

Second Supplement to:

Submesoscale effects on changes to export production under global warming

Genevieve Jay Brett^{1,2}, Daniel B Whitt^{3,4}, Matthew C Long⁴, Frank O. Bryan⁴, Kate Feloy², Kelvin J. Richards²

¹Johns Hopkins University Applied Physics Laboratory 11100 Johns Hopkins Road, Laurel, MD 20723

²University of Hawai'i Manoa 1680 East West Road, Honolulu HI 96822

³Ames Research Center, National Aeronautics and Space Administration, Moffett Field, CA

⁴Climate and Global Dynamics Laboratory, National Center for Atmospheric Research, Boulder, CO,

This supplement details the code and data associated with the figures in the paper. The citations of and links to the archived code and data is in the Open Research section of the main paper.

The cmocean package is needed as well, available from <https://github.com/chadagreene/cmocean>

Figure number and short description	Code	Data * is a wildcard. Typically this represents the letters a through g or h, or a set of run indicators like _; 64visc; 2100_v3; 2100_v3_64visc.
1 rms w	plotrmsw.m make_seasonal_fields.m	nprod_10_4km_bipit_del250_means.mat, nprod_10_4km_bipit_del250_64visc_means.mat, nprod_10_4km_bipit_del250_2100_v3_64visc_means.mat, nprod_10_4km_bipit_del250_2100_v3_means.mat, ts_10_4km_bipit_del250_64visc_means.mat, ts_10_4km_bipit_del250_2100_v3_64visc_means.mat, ts_10_4km_bipit_del250_2100_v3_means.mat, ts_10_4km_bipit_del250_means.mat
2 N-density BC	nitratepdenchoices.m	WOA_nsfsubmeso_no3-pden_fit_31_aug_2020.mat, CESMLE_NO3_pden_osmosis.mat, sigmanutriOsmosis2.mat, npden_10_4km_bipit_del250_2100_v3_(a-h)_np.mat, npden_10_4km_bipit_del250_(a-h)_np.mat, npden_10_4km_bipit_del250_2100_v2_(a-h)_np.mat, npden_10_4km_bipit_del250_2100_(a-h)_np.mat
3,4 N, production	plotbioset.m make_seasonal_fields.m	ts_10_4km_bipit_del250_*_means.mat, nprod_10_4km_bipit_del250_*_means.mat, pset_10_4km_bipit_del250_*_means.mat
5 integrated production	productionsetPub.m	nprod_10_4km_bipit_del250_*_his.mat

6 mean vertical fluxes	plotmean100mFlux.m	exportfluxmeansV2.mat
7,8 100m fluxes, varied ws or covaried ws and tau	plotFlux100mVariedParameters.m	WP2000variedws.mat WP2000variedtau.mat
9,10 100m fluxes	plot100mWPclimatechangePub.m	pset_10_4km_bipit_*_his.mat
11, 12 w'P' and w'b'	filtermethodcompare.m make_seasonal_fields.m	ts_10_4km_bipit_del250_*_means.mat, nprod_10_4km_bipit_del250_2100_v3_means.mat, wpwb_10_4km_bipit_del250_*_np.mat
S1 physical fields 2000	plotphysics2000.m	ts_10_4km_bipit_del250_64visc_means.mat, ts_10_4km_bipit_del250_means.mat, nprod_10_4km_bipit_del250_64visc_means.mat, nprod_10_4km_bipit_del250_means.mat
S2 physical fields 2100	plotphysics2100.m	nprod_10_4km_bipit_del250_2100_v3_64visc_means.mat, ts_10_4km_bipit_del250_2100_v3_64visc_means.mat, ts_10_4km_bipit_del250_2100_v3_means.mat, nprod_10_4km_bipit_del250_2100_v3_means.mat
S3 KEh spectra	plot_spectra_depth_slice.m	spectra_10_4km_bipit_del250*.mat
S4 KEv spectra	plot_seasonal_spectra.m make_seasonal_spectra.m	spectra_10_4km_bipit_del250*.mat
S5, S6 w'P' and w'b', different method	filtermethodcompare.m make_seasonal_fields.m	ts_10_4km_bipit_del250_*_means.mat, nprod_10_4km_bipit_del250_2100_v3_means.mat, wpwb_10_4km_bipit_del250_*_np.mat
S7 100m fluxes, different boundary conditions	plot100mWPclimatechangePub.m	pset_10_4km_bipit_del250_2100_(a-h)_his.mat pset_10_4km_bipit_del250_2100_64visc_(a-h)_his.mat pset_10_4km_bipit_del250_(a-h)_his.mat pset_10_4km_bipit_del250_64visc_(a-h)_his.mat