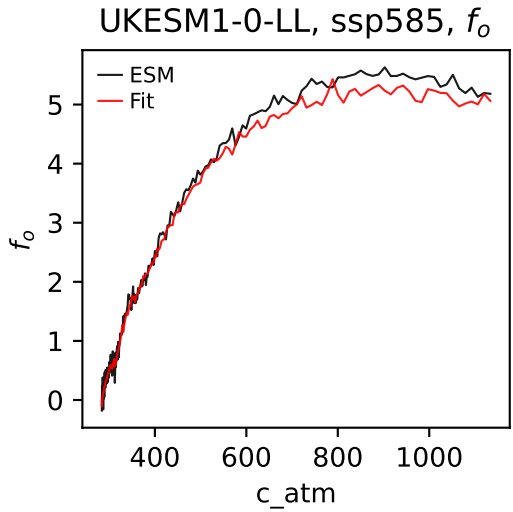

UKESM1-0-LL, ssp585, npp, ln(MSE/SIGMA)
491, -0.1086, 145.8936, 0.1511, 0.0360, 0.0000, 0.9999, 0.8271, 0
1e−12+2.9604099e1
23.800
23.352
22.901
22.450
22.002
21.551
21.100
20.652
20.201
19.750
0.94
0.92
0.90
0.88
0.86
0.84
0.82
0.80
npp_slow
0.90
0.92
0.94
0.96
0.98
1.00
npp_fast

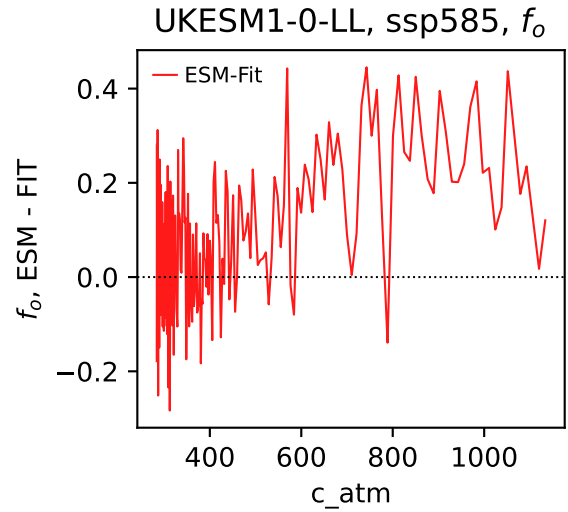

UKESM1-0-LL, ssp585, f_o
ESM
Fit
f_o
Year

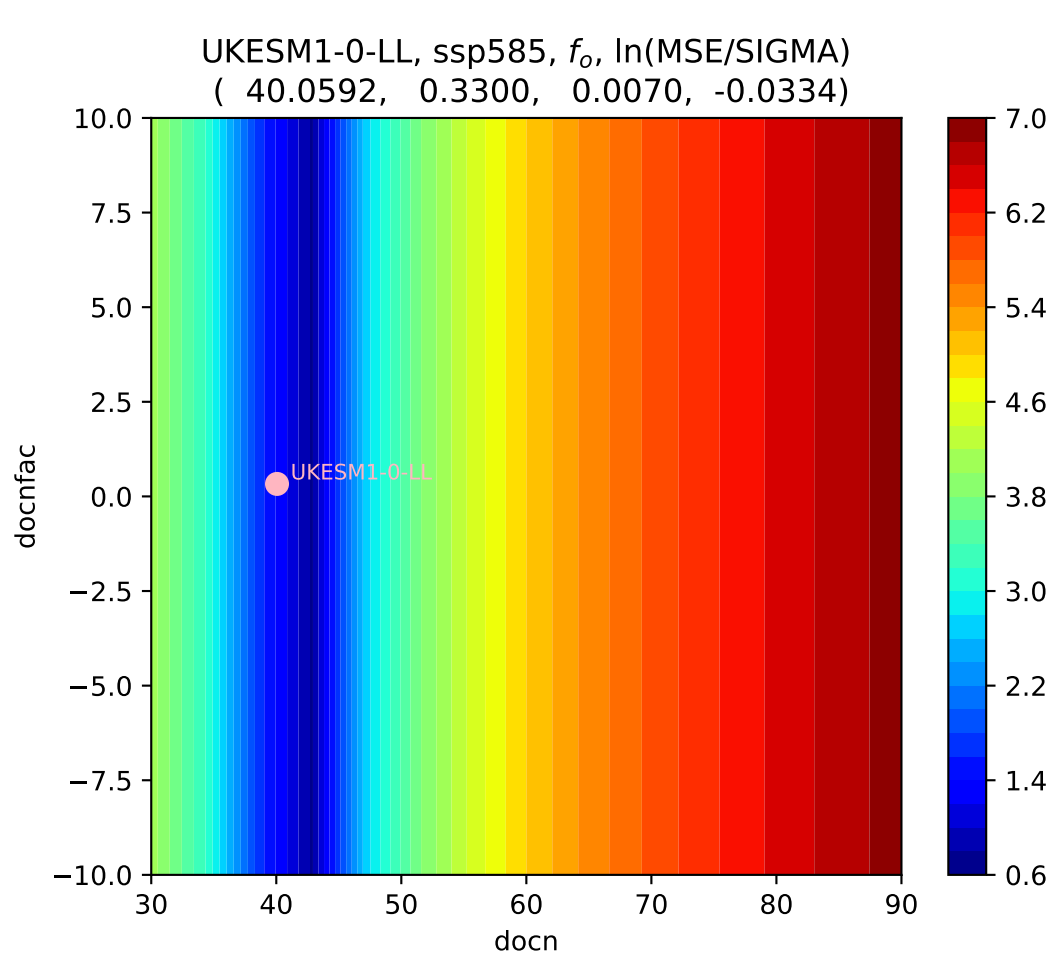

UKESM1-0-LL, ssp585, f_o
ESM-Fit
f_o, ESM - FIT
Year

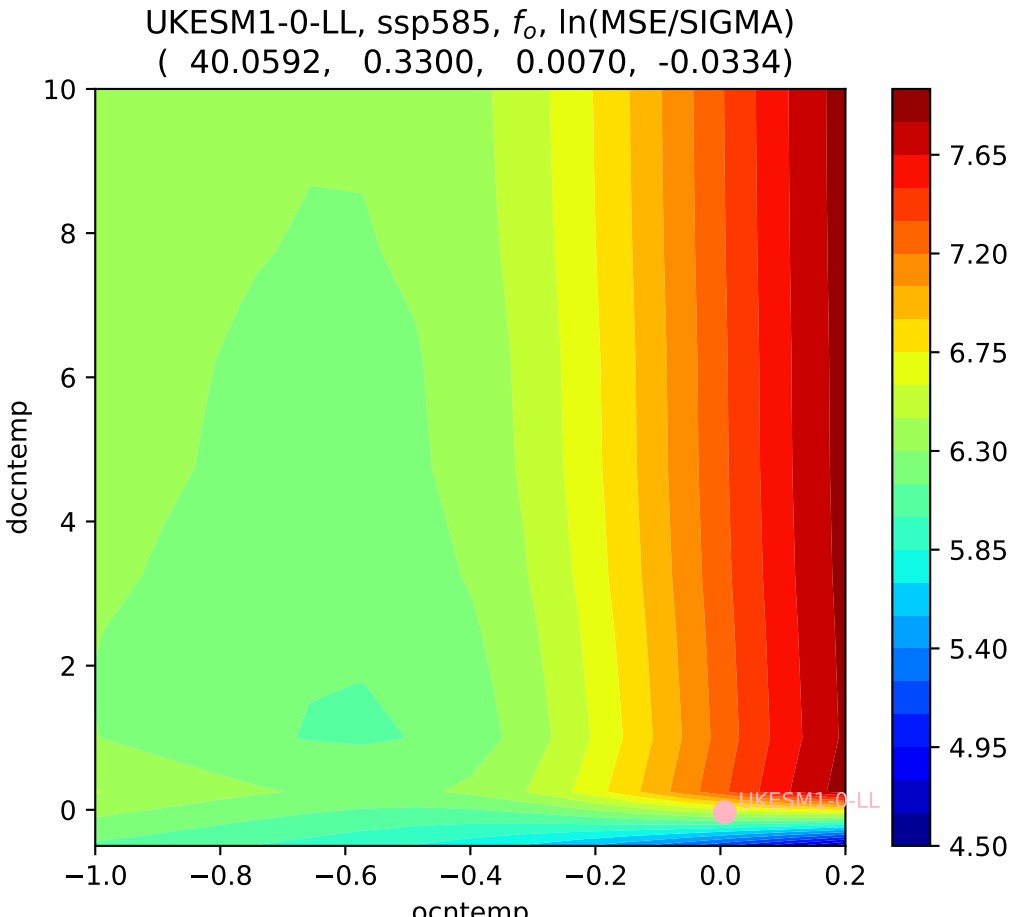

UKESM1-0-LL, ssp585, f_o
ESM
Fit
f_o
ΔT


UKESM1-0-LL, ssp585, f_o
ESM-Fit
f_o, ESM - FIT
ΔT


UKESM1-0-LL, ssp585, f_o
ESM
Fit
f_o
c_atm


UKESM1-0-LL, ssp585, f_o
ESM-Fit
f_o, ESM - FIT
c_atm


UKESM1-0-LL, ssp585, f_o, ln(MSE/SIGMA)
(40.0592, 0.3300, 0.0070, -0.0334)
UKESM1-0-LL
docnfac
docn
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
30
40
50
60
70
80
90
7.0
6.2
5.4
4.6
3.8
3.0
2.2
1.4
0.6


UKESM1-0-LL, ssp585, f_o, ln(MSE/SIGMA)
(40.0592, 0.3300, 0.0070, -0.0334)
10
8
6
4
2
0
docntemp
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
0.2
ocntemp
UKESM1-0-LL
7.65
7.20
6.75
6.30
5.85
5.40
4.95
4.50