# MOM-SIS / ACCESS-OM2 MOM5 namelist comparisons

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Latest version is here: https://github.com/aekiss/namelist-check

- GFDL\_ESM2M\_input.nml is from Steve's email 2017-10-18, from an ESM2M config that Jie is currently running. Steve commented "note that it is coupled, so there are heaps of non-ocean items. Also note that "ocean\_albedo" is set for a coupled model, and it is different for ocean/ice simulations. That is a major "gotcha" that Spence can share with you if interested." Fixed typo: replaced &diag\_inESM2\_Control\_216.xmltegral\_nml with &diag\_integral\_nml
- GFDL\_ESM2M\_input-cut.nml is GFDL\_ESM2M\_input.nml with irrelevant atmos/ESM namelist groups cut out. See comparison in final section for changes.
- MOM\_SIS\_TOPAZ\_input.nml is from MOM\_SIS\_TOPAZ/INPUT/ in /g/data/ua8/mom/test\_data/MOM\_SIS\_TOPAZ.input.tar.gz, dated 2009-12-16 10:44
- fabio\_momsis1\_input.nml is from Fabio's email 2017-09-20, derived from Paul's 1/4 degree (I think)
- paul\_momsis025\_input.nml is from Paul's email 2017-09-20
- fanghua\_momsis01v5KDS75\_WOA13\_input.nml is /g/data3/hh5/tmp/cosima/mom01v5/KDS75\_WOA13/output000/input.nml
- hogg\_accessom2\_1deg\_jra55\_ryf\_input.nml is /short/v45/amh157/access-om2/control/1deg\_jra55\_ryf/ocean/input.nml
- kiss\_accessom2\_025deg\_jra55\_ryf\_input.m.nml is /short/v45/aek156/access-om2/control/025deg\_jra55\_ryf/ocean/input.nml
- hogg\_accessom2\_01deg\_jra55\_ryf\_input.nml is /short/v45/amh157/access-om2/control/01deg\_jra55\_ryf/ocean/input.nml

#### Other useful info:

• Griffies et al. (2015) p973

Tables auto-generated by nmltab (https://github.com/aekiss/nmltab). Missing variables are shown as blank. Variables are weblinks to source code searches.

#### References

Griffies, S. M., and Coauthors, 2015: Impacts on ocean heat from transient mesoscale eddies in a hierarchy of climate models. *Journal of Climate*, **28** (3), 952–977, doi:10.1175/jcli-d-14-00353.1, URL http://dx.doi.org/10.1175/JCLI-D-14-00353.1.

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## 1 Differences between new ACCESS-OM2 configs

Only differences are shown. We aim to make this list as short as possible...

Group	Variable	new_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
&auscom_ice_nml	dt_cpl	3600 True	1800	600
&bg_diff_lat_dependence_nml	redsea_gulfbay_sfix bg_diff_eq	$\frac{\text{True}}{1 \times 10^{-6}}$		
	lat_low_bgdiff	20.0		
&fms_io_nml	fileset_write threading_write	'single' 'single'	'multi' 'multi'	'multi' 'multi'
&ocean_adv_vel_diag_nml	diaq_step	4320	4320	576
&ocean_barotropic_nml	diag_step	4320	4320	576
&ocean_lapgen_friction_nml	bottom_5point	True		
	k_smag_aniso k_smag_iso	0.0 0.0		
	ncar_only_equatorial	True		
	restrict_polar_visc	True		
	restrict_polar_visc_lat restrict_polar_visc_ratio	60.0 0.35		
	use_this_module	True	False	False
	vconst_1	0.000 000 8		
	vconst_2	0.0		
	vconst_3 vconst_4	$0.8 \\ 5 \times 10^{-9}$		
	vconst_5	3 ~ 10		
	vconst_6	300 000 000.0		
	vconst_7	100.0		
	vel_micom_iso viscosity_ncar	0.1 True		
	viscosity_ncar_2000	False		
	viscosity_ncar_2007	True		
	viscosity_scale_by_rossby	True		
&ocean_mixdownslope_nml	viscosity_scale_by_rossby_power debug_this_module	100.0 False		
accean_mixdownstope_mint	mixdownslope_mask_gfdl	False		
	mixdownslope_npts	4		
	read_mixdownslope_mask use_this_module	False	F-1	F-1
&ocean_model_nml	dt_ocean	True 3600	False 1200	False 150
Woccur_moder_mit	io_layout	4, 3	6,5	10, 15
	layout	16, 15	48,40	80,75
&ocean_nphysics_nml	use_nphysicsc use_this_module	True True	False False	False False
&ocean_nphysics_util_nml	agm	600.0	100.0	100.0
Goccan Inproject Control of the Cont	agm_closure_eady_ave_mixed	True	20010	200.0
	agm_closure_eady_cap	True		
	agm_closure_eady_smooth_horz agm_closure_eady_smooth_vert	True True		
	agm_closure_eden_gamma	0.0		
	agm_closure_eden_greatbatch	False		
	agm_closure_grid_scaling	True	4000	4000
	agm_closure_min agm_damping_time	50.0 45.0	100.0	100.0
	agm_smooth_space	False		
	agm_smooth_time	False		
	drhodz_mom4p1	True	False	False
&ocean_nphysicsc_nml	nphysics_util.zero_init bv_freq_smooth_vert	True True		
&ocean_nphysicsc_nint	bv_freq_sinouti_vert bvp_bc_mode	2		
	bvp_min_speed	0.1		
	bvp_speed	0.0 False		
	debug_this_module do_qm_skewsion	False True		
	do_neutral_diffusion	True		
	epsln_bv_freq	$1 \times 10^{-12}$		
	gm_skewsion_bvproblem	True		
	gm_skewsion_modes neutral_eddy_depth	False True		
	neutral_eddy_deptri neutral_physics_limit	True		
	number_bc_modes	2		
	regularize_psi	False		
	smax_psi smooth_psi	0.01 True		
	Siliootn_psi	irue		

Group (continued)	Variable	new_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
	tmask_neutral_on	True		
	turb_blayer_min	50.0		
	use_this_module	True	False	False
&ocean_solo_nml	days	1460	31	30
	dt_cpld	3600	1200	600
&ocean_sponges_tracer_nml	damp_coeff_3d			False
&ocean_tracer_diag_nml	diag_step	4320	4320	576
&ocean_velocity_diag_nml	diag_step	4320	4320	576
	energy_diag_step	4320	4320	5760
&xgrid_nml	do_alltoall			True
	do_alltoallv			True
	xgrid_log			False

## 2 Changes in new ACCESS-OM2 configs

### 2.1 accessom2\_1deg\_jra55\_ryf

Only differences are shown (inconsequential where use\_this\_module = .false. - see complete list below).

Group	Variable	original/ hogg_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 1deg jra55_ryf input.nml
&diag_manager_nml	debug_diag_manager	шрислин	True
	issue_oor_warnings	False	True
&fms_nml	domains_stack_size		115200
&monin_obukhov_nml	neutral		True
&mpp_io_nml	deflate_level shuffle		5 1
&ocean_albedo_nml	ocean_albedo_option		2
&ocean_barotropic_nml	zero_tendency		False
&ocean_bbc_nml	bmf_implicit		True
	cdbot_hi		0.007
	cdbot_law_of_wall	False	
	cdbot_roughness_length		False
	cdbot_roughness_uamp		True
Second has a farm and	uresidual	Falsa	0.05
&ocean_bbc_ofam_nml	read_tide_speed uresidual2_max	False 1.0	
&ocean_bihgen_friction_nml	bottom_5point	True	False
- Addition generation and	ncar_boundary_scaling_read	nuc	True
	vel_micom_bottom	0.01	0.0
	vel_micom_iso	0.04	0.0
	visc_crit_scale	0.25	1.0
&ocean_convect_nml	convect_full_scalar	False	
	convect_full_vector	True	40700
&ocean_density_nml	neutralrho_max	1030.0	1038.0
&ocean_domains_nml	neutralrho_min	1020.0 10	1028.0
&ocean_form_drag_nml	max_tracers cprime_aiki	0.6	<u> </u>
&ocean_frazil_nml	debug_this_module	0.0	False
docum_nuzic_iiiit	frazil_only_in_surface		False
	freezing_temp_preteos10		True
	freezing_temp_simple	True	False
&ocean_grids_nml	debug_this_module	True	False
	read_rho0_profile	False	
&ocean_increment_eta_nml	days_to_increment	0	
	fraction_increment	1.0	
&ocean_increment_tracer_nml	secs_to_increment	1800 0	
&ocean_increment_tracer_nint	days_to_increment fraction_increment	1.0	
	secs_to_increment	1800	
&ocean_increment_velocity_nml	days_to_increment	0	
	fraction_increment	1.0	
	secs_to_increment	1800	
&ocean_lapgen_friction_nml	viscosity_scale_by_rossby_power	4.0	100.0
&ocean_momentum_source_nml	rayleigh_damp_exp_from_bottom		False
&ocean_operators_nml	use_legacy_div_ud		False
&ocean_overexchange_nml	overexch_check_extrema	False	
&ocean_overflow_nml	debug_this_module	False	Ealco
&ocean_overflow_ofp_nml &ocean_pressure_nml	use_this_module zero_pressure_force		False False
&ocean_rivermix_nml	river_diffuse_salt	False	True
Goodana (Crimpania	river_diffuse_satt	False	True
&ocean_riverspread_nml	use_this_module	True	False
&ocean_rough_nml	rough_scheme		'beljaars'
&ocean_sbc_nml	calvingspread		False
	do_bitwise_exact_sum		False
	do_flux_correction		False
	land_model_heat_fluxes	0.0	False
	max_ice_thickness salt_correction_scale	8.0	0.0 0.0
	salt_correction_scate salt_restore_tscale	15.0	60.0
	temp_restore_tscale	-1.0	-10.0
	use_full_patm_for_sea_level	1.0	False
	waterflux_tavg	False	
	zero_net_salt_correction		False
	zero_net_water_correction		False

Group (continued)	Variable	original/ hogg_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 1deg jra55_ryf input.nml
&ocean_sbc_ofam_nml	restore_mask_ofam	False False	
&ocean_shortwave_csiro_nml	river_temp_ofam read_depth	True	
	use_this_module	True	False
&ocean_shortwave_gfdl_nml	zmax_pen optics_morel_antoine	7000	False
	read_chl	False	True
	sw_pen_fixed_depths use_this_module	False False	True
	zmax_pen	200.0	300.0
&ocean_shortwave_nml	use_shortwave_csiro	True	False
&ocean_sigma_transport_nml	use_shortwave_gfdl sigma_advection_on	False False	True
doccur-signaturisports into	sigma_advection_sgs_only	False	
	sigma_diffusion_on	True	
	sigma_diffusivity_ratio sigma_just_in_bottom_cell	$1  imes 10^{-6}$ True	
	sigma_umax	0.01	
	smooth_sigma_thickness	True	
	smooth_sigma_velocity smooth_velmicom	True 0.2	
	thickness_sigma_layer	100.0	
	thickness_sigma_max	100.0 100.0	
	thickness_sigma_min tmask_sigma_on	False	
	tracer_mix_micom	True	
	use_this_module vel_micom	True 0.05	False
&ocean_solo_nml	debug_this_module	False	
&ocean_sponges_tracer_nml	damp_coeff_3d	False	
&ocean_submesoscale_nml	coefficient_ce smooth_advect_transport		0.05 True
	smooth_advect_transport_num		4
	smooth_psi		True
	smooth_psi_num submeso_advect_flux		3 False
	submeso_advect_limit		True
	submeso_advect_upwind		True
	submeso_advect_zero_bdy submeso_diffusion		True False
	submeso_diffusion_biharmonic		True
	submeso_diffusion_scale submeso_limit_flux	True	10.0
	submeso_skew_flux	iiue	True
	use_psi_legacy		False
&ocean_tempsalt_nml	pottemp_equal_contemp s_max	55.0	True 70.0
	S_min	-1.0	0.0
	s_min_limit	0.0	2.0
	t_min t_min_limit	−5.0 −2.0	-20.0 -5.0
	temperature_variable	'conservative	'potential
O accordiations and	total the constant	temp'	temp'
&ocean_thickness_nml	initialize_zero_eta read_rescale_rho0_mask	False False	
	rescale_mass_to_get_ht_mod		False
	rescale_rho0_basin_label rescale_rho0_mask_gfdl	7.0 False	
	rescale_rho0_value	0.75	
	thickness_dzt_min	1.0	
&ocean_topog_nml	thickness_dzt_min_init min_thickness	2.0 25.0	
&ocean_tracer_advect_nml	advect_sweby_all	True	
	async_domain_update	True	<b>.</b> .
&ocean_tracer_diag_nml	read_basin_mask tracer_conserve_days	1.0	False 30.0
&ocean_velocity_nml	tracer_conserve_days truncate_velocity	True	False
•	zero_tendency_explicit_a		False
	zero_tendency_explicit_b zero_tendency_implicit		False False
&ocean_vert_kpp_mom4p0_nml	use_this_module	False	raise
&ocean_vert_kpp_mom4p1_nml	diff_con_limit	0.1	
	visc_con_limit	0.1	

Group (continued)	Variable	original/ hogg_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 1deg jra55_ryf input.nml
&ocean_vert_mix_nml	afkph_00	0.65	
GOOGLE TO LEARN STATE	afkph_90	0.75	
	bryan_lewis_lat_depend	True	False
	bryan_lewis_lat_transition	35.0	
	dfkph_00	1.15	
	dfkph_90	0.95	
	hwf_diffusivity		False
	hwf_min_diffusivity		$2 \times 10^{-6}$
	hwf_n0_2omega		20.0
	linear_taper_diff_cbt_table	False	
	sfkph_00	$4.5 \times 10^{-5}$	
	sfkph_90	$4.5 \times 10^{-5}$	
	zfkph_00	250 000.0	
	zfkph_90	250 000.0	
&ocean_vert_tidal_nml	background_diffusivity	$5 \times 10^{-6}$	0.0
	decay_scale	300.0	500.0
	drag_dissipation_use_cdbot	42	True
	drhodz_min	$1 \times 10^{-12}$	$1 \times 10^{-10}$
	max_drag_diffusivity	0.01	
	roughness_scale	20 000.0	12 000.0
	shelf_depth_cutoff	160.0	-1000.0
	use_legacy_methods		False
&ocean_xlandinsert_nml	verbose_init_	True	
&ocean_xlandmix_nml	verbose_init	True	
0 1	xlandmix_kmt	True	47
&xgrid_nml	nsubset		16

## $2.2 \quad accessom2\_025 deg\_jra55\_ryf$

Only differences are shown (inconsequential where use\_this\_module = .false. - see complete list below). We aim to make this list as short as possible, as this is where we've invested most SU...

Group	Variable	original/ kiss_acces- som2 025deg jra55_ryf	new_acces- som2 025deg jra55_ryf input.nml
&auscom_ice_nml	dt_cpl	input.nml 1200	1800
&duscom_ne_nimit &fms_io_nml	fileset_write	'single'	'multi'
XIIII3_IO_IIIIIL	threading_write	'single'	'multi'
&fms_nml	domains_stack_size	Siligic	115200
&mpp_io_nml	deflate_level		5
жиррыодин	shuffle		1
&ocean_bih_tracer_nml	tracer_mix_micom	True	
2000412511244001211114	vel_micom	0.001	
&ocean_convect_nml	convect_full_scalar	True	
	convect_full_vector	False	
&ocean_lapgen_friction_nml	k_smag_iso	2.0	
&ocean_mixdownslope_nml	debug_this_module	False	
&ocean_nphysics_util_nml	smax	0.002	
	swidth	0.002	
&ocean_overflow_nml	debug_this_module	False	
&ocean_overflow_ofp_nml	debug_this_module	False	
	diag_step	4320	
	do_entrainment_para_ofp	False	
	do_mass_ofp	True	
	frac_exchange_src	1.0	
	max_vol_trans_ofp	10 000 000.0	
&ocean_rivermix_nml	river_diffuse_salt	False	True
	river_diffuse_temp	False	True
&ocean_shortwave_csiro_nml	debug_this_module	False	
	read_depth	True 7000	
Passan sigma transport ami	zmax_pen sigma_advection_on	False	
&ocean_sigma_transport_nml	<b>_</b>	False	
	sigma_advection_sgs_only sigma_diffusion_on	True	
	sigma_diffusivity_ratio	$1 \times 10^{-6}$	
	sigma_umusivity_latio sigma_just_in_bottom_cell	True	
	sigina_just_in_bottom_cett sigma_umax	0.01	
	smooth_sigma_thickness	True	

Group (continued)	Variable	original/ kiss_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml
	smooth_sigma_velocity	True	
	smooth_velmicom	0.2	
	thickness_sigma_layer	100.0	
	thickness_sigma_max	100.0	
	thickness_sigma_min	100.0	
	tmask_sigma_on	False	
	tracer_mix_micom	True	
	vel_micom	0.05	
&ocean_sponges_tracer_nml	damp_coeff_3d	False	
&ocean_thickness_nml	thickness_dzt_min	2.0	
	thickness_dzt_min_init	10.0	
&ocean_velocity_nml	max_cgint	1.5	1.0
&surface_flux_nml	ncar_ocean_flux	True	
	raoult_sat_vap	True	

## $2.3 \quad accessom2\_01deg\_jra55\_ryf$

Only differences are shown (inconsequential where use\_this\_module = .false. - see complete list below).

&diag_manager_mnl         debug_diag_manager         Total state of the state of	Group	Variable	original/ hogg_acces- som2 01deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
Sisse. Or Namings   False   Time	&auscom_ice_nml	dt_cpl	150	600
Max August	&diag_manager_nml	debug_diag_manager		True
Max. Files   1000   max. input. field   700		issue_oor_warnings		True
Back place of the control of				
Max. Junt maxis sets max. Junt mit mit max. Junt mit mit mit mit mit mit mit mit mit mi		max_files		
Kims.io.nml         max.cutput.fields         700           Kims.io.nml         chestsum.required         False           Kims.nml         print.memory.usge         False           &generic.tracer.nml         dogeneric.trc         False           & dogeneric.tracer         False           &cocean.bint.tracer, mil         max.decr.mix.micom           well_micro.mlap.ding         0.001           &cocean.printle         convert.mix.cut.cut.cut.cut.cut.cut.cut.cut.cut.cut		•		
Kims.io.nml         checksum.required max.files.rd         False max.files.rd         700 ma				
kinsnil         max.files.ur         700           kinsnil         printmemony.usage         False           kgeneric.tracer.mll         dogeneric.tracer         False           kocean.advection.velocity.nml         max.advection.relocity         Oz           kocean.advection.velocity.nml         vel.micom.lap.diag         OS           kocean.bib.tracer.nml         vel.micom.lap.diag         OS           kocean.convect.nml         convect.full.vector         True           kocean.convect.nml         convect.full.vector         False           kocean.convect.nml         kocean.convect.trull.vector         False           kocean.convect.nml         kocean.convect.trull.vector         False           kocean.physic.util.nml         kocean.physic.util.nml         Kocean.physic.util.nml         False           kocean.model.mnl         debug.this.module         False         False           kocean.overflow.ofp.nml         debug.this.module         False         False           kocean.overflow.ofp.nml         debug.this.module         False		•		
ffmml         max.files.wm         700           ffmml         pint.memory.usage         False           &generic.tracer.ml         do.generic.cric         False           do.generic.tracer         False         do.generic.tracer           &ceae.a.dwection.velocity.mnl         max.advection.xelocity         0.2           &ceae.a.bin.tracer.nml         mex.advection.pd.diag         0.5           &cocean.bin.tracer.mml         tracer.mix.micom         True           &cocean.convect.nml         convect.full.scalar         True           &cocean.convect.nml         convect.full.scalar         True           &cocean.mixed.mixed         convect.full.scalar         True           &cocean.mixed.mixed         convect.full.scalar         True           &cocean.mixed.mixed         convect.full.scalar         True           &cocean.mixed.mixed         false         True           &cocean.mixed.mixed         false         True           &cocean.model.nml         debug.this.module         False           &cocean.overflow.nl         debug.this.module         False           &cocean.overflow.ofp.mml         debug.this.module         False           &cocean.overflow.ofp.mml         debug.this.module         False <th< td=""><td>&amp;fms_io_nml</td><td></td><td></td><td></td></th<>	&fms_io_nml			
&fms.nml         print_memory.usage         False           &generic.tracer.nml         do_generic.tracer         False of do_generic.tracer           &coean_advection_velocity_nml         mxx_advection_velocity         0.2           &coean_bin_tracer_nml         vel_micom_lap_diag         0.5           &coean_bin_tracer_nml         tracer_mix_micom         vel_micom           vel_micom         0.001         0.001           &coean_convect_nml         convect_full_textor         False           &coean_nix_downstope_nml         convect_full_textor         Tue           &coean_mix_downstope_nml         debug_this_module         False           &coean_noverflow.nml         gas_abs_abs_abs_abs_abs_abs_abs_abs_abs_a				
Repensic_tracer_nml         do_generic_tracer         False of do_generic_tracer         Do_generic_tracer_tracer         Do_generic_tracer_tracer         Do_generic_tracer_tracer_tracer         Truce of tracer_tr		max_files_w	700	
Mogeneric Lapaz   False   Mogeneric Lapaz   Mogeneric	&fms_nml	print_memory_usage		
Accean_advection_velocity_nml         do_generic_tracer         False           &cocean_barctropic_nml         vel_minom_lap_diag         0.5           &cocean_bib_t_tracer_nml         tracer_mix_micm         True           &cocean_convect_nml         convect_full_scalar convect_full_vector         False           &cocean_lapgen_friction_nml         k. smagiso         2.0           &cocean_mixdownslope_nml         debugthis_module         False           &cocean_model_nml         smax         0.002           &cocean_model_nml         smax         0.002           &cocean_noverflow_nml         debugthis_module         False           &cocean_overflow_nml         debugthis_module         False           &cocean_overflow_ofp_nml         debugthis_module         False           &cocean_overflow_ofp_nml         debugthis_module         False           &cocean_overflow_and         debugthis_module         False           &cocean_iverspread_nml         debugthis_module         False           &cocean_iverspread_nml         gen_a.woltrans.orp         100000000           &cocean_sigmatransport_nml         sigmaadvection_sg, only         False           &cocean_sigmatransport_nml         sigmaadvection_sg, only         False           &coce	&generic_tracer_nml	do_generic_cfc	False	
& cocean_advection_velocity_nmll         max_advection_velocity_moding         0.5           & cocean_bortoriop(ml)         vel_mitorm_lap_diag         0.5           & cocean_init_mitor         Tirue           & cocean_init_mitor         Quality_cover_mix_mitor         Tirue           & cocean_convect_nml         convect_full_vector         False           & cocean_mixedownslope_nml         debug_this_module         False           & cocean_mixedownslope_nml         debug_this_module         False           & cocean_nowerflow_nml         debug_this_module         False           & cocean_overflow_ofp_nml         debug_this_module         False           & cocean_overflow_ofp_nml         debug_this_module         False           & cocean_overflow_ofp_nml         debug_this_module         False           & cocean_inverspread_nml         debug_this_module         False           & cocean_inverspread_nml         debug_this_module         False           & cocean_sigma_transport_nml         debug_this_module         False           & cocean_sigma_transport_nml         debug_this_module         False           & sigma_addiffusion_on         True         False           & cocean_sigma_transport_nml         sigma_addiffusion_on         True           & sigma_addiffusio			False	
&ocean_bardtropic_nml         vel_micom ap_diag         0.5           &ocean_Libit_tracer_nml         tracer_mix_micom vel_micom out         True vel_micom out           &ocean_convect_nml         convect_full_scalar or False         True convect_full_scalar or False           &ocean_lapgen_friction_nml         k_smagiso         2.0           &ocean_mixdownstoppe_nml         debug_this_module         False           &ocean_model_nml         smax         0.002           &ocean_noverflow_nml         debug_this_module         False           &ocean_overflow_ofp_nml         debug_this_module         False           &ocean_overflow_ofp_nml         debug_this_module         False           &ocean_overflow_ofp_nml         debug_this_module         False           &ocean_overflow_ofp_nml         debug_this_module         False           do_nass_ofp         True         False           sigma_diffusion_on         True			False	
& cean_bih_tracer_nml         tracer_mix_micom vel_micom vel_micom 0.001         True vel_micom 0.001           & cean_convect_nml         convect_full_scalar True convect_full_scalar True convect_full_scalar True convect_full_scalar True convect_full_scalar True convect_full_vector False         5.20           & cocean_lapgen_friction_nml         k.smag_iso 2.0         2.0           & cocean_model_nml         cmip_units         True scalar True sigma_divection_os_only         5.60           & cocean_overflow_ofp_nml         debug_this_module false do_unass_ofp frue frace.exchange_src 1.0         5.76           & cocean_riverspread_nml         debug_this_module false do_unass_ofp frue frace.exchange_src 1.0         5.76           & cocean_riverspread_nml         debug_this_module scalar true scalar true scalar true sigma_advection_os_only false sigma_advection_os_only sigma_diffusion_on true sigma_advection_os_only sigma_unam true sigma_advection_os_only sigma_unam 0.01         5.76           & cocean_sigma_transport_nml         sigma_diffusion_true true sigma_unam 0.01         1 x 10 -6           & sigma_diffusion_true true sigma_unam 0.01         1 x 10 -6         1 x 10 -6           & sigma_diffusion_true true true sigma_unam 0.01         1 x 10 -6         1 x 10 -6           & sigma_diffusion_true true true true true true true true	&ocean_advection_velocity_nml	max_advection_velocity	0.2	0.5
Scorean_convect_nml         vel_micom         0.001           & convect_full_vector         False           & cocean_lapgen_friction_nml         k.smag_iso         2.0           & cocean_mixdownslope_nml         debug_this_module         False           & cocean_model_nml         msmax         0.002           & cocean_noter[low_nml         swidth         0.002           & cocean_overflow_nml         debug_this_module         False           & cocean_overflow_nml         debug_this_module         False           & cocean_overflow_nml         debug_this_module         False           & cocean_overflow_nml         debug_this_module         False           & do_entrainment_para_ofp         False         False           & do_entrainment_para_ofp         False         False           & do_entrainment_para_ofp         False         False           & do_entrainment_para_ofp         True         False           & cocean_riverspread_nml         gend_entrains_ofp         100000000           & cocean_sigma_transport_nml         sigma_advection_on         False           & cocean_sigma_transport_nml         sigma_advection_on         True           & sigma_uniffusion_on         True           & sigma_uniffusion_on         True	&ocean_barotropic_nml	vel_micom_lap_diag	0.5	0.2
& ocean_convect_nml         convect_full_scalar convect_full_vector         True convect_full_vector         False           & ocean_laggen_friction_nml         0.2.0         0.2.0           & ocean_mixedownstope_nml         debug_this_module         False           & ocean_model_nml         0.002         swidth         0.002           & ocean_overflow_inml         debug_this_module         False           & ocean_overflow_ofp_nml         debug_this_module         False           & ocean_overflow_ofp_nml         debug_this_module         False           & ocean_overflow_ofp_nml         debug_this_module         False           & ocean_overflow_ofp_nml         frac_exchange_sr         1.0           & ocean_iverspread_nml         debug_this_module         False           & ocean_iverspread_nml         gigma_utin_in_odule         False           & ocean_sigma_transport_nml         sigma_advection_og         False           & sigma_advection_sgs_only         False           sigma_diffusion_or         True           sigma_diffusion_or         True           sigma_utin_in_bottom_cell         True           sigma_utin_bottom_cell         True           sigma_utin_bottom_cell         True           sigma_utin_bottom_cell         True <td>&amp;ocean_bih_tracer_nml</td> <td>tracer_mix_micom</td> <td>True</td> <td></td>	&ocean_bih_tracer_nml	tracer_mix_micom	True	
Scoean_lapgen_friction_nml         R.smag_iso         2.0           & ocean_mixidownslope_nml         debug_this_module         False           & ocean_model_nml         cmip_units         Ti           & ocean_nphysics_util_nml         smax         0.002         Ti           & ocean_overflow_nml         debug_this_module         False         Cocean_overflow_nml         False         Cocean_overflow_of_nml         Cocean_overflow_of_nml         False         Cocean_overflow_of_nml         Cocean_overflow_overflow_of_nml		vel_micom	0.001	
Scoean_lapgen_friction_nml         R.smag_iso         2.0           & ocean_mixidownslope_nml         debug_this_module         False           & ocean_model_nml         cmip_units         Ti           & ocean_nphysics_util_nml         smax         0.002         Ti           & ocean_overflow_nml         debug_this_module         False         Cocean_overflow_nml         False         Cocean_overflow_of_nml         Cocean_overflow_of_nml         False         Cocean_overflow_of_nml         Cocean_overflow_overflow_of_nml	&ocean_convect_nml	convect_full_scalar	True	
&ocean_mixtdownslope_nml     debug_this_module corean_nodel_nml     False corean_nodel_nml       &ocean_nodel_nml     smax swidth     0,002 swidth			False	
&ocean_mixtdownslope_nml     debug_this_module corean_nodel_nml     False corean_nodel_nml       &ocean_nodel_nml     smax swidth     0,002 swidth	&ocean_lapgen_friction_nml	k_smag_iso	2.0	
& ocean_nphysics_util_nml         smax swidth swidth no.002         0.002 swidth no.002           & ocean_overflow_nml         debug_this_module debug_this_module noise and suggestion a		debug_this_module	False	
&ocean_overflow_nml         swidth debug_this_module         False           &ocean_overflow_ofp_nml         debug_this_module         False           & diag_step         5760         diag_step         5760           do_entrainment_para_ofp         False         do_mass_ofp         True         True         frac_exchange_src         1.0         max_vol_trans_ofp         10 000 0000         do_max_vol_trans_ofp         10 000 0000         do_max_vol_trans_ofp         False         frac_exchange_src         1.0         max_vol_trans_ofp         frac_exchange_src         1.0         max_vol_trans_ofp         10 000 0000         do_max_vol_trans_ofp         frac_exchange_src         1.0         max_vol_trans_ofp         frac_exchange_src         1.0         max_vol_trans_ofp         frac_exchange_src         1.0         max_vol_trans_ofp         frac_exchange_src         1.0         frac_exchange_src	&ocean_model_nml	cmip_units		True
&ocean_overflow_nml         swidth debug_this_module         False           &ocean_overflow_ofp_nml         debug_this_module         False           & diag_step         5760         diag_step         5760           do_entrainment_para_ofp         False         do_mass_ofp         True         True         frac_exchange_src         1.0         max_vol_trans_ofp         10 000 0000         do_max_vol_trans_ofp         10 000 0000         do_max_vol_trans_ofp         False         frac_exchange_src         1.0         max_vol_trans_ofp         frac_exchange_src         1.0         max_vol_trans_ofp         10 000 0000         do_max_vol_trans_ofp         frac_exchange_src         1.0         max_vol_trans_ofp         frac_exchange_src         1.0         max_vol_trans_ofp         frac_exchange_src         1.0         max_vol_trans_ofp         frac_exchange_src         1.0         frac_exchange_src	&ocean_nphysics_util_nml	smax	0.002	
&ocean_overflow_ofp_nml       debug_this_module diag_step       5760         do_entrainment_para_ofp       False do_mass_ofp       True fac_exchange_src       1.0         do_mass_ofp       True frac_exchange_src       1.0       10 000 000.0         &ocean_riverspread_nml       debug_this_module use_this_module use_this_module       False use_this_module       True       False use_this_module       False use_this_module       False use_this_module       False use_this_module       False use_this_module       False use_this_module       True       False use_this_module       False use_this_module       True       False use_this_module       True       False use_this_module       True       True </td <td>• •</td> <td>swidth</td> <td>0.002</td> <td></td>	• •	swidth	0.002	
&ocean_overflow_ofp_nml       debug_this_module diag_step       5760         do_entrainment_para_ofp       False do_mass_ofp       True fac_exchange_src       1.0         do_mass_ofp       True frac_exchange_src       1.0       10 000 000.0         &ocean_riverspread_nml       debug_this_module use_this_module use_this_module       False use_this_module       True       False use_this_module       False use_this_module       False use_this_module       False use_this_module       False use_this_module       False use_this_module       True       False use_this_module       False use_this_module       True       False use_this_module       True       False use_this_module       True       True </td <td>&amp;ocean_overflow_nml</td> <td>debug_this_module</td> <td>False</td> <td></td>	&ocean_overflow_nml	debug_this_module	False	
diag_step5760do_entrainment_para_ofpFalsedo_mass_ofpTruefrac_exchange_src1.0max_vol_trans_ofp10 000 0000&ocean_riverspread_nmldebug_this_module use_this_module use_this_moduleFalse&ocean_sigma_transport_nmlsigma_advection_on sigma_advection_sgs_only sigma_diffusion_onFalsesigma_diffusion_onTruesigma_diffusivity_ratio1 × 10^{-6}sigma_just_in_bottom_cell sigma_umax smooth_sigma_thicknessTruesmooth_sigma_thicknessTruesmooth_sigma_velocityTruesmooth_velmicom smooth_velmicom0.2thickness_sigma_layer100.0	&ocean_overflow_ofp_nml		False	
do_entrainment_para_ofpFalsedo_mass_ofpTruefrac_exchange_src1.0max_vol_trans_ofp10 000 000.0& ocean_riverspread_nmldebug_this_module use_this_module use_this_moduleFalse& ocean_sigma_transport_nmlsigma_advection_on sigma_advection_sgs_only sigma_diffusion_onFalse& sigma_diffusion_on sigma_diffusion_call sigma_just_in_bottom_cell sigma_just_in_bottom_cell sigma_tunax sigma_thickness sigma_thickness sigma_thickness smooth_sigma_velocity smooth_velmicon smooth_velmicon thickness_sigma_layerTrue smooth_velmicon 0.2 thickness_sigma_layer	<b>'</b>		5760	
do_mass_ofp frac_exchange_srcTrue frac_exchange_src4.01.04.0max_vol_trans_ofp10 000 000.04.0debug_this_module use_this_module u			False	
& ocean_riverspread_nml     debug_this_module use_this_module use_this_ma_advection_on False sigma_advection_sgs_only False sigma_diffusion_on True sigma_diffusivity_ratio 1 × 10^-6 sigma_just_in_bottom_cell use_this_module use_			True	
& ocean_riverspread_nml     debug_this_module use_this_module use_this_ma_advection_on False sigma_advection_sgs_only False sigma_diffusion_on True sigma_diffusivity_ratio 1 × 10^-6 sigma_just_in_bottom_cell use_this_module use_		frac_exchange_src	1.0	
weethis_module     True     False       &ocean_sigma_transport_nml     sigma_advection_on     False       sigma_advection_sgs_only     False     sigma_diffusion_on     True       sigma_diffusivity_ratio     1 × 10 <sup>-6</sup> sigma_just_in_bottom_cell     True       sigma_umax     0.01     smooth_sigma_thickness     True       smooth_sigma_velocity     True       smooth_velmicom     0.2       thickness_sigma_layer     100.0			10 000 000.0	
&ocean_sigma_transport_nml       sigma_advection_on sigma_advection_sgs_only sigma_diffusion_on true         sigma_diffusivity_ratio       1 × 10 <sup>-6</sup> sigma_just_in_bottom_cell sigma_umax       True         sigma_umax       0.01         smooth_sigma_thickness       True         smooth_sigma_velocity       True         smooth_velmicom       0.2         thickness_sigma_layer       100.0	&ocean_riverspread_nml	debug_this_module	False	
sigma_advection_sgs_only False sigma_diffusion_on True sigma_diffusivity_ratio 1 × 10 <sup>-6</sup> sigma_just_in_bottom_cell True sigma_umax 0.01 smooth_sigma_thickness True smooth_sigma_velocity True smooth_velmicom 0.2 thickness_sigma_layer 100.0	•	use_this_module	True	False
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	&ocean_sigma_transport_nml	sigma_advection_on	False	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	•	sigma_advection_sgs_only	False	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		sigma_diffusion_on		
sigma_just_in_bottom_cell True sigma_umax 0.01 smooth_sigma_thickness True smooth_sigma_velocity True smooth_velmicom 0.2 thickness_sigma_layer 100.0			$1  imes 10^{-6}$	
sigma_umax 0.01 smooth_sigma_thickness True smooth_sigma_velocity True smooth_velmicom 0.2 thickness_sigma_layer 100.0				
smooth_sigma_velocity True smooth_velmicom 0.2 thickness_sigma_layer 100.0			0.01	
smooth_velmicom 0.2 thickness_sigma_layer 100.0			True	
smooth_velmicom 0.2 thickness_sigma_layer 100.0			True	
			0.2	
			100.0	
TNICKNESS_SIGMA_MAX 100.0		thickness_sigma_max	100.0	

Group (continued)	Variable	original/ hogg_acces- som2 01deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
	thickness_sigma_min	100.0	
	tmask_sigma_on	False	
	tracer_mix_micom	True	
	vel_micom	0.05	
&ocean_solo_nml	dt_cpld	150	600
&ocean_tempsalt_nml	debug_this_module	True	False
&ocean_thickness_nml	thickness_dzt_min	2.0	
	thickness_dzt_min_init	10.0	
&sat_vapor_pres_nml	show_all_bad_values	True	
&surface_flux_nml	ncar_ocean_flux	True	
	raoult_sat_vap	True	

# 3 Old and new ACCESS-OM2 configs (differences highlighted)

Group	Variable	original/ hogg_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
&auscom_ice_nml	aice_cutoff	0.15	0.15	0.15	0.15	0.15	0.15
	chk_i2o_fields	False	False	False	False	False	False
	chk_o2i_fields do_ice_once	False False	False False	False False	False False	False False	False False
	do_ice_once dt_cpl	3600	3600	1200	1800	150	600
	fixmeltt	False	False	False	False	False	False
	frazil_factor	1.0	1.0	1.0	1.0	1.0	1.0
	iceform_adj_salt	False	False	False	False	False	False
	icemlt_factor	1.0	1.0	1.0	1.0	1.0	1.0
	kmxice	5	5	5	5	5	5
	pop_icediag <mark>redsea_gulfbay_sfix</mark>	True True	True True	True	True	True	True
	sign_stflx	1.0	1.0	1.0	1.0	1.0	1.0
	tmelt	-0.216	-0.216	-0.216	-0.216	-0.216	-0.216
	use_ioaice	True	True	True	True	True	True
&bg_diff_lat_dependence_nml	bg_diff_eq	$1 \times 10^{-6}$	$1 \times 10^{-6}$				
	lat_low_bgdiff	20.0	20.0				
&diag_manager_nml	debug_diag_manager		True	True	True		True
	issue_oor_warnings	False	True	True	True	False	True
	max_axes					300 1000	
	max_files max_input_fields					700	
	max_num_axis_sets					40	
	max_output_fields					700	
&fms_io_nml	checksum_required					False	
	fileset_write	'single'	'single'	'single'	'multi'	'multi'	'multi'
	max_files_r					700	
	max_files_w	1 1.0				700	1 1.11
	threading_read	'multi' 'ainala'	'multi'	'multi'	'multi'	'multi'	'multi'
&fms_nml	threading_write clock_grain	'single' 'LOOP'	'single' 'LOOP'	'single' 'LOOP'	'multi' 'LOOP'	'multi' 'LOOP'	'multi' 'LOOP'
&IIIIS_IIIII	domains_stack_size	LOOP	115200	LOOP	115200	115200	115200
	print_memory_usage		113200		113200	False	113200
&generic_tracer_nml	do_generic_cfc					False	
	do_generic_topaz					False	
9	do_generic_tracer	3. A2	·. a	·	·. a	False	' a'
&mom_oasis3_interface_nml	fields_in	'u_flux', 'v_flux',	'u_flux', 'v_flux',	'u_flux', 'v_flux',	'u_flux', 'v_flux',	'u_flux', 'v_flux',	'u_flux', 'v_flux',
		'lprec', 'fprec',	'lprec', 'fprec',	'lprec', 'fprec',	'lprec', 'fprec',	'lprec', 'fprec',	'lprec', 'fprec',
		'salt_flx',	'salt_flx',	'salt_flx',	'salt_flx',	'salt_flx',	'salt_flx',
		'mh_flux',	'mh_flux',	'mh_flux',	'mh_flux',	'mh_flux',	'mh_flux',
		'sw_flux',	'sw_flux',	'sw_flux',	'sw_flux',	'sw_flux',	'sw_flux',
		'q_flux',	'q_flux',	'q_flux',	'q_flux',	'q_flux',	'q_flux',
		't_flux',	't_flux',	't_flux',	't_flux',	't_flux',	't_flux',
		'lw_flux', 'runof' 'n'	'lw_flux', 'runof' 'n'	'lw_flux', 'runof' 'n'	'lw_flux', 'runof' 'n'	'lw_flux', 'runof' 'n'	'lw_flux', 'runof', 'p',
		'runof', 'p', 'aice',	'runof', 'p', 'aice',	'runof', 'p', 'aice',	'runof', 'p', 'aice',	'runof', 'p', 'aice',	'aice',
		'wfimelt',	'wfimelt',	'wfimelt',	'wfimelt',	'wfimelt',	'wfimelt',
		'wfiform'	'wfiform'	'wfiform'	'wfiform'	'wfiform'	'wfiform'
	fields_out	't_surf',	't_surf',	't_surf',	't_surf',	't_surf',	't_surf',
		's_surf',	's_surf',	's_surf',	's_surf',	's_surf',	's_surf',
		'u_surf',	'u_surf',	'u_surf',	'u_surf',	'u_surf',	'u_surf',
		'v_surf', 'dssldx',	'v_surf', 'dssldx',	'v_surf', 'dssldx',	'v_surf', 'dssldx',	'v_surf', 'dssldx',	'v_surf', 'dssldx',
		'dssldy',	'dssldy',	'dssldy',	'dssldy',	'dssldy',	'dssldy',
		'frazil'	'frazil'	'frazil'	'frazil'	'frazil'	'frazil'
	num_fields_in	15	15	15	15	15	15
		7	7	7	7	7	7
	num_fields_out			-	True	True	True
	send_after_ocean_update	True	True	True			
	send_after_ocean_update send_before_ocean_update		False	False	False	False	False
	send_after_ocean_update send_before_ocean_update neutral	True	False True		False True	False True	False True
&monin_obukhov_nml &mpp_io_nml	send_after_ocean_update send_before_ocean_update neutral deflate_level	True	False True 5	False	False True 5	False True 5	False True 5
&mpp_io_nml	send_after_ocean_update send_before_ocean_update neutral deflate_level shuffle	True False	False True 5 1	False True	False True 5 1	False True 5 1	False True 5 1
&mpp_io_nml	send_after_ocean_update send_before_ocean_update neutral deflate_level shuffle diag_step	True False	False True 5 1 4320	False True 4320	False True 5 1 4320	False True 5 1 576	False True 5 1 576
&mpp_io_nml	send_after_ocean_update send_before_ocean_update neutral deflate_level shuffle diag_step large_cfl_value	True False 4320 10.0	False True 5 1 4320 10.0	False True 4320 10.0	False True 5 1 4320 10.0	False True 5 1 576 10.0	False True 5 1 576 10.0
	send_after_ocean_update send_before_ocean_update neutral deflate_level shuffle diag_step large_cfl_value max_cfl_value	True False	False True 5 1 4320	False True 4320	False True 5 1 4320	False True 5 1 576	False True 5 1 576 10.0 100.0
&mpp_io_nml	send_after_ocean_update send_before_ocean_update neutral deflate_level shuffle diag_step large_cfl_value	True False 4320 10.0 100.0	False True 5 1 4320 1000	False True  4320 10.0 100.0	False True 5 1 4320 100 1000	False True 5 1 576 1000	False True 5 1 576 10.0

Group (continued)	Variable	original/ hogg_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
&ocean_barotropic_nml	barotropic_halo	_ 10	_ 10	_ 10	_ 10	_ 10	10
	barotropic_time_stepping_a barotropic_time_stepping_b	True False	True False	True False	True False	True False	True False
	debug_this_module	False	False	False	False	False	False
	diag_step	4320	4320	4320	4320	576	576
	eta_max	8.0	8.0	8.0	8.0	8.0	8.0
	frac_crit_cell_height	0.2	0.2	0.2	0.2	0.2	0.2
	pred_corr_gamma smooth_eta_diag_laplacian	0.2 True	0.2 True	0.2 True	0.2 True	0.2 True	0.2 True
	smooth_eta_t_biharmonic	False	False	False	False	False	False
	smooth_eta_t_laplacian	True	True	True	True	True	True
	smooth_pbot_t_biharmonic	False	False	False	False	False	False
	smooth_pbot_t_laplacian	True	True	True	True	True	True
	truncate_eta	False	False	False	False	False	False
	use_legacy_barotropic_halos vel_micom_bih	False 0.01	False 0.01	False 0.01	False 0.01	False 0.01	False 0.01
	vel_micom_lap	0.05	0.05	0.01	0.01	0.05	0.05
	vel_micom_lap_diag	0.2	0.2	0.2	0.2	0.5	0.2
	verbose_truncate	True	True	True	True	True	True
2 accor blog mad	zero_tendency		False	False	False	False	False
&ocean_bbc_nml	bmf_implicit cdbot	0.001	True 0.001	True 0.001	True 0.001	True 0.001	True 0.001
	cdbot_hi	0.001	0.001	0.001	0.001	0.001	0.001
	cdbot_law_of_wall	False					-
	cdbot_roughness_length		False	False	False	False	False
	cdbot_roughness_uamp		True	True	True	True	True
	uresidual	False	0.05 False	0.05 False	0.05 False	0.05 Falso	0.05
&ocean_bbc_ofam_nml	use_geothermal_heating read_tide_speed	False	raise	raise	raise	False	False
Woccan_bbc_blam_min	uresidual2_max	1.0					
&ocean_bih_friction_nml	bih_friction_scheme	'general'	'general'	'general'	'general'	'general'	'general'
&ocean_bih_tracer_nml	tracer_mix_micom			True		True	
	use_this_module	False	False	False	False	False	False
&ocean_bihcst_friction_nml	vel_micom use_this_module	False	False	0.001 False	False	0.001 False	False
&ocean_bingen_friction_nml	bottom_5point	True	False	False	False	False	False
docedi_binger_medon_min	eq_lat_micom	0.0	0.0	0.0	0.0	0.0	0.0
	eq_vel_micom_aniso	0.0	0.0	0.0	0.0	0.0	0.0
	eq_vel_micom_iso	0.0	0.0	0.0	0.0	0.0	0.0
	equatorial_zonal	False	False	False	False	False	False
	к_smag_aniso k_smag_iso	0.0 2.0	0.0 2.0	0.0 2.0	0.0 2.0	0.0 2.0	0.0 2.0
	ncar_boundary_scaling	True	True	True	True	True	True
	ncar_boundary_scaling_read		True	True	True	True	True
	ncar_rescale_power	2	2	2	2	2	2
	ncar_vconst_4	$2 \times 10^{-8}$	$2 \times 10^{-8}$	$2 \times 10^{-8}$	$2 \times 10^{-8}$	$2 \times 10^{-8}$	$2 \times 10^{-8}$
	ncar_vconst_5 use_this_module	5 True	5 True	5 True	5 True	5 True	5 True
	vel_micom_aniso	0.0	0.0	0.0	0.0	0.0	0.0
	vel_micom_bottom	0.01	0.0	0.0	0.0	0.0	0.0
	vel_micom_iso	0.04	0.0	0.0	0.0	0.0	0.0
	visc_crit_scale	0.25	1.0	1.0	1.0	1.0	1.0
&ocean_convect_nml	convect_full_scalar	False		True		True	
	convect_full_vector use_this_module	True False	False	False False	False	False False	False
&ocean_coriolis_nml	acor	0.5	0.5	0.5	0.5	0.5	0.5
	use_this_module	True	True	True	True	True	True
&ocean_density_nml	eos_linear	False	False	False	False	False	False
	eos_preteos10	True	True	True	True	True	True
	layer_nk	10700	80 10790	80 1079 0	80 1079.0	80 1078 0	80 1079.0
	neutralrho_max neutralrho_min	1030.0 1020.0	1038.0 1028.0	1038.0 1028.0	1038.0 1028.0	1038.0 1028.0	1038.0 1028.0
	potrho_max	1020.0	1028.0	1028.0	1028.0	1028.0	1038.0
	potrho_min	1028.0	1028.0	1028.0	1028.0	1028.0	1028.0
&ocean_domains_nml	max_tracers	10	5	5	5	5	5
&ocean_form_drag_nml	cprime_aiki	0.6			<b>.</b> .		<u>.</u> .
Paran frazil ped	use_this_module	False	False	False	False	False	False
&ocean_frazil_nml	debug_this_module frazil_only_in_surface		False False	False False	False False	False False	False False
	freezing_temp_preteos10		True	True	True	True	True
	freezing_temp_simple	True	False	False	False	False	False
	use_this_module	True	True	True	True	True	True
&ocean_grids_nml	debug_this_module	True	False	False	False	False	False

Group (continued)	Variable	original/ hogg_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
0	read_rho0_profile	False					
&ocean_increment_eta_nml	days_to_increment fraction_increment	0 1.0					
	secs_to_increment	1800					
	use_this_module	False	False	False	False	False	False
&ocean_increment_tracer_nml	days_to_increment	0					
	fraction_increment	1.0 1800					
	secs_to_increment use_this_module	False	False	False	False	False	False
&ocean_increment_velocity_nml	days_to_increment	0	1 4136	1 4130	1 4136	1436	1 4130
	fraction_increment	1.0					
	secs_to_increment	1800	F-1	F-I	F-1	Falsa	F-1
&ocean_lap_friction_nml	use_this_module lap_friction_scheme	False 'general'	False 'general'	False 'general'	False 'general'	False 'general'	False 'general'
&ocean_lap_tracer_nml	use_this_module	False	False	False	False	False	False
&ocean_lapcst_friction_nml	use_this_module	False	False	False	False	False	False
&ocean_lapgen_friction_nml	bottom_5point	True	True				
	k_smag_aniso	0.0	0.0	3.0		3.0	
	k_smag_iso ncar_only_equatorial	0.0 True	0.0 True	2.0		2.0	
	restrict_polar_visc	True	True				
	restrict_polar_visc_lat	60.0	60.0				
	restrict_polar_visc_ratio	0.35	0.35				
	use_this_module	True	True	False	False	False	False
	vconst_1 vconst_2	0.00 000 8 0.0	0.000 000 8 0.0				
	vconst_2	0.8	0.8				
	vconst_4	$5 \times 10^{-9}$	$5 \times 10^{-9}$				
	vconst_5	3	3				
	vconst_6	300 000 000.0	300 000 000.0				
	vconst_7 vel_micom_iso	100.0 0.1	100.0 0.1				
	viscosity_ncar	True	True				
	viscosity_ncar_2000	False	False				
	viscosity_ncar_2007	True	True				
	viscosity_scale_by_rossby	True	True				
&ocean_mixdownslope_nml	viscosity_scale_by_rossby_power debug_this_module	4.0 False	100.0 False	False		False	
a decarization of the control of the	mixdownslope_mask_gfdl	False	False	raise		raise	
	mixdownslope_npts	4	4				
	read_mixdownslope_mask	False	False				
&ocean_model_nml	use_this_module baroclinic_split	True 1	True 1	False 1	False 1	False 1	False 1
&ocean_modet_mit	baroctrinc_split barotropic_split	80	80	80	80	80	80
	cmip_units	True	True	True	True		True
	debug	False	False	False	False	False	False
	dt_ocean	3600	3600	1200	1200	150	150
	<mark>io_layout</mark> layout	4, 3 16, 15	4, 3 16, 15	6, 5 48, 40	6, 5 48, 40	10, 15 80, 75	10, 15 80, 75
	surface_height_split	10,13	10, 13	10, 40	1	1	1
	time_tendency	'twolevel'	'twolevel'	'twolevel'	'twolevel'	'twolevel'	'twolevel'
	vertical_coordinate	'zstar'	'zstar'	'zstar'	'zstar'	'zstar'	'zstar'
&ocean_momentum_source_nml	rayleigh_damp_exp_from_bottom	T	False	False	False	False	False
	use_rayleigh_damp_table use_this_module	True True	True True	True True	True True	True True	True True
&ocean_nphysics_nml	debug_this_module	False	False	False	False	False	False
	use_nphysicsa	False	False	False	False	False	False
	use_nphysicsb	False	False	False	False	False	False
	use_nphysicsc	True	True	False	False	False	False
&ocean_nphysics_util_nml	use_this_module agm	True 600.0	True 600.0	False 100.0	False 100.0	False 100.0	False 100.0
Social inpression and the second in the seco	agm_closure	True	True	True	True	True	True
	agm_closure_baroclinic	True	True	True	True	True	True
	agm_closure_buoy_freq	0.004	0.004	0.004	0.004	0.004	0.004
	agm_closure_eady_ave_mixed	True	True True				
	agm_closure_eady_cap agm_closure_eady_smooth_horz	True True	True				
	agm_closure_eady_smooth_vert	True	True				
	agm_closure_eden_gamma	0.0	0.0				
	agm_closure_eden_greatbatch	False	False				
	agm_closure_grid_scaling	True 50 000.0	True 50 000.0	50 000.0	50 000.0	50 000.0	50 000.0
	agm_closure_length agm_closure_length_bczone	50 000.0 False	50 000.0 False	50 000.0 False	50 000.0 False	50 000.0 False	50 000.0 False
	agin_closure_length_bc20ffe	Larza	Larze	Lqrze	Larse	Larze	raise

Group (continued)	Variable	original/ hogg_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
	agm_closure_length_fixed agm_closure_length_rossby	False False	False False	False False	False False	False False	False False
	agm_closure_lower_depth	2000.0	2000.0	2000.0	2000.0	2000.0	2000.0
	agm_closure_max	600.0	600.0	600.0	600.0	600.0	600.0
	agm_closure_min	50.0	50.0	100.0	100.0	100.0	100.0
	agm_closure_scaling agm_closure_upper_depth	0.07 100.0	0.07 100.0	0.07 100.0	0.07 100.0	0.07 100.0	0.07 100.0
	agm_damping_time	45.0	45.0	100.0	100.0	100.0	100.0
	agm_smooth_space	False	False				
	agm_smooth_time	False	False	(00.0	(000	(00.0	(00.0
	aredi aredi_equal_agm	600.0 False	600.0 False	600.0 False	600.0 False	600.0 False	600.0 False
	drhodz_mom4p1	True	True	False	False	False	False
	drhodz_smooth_horz	False	False	False	False	False	False
	drhodz_smooth_vert	False	False	False	False	False	False
	nphysics_util_zero_init	True	True	100,000,0	100 000 0	100 000 0	100 000 0
	rossby_radius_max rossby_radius_min	100 000.0 15 000.0	100 000.0 15 000.0	100 000.0 15 000.0	100 000.0 15 000.0	100 000.0 15 000.0	100 000.0 15 000.0
	rossby_radius_min smax	0.000	0.000	0.002	0.000	0.002	1.000.0
	swidth			0.002		0.002	
	tracer_mix_micom	False	False	False	False	False	False
Pagana nahusiga nad	vel_micom	0.0	0.0	0.0	0.0	0.0	0.0
&ocean_nphysicsa_nml &ocean_nphysicsb_nml	use_this_module use_this_module	False False	False False	False False	False False	False False	False False
&ocean_nphysicsc_nml	bv_freq_smooth_vert	True	True	1 8130	Talsc	Tatsc	Taisc
	bvp_bc_mode	2	2				
	bvp_min_speed	0.1	0.1				
	bvp_speed	0.0	0.0				
	debug_this_module do_gm_skewsion	False True	False True				
	do_neutral_diffusion	True	True				
	epsln_bv_freq	$1 \times 10^{-12}$	$1 \times 10^{-12}$				
	gm_skewsion_bvproblem	True	True				
	gm_skewsion_modes	False	False				
	neutral_eddy_depth neutral_physics_limit	True True	True True				
	number_bc_modes	2	2				
	regularize_psi	False	False				
	smax_psi	0.01	0.01				
	smooth_psi	True	True				
	tmask_neutral_on turb_blayer_min	True 50.0	True 50.0				
	use_this_module	True	True	False	False	False	False
&ocean_operators_nml	use_legacy_div_ud		False	False	False	False	False
&ocean_overexchange_nml	debug_this_module	False	False	False	False	False	False
	<pre>overexch_check_extrema overexch_npts</pre>	False 4	4	4	4	4	4
	overexch_weight_far	False	False	False	False	False	False
	overflow_umax	5.0	5.0	5.0	5.0	5.0	5.0
	use_this_module	False	False	False	False	False	False
&ocean_overflow_nml	debug_this_module	False	Falsa	False	Falsa	False	Falsa
&ocean_overflow_ofp_nml	use_this_module debug_this_module	False	False	False False	False	False False	False
&ocean_overnow_orp_nint	diag_step			4320		5760	
	do_entrainment_para_ofp			False		False	
	do_mass_ofp			True		True	
	frac_exchange_src			1.0		1.0	
	max_vol_trans_ofp use_this_module		False	10 000 000.0 False	False	10 000 000.0 False	False
&ocean_polar_filter_nml	use_this_module	False	False	False	False	False	False
&ocean_pressure_nml	zero_pressure_force		False	False	False	False	False
&ocean_rivermix_nml	debug_this_module	False	False	False	False	False	False
	river_diffuse_salt	False	True	False	True	True	True
	river_diffuse_temp	False 0.0	True 0.0	False 0.0	True 0.0	True 0.0	True 0.0
	river diffusion thickness	UU	0.0				0.0
	river_diffusion_thickness river_diffusivity	0.0	0.0	0.0	0.0	0.0	0.0
			0.0 40.0	0.0 40.0	0.0 40.0	0.0 40.0	40.0
	river_diffusivity river_insertion_thickness use_this_module	0.0				40.0 True	
&ocean_riverspread_nml	river_diffusivity river_insertion_thickness use_this_module debug_this_module	0.0 40.0 True	40.0 True	40.0 True	40.0 True	40.0 True False	40.0 True
·	river_diffusivity river_insertion_thickness use_this_module debug_this_module use_this_module	0.0 40.0	40.0 True False	40.0 True False	40.0 True False	40.0 True False True	40.0 True False
&ocean_riverspread_nml &ocean_rough_nml &ocean_sbc_nml	river_diffusivity river_insertion_thickness use_this_module debug_this_module	0.0 40.0 True	40.0 True	40.0 True	40.0 True	40.0 True False	40.0 True

Group (continued)	Variable	original/ hogg_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
	calvingspread		False False	False	False False	False False	False
	do_bitwise_exact_sum do_flux_correction		False	False False	False	False	False False
	land_model_heat_fluxes		False	False	False	False	False
	max_delta_salinity_restore	0.5	0.5	0.5	0.5	0.5	0.5
	max_ice_thickness read_restore_mask	8.0 Falso	0.0 False	0.0 False	0.0 False	0.0 False	0.0
	read_restore_mask_qfdl	False False	False	False	False	False	False False
	runoff_salinity	0.0	0.0	0.0	0.0	0.0	0.0
	salt_correction_scale		0.0	0.0	0.0	0.0	0.0
	salt_restore_as_salt_flux	True	True	True	True	True	True
	salt_restore_tscale salt_restore_under_ice	15.0 True	60.0 True	60.0 True	60.0 True	60.0 True	60.0 True
	temp_restore_tscale	-1.0	-10.0	-10.0	-10.0	-10.0	-10.0
	use_full_patm_for_sea_level		False	False	False	False	False
	use_waterflux	True	True	True	True	True	True
	waterflux_tavg	False False	Ealco	Ealco	Ealco	Ealso	Ealco
	zero_heat_fluxes zero_net_salt_correction	raise	False False	False False	False False	False False	False False
	zero_net_salt_restore	True	True	True	True	True	True
	zero_net_water_correction		False	False	False	False	False
	zero_net_water_couple_restore	True	True	True	True	True	True
	zero_net_water_coupler zero_net_water_restore	True True	True True	True True	True True	True True	True True
	zero_surface_stress	False	False	False	False	False	False
	zero_water_fluxes	False	False	False	False	False	False
&ocean_sbc_ofam_nml	restore_mask_ofam	False					
Pagana shartugua saira ami	river_temp_ofam	False		False			
&ocean_shortwave_csiro_nml	debug_this_module read_depth	True		True			
	use_this_module	True	False	False	False	False	False
	zmax_pen	7000		7000			
&ocean_shortwave_gfdl_nml	debug_this_module	False	False	False	False	False	False
	enforce_sw_frac optics_manizza	True True	True True	True True	True True	True True	True True
	optics_morel_antoine	iiue	False	False	False	False	False
	read_chl	False	True	True	True	True	True
	sw_pen_fixed_depths	False	_	_	_	_	_
	use_this_module	False	True	True 300.0	True	True	True
&ocean_shortwave_jerlov_nml	zmax_pen use_this_module	200.0 False	300.0 False	False	300.0 False	300.0 False	300.0 False
&ocean_shortwave_nml	use_shortwave_csiro	True	False	False	False	False	False
	use_shortwave_gfdl	False	True	True	True	True	True
	use_shortwave_jerlov	False	False	False	False	False	False
Pagan sigma transport ami	use_this_module  sigma_advection_on	True False	True	True False	True	True False	True
&ocean_sigma_transport_nml	sigma_advection_sqs_only	False		False		False	
	sigma_diffusion_on	True		True		True	
	sigma_diffusivity_ratio	$1  imes 10^{-6}$		$1  imes 10^{-6}$		$1  imes 10^{-6}$	
	sigma_just_in_bottom_cell	True		True		True	
	sigma_umax smooth_sigma_thickness	0.01 True		0.01 True		0.01 True	
	smooth_sigma_velocity	True		True		True	
	smooth_velmicom	0.2		0.2		0.2	
	thickness_sigma_layer	100.0		100.0		100.0	
	thickness_sigma_max thickness_sigma_min	100.0 100.0		100.0 100.0		100.0 100.0	
	tmask_sigma_on	False		False		False	
	tracer_mix_micom	True		True		True	
	use_this_module	True	False	False	False	False	False
Possan sala nmi	vel_micom	0.05	'NOLEAD'	0.05	'NOI FAD'	0.05	יאוטו ב אטי
&ocean_solo_nml	calendar date_init <mark>days</mark>	'NOLEAP' 1, 1, 1, 0, 0, 0 1460	'NOLEAP' 1, 1, 1, 0, 0, 0 1460	'NOLEAP' 1, 1, 1, 0, 0, 0 31	'NOLEAP' 1, 1, 1, 0, 0, 0 31	'NOLEAP' 1, 1, 1, 0, 0, 0 30	'NOLEAP' 1, 1, 1, 0, 0, 0 30
	debug_this_module dt_cpld	False 3600	3600	1200	1200	150	600
	hours	0	0	0	0	0	0
	minutes	0	0	0	0	0	0
	months						
	months seconds	0 0	0	0	0	0	0
&ocean_sponges_eta_nml							

Group (continued)	Variable	original/ hogg_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input_nml	new_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input_nml	new_acces- som2 01deg jra55_ryf input.nml
0 1 :	use_this_module	False	False	False	False	False	False
&ocean_sponges_velocity_nml	use_this_module	False	False 0.05	False 0.05	False 0.05	False 0.05	False 0.05
&ocean_submesoscale_nml	coefficient_ce debug_this_module	False	False	False	False	False	False
	front_length_const	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0
	front_length_deform_radius	True	True	True	True	True	True
	limit_psi	True	True	True	True	True	True
	limit_psi_velocity_scale	0.5	0.5	0.5	0.5	0.5	0.5
	min_kblt	4	_ 4	_ 4	_ 4	_ 4	_ 4
	smooth_advect_transport		True 4	True	True	True	True
	<pre>smooth_advect_transport_num smooth_hblt</pre>	False	False	4 False	4 False	4 False	4 False
	smooth_psi	raisc	True	True	True	True	True
	smooth_psi_num		3	3	3	3	3
	submeso_advect_flux		False	False	False	False	False
	submeso_advect_limit		True	True	True	True	True
	submeso_advect_upwind		True	True	True	True	True
	submeso_advect_zero_bdy		True	True	True	True	True
	submeso_diffusion submeso_diffusion_biharmonic		False	False	False	False	False
	submeso_diffusion_binarmonic submeso_diffusion_scale		True 10.0	True 10.0	True 10.0	True 10.0	True 10.0
	submeso_timit_flux	True	10.0	10.0	10.0	10.0	10.0
	submeso_skew_flux	nuc	True	True	True	True	True
	use_hblt_equal_mld	True	True	True	True	True	True
	use_psi_legacy		False	False	False	False	False
	use_this_module	True	True	True	True	True	True
&ocean_tempsalt_nml	debug_this_module	False	False	False	False	True	False
	pottemp_2nd_iteration	True	True	True	True	True	True
	pottemp_equal_contemp	FF 0	True	True	True	True	True
	<mark>s_max</mark> s_max_limit	55.0 42.0	70.0 42.0	70.0 42.0	70.0 42.0	70.0 42.0	70.0 42.0
	s_min	-1.0	0.0	0.0	0.0	0.0	0.0
	s_min_limit	0.0	2.0	2.0	2.0	2.0	2.0
	t_max	55.0	55.0	55.0	55.0	55.0	55.0
	t_max_limit	32.0	32.0	32.0	32.0	32.0	32.0
	t_min	-5.0	-20.0	-20.0	-20.0	-20.0	-20.0
	t_min_limit	-2.0	-5.0	-5.0	<b>-5.0</b>	-5.0	-5.0
	temperature_variable	'conservative	'potential	'potential	'potential	'potential	'potential
	11 11 11	temp'	temp'	temp'	temp'	temp'	temp'
&ocean_thickness_nml	debug_this_module debug_this_module_detail	False False	False False	False False	False False	False False	False False
	initialize_zero_eta	False	False	raise	raise	raise	raise
	read_rescale_rho0_mask	False					
	rescale_mass_to_get_ht_mod		False	False	False	False	False
	rescale_rho0_basin_label	7.0					
	rescale_rho0_mask_gfdl	False					
	rescale_rho0_value	0.75					
	thickness_dzt_min	1.0		2.0		2.0	
	thickness_dzt_min_init thickness_method	2.0	'energetic'	10.0	'anaraatis'	10.0	'anaraatis'
&ocean_topog_nml	min_thickness	'energetic' 25.0	energetic	'energetic'	'energetic'	'energetic'	'energetic'
&ocean_tracer_advect_nml	advect_sweby_all	True					
Woccan_tracer_advect_nint	async_domain_update	True					
	debug_this_module	False	False	False	False	False	False
	read_basin_mask		False	False	False	False	False
&ocean_tracer_diag_nml	diag_step	4320	4320	4320	4320	576	576
	do_bitwise_exact_sum	False	False	False	False	False	False
	tracer_conserve_days	1.0	30.0	30.0	30.0	30.0	30.0
&ocean_tracer_nml	age_tracer_max_init	0.0	0.0	0.0	0.0 False	0.0	0.0
	debug_this_module frazil_heating_after_vphysics	False True	False True	False True	False True	False True	False True
	frazil_heating_before_vphysics	False	False	False	False	False	False
	limit_age_tracer	True	True	True	True	True	True
	remap_depth_to_s_init	False	False	False	False	False	False
	use_tempsalt_check_range	True	True	True	True	True	True
	zero_tendency	False	False	False	False	False	False
	zero_tracer_source	False	False	False	False	False	False
&ocean_velocity_diag_nml	debug_this_module	False	False	False	False	False	False
	diag_step	4320	4320	4320	4320	576	576
	energy_diag_step	4320	4320	4320	4320	5760	5760
	large_cfl_value max_cfl_value	10.0 100.0	10.0 100.0	10.0 100.0	10.0 100.0	10.0 100.0	10.0 100.0
&ocean_velocity_nml	max_crt_value adams_bashforth_third	True	True	True	True	True	True
wocedii_vetocity_IIIIIt	dudins_DdSilioitil_tNlfQ	irue	irue	irue	iiue	irue	irue

Group (continued)	Variable	original/ hogg_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
	max_cgint	1.0	1.0	1.5	1.0	1.0	1.0
	truncate_velocity	True	False	False	False	False	False
	truncate_velocity_value truncate_verbose	2.0 True	2.0 True	2.0 True	2.0 True	2.0 True	2.0 True
	zero_tendency	False	False	False	False	False	False
	zero_tendency_explicit_a		False	False	False	False	False
	zero_tendency_explicit_b		False	False	False	False	False
	zero_tendency_implicit		False	False	False	False	False
&ocean_vert_kpp_iow_nml	use_this_module	False	False	False	False	False	False
&ocean_vert_kpp_mom4p0_nml &ocean_vert_kpp_mom4p1_nml	use_this_module diff_cbt_iw	False 0.0	0.0	0.0	0.0	0.0	0.0
Queen_vert_kpp_mom+p1_mmt	diff_con_limit	0.0	0.0	0.0	0.0	0.0	0.0
	double_diffusion	True	True	True	True	True	True
	kbl_standard_method	False	False	False	False	False	False
	ricr	0.3	0.3	0.3	0.3	0.3	0.3
	smooth_blmc	False	False	False	False	False	False
	smooth_ri_kmax_eq_kmu use_this_module	True True	True True	True True	True True	True True	True True
	visc_cbu_iw	0.0	0.0	0.0	0.0	0.0	0.0
	visc_con_limit	0.1	0.0	0.0	0.0	0.0	5.0
&ocean_vert_mix_nml	afkph_00	0.65					
	afkph_90	0.75					
	aidif bryan_lewis_diffusivity	1.0 False	1.0 False	1.0 False	1.0 False	1.0 False	1.0 False
	bryan_lewis_lat_depend	True	False	False	False	False	False
	bryan_lewis_lat_transition	35.0	ruise	raise	raise	raise	raise
	dfkph_00	1.15					
	dfkph_90	0.95					
	hwf_diffusivity		False	False	False	False	False
	hwf_min_diffusivity		$2 \times 10^{-6}$	$2 \times 10^{-6}$	$2 \times 10^{-6}$	$2 \times 10^{-6}$	$2 \times 10^{-6}$
	hwf_n0_2omega linear_taper_diff_cbt_table	False	20.0	20.0	20.0	20.0	20.0
	sfkph_00	$4.5 \times 10^{-5}$					
	sfkph_90	$4.5 \times 10^{-5}$					
	use_diff_cbt_table	False	False	False	False	False	False
	vert_diff_back_via_max	True	True	True	True	True	True
	vert_mix_scheme	'kpp	'kpp	'kpp	'kpp	'kpp	'kpp
	zflosh 00	mom4p1' 250 000.0	mom4p1'	mom4p1'	mom4p1'	mom4p1'	mom4p1'
	zfkph_00 zfkph_90	250 000.0					
&ocean_vert_tidal_nml	background_diffusivity	$5 \times 10^{-6}$	0.0	0.0	0.0	0.0	0.0
	background_viscosity	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	decay_scale	300.0	500.0	500.0	500.0	500.0	500.0
	drag_dissipation_use_cdbot	12	True	True	True	True	True
	drhodz_min	$1 \times 10^{-12}$	$1 \times 10^{-10}$	$1 \times 10^{-10}$	$1 \times 10^{-10}$	$1 \times 10^{-10}$	$1 \times 10^{-10}$
	fixed_wave_dissipation max_drag_diffusivity	False 0.01	False	False	False	False	False
	max_drag_drifusivity max_wave_diffusivity	0.01	0.01	0.01	0.01	0.01	0.01
	mixing_efficiency_n2depend	True	True	True	True	True	True
	read_roughness	True	True	True	True	True	True
	read_tide_speed	True	True	True	True	True	True
	read_wave_dissipation	False	False	False	False	False	False
	reading_roughness_amp	True	True	True	True	True	True
	reading_roughness_length roughness_scale	False 20 000.0	False 12 000.0	False 12 000.0	False 12 000.0	False 12 000.0	False 12 000.0
	shelf_depth_cutoff	160.0	-1000.0 -1000.0	-1000.0 -1000.0	-1000.0 -1000.0	-1000.0 -1000.0	-1000.0 -1000.0
	tide_speed_data_on_t_grid	True	True	True	True	True	True
	use_drag_dissipation	True	True	True	True	True	True
	use_legacy_methods	-	False	False	False	False	False
	use_this_module use_wave_dissipation	True True	True True	True True	True True	True True	True True
	wave_energy_flux_max	0.1	0.1	0.1	0.1	0.1	0.1
&ocean_xlandinsert_nml	use_this_module  verbose_init	False True	False	False	False	False	False
&ocean_xlandmix_nml	use_this_module	False	False	False	False	False	False
S C C C C C C C C C C C C C C C C C C C	verbose_init	True	i alsc	i alsc	iaisc	iaisc	1 0130
	xlandmix_kmt	True					
	show all had values					True	
&sat_vapor_pres_nml	show_all_bad_values						
&sat_vapor_pres_nml &surface_flux_nml	ncar_ocean_flux			True		True	
				True True		True True True	True

Group (continued) Variable	original/ hogg_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
interp_method	'second	'second	'second	'second	'second	'second
	order'	order'	order'	order'	order'	order'
make_exchange_reproduce	False	False	False	False	False	False
nsubset		16	16	16	16	16
xgrid_log					False	False

# 4 All variables in all 8 configs (differences highlighted)

Group	Variable	original/ GFDL ESM2M input- cut.nml	original/ MOM_SIS TOPAZ input.nml	original/ fabio momsis1 input.nml	original/ paul_mom- sis025_in- put.nml	original/ fanghua mom- sis01v5KDS75_ WOA13_in- put.nml	new_acces- som2 1deg - jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
&auscom_ice_nml	aice_cutoff					putilint	0.15	0.15	0.15
Gadoonialee2iiiie	chk_i2o_fields						False	False	False
	chk_o2i_fields						False	False	False
	do_ice_once						False	False	False
	dt_cpl						3600	1800	600
	fixmeltt						False	False	False
	frazil_factor						1.0	1.0	1.0
	iceform_adj_salt						False	False 1.0	False
	icemlt_factor kmxice						1.0 5	1.0 5	1.0 5
	pop_icediag						True	True	True
	redsea_qulfbay_sfix						True		
	sign_stflx						1.0	1.0	1.0
	tmelt						-0.216	-0.216	-0.216
	use_ioaice						True	True	True
&bg_diff_lat_dependence_nml	bg_diff_eq						$1 \times 10^{-6}$		
	lat_low_bgdiff						20.0		
&coupler_nml	atmos_npes	0	0	0	0	0			
	atmos_nthreads	4 'NOLEAD'	MOLEAR	1	2	21			
	calendar	'NOLEAP'	'NOLEAP'	'noleap'	'noleap'	'noleap'			
	check_stocks	0 Truo	0 Falso	0 Falso	0 False	0 False			
	concurrent current_date	True 1, 1, 1, 0, 0, 0	False 1, 1, 1, 0, 0, 0	False 1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0			
	days	1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0	365	1, 1, 1, 0, 0, 0			
	do_atmos	True	False	False	False	False			
	do_flux	True	. 4.50	. 4.50	. 4.50	, disc			
	do_ice	True	True	True	True	True			
	do_land	True	False	False	False	False			
	do_ocean	True	True	True	True	True			
	dt_atmos	1800	7200	3600	1800	1800			
	dt_cpld	7200	7200	3600	1800	1800			
	months	12	0	12	0	0			
	ocean_npes	96 True	0 True	0 True	0 True	0 True			
&diag_integral_nml	use_lag_fluxes file_name	True 'diag	True 'diag	True 'diag	True 'diag	True 'diag			
Quiay_integrat_nint	iile_iidiile	integral.out'	integral.out'	integral.out'	integral.out'	integral.out'			
	output_interval	1.0	1.0	-1.0	—1.0	—1.0			
	time_units	'days'	'days'	'days'	'days'	'days'			
&diag_manager_nml	debug_diag_manager	,	•	•	,	, , , , , , , , , , , , , , , , , , ,	True	True	True
	issue_oor_warnings	False	False	False	False	False	True	True	True
	max_axes	200	100	300	300	300			
	max_files	50		1000	1000	1000			
	max_input_fields	800	699	700	700	700			
	max_num_axis_sets	200	100	40 700	40	40 700			
miv	max_output_fields c_snapshot_average_fields	1300 False	699 False	700	700	700			
&flux_exchange_nml	debug_stocks	False	False						
With _ challenge_limit	divert_stocks_report	True	True						
	do_area_weighted_flux	False	False	True	True	True			
	nblocks	4	. 4.50						
&fms_io_nml	checksum_required	•				False			
	fileset_write		'single'	'multi'	'multi'	'multi'	'single'	'multi'	'multi'
	max_files_r	300	200	700	700	700			
	max_files_w	300	200	700	700	700			
	threading_read	'multi'	'multi'	'multi'	'multi'	'multi'	'multi'	'multi'	'multi'
0.6	threading_write	200140011515	'single'	'multi'	'multi'	'multi'	'single'	'multi'	'multi'
&fms_nml	clock_grain	'COMPONENT'	'LOOP'	'LOOP'	'LOOP'	'LOOP'	'LOOP'	'LOOP'	'LOOP'
	domains_stack_size	5000000	8000000	115200 False	115200 False	115200 False	115200	115200	115200
	print_memory_usage stack_size	0	0	raise	raise	raise			
&generic_tracer_nml	do_generic_cfc	False	False	False	False	False			
ageneric_ducer_milt	do_generic_topaz	True	True	False	False	False			
	do_generic_tracer	True	True	False	False	False			
&ice_albedo_nml	t_range	10.0	10.0	. 4.50	. 4100	. 3.00			
&ice_model_nml	add_diurnal_sw	False	True						
	alb_ice	0.65	0.615	0.68	0.68	0.68			
	alb_sno	0.85	0.825	0.85	0.85	0.85			
	channel_viscosity	500 000.0							
	cm2_bugs	False	False	_	_	_			
	do_icebergs	True	False	False	False	False			

Group (continued)	Variable	original/ GFDL ESM2M input- cut.nml	original/ MOM_SIS TOPAZ input.nml	original/ fabio momsis1 input.nml	original/ paul_mom- sis025_in- put.nml	original/ fanghua mom- sis01v5KDS75_ WOA13_in- put.nml	new_acces- som2 1deg - jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
	h_lo_lim	$1 \times 10^{-10}$	$1  imes 10^{-10}$			•			
	heat_rough_ice ice_bulk_salin	0.005	0.0005 0.005	0.0005 0.005	0.0005 0.005	0.0005 0.005			
	io_layout	1, 2	0.003	0.003	64, 30	8,9			
	layout	15, 2		10, 12	64, 30	40, 45			
	mom_rough_ice	4	4	0.0005	0.0005	0.0005			
	nsteps_adv nsteps_dyn	1 72	1 108	1 72	1 72	6 144			
	num_part	6	6	6	6	6			
	spec_ice	False	False	False	False	False			
	t_range_melt wd_turn	1.0 0.0	10.0 0.0	1.0 0.0	1.0 0.0	1.0 0.0			
&icebergs_nml	add_weight_to_ocean	0.0	0.0	False	False	False			
	bergy_bit_erosion_fraction		0.0	0.0	0.0	0.0			
	debug	T	False	False	False	False			
	make_calving_reproduce parallel_reprod	True	True	True	True	True			
	really_debug		False	False	False	False			
	sicn_shift		0.1	0.1	0.1	0.1			
	speed_limit	0.5 Falso							
	time_average_weight traj_sample_hrs	False 0	0	0	0	0			
	use_operator_splitting	·	True	True	True	True			
	use_roundoff_fix	True							
	verbose verbose_hrs	True 120	False 2400	False 2400	False 2400	False 2400			
&mom_oasis3_interface_nm		120	2400	2400	2400	2400	'u_flux',	'u_flux',	'u_flux',
	-						'v_flux',	'v_flux',	'v_flux',
							'lprec', 'fprec',	'lprec', 'fprec',	'lprec', 'fprec',
							'salt_flx', 'mh_flux',	'salt_flx', 'mh_flux',	'salt_flx', 'mh_flux',
							'sw_flux',	'sw_flux',	'sw_flux',
							'q_flux',	'q_flux',	'q_flux',
							't_flux',	't_flux',	't_flux',
							'lw_flux', 'runof', 'p',	'lw_flux', 'runof', 'p',	'lw_flux', 'runof', 'p',
							'aice',	'aice',	'aice',
							'wfimelt',	'wfimelt',	'wfimelt',
	fields_out						'wfiform'	'wfiform'	'wfiform'
	Hetus_out						't_surf', 's_surf',	't_surf', 's_surf',	't_surf', 's_surf',
							'u_surf',	'u_surf',	'u_surf',
							'v_surf',	'v_surf',	'v_surf',
							'dssldx', 'dssldy',	'dssldx', 'dssldy',	'dssldx', 'dssldy',
							'frazil'	'frazil'	'frazil'
	num_fields_in						15	15	15
	num_fields_out						7	7	7
	<pre>send_after_ocean_update send_before_ocean_update</pre>						True False	True False	True False
&monin_obukhov_nml	neutral		True	True	True	True	True	True	True
	rich_crit	10.0							
	stable_option zeta_trans	2 0.5							
&mpp_io_nml	deflate_level	0.5				5	5	5	5
	shuffle					1	1	1	1
&ocean_adv_vel_diag_nml	diag_step	1200	12	4320	4320	43200	4320	4320	576
	large_cfl_value max_cfl_value	10.0 100.0	10.0 100.0	10.0 100.0	10.0 100.0	10.0 100.0	10.0 100.0	10.0 100.0	10.0 100.0
	max_crt_value verbose_cfl	False	False	True	True	True	True	True	True
&ocean_advection_velocity.	_nml max_advection_velocity	0.5	0.5	0.5	0.5	0.2	0.5	0.5	0.5
&ocean_albedo_nml	ocean_albedo_option	5	2	2	2	2	2	2	2
&ocean_barotropic_nml	barotropic_halo		Falsa	10	10	10	10	10	10
	barotropic_leap_frog barotropic_pred_corr		False True						
	barotropic_time_stepping_a	True	nuc	True	True	True	True	True	True
<u></u>	barotropic_time_stepping_b	False	_	False	False	False	False	False	False
	opic_time_stepping_mom4p0		True						
parotr	opic_time_stepping_mom4p1 debug_this_module	False	False False	False	False	False	False	False	False
	debug_tilis_modute diag_step	1200	12	4320	4320	43200	4320	4320	576
	do_bitwise_exact_sum	True							
	eta_max	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0

Group (continued)	Variable	original/ GFDL ESM2M input- cut.nml	original/ MOM_SIS TOPAZ input.nml	original/ fabio momsis1 input.nml	original/ paul_mom- sis025_in- put.nml	original/ fanghua mom- sis01v5KDS75 WOA13_in- put.nml	new_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
	frac_crit_cell_height	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	pred_corr_gamma	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	smooth_eta_diag_laplacian	True	True	True	True	True	True	True	True
	smooth_eta_t_biharmonic smooth_eta_t_laplacian	True False	True False	True False	True False	False True	False True	False True	False True
	smooth_pbot_t_biharmonic	True	True	True	True	False	False	False	False
	smooth_pbot_t_laplacian	False	False	False	False	True	True	True	True
	truncate_eta	False	False	False	False	False	False	False	False
ļ.	use_legacy_barotropic_halos	0.04	0.04	False	False	False	False	False	False
	vel_micom_bih vel_micom_lap	0.01 0.05	0.01 0.05	0.01 0.05	0.01 0.05	0.01 0.05	0.01 0.05	0.01 0.05	0.01 0.05
	vel_micom_lap_diaq	1.0	1.0	0.03	0.03	0.05	0.03	0.03	0.03
	verbose_truncate	True	True	True	True	True	True	True	True
	zero_tendency	False	False	False	False	False	False	False	False
&ocean_bbc_nml	bmf_implicit			True	True	True	True	True	True
	cdbot	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
	cdbot_hi			0.007	0.007	0.007	0.007	0.007	0.007
	cdbot_roughness_length cdbot_roughness_uamp			False True	False True	False True	False True	False True	False True
	uresidual	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	use_geothermal_heating	True	True	False	False	False	False	False	False
&ocean_bih_friction_nml	bih_friction_scheme	'general'	'general'	'general'	'general'	'general'	'general'	'general'	'general'
&ocean_bih_tracer_nml	tracer_mix_micom			True	True	True			
	use_this_module	False	False	False	False	False	False	False	False
O hihaat faiatiaa aaal	vel_micom	F-I	F-I	0.001	0.001	0.001	F-I	Falsa	Falsa
&ocean_bihcst_friction_nml	use_this_module bottom_5point	False True	False True	False False	False False	False False	False False	False False	False False
&ocean_bihgen_friction_nml	eq_lat_micom	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	eq_vel_micom_aniso	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	eq_vel_micom_iso	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	equatorial_zonal	False	False	False	False	False	False	False	False
	k_smag_aniso	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	k_smag_iso	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	ncar_boundary_scaling ncar_boundary_scaling_read	True	True	True False	True True	True True	True True	True True	True True
	ncar_rescale_power ncar_vconst_4	$\begin{array}{c} 2 \\ 2 \times 10^{-8} \end{array}$	$\begin{array}{c} 2 \\ 2\times 10^{-8} \end{array}$	$2 \times 10^{-8}$	$2\times10^{-8}$	$2 \times 10^{-8}$	$2 \times 10^{-8}$	$2 \times 10^{-8}$	$2 \times 10^{-8}$
	ncar_vconst_5	_ 5	_ 5	_ 5	_ 5	_ 5	_ 5	_ 5	_ 5
	use_this_module	True	True	True	True	True	True	True	True
	vel_micom_aniso vel_micom_bottom	0.0 0.01	0.0 0.01	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
	vel_micom_iso	0.01	0.01	0.0	0.0	0.0	0.0	0.0	0.0
	visc_crit_scale	0.25	0.25	1.0	1.0	1.0	1.0	1.0	1.0
&ocean_convect_nml	convect_full_scalar			True	True	True			
	convect_full_vector			False	False	False			
	use_this_module	False	False	False	False	False	False	False	False
&ocean_coriolis_nml	acor	0.5 True	0.5 Trus	0.5 True	0.5	0.5	0.5	0.5 True	0.5
&ocean_density_nml	use_this_module eos_linear	True False	True	True False	True False	True False	True False	True False	True False
a occurracion y anni	eos_preteos10	True		True	True	True	True	True	True
	layer_nk	80	80	80	80	80	80	80	80
	linear_eos		False						
	neutralrho_max	1030.0	1030.0	1038.0	1038.0	1038.0	1038.0	1038.0	1038.0
	neutralrho_min	1020.0 1038.0	1020.0 1038.0	1028.0 1038.0	1028.0 1038.0	1028.0 1038.0	1028.0 1038.0	1028.0 1038.0	1028.0 1038.0
	potrho_max potrho_min	1038.0	1038.0	1038.0	1038.0	1038.0	1038.0	1038.0	1038.0
&ocean_domains_nml	max_tracers	1020.0	1020.0	1020.0	1020.0	1020.0	5	5	5
&ocean_drifters_nml	use_this_module	False	False						
&ocean_form_drag_nml	use_this_module	False	False	False	False	False	False	False	False
&ocean_frazil_nml	debug_this_module	False	False	False	False	False	False	False	False
	<pre>frazil_only_in_surface freezing_temp_accurate freezing_temp_preteos10</pre>	True	True False	True	True	True	False	False	False
	freezing_temp_preteos10	True	True	True	True	True	True False	True False	True False
	use_this_module	True	True	True	True	True	True	True	True
&ocean_grids_nml	debug_this_module	True	True	False	False	False	False	False	False
	do_bitwise_exact_sum	True							
	read_rho0_profile	False	False						
&ocean_increment_eta_nml	use_this_module	False	False	False	False	False	False	False	False
&ocean_increment_tracer_nn		False	False	False	False	False	False	False	False
&ocean_increment_velocity_i &ocean_lap_friction_nml	nml use_this_module lap_friction_scheme	False 'general'	False 'general'	False 'general'	False 'general'	False 'general'	False 'general'	False 'general'	False 'general'
&ocean_lap_tracer_nml	use_this_module	False	False	False	False	False	False	False	False
woccun_tap_tracer_mint	usc_uns_modute	1 0130	1 0130	ו מנטכ	ו מנאכ	i atsc	1 0130	ו מנאכ	ו מנטכ

Second Lapper, fiction.mml   Use_fills_module   False   Fals	jra55_ryf input.nml	025deg jra55_ryf input.nml	som2 1deg - jra55_ryf input.nml	fanghua mom- sis01v5KDS75_ WOA13_in- put.nml	paul_mom- sis025_in- put.nml	original/ fabio momsis1 input.nml	original/ MOM_SIS TOPAZ input.nml	original/ GFDL ESM2M input- cut.nml	Group (continued) Variable
	False	False	False		False	False	False	False	&ocean_lapcst_friction_nml use_this_module
Company   Comp									
True   False				20	2.0	20			
Participalization   True   True   False   Fa				2.0	2.0	2.0	0.0	0.0	
Restrict_polar_visc_late							True	True	
True   True   True   False   False   False   False   Salon			60.0					60.0	
No.									
New No.	False	False		False	False	False	True	True	
Second									
Vision   V									
Microsity near 2000   False							0.1	0.1	
VISCOSTLY NEAR 2000   True									
VISCOSITY SCALE by 1055by power   4.0   4.0   4.0   4.0   1000							ruise	ruisc	
Section									,
&ocean_mixdownslope_mall         debug_this_module mixdownslope_mask_grid mixdownslope_mask         False mixdownslope_mask_grid mixdownslope_mask         True mixdownslope_mask mixdownslope_mask         True mixdownslope_mask         True mixdownslope_mask mixdownslope_mask         True									
Misdownslope mask grid   True   True   True   True   False						F 1			
Microscope npts				False	False	False			
True									
Boroclinic_split   1									
Barotropic split   False   F	False	False	True	False	False	False	True	True	use_this_module
True	1	1							•
debug	80			60	80	80	80		
True	True False			False	Falso	Falsa	False		
impose init from restart io Layout 1,4 1,4 1,4 1,5 1,4 1,4 1,4 1,5 1,4 1,4 1,4 1,4 1,4 1,4 1,4 1,4 1,4 1,4	150								•
layout surface height.split     12,8     6,4     10,12     64,30     40,45     16,15     48,40       surface height.split time_tendency strice_leded     'twolevel'     'twole							False		impose_init_from_restart
surface_height_split time_tendency 'twolevel' 'tyolevel' 'tyolevel' 'tyolevel' 'tyolevel' 'tyolevel' 'twolevel' 'tyolevel' 'tyolevel	10, 15	6, 5							
time_tendency vertical_coordinate 'twolevel' 'tyolevel'	80,75								
vertical_coordinate         'zstar'         'zstar' <td>1 'twolevel'</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	1 'twolevel'								
rayleigh_damp_exp_from_bottom    Use_rayleigh_damp_table   False   True   True	'zstar'	'zstar'							•
use_rayleigh_damp_table     True     False     False </td <td>False</td> <td>False</td> <td>False</td> <td>False</td> <td>False</td> <td>False</td> <td></td> <td></td> <td>&amp;ocean_momentum_source_nml</td>	False	False	False	False	False	False			&ocean_momentum_source_nml
wocean_nphysics_nml     debug_this_module     False     False <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td>	-	-	-	-	-	-			
&ocean_nphysics_nmldebug_this_module use_nphysicsa use_nphysicsb use_nphysicsbFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalse FalseFalseFalseFalseFalseFalse&ocean_nphysics_util_nmlagm agm_closure agm_closure agm_closure_buoy_freq agm_closure_buoy_freq agm_closure_buoy_freq agm_closure_eady_ave_mixed agm_closure_eady_ave_mixed agm_closure_eady_smooth_horz agm_closure_eady_smooth_horz agm_closure_eady_smooth_horz agm_closure_eady_smooth_horz agm_closure_eady_smooth_horz agm_closure_eaden_gamma agm_closure_eaden_gamma agm_closure_eaden_gamma agm_closure_eaden_gamma agm_closure_eaden_gamma agm_closure_eaden_gamma agm_closure_eaden_greatbatchFalseFalseFalseFalseFalseFalse	True True						Ealco	Ealco	
use_nphysicsa	False								
use_nphysicsb use_nphysicsc use_nphysicsc use_nphysicsc 	False	False							
use_this_module     True     True     False     False     False     True     False       &ocean_nphysics_util_nml     agm     800.0     800.0     100.0     100.0     100.0     600.0     100.0       agm_closure     True     True <td>False</td> <td>False</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>use_nphysicsb</td>	False	False							use_nphysicsb
&ocean_nphysics_util_nml         agm         800.0         800.0         100.0         100.0         100.0         600.0         100.0           agm_closure_baroclonic         True         Tr	False	False							
agm_closure	False 100.0								
agm_closure_baroclinic True True True True True True True True	True								
agm_closure_buoy_freq         0.004<	True								
agm_closure_eady_cap     True     True     True       agm_closure_eady_smooth_horz     True     True     True       agm_closure_eady_smooth_vert     True     True     True       agm_closure_eden_gamma     0.0     0.0     0.0       agm_closure_eden_greatbatch     False     False	0.004	0.004							agm_closure_buoy_freq
agm_closure_eady_smooth_horz         True         True         True           agm_closure_eady_smooth_vert         True         True         True           agm_closure_eden_gamma         0.0         0.0         0.0           agm_closure_eden_greatbatch         False         False         False									<u> </u>
agm_closure_eady_smooth_vert     True     True     True       agm_closure_eden_gamma     0.0     0.0     0.0       agm_closure_eden_greatbatch     False     False									
agm_closure_eden_gamma 0.0 0.0 0.0 0.0 agm_closure_eden_greatbatch False False False									
agm_closure_eden_greatbatch False False False False									,
agm_closure_orid_scaling True True True True									3
			True				True	True	agm_closure_grid_scaling
	50 000.0	50 000.0							
	False	False							
	False False	False False							
	2000.0	2000.0							
	600.0	600.0							
agm_closure_min 100.0 100.0 100.0 100.0 100.0 50.0 100.0	100.0	100.0	50.0	100.0	100.0	100.0	100.0	100.0	agm_closure_min
	0.07	0.07							
	100.0	100.0		100.0	100.0	100.0			3
agm_damping_time 45.0 45.0 45.0 45.0									
agm_smooth_space     False     False       agm_smooth_time     False     False									
	600.0	600.0		6000	6000	600.0			3
	False	False							
	False	False							

Product month wort   False	Group (continued)	Variable	original/ GFDL ESM2M input- cut.nml	original/ MOM_SIS TOPAZ input.nml	original/ fabio momsis1 input.nml	original/ paul_mom- sis025_in- put.nml	original/ fanghua mom- sis01v5KDS75 WOA13_in- put.nml	new_acces- som2 1deg - jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
Part							False			False
					False	False	False		False	False
Second   S				100 000.0			100 000.0			100 000.0
Tracer_miss_misson   0.002		•						15 000.0	15 000.0	15 000.0
Tracer_mist_mistorn   Patter										
Social physics and ethics module peaced progressing traper into the peaced physics and peaced progressing traper into the peaced physics and peace								False	False	False
Part			0.0	0.0						0.0
Restrail physics limit   True   Tru	&ocean_nphysicsa_nml									
Pale										
United   Part   False   Fals										
Social myhysics) mill   Select myhysics) mill   Select myhysics) mill   Select myhysics) mill   Select myhysics myh   Select myhysics myh   Select										
False   Fals					False	Falso	False	Falso	Falso	False
True   True   True   Surf Just Horizontal	&ocean_nphysicsb_nml				1 0130	1 0130	i alse	1 0130	1 0130	1 0130
Superince   Supe	, , , , , , , , , , , , , , , , , , ,									
Second analysis   Second   False   F										
Social Complexicians										
					False	False	False	False	False	False
Department   Dep	&ocean_nphysicsc_nml	bv_freq_smooth_vert	True							
Company   Comp										
False   Fals										
True										
Part										
gm. skewsion. phyroblem   True   Grabe   False   False   Grabe   False   Grabe   Grabe										
Palse   Pals										
Peter   Pete		-								
Regularize_psi										
regularize psi smax ps										
STOCK   STOC										
True			0.01					0.01		
Substitute										
Use this module   True										
&ocean_overexchange_nml         debug_this_module overexch_check_extermal False         False <td></td> <td></td> <td>_</td> <td>False</td> <td>False</td> <td>False</td> <td>False</td> <td>_</td> <td>False</td> <td>False</td>			_	False	False	False	False	_	False	False
Palse										False
Overexch_nepts	&ocean_overexchange_nml	3			False	False	False	False	False	False
overexch.weight_far overflow_umax of the palse overflow_umax overflow_umax overflow_umax overflow_umax overflow_umax overflow_umax overflow_use_this_module overflow_use_th					4	4	4	4	4	4
debug_this_module         False										False
&ocean_overflow_nml       debug_this_module       False										5.0
use_this_module     False     False     False     False     False     False       &ocean_overflow_ofp_nml     debug_this_module     False     False     False     False       do_entrainment_para_ofp     False     False     False     False       frac_exchange_src     10     10     10     10     10       max_vol_trans_ofp     10 000 0000_0 <td>8 ocean everflow nml</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>False</td> <td>False</td> <td>False</td>	8 ocean everflow nml							False	False	False
&ocean_overflow_ofp_nml       debug_this_module diag_step       False       False       False       False         do_entrainment_para_ofp do_entrainment_para_off do_entrainment_para_off do_entrainment_para_off do_entrainment_para_off do_ent	&ocean_overnow_ninc							False	False	False
do_entrainment_para_ofp do_mass_ofp do_mass_ofp frac_exchange_src	&ocean_overflow_ofp_nml									
do_mass_ofp frac_exchange_src										
frac_exchange_src max_vol_trans_ofp use_this_module  &ocean_polar_filter_nml use_this_module False Fal										
max.vol_trans_ofp use_this_module10 000 000.0 False10 000 000.0 False		· · · · · · · · · · · · · · · · · · ·								
&ocean_polar_filter_nml     use_this_module     False     False<										
&ocean_pressure_nmlzero_pressure_forceFalseFalseFalseFalseFalse&ocean_rivermix_nmlcalving_insertion_thickness debug_this_module debug_this_module do_bitwise_exact_sum river_diffuse_salt river_diffuse_stalt river_diffuse_temp river_diffuse_temp river_diffusion_thickness river_diffusion_thickness river_diffusionty river_diffusionty river_insertion_thickness use_this_moduleFalse falseFalse false falseFalse false falseFalse false falseFalse falseFalse falseFalse falseFalse river_diffusionty 	0 (1)									False
&ocean_rivermix_nmlcalving_insertion_thickness debug_this_module debug_this_module do_bitwise_exact_sum river_diffuse_salt river_diffuse_temp river_diffusivityFalse FalseFalse			False	False						False False
debug_this_module discharge_combine_runoff_calve do_bitwise_exact_sum river_diffuse_salt 	<u> </u>		40.0	40.0	ו'מוטכ	1.4124	1 0135	1 0135	1 0135	raise
do_bitwise_exact_sum         True           river_diffuse_salt         False         True         True         True           river_diffusivity         0.0 <td< td=""><td></td><td>debug_this_module</td><td>False</td><td>False</td><td>False</td><td>False</td><td>False</td><td>False</td><td>False</td><td>False</td></td<>		debug_this_module	False	False	False	False	False	False	False	False
river_diffuse_salt river_diffuse_temp river_diffuse_temp river_diffuse_temp river_diffuse_temp river_diffusion_thickness         False ralse ralse ralse ralse ralse ralse ralse ralse river_diffusion_thickness         False ralse ratse	disc	3		True						
river_diffuse_temp         False         True         True         True         True         D.0         0.0				Falca	Falca	Falca	Falca	Truo	Truo	True
river_diffusion_thickness         0.0 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>True</td>										True
river_insertion_thickness         40.0		river_diffusion_thickness	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
runoff_insertion_thickness     40.0       use_this_module     True     T		•								0.0
use_this_module     True     Tr					40.0	40.0	40.0	40.0	40.0	40.0
&ocean_riverspread_nml debug_this_module '.false' '.false' '.false'					True	True	True	True	True	True
use this module False False True True False False	&ocean_riverspread_nml				'.false'	'.false'	'.false'			
	O a coop we well and	use_this_module	False	False	True	True	True	False	False	False 'beljaars'

Group (continued)	Variable	original/ GFDL ESM2M input- cut.nml	original/ MOM_SIS TOPAZ input.nml	original/ fabio momsis1 input.nml	original/ paul_mom- sis025_in- put.nml	original/ fanghua mom- sis01v5KDS75_ WOA13_in- put.nml	new_acces- som2 1deg - jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
&ocean_sbc_nml	avg_sfc_temp_salt_eta	True	True	True	True	True	True	True	True
	avg_sfc_velocity	True	True	True	True	True	True	True	True
	calvingspread	False	False	False	False	False	False	False	False
	do_bitwise_exact_sum	Truo		False	False	False	False	False	False
	<pre>do_flux_correction eta_restore_tscale</pre>	True —10.0		False	False	False	False	False	False
	land_model_heat_fluxes	True	False	False	False	False	False	False	False
	max_delta_salinity_restore			0.5	0.5	0.5	0.5	0.5	0.5
	max_ice_thickness	8.0	8.0	1.0	1.0	1.0	0.0	0.0	0.0
	read_restore_mask			False	False	False	False	False	False
	restore_mask_gfdl			False	False	False	False	False	False
	runoff_salinity	Falsa	F-I	0.0	0.0	0.0	0.0	0.0	0.0
	runoffspread salt_correction_scale	False 0.0	False	0.0	0.0	0.0	0.0	0.0	0.0
	salt_restore_as_salt_flux	0.0		True	True	True	True	True	True
	salt_restore_tscale	-10.0	-10.0	60.0	60.0	60.0	60.0	60.0	60.0
	salt_restore_under_ice	20.0	20.0	True	True	True	True	True	True
	tau_x_correction_scale	0.0							
	tau_y_correction_scale	0.0							
	temp_correction_scale	1.0							
	temp_restore_tscale	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
	use_full_patm_for_sea_level	True	True	False	False	False	False	False	False
	use_waterflux e_waterflux_override_calving	True False	True	True	True	True	True	True	True
	e_watentux_overnue_catving use_waterflux_override_evap	False							
	use_waterflux_override_evap	False							
•	waterflux_tavq	False	False						
	zero_heat_fluxes			False	False	False	False	False	False
	zero_net_pme_eta_restore	False							
	zero_net_salt_correction			False	False	False	False	False	False
	zero_net_salt_restore			True	True	True	True	True	True
	zero_net_water_correction			False	False	False	False	False	False
ze	ro_net_water_couple_restore			True	True	True	True	True	True
	zero_net_water_coupler zero_net_water_restore			True True	True True	True True	True True	True True	True True
	zero_pme_fluxes			iiuc	iiuc	False	iiuc	nuc	iiuc
	zero_river_fluxes					False			
	zero_runoff_fluxes					True			
	zero_surface_stress			False	False	False	False	False	False
	zero_water_fluxes			False	False	False	False	False	False
&ocean_shortwave_csiro_nn	the state of the s		F 1	True		F 1	F 1	F 1	
	use_this_module	False	False	True	False	False	False	False	False
&ocean_shortwave_gfdl_nm	zmax_pen l debug_this_module	False	False	7000 False	False	False	False	False	False
xocean_snortwave_grut_iiii	enforce_sw_frac	True	True	True	True	True	True	True	True
	optics_manizza	True	True	True	True	True	True	True	True
	optics_morel_antoine	False	False	False	False	False	False	False	False
	override_f_vis	False	False						
	read_chl	False	False	False	True	True	True	True	True
	use_this_module	True	True	False	True	True	True	True	True
	zmax_pen	200.0	200.0	300.0	300.0	300.0	300.0	300.0	300.0
&ocean_shortwave_jerlov_n		False	False	False	False	False	False	False	False
&ocean_shortwave_nml	use_shortwave_csiro	False	False	True	False	False	False	False	False
	use_shortwave_igfdl	True	True	False False	True False	True False	True False	True	True False
	use_shortwave_jerlov use_this_module	False True	False True	True	True	True	True	False True	True
&ocean_sigma_transport_nn		False	False	False	False	False	iiuc	ilue	iiuc
a occur _ signa _ transport _ ini	sigma_advection_sqs_only	False	False	False	False	False			
	sigma_diffusion_on	True	True	True	True	True			
	sigma_diffusivity_ratio	$1  imes 10^{-6}$	$1  imes 10^{-6}$	$1  imes 10^{-6}$	$1  imes 10^{-6}$	$1  imes 10^{-6}$			
	sigma_just_in_bottom_cell	True	True	True	True	True			
	sigma_umax	0.01	0.01	0.01	0.01	0.01			
	smooth_sigma_thickness	True	True	True	True	True			
	smooth_sigma_velocity	True	True	True	True	True			
	smooth_velmicom	0.2	0.2	0.2	0.2	0.2			
	thickness_sigma_layer thickness_sigma_max	100.0 100.0	100.0 100.0	100.0 100.0	100.0 100.0	100.0 100.0			
	thickness_sigma_min	100.0	100.0	100.0	100.0	100.0			
	tmask_sigma_on	False	False	False	False	False			
	tracer_mix_micom	True	True	True	True	True			
	use_this_module	True	True	False	False	False	False	False	False
	vel_micom	0.05	0.05	0.05	0.05	0.05			
&ocean_solo_nml							'NOLEAP'	'NOLEAP'	'NOLEAP'

Group (continued)	Variable	original/ GFDL ESM2M input- cut.nml	original/ MOM_SIS TOPAZ input.nml	original/ fabio momsis1 input.nml	original/ paul_mom- sis025_in- put.nml	original/ fanghua mom- sis01v5KDS75 WOA13_in- put.nml	new_acces- som2 1deg ira55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
	date_init						1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0
	days dt_cpld						1460 3600	31 1200	30 600
	hours						0	0	000
	minutes						0	0	0
	months						0	0	0
	seconds years						0 0	0	0
&ocean_sponges_eta_nml	use_this_module	False	False	False	False	False	False	False	False
&ocean_sponges_tracer_nml		False	False	False	False	False			False
0	use_this_module	False	False	False	False	False	False	False	False
&ocean_sponges_velocity_n &ocean_submesoscale_nml	ml use_this_module coefficient_ce	False	False	False 0.05	False 0.05	False 0.05	False 0.05	False 0.05	False 0.05
Coccan_submesoscate_mint	debug_this_module	False	False	False	False	False	False	False	False
	front_length_const	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0
	front_length_deform_radius	True	True	True	True	True	True	True	True
	limit_psi limit_psi_velocity_scale	True 0.5	True 0.5	True 0.5	True 0.5	True 0.5	True 0.5	True 0.5	True 0.5
	min_kblt	4	4	4	4	4	4	4	4
	smooth_advect_transport		•	True	True	True	True	True	True
sn	nooth_advect_transport_num		<b>-</b> ·	4	4	4	4	4	. 4
	smooth_hblt <mark>smooth_psi</mark>	False	False	False True	False True	False True	False True	False True	False True
	smooth_psi_num			3	3	3	3	3	3
	submeso_advect_flux			False	False	False	False	False	False
	submeso_advect_limit			True	True	True	True	True	True
	submeso_advect_upwind			True	True	True	True	True	True
	submeso_advect_zero_bdy submeso_diffusion			True False	True False	True False	True False	True False	True False
su	bmeso_diffusion_biharmonic			True	True	True	True	True	True
	submeso_diffusion_scale			10.0	10.0	10.0	10.0	10.0	10.0
	submeso_limit_flux	True	True	-	-	<b>-</b>	-	-	-
	<pre>submeso_skew_flux use_hblt_equal_mld</pre>	True	True	True True	True True	True True	True True	True True	True True
	use_psi_legacy	True	iiue	False	False	False	False	False	False
	use_this_module	True	True	True	True	True	True	True	True
&ocean_tempsalt_nml	debug_this_module	False	False	False	False	False	False	False	False
	pottemp_2nd_iteration	True	True	True	True	True	True	True	True
	pottemp_equal_contemp s_max	55.0	55.0	True 70.0	True 70.0	True 70.0	True 70.0	True 70.0	True 70.0
	s_max_limit	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0
	s_min	-1.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0
	s_min_limit	5.0	5.0	2.0	2.0	2.0	2.0	2.0	2.0
	t_max t_max_limit	55.0 32.0	55.0 32.0	55.0 32.0	55.0 32.0	55.0 32.0	55.0 32.0	55.0 32.0	55.0 32.0
	t_min	-5.0	-5.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
	t_min_limit	-1.9	-1.9	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0
	temperature_variable	'potential	'potential	'potential	'potential	'potential	'potential	'potential	'potential_
&ocean_thickness_nml	debug_this_module	temp' False	temp' False	temp' False	temp' False	temp' False	temp' False	temp' False	temp False
WOCCAIT_CHICKTIC33_HITE	debug_this_module_detail	False	False	False	False	False	False	False	False
	initialize_zero_eta	False	False						
	read_rescale_rho0_mask	True	True						
!	rescale_mass_to_get_ht_mod rescale_rho0_basin_label	7.0	7.0	False	False	False	False	False	False
	rescale_rho0_mask_qfdl	True	True						
	rescale_rho0_value	0.75	0.75						
	thickness_dzt_min	2.0	2.0	2.0	2.0	2.0			
	thickness_dzt_min_init thickness_method	2.0 'energetic'	2.0 'energetic'	10.0 'energetic'	10.0 'energetic'	10.0 'energetic'	'energetic'	'energetic'	'energetic
&ocean_time_filter_nml	use_this_module	False	False	energenc	energenc	energetic	energene	energenc	energene
&ocean_topog_nml	min_thickness	5.0	5.0						
&ocean_tracer_advect_nml	advect_sweby_all	False	False	False	False	False			
	debug_this_module	False	False	False	False	False	False	False	False
	limit_with_upwind read_basin_mask	False	False	False	False	False	False	False	False
&ocean_tracer_diag_nml	diag_step	1200	12	48	48	43200	4320	4320	576
	do_bitwise_exact_sum	False	False	False	False	False	False	False	False
	smooth_mld	True	True				=		
		100.0	100.0	30.0	30.0	30.0	30.0	30.0	30.0
	tracer_conserve_days								
&ocean_tracer_nml	tracer_conserve_days age_tracer_max_init debug_this_module	$1 \times 10^{+40}$ False	0.0 False	0.0 False	0.0 False	0.0 False	0.0 False	0.0 False	0.0 False

Group (continued)	Variable	original/ GFDL ESM2M input- cut.nml	original/ MOM_SIS TOPAZ input.nml	original/ fabio momsis1 input.nml	original/ paul_mom- sis025_in- put.nml	original/ fanghua mom- sis01v5KDS75 WOA13_in- put.nml	new_acces- som2 1deg - jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
fra	zil_heating_before_vphysics	False	False	False	False	False	False	False	False
	<pre>interpolate_tdiag_to_pbott interpolate_tproq_to_pbott</pre>	False False							
	limit_age_tracer	True	True	True	True	True	True	True	True
	remap_depth_to_s_init	False	False	False	False	False	False	False	False
	tmask_limit_ts_same use_tempsalt_check_range	True	True			True	True	True	True
	zero_tendency	False	False	False	False	False	False	False	False
	zero_tracer_source	False	False	False	False	False	False	False	False
&ocean_velocity_diag_nml	debug_this_module	False	False	False	False	False	False	False	False
	diag_step energy_diag_step	1200 1200	12 12	4320 4320	4320 4320	43200 43200	4320 4320	4320 4320	576 5760
	large_cfl_value	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
	max_cfl_value	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
&ocean_velocity_nml	adams_bashforth_third	True	True	True	True	True	True	True	True
	<mark>max_cgint</mark> truncate_velocity	False	False	1.5 False	1.5 False	1.0 False	1.0 False	1.0 False	1.0 False
	truncate_velocity_value	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	truncate_verbose	True	True	True	True	True	True	True	True
	zero_tendency	False	False	False	False	False	False	False	False
	zero_tendency_explicit_a zero_tendency_explicit_b			False False	False False	False False	False False	False False	False False
	zero_tendency_explicit_b			False	False	False	False	False	False
&ocean_vert_kpp_iow_nml	use_this_module	False	False	False	False	False	False	False	False
&ocean_vert_kpp_mom4p0_r		False	False						
&ocean_vert_kpp_mom4p1_r	nml diff_cbt_iw double_diffusion	0.0 True		0.0 True	0.0 True	0.0 True	0.0 True	0.0 True	0.0 True
	kbl_standard_method	True		iiue	iiue	False	False	False	False
	ricr	0.3		0.3	0.3	0.3	0.3	0.3	0.3
	smooth_blmc	True		True	True	False	False	False	False
	smooth_ri_kmax_eq_kmu	Truo		True	Truo	True	True True	True	True
	use_this_module visc_cbu_iw	True 0.0		0.0	True 0.0	True 0.0	0.0	True 0.0	True 0.0
	wsfc_combine_runoff_calve	False		0.0	0.0	0.0	0.0	0.0	0.0
&ocean_vert_kpp_nml	diff_cbt_iw double_diffusion ricr		0.0 True 0.3						
	smooth_blmc		True						
	use_this_module		True						
&ocean_vert_mix_nml	visc_cbu_iw afkph_00	0.675	0.0 0.675						
QUCEdit_Vert_IIIIX_IIIII	afkph_90	0.725	0.725						
	aidif	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	bryan_lewis_diffusivity	True	True	False	False	False	False	False	False
	bryan_lewis_lat_depend bryan_lewis_lat_transition	True 35.0	True 35.0	False	False	False	False	False	False
	dfkph_00	1.15	1.15						
	dfkph_90	1.15	1.15						
	hwf_diffusivity			False	False	False	False	False	False
	hwf_min_diffusivity hwf_n0_2omega			$2 \times 10^{-6}$ 20.0	$2 \times 10^{-6}$ 20.0	$2 \times 10^{-6}$ 20.0	$2 \times 10^{-6}$ 20.0	$2 \times 10^{-6}$ 20.0	$2 \times 10^{-6}$ 20.0
	nwr_nu_zomega linear_taper_diff_cbt_table	False	False	20.0	20.0	∠∪.∪	20.0	20.0	20.0
	quebec_2009_10_bug	False							
	sfkph_00	$4.5 \times 10^{-5}$	$4.5 \times 10^{-5}$						
	sfkph_90	$4.5 \times 10^{-5}$	$4.5 \times 10^{-5}$		F.1	F.1	F 1	F 1	F 1
	use_diff_cbt_table vert_diff_back_via_max	False True	False True	False True	False True	False True	False True	False True	False True
	vert_mix_scheme	'kpp	'kpp'	'kpp	'kpp	'kpp	'kpp	'kpp	'kpp
	zfkph_00	mom4p1' 250 000 000.0	250 000 000.0	mom4p1'	mom4p1'	mom4p1'	mom4p1'	mom4p1'	mom4p1'
&ocean_vert_tidal_nml	zfkph_90 background_diffusivity	250 000 000.0	250 000 000.0	0.0	0.0	0.0	0.0	0.0	0.0
woccun_vert_truat_fillt	background_viscosity	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	decay_scale	300.0	300.0	500.0	500.0	500.0	500.0	500.0	500.0
	drag_dissipation_use_cdbot	47	11	True	True	True	True	True	True
	drhodz_min	$1 \times 10^{-12}$	$1 \times 10^{-12}$	$1 \times 10^{-10}$	$1 \times 10^{-10}$	$1 \times 10^{-10}$	$1 \times 10^{-10}$	$1 \times 10^{-10}$	$1 \times 10^{-10}$
	fixed_wave_dissipation max_wave_diffusivity	False 0.01	False 0.01	False 0.01	False 0.01	False 0.01	False 0.01	False 0.01	False 0.01
ı	mixing_efficiency_n2depend	True	True	True	True	True	True	True	True
	read_roughness	True	True	True	True	True	True	True	True
	read_tide_speed	True	True	True	True	True	True	True	True
	read_wave_dissipation reading_roughness_amp	False True	False True	False True	False True	False True	False True	False True	False True
	reaumy_rougnness_amp	irue	irue	iiue	irue	irue	iiue	irue	irue

Group (continued)	Variable	original/ GFDL ESM2M input- cut.nml	original/ MOM_SIS TOPAZ input.nml	original/ fabio momsis1 input.nml	original/ paul_mom- sis025_in- put.nml	original/ fanghua mom- sis01v5KDS75 W0A13_in- put.nml	new_acces- som2 1deg - jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
	reading_roughness_length	False	False	False	False	False	False	False	False
	roughness_scale	30 000.0	30 000.0	12 000.0	12 000.0	12 000.0	12 000.0	12 000.0	12 000.0
	shelf_depth_cutoff	160.0	160.0	-1000.0	-1000.0	-1000.0	-1000.0	-1000.0	-1000.0
	tide_speed_data_on_t_grid	True	True	True	True	True	True	True	True
	use_drag_dissipation	True	True	True	True	True	True	True	True
	use_legacy_methods	True		False	False	False	False	False	False
	use_this_module	True	True	True	True	True	True	True	True
	use_wave_dissipation	True	True	True	True	True	True	True	True
	wave_energy_flux_max	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
&ocean_xlandinsert_nml	use_this_module verbose_init	True True	True True	False	False	False	False	False	False
&ocean_xlandmix_nml	use_this_module	True	True	False	False	False	False	False	False
	verbose_init	True	True						
	xlandmix_kmt	True	True						
&redseafix_nml	redsea_gulfbay_sfix			True					
&sat_vapor_pres_nml	construct_table_wrt_liq	True	True						
CC	onstruct_table_wrt_liq_and_ice	True	True						
	show_all_bad_values					True			
&surface_flux_nml	ncar_ocean_flux			True	True	True			
	old_dtaudv	False							
	raoult_sat_vap			True	True	True			
&topography_nml	topog_file	'INPUT/	'INPUT/						
		navy_topog-	navy_topog-						
		ra-	ra-						
		phy.data.nc'	phy.data.nc'						
&xgrid_nml	do_alltoall			True	True	True			True
	do_alltoallv			True	True	True			True
	interp_method	'second	'second	'second	'second	'second	'second	'second	'second
		order'	order'	order'	order'	order'	order'	order'	order'
	make_exchange_reproduce	True	True	False	False	False	False	False	False
	nsubset			16	16	16	16	16	16
	xgrid_log			False	False	False			False

## $5 \quad Differences\ between\ GFDL\_ESM2M\_input.nml\ and\ GFDL\_ESM2M\_input-cut.nml$

 $\dots$ just to double-check only irrelevant atmos/ESM stuff has been cut. Only differences are shown.

Group	Variable	original/ GFDL	original/ GFDL
		ESM2M input.nml	ESM2M input- cut.nml
&aerosol_nml aeroso	l_dataset_entry	1860, 1, 1, 0,	cucannic
		0, 0, 1860, 1,	
		1, 0, 0, 0, 1860, 1, 1, 0,	
		0, 0, 1860, 1,	
		1, 0, 0, 0, 1860, 1, 1, 0,	
		0, 0, 1860, 1,	
		1, 0, 0, 0,	
		1860, 1, 1, 0, 0, 0, 1860, 1,	
		1, 0, 0, 0,	
		1860, 1, 1, 0,	
		0, 0, 1860, 1, 1, 0, 0, 0,	
		1860, 1, 1, 0,	
		0, 0, 1860, 1,	
	data_names	1, 0, 0, 0 'so4', 'black	
		carbon',	
		'organic carbon',	
		'dust_0.1',	
		'dust_0.2',	
		'dust_0.4', 'dust_0.8',	
		'sea_salt',	
		'dust_1.0',	
		'dust_2.0', 'dust_4.0',	
		'dust_8.0'	
	family_names	'small_dust',	
		'large_dust', 'sulfate',	
		'aerosol',	
		'dust', 'pm2.5'	
	filename	'aerosol.climatol	ogy.nc'
	in_family1	False, False, False, True,	
		True, True,	
		True, False,	
		True, False, False, False	
	in_family2	False, False,	
		False, False,	
		False, False, False, False,	
		False, True,	
	in_family3	True, True True, False,	
	III_IaIIIIty5	False, False,	
		False, False,	
		False, False, False, False,	
		False, False	
	in_family4	True, True, True, True,	
		True, True,	
		True, True,	
		True, True, True, True	
	in_family5	False, False,	
	,	False, True,	
		True, True, True, False,	
		True, True,	
		True, True	

Group (continued)	Variable	original/ GFDL ESM2M input.nml	original/ GFDL ESM2M input- cut.nml
	in_family6	True, True,	
		False, False,	
		False, False	
	time_varying_species	False, False,	
		False, False	
	use_aerosol_timeseries	False	
&aerosolrad_package_nml	aerosol_data_set	'shettle	
		fenn'	

Group (continued)	Variable	original/	original/
		GFDL	GFDL
		ESM2M	ESM2M
		input.nml	input-
	Lantical names	'aulfata	cut.nml
geroso	l_optical_names	'sulfate 30%',	
		'sulfate	
		35%',	
		'sulfate	
		40%',	
		'sulfate	
		45%',	
		'sulfate	
		50%',	
		'sulfate	
		55%',	
		'sulfate	
		60%',	
		'sulfate	
		65%', 'sulfate	
		70%',	
		'sulfate	
		75%,	
		'sulfate	
		80%',	
		'sulfate	
		82%',	
		'sulfate	
		84%',	
		'sulfate	
		86%;	
		'sulfate	
		88%',	
		'sulfate 90%',	
		'sulfate	
		91%',	
		'sulfate	
		92%',	
		'sulfate	
		93%',	
		'sulfate	
		94%',	
		'sulfate	
		95%;	
		'sulfate	
		96%', 'sulfate	
		97%',	
		'sulfate	
		98%',	
		'sulfate	
		99%',	
		'sulfate	
		100%;	
		'organic	
		carbon',	
		'soot',	
		'sea_salt', 'dust_0.1',	
		dust_0.1, 'dust_0.2',	
		'dust_0.4',	
		'dust_0.8',	
		'dust_1.0',	
		'dust_2.0',	
		'dust_4.0',	
		'dust_8.0'	
	do_lwaerosol	True	
	do_swaerosol	True	
	w_asy_filename	,,	
	lw_asy_root	,,	
	w_ext_filename	,,	
	lw_ext_root w_ssa_filename	,,	
	lw_ssa_root	,,	
	ptical_filename	'aerosol ontical da	at'
	w_asy_filename	'aerosol.optical.da	
	sw_asy_root	,,	
	•		

Group (continued)	Variable	original/ GFDL ESM2M input.nml	original/ GFDL ESM2M input-
	sw_ext_filename	,,	cut.nml
	sw_ext_not	,,	
	sw_ssa_filename	,,	
	sw_ssa_root using_volcanic_lw_files	False	
	using_volcanic_sw_files	False	
	volcanic_dataset_entry	1, 1, 1, 0, 0, 0	
&amip_interp_nml	data_set date_out_of_range	'reynolds_oi' 'fail'	
&atmos_co2_nml	co2_radiation_override	True	
	do_co2_emissions	False	
	do_co2_restore	True	
	restore_klimit restore_tscale	24 31 536 000.0	
&atmos_model_nml	nxblocks	2	
	nyblocks	2	
&cana_nml	canopy_air_mass_for_tracers	10.0	
	init_co2 turbulence_to_use	0.000 286 'lm3v'	
&cg_drag_nml	bt_0	0.0015	
	calculate_ked	False	
	cg_drag_freq	1800	
	cg_drag_offset debug	0 False	
	itest	12	
	jtest	42	
	ktest	9	
&cloud_rad_nml	lat_limit do_brenguier	25.0 False	
action and a minit	overlap	2	
&cloud_spec_nml	cloud_type_form	'strat'	
	use_cloud_tracers_in_radiation	True	
&cloudrad_package_nml &clouds_nml	microphys_form do_obs_clouds	'predicted' False	
actoudmit	do_zonal_clouds	False	
&cu_mo_trans_nml	diff_norm	2.0	
&damping_driver_nml	do_cg_drag	False	
	do_conserve_energy do_mg_drag	True True	
mo_trans_nml	do_topo_drag	False	
	nlev_rayfric	1	
9 dies alaud per	trayfric	—40.0 True	
_mo_trans_nml	L_theqv lcnvcld	False	
	linvers	False	
	lomega	True	
s_nml o_trans_nml ing_driver_nml	low_lev_cloud_index	16 False	
drag_nml  id_rad_nml  id_spec_nml  idrad_package_nml  ids_nml  mo_trans_nml  iping_driver_nml  g_cloud_nml  ner_deep_clouds_w_nml  ner_deep_nml	nofog L_anom_abs_v	True	
	l_har_anvil	True	
	L-har_coldcld	True	
&donner_deep_clouds_w_nml	using_dge_lw	True	
&donner_deep_nml	using_dge_sw cell_ice_size_type	True 'default'	
·····	cell_liquid_size_type	'bower'	
	debug	False	
	donner_deep_freq donner_deep_offset	1800 0	
	itest	53	
	jtest	32	
	ktest_model	17	
	kttest save_donner_deep_diagnostics	5 True	
&edt_nml	do_gaussian_cloud	False	
	min_adj_time	1.0	
	n_print_levels	14	
	num_pts_ij	0 False	
	num_pts_ij use_extrapolated_ql	0 False True	
&entrain_nml	num_pts_ij use_extrapolated_ql use_qcmin apply_entrain	False True True	
&entrain_nml	num_pts_ij use_extrapolated_ql use_qcmin apply_entrain ashear	False True True 25.0	
&entrain_nml	num_pts_ij use_extrapolated_ql use_qcmin apply_entrain	False True True	

Group (continued)	Variable	original/ GFDL ESM2M input.nml	original/ GFDL_ ESM2M_ input- cut.nml
	i_entprt_gl	112, 96, 89,	cut.IIIII
		105, 81, 97	
	j_entprt_gl	71, 61, 56, 64, 53, 46	
	num_pts_ij	0 1, 33, 10	
	parcel_buoy	0.25	
	parcel_option	2	
&esfsw_parameters_nml	radperturb sw_diff_streams	0.1	
xesisw_parameters_mm	sw_cresolution	'low'	
&fv_core_nml	change_time	True	
	consv_te	0.7	
	layout	1, 30	
	mlat n_split	90 5	
	ncnst	4	
	nlev	24	
	nlon	144	
	pnats	, METCDE,	
&gas_tf_nml	restart_format do_calcstdch4tfs	'NETCDF' True	
xyaɔ_u_ıııllı	do_calcstdcn4trs do_calcstdco2tfs	True	
	do_calcstdn2otfs	True	
	do_readstdch4tfs	False	
	do_readstdco2tfs	False	
alac data amil	do_readstdn2otfs do_writestdch4tfs	False False	
	do_writestdco2tfs	False	
	do_writestdco2tis	False	
	interp_form	'log'	
&glac_data_nml	dat_emis_dry	1.0	
	dat_emis_sat	1.0	
	rsa_exp_global use_lm2_awc	10.0 True	
&glac_nml	conserve_glacier_mass	True	
	lm2	True	
&harvesting_nml	crop_seed_density	0.1	
	do_harvesting frac_wood_wasted_clear	False 0.25	
	frac_wood_wasted_ctear	0.25	
	grazing_intensity	0.25	
	grazing_residue	0.1	
	waste_below_ground_wood	False	
&lake_data_nml	dat_emis_dry dat_emis_sat	1.0 1.0	
	dat_heat_capacity_ref	0.0	
	f_geo_ice	0.0, 0.0	
	f_geo_liq	0.0, 0.0	
	f_iso_ice	0.02, 0.01	
	f_iso_liq f_vol_ice	0.02, 0.01 0.003, 0.0	
	f_vol_liq	0.003, 0.0	
	lake_to_use	'from-rivers'	
	num_L	20	
&lake_nml	albedo_to_use	'brdf-	
	float_ice_to_top	params' True	
&land_debug_nml	watch_point	0,0,0,1	
&land_model_nml	io_layout	1, 3	
	layout	1, 30	
	prohibit_negative_canopy_water	False	
&landuse_nml	tau_snow_t_adj do_landuse_change	604 800.0 False	
	input_file	'INPUT/ landuse.nc'	
klscale_cond_nml	do_evap	True	
&lw_gases_stdtf_nml	nstdco2lvls	496	
&mg_drag_nml	acoef	1.0 True	
	do_conserve_energy gmax	1.0	
	source_of_sgsmtn	'computed'	
&microphys_rad_nml	lwem_form	'fuliou'	
		0.0	
&moist_conv_nml &moist_processes_nml	beta do_cmt	0.0 True	

Group (continued)	Variable	original/ GFDL ESM2M input.nml	original/ GFDL ESM2M input-
	do dian claude	False	cut.nml
	do_diag_clouds do_donner_deep	False	
	do_gust_cv	False	
	do_legacy_strat_cloud	True	
	_do_lsc	False	
	do_mca	False	
	do_ras do_rh_clouds	True False	
	do_strat	True	
i i	nclude_donmca_in_cosp	False	
&my25_turb_nml	akmin_land	5.0	
	akmin_sea	0.0	
	do_thv_stab	True $1 imes 10^{-8}$	
&ozone_nml	tkemin basic_ozone_type	'fixed_year'	
&UZUITE_IIIIIL	data_name	'ozone'	
	filename	'o3.climatology.nc'	
	ozone_dataset_entry	1860, 1, 1, 0,	
	,	0,0	
&physics_driver_nml	do_modis_yim	False	
&rad_output_file_nml	write_data_file	True	
&radiation_diag_nml	iradprt_gl	20,6	
	jradprt_gl	12, 20 0	
&radiation_driver_diag_nml	num_pts_ij all_step_diagnostics	True	
&radiation_driver_unag_nint	do_clear_sky_pass	True	
A CONTROL OF THE CONT	rad_package	'sea_esf'	
	rad_time_step	10800	
	renormalize_sw_fluxes	True	
	use_co2_tracer_field	True	
	using_restart_file	False	
	zenith_spec	'diurnally varying'	
&radiative_gases_nml	ch4_data_source	'input'	
and district gases a line.	ch4_dataset_entry	1860, 1, 1, 0, 0, 0	
	ch4_specification_type	'time_series'	
	ch4_variation_type	'linear'	
	co2_base_time	101, 1, 1, 0, 0, 0 0.0016	
	co2_ceiling co2_data_source	'predicted'	
	co2_dataset_entry	1, 1, 1, 0, 0, 0	
	co2_floor	0.0001	
	co2_specification_type	'base_and trend'	
	co2_variation_type	'linear'	
	f113_data_source	'input'	
	f113_dataset_entry	1860, 1, 1, 0, 0, 0	
	f113_specification_type	'time_series'	
	f113_variation_type	'linear'	
	f11_data_source	'input'	
	f11_dataset_entry	1860, 1, 1, 0, 0, 0	
	f11_specification_type	'time_series'	
	f11_variation_type f12_data_source	'linear' 'input'	
	f12_dataset_entry	1860, 1, 1, 0, 0, 0	
	f12_specification_type	'time_series'	
	f12_variation_type	'linear'	
	f22_data_source	'input'	
	f22_dataset_entry	1860, 1, 1, 0, 0, 0	
	f22_specification_type	'time_series'	
	f22_variation_type gas_printout_freq	'linear' 240	
	n2o_data_source	'input'	
	n2o_dataset_entry	1860, 1, 1, 0, 0, 0	
	n2o_specification_type	'time_series'	
	n2o_variation_type	'linear'	
	time_varying_ch4	False	

Group (continued)	Variable	original/ GFDL ESM2M input.nml	original/ GFDL ESM2M input- cut.nml
	time_varying_co2 time_varying_f11 time_varying_f113 time_varying_f12 time_varying_f22 time_varying_n2o verbose	False False False False False 5	CUCHINE
&random_number_streams_nml	do_legacy_seed_generation	True	
&ras_nml	force_use_of_temp_for_seed a	False 1.6851, 1.1686, 0.7663, 0.5255,0.41, 0.3677, 0.3151, 0.2216, 0.1521,	
	aratio modify_pbl puplim rn_frac_bot rn_frac_top rn_pbot rn_ptop tokioka_con tokioka_on	0.075, 0.0, 0.0, 0.0, 0.0, 0.0 1.0 True 2000.0 0.5 0.975 80 000.0 50 000.0 0.025 True	
	tokioka_plim	50 000.0	
&rh_based_clouds_nml	cirrus_cld_prop_form cldht_type_form	'part' '93'	
&river_nml	all_big_outlet_ctn0 dt_slow land_area_called_cellarea	True 86 400.0 True	
&river_physics_nml &sealw99_nml	lake_sfc_w_min continuum_form do_lwcldemiss do_nlte do_thick linecatalog_form	20.0 'ckd2.1' True False False 'hitran 2000'	
&shortwave_driver_nml	verbose  do_cmip_diagnostics solar_dataset_entry  swform time_varying_solar_constant	5 True 1860, 1, 1, 0, 0, 0 'esfsw99' False	
&snow_data_nml	emis_snow_max emis_snow_min f_geo_cold f_geo_warm f_iso_cold f_iso_warm	0.05 0.05, 0.2, 0.5, 0.2, 0.05, 0.0, 0.0, 0.0, 0.0, 1.0 1.0 0.0, 0.0 0.0, 0.0 0.0, 0.0 0.0, 0.0 0.0, 0.0	
	f_vol_cold f_vol_warm num_L z0_momentum	0.9, 0.6 0.09, 0.13 0.09, 0.13 5 0.01	
&snow_nml	albedo_to_use  max_snow min_snow_mass	'brdf- params' 1000.0 $1 \times 10^{-10}$	
&soil_data_nml	comp dat_emis_dry dat_emis_sat	0,0001 10,10,10, 10,10,10, 10,10,10, 10,10,10, 10,10,10, 10,10,10,	

Group (continued)	Variable	original/ GFDL ESM2M input.nml	original/ GFDL ESM2M input-
	dat_tf_depr	2.0, 2.0, 2.0,	cut.nml
	uat_tr_uepi	2.0, 2.0, 2.0,	
		2.0, 2.0, 2.0	
	dz	0.02, 0.04,	
		0.04, 0.05,	
		0.05, 0.1, 0.1,	
		0.2, 0.2, 0.2,	
		0.4, 0.4, 0.4,	
		0.4, 0.4, 1.0, 1.0, 1.0, 1.5,	
		2.5	
	freeze_factor	2.0	
	geohydrology_to_use	'hill_ar5'	
	gw_scale_soil_depth	10.0	
	num_l	20	
&soil_nml	active_layer_drainage_acceleration	100.0	
	albedo_to_use	'brdf-maps'	
	init_w	500.0	
	uptake_oneway	True	
	uptake_to_use	'darcy2d- linearized'	
	write_soil_carbon_restart	linearized False	
&stable_bl_turb_nml	alsh	500.0	
A Stable_bt_tarb_mit	alsm	500.0	
&static_veg_nml	end_loop	2470, 1, 1, 0,	
		0,0	
	fill_land_mask	True	
	start_loop	2420, 1, 1, 0,	
		0,0	
	timeline	'loop'	
	use_static_veg	False	
&strat_cloud_nml	diff_thresh	$0.1 \\ 1 \times 10^{-7}$	
	dmin do_old_snowmelt	True	
	eros_choice	True	
	eros_scale	$1 \times 10^{-6}$	
	eros_scale_c	$8 \times 10^{-6}$	
	eros_scale_t	$5 \times 10^{-5}$	
	mc_thresh	0.001	
	n_land	300 000 000.0	
	retain_cm3_bug	True	
	rthresh	_8.0	
	super_choice	True	
	tracer_advec u00	True 0.8	
	u00_profile	0.8 True	
&topo_rough_nml	max_topo_rough	100.0	
	topo_rough_factor	0.01	
	use_topo_rough	True	
&vegn_nml	co2_for_photosynthesis	0.000 286	
	co2_to_use_for_photosynthesis	'interactive'	
	do_biogeography	True	
	do_cohort_dynamics	True	
	do_patch_disturbance	True	
	do_phenology do_seed_transport	True True	
	do_seed_transport init_tv	288.0	
	photosynthesis_to_use	'leuning'	
	rad_to_use	'two-stream'	
	snow_rad_to_use	'paint-	
		leaves'	
	tau_smooth_ncm	22.0	
_diff_driver_nml	do_conserve_energy	True	
_turb_driver_nml	do_diffusivity	False	
	do_edt	False	
	do_entrain do_mellor_yamada	True False	
	do_mettor_yamada do_shallow_conv	False	
	do_stable_bl	True	
		iiuc	
	gust_scheme	'beljaars'	