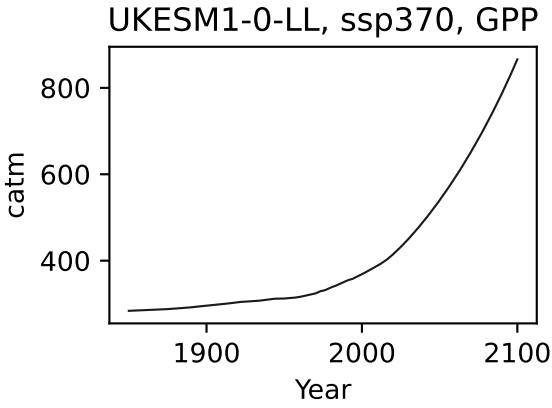
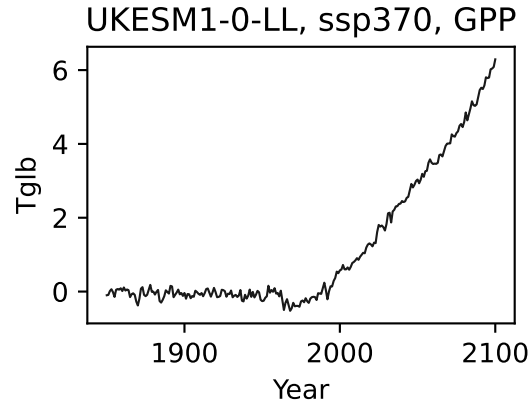
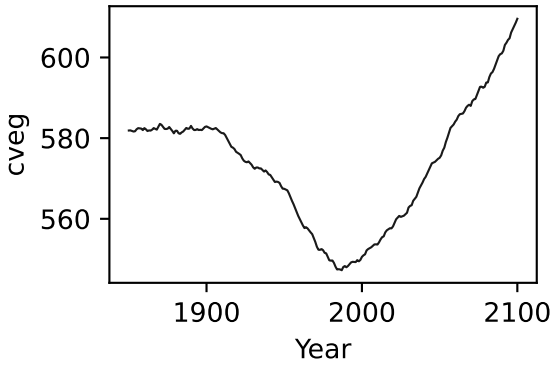
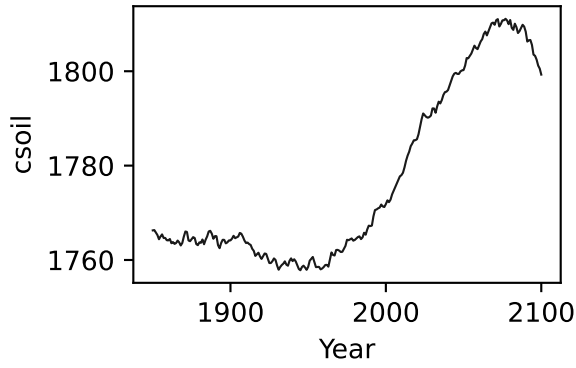
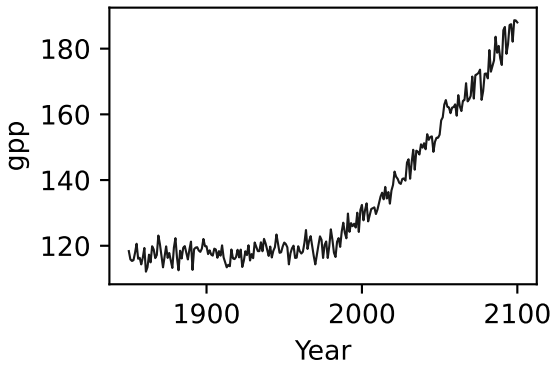
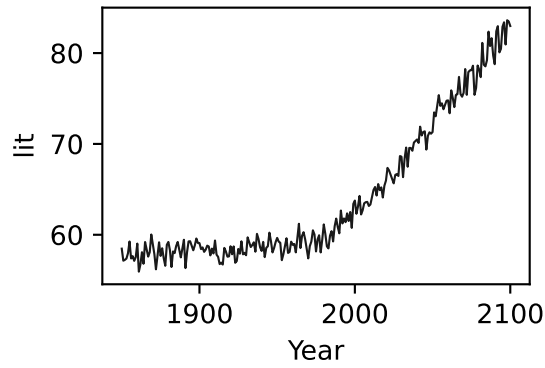

UKESM1-0-LL, ssp370, GPP
catm
800
600
400
1900
2000
2100
Year

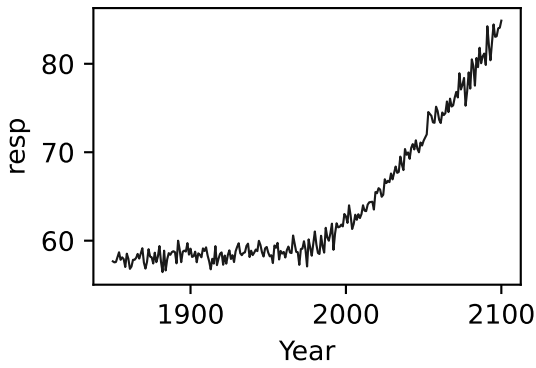

UKESM1-0-LL, ssp370, GPP
Tglb
6
4
2
0
1900
2000
2100
Year

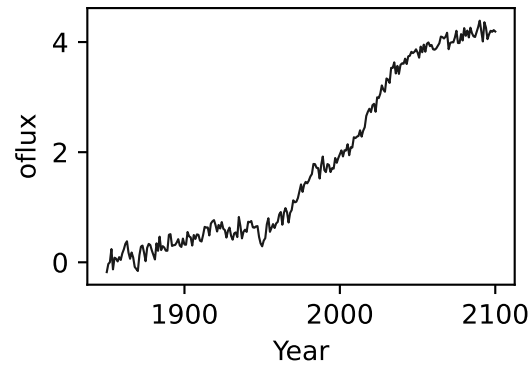

cveg
600
580
560
1900
2000
2100
Year

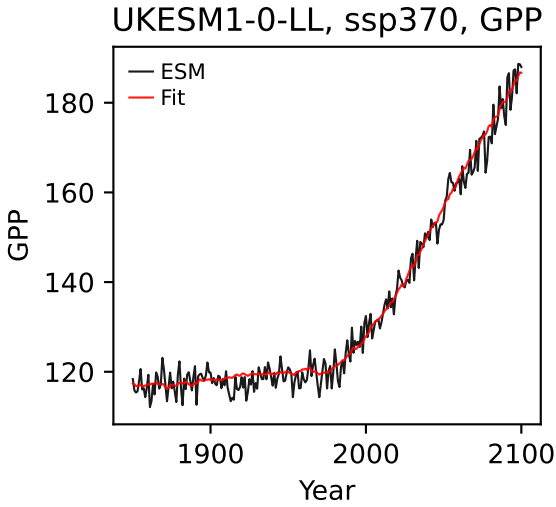

csoil
1800
1780
1760
1900
2000
2100
Year

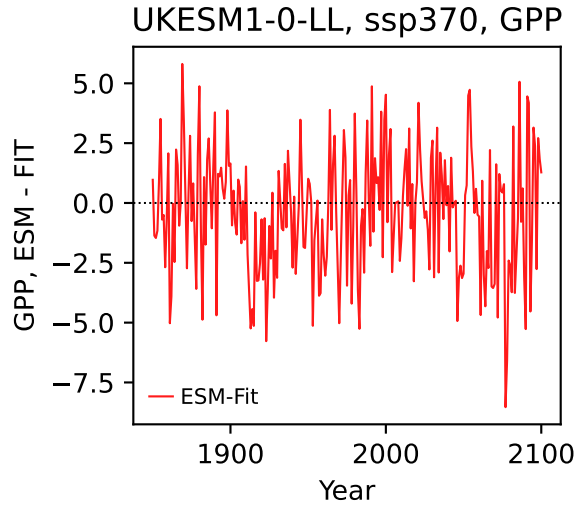

gpp
180
160
140
120
1900
2000
2100
Year

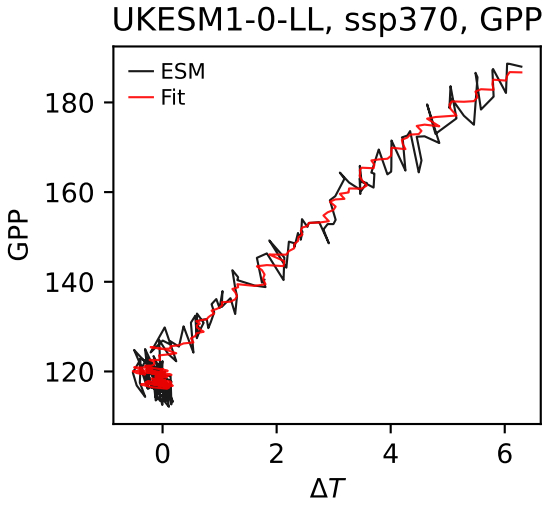

lit
80
70
60
1900
2000
2100
Year

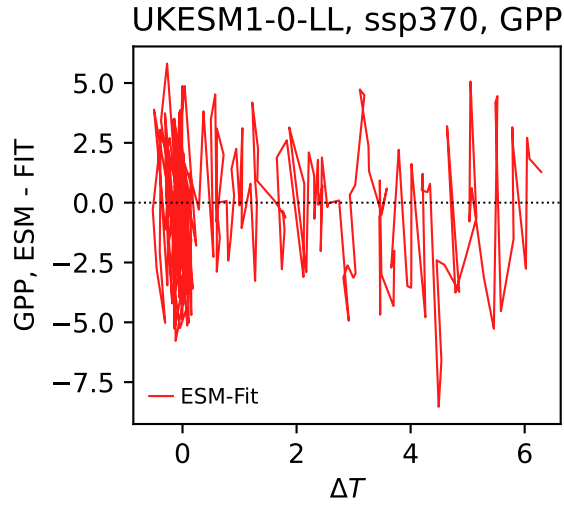

resp
80
70
60
1900
2000
2100
Year

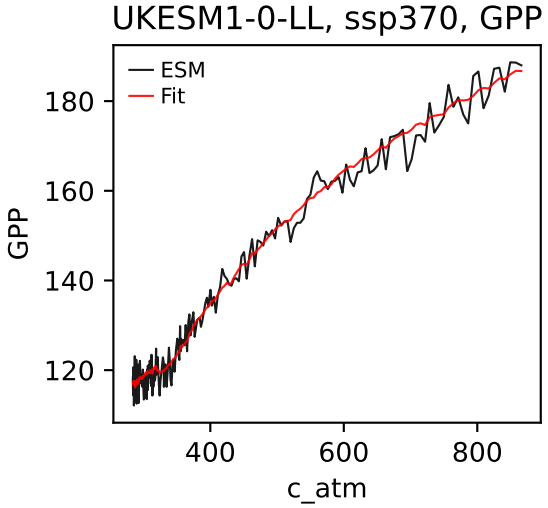

oflux
4
2
0
1900
2000
2100
Year

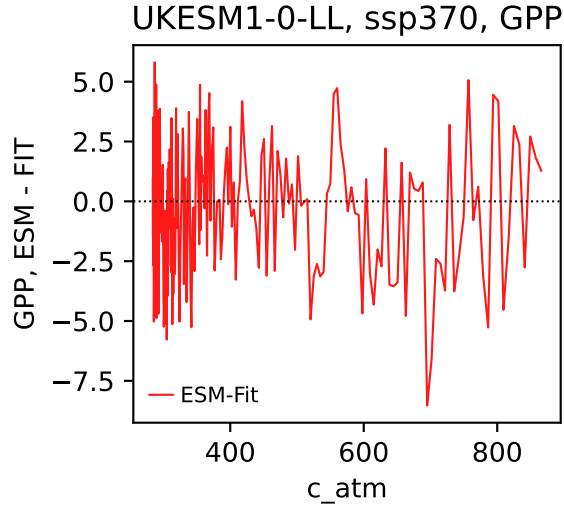

UKESM1-0-LL, ssp370, GPP
ESM
Fit
GPP
Year

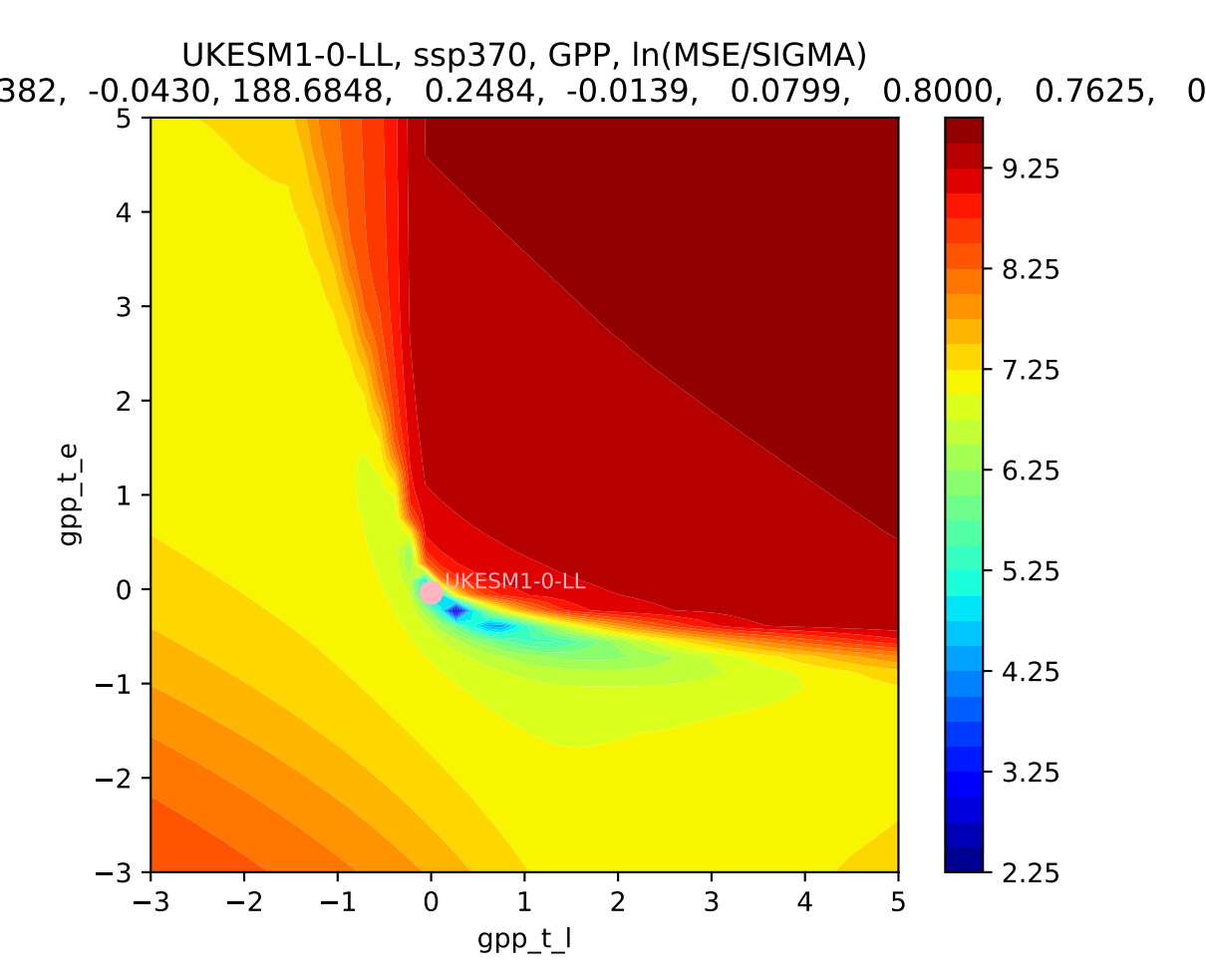

UKESM1-0-LL, ssp370, GPP
GPP, ESM - FIT
ESM-Fit
Year

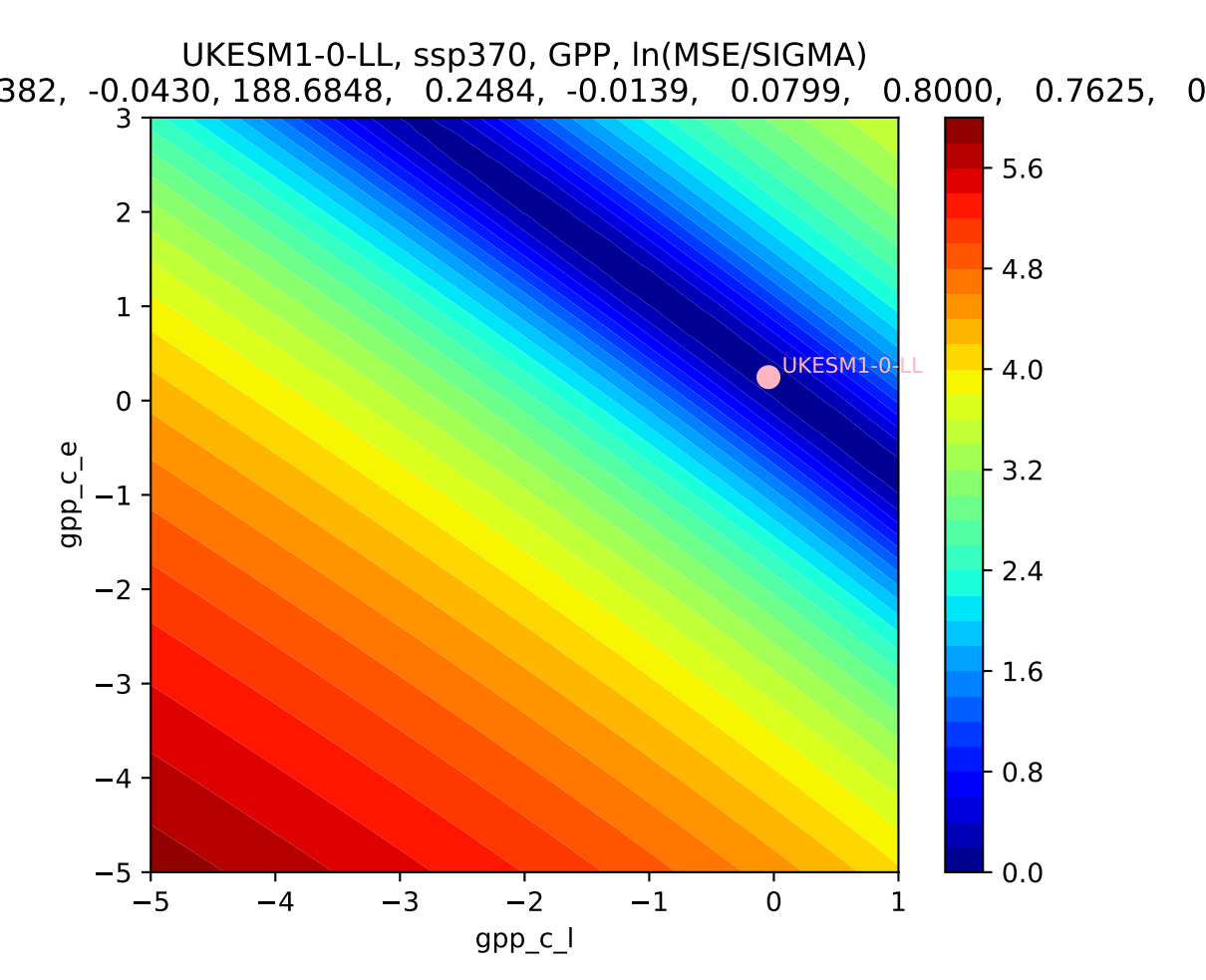

UKESM1-0-LL, ssp370, GPP
ESM
Fit
GPP
ΔT

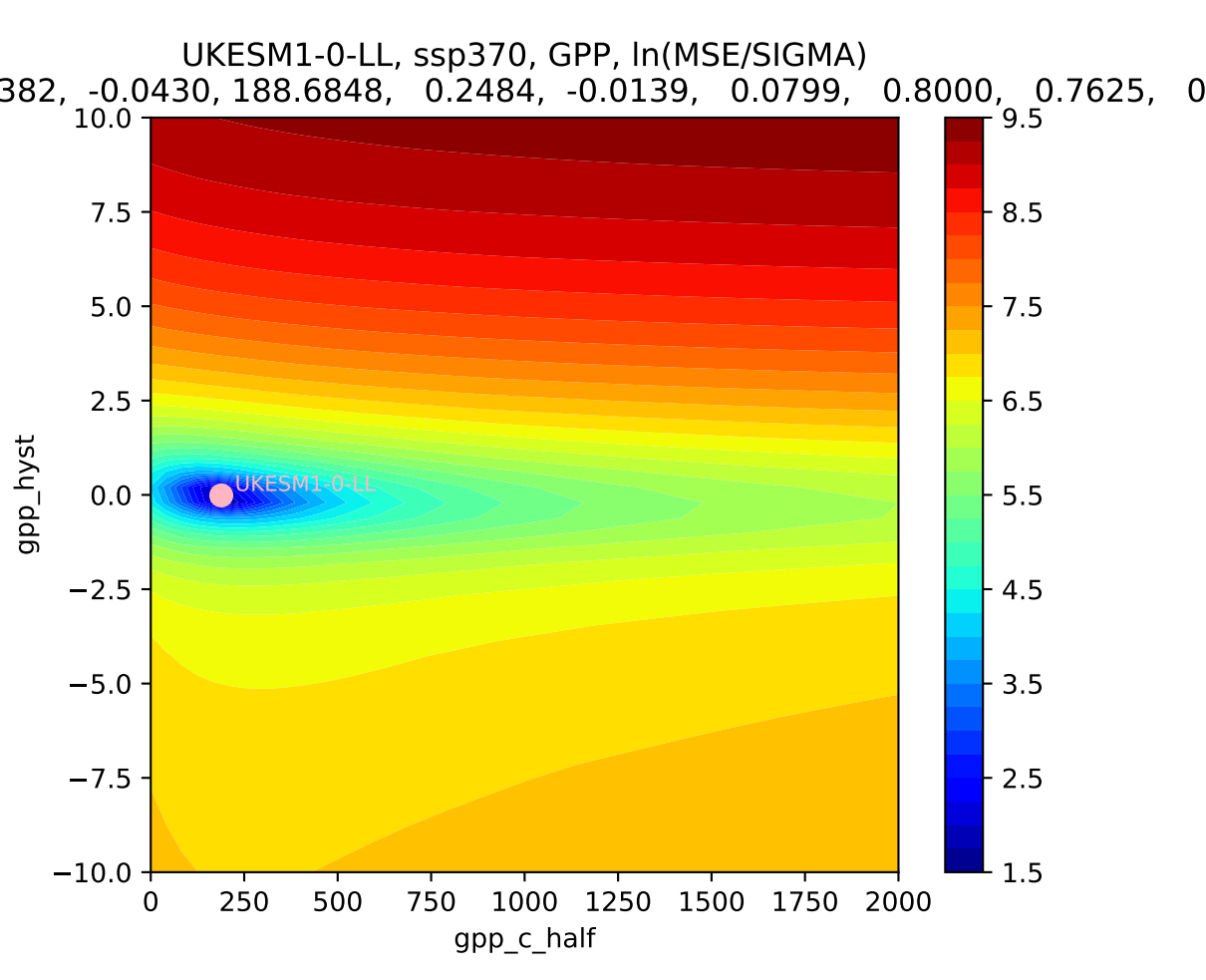

UKESM1-0-LL, ssp370, GPP
GPP, ESM - FIT
ESM-Fit
ΔT

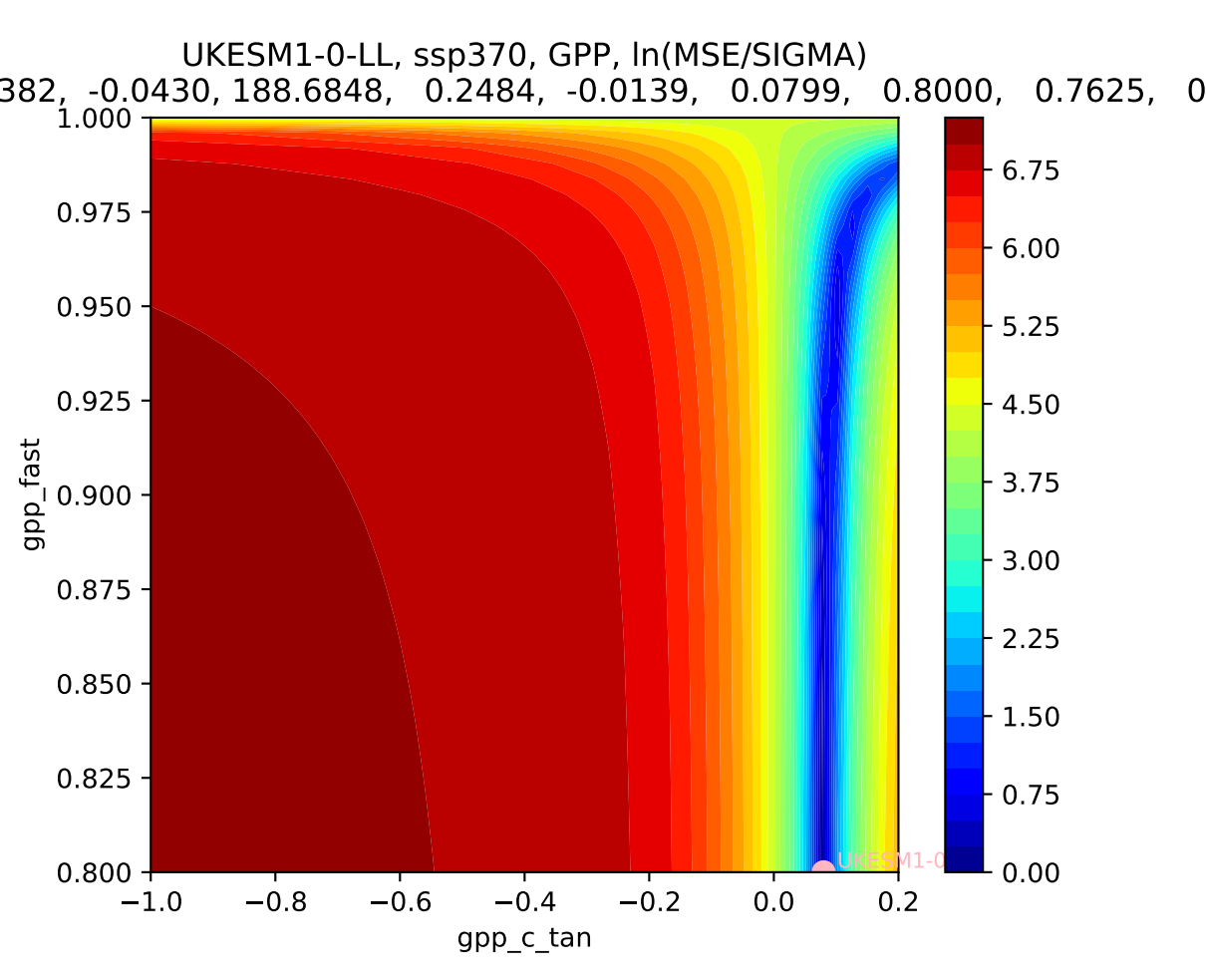

UKESM1-0-LL, ssp370, GPP
ESM
Fit
GPP
c_atm

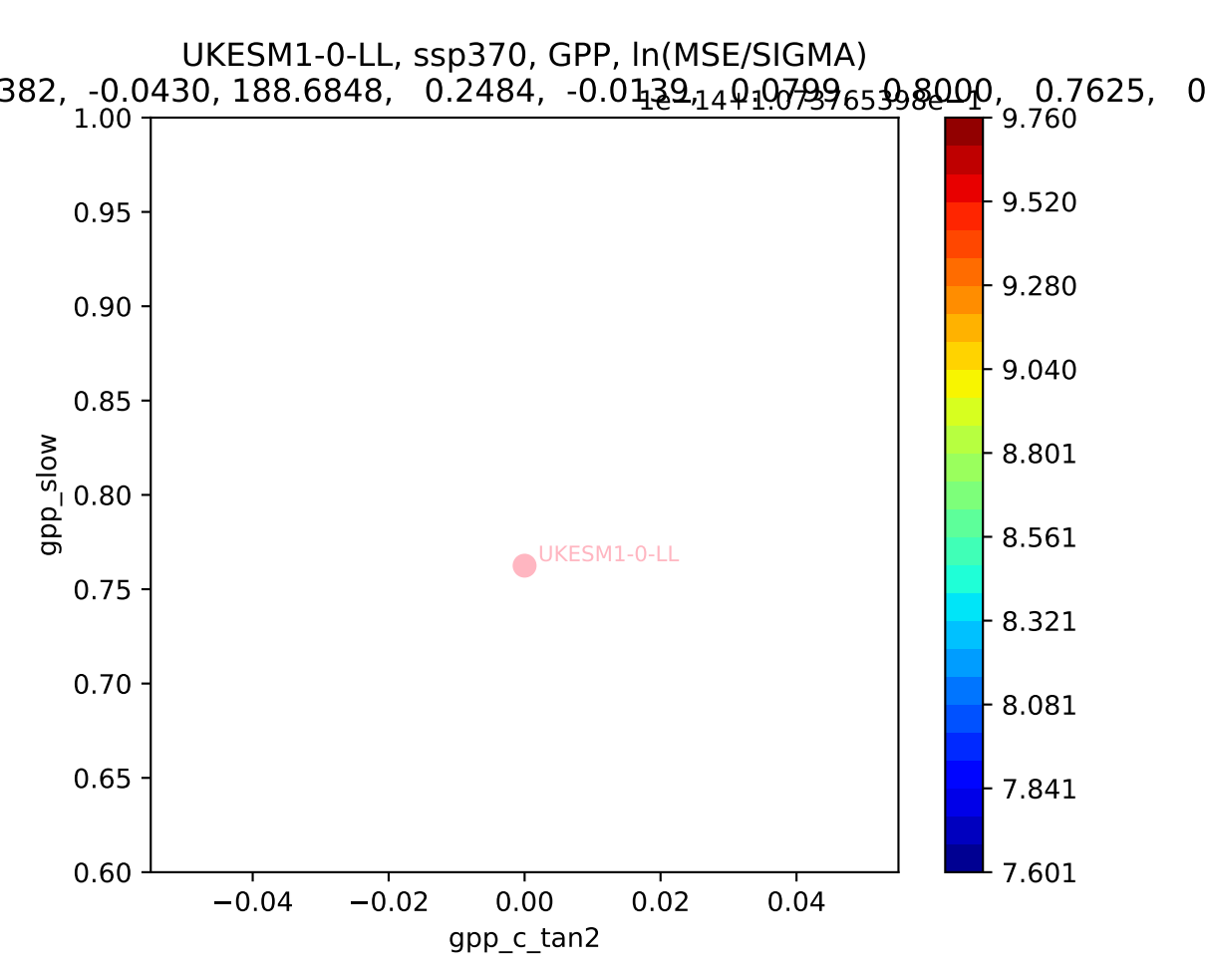

UKESM1-0-LL, ssp370, GPP
GPP, ESM - FIT
ESM-Fit
c_atm

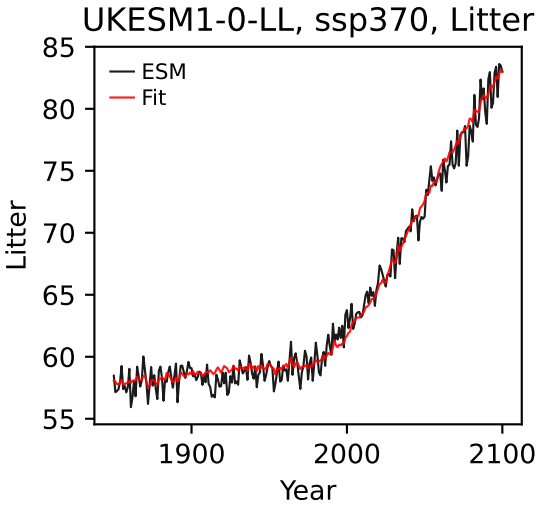

UKESM1-0-LL, ssp370, GPP, ln(MSE/SIGMA)
382, -0.0430, 188.6848, 0.2484, -0.0139, 0.0799, 0.8000, 0.7625, 0
UKESM1-0-LL
gpp_t_e
gpp_t_l
5
4
3
2
1
0
−1
−2
−3
−3
−2
−1
0
1
2
3
4
5
9.25
8.25
7.25
6.25
5.25
4.25
3.25
2.25

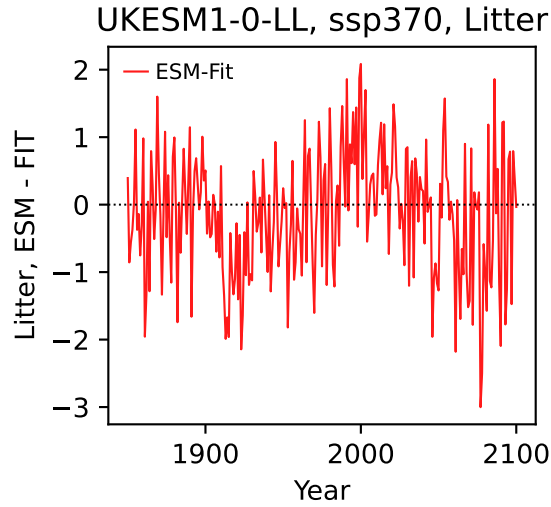

UKESM1-0-LL, ssp370, GPP, ln(MSE/SIGMA)
382, -0.0430, 188.6848, 0.2484, -0.0139, 0.0799, 0.8000, 0.7625, 0
UKESM1-0-LL
gpp_c_e
gpp_c_l
3
2
1
0
−1
−2
−3
−4
−5
−5
−4
−3
−2
−1
0
1
5.6
4.8
4.0
3.2
2.4
1.6
0.8
0.0

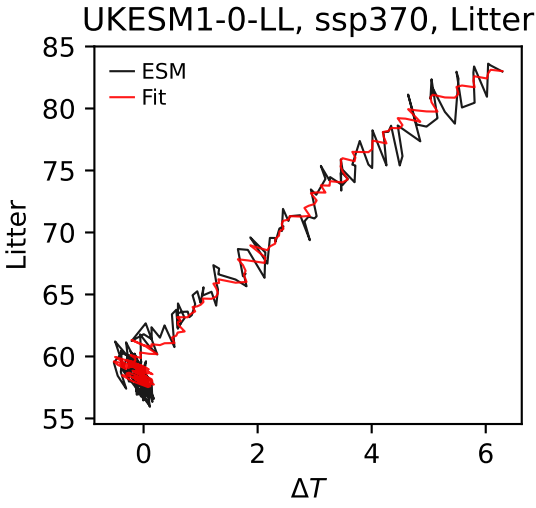

UKESM1-0-LL, ssp370, GPP, ln(MSE/SIGMA)
382, -0.0430, 188.6848, 0.2484, -0.0139, 0.0799, 0.8000, 0.7625, 0
UKESM1-0-LL
gpp_hyst
gpp_c_half
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
0
250
500
750
1000
1250
1500
1750
2000
9.5
8.5
7.5
6.5
5.5
4.5
3.5
2.5
1.5

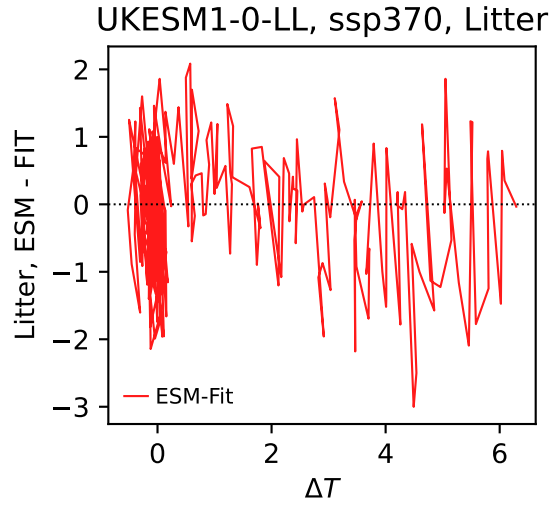

UKESM1-0-LL, ssp370, GPP, ln(MSE/SIGMA)
382, -0.0430, 188.6848, 0.2484, -0.0139, 0.0799, 0.8000, 0.7625, 0
gpp_fast
gpp_c_tan
1.000
0.975
0.950
0.925
0.900
0.875
0.850
0.825
0.800
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
0.2
6.75
6.00
5.25
4.50
3.75
3.00
2.25
1.50
0.75
0.00

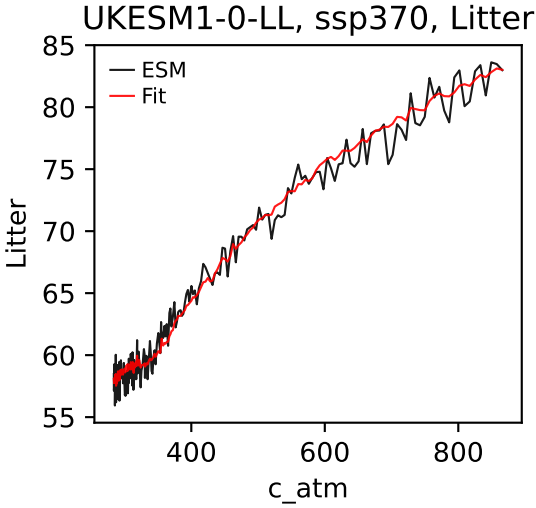

UKESM1-0-LL, ssp370, GPP, ln(MSE/SIGMA)
382, -0.0430, 188.6848, 0.2484, -0.0139, 0.0799, 0.8000, 0.7625, 0
1e−14+1.073765398e−1
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
gpp_slow
UKESM1-0-LL
−0.04
−0.02
0.00
0.02
0.04
gpp_c_tan2
9.760
9.520
9.280
9.040
8.801
8.561
8.321
8.081
7.841
7.601

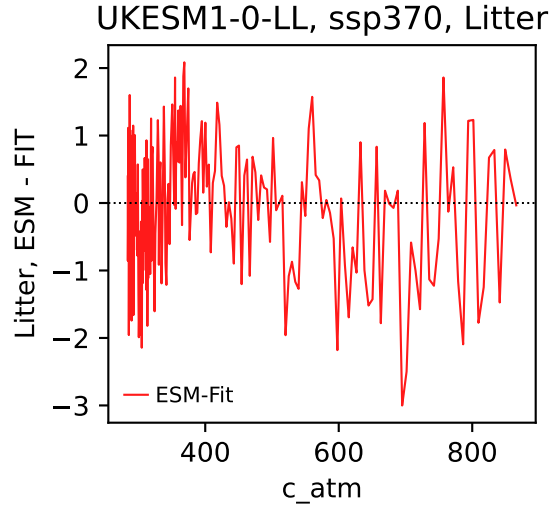

UKESM1-0-LL, ssp370, Litter
ESM
Fit
Litter
Year

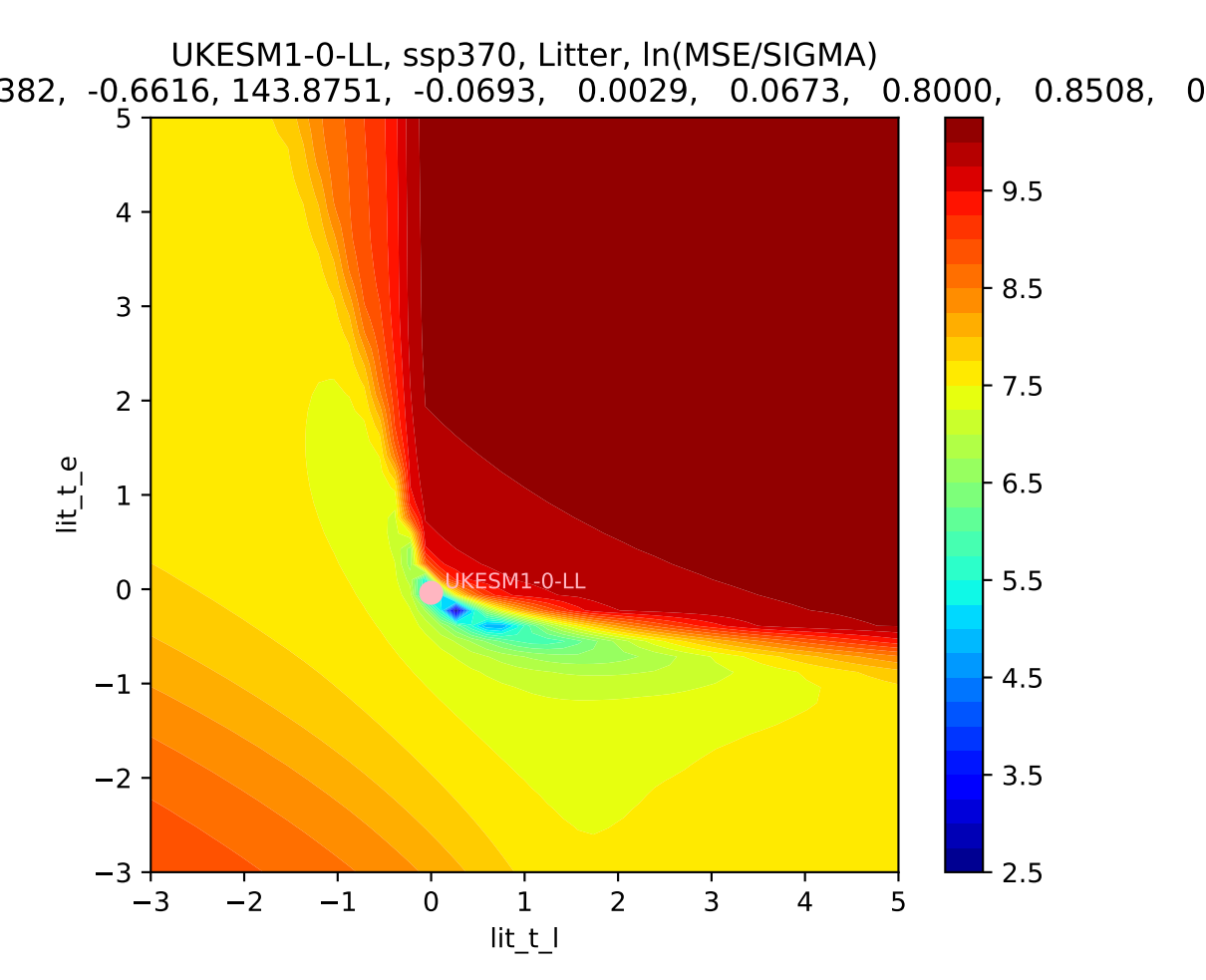

UKESM1-0-LL, ssp370, Litter
ESM-Fit
Litter, ESM - FIT
Year

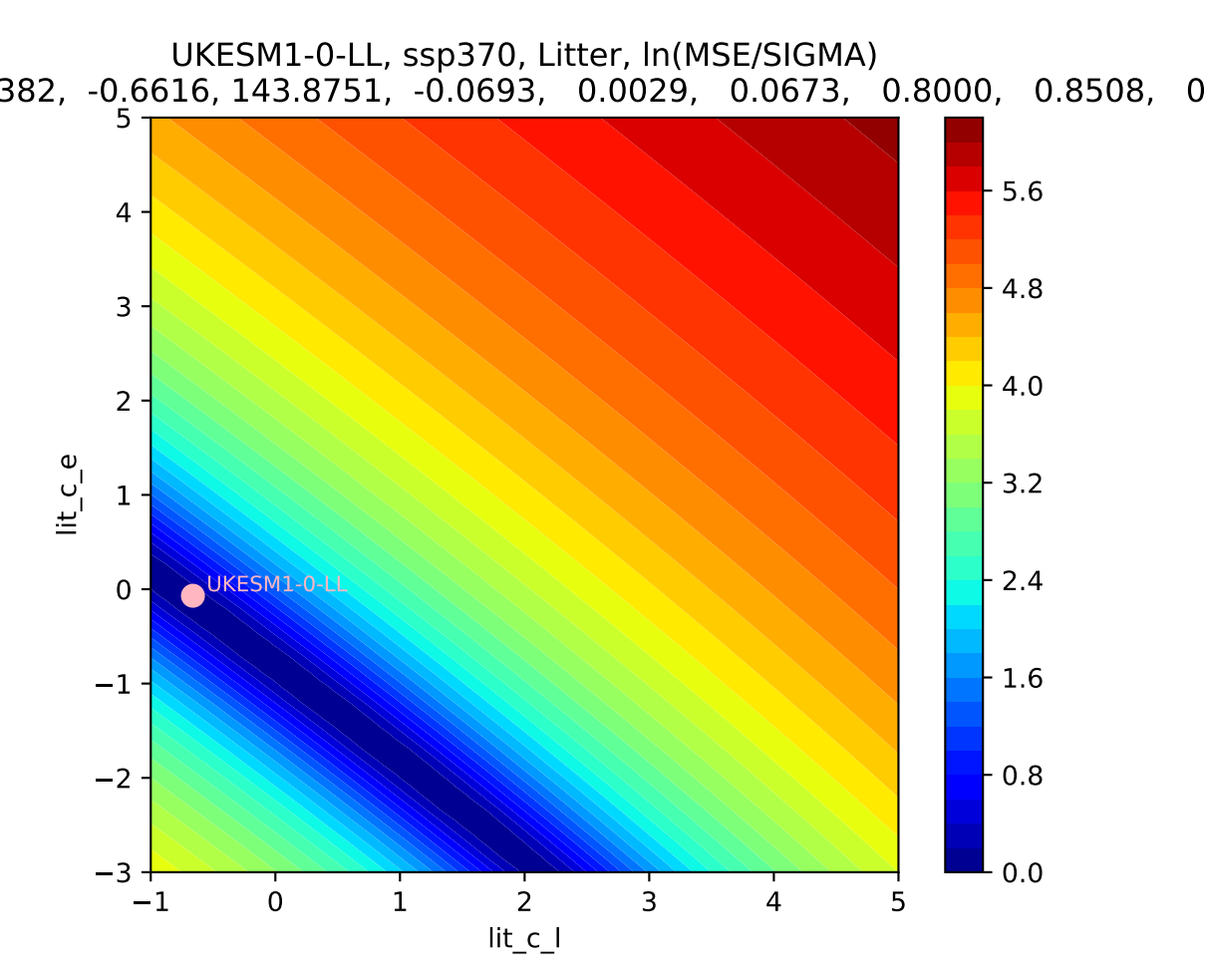

UKESM1-0-LL, ssp370, Litter
ESM
Fit
Litter
ΔT

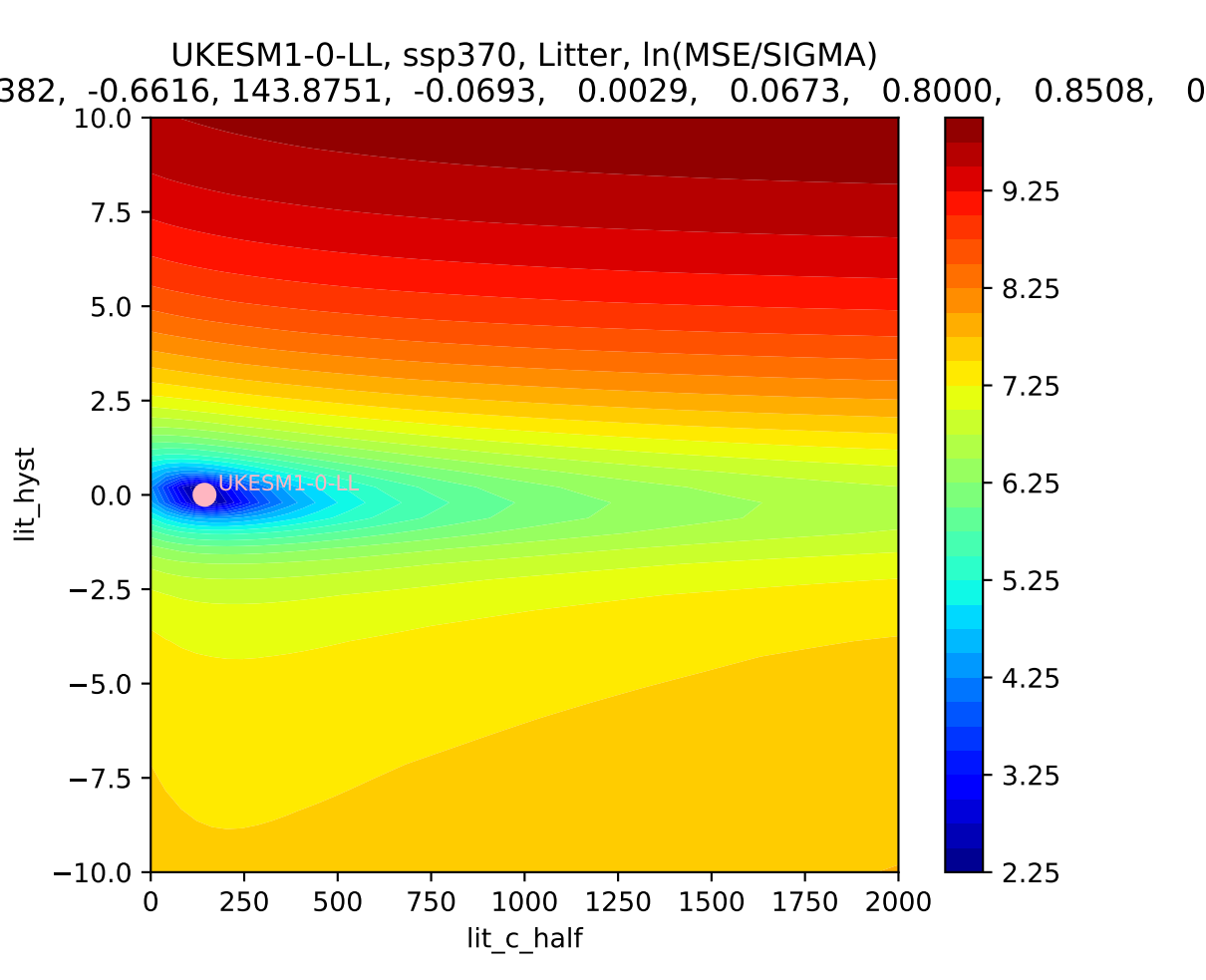

UKESM1-0-LL, ssp370, Litter
ESM-Fit
Litter, ESM - FIT
ΔT


UKESM1-0-LL, ssp370, Litter
ESM
Fit
Litter
c_atm


UKESM1-0-LL, ssp370, Litter
ESM-Fit
Litter, ESM - FIT
c_atm


UKESM1-0-LL, ssp370, Litter, ln(MSE/SIGMA)
382, -0.6616, 143.8751, -0.0693, 0.0029, 0.0673, 0.8000, 0.8508, 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
9.5
8.5
7.5
6.5
5.5
4.5
3.5
2.5


UKESM1-0-LL, ssp370, Litter, ln(MSE/SIGMA)
382, -0.6616, 143.8751, -0.0693, 0.0029, 0.0673, 0.8000, 0.8508, 0
lit_c_e
lit_c_l
UKESM1-0-LL
5
4
3
2
1
0
−1
−2
−3
−1
0
1
2
3
4
5
5.6
4.8
4.0
3.2
2.4
1.6
0.8
0.0


UKESM1-0-LL, ssp370, Litter, ln(MSE/SIGMA)
382, -0.6616, 143.8751, -0.0693, 0.0029, 0.0673, 0.8000, 0.8508, 0
UKESM1-0-LL
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
9.25
8.25
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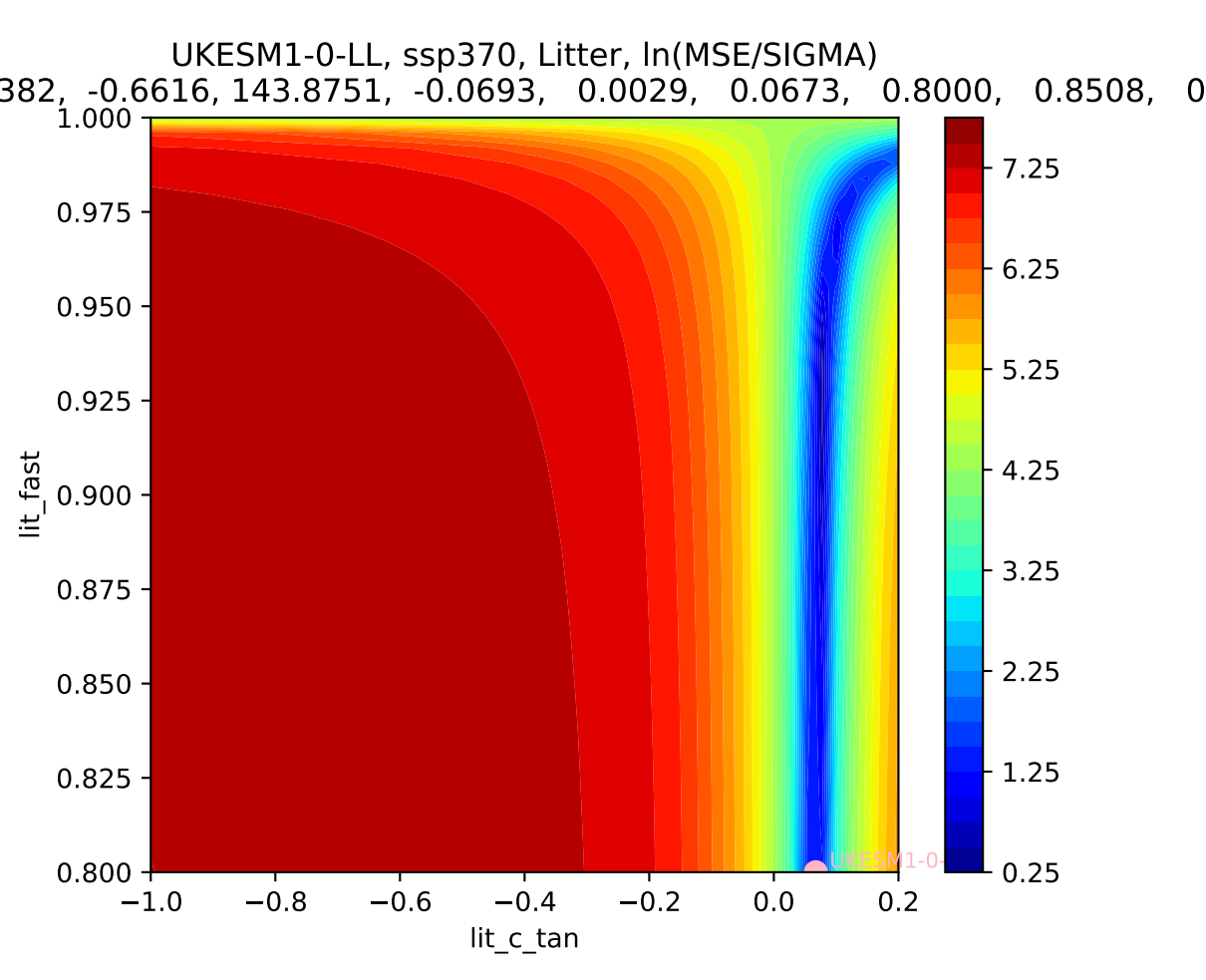
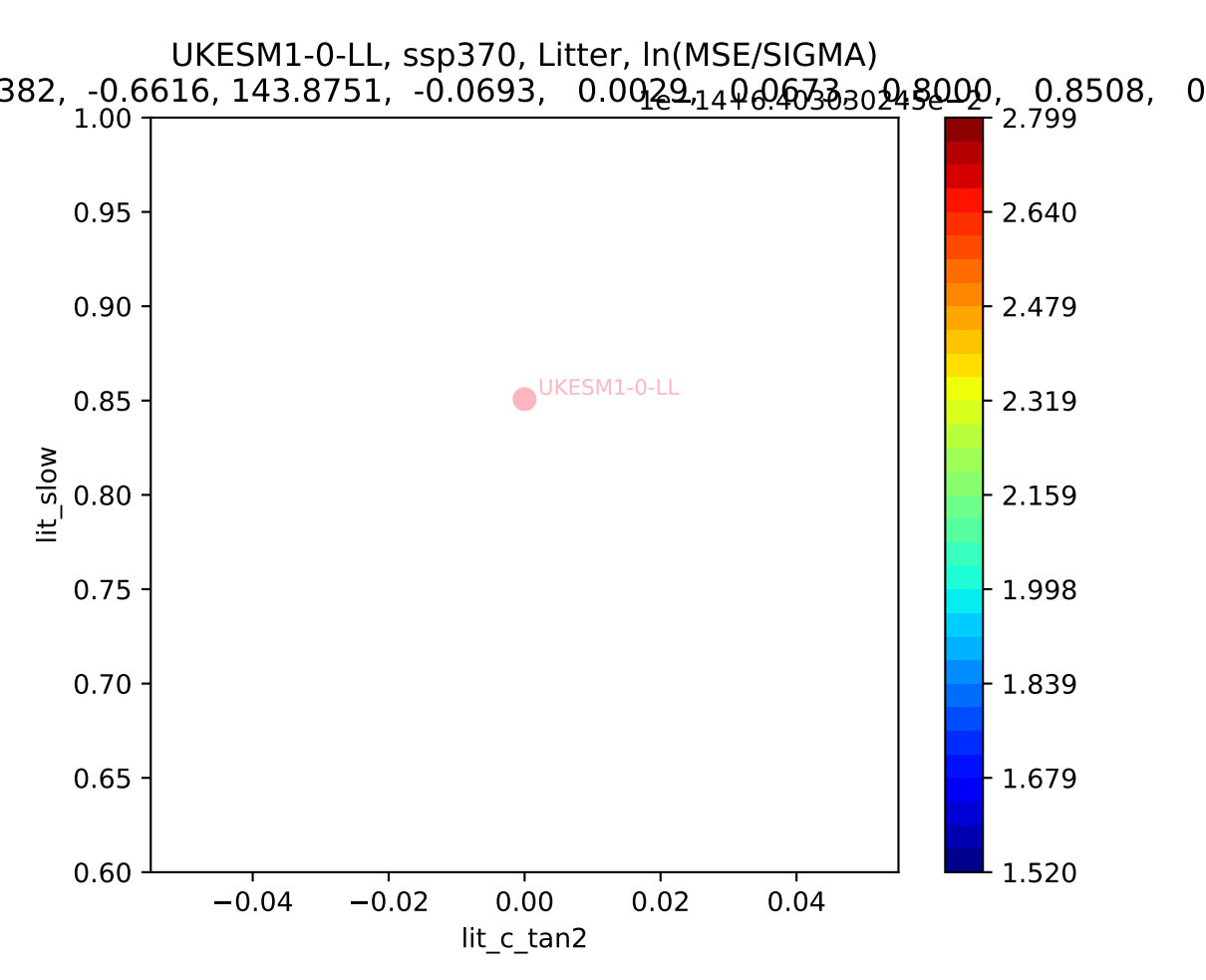
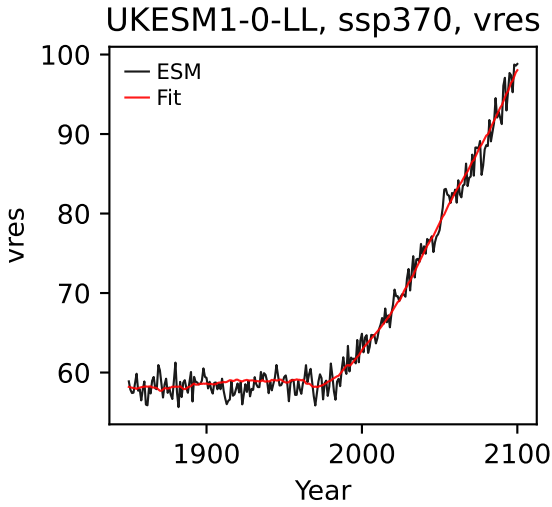
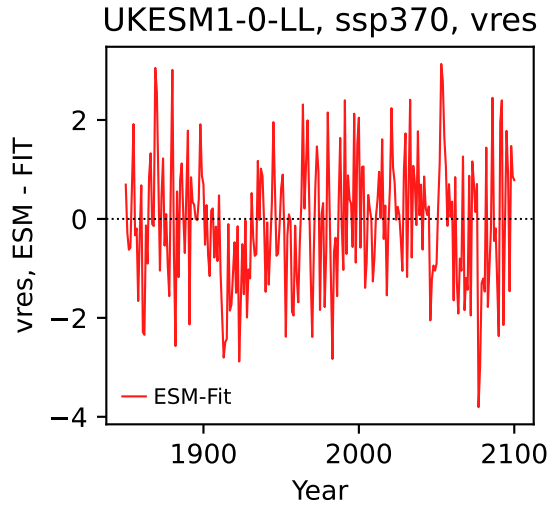
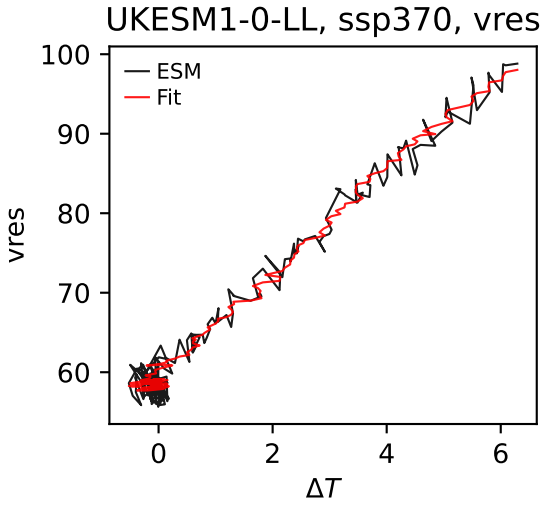
4.25
3.25
2.25

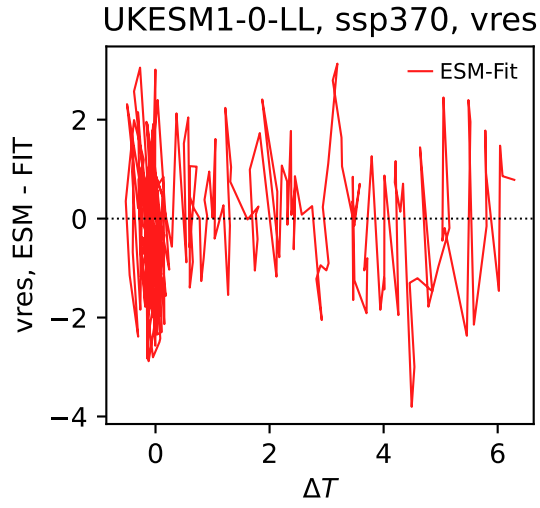

UKESM1-0-LL, ssp370, Litter, ln(MSE/SIGMA)
382, -0.6616, 143.8751, -0.0693, 0.0029, 0.0673, 0.8000, 0.8508, 0
lit_fast
lit_c_tan
1.000
0.975
0.950
0.925
0.900
0.875
0.850
0.825
0.800
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
0.2
7.25
6.25
5.25
4.25
3.25
2.25
1.25
0.25

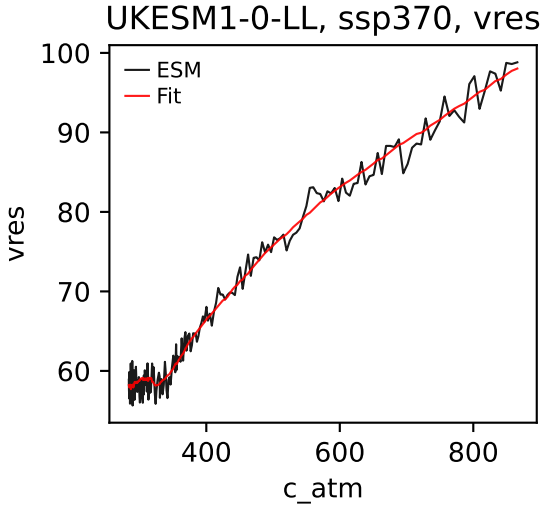

UKESM1-0-LL, ssp370, Litter, ln(MSE/SIGMA)
382, -0.6616, 143.8751, -0.0693, 0.0029, 0.0673, 0.8000, 0.8508, 0
1e−14+6.403030245e−2
UKESM1-0-LL
lit_slow
lit_c_tan2
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
−0.04
−0.02
0.00
0.02
0.04
2.799
2.640
2.479
2.319
2.159
1.998
1.839
1.679
1.520

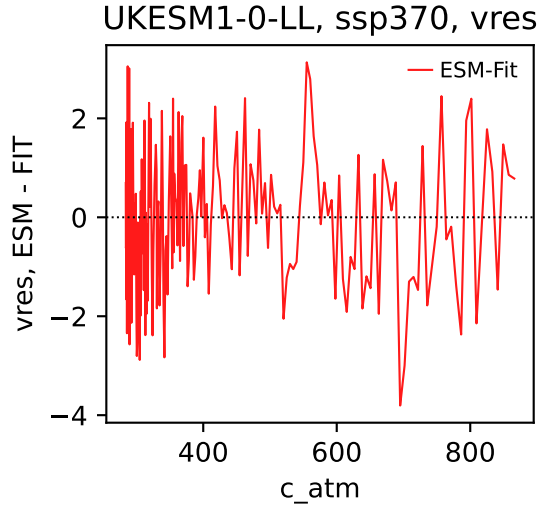

UKESM1-0-LL, ssp370, vres
ESM
Fit
vres
Year

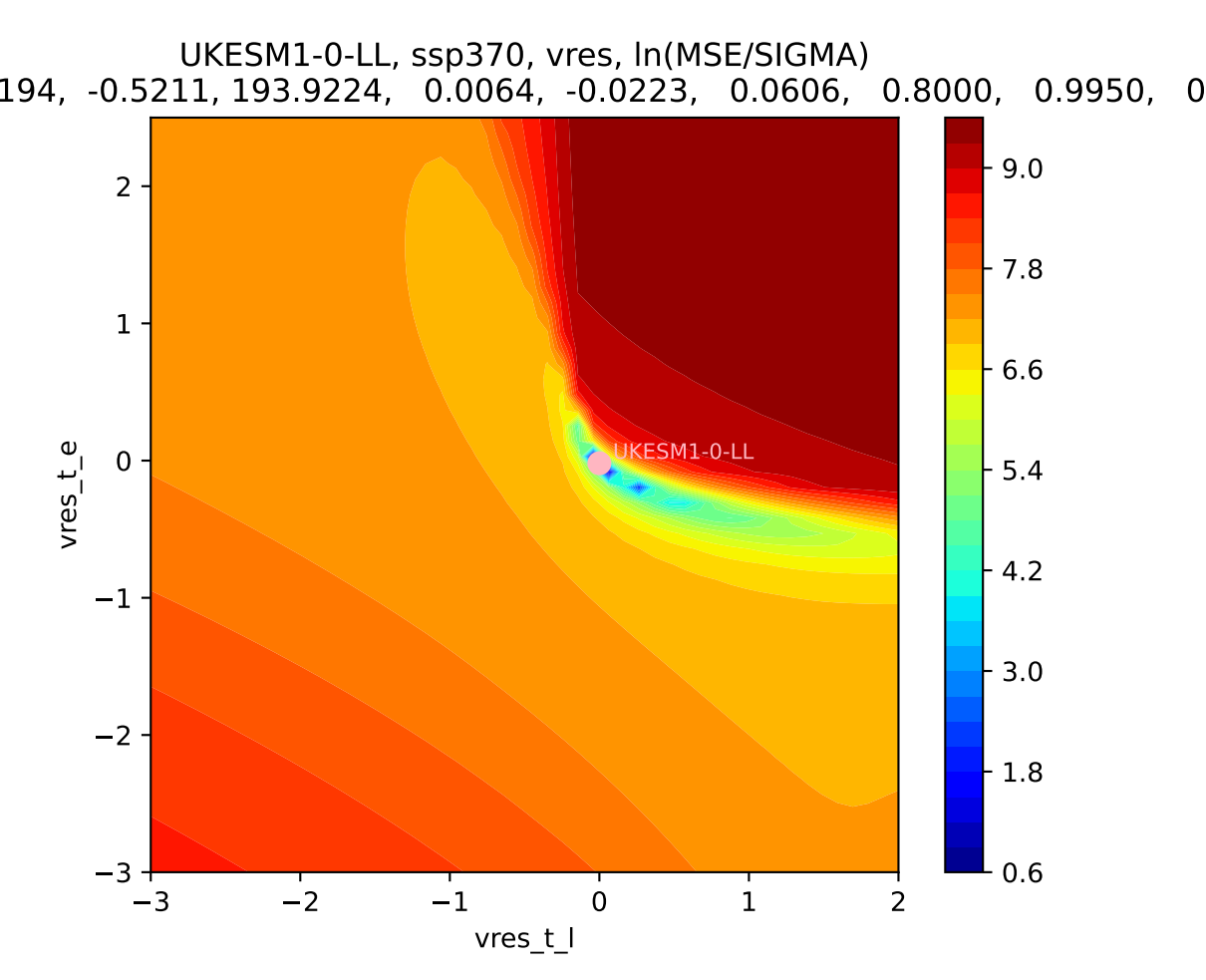

UKESM1-0-LL, ssp370, vres
ESM-Fit
vres, ESM - FIT
Year

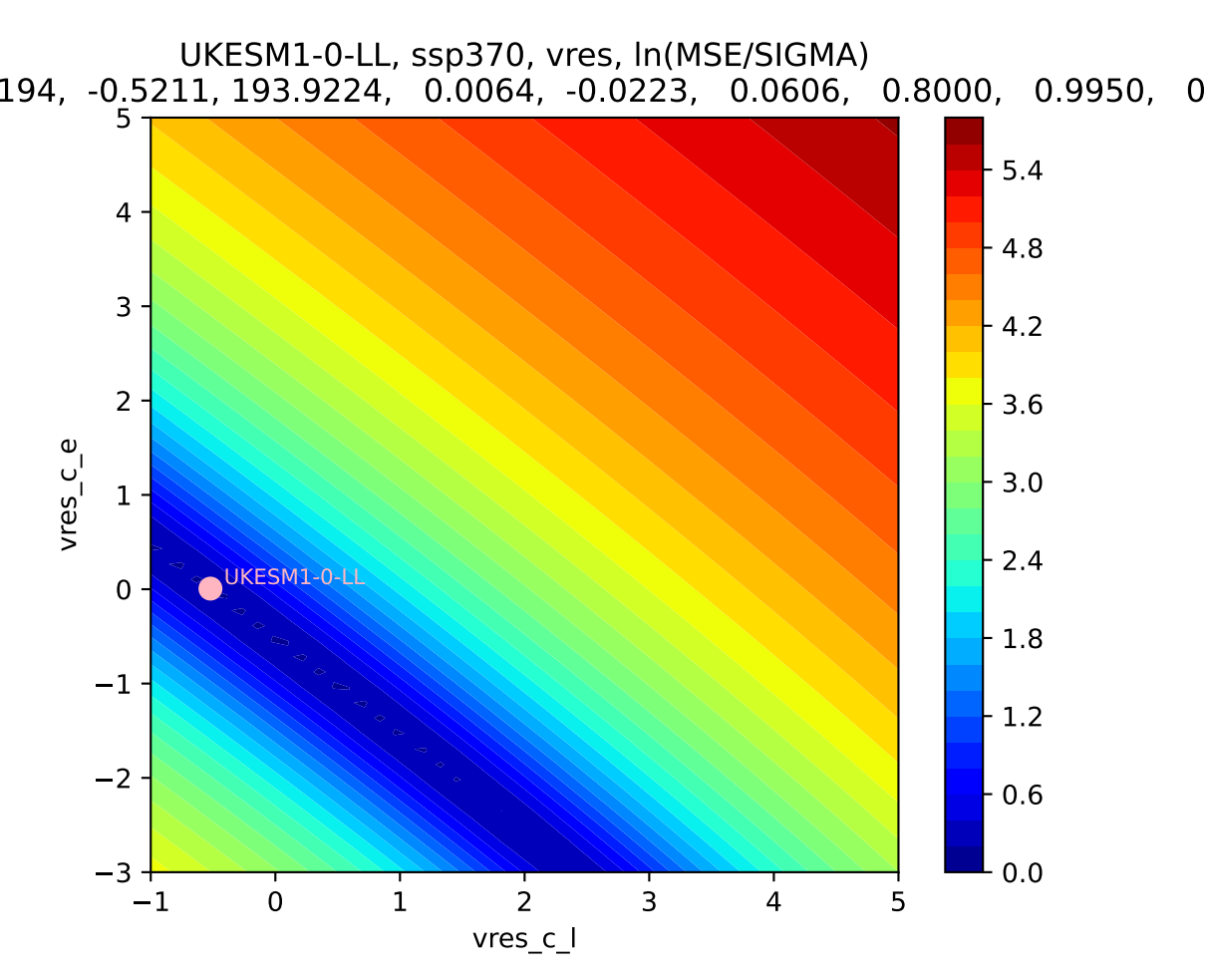

UKESM1-0-LL, ssp370, vres
ESM
Fit
vres
ΔT

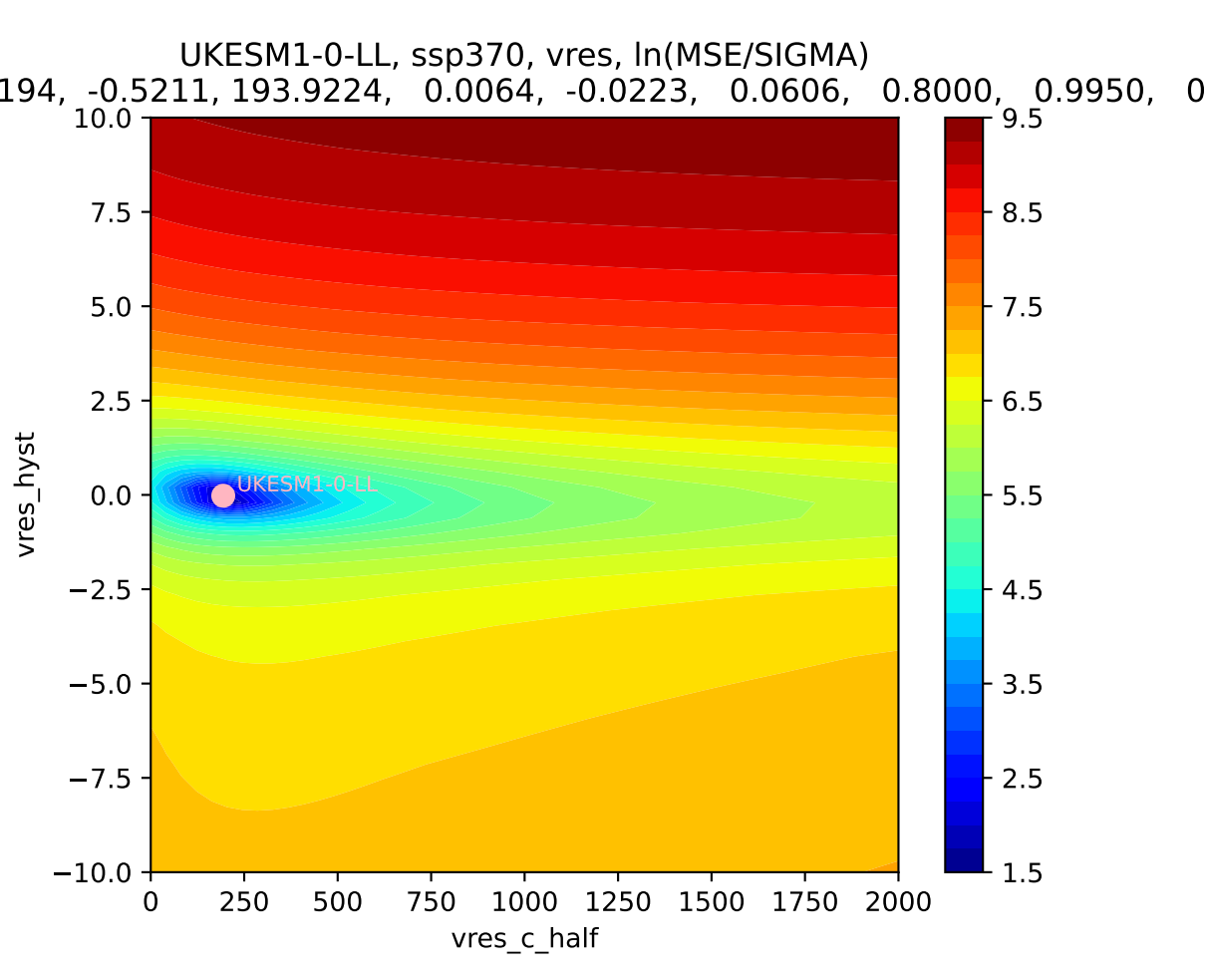

UKESM1-0-LL, ssp370, vres
ESM-Fit
vres, ESM - FIT
ΔT


UKESM1-0-LL, ssp370, vres
ESM
Fit
vres
c_atm


UKESM1-0-LL, ssp370, vres
ESM-Fit
vres, ESM - FIT
c_atm


UKESM1-0-LL, ssp370, vres, ln(MSE/SIGMA)
194, -0.5211, 193.9224, 0.0064, -0.0223, 0.0606, 0.8000, 0.9950, 0
UKESM1-0-LL
vres_t_e
vres_t_l
2
1
0
−1
−2
−3
−3
−2
−1
0
1
2
9.0
7.8
6.6
5.4
4.2
3.0
1.8
0.6


UKESM1-0-LL, ssp370, vres, ln(MSE/SIGMA)
194, -0.5211, 193.9224, 0.0064, -0.0223, 0.0606, 0.8000, 0.9950, 0
UKESM1-0-LL
vres_c_e
vres_c_l
5
4
3
2
1
0
−1
−2
−3
−1
0
1
2
3
4
5
5.4
4.8
4.2
3.6
3.0
2.4
1.8
1.2
0.6
0.0


UKESM1-0-LL, ssp370, vres, ln(MSE/SIGMA)
194, -0.5211, 193.9224, 0.0064, -0.0223, 0.0606, 0.8000, 0.9950, 0
UKESM1-0-LL
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
9.5
8.5
7.5
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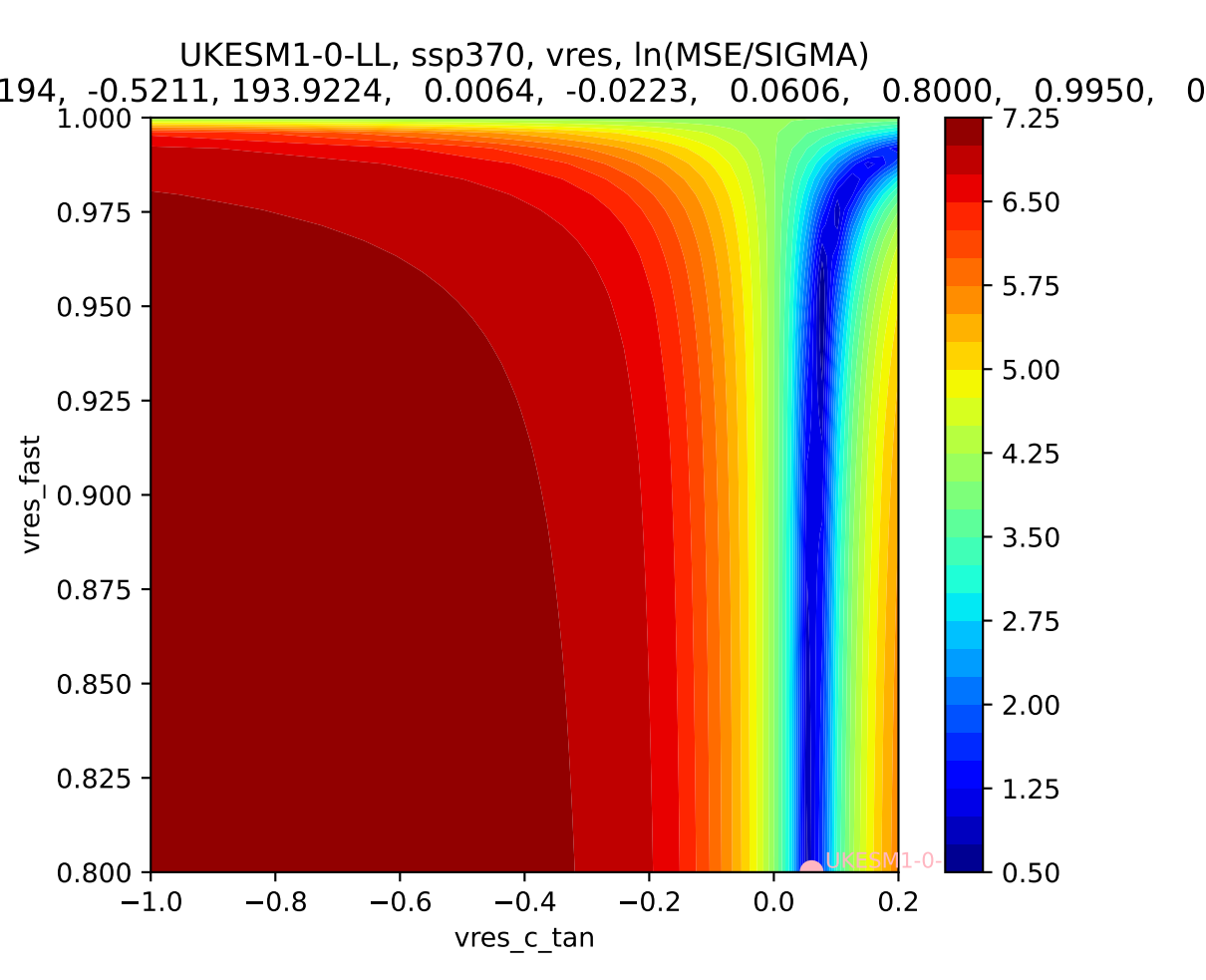
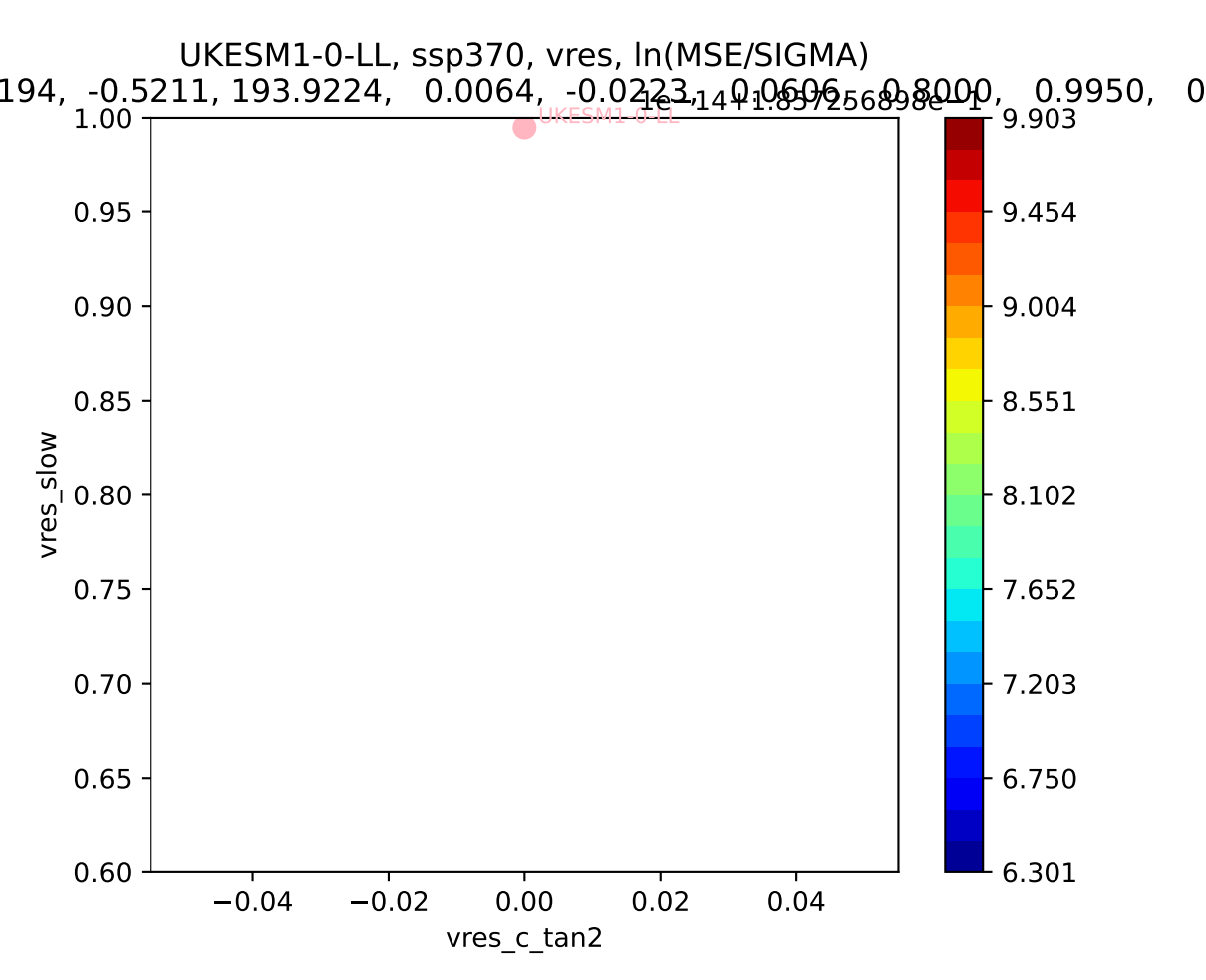
2.5
1.5


UKESM1-0-LL, ssp370, vres, ln(MSE/SIGMA)
194, -0.5211, 193.9224, 0.0064, -0.0223, 0.0606, 0.8000, 0.9950, 0
vres_fast
vres_c_tan
1.000
0.975
0.950
0.925
0.900
0.875
0.850
0.825
0.800
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
0.2
7.25
6.50
5.75
5.00
4.25
3.50
2.75
2.00
1.25
0.50


UKESM1-0-LL, ssp370, vres, ln(MSE/SIGMA)
194, -0.5211, 193.9224, 0.0064, -0.0223, 0.0606, 0.8000, 0.9950, 0
1e−14+1.857256898e−1
UKESM1-0-LL
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
vres_slow
−0.04
−0.02
0.00
0.02
0.04
vres_c_tan2
9.903
9.454
9.004
8.551
8.102
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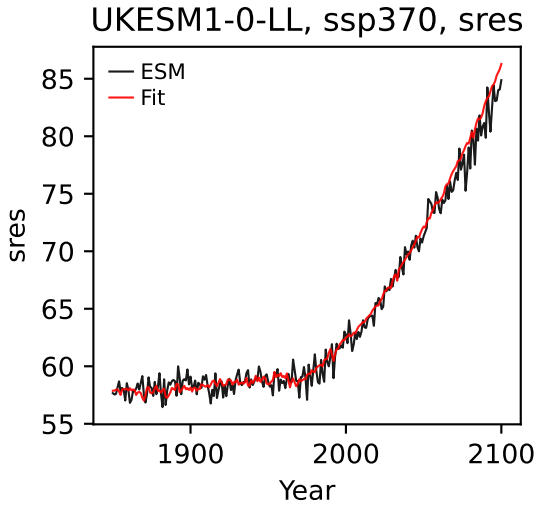
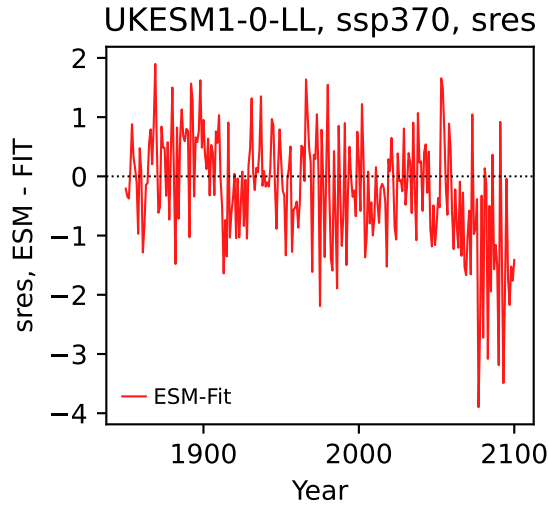
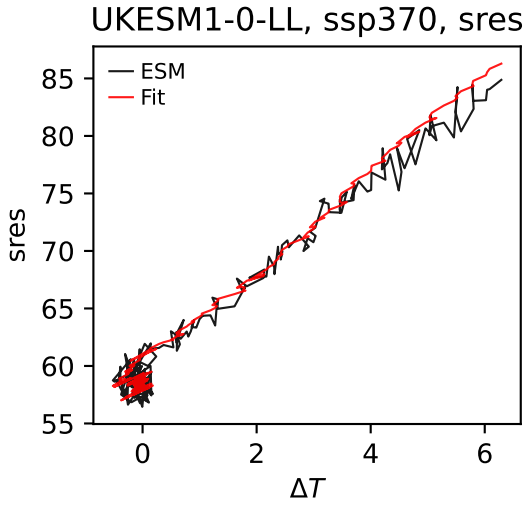
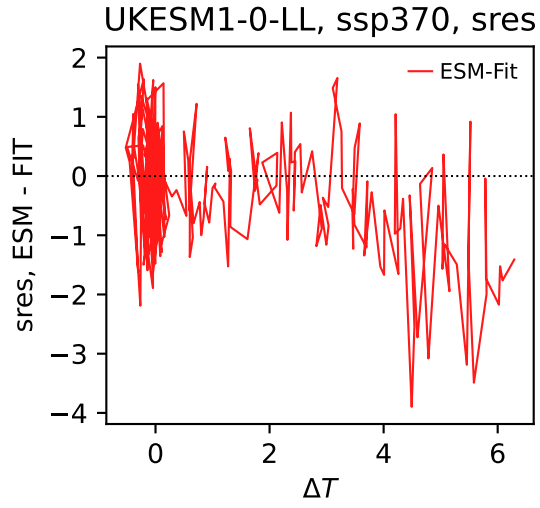
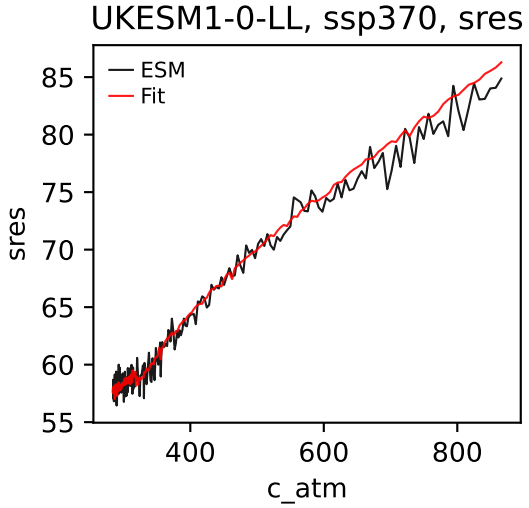
7.203
6.750
6.301

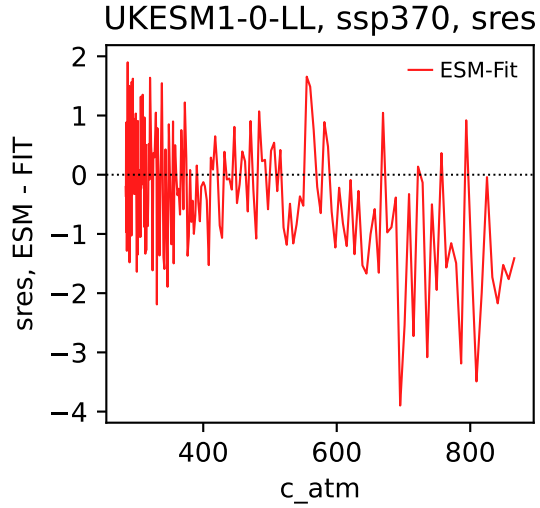

UKESM1-0-LL, ssp370, sres
ESM
Fit
sres
Year

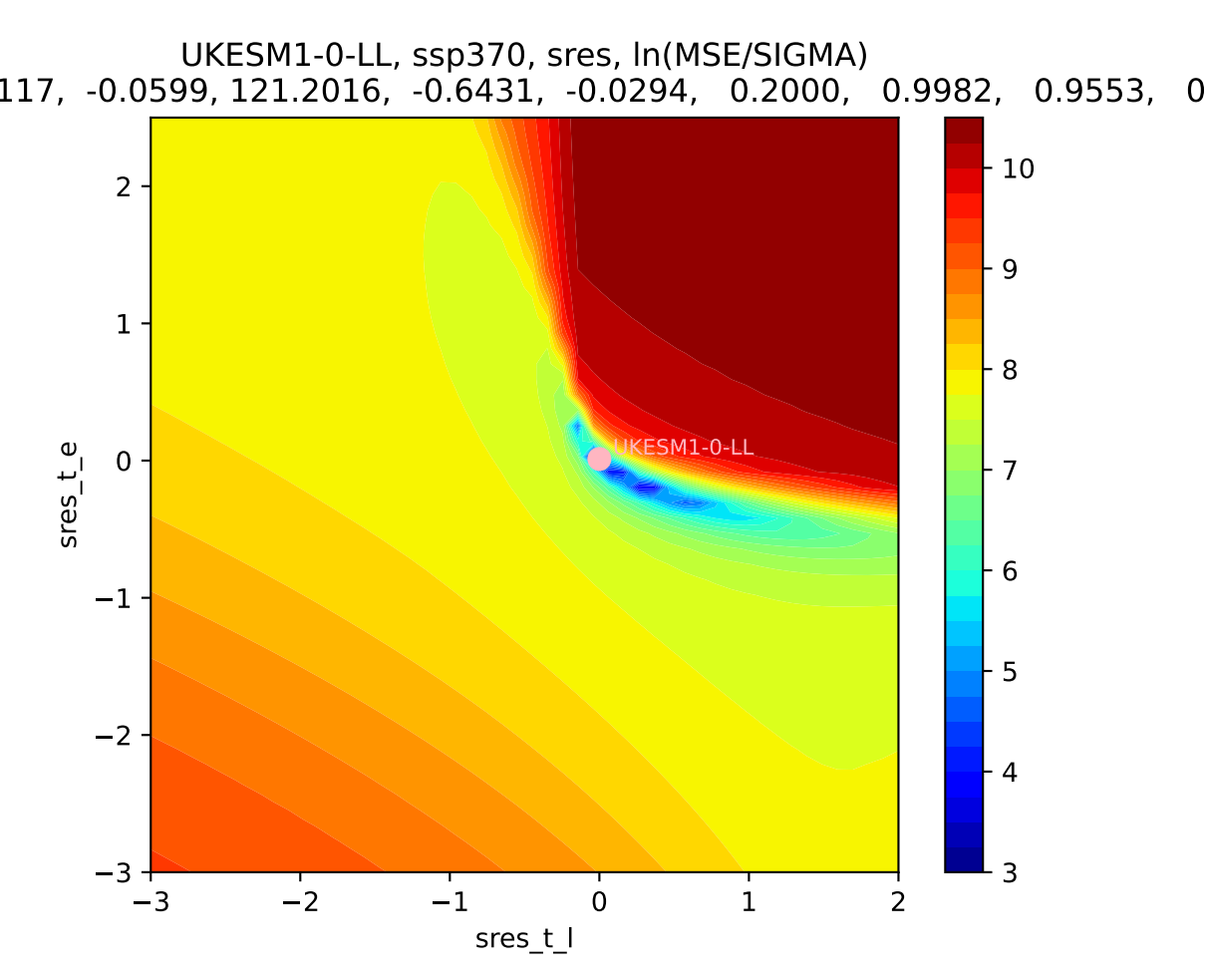

UKESM1-0-LL, ssp370, sres
ESM-Fit
sres, ESM - FIT
Year

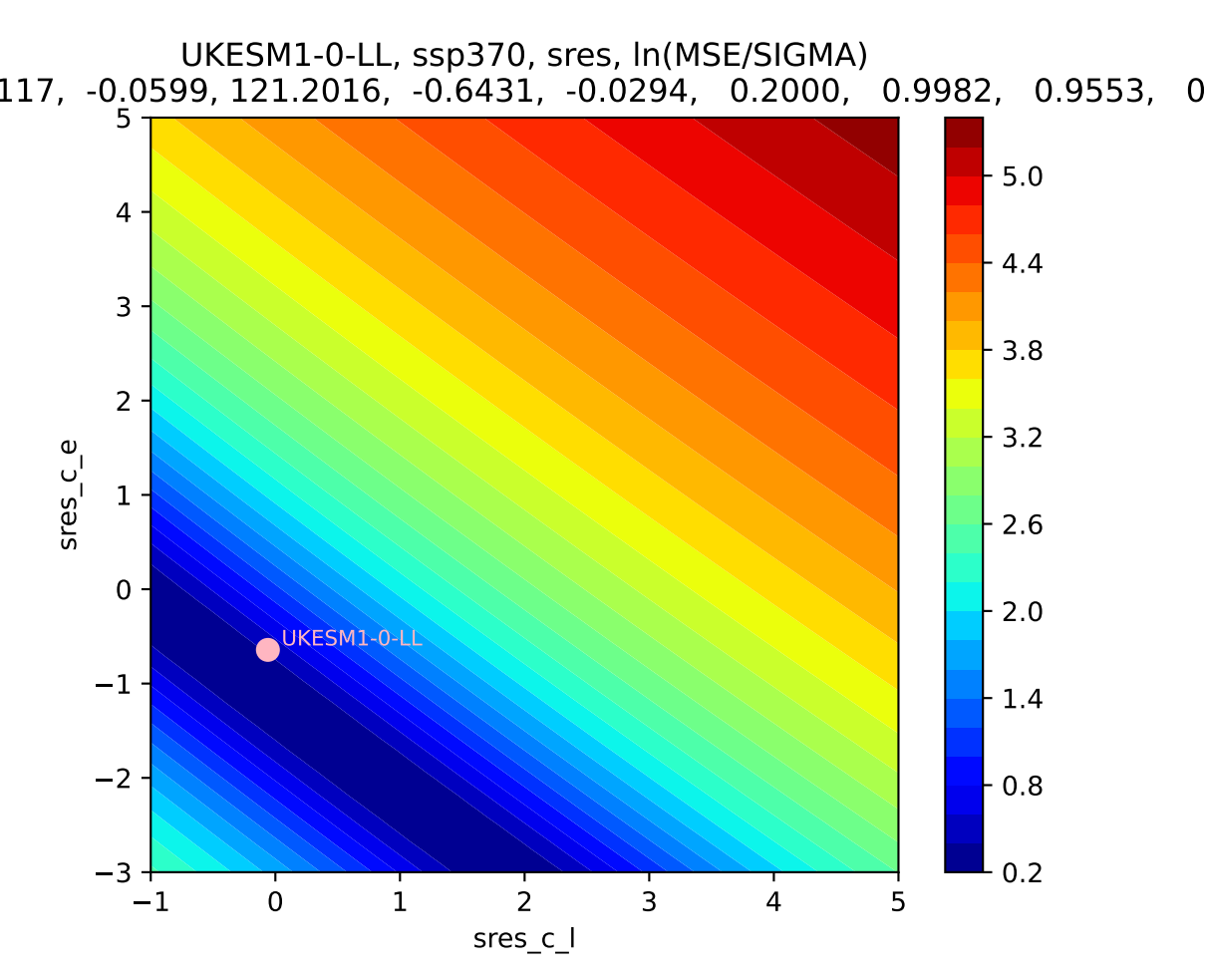

UKESM1-0-LL, ssp370, sres
ESM
Fit
sres
ΔT

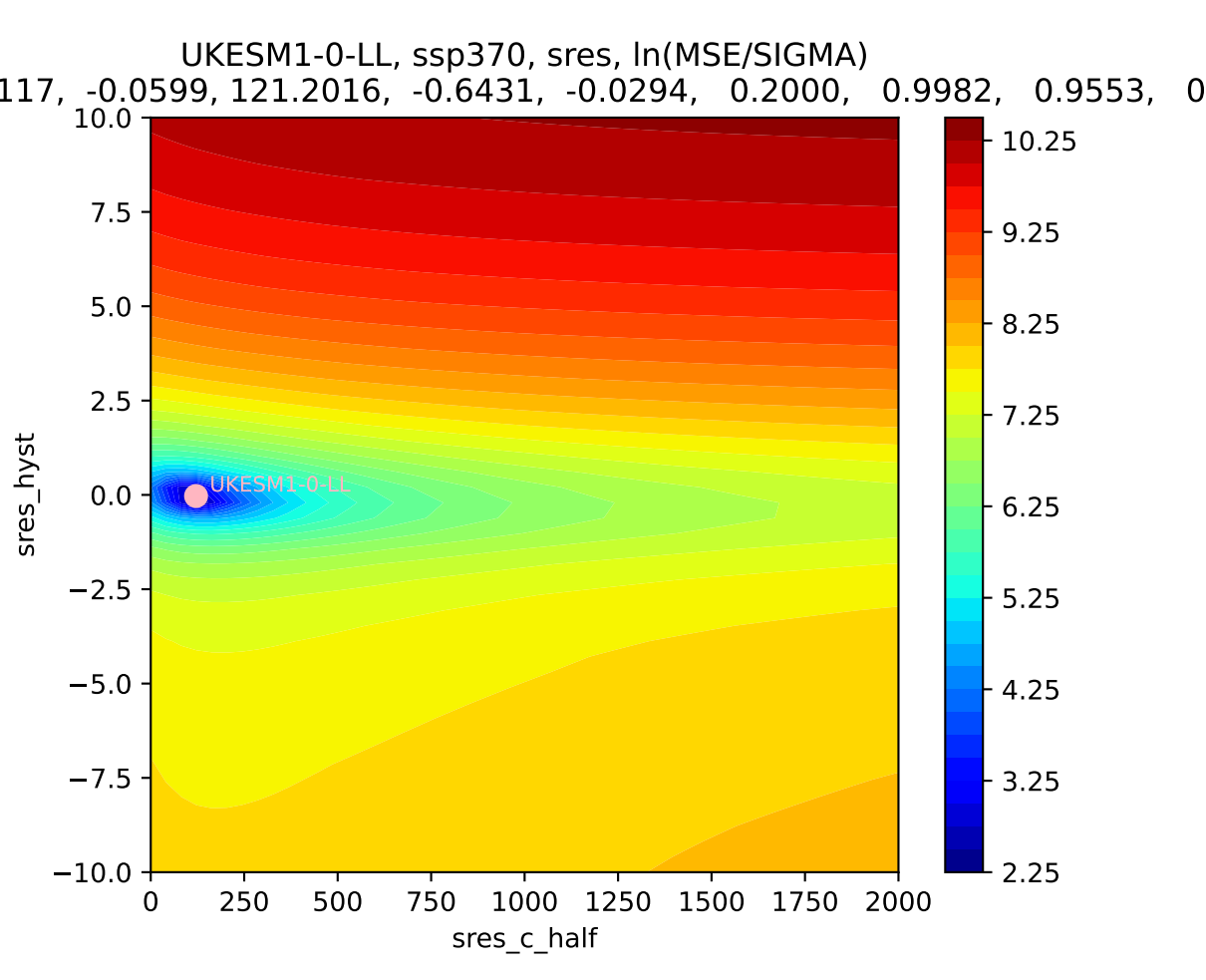

UKESM1-0-LL, ssp370, sres
ESM-Fit
sres, ESM - FIT
ΔT


UKESM1-0-LL, ssp370, sres
ESM
Fit
sres
c_atm


UKESM1-0-LL, ssp370, sres
ESM-Fit
sres, ESM - FIT
c_atm


UKESM1-0-LL, ssp370, sres, ln(MSE/SIGMA)
117, -0.0599, 121.2016, -0.6431, -0.0294, 0.2000, 0.9982, 0.9553, 0
UKESM1-0-LL
sres_t_e
sres_t_l
−3
−2
−1
0
1
2
3
4
5
6
7
8
9
10


UKESM1-0-LL, ssp370, sres, ln(MSE/SIGMA)
117, -0.0599, 121.2016, -0.6431, -0.0294, 0.2000, 0.9982, 0.9553, 0
sres_c_e
sres_c_l
UKESM1-0-LL
5
4
3
2
1
0
−1
−2
−3
−1
0
1
2
3
4
5
5.0
4.4
3.8
3.2
2.6
2.0
1.4
0.8
0.2


UKESM1-0-LL, ssp370, sres, ln(MSE/SIGMA)
117, -0.0599, 121.2016, -0.6431, -0.0294, 0.2000, 0.9982, 0.9553, 0
UKESM1-0-LL
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
10.25
9.25
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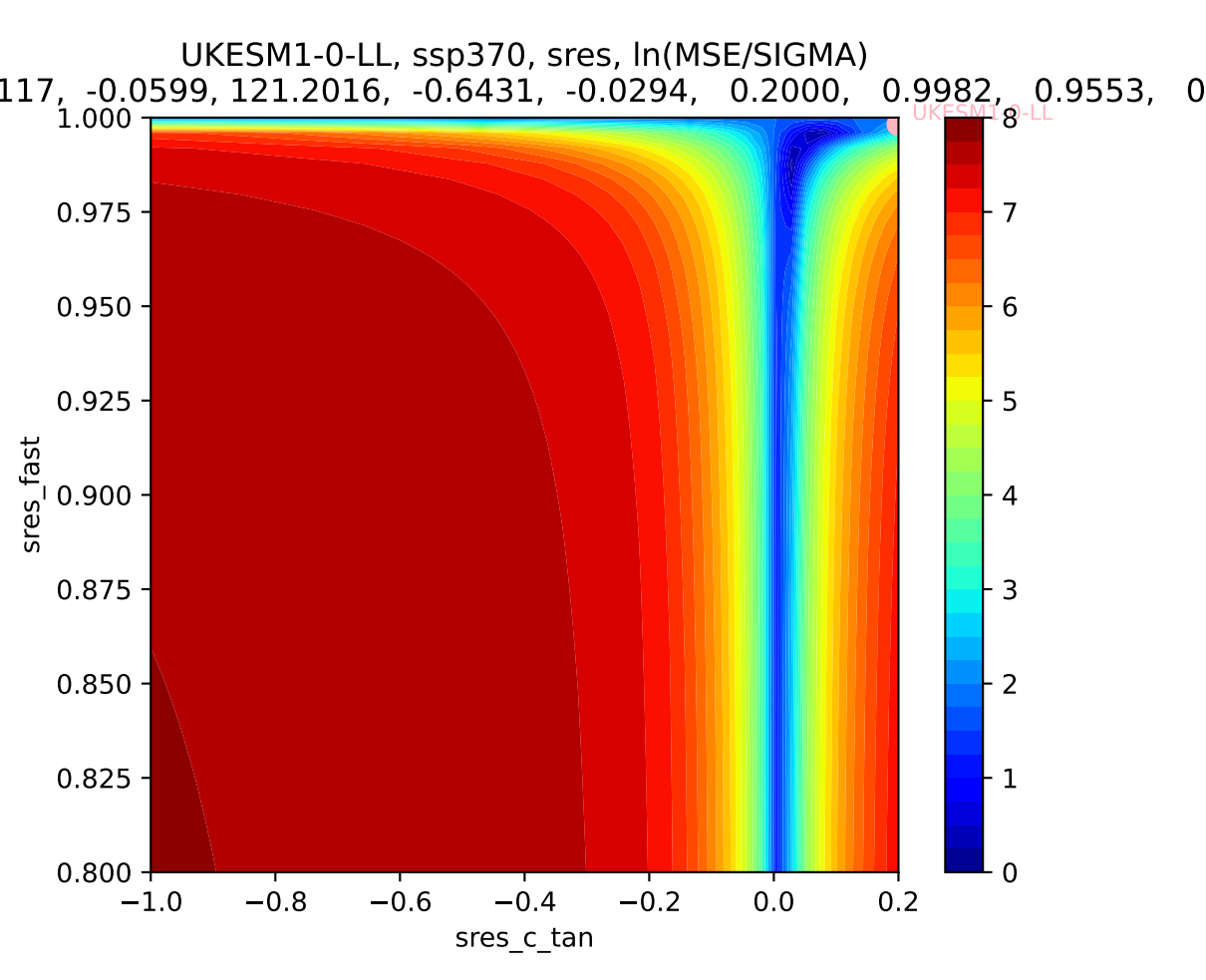
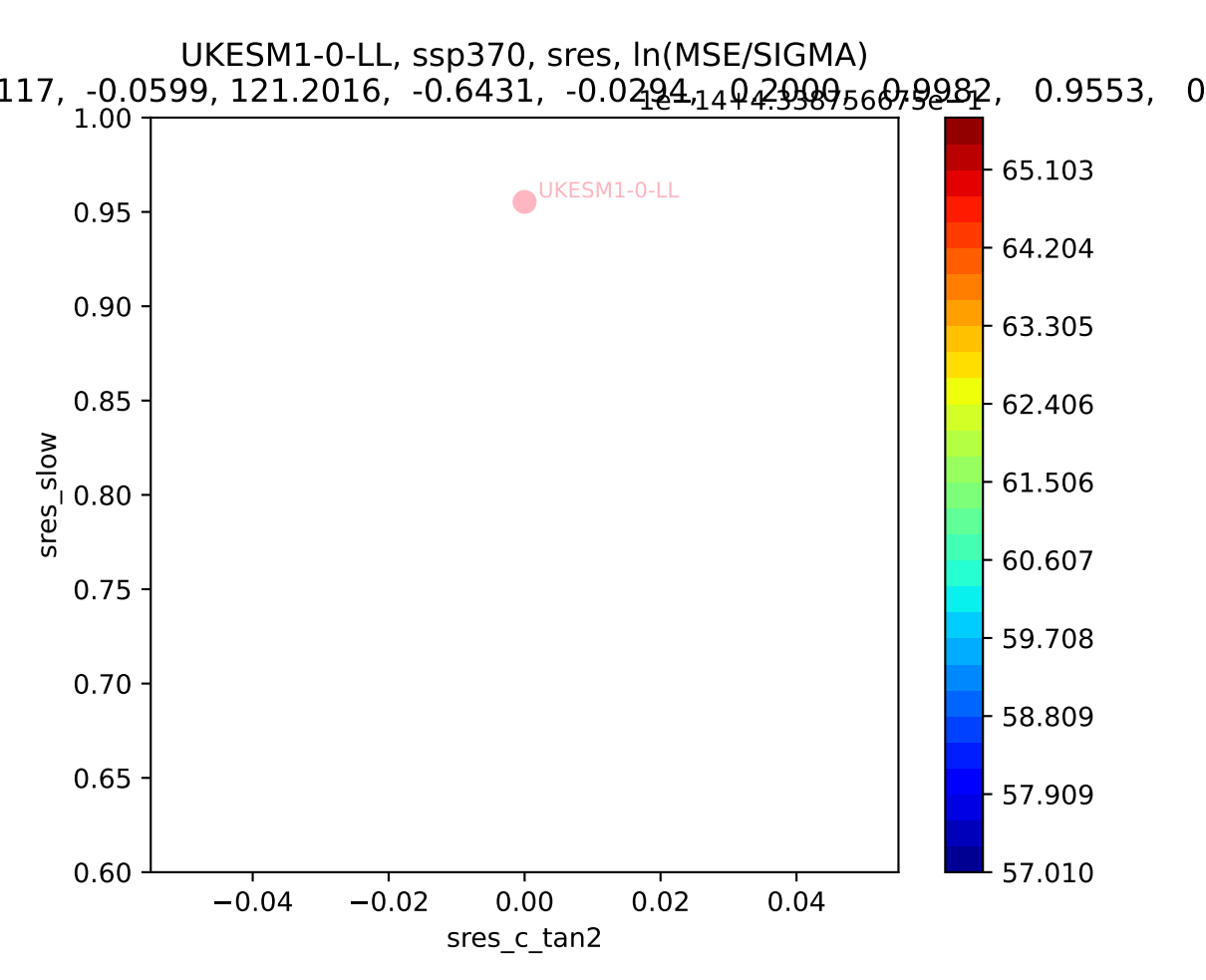
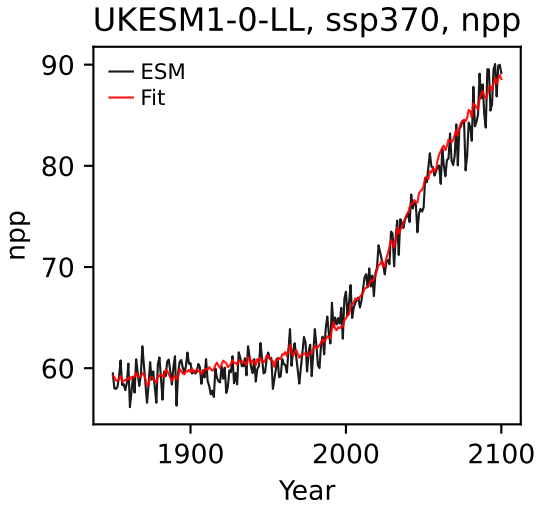
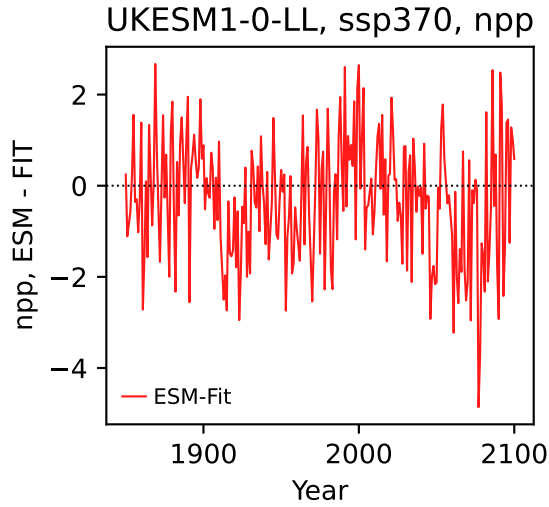
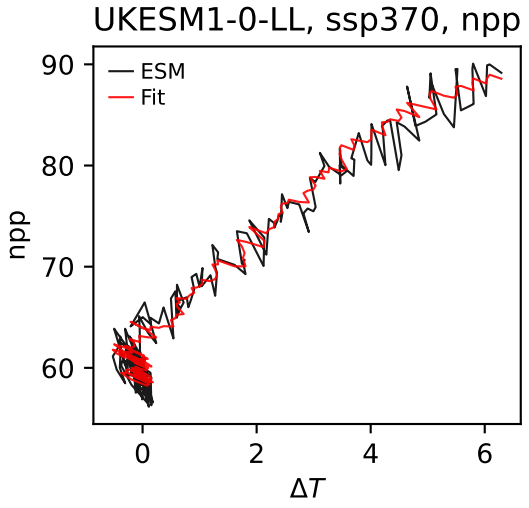
3.25
2.25

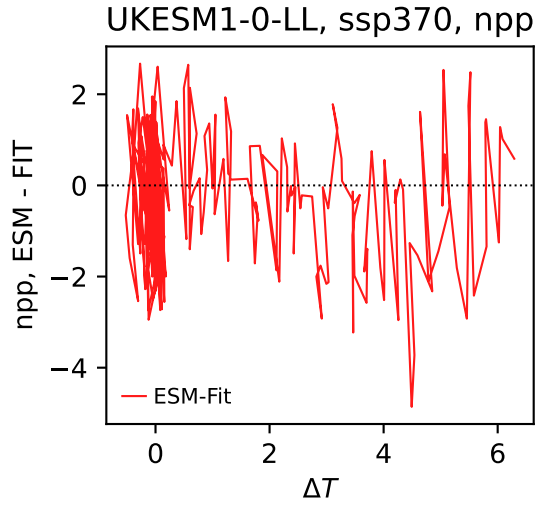

UKESM1-0-LL, ssp370, sres, ln(MSE/SIGMA)
117, -0.0599, 121.2016, -0.6431, -0.0294, 0.2000, 0.9982, 0.9553, 0
UKESM1-0-LL
sres_fast
1.000
0.975
0.950
0.925
0.900
0.875
0.850
0.825
0.800
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
0.2
sres_c_tan
8
7
6
5
4
3
2
1
0

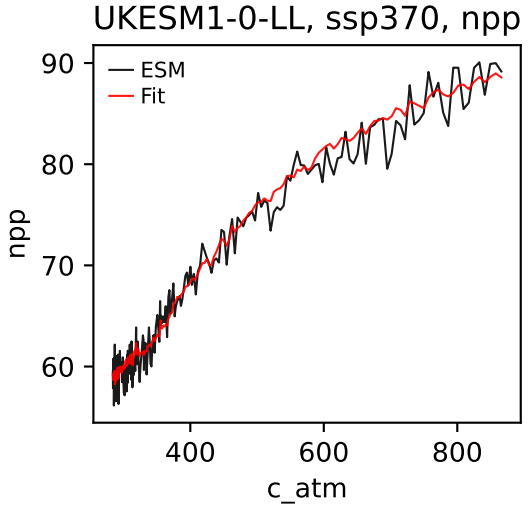

UKESM1-0-LL, ssp370, sres, ln(MSE/SIGMA)
117, -0.0599, 121.2016, -0.6431, -0.0294, 0.2000, 0.9982, 0.9553, 0
1e−14+4.338756675e−1
UKESM1-0-LL
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
sres_slow
−0.04
−0.02
0.00
0.02
0.04
sres_c_tan2
65.103
64.204
63.305
62.406
61.506
60.607
59.708
58.809
57.909
57.010

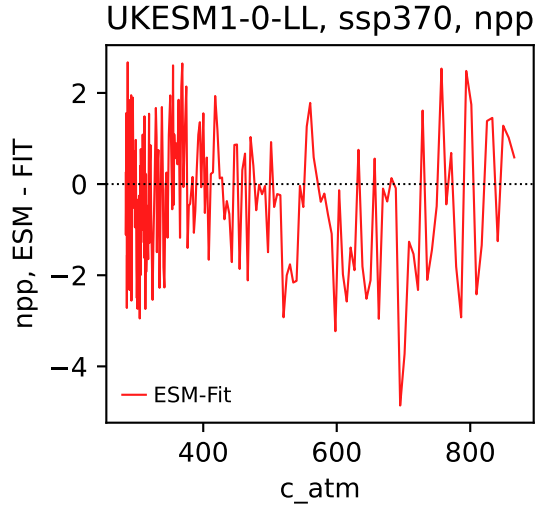

UKESM1-0-LL, ssp370, npp
ESM
Fit
npp
Year

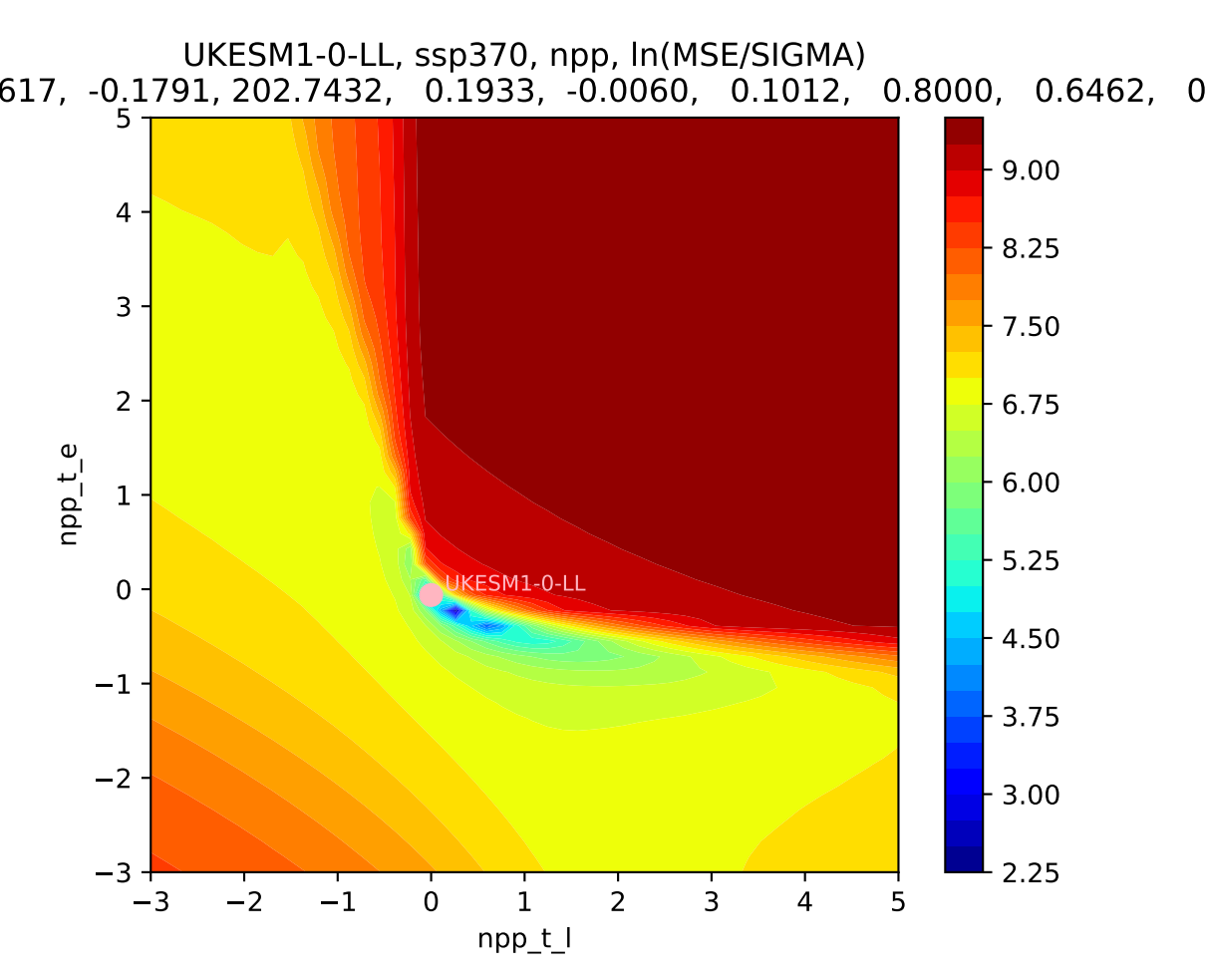

UKESM1-0-LL, ssp370, npp
npp, ESM - FIT
ESM-Fit
Year

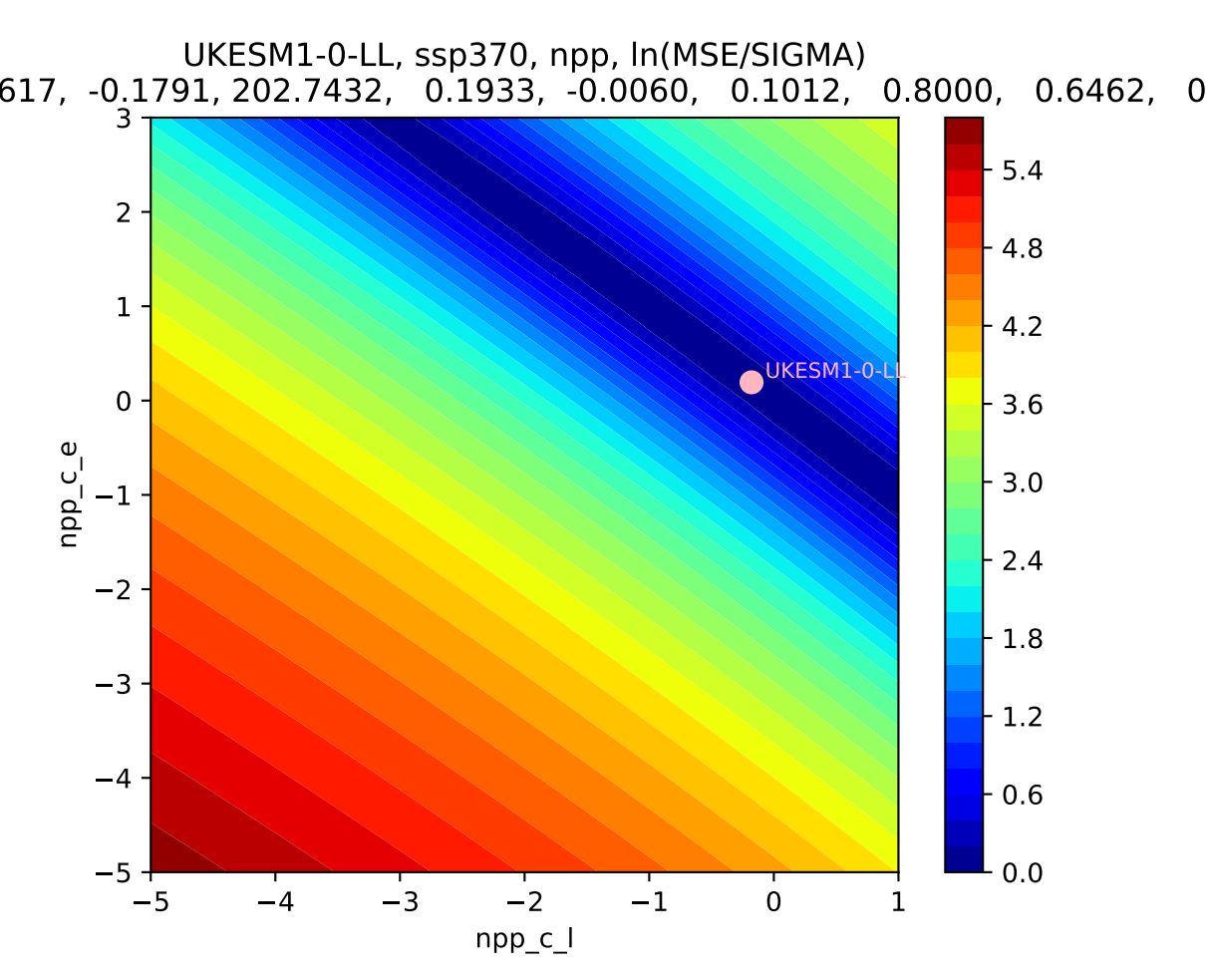

UKESM1-0-LL, ssp370, npp
ESM
Fit
npp
ΔT

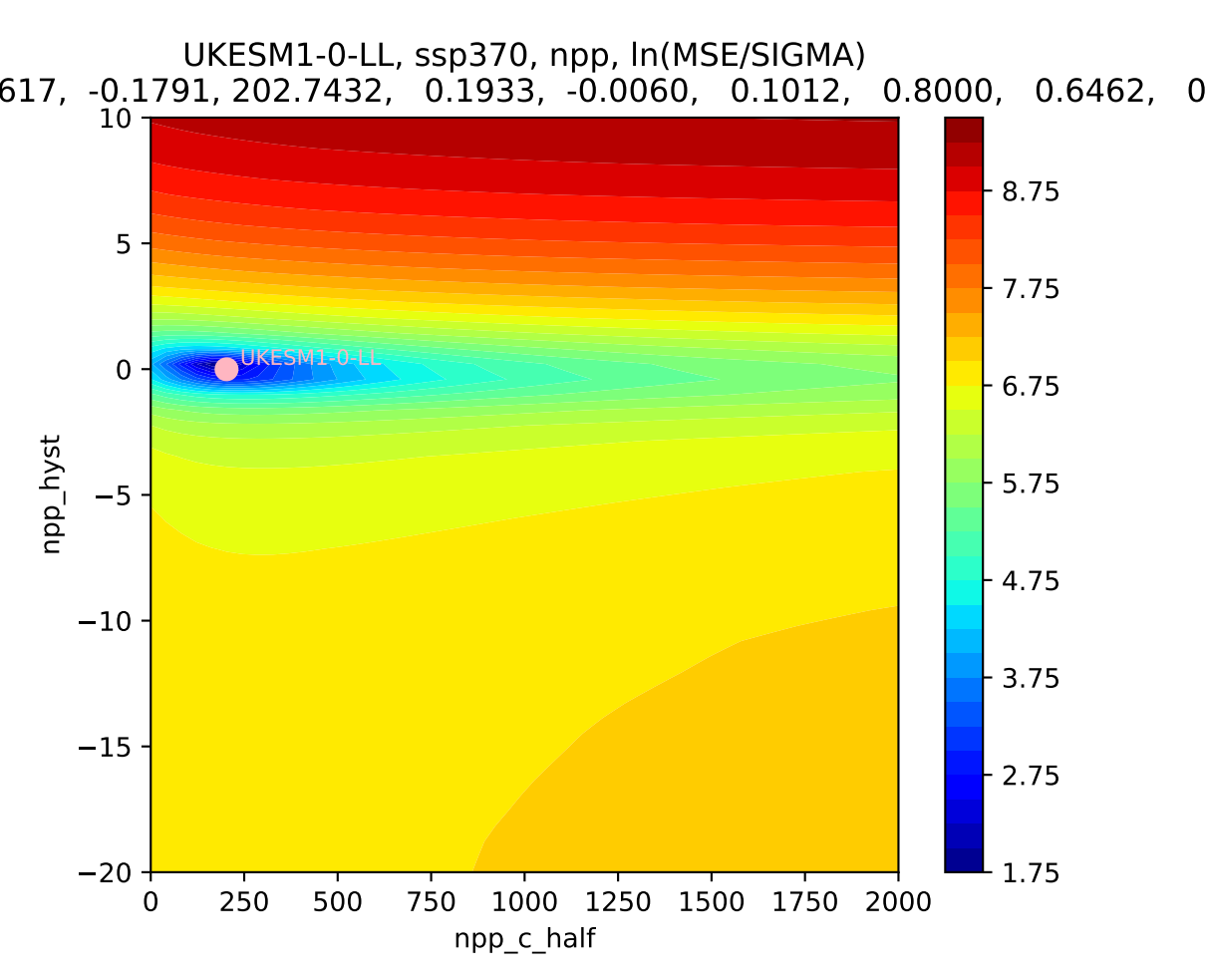

UKESM1-0-LL, ssp370, npp
npp, ESM - FIT
ESM-Fit
ΔT


UKESM1-0-LL, ssp370, npp
ESM
Fit
npp
c_atm


UKESM1-0-LL, ssp370, npp
npp, ESM - FIT
ESM-Fit
c_atm


UKESM1-0-LL, ssp370, npp, ln(MSE/SIGMA)
617, -0.1791, 202.7432, 0.1933, -0.0060, 0.1012, 0.8000, 0.6462, 0
UKESM1-0-LL
npp_t_e
npp_t_l
9.00
8.25
7.50
6.75
6.00
5.25
4.50
3.75
3.00
2.25


UKESM1-0-LL, ssp370, npp, ln(MSE/SIGMA)
617, -0.1791, 202.7432, 0.1933, -0.0060, 0.1012, 0.8000, 0.6462, 0
UKESM1-0-LL
npp_c_e
npp_c_l
3
2
1
0
−1
−2
−3
−4
−5
−5
−4
−3
−2
−1
0
1
5.4
4.8
4.2
3.6
3.0
2.4
1.8
1.2
0.6
0.0


UKESM1-0-LL, ssp370, npp, ln(MSE/SIGMA)
617, -0.1791, 202.7432, 0.1933, -0.0060, 0.1012, 0.8000, 0.6462, 0
UKESM1-0-LL
npp_hyst
npp_c_half
10
5
0
−5
−10
−15
−20
0
250
500
750
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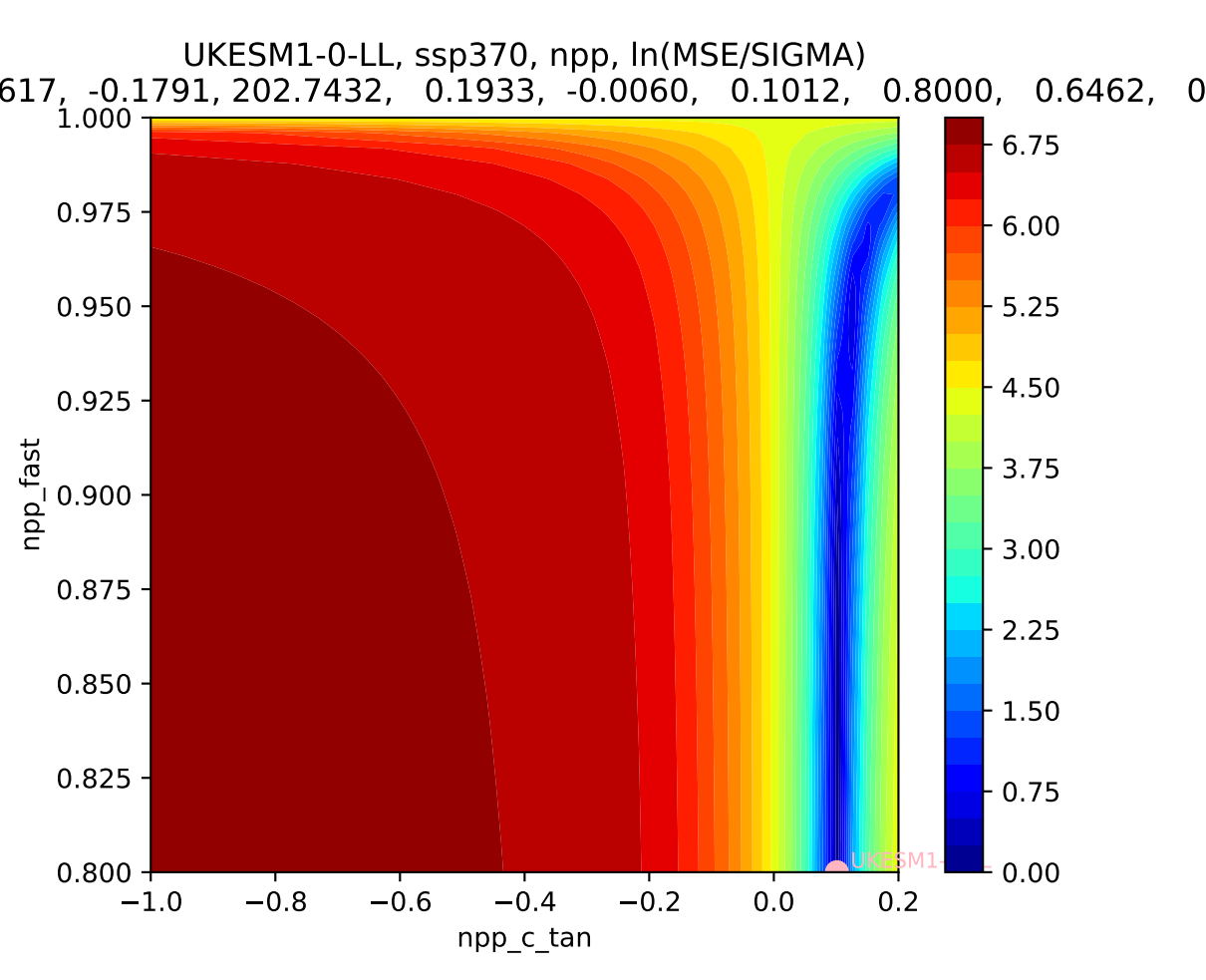
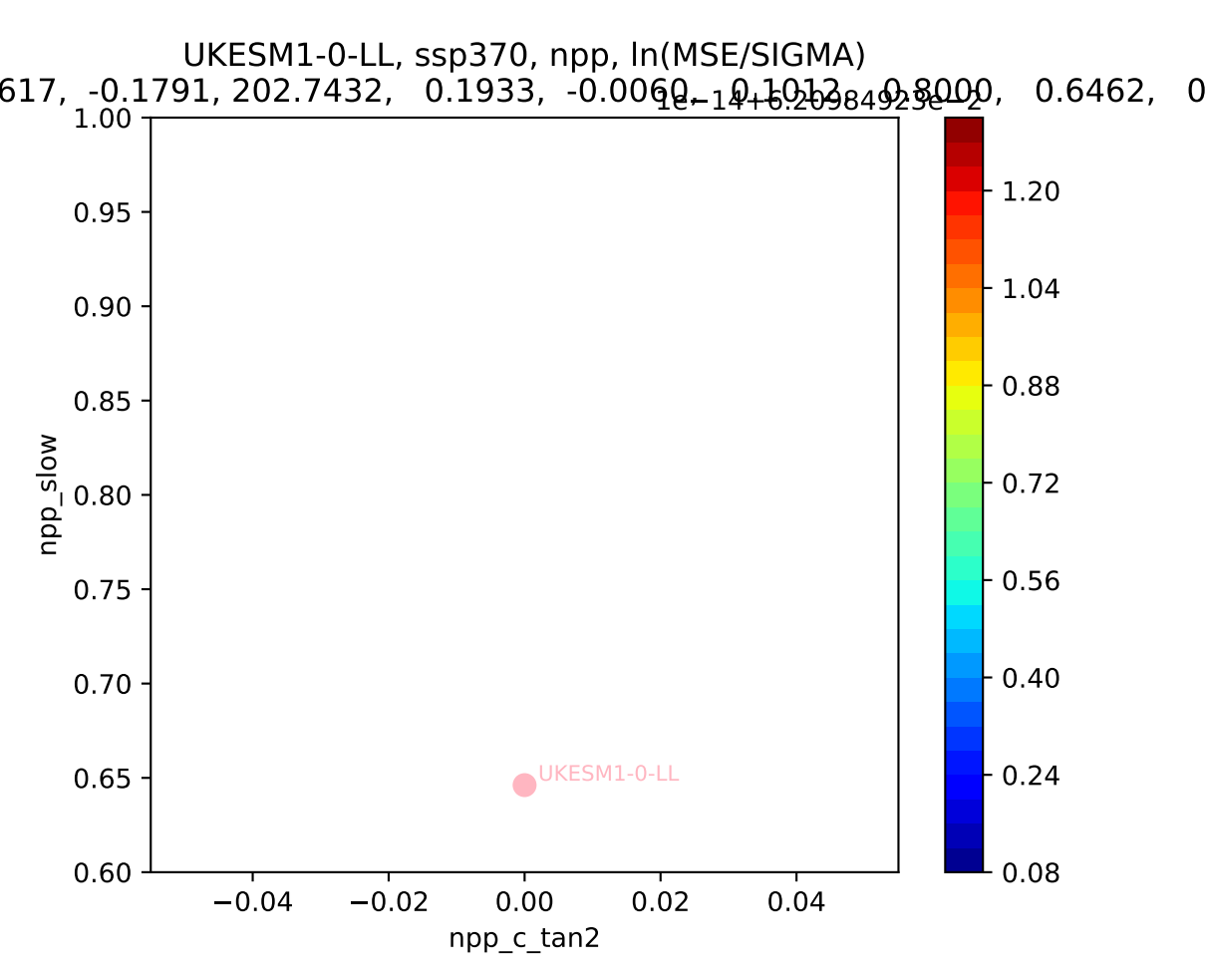
2.75
1.75


UKESM1-0-LL, ssp370, npp, ln(MSE/SIGMA)
617, -0.1791, 202.7432, 0.1933, -0.0060, 0.1012, 0.8000, 0.6462, 0
1.000
0.975
0.950
0.925
0.900
0.875
0.850
0.825
0.800
npp_fast
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
0.2
npp_c_tan
6.75
6.00
5.25
4.50
3.75
3.00
2.25
1.50
0.75
0.00


UKESM1-0-LL, ssp370, npp, ln(MSE/SIGMA)
617, -0.1791, 202.7432, 0.1933, -0.0060, 0.1012, 0.8000, 0.6462, 0
1e−14+6.2098492e−2
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
npp_slow
UKESM1-0-LL
−0.04
−0.02
0.00
0.02
0.04
npp_c_tan2
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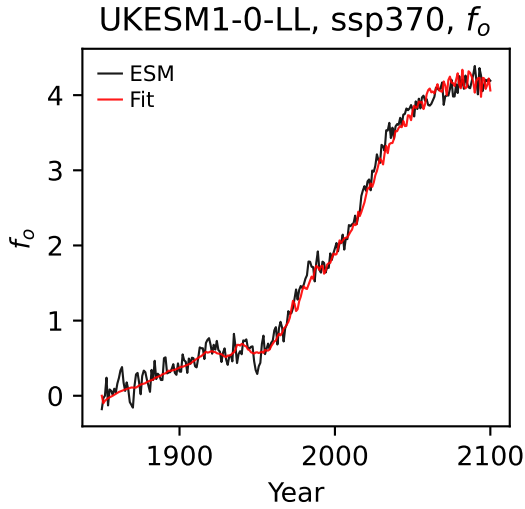
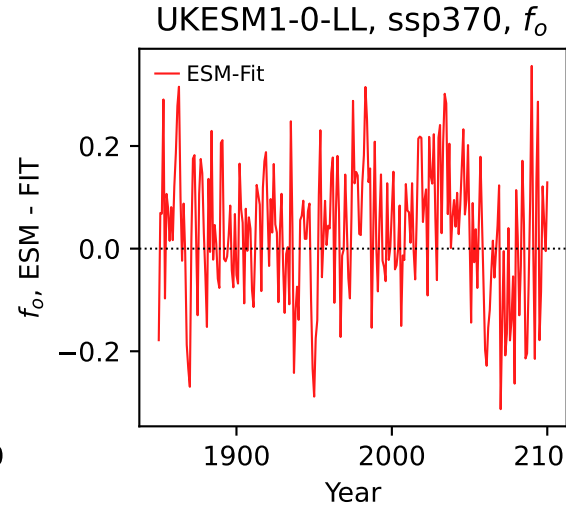
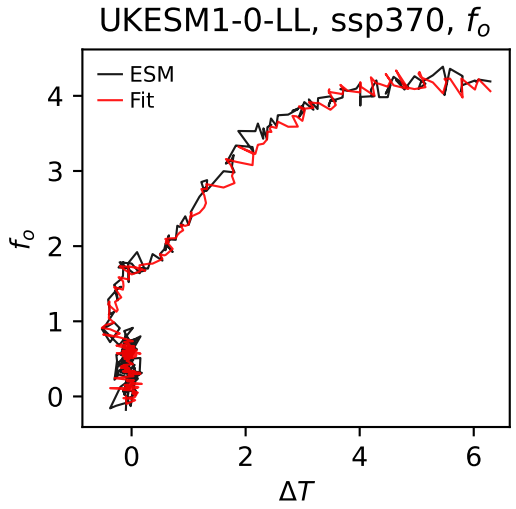
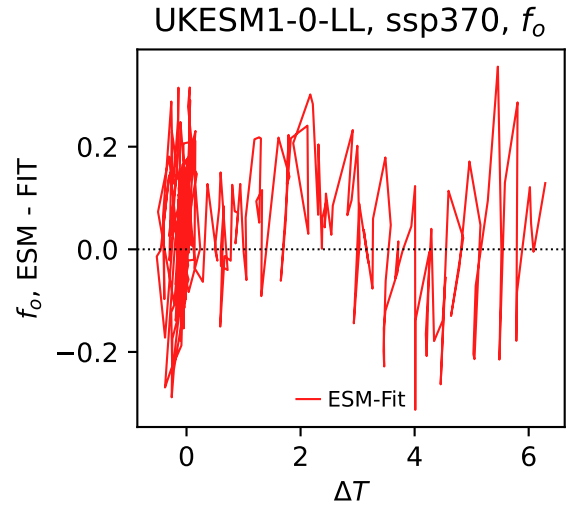
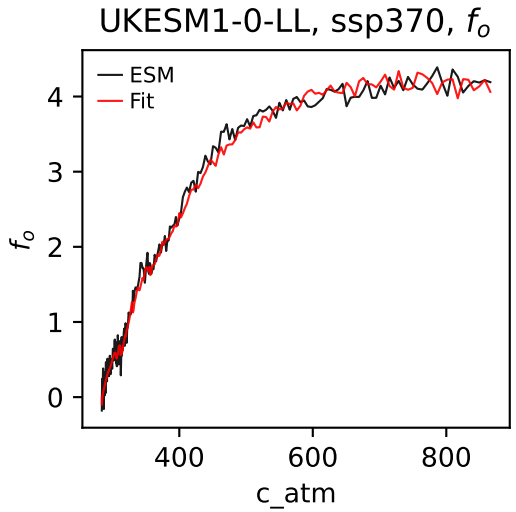
1.04
0.88
0.72
0.56
0.40
0.24
0.08

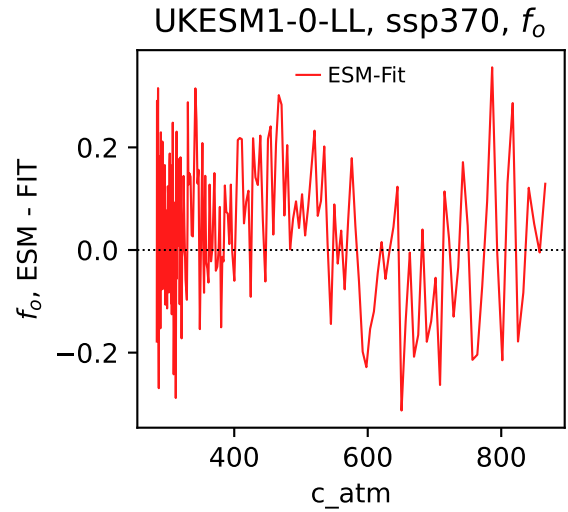

UKESM1-0-LL, ssp370, f_o
ESM
Fit
f_o
Year

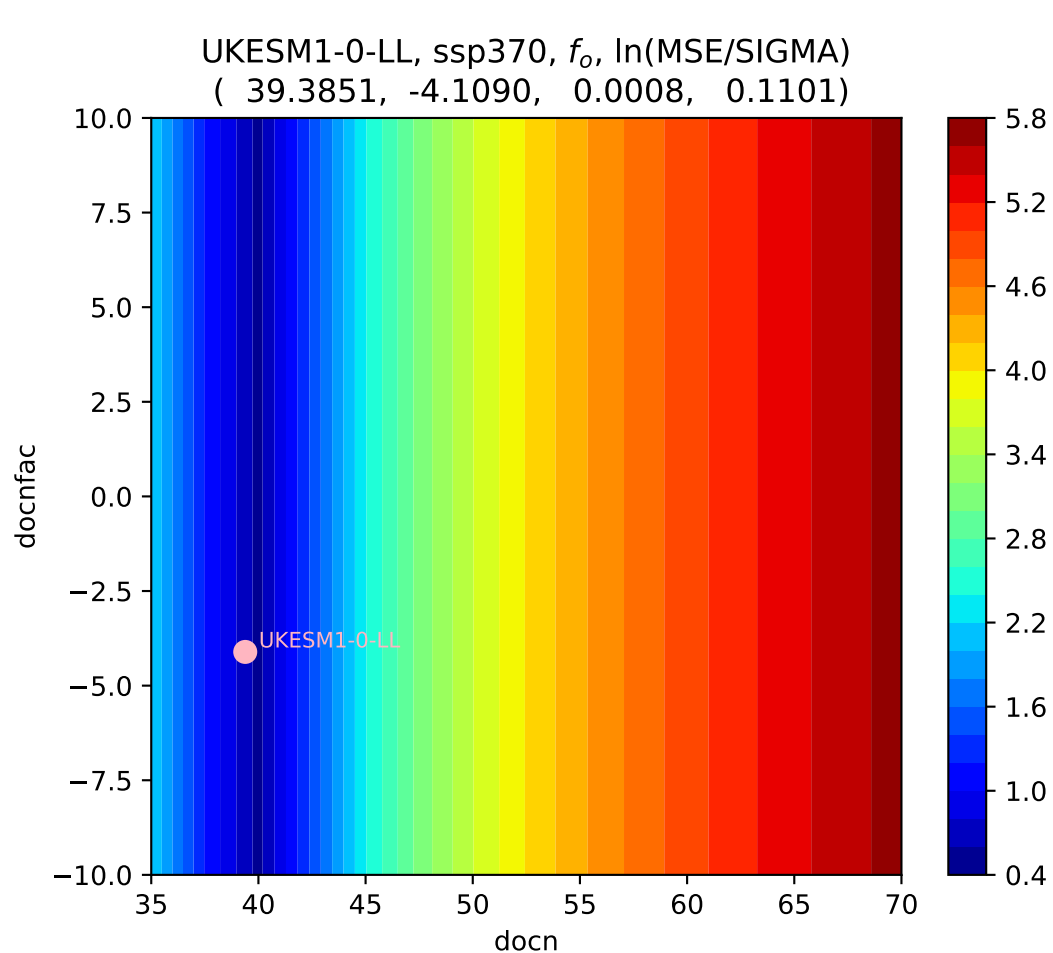

UKESM1-0-LL, ssp370, f_o
ESM-Fit
f_o, ESM - FIT
Year

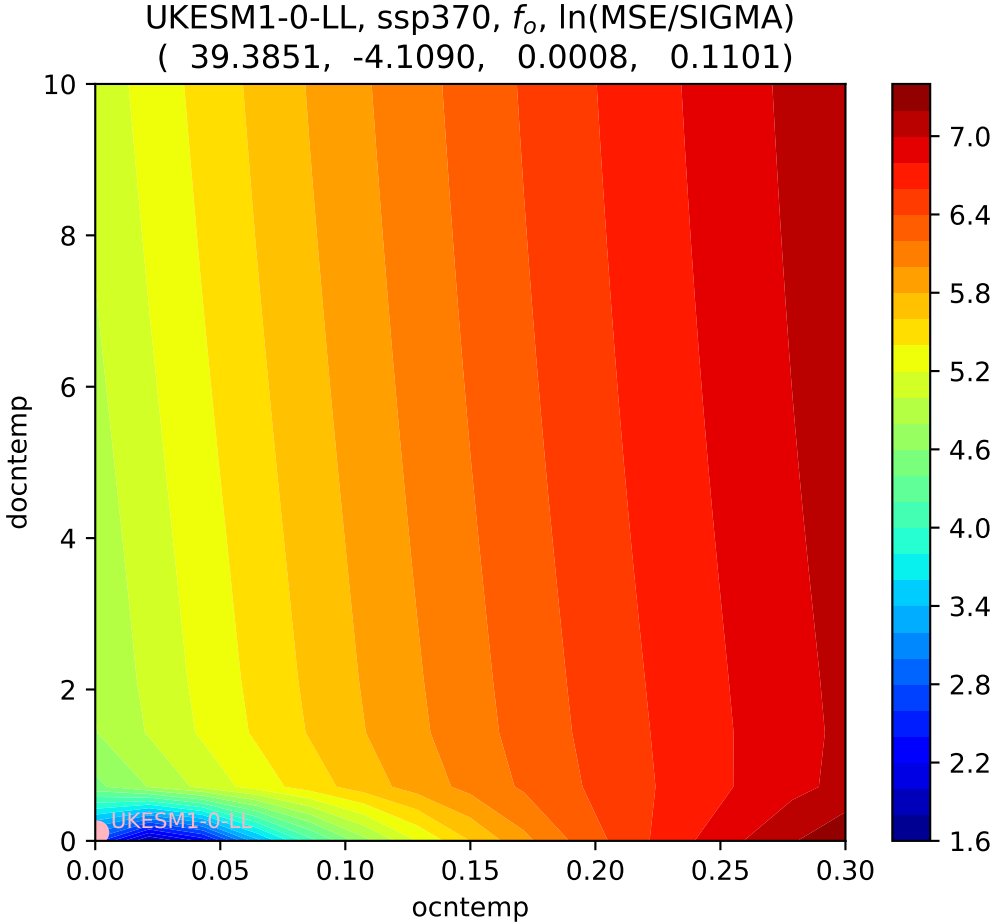

UKESM1-0-LL, ssp370, f_o
ESM
Fit
f_o
ΔT


UKESM1-0-LL, ssp370, f_o
ESM-Fit
f_o, ESM - FIT
ΔT


UKESM1-0-LL, ssp370, f_o
ESM
Fit
f_o
c_atm


UKESM1-0-LL, ssp370, f_o
ESM-Fit
f_o, ESM - FIT
c_atm


UKESM1-0-LL, ssp370, f_o, ln(MSE/SIGMA)
(39.3851, -4.1090, 0.0008, 0.1101)
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
docnfac
UKESM1-0-LL
35
40
45
50
55
60
65
70
docn
5.8
5.2
4.6
4.0
3.4
2.8
2.2
1.6
1.0
0.4


UKESM1-0-LL, ssp370, f_o, ln(MSE/SIGMA)
(39.3851, -4.1090, 0.0008, 0.1101)
docntemp
ocntemp
UKESM1-0-LL
0
2
4
6
8
10
0.00
0.05
0.10
0.15
0.20
0.25
0.30
7.0
6.4
5.8
5.2
4.6
4.0
3.4
2.8
2.2
1.6