

Runs carried out for the following publication:

Koeve, W., Kähler, P., Oschlies, A., 2020, Does Export Production Measure Transient Changes of the Biological Carbon Pump's Feedback to the Atmosphere Under Global Warming? Geophysical Research Letters, 47, e2020GL089928. [https://doi.org/ 10.1029/2020GL089928](https://doi.org/10.1029/2020GL089928).

Numbers (1st column) refer to numbers in Tab. S1 of publication. Names (2nd column) in bold refer to subfolder names in folders output/ and repro/. Runs 12 to 18 have different circulation, as indicated by the background diffusivity values (Kv). Each of the runs has its own CTRL. Experiments 2a to 18a are needed to correctly compute AOU for runs with SST-assimilation. These runs are used in Fig. S5. See the publication for details.

	Name	SST for air sea exchange assimilated	Assimilation of biological O2SMS
	COUPLED	-	-
	CTRL	-	-
1	COUPLED_SST	X	-
2	CoupAssEv / COUPLED_IMPOSE	X	X
3	CoupAssS40	X	South 40S
4	CoupAssS40N40	X	40S-40N
5	CoupAssN40	X	North 40N
6	CoupAssS40no	X	North 40S
7	CoupAss2x	X	Inverted
8	CtrlAssEv / CTRL_IMPOSE	-	X
9	CtrlAssS40	-	South 40S
10	CtrlAssS40N40	-	40S to 40N
11	CtrlAssN40	-	North 40N
12	Kv=0.5 Kv05_COUPLED_SST Kv05_CTRL	x -	- -
13	Kv=0.4 Kv04_COUPLED_SST Kv04_CTRL	x -	- -
14	Kv=0.3 Kv03_COUPLED_SST Kv03_CTRL	x -	- -
15	Kv=0.2 Kv02_COUPLED_SST Kv02_CTRL	x -	- -
16	Kv=0.1 Kv01_COUPLED_SST Kv01_CTRL	x -	- -
16	Kv=0.05 Kv005_COUPLED_SST Kv005_CTRL	x -	- -
18	Kv=0.01 Kv001_COUPLED_SST Kv001_CTRL	x -	- -

	Name	SST for air sea exchange assimilated	Assimilation of biological O2SMS
2a	CoupAssEv_a	-	X
3a	CoupAssS40_a	-	South 40S
4a	CoupAssS40N40_a	-	40S-40N
5a	CoupAssN40_a	-	North 40N
6a	CoupAssS40no_a	-	North 40S
7a	CoupAss2x_a	-	Inverted
12a	Kv=0.5 Kv05_COUPLED	-	- -
13a	Kv=0.4 Kv04_COUPLED	-	-
14a	Kv=0.3 Kv03_COUPLED	-	-
15a	Kv=0.2 Kv02_COUPLED	-	-
16a	Kv=0.1 Kv01_COUPLED	-	-
17a	Kv=0.05 Kv005_COUPLED	-	-
18a	Kv=0.01 Kv001_COUPLED	-	-