### MOM-SIS / ACCESS-OM2 MOM5 namelist comparisons

typeset 2017-10-19 09:25:36 +11:00

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

#### also check /home/581/fbd581/payu/access-om2\_JRA-ryf/ocean/input.nml? - fabio email 18 Oct

- 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
- 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.

#### **Contents**

1	Differences between new ACCESS-OM2 configs	2
2	Changes in new ACCESS-OM2 configs 2.1 accessom2_1deg_jra55_ryf	7
3	Old and new ACCESS-OM2 configs (differences highlighted)	8
4	Differences between MOM-SIS and all new configs	16
5	All variables in all 6 configs (differences highlighted)	20
6	All variables in all originals (differences highlighted)	28

# 1 Differences between new ACCESS-OM2 configs

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 redsea_gulfbay_sfix	3600 True	1200	150
&fms_io_nml	fileset_write	'single'	'multi'	'multi'
&fms_nml	threading_write domains_stack_size	'single'	'multi'	'multi' 115200
&generic_tracer_nml	print_memory_usage do_generic_cfc			False False
xyenenc_tracer_nint	do_generic_topaz			False
&mpp_io_nml	do_generic_tracer deflate_level		5	False 5
	shuffle		1	1
&ocean_adv_vel_diag_nml	diag_step	4320	4320 4320	576 576
&ocean_barotropic_nml &ocean_lapgen_friction_nml	diag_step bottom_5point	4320 True	4320	3/0
a de constançon sinte	k_smag_aniso	0.0		
	k_smag_iso	0.0	2.0	2.0
	ncar_only_equatorial restrict_polar_visc	True True		
	restrict_polar_visc_lat	60.0		
	restrict_polar_visc_ratio	0.35		
	use_this_module	True	False	False
	vconst_1 vconst_2	0.00 000 8 0.0		
	vconst_2	0.8		
	vconst_4	$5 \times 10^{-9}$		
	vconst_5	3		
	vconst_6 vconst_7	300 000 000.0 100.0		
	vel_micom_iso	0.1		
	viscosity_ncar	True		
	viscosity_ncar_2000	False		
	viscosity_ncar_2007 viscosity_scale_by_rossby	True True		
	viscosity_scale_by_rossby_power	100.0		
&ocean_mixdownslope_nml	mixdownslope_mask_gfdl	False		
	mixdownslope_npts read_mixdownslope_mask	4 False		
	use_this_module	True	False	False
&ocean_model_nml	dt_ocean	3600	1200	150
	io_layout	4, 3	6,5	10, 15
&ocean_nphysics_nml	layout use_nphysicsc	16, 15 True	48, 40 False	80, 75 False
Coccan_nphysics_nint	use_this_module	True	False	False
&ocean_nphysics_util_nml	agm	600.0	100.0	100.0
	agm_closure_eady_ave_mixed	True		
	agm_closure_eady_cap agm_closure_eady_smooth_horz	True True		
	agm_closure_eady_smooth_vert	True		
	agm_closure_eden_gamma	0.0		
	agm_closure_eden_greatbatch agm_closure_grid_scaling	False True		
	agm_closure_min	50.0	100.0	100.0
	agm_damping_time	45.0		
	agm_smooth_space	False		
	agm_smooth_time drhodz_mom4p1	False True	False	False
	nphysics_util_zero_init	True	ratsc	raisc
&ocean_nphysicsc_nml	bv_freq_smooth_vert	True		
	bvp_bc_mode	2		
	bvp_min_speed bvp_speed	0.1 0.0		
	debug_this_module	False		
	do_gm_skewsion	True		
	do_neutral_diffusion	True		
	epsln_bv_freq gm_skewsion_bvproblem	$1  imes 10^{-12}$ True		
	gm_skewsion_modes	False		
	neutral_eddy_depth	True		
	neutral_physics_limit	True		
	number_bc_modes regularize_psi	2 False		
	regularize_psi	ו מנאכ		

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
	smax_psi	0.01		
	smooth_psi	True		
	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_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

Group	Variable	original/ hogg_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 1deg jra55_ryf input.nml
&bg_diff_lat_dependence_nml	bg_diff_eq	1 × 10 <sup>-6</sup>	
&diag_manager_nml	lat_low_bgdiff debug_diag_manager	20.0	True
	issue_oor_warnings	False	True
&monin_obukhov_nml	neutral		True
&ocean_albedo_nml &ocean_barotropic_nml	ocean_albedo_option		2 False
&ocean_bbc_nml	zero_tendency bmf_implicit		True
Accountable and the second and the s	cdbot_hi		0.007
	cdbot_law_of_wall	False	
	cdbot_roughness_length		False
	cdbot_roughness_uamp		True
0	uresidual	Falsa	0.05
&ocean_bbc_ofam_nml	read_tide_speed uresidual2_max	False 1.0	
kocean_bih_tracer_nml	tracer_mix_micom	1.0	True
ACCOUNTED THE CONTRACT OF THE	vel_micom		0.001
Rocean_bihgen_friction_nml	bottom_5point	True	False
	ncar_boundary_scaling_read		True
	vel_micom_bottom	0.01	0.0
	vel_micom_iso	0.04	0.0
kocean_convect_nml	visc_crit_scale convect_full_scalar	0.25 False	1.0
xocedii_convect_iiiit	convect_full_vector	True	
Rocean_density_nml	neutralrho_max	1030.0	1038.0
······································	neutralrho_min	1020.0	1028.0
kocean_domains_nml	max_tracers	10	5
kocean_form_drag_nml	cprime_aiki	0.6	
Rocean_frazil_nml	debug_this_module		False
	frazil_only_in_surface		False
	freezing_temp_preteos10 freezing_temp_simple	True	True False
kocean_grids_nml	debug_this_module	True	False
xvecurizyriusziiiit	read_rho0_profile	False	ruisc
&ocean_increment_eta_nml	days_to_increment	0	
	fraction_increment	1.0	
	secs_to_increment	1800	
&ocean_increment_tracer_nml	days_to_increment	0 1.0	
	fraction_increment 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
Rocean_momentum_source_nml	rayleigh_damp_exp_from_bottom		False
kocean_operators_nml	use_legacy_div_ud	False	False
Rocean_overexchange_nml	overexch_check_extrema	False	False
Cocean overflow of nml	use this module		า สเรษ
	use_this_module		
&ocean_pressure_nml	zero_pressure_force	False	False
kocean_pressure_nml		False False	False
&ocean_pressure_nml &ocean_rivermix_nml &ocean_riverspread_nml	zero_pressure_force river_diffuse_salt river_diffuse_temp use_this_module		False True True False
Rocean_pressure_nml Rocean_rivermix_nml Rocean_riverspread_nml Rocean_rough_nml	zero_pressure_force river_diffuse_salt river_diffuse_temp use_this_module rough_scheme	False	False True True False 'beljaars'
Rocean_pressure_nml Rocean_rivermix_nml Rocean_riverspread_nml Rocean_rough_nml	zero_pressure_force river_diffuse_salt river_diffuse_temp use_this_module rough_scheme calvingspread	False	False True True False 'beljaars' False
kocean_pressure_nml kocean_rivermix_nml kocean_riverspread_nml kocean_rough_nml	zero_pressure_force river_diffuse_salt river_diffuse_temp use_this_module rough_scheme calvingspread do_bitwise_exact_sum	False	False True True False 'beljaars' False False
kocean_pressure_nml kocean_rivermix_nml kocean_riverspread_nml kocean_rough_nml	zero_pressure_force river_diffuse_salt river_diffuse_stemp use_this_module rough_scheme calvingspread do_bitwise_exact_sum do_flux_correction	False	False True True False 'beljaars' False False False
Rocean_pressure_nml Rocean_rivermix_nml Rocean_riverspread_nml Rocean_rough_nml	zero_pressure_force river_diffuse_salt river_diffuse_temp use_this_module rough_scheme calvingspread do_bitwise_exact_sum	False True	False True False 'beljaars' False False False False
Rocean_pressure_nml Rocean_rivermix_nml Rocean_riverspread_nml Rocean_rough_nml	zero_pressure_force river_diffuse_salt river_diffuse_stemp use_this_module rough_scheme calvingspread do_bitwise_exact_sum do_flux_correction land_model_heat_fluxes	False	False True True False 'beljaars' False False False False
kocean_pressure_nml kocean_rivermix_nml kocean_riverspread_nml kocean_rough_nml	zero_pressure_force river_diffuse_salt river_diffuse_stemp use_this_module rough_scheme calvingspread do_bitwise_exact_sum do_flux_correction land_model_heat_fluxes max_ice_thickness	False True 8.0 15.0	False True True False 'beljaars' False False False False O0 00
Rocean_pressure_nml Rocean_rivermix_nml Rocean_riverspread_nml Rocean_rough_nml	zero_pressure_force river_diffuse_salt river_diffuse_stemp use_this_module rough_scheme calvingspread do_bitwise_exact_sum do_flux_correction land_model_heat_fluxes max_ice_thickness salt_correction_scale salt_restore_tscale temp_restore_tscale	False True 8.0	False True True False 'beljaars' False False False False O0 00 600 —100
Rocean_pressure_nml Rocean_rivermix_nml Rocean_riverspread_nml Rocean_rough_nml	zero_pressure_force river_diffuse_salt river_diffuse_stemp use_this_module rough_scheme calvingspread do_bitwise_exact_sum do_flux_correction land_model_heat_fluxes max_ice_thickness salt_correction_scale salt_restore_tscale temp_restore_tscale use_full_patm_for_sea_level	8.0 15.0 —1.0	False True True False 'beljaars' False False False False O0 600
&ocean_overflow_ofp_nml &ocean_pressure_nml &ocean_rivermix_nml &ocean_riverspread_nml &ocean_rough_nml &ocean_sbc_nml	zero_pressure_force river_diffuse_salt river_diffuse_stemp use_this_module rough_scheme calvingspread do_bitwise_exact_sum do_flux_correction land_model_heat_fluxes max_ice_thickness salt_correction_scale salt_restore_tscale temp_restore_tscale use_full_patm_for_sea_level waterflux_tayg	False True 8.0 15.0	False True False 'beljaars' False False False False False False O 0 0 10 60 False
&ocean_pressure_nml &ocean_rivermix_nml &ocean_riverspread_nml &ocean_rough_nml	zero_pressure_force river_diffuse_salt river_diffuse_stemp use_this_module rough_scheme calvingspread do_bitwise_exact_sum do_flux_correction land_model_heat_fluxes max_ice_thickness salt_correction_scale salt_restore_tscale temp_restore_tscale use_full_patm_for_sea_level	8.0 15.0 —1.0	False True True False 'beljaars' False False False False O.0 0.0 60.0 —10.0

Group (continued)	Variable	original/ hogg_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 1deg jra55_ryf input.nml
	river_temp_ofam	False	
&ocean_shortwave_csiro_nml	read_depth	True	
	use_this_module	True	False
&ocean_shortwave_gfdl_nml	zmax_pen optics_morel_antoine	7000	False
&ocean_snortwave_grat_nint	optics_moret_antoine read_chl	False	True
	sw_pen_fixed_depths	False	iiuc
	use_this_module	False	True
	zmax_pen	200.0	300.0
&ocean_shortwave_nml	use_shortwave_csiro	True	False
	use_shortwave_gfdl	False	True
&ocean_sigma_transport_nml	use_this_module	True	False
&ocean_solo_nml &ocean_submesoscale_nml	debug_this_module	False	0.05
&ocean_submesoscate_nint	coefficient_ce smooth_advect_transport		True
	smooth_advect_transport_num		4
	smooth_psi		True
	smooth_psi_num		3
	submeso_advect_flux		False
	submeso_advect_limit		True
	submeso_advect_upwind		True
	submeso_advect_zero_bdy		True
	submeso_diffusion submeso_diffusion_biharmonic		False True
	submeso_diffusion_scale		10.0
	submeso_limit_flux	True	10.0
	submeso_skew_flux		True
	use_psi_legacy		False
&ocean_tempsalt_nml	pottemp_equal_contemp		True
	s_max	55.0	70.0
	s_min	-1.0	0.0
	s_min_limit	0.0 5.0	2.0 — 20.0
	t_min t_min_limit	5.0 2.0	20.0 5.0
	temperature_variable	conservative	-J.b 'potential
	temperature_variable	temp'	temp'
&ocean_thickness_nml	initialize_zero_eta	False	
	read_rescale_rho0_mask	False	
	rescale_mass_to_get_ht_mod		False
	rescale_rho0_basin_label	7.0	
	rescale_rho0_mask_gfdl rescale_rho0_value	False 0.75	
	thickness_dzt_min	1.0	
	thickness_dzt_min_init	2.0	
&ocean_topog_nml	min_thickness	25.0	
&ocean_tracer_advect_nml	advect_sweby_all	True	
ean_thickness_nml  ean_topog_nml ean_tracer_advect_nml  ean_tracer_diag_nml ean_velocity_nml  ean_vert_kpp_mom4p0_nml ean_vert_kpp_mom4p1_nml	async_domain_update	True	
	read_basin_mask		False
&ocean_tracer_diag_nml	tracer_conserve_days	1.0	30.0
tean_thickness_nml  tean_topog_nml tean_tracer_advect_nml  tean_tracer_diag_nml tean_velocity_nml  tean_velocity_nml  tean_vert_kpp_mom4p0_nml tean_vert_kpp_mom4p1_nml	truncate_velocity	True	False
	zero_tendency_explicit_a		False
	zero_tendency_explicit_b zero_tendency_implicit		False
&ocean vert knn mom4n0 nml	use_this_module	False	False
&ocean vert knn mom4n1 nml	diff_con_limit	0.1	
· · · · · · · · · · · · · · · · · · ·	visc_con_limit	0.1	
&ocean_vert_mix_nml	afkph_00	0.65	
	afkph_90	0.75	
	bryan_lewis_lat_depend	True	False
	bryan_lewis_lat_transition	35.0	
	dfkph_00 dfkph_90	1.15 0.95	
	dikpn_90 hwf_diffusivity	0.70	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 × 10 <sup>-6</sup>	0.0
	decay_scale drag_dissipation_use_cdbot	300.0	500.0 True
	uray_urssipation_use_cubot		iiue

Group (continued)	Variable	original/ hogg_acces- som2 1deg jra55_ryf input.nml	new_acces- som2 1deg jra55_ryf input.nml
	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	
	xlandmix_kmt	True	
&xgrid_nml	nsubset		16

### 2.2 accessom2\_025deg\_jra55\_ryf

Group	Variable	original/ kiss_acces- som2 025deg jra55_ryf input.nml	new_acces- som2 025deg jra55_ryf input.nml
&fms_io_nml	fileset_write	'single'	'multi'
	threading_write	'single'	'multi'
&mpp_io_nml	deflate_level		5
	shuffle		1
&ocean_convect_nml	convect_full_scalar	True	
	convect_full_vector	False	
&ocean_nphysics_util_nml	smax	0.002	
	swidth	0.002	
&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	
	zmax_pen	7000	
&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	

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

Group	Variable	original/ hogg_acces- som2 01deg jra55_ryf input.nml	new_acces- som2 01deg jra55_ryf input.nml
&diag_manager_nml	debug_diag_manager		True
	issue_oor_warnings	False	True
	max_axes	300	
	max_files	1000	
	max_input_fields	700	
	max_num_axis_sets	40	
	max_output_fields	700	
&fms_io_nml	checksum_required	False	
	max_files_r	700	
	max_files_w	700	
&ocean_advection_velocity_nml	max_advection_velocity	0.2	0.5
&ocean_barotropic_nml	vel_micom_lap_diag	0.5	0.2
&ocean_convect_nml	convect_full_scalar	True	
	convect_full_vector	False	
&ocean_model_nml	cmip_units		True
&ocean_nphysics_util_nml	smax	0.002	
	swidth	0.002	
&ocean_overflow_ofp_nml	debug_this_module	False	
	diag_step	5760	
	do_entrainment_para_ofp	False	
	do_mass_ofp	True	
	frac_exchange_src	1.0	
	max_vol_trans_ofp	10 000 000.0	
&ocean_riverspread_nml	debug_this_module	False	
	use_this_module	True	False
&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	False	False	False	False	False	False
	do_ice_once <mark>dt_cpl</mark>	False 3600	False 3600	False 1200	False 1200	False 150	False 150
	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	True	True	True	True	True	True
	redsea_gulfbay_sfix	True 1.0	True 1.0	1.0	1.0	1.0	1.0
	sign_stflx 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	$1 \times 10^{-6}$					
• • • • • • • • • • • • • • • • • • •	lat_low_bgdiff	20.0					
&diag_manager_nml	debug_diag_manager		True	True	True		True
	issue_oor_warnings	False	True	True	True	False	True
	max_axes					300	
	max_files					1000 700	
	max_input_fields 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					700	
	threading_read	'multi'	'multi'	'multi'	'multi'	'multi'	'multi'
&fms_nml	threading_write	'single' 'LOOP'	'single' 'LOOP'	'single' 'LOOP'	'multi' 'LOOP'	'multi' 'LOOP'	'multi' 'LOOP'
&IIIIS_IIIIL	clock_grain domains_stack_size	LUUP	LOOP	LUUP	LUUP	115200	115200
	print_memory_usage					False	False
&generic_tracer_nml	do_generic_cfc					False	False
	do_generic_topaz					False	False
	do_generic_tracer					False	False
&mom_oasis3_interface_nml	fields_in	'u_flux',	'u_flux',	'u_flux',	'u_flux',	'u_flux',	'u_flux',
		'v_flux', 'lprec', 'fprec',	'v_flux', 'lprec', 'fprec',	'v_flux', 'lprec', 'fprec',	'v_flux', 'lprec', 'fprec',	'v_flux', 'lprec', 'fprec',	'v_flux', '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',	'lw_flux',	'lw_flux',	'lw_flux',	'lw_flux',	'lw_flux',
		'runof', 'p',	'runof', 'p',	'runof', 'p',	'runof', 'p',	'runof', 'p',	'runof', 'p',
		'aice', 'wfimelt',	'aice', 'wfimelt',	'aice', 'wfimelt',	'aice', 'wfimelt',	'aice', 'wfimelt',	'aice', 'wfimelt',
		williett, 'wfiform'	williett, 'wfiform'	williett, 'wfiform'	williett, 'wfiform'	williett, 'wfiform'	williett, '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',	'v_surf',	'v_surf',	'v_surf',	'v_surf',	'v_surf', 'dssldx',
		,, ,, ,	,, ,, ,				'dccldy'
		'dssldx',	'dssldx', 'dssldy'	'dssldx', 'dssldy'	'dssldx', 'dssldv'	'dssldx',	
		'dssldy',	'dssldy',	'dssldy',	'dssldy',	'dssldy',	'dssldy',
	num fields in	'dssldy', 'frazil'	'dssldy', 'frazil'	'dssldy', 'frazil'	'dssldy', 'frazil'	'dssldy', 'frazil'	'dssldy', 'frazil'
	num_fields_in num_fields_out	'dssldy',	'dssldy',	'dssldy',	'dssldy',	'dssldy',	'dssldy',
		'dssldy', 'frazil' 15	'dssldy', 'frazil' 15	'dssldy', 'frazil' 15	'dssldy', 'frazil' 15	'dssldy', 'frazil' 15	'dssldy', 'frazil' 15
	num_fields_out send_after_ocean_update send_before_ocean_update	'dssldy', 'frazil' 15 7	'dssldy', 'frazil' 15 7 True False	'dssldy', 'frazil' 15 7 True False	'dssldy', 'frazil' 15 7 True False	'dssldy', 'frazil' 15 7 True False	'dssldy', 'frazil' 15 7 True False
&monin_obukhov_nml	num_fields_out send_after_ocean_update send_before_ocean_update neutral	'dssldy', 'frazil' 15 7 True	'dssldy', 'frazil' 15 7 True	'dssldy', 'frazil' 15 7 True	'dssldy', 'frazil' 15 7 True False True	'dssldy', 'frazil' 15 7 True False True	'dssldy', 'frazil' 15 7 True False True
&monin_obukhov_nml &mpp_io_nml	num_fields_out send_after_ocean_update send_before_ocean_update neutral deflate_level	'dssldy', 'frazil' 15 7 True	'dssldy', 'frazil' 15 7 True False	'dssldy', 'frazil' 15 7 True False	'dssldy', 'frazil' 15 7 True False True 5	'dssldy', 'frazil' 15 7 True False True 5	'dssldy', 'frazil' 15 7 True False True 5
&mpp_io_nml	num_fields_out send_after_ocean_update send_before_ocean_update neutral deflate_level shuffle	'dssldy', 'frazil' 15 7 True False	'dssldy', 'frazil' 15 7 True False True	'dssldy', 'frazil' 15 7 True False True	'dssldy', 'frazil' 15 7 True False True 5	'dssldy', 'frazil' 15 7 True False True 5	'dssldy', 'frazil' 15 7 True False True 5 1
	num_fields_out send_after_ocean_update send_before_ocean_update neutral deflate_level shuffle diag_step	'dssldy', 'frazil' 15 7 True False	'dssldy', 'frazil' 15 7 True False True	'dssldy', 'frazil' 15 7 True False True	'dssldy', 'frazil' 15 7 True False True 5 1	'dssldy', 'frazil' 15 7 True False True 5 1	'dssldy', 'frazil' 15 7 True False True 5 1
&mpp_io_nml	num_fields_out send_after_ocean_update send_before_ocean_update neutral deflate_level shuffle diag_step large_cfl_value	'dssldy', 'frazil' 15 7 True False  4320 10.0	'dssldy', 'frazil' 15 7 True False True 4320 10.0	'dssldy', 'frazil' 15 7 True False True 4320 10.0	'dssldy', 'frazil' 15 7 True False True 5 1 4320 10.0	'dssldy', 'frazil' 15 7 True False True 5 1 576 100	'dssldy', 'frazil' 15 7 True False True 5 1 576 10.0
&mpp_io_nml	num_fields_out send_after_ocean_update send_before_ocean_update neutral deflate_level shuffle diag_step large_cfl_value max_cfl_value	'dssldy', 'frazil' 15 7 True False  4320 10.0 100.0	'dssldy', 'frazil' 15 7 True False True 4320 10.0 100.0	'dssldy', 'frazil' 15 7 True False True 4320 1000	'dssldy', 'frazil' 15 7 True False True 5 1 4320 1000	'dssldy', 'frazil' 15 7 True False True 5 1 576 1000	'dssldy', 'frazil' 15 7 True False True 5 1 576 100 1000
&mpp_io_nml	num_fields_out send_after_ocean_update send_before_ocean_update neutral deflate_level shuffle diag_step large_cfl_value	'dssldy', 'frazil' 15 7 True False  4320 10.0	'dssldy', 'frazil' 15 7 True False True 4320 10.0	'dssldy', 'frazil' 15 7 True False True 4320 10.0	'dssldy', 'frazil' 15 7 True False True 5 1 4320 10.0	'dssldy', 'frazil' 15 7 True False True 5 1 576 100	'dssldy', 'frazil' 15 7 True False True 5 1 576 100

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 use_legacy_barotropic_halos	False False	False False	False False	False False	False False	False False
	use_legacy_barotropic_natos vel_micom_bih	0.01	0.01	0.01	0.01	0.01	0.01
	vel_micom_lap	0.05	0.05	0.05	0.05	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
Rosean bhe nml	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	0.007	0.007	0.001	0.007	0.007
	cdbot_law_of_wall	False					
	cdbot_roughness_length		False	False	False	False	False
	cdbot_roughness_uamp		True	True	True	True	True
	uresidual use_geothermal_heating	False	0.05 False	0.05 False	0.05 False	0.05 False	0.05 False
&ocean_bbc_ofam_nml	read_tide_speed	False	i alse	1 0130	1 0130	1 atse	1 dise
	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	True	True	True
	use_this_module	False	False 0.001	False	False	False	False
&ocean_bihcst_friction_nml	vel_micom use_this_module	False	False	0.001 False	0.001 False	0.001 False	0.001 False
&ocean_bihgen_friction_nml	bottom_5point	True	False	False	False	False	False
	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 0.0	False 0.0	False 0.0	False 0.0	False 0.0	False 0.0
	к_smag_aniso k_smag_iso	2.0	2.0	2.0	2.0	2.0	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 convect_full_vector	False True		True False		True False	
	use_this_module	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 neutralrho_max	80 1030.0	80 1038.0	80 1038.0	80 1038.0	80 1038.0	80 1038.0
	neutralrho_min	1030.0	1038.0	1038.0	1038.0	1038.0	1038.0
	potrho_max	1038.0	1038.0	1038.0	1038.0	1038.0	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		F 1	F .	F 1	F. 1
&ocean_frazil_nml	use_this_module  debug_this_module	False	False False	False False	False False	False False	False False
WUCCOIL II OZIL III III	debug_tnis_module frazil_only_in_surface		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					
	secs_to_increment use_this_module	1800 False	False	False	False	False	False
&ocean_increment_velocity_nml	days_to_increment	0	raisc	Talsc	T disc	raisc	1 disc
	fraction_increment	1.0					
	secs_to_increment	1800					
0 1 5	use_this_module	False	False	False	False	False	False
&ocean_lap_friction_nml &ocean_lap_tracer_nml	lap_friction_scheme use_this_module	'general'	'general' False	'general' False	'general' False	'general'	'general'
&ocean_lapcst_friction_nml	use_this_module	False False	False	False	False	False False	False False
&ocean_lapgen_friction_nml	bottom_5point	True	True	Talsc	1 8130	raisc	raisc
13 1 11 2 2	k_smag_aniso	0.0	0.0				
	k_smag_iso	0.0	_ 0.0	2.0	2.0	2.0	2.0
	ncar_only_equatorial	True	True				
	restrict_polar_visc restrict_polar_visc_lat	True 60.0	True 60.0				
	restrict_polar_visc_ratio	0.35	0.35				
	use_this_module	True	True	False	False	False	False
	vconst_1	8 000 000.0	0.000 000 8				
	vconst_2	0.0	0.0				
	vconst_3	$0.8 \\ 5 \times 10^{-9}$	$0.8 \\ 5 \times 10^{-9}$				
	vconst_4 vconst_5	5 × 10 <sup>3</sup>	5 × 10 <sup>3</sup>				
	vconst_6	300 000 000.0	300 000 000.0				
	vconst_7	100.0	100.0				
	vel_micom_iso	0.1	0.1				
	viscosity_ncar	True	True				
	viscosity_ncar_2000 viscosity_ncar_2007	False True	False True				
	viscosity_ncal_2007 viscosity_scale_by_rossby	True	True				
	viscosity_scale_by_rossby_power	4.0	100.0				
&ocean_mixdownslope_nml	debug_this_module	False	False	False	False	False	False
	mixdownslope_mask_gfdl	False	False				
	mixdownslope_npts read_mixdownslope_mask	4 False	4 False				
	use_this_module	True	True	False	False	False	False
&ocean_model_nml	baroclinic_split	1	1	1	1	1	1
	barotropic_split	80	80	80	80	80	80
	cmip_units	True	True	True	True		True
	debug <mark>dt_ocean</mark>	False 3600	False 3600	False 1200	False 1200	False 150	False 150
	io_layout	4, 3	4, 3	6,5	6,5	10, 15	10, 15
	layout	16, 15	16, 15	48, 40	48, 40	80, 75	80,75
	surface_height_split	1	1	1	1	1	1
	time_tendency	'twolevel'	'twolevel'	'twolevel'	'twolevel'	'twolevel'	'twolevel
0	vertical_coordinate	'zstar'	'zstar'	'zstar'	'zstar'	'zstar'	'zstar
&ocean_momentum_source_nml	<pre>rayleigh_damp_exp_from_bottom use_rayleigh_damp_table</pre>	True	False True	False True	False True	False True	False True
	use_this_module	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 use_this_module	True True	True True	False False	False False	False False	False
&ocean_nphysics_util_nml	use_tnis_module agm	600.0	600.0	100.0	100.0	100.0	False 100.0
woccan inproject utilities	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				
	agm_closure_eady_cap	True	True				
	<pre>agm_closure_eady_smooth_horz agm_closure_eady_smooth_vert</pre>	True True	True True				
	agm_closure_eden_gamma	0.0	0.0				
	agm_closure_eden_greatbatch	False	False				
	agm_closure_grid_scaling	True	True				
	agm_closure_length	50 000.0	50 000.0	50 000.0	50 000.0	50 000.0	50 000.0
	agm_closure_length_bczone	False	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
	agm_closure_length_fixed agm_closure_length_rossby	False False	False False	False False	False False	False False	False False
	agm_closure_length_rossby	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	0.07	0.07 100.0	0.07 100.0	0.07 100.0	0.07 100.0	0.07 100.0
	agm_closure_upper_depth agm_damping_time	100.0 45.0	45.0	100.0	100.0	100.0	100.0
	agm_smooth_space	False	False				
	agm_smooth_time	False	False				
	aredi	600.0	600.0	600.0	600.0	600.0	600.0
	aredi_equal_agm drhodz_mom4p1	False True	False True	False False	False False	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	400000	4000000	400.000	
	rossby_radius_max	100 000.0	100 000.0 15 000.0	100 000.0 15 000.0	100 000.0	100 000.0 15 000.0	100 000.0 15 000.0
	rossby_radius_min <mark>smax</mark>	15 000.0	15 000.0	0.002	15 000.0	0.002	15 000.0
	swidth			0.002		0.002	
	tracer_mix_micom	False	False	False	False	False	False
	vel_micom	0.0	0.0	0.0	0.0	0.0	0.0
&ocean_nphysicsa_nml	use_this_module	False	False	False	False	False	False
&ocean_nphysicsb_nml &ocean_nphysicsc_nml	use_this_module bv_freq_smooth_vert	False True	False True	False	False	False	False
&ocean_nphysicsc_nnn	bvp_bc_mode	2	2				
	bvp_min_speed	0.1	0.1				
	bvp_speed	0.0	0.0				
	debug_this_module	False	False				
	do_gm_skewsion do_neutral_diffusion	True True	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	True	True				
	neutral_physics_limit number_bc_modes	True 2	True 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
	overexch_check_extrema	False	4	4	4	4	4
	overexch_npts overexch_weight_far	4 False	4 False	4 False	4 False	4 False	4 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	False	False	False	False	False
9	use_this_module	False	False	False	False	False	False
&ocean_overflow_ofp_nml	debug_this_module diag_step			False 4320		False 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	Eslas	10 000 000.0 False	Fals-
&ocean_polar_filter_nml	use_this_module	False	False	False	False False	False	False False
&ocean_pressure_nml	zero_pressure_force	i disc	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	True	False	True	True	True
	river_diffusion_thickness river_diffusivity	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
	river_insertion_thickness	40.0	40.0	40.0	40.0	40.0	40.0
	use_this_module	True	True	True	True	True	True
&ocean_riverspread_nml	debug_this_module		_		_	False	
	use_this_module	True	False	False	False	True	False
0			,, ,, ,	,, ,,	n 1· ·	31 I* *	,, ,, ,
&ocean_rough_nml &ocean_sbc_nml	rough_scheme avg_sfc_temp_salt_eta	True	'beljaars' True	'beljaars' True	'beljaars' True	'beljaars' True	'beljaars' 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	new_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input	new_acces- som2 01deg jra55_ryf input.nml
	calvingspread do_bitwise_exact_sum		False False	False False	False False	False False	False False
	do_flux_correction		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 False	0.0 False	0.0 False	0.0 False	0.0 False	0.0 False
	restore_mask_gfdl	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 salt_restore_tscale	True 15.0	True 60.0	True 60.0	True 60.0	True 60.0	True 60.0
	salt_restore_under_ice	True	True	True	True	True	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 zero_heat_fluxes	False False	False	False	False	False	False
	zero_net_salt_correction	iusc	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 zero_net_water_coupler	True True	True True	True True	True True	True True	True True
	zero_net_water_coupler zero_net_water_restore	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					
8 ocean shortwaye csire nml	river_temp_ofam debug_this_module	False		False			
&ocean_shortwave_csiro_nml	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_marieza optics_morel_antoine	nuc	False	False	False	False	False
	read_chl	False	True	True	True	True	True
	sw_pen_fixed_depths	False	_	-	-	-	-
	use_this_module	False 200.0	True 300.0	True 300.0	True 300.0	True 300.0	True 300.0
&ocean_shortwave_jerlov_nml	zmax_pen use_this_module	False	False	False	False	False	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
&ocean_sigma_transport_nml	use_this_module sigma_advection_on	True False	True False	True False	True False	True False	True False
Cocean_signia_transport_min	sigma_advection_sgs_only	False	False	False	False	False	False
	sigma_diffusion_on	True	True	True	True	True	True
	sigma_diffusivity_ratio	$1  imes 10^{-6}$	$1 \times 10^{-6}$	$1 \times 10^{-6}$	$1 \times 10^{-6}$	$1  imes 10^{-6}$	$1 \times 10^{-6}$
	sigma_just_in_bottom_cell	True 0.01	True 0.01	True 0.01	True 0.01	True 0.01	True 0.01
	sigma_umax smooth_sigma_thickness	True	True	True	True	True	True
	smooth_sigma_velocity	True	True	True	True	True	True
	smooth_velmicom	0.2	0.2	0.2	0.2	0.2	0.2
	thickness_sigma_layer	100.0	100.0	100.0	100.0	100.0	100.0
	thickness_sigma_max thickness_sigma_min	100.0 100.0	100.0 100.0	100.0 100.0	100.0 100.0	100.0 100.0	100.0 100.0
	tmask_sigma_on	False	False	False	False	False	False
	tracer_mix_micom	True	True	True	True	True	True
	use_this_module	True	False	False	False	False	False
Roccan colo nmi	vel_micom	0.05	0.05	0.05	0.05	0.05	0.05 'NOLEAP'
&ocean_solo_nml	calendar date_init	'NOLEAP' 1, 1, 1, 0, 0, 0	'NOLEAP' 1, 1, 1, 0, 0, 0	'NOLEAP' 1, 1, 1, 0, 0, 0	'NOLEAP' 1, 1, 1, 0, 0, 0	'NOLEAP' 1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0
	days	1460	1460	31	31	30	30
	debug_this_module dt_cpld	False 3600	3600	1200	1200	150	600
	hours	0 0	0	0	0	0	0
	minutes	0	0	0	0	0	0
	months	0	0	0	0	0	0
	seconds	0	0	0	0	0	0
&ocean_sponges_eta_nml	years use_this_module	0 False	0 False	0 False	0 False	0 False	0 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
	use_this_module	False	False	False	False	False	False
&ocean_sponges_velocity_nml	use_this_module	False	False	False	False	False	False
&ocean_submesoscale_nml	coefficient_ce	F-I	0.05	0.05	0.05	0.05	0.05
	debug_this_module front_length_const	False 5000.0	False 5000.0	False 5000.0	False 5000.0	False 5000.0	False 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	True	True	True	True
	smooth_advect_transport_num		4	4	4	4	4
	smooth_hblt	False	False	False	False	False	False
	smooth_psi		True	True	True	True	True
	smooth_psi_num		<u>З</u>	3 Falsa	3 Felse	3 False	3 Falsa
	submeso_advect_flux		False	False	False	False	False
	submeso_advect_limit submeso_advect_upwind		True True	True True	True True	True True	True True
	submeso_advect_zero_bdy		True	True	True	True	True
	submeso_diffusion		False	False	False	False	False
	submeso diffusion biharmonic		True	True	True	True	True
	submeso_diffusion_scale		10.0	10.0	10.0	10.0	10.0
	submeso_limit_flux	True	20.0	2010	20.0	20.0	20.0
	submeso_skew_flux		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		True	True	True	True	True
	s_max	55.0	70.0	70.0	70.0	70.0	70.0
	s_max_limit	42.0	42.0	42.0	42.0	42.0	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 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
	t_min	-5.0 -5.0	-20.0	- 20.0	- 20.0	-20.0	-20.0
	t_min_limit	-2.0	-20.0 $-5.0$	-20.0 $-5.0$	-20.0 $-5.0$	-20.0 $-5.0$	-20.0 $-5.0$
	temperature_variable	'conservative	'potential	'potential	'potential	'potential	'potential
	temperature_runaste	temp'	temp'	temp'	temp'	temp'	temp'
&ocean_thickness_nml	debug_this_module	False	False	False	False	False	False
	debug_this_module_detail	False	False	False	False	False	False
	initialize_zero_eta	False					
	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		2.0		2.0	
	thickness_dzt_min	1.0		2.0		2.0	
	thickness_dzt_min_init thickness_method	2.0 'energetic'	'energetic'	10.0 'energetic'	'energetic'	10.0 'energetic'	'energetic'
&ocean_topog_nml	min_thickness	25.0	energetic	energetic	energetic	energetic	energetic
&ocean_tracer_advect_nml	advect_sweby_all	True					
Coccan_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	0.0	0.0
	debug_this_module	False	False	False	False	False	False
	frazil_heating_after_vphysics	True	True	True	True	True	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
9 accord valocity disc and	zero_tracer_source	False	False	False	False	False	False
&ocean_velocity_diag_nml	debug_this_module	False	False 4320	False 4320	False 4320	False 576	False
	diag_step	4320 4320	4320 4320	4320 4320	4320 4320	576 5760	576 5760
	energy_diag_step large_cfl_value	4320 10.0	4320 10.0	4320 10.0	4520 10.0	10.0	10.0
	targe_crt_vatue max_cfl_value	10.0	10.0	10.0	10.0	10.0	10.0
&ocean velocity nml	adams_bashforth_third						True
&ocean_velocity_nml	agams_bashfortn_third	True	True	True	True	True	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	ruise
	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 Differences between MOM-SIS and all new configs

Group	Variable	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			•	0.15	0.15	0.15
	chk_i2o_fields				False	False	False
	chk_o2i_fields				False	False	False
	do_ice_once dt_cpl				False 3600	False 1200	False 150
	fixmeltt				False	False	False
	frazil_factor				1.0	1.0	1.0
	iceform_adj_salt				False	False	False
	icemlt_factor				1.0	1.0	1.0
	kmxice				5 True	5 True	5 True
	pop_icediag redsea_gulfbay_sfix				True	iiue	iiue
	sign_stflx				1.0	1.0	1.0
	tmelt				-0.216	-0.216	-0.216
	use_ioaice				True	True	True
&coupler_nml	atmos_npes	0	0	0			
	calendar	'noleap'	'noleap'	'noleap'			
	check_stocks concurrent	0 False	0 False	0 False			
	concurrent current_date	1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0			
	days	0	365	1, 1, 1, 0, 0, 0			
	do_atmos	False	False	False			
	do_ice	True	True	True			
	do_land	False	False	False			
	do_ocean	True	True	True			
	dt_atmos dt_cpld	3600 3600	1800 1800	1800 1800			
	months	12	0	0			
	ocean_npes	0	0	0			
	use_lag_fluxes	True	True	True			
&diag_integral_nml	file_name	'diag	'diag	'diag			
		integral.out'	integral.out'	integral.out'			
	output_interval	-1.0	-1.0	-1.0			
&diag_manager_nml	time_units debug_diag_manager	'days'	'days'	'days'	True	True	True
Wildy I mind ger I min	issue_oor_warnings	False	False	False	True	True	True
	max_axes	300	300	300			
	max_files	1000	1000	1000			
	max_input_fields	700	700	700			
	max_num_axis_sets	40 700	40 700	40 700			
&flux_exchange_nml	max_output_fields do_area_weighted_flux	700 True	True	True			
&fms_io_nml	checksum_required	nuc	nuc	False			
	fileset_write	'multi'	'multi'	'multi'	'single'	'multi'	'multi'
	max_files_r	700	700	700	-		
			700	700			
	max_files_w	700	700	700			
9 force many	threading_write	'multi'	'multi'	'multi'	'single'	'multi'	'multi'
&fms_nml	threading_write domains_stack_size	'multi' 115200	'multi' 115200	'multi' 115200	'single'	'multi'	115200
	threading_write domains_stack_size print_memory_usage	'multi' 115200 False	'multi' 115200 False	'multi' 115200 False	'single'	'multi'	115200 False
&fms_nml &generic_tracer_nml	threading_write domains_stack_size print_memory_usage do_generic_cfd	'multi' 115200	'multi' 115200	'multi' 115200	'single'	'multi'	115200
	threading_write domains_stack_size print_memory_usage	'multi' 115200 False False	'multi' 115200 False False	'multi' 115200 False False False False False	'single'	'multi'	115200 False False
	threading_write domains_stack_size print_memory_usage do_generic_cfc do_generic_topaz do_generic_tracer alb_ice	'multi' 115200 False False False False False 0.68	'multi' 115200 False False False False 0.68	'multi' 115200 False False False False Folse Folse Folse 0.68	'single'	'multi'	115200 False False False
&generic_tracer_nml	threading_write domains_stack_size print_memory_usage do_generic_cfc do_generic_topaz do_generic_tracer alb_ice alb_sno	'multi' 115200 False False False False 0.68 0.85	'multi' 115200 False False False False 0.68 0.85	'multi' 115200 False False False False 0.68	'single'	'multi'	115200 False False False
&generic_tracer_nml	threading_write domains_stack_size print_memory_usage do_generic_cfc do_generic_topaz do_generic_tracer alb_ice alb_sno	'multi' 115200 False False False False 0.68 0.85 False	'multi' 115200 False False False False O.68 0.85 False	'multi' 115200 False False False False 0.68 0.85 False	'single'	'multi'	115200 False False False
&generic_tracer_nml	threading_write domains_stack_size print_memory_usage do_generic_cfc do_generic_topaz do_generic_tracer alb_ice alb_sno do_icebergs heat_rough_ice	'multi' 115200 False False False False False False O.68 0.85 False 0.0005	'multi' 115200 False False False False False False 0.68 0.85 False 0.0005	'multi' 115200 False False False False 0.68 0.85 False 0.0005	'single'	'multi'	115200 False False False
&generic_tracer_nml	threading_write domains_stack_size print_memory_usage do_generic_cfc do_generic_topaz do_generic_tracer alb_ice alb_sno do_icebergs heat_rough_ice ice_bulk_salin	'multi' 115200 False False False False 0.68 0.85 False	'multi' 115200 False False False False False O.68 0.85 False 0.0005	'multi' 115200 False False False False 0.68 0.85 False 0.0005	'single'	'multi'	115200 False False False
&generic_tracer_nml	threading_write domains_stack_size print_memory_usage do_generic_cfc do_generic_topaz do_generic_tracer alb_ice alb_sno do_icebergs heat_rough_ice	'multi' 115200 False False False False False False O.68 0.85 False 0.0005	'multi' 115200 False False False False False False 0.68 0.85 False 0.0005	'multi' 115200 False False False False 0.68 0.85 False 0.0005	'single'	'multi'	115200 False False False
&generic_tracer_nml	threading_write domains_stack_size print_memory_usage do_generic_cfc do_generic_topaz do_generic_tracer alb_ice alb_sno do_icebergs heat_rough_ice ice_bulk_salin io_layout layout mom_rough_ice	'multi' 115200 False False False False 0.68 0.85 False 0.0005 0.005	'multi' 115200 False False False False 0.68 0.85 False 0.0005 64,30 64,30 0.0005	'multi'  115200 False False False False 0.68 0.85 False 0.0005 0.0005 8, 9 40, 45 0.0005	'single'	'multi'	115200 False False False
&generic_tracer_nml	threading_write domains_stack_size print_memory_usage do_generic_cfc do_generic_topaz do_generic_tracer alb_sno do_icebergs heat_rough_ice ice_bulk_salin io_layout layout mom_rough_ice nsteps_adv	'multi' 115200 False False False False 0.68 0.85 False 0.0005 0.005	'multi' 115200 False False False False 0.68 0.85 False 0.0005 0.005 64, 30 0.0005 1	'multi' 115200 False False False False 0.68 0.85 False 0.0005 0.005 8, 9 40, 45 0.0005	'single'	'multi'	115200 False False False
&generic_tracer_nml	threading_write domains_stack_size print_memory_usage do_generic_cfc do_generic_tracer alb_sno do_icebergs heat_rough_ice ice_bulk_salin io_layout layout mom_rough_ice nsteps_adv nsteps_dyn	'multi' 115200 False False False False 0.68 0.85 False 0.0005 0.005	'multi' 115200 False False False False 0.68 0.85 False 0.0005 0.005 64, 30 0.0005 1 72	'multi'  115200 False False False False 0.68 0.85 False 0.0005 0.005 8,9 40,45 0.0005 6 144	'single'	'multi'	115200 False False False
&generic_tracer_nml	threading_write  domains_stack_size print_memory_usage  do_generic_cfc do_generic_topaz do_generic_tracer  alb_sice alb_sice alb_sno do_icebergs heat_rough_ice ice_bulk_salin io_layout layout mom_rough_ice nsteps_ady nsteps_dyn num_part	'multi' 115200 False False False False 0.68 0.85 False 0.0005 0.005	'multi'  115200 False False False False 0.68 0.85 False 0.0005 64,30 64,30 0.0005 1 72 6	'multi'  115200 False False False False 0.68 0.85 False 0.0005 0.005 8, 9 40, 45 0.0005 6 144 6	'single'	'multi'	115200 False False False
&generic_tracer_nml	threading_write domains_stack_size print_memory_usage do_generic_cfc do_generic_topaz do_generic_tracer alb_ice alb_sno do_icebergs heat_rough_ice ice_bulk_salin io_layout layout mom_rough_ice nsteps_ady nsteps_dyn num_part Spec_ice	'multi'  115200 False False False False 0.68 0.85 False 0.0005 0.005  10,12 0.0005 1 72 6 False	'multi'  115200 False False False False 0.68 0.85 False 0.0005 64,30 64,30 0.0005 1 72 6 False	'multi'  115200 False False False False 0.68 0.85 False 0.0005 0.005 8, 9 40, 45 0.0005 6 144 6 False	'single'	'multi'	115200 False False False
&generic_tracer_nml	threading_write  domains_stack_size print_memory_usage  do_generic_cfc do_generic_topaz do_generic_tracer  alb_sice alb_sice alb_sno do_icebergs heat_rough_ice ice_bulk_salin io_layout layout mom_rough_ice nsteps_ady nsteps_dyn num_part	'multi'  115200 False False False False 0.68 0.85 False 0.0005 0.005  10,12 0.0005 172 6 False 1.0	'multi'  115200 False False False False O.68 0.85 False 0.0005 64,30 64,30 0.0005 1 72 6 False 1.0	'multi'  115200 False False False False 0.68 0.85 False 0.0005 0.005 8, 9 40, 45 0.0005 6 144 6 False 1.0	'single'	'multi'	115200 False False False
&generic_tracer_nml	threading_write domains_stack_size print_memory_usage do_generic_cfc do_generic_tracer alb_ice alb_sno do_icebergs heat_rough_ice ice_bulk_salin io_layout mom_rough_ice nsteps_adv nsteps_dyn num_part spec_ice t_range_melt	'multi'  115200 False False False False 0.68 0.85 False 0.0005 0.005  10,12 0.0005 1 72 6 False	'multi'  115200 False False False False 0.68 0.85 False 0.0005 64,30 64,30 0.0005 1 72 6 False	'multi'  115200 False False False False 0.68 0.85 False 0.0005 0.005 8, 9 40, 45 0.0005 6 144 6 False	'single'	'multi'	115200 False False False
&generic_tracer_nml &ice_model_nml	threading_write domains_stack_size print_memory_usage do_generic_cfc do_generic_tracer alb_ice alb_sno do_icebergs heat_rough_ice ice_bulk_salin io_layout layout mom_rough_ice nsteps_adv nsteps_dyn num_part spec_ice t_range_melt wd_turn	'multi' 115200 False False False False 0.68 0.85 False 0.0005 0.005  10,12 0.0005 1 72 6 False 1.0 0.0 False	'multi' 115200 False False False False 0.68 0.85 False 0.0005 0.005 64, 30 0.0005 1 72 6 False 1.0 0.0	'multi'  115200 False False False False 0.68 0.85 False 0.0005 0.005 8, 9 40, 45 0.0005 6 144 6 False 1.0 0.0 False 0.0	'single'	'multi'	115200 False False False
&generic_tracer_nml &ice_model_nml	threading_write domains_stack_size print_memory_usage do_generic_cfc do_generic_tracer alb_ice alb_sno do_icebergs heat_rough_ice ice_bulk_salin io_layout layout mom_rough_ice nsteps_adv nsteps_dyn num_part spec_ice t_range_melt wd_turn add_weight_to_ocean	'multi' 115200 False False False False 0.68 0.85 False 0.0005 0.005  10,12 0.0005 1 72 6 False 1.0 0.0	'multi' 115200 False False False False 0.68 0.85 False 0.0005 0.005 64, 30 0.0005 1 72 6 False 1.0 0.0	'multi'  115200 False False False False 0.68 0.85 False 0.0005 0.005 8, 9 40, 45 0.0005 6 144 6 False 1.0 0.0 False	'single'	'multi'	115200 False False False

Group (continued)	Variable	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
	really_debug	False	False	False			
	sicn_shift traj_sample_hrs	0.1 0	0.1 0	0.1 0			
	use_operator_splitting	True	True	True			
	verbose verbose_hrs	False 2400	False 2400	False 2400			
&mom_oasis3_interface_nml	fields_in	2400	2+00	2400	'u_flux',	'u_flux',	'u_flux',
					'v_flux',	'v_flux',	'v_flux',
					'lprec', 'fprec', 'salt_flx',	'lprec', 'fprec', 'salt_flx',	'lprec', 'fprec', 'salt_flx',
					'mh_flux',	'mh_flux',	'mh_flux',
					'sw_flux', 'q_flux',	'sw_flux', 'q_flux',	'sw_flux', 'q_flux',
					η_παχ, 't_flux',	q_παχ, 't_flux',	η_παχ, 't_flux',
					'lw_flux',	'lw_flux',	'lw_flux',
					'runof', 'p', 'aice',	'runof', 'p', 'aice',	'runof', 'p', 'aice',
					'wfimelt',	'wfimelt',	'wfimelt',
					'wfiform'	'wfiform'	'wfiform'
	fields_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 send_after_ocean_update				7 True	7 True	7 True
	send_before_ocean_update				False	False	False
&mpp_io_nml	deflate_level shuffle			5 1		5 1	5
&ocean_adv_vel_diag_nml	diaq_step	4320	4320	43200	4320	4320	<u>1</u> 576
&ocean_advection_velocity_nml	max_advection_velocity	0.5	0.5	0.2	0.5	0.5	0.5
&ocean_barotropic_nml	diag_step smooth_eta_t_biharmonic	4320	4320 True	43200 False	4320 False	4320 False	576 False
	smooth_eta_t_binamionic	True False	False	True	True	True	True
	$smooth\_pbot\_t\_biharmonic$	True	True	False	False	False	False
	smooth_pbot_t_laplacian vel_micom_lap_diag	False 0.5	False 0.5	True 0.5	True 0.2	True 0.2	True 0.2
&ocean_bihgen_friction_nml	ncar_boundary_scaling_read	False	True	True	True	True	True
&ocean_convect_nml	convect_full_scalar	True	True	True			
&ocean_domains_nml	convect_full_vector max_tracers	False	False	False	5	5	5
&ocean_frazil_nml	frazil_only_in_surface	True	True	True	False	False	False
	freezing_temp_preteos10				True	True	True
&ocean_lapgen_friction_nml	freezing_temp_simple bottom_5point	True	True	True	False True	False	False
&ocean_tapgen_mction_mit	k_smag_aniso				0.0		
	k_smag_iso	2.0	2.0	2.0	0.0	2.0	2.0
	ncar_only_equatorial restrict_polar_visc				True True		
	restrict_polar_visc_lat				60.0		
	restrict_polar_visc_ratio				0.35		
		False	False	False	True	False	False
	use_this_module						
	vconst_1 vconst_2				0.00 000 8 0.0		
	vconst_1 vconst_2 vconst_3				0.0 0.8		
	vconst_1 vconst_2 vconst_3 vconst_4				$0.0 \\ 0.8 \\ 5 \times 10^{-9}$		
	vconst_1 vconst_2 vconst_3				0.0 0.8		
	vconst_1 vconst_2 vconst_3 vconst_4 vconst_5 vconst_6 vconst_7				$\begin{array}{c} 0.0 \\ 0.8 \\ 5 \times 10^{-9} \\ 3 \\ 300000000.0 \\ 100.0 \\ \end{array}$		
	vconst_1 vconst_2 vconst_3 vconst_4 vconst_5 vconst_6 vconst_7 vel_micom_iso				$\begin{array}{c} 0.0 \\ 0.8 \\ 5\times 10^{-9} \\ 3 \\ 300000000.0 \\ 100.0 \\ 0.1 \end{array}$		
	vconst_1 vconst_2 vconst_3 vconst_4 vconst_5 vconst_6 vconst_7				$\begin{array}{c} 0.0 \\ 0.8 \\ 5 \times 10^{-9} \\ 3 \\ 300000000.0 \\ 100.0 \\ \end{array}$		
	vconst_1 vconst_2 vconst_3 vconst_4 vconst_5 vconst_6 vconst_7 vel_micom_iso viscosity_ncar viscosity_ncar_2000 viscosity_ncar_2007				$\begin{array}{c} 0.0 \\ 0.8 \\ 5 \times 10^{-9} \\ 3 \\ 300000000.0 \\ 100.0 \\ 0.1 \\ \text{True} \\ \text{False} \\ \text{True} \end{array}$		
	vconst_1 vconst_2 vconst_3 vconst_4 vconst_5 vconst_6 vconst_7 vel_micom_iso viscosity_ncar viscosity_ncar_2000 viscosity_ncar_2007 viscosity_scale_by_rossby				$\begin{array}{c} 0.0 \\ 0.8 \\ 5 \times 10^{-9} \\ 3 \\ 300000000.0 \\ 100.0 \\ 0.1 \\ \text{True} \\ \text{False} \\ \text{True} \\ \text{True} \\ \text{True} \end{array}$		
&ocean_mixdownslope_nml	vconst_1 vconst_2 vconst_3 vconst_4 vconst_5 vconst_6 vconst_7 vel_micom_iso viscosity_ncar viscosity_ncar_2000 viscosity_ncar_2007				$\begin{array}{c} 0.0 \\ 0.8 \\ 5 \times 10^{-9} \\ 3 \\ 300000000.0 \\ 100.0 \\ 0.1 \\ \text{True} \\ \text{False} \\ \text{True} \end{array}$		
&ocean_mixdownslope_nml	vconst_1 vconst_2 vconst_3 vconst_4 vconst_5 vconst_6 vconst_7 vel_micom_iso viscosity_ncar viscosity_ncar_2000 viscosity_ncar_2007 viscosity_ncar_2007 viscosity_scale_by_rossby viscosity_scale_by_rossby_power mixdownslope_mask_gfdl mixdownslope_npts				0.0 0.8 5 × 10 <sup>-9</sup> 3 300 000 000.0 100.0 0.1 True False True True 100.0 False 4		
&ocean_mixdownslope_nml	vconst_1 vconst_2 vconst_3 vconst_4 vconst_5 vconst_6 vconst_7 vel_micom_iso viscosity_ncar viscosity_ncar_2000 viscosity_ncar_2007 viscosity_scale_by_rossby viscosity_scale_by_rossby_power mixdownslope_mask_gfdl	False	False	False	0.0 0.8 5 × 10 <sup>-9</sup> 3 300 000 000.0 100.0 0.1 True False True True 100.0	False	False

Group (continued)	Variable	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
	cmip_units	7600	1900	150	True	True	True
	dt_ocean io_layout	3600	1800 64, 30	150 8,9	3600 4, 3	1200 6, 5	150 10, 15
	layout	10,12	64, 30	40, 45	16, 15	48, 40	80,75
&ocean_nphysics_nml	use_nphysicsc use_this_module	False False	False False	False False	True True	False False	False False
&ocean_nphysics_util_nml	agm	100.0	100.0	100.0	600.0	100.0	100.0
	agm_closure_eady_ave_mixed				True		
	agm_closure_eady_cap agm_closure_eady_smooth_horz				True True		
	agm_closure_eady_smooth_vert				True		
	agm_closure_eden_gamma agm_closure_eden_greatbatch				0.0 False		
	agm_closure_grid_scaling				True		
	agm_closure_min	100.0	100.0	100.0	50.0	100.0	100.0
	agm_damping_time agm_smooth_space				45.0 False		
	agm_smooth_time				False		
	drhodz_mom4p1 nphysics_util_zero_init	False	False	False	True True	False	False
	nphysics_utit_zero_init smax	0.002	0.002	0.002	irue		
	swidth	0.002	0.002	0.002			
&ocean_nphysicsc_nml	bv_freq_smooth_vert bvp_bc_mode				True 2		
	bvp_min_speed				0.1		
	bvp_speed				0.0		
	debug_this_module do_qm_skewsion				False True		
	do_neutral_diffusion				True		
	epsln_bv_freq				$1  imes 10^{-12}$ True		
	gm_skewsion_bvproblem gm_skewsion_modes				False		
	neutral_eddy_depth				True		
	neutral_physics_limit number_bc_modes				True 2		
	regularize_psi				False		
	smax_psi				0.01		
	smooth_psi tmask_neutral_on				True True		
	turb_blayer_min				50.0		
&ocean_overflow_ofp_nml	use_this_module debug_this_module	False False	False False	False False	True	False	False
&ocean_overnow_orp_ninit	diag_step	4320	4320	43200			
	do_entrainment_para_ofp	False	False	False			
	do_mass_ofp frac_exchange_src	True 1.0	True 1.0	True 1.0			
	max_vol_trans_ofp	10 000 000.0	10 000 000.0	10 000 000.0			
&ocean_rivermix_nml	river_diffuse_salt river_diffuse_temp	False False	False False	False False	True True	True True	True
&ocean_riverspread_nml	debug_this_module	'.false'	'.false'	'.false'	nue	ilue	True
	use_this_module	True	True	True	False	False	False
&ocean_sbc_nml	max_ice_thickness zero_pme_fluxes	1.0	1.0	1.0 False	0.0	0.0	0.0
	zero_river_fluxes			False			
2 according to the state of the	zero_runoff_fluxes	True		True			
&ocean_shortwave_csiro_nml	read_depth use_this_module	True True	False	False	False	False	False
	zmax_pen	7000					
&ocean_shortwave_gfdl_nml	read_chl use_this_module	False False	True True	True True	True True	True True	True True
&ocean_shortwave_nml	use_shortwave_csiro	True	False	False	False	False	False
0	use_shortwave_gfdl	False	True	True	True	True	True
&ocean_solo_nml	calendar date_init				'NOLEAP' 1, 1, 1, 0, 0, 0	'NOLEAP' 1, 1, 1, 0, 0, 0	'NOLEAP' 1, 1, 1, 0, 0, 0
	uate. IIII				1460	31	30
	days						
	days dt_cpld				3600	1200	600
	days						600 0 0
	days dt_cpid hours minutes months				3600 0 0 0	1200 0 0 0	0 0 0
	days dt_cpid hours minutes months seconds				3600 0 0 0 0	1200 0 0 0 0	0 0 0 0
&ocean_thickness_nml	days dt_cpid hours minutes months	2.0 10.0	2.0 10.0	20 100	3600 0 0 0	1200 0 0 0	0 0 0

Group (continued)	Variable	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_tracer_advect_nml	advect_sweby_all	False	False	False			
&ocean_tracer_diag_nml	diag_step	48	48	43200	4320	4320	576
&ocean_tracer_nml	use_tempsalt_check_range			True	True	True	True
&ocean_velocity_diag_nml	diag_step	4320	4320	43200	4320	4320	576
, ,	energy_diag_step	4320	4320	43200	4320	4320	5760
&ocean_velocity_nml	max_cgint	1.5	1.5	1.0	1.0	1.0	1.0
&ocean_vert_kpp_mom4p1_nml	kbl_standard_method			False	False	False	False
	smooth_blmc	True	True	False	False	False	False
	smooth_ri_kmax_eq_kmu			True	True	True	True
&redseafix_nml	redsea_gulfbay_sfix	True					
&sat_vapor_pres_nml	show_all_bad_values			True			
&surface_flux_nml	ncar_ocean_flux	True	True	True			
	raoult_sat_vap	True	True	True			
&xgrid_nml	do_alltoall	True	True	True			True
	do_alltoallv	True	True	True			True
	xgrid_log	False	False	False			False

# 5 All variables in all 6 configs (differences highlighted)

&auscom_ice_nml  aice_cutoff chk_i2o_fields chk_o2i_fields do_ice_once dt_cpl fixmeltt frazil_factor	0.15 False False False 3600 False 1.0	0.15 False False False	0.15 False
chk_o2i_fields do_ice_once dt_cpl fixmeltt frazil_factor	False False 3600 False	False	False
do_ice_once dt_cpl fixmeltt frazil_factor	False 3600 False		False
dt_cpl fixmeltt frazil_factor	3600 False		False
fixmeltt frazil_factor		1200	150
	1.0	False	False
icoform adjust	Falsa	1.0	1.0
iceform_adj_salt icemlt_factor	False 1.0	False 1.0	False 1.0
kmxice	5	5	5
pop_icediag	True	True	True
redsea_gulfbay_sfix	True	10	10
sign_stflx tmelt	1.0 0.216	1.0 0.216	1.0 0.216
use_ioaice	True	True	True
&coupler_nml atmos_npes 0 0	0		
	leap'		
check_stocks   0   0     concurrent   False   False	0 False		
current_date 1,1,1,0,0,0 1,1,1,0,0,0 1,1,1,0,0			
days 0 365	1		
	alse		
	True		
	alse True		
	1800		
dtcpld 3600 1800 1	1800		
months 12 0	0		
ocean_npes     0     0       use_lag_fluxes     True     True	0 True		
	iag		
integral.out' integral			
	-1.0		
time_units 'days' 'days' 'c &diag_manager_nml debug_diag_manager	days' True	True	True
	alse True	True	True
max_axes 300 300	300		
	1000		
max_input_fields 700 700 max_num_axis_sets 40 40	700 40		
	700		
	True		
	alse		
	nulti' 'single'	'multi'	'multi'
	700 700		
	nulti' 'multi'	'multi'	'multi'
threading_write 'multi' 'multi' 'm	nulti' 'single'	'multi'	'multi'
	00P' 'L00P'	'LOOP'	'LOOP'
	5200 False		115200 False
	alse		False
	alse		False
	alse		False
	0.68 0.85		
	alse		
heat_rough_ice	0005		
ice_bulk_salin	.005		
	8,9		
layout 10,12 64,30 40 mom_rough_ice 0.0005 0.0005 0.0	0, 45 0005		
nsteps_adv 1 1	6		
nsteps_dyn 72 72	144		
num_part 6 6	6		
<mark>spec_ice</mark> False False F <u>t_range_melt</u> 1.0 1.0	alse 1.0		
wd_turn 0.0 0.0	0.0		
	alse		
bergy_bit_erosion_fraction 0.0 0.0	0.0		

Group (continued)	Variable	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
	debug	False	False	False			
	parallel_reprod really_debug	True False	True False	True False			
	sicn_shift	0.1	0.1	0.1			
	traj_sample_hrs	0	0	0			
	use_operator_splitting	True	True	True			
	verbose verbose_hrs	False 2400	False 2400	False 2400			
&mom_oasis3_interface_nml	fields_in	2100	2100	2100	'u_flux',	'u_flux',	'u_flux',
					'v_flux',	'v_flux',	'v_flux',
					'lprec', 'fprec', 'salt_flx',	'lprec', 'fprec', 'salt_flx',	'lprec', 'fprec', 'salt_flx',
					'mh_flux',	'mh_flux',	mh_flux',
					'sw_flux',	'sw_flux',	'sw_flux',
					'q_flux',	'q_flux',	'q_flux',
					't_flux', 'lw_flux',	't_flux', 'lw_flux',	't_flux', 'lw_flux',
					'runof', 'p',	'runof', 'p',	'runof', 'p',
					'aice',	'aice',	'aice',
					'wfimelt', 'wfiform'	'wfimelt', 'wfiform'	'wfimelt', 'wfiform'
	fields_out				't_surf',	't_surf',	't_surf',
					's_surf',	's_surf',	's_surf',
					'u_surf',	'u_surf',	'u_surf',
					'v_surf', 'dssldx',	'v_surf', 'dssldx',	'v_surf', 'dssldx',
					'dssldy',	'dssldy',	'dssldy',
					'frazil'	'frazil'	'frazil'
	num_fields_in				15 7	15	15
	num_fields_out send_after_ocean_update				True	7 True	7 True
	send_before_ocean_update				False	False	False
&monin_obukhov_nml	neutral	True	True	True	True	True	True
&mpp_io_nml	deflate_level shuffle			5 1		5 1	5
&ocean_adv_vel_diag_nml	diaq_step	4320	4320	43200	4320	4320	<u>1</u> 576
	large_cfl_value	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
&ocean_advection_velocity_nml	verbose_cfl max_advection_velocity	True 0.5	True 0.5	True 0.2	True 0.5	True 0.5	True 0.5
&ocean_albedo_nml	ocean_albedo_option	2	2	2	2	2	2
&ocean_barotropic_nml	barotropic_halo	10	10	10	10	10	10
	barotropic_time_stepping_a	True	True	True	True	True	True
	barotropic_time_stepping_b debug_this_module	False False	False False	False False	False False	False False	False False
	debug_tins_inodute diag_step	4320	4320	43200	4320	4320	576
	eta_max	8.0	8.0	8.0	8.0	0.8	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	True	True	False	False	False	False
	smooth_eta_t_laplacian	False	False	True	True	True	True
	smooth_pbot_t_biharmonic	True	True	False	False	False	False
	smooth_pbot_t_laplacian truncate_eta	False False	False False	True False	True False	True False	True False
	use_legacy_barotropic_halos	False	False	False	False	False	False
	vel_micom_bih	0.01	0.01	0.01	0.01	0.01	0.01
			0.05	0.05	0.05	0.05	0.05
	vel_micom_lap	0.05					
	vel_micom_lap_diag	0.5	0.5	0.5	0.2	0.2	
	•						True
&ocean_bbc_nml	vel_micom_lap_diag verbose_truncate zero_tendency bmf_implicit	0.5 True False True	0.5 True False True	0.5 True False True	0.2 True False True	0.2 True False True	True False True
&ocean_bbc_nml	vel_micom_lap_diag verbose_truncate zero_tendency bmf_implicit cdbot	0.5 True False True 0.001	0.5 True False True 0.001	0.5 True False True 0.001	0.2 True False True 0.001	0.2 True False True 0.001	True False True 0.001
&ocean_bbc_nml	vel_micom_lap_diag verbose_truncate zero_tendency bmf_implicit cdbot cdbot_hi	0.5 True False True 0.001 0.007	0.5 True False True 0.001 0.007	0.5 True False True 0.001 0.007	0.2 True False True 0.001 0.007	0.2 True False True 0.001 0.007	True False True 0.001 0.007
&ocean_bbc_nml	vel_micom_lap_diag verbose_truncate zero_tendency bmf_implicit cdbot cdbot_hi cdbot_roughness_length	0.5 True False True 0.001	0.5 True False True 0.001	0.5 True False True 0.001	0.2 True False True 0.001	0.2 True False True 0.001	True False True 0.001 0.007 False
&ocean_bbc_nml	vel_micom_lap_diag verbose_truncate zero_tendency bmf_implicit cdbot cdbot_hi cdbot_roughness_length cdbot_roughness_uamp uresidual	0.5 True False True 0.001 0.007 False True 0.05	0.5 True False True 0.001 0.007 False True 0.05	0.5 True False True 0.001 0.007 False True 0.05	0.2 True False True 0.001 0.007 False True 0.05	0.2 True False True 0.001 0.007 False True 0.05	True False True 0.001 0.007 False True 0.05
	vel_micom_lap_diag verbose_truncate zero_tendency bmf_implicit cdbot cdbot_hi cdbot_roughness_length cdbot_roughness_uamp uresidual use_geothermal_heating	0.5 True False True 0.001 0.007 False True 0.05 False	0.5 True False True 0.001 0.007 False True 0.05 False	0.5 True False True 0.001 0.007 False True 0.05 False	7.2 True False True 0.001 0.007 False True 0.05 False	7.2 True False True 0.001 0.007 False True 0.05 False	True False True 0.001 0.007 False True 0.05 False
&ocean_bih_friction_nml	vel_micom_lap_diag verbose_truncate zero_tendency bmf_implicit cdbot cdbot_hi cdbot_roughness_length cdbot_roughness_uamp uresidual use_geothermal_heating bih_friction_scheme	0.5 True False True 0.001 0.007 False True 0.05 False 'general'	0.5 True False True 0.001 0.007 False True 0.05 False	0.5 True False True 0.001 0.007 False True 0.05 False	0.2 True False True 0.001 0.007 False True 0.05 False	7.2 True False True 0.001 0.007 False True 0.05 False 'general'	True False True 0.001 0.007 False True 0.05 False 'general'
&ocean_bbc_nml &ocean_bih_friction_nml &ocean_bih_tracer_nml	vel_micom_lap_diag verbose_truncate zero_tendency bmf_implicit cdbot cdbot_hi cdbot_roughness_length cdbot_roughness_uamp uresidual use_geothermal_heating bih_friction_scheme tracer_mix_micom	0.5 True False True 0.001 0.007 False True 0.05 False 'general' True	0.5 True False True 0.001 0.007 False True 0.05 False 'general' True	0.5 True False True 0.001 0.007 False True 0.05 False 'general' True	0.2 True False True 0.001 0.007 False True 0.05 False 'general'	7 True False True 0.001 0.007 False True 0.05 False 'general' True	True False True 0.001 0.007 False True 0.05 False 'general'
&ocean_bih_friction_nml	vel_micom_lap_diag verbose_truncate zero_tendency bmf_implicit cdbot cdbot_hi cdbot_roughness_length cdbot_roughness_uamp uresidual use_geothermal_heating bih_friction_scheme	0.5 True False True 0.001 0.007 False True 0.05 False 'general'	0.5 True False True 0.001 0.007 False True 0.05 False	0.5 True False True 0.001 0.007 False True 0.05 False	0.2 True False True 0.001 0.007 False True 0.05 False	7.2 True False True 0.001 0.007 False True 0.05 False 'general'	0.2 True False True 0.001 0.007 False True 0.05 False 'general' True False 0.001

Group (continued)	Variable	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_bihgen_friction_nml	bottom_5point	False	False	False	False	False	False
	eq_lat_micom eq_vel_micom_aniso	0.0 0.0	0.0 0.0	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
	equatorial_zonal	False	False	False	False	False	False
	k_smag_aniso	0.0	0.0	0.0	0.0	0.0	0.0
	k_smag_iso ncar_boundary_scaling	2.0 True	2.0 True	2.0 True	2.0 True	2.0 True	2.0 True
	ncar_boundary_scaling_read ncar_rescale_power	False 2	True 2	True 2	True 2	True 2	True 2
	ncar_vconst_4	$2  imes 10^{-8}$	$2  imes 10^{-8}$	$2  imes 10^{-8}$	$2  imes 10^{-8}$	$2  imes 10^{-8}$	$2 \times 10^{-8}$
	ncar_vconst_5	5	5	5	<u>5</u>	5	5
	use_this_module vel_micom_aniso	True 0.0	True 0.0	True 0.0	True 0.0	True 0.0	True 0.0
	vel_micom_bottom	0.0	0.0	0.0	0.0	0.0	0.0
	vel_micom_iso	0.0	0.0	0.0	0.0	0.0	0.0
	visc_crit_scale	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	Falsa	Falsa	Falsa
&ocean_coriolis_nml	use_this_module acor	False 0.5	False 0.5	False 0.5	False 0.5	False 0.5	False 0.5
Coccan_conons_min	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	80	80	80	80	80	80
	neutralrho_max neutralrho_min	1038.0 1028.0	1038.0 1028.0	1038.0 1028.0	1038.0 1028.0	1038.0 1028.0	1038.0 1028.0
	potrho_max	1028.0	1028.0	1028.0	1028.0	1028.0	1028.0
	potrho_min	1028.0	1028.0	1028.0	1028.0	1028.0	1028.0
&ocean_domains_nml	max_tracers				5	5	5
&ocean_form_drag_nml	use_this_module	False	False	False	False	False	False
&ocean_frazil_nml	debug_this_module	False	False	False	False	False	False
	frazil_only_in_surface freezing_temp_preteos10	True	True	True	False True	False True	False True
	freezing_temp_preteos10 freezing_temp_simple	True	True	True	False	False	False
	use_this_module	True	True	True	True	True	True
&ocean_grids_nml	debug_this_module	False	False	False	False	False	False
&ocean_increment_eta_nml	use_this_module	False	False	False	False	False	False
&ocean_increment_tracer_nml	use_this_module use_this_module	False False	False False	False False	False False	False False	False False
&ocean_increment_velocity_nml &ocean_lap_friction_nml	lap_friction_scheme	'general'	'general'	'general'	'general'	'general'	'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		
	k_smag_aniso	2.0	20	20	0.0	2.0	20
	k_smag_iso ncar_only_equatorial	2.0	2.0	2.0	0.0 True	2.0	2.0
	restrict_polar_visc				True		
	restrict_polar_visc_lat				60.0		
	restrict_polar_visc_ratio				0.35		
	use_this_module	False	False	False	True	False	False
	vconst_1 vconst_2				0.00 000 8 0.0		
	vconst_3				0.8		
	vconst_4				$5 \times 10^{-9}$		
	vconst_5				3		
	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		
	viscosity_scale_by_rossby_power				100.0		
&ocean_mixdownslope_nml	debug_this_module	False	False	False	False	False	False
	mixdownslope_mask_gfdl mixdownslope_npts				False 4		
	read_mixdownslope_mask				False		
	use_this_module	False	False	False	True	False	False
&ocean_model_nml	baroclinic_split	1	1	1	1	1	1
	barotropic_split	80	80	60	80 True	80 Truo	80 Truo
	<mark>cmip_units</mark> debug	False	False	False	True False	True False	True False
	aedug	rdise	rarse	rdise	Fdl26	rd12€	Larze

Group (continued)	Variable	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
	dt_ocean	3600	1800	150	3600	1200	150
	io_layout layout	10, 12	64, 30 64, 30	8, 9 40, 45	4, 3 16, 15	6, 5 48, 40	10, 15 80, 75
	surface_height_split	1	1	1	1	1	1
	time_tendency	'twolevel'	'twolevel'	'twolevel'	'twolevel'	'twolevel'	'twolevel'
&ocean_momentum_source_nml	vertical_coordinate rayleigh_damp_exp_from_bottom	'zstar' False	'zstar' False	'zstar' False	'zstar' False	'zstar' False	'zstar' False
docean_momentum_source_mmt	use_rayleigh_damp_table	True	True	True	True	True	True
	use_this_module	True	True	True	True	True	True
&ocean_nphysics_nml	debug_this_module use_nphysicsa	False False	False False	False False	False False	False False	False False
	use_nphysicsb	False	False	False	False	False	False
	use_nphysicsc	False	False	False	True	False	False
0	use_this_module	False	False	False	True	False	False
&ocean_nphysics_util_nml	<mark>agm</mark> agm_closure	100.0 True	100.0 True	100.0 True	600.0 True	100.0 True	100.0 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		
	agm_closure_eady_cap agm_closure_eady_smooth_horz				True True		
	agm_closure_eady_smooth_vert				True		
	agm_closure_eden_gamma				0.0		
	agm_closure_eden_greatbatch agm_closure_grid_scaling				False True		
	agm_closure_length	50 000.0	50 000.0	50 000.0	50 000.0	50 000.0	50 000.0
	agm_closure_length_bczone	False	False	False	False	False	False
	agm_closure_length_fixed	False	False	False	False	False	False
	agm_closure_length_rossby agm_closure_lower_depth	False 2000.0	False 2000.0	False 2000.0	False 2000.0	False 2000.0	False 2000.0
	agm_closure_max	600.0	600.0	600.0	600.0	600.0	600.0
	agm_closure_min	100.0	100.0	100.0	50.0	100.0	100.0
	agm_closure_scaling	0.07	0.07	0.07	0.07	0.07	0.07
	agm_closure_upper_depth agm_damping_time agm_smooth_space	100.0	100.0	100.0	100.0 45.0 False	100.0	100.0
	agm_smooth_time	(000	(00.0	(00.0	False	(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	False	False	False	True	False	False
	drhodz_smooth_horz	False	False	False	False	False	False
	drhodz_smooth_vert	False	False	False	False	False	False
	nphysics_util_zero_init rossby_radius_max	100 000.0	100 000.0	100 000.0	True 100 000.0	100 000.0	100 000.0
	rossby_radius_min	15 000.0	15 000.0	15 000.0	15 000.0	15 000.0	15 000.0
	smax	0.002	0.002	0.002			
	swidth	0.002 Falso	0.002 Falso	0.002 Falso	Ealaa	Ealaa	False
	tracer_mix_micom vel_micom	False 0.0	False 0.0	False 0.0	False 0.0	False 0.0	False 0.0
&ocean_nphysicsa_nml	use_this_module	False	False	False	False	False	False
&ocean_nphysicsb_nml	use_this_module	False	False	False	False	False	False
&ocean_nphysicsc_nml	bv_freq_smooth_vert bvp_bc_mode				True 2		
	bvp_min_speed				0.1		
	bvp_speed				0.0		
	debug_this_module				False		
	do_gm_skewsion do_neutral_diffusion				True True		
	epsln_bv_freq				$1 \times 10^{-12}$		
	gm_skewsion_bvproblem				True		
	gm_skewsion_modes				False		
	neutral_eddy_depth neutral_physics_limit				True True		
	number_bc_modes				2		
	regularize_psi				False		
	smax_psi				0.01		
	smooth_psi tmask_neutral_on				True True		
	turb_blayer_min				50.0		
	use_this_module	False	False	False	True	False	False
&ocean_operators_nml	use_legacy_div_ud	False	False	False	False	False	False
&ocean_overexchange_nml	debug_this_module overexch_npts	False 4	False 4	False 4	False 4	False 4	False 4

Group (continued)	Variable	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
	overexch_weight_far	False	False	False	False	False	False
	overflow_umax use_this_module	5.0 False	5.0 False	5.0 False	5.0 False	5.0 False	5.0 False
&ocean_overflow_nml	debug_this_module	False	False	False	False	False	False
&ocean_overflow_ofp_nml	use_this_module debug_this_module	False False	False False	False False	False	False	False
	diag_step	4320	4320	43200			
	do_entrainment_para_ofp do_mass_ofp	False True	False True	False True			
	frac_exchange_src	1.0	1.0	1.0			
	max_vol_trans_ofp use_this_module	10 000 000.0 False	10 000 000.0 False	10 000 000.0 False	False	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	False
&ocean_rivermix_nml	debug_this_module river_diffuse_salt	False False	False False	False False	False True	False True	False True
	river_diffuse_temp	False	False	False	True	True	True
	river_diffusion_thickness	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
	river_diffusivity river_insertion_thickness	40.0	40.0	40.0	40.0	40.0	40.0
	use_this_module	True	True	True	True	True	True
&ocean_riverspread_nml	debug_this_module use_this_module	'.false' True	'.false' True	'.false' True	False	False	False
&ocean_rough_nml	rough_scheme	'beljaars'	'beljaars'	'beljaars'	'beljaars'	'beljaars'	'beljaars'
&ocean_sbc_nml	avg_sfc_temp_salt_eta	True	True	True	True	True	True
	avg_sfc_velocity calvingspread	True False	True False	True False	True False	True False	True False
	do_bitwise_exact_sum	False	False	False	False	False	False
	do_flux_correction	False	False	False	False	False	False
	land_model_heat_fluxes max_delta_salinity_restore	False 0.5	False 0.5	False 0.5	False 0.5	False 0.5	False 0.5
	max_ice_thickness	1.0	1.0	1.0	0.0	0.0	0.0
	read_restore_mask restore_mask_gfdl	False False	False False	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	0.0
	salt_restore_as_salt_flux salt_restore_tscale	True 60.0	True 60.0	True 60.0	True 60.0	True 60.0	True 60.0
	salt_restore_under_ice	True	True	True	True	True	True
	temp_restore_tscale	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
	use_full_patm_for_sea_level use_waterflux	False True	False True	False True	False True	False True	False True
	zero_heat_fluxes	False	False	False	False	False	False
	zero_net_salt_correction zero_net_salt_restore	False True	False True	False True	False True	False True	False True
	zero_net_water_correction	False	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_pme_fluxes			False			
	zero_river_fluxes zero_runoff_fluxes			False True			
	zero_surface_stress	False	False	False	False	False	False
	zero_water_fluxes	False	False	False	False	False	False
&ocean_shortwave_csiro_nml	read_depth use_this_module zmax_pen	True True 7000	False	False	False	False	False
&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	False	False	False	False	False	False
	read_chl	False	True	True	True	True	True
	<mark>use_this_module</mark> zmax_pen	False 300.0	True 300.0	True 300.0	True 300.0	True 300.0	True 300.0
&ocean_shortwave_jerlov_nml	use_this_module	False	False	False	False	False	False
&ocean_shortwave_nml	use_shortwave_csiro	True	False True	False True	False True	False True	False True
	<mark>use_shortwave_gfdl</mark> use_shortwave_jerlov	False False	False	False	False	False	False
	use_this_module	True	True	True	True	True	True
&ocean_sigma_transport_nml	sigma_advection_on sigma_advection_sgs_only	False False	False False	False False	False False	False False	False False
	sigma_diffusion_on	True	True	True	True	True	True
	sigma_diffusivity_ratio	$1  imes 10^{-6}$	$1  imes 10^{-6}$	$1  imes 10^{-6}$	$1 \times 10^{-6}$	$1  imes 10^{-6}$	$1 \times 10^{-6}$

	o (continued)	Variable	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
		3 ,						True
								0.01 True
								True
### ### ### ### ### ### ### ### ### ##		smooth_velmicom						0.2
								100.0
								100.0
								100.0 False
March   Marc								True
MOLEAP   M	Sigma junst.in. bottom.cell   Tue   True   True		False					
		vel_micom	0.05	0.05	0.05			0.05
Marche   M	an_solo_nml							'NOLEAP'
Minuses   Minu								1, 1, 1, 0, 0, 0 30
March   Marc								600
Borden								0
		minutes					0	0
Corean sponges staz mml   Use this module   False								0
Borcean sponges.tracer.mml         use.this.module damp.coeff.35         False								0
& Coccan. sponges. stacer. mml         damp. soeff. 3d use. this. module use. this. module use. this. module state with state and use. this. module state	an snonges eta nml	,	False	False	False			False
Bocean_spangs_velocity_nml   use_this_module   False								False
Borean_submesoscale_nml         Coefficient.ce debug_hits.module front_length const front_length_const front_length_const front_length_const limit_psi         False front_length_const limit_psi         True True True True True True True True	un-sponges and en and	•						False
	an_sponges_velocity_nml	use_this_module						False
	an_submesoscale_nml							0.05
								False
								5000.0 True
								True
Minimal								0.5
Smooth_advect_transport_num		min_kblt	4			4		4
Smooth_pbs   False		•						True
Smooth.psi.n.m   Smoo		•						4 False
Submeso advect_liunt								True
Submeso.advect_uprind   Subm		•						3
Submeso_advect_zero_bdy subm		submeso_advect_flux	False	False	False	False	False	False
Submeso_advect_zero_bdy   True   Submeso_diffusion_biharmonic   True   True   True   True   Submeso_diffusion_biharmonic   True   Tru								True
Submeso.diffusion.biharmonic submeso.diffusion.biharmonic submeso.diffusion.biharmonic submeso.diffusion.biharmonic submeso.skew.flux   True		•	_	_ ` ` `	_ ` `		_	True
Submeso_diffusion_biharmonic submeso_skew_fux		The state of the s						True False
Submeso_diffusion_scale   100   10								True
Use_hblt_equal_mid use_psi_legacy   False								10.0
Palse   Pals								True
& cocean_tempsalt_nml         use_this_module obug_this_module optemp_2nd_iteration pottemp_2nd_iteration pottemp_2nd_iteration pottemp_equal_contemp or the pottemp or		· · · · · · · · · · · · · · · · · · ·						True
&ocean_tempsalt_nml         debug_this_module pottemp_2nd_iteration pottemp_2nd_iteration pottemp_equal_contemp         False True True True True True True True Tru								False True
Pottemp_2nd_iteration   True	an_tempsalt_nml							False
S_max_limit   42.0	•							True
S_max_limit   42.0   42.0   42.0   42.0   42.0   0.0								True
S_min_limit   2.0   2.								70.0
S_min_limit t_max   S5.0   S								42.0 0.0
L_max_limit   32.0   35.0   35.0   35.0   32.0								2.0
L_max_limit t_min   -2.00			55.0	55.0	55.0	55.0	55.0	55.0
t_min_limit temperature_variable-5.0 potential temp-5.0 potential potential potential temp-5.0 potential potential potential potential potential temp-5.0 potential PalseFalse<			32.0	32.0	32.0	32.0	32.0	32.0
temperature_variable temp'potential temp''potential False								-20.0
&ocean_thickness_nmldebug_this_module debug_this_module_detail rescale_mass_to_get_ht_mod thickness_dzt_min_init thickness_dzt_min_init thickness_methodFalse FalseFalse FalseFalse FalseFalse False&ocean_tracer_advect_nmlAdvect_sweby_all debug_this_moduleFalseFalseFalseFalseFalse thickness_dzt_min_init thickness_methodFalseFalseFalseFalseFalseFalseFalseFalseFalse								—5.0 'potential
&ocean_thickness_nml       debug_this_module debug_this_module_detail rescale_mass_to_get_ht_mod       False Fals		temperature_variable	•		•	•	•	potential temp'
debug_this_module_detail rescale_mass_to_get_ht_mod     False       thickness_dzt_min_init     10.0 <td< td=""><td>an_thickness_nml</td><td>debua_this_module</td><td></td><td></td><td></td><td></td><td></td><td>False</td></td<>	an_thickness_nml	debua_this_module						False
thickness_dzt_min thickness_dzt_min thickness_dzt_min_init thickness_dzt_min_init thickness_method renergetic		debug_this_module_detail	False	False	False	False	False	False
thickness_dzt_min.init thickness_method10.0 'energetic'10.0 'energetic'10.0 'energetic'10.0 'energetic'10.0 'energetic'10.0 						False	False	False
thickness_method 'energetic' '								
&ocean_tracer_advect_nml     advect_sweby_all debug_this_module     False     False     False       False     False     False     False						'onorastis'	'onorgatia'	'onorast'-'
debug_this_module False False False False False	an tracer advect nml					energetic	energetic	'energetic
	and accident continue					False	False	False
		read_basin_mask	False	False	False	False	False	False
&ocean_tracer_diag_nml         diag_step         48         48         43200         4320         4320	an_tracer_diag_nml							576
do_bitwise_exact_sumFalseFalseFalseFalseFalsetracer_conserve_days30.030.030.030.030.0								False 30.0

Group (continued)	Variable	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_tracer_nml	age_tracer_max_init	0.0	0.0	0.0	0.0	0.0	0.0
	debug_this_module	False	False	False	False	False	False
	frazil_heating_after_vphysics frazil_heating_before_vphysics	True False	True False	True False	True False	True False	True 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
	zero_tendency	False	False	False	False	False	False
Rossan valority diagram	zero_tracer_source	False False	False False	False False	False False	False False	False False
&ocean_velocity_diag_nml	debug_this_module <mark>diag_step</mark>	4320	4320	43200	4320	4320	576
	energy_diag_step	4320	4320	43200	4320	4320	5760
	large_cfl_value	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
&ocean_velocity_nml	adams_bashforth_third	True	True	True	True	True	True
	max_cgint	1.5	1.5	1.0	1.0	1.0	1.0
	truncate_velocity	False	False	False	False	False	False
	truncate_velocity_value	2.0 Truo	2.0 True	2.0 True	2.0	2.0	2.0 True
	truncate_verbose zero_tendency	True False	True False	True False	True False	True False	True False
	zero_tendency zero_tendency_explicit_a	False False	False False	False False	False False	False False	False
	zero_tendency_explicit_b	False	False	False	False	False	False
	zero_tendency_implicit	False	False	False	False	False	False
&ocean_vert_kpp_iow_nml	use_this_module	False	False	False	False	False	False
&ocean_vert_kpp_mom4p1_nml	diff_cbt_iw	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
	ricr	0.3	0.3	0.3	0.3	0.3	0.3
	smooth_blmc	True	True	False	False	False	False
	smooth_ri_kmax_eq_kmu use_this_module	True	True	True True	True True	True	True True
	visc_cbu_iw	0.0	0.0	0.0	0.0	True 0.0	0.0
&ocean_vert_mix_nml	aidif	1.0	1.0	1.0	1.0	1.0	1.0
G G G G G G G G G G G G G G G G G G G	bryan_lewis_diffusivity	False	False	False	False	False	False
	bryan_lewis_lat_depend	False	False	False	False	False	False
	hwf_diffusivity	False	False	False	False	False	False
	hwf_min_diffusivity	$2 \times 10^{-6}$	$2 \times 10^{-6}$	$2 \times 10^{-6}$	$2 \times 10^{-6}$	$2 \times 10^{-6}$	$2  imes 10^{-6}$
	hwf_n0_2omega	20.0	20.0	20.0	20.0	20.0	20.0
	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 mom4p1'	'kpp mom4p1'	'kpp mom4p1'	'kpp mom4p1'	'kpp mom4p1'	'kpp mom4p1'
&ocean_vert_tidal_nml	background_diffusivity	0.0	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	500.0	500.0	500.0	500.0	500.0	500.0
	drag_dissipation_use_cdbot	True	True	True	True	True	True
	drhodz_min	$1 \times 10^{-10}$	$1 \times 10^{-10}$	$1  imes 10^{-10}$	$1 \times 10^{-10}$	$1 \times 10^{-10}$	$1 \times 10^{-10}$
	fixed_wave_dissipation	False	False	False	False	False	False
	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 read_tide_speed	True True	True True	True True	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	False	False	False	False	False	False
	roughness_scale	12 000.0	12 000.0	12 000.0	12 000.0	12 000.0	12 000.0
	shelf_depth_cutoff	-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	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	False	False	False	False	False	False
&ocean_xlandmix_nml	use_this_module	False	False	False	False	False	False
&redseafix_nml	redsea_gulfbay_sfix	True					
&sat_vapor_pres_nml	show_all_bad_values			True			
&surface_flux_nml	ncar_ocean_flux	True	True	True			
	raoult_sat_vap	True	True	True			
&xgrid_nml	do_alltoall	True	True	True			True
	do_alltoallv	True	True	True	'easar d	'casa	True
	interp_method	'second	'second	'second	'second	'second	'second
		order'	order'	order'	order'	order'	order'

Group (continued) Variable	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
make_exchange_reproduce	False	False	False	False	False	False
nsubset	16	16	16	16	16	16
xgrid_log	False	False	False			False

# 6 All variables in all originals (differences highlighted)

Group	Variable	original/ GFDL ESM2M input.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	original/ hogg_acces- som2 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
&aerosol_nml	aerosol_dataset_entry	1860, 1, 1, 0,				pacinin	прислип	присппп	inputannt
		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, 1, 0, 0, 0							
	data_names	'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',							
	family_names	'dust_8.0' 'small_dust',							
	lainity_names	'large_dust',							
		'sulfate',							
		'aerosol',							
		'dust', 'pm2.5'							
	filename	'aerosol.climato	logy.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, False,							
		False, True,							
	in_family3	True, True True, False,							
		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/ 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	original/ hogg_acces- som2 - 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
	in_family6	True, True,							
		True, True,							
		True, True,							
		True, True,							
		False, False,							
		False, False							
	time_varying_species	False, False,							
		False, False,							
		False, False,							
		False, False,							
		False, False,							
		False, False							
	use_aerosol_timeseries	False							
&aerosolrad_package_nml	aerosol_data_set	'shettle							
		fenn'							

Group (continued)	Variable	original/ GFDL ESM2M input.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-	jra55_ryf	original/ kiss_acces- som2 025deg jra55_ryf	original/ hogg_acces- som2 01deg jra55_ryf
	aerosol_optical_names	'sulfate				put.nml	input.nml	input.nml	input.nml
	acrosot_opticat_names	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_0.2',							
		'dust_0.4', 'dust_0.8',							
		'dust_1.0',							
		'dust_2.0',							
		'dust_4.0', 'dust_8.0'							
	do_lwaerosol	True							
	do_swaerosol lw_asy_filename	True							
		,,							

lw\_asy\_nitename
lw\_ext\_filename
lw\_ext\_root

!w\_ssa\_filename
lw\_ssa\_root
optical\_filename
sw\_asy\_filename
:w\_asy\_filename
:w\_a

Group (continued)	Variable	original/ GFDL ESM2M input.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	original/ hogg_acces- som2 5 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
	sw_asy_root sw_ext_filename	"				•	•	•	·
	sw_ext_root	,,							
	sw_ssa_filename sw_ssa_root	,,							
	using_volcanic_lw_files	False							
	using_volcanic_sw_files	False							
&amip_interp_nml	volcanic_dataset_entry data_set	1, 1, 1, 0, 0, 0 'reynolds_oi'							
	date_out_of_range	'fail'							
&atmos_co2_nml	co2_radiation_override do_co2_emissions	True False							
	do_co2_restore	True							
	restore_klimit restore_tscale	24 31 536 000.0							
&atmos_model_nml	nxblocks	2							
0	nyblocks	2					0.15	015	015
&auscom_ice_nml	aice_cutoff chk_i2o_fields						0.15 False	0.15 False	0.15 False
	chk_o2i_fields						False	False	False
	do_ice_once dt_cpl						False 3600	False 1200	False 150
	fixmeltt						False	False	False
	frazil_factor iceform_adj_salt						1.0 False	1.0 False	1.0 False
	icemlt_factor						1.0	1.0	1.0
	kmxice						5 T:::	5 T::	5
	pop_icediag redsea_gulfbay_sfix						True True	True	True
	sign_stflx						1.0	1.0	1.0
	tmelt use_ioaice						−0.216 True	−0.216 True	−0.216 True
&bg_diff_lat_dependence_nm							$1 \times 10^{-6}$		
&cana_nml (	lat_low_bgdiff canopy_air_mass_for_tracers	10.0					20.0		
&CdIId_IIIIL	init_co2	0.000 286							
0	turbulence_to_use	'lm3v'							
&cg_drag_nml	bt_0 calculate_ked	0.0015 False							
	cg_drag_freq	1800							
	cg_drag_offset debug	0 False							
	itest	12							
	jtest ktest	42 9							
	lat_limit	25.0							
&cloud_rad_nml	do_brenguier overlap	False 2							
&cloud_spec_nml	cloud_type_form	'strat'							
	cloud_tracers_in_radiation microphys_form	True							
&cloudrad_package_nint	do_obs_clouds	'predicted' False							
	do_zonal_clouds	False							
&coupler_nml	atmos_npes atmos_nthreads	0 4	0	0	0	0			
	calendar	'NOLEAP'	'NOLEAP'	'noleap'	'noleap'	'noleap'			
	check_stocks concurrent	0 True	0 False	0 False	0 False	0 False			
	current_date	1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0			
	days	0	2	0	365	1			
	do_atmos do_flux	True True	False	False	False	False			
	do_ice	True	True	True	True	True			
	do_land do_ocean	True True	False True	False True	False True	False True			
	dt_atmos	1800	7200	3600	1800	1800			
	dt_cpld months	7200 12	7200 0	3600 12	1800 0	1800 0			
	ocean_npes	96	0	0	0	0			
0 au ma trans and	use_lag_fluxes	True	True	True	True	True			
&cu_mo_trans_nml &damping_driver_nml	diff_norm do_cq_drag	2.0 False							
Qualifying_unver_min									

Group (continued)	Variable	original/ GFDL ESM2M input.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	original/ hogg_acces- som2 - 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
	do_mg_drag do_topo_drag	True False							
	nlev_rayfric	1							
&diag_cloud_nml	trayfric	-40.0							
&diag_ctoud_nint	l_theqv lcnvcld	True False							
	linvers	False							
	lomega low_lev_cloud_index	True 16							
	nofog	False							
&diag_cloud_rad_nml	l_anom_abs_v	True							
	l_har_anvil l_har_coldcld	True True							
&diag_integral_nml	file_name	'diag	'diag	'diag	'diag	'diag			
		integral.out'	integral.out'	integral.out'	integral.out'	integral.out'			
	output_interval time_units	1.0 'days'	1.0 'days'	— 1.0 'days'	-1.0 'days'	-1.0 'days'			
&diag_manager_nml	debug_diag_manager	20,5	•	·	<u> </u>			True	
	issue_oor_warnings	False	False	False 300	False 300	False 300	False	True	False 300
	max_axes max_files	200 50	100	300 1000	300 1000	300 1000			300 1000
	max_input_fields	800	699	700	700	700			700
	max_num_axis_sets max_output_fields	200 1300	100 699	40 700	40 700	40 700			40 700
r	mix_snapshot_average_fields	False	False	700	700	700			700
&donner_deep_clouds_w_nm	nl <u>using_dge_lw</u>	True							
&donner_deep_nml	using_dge_sw cell_ice_size_type	True 'default'							
&uoimer_ueep_mm	cell_liquid_size_type	'bower'							
	debug	False							
	donner_deep_freq donner_deep_offset	1800 0							
	itest	53							
	jtest	32							
	ktest_model kttest	17 5							
sa	ve_donner_deep_diagnostics	True							
&edt_nml	do_gaussian_cloud	False							
	min_adj_time n_print_levels	1.0 14							
	num_pts_ij	0							
	use_extrapolated_ql	False							
&entrain_nml	use_qcmin apply_entrain	True True							
Certerani_min	ashear	25.0							
	beta_rad	0.5							
	convect_shutoff critjump	True 0.1							
	i_entprt_gl	112, 96, 89,							
	j_entprt_ql	105, 81, 97 71, 61, 56,							
	j_entprt_gt	64, 53, 46							
	num_pts_ij	0							
	parcel_buoy parcel_option	0.25 2							
	radperturb	0.1							
&esfsw_parameters_nml	sw_diff_streams	. 1							
&flux_exchange_nml	sw_resolution debug_stocks	'low' False	False						
aunzenenungeziiiit	divert_stocks_report	True	True						
	do_area_weighted_flux	False	False	True	True	True			
&fms_io_nml	nblocks checksum_required	4				False			False
G.MJ-IO-IIIIC	fileset_write		'single'	'multi'	'multi'	'multi'	'single'	'single'	'multi'
	max_files_r	300	200	700	700	700	-	-	700
	max_files_w threading_read	300 'multi'	200 'multi'	700 'multi'	700 'multi'	700 'multi'	'multi'	'multi'	700 'multi'
	threading_write		'single'	'multi'	'multi'	'multi'	'single'	'single'	'multi'
&fms_nml	clock_grain	'COMPONENT'	'LOOP'	'LOOP'	'LOOP'	'LOOP'	'LOOP'	'LOOP'	'LOOP'
	domains_stack_size print_memory_usage	5000000	8000000	115200 False	115200 False	115200 False			115200 False
	stack_size	0	0						
&fv_core_nml	change_time	True							

Group (continued)	Variable	original/ GFDL ESM2M input.nml	original/ MOM_SIS TOPAZ input.nml	original/ fabio momsis1 input.nml	original/ paul_mom- sis025_in- put.nml	fanghua hog mom- sis01v5KDS75 WOA13_in- jra	original/ g_acces- som2 1deg 155_ryf nput.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
	consv_te	0.7				· ·			
	layout mlat	1, 30 90							
	n_split	5							
	ncnst	4							
	nlev nlon	24 144							
	pnats	0							
	restart_format	'NETCDF'							
&gas_tf_nml	do_calcstdch4tfs	True							
	do_calcstdco2tfs do_calcstdn2otfs	True True							
	do_readstdch4tfs	False							
	do_readstdco2tfs	False							
	do_readstdn2otfs	False							
	do_writestdch4tfs do_writestdco2tfs	False False							
	do_writestdn2otfs	False							
	interp_form	'log'							
&generic_tracer_nml	do_generic_cfc	False	False	False	False	False			False
	do_generic_topaz do_generic_tracer	True True	True True	False False	False False	False False			False False
&glac_data_nml	dat_emis_dry	1.0	7100	. 3.50	. 4150	. 4.55			1 4130
•	dat_emis_sat	1.0							
	rsa_exp_global use_lm2_awc	10.0 True							
&glac_nml	conserve_glacier_mass	True							
ague_min	lm2	True							
&harvesting_nml	crop_seed_density	0.1							
	do_harvesting frac_wood_wasted_clear	False							
	frac_wood_wasted_ctean	0.25 0.25							
	grazing_intensity	0.25							
	grazing_residue	0.1							
&ice_albedo_nml	waste_below_ground_wood	False 10.0	10.0						
&ice_atbedo_nml	t_range add_diurnal_sw	False	True						
G. COZ.III G G CZ.III II	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	False						
	cm2_bugs do_icebergs	False True	False	False	False	False			
	h_lo_lim	$1 \times 10^{-10}$	$1  imes 10^{-10}$						
	heat_rough_ice		0.0005	0.0005	0.0005	0.0005			
	ice_bulk_salin io_layout	0.005 1, 2	0.005	0.005	0.005 64, 30	0.005 8, 9			
	layout	15, 2		10,12	64, 30	40, 45			
	mom_rough_ice	,		0.0005	0.0005	0.0005			
	nsteps_adv	1	1	1	1	6			
	nsteps_dyn num_part	72 6	108 6	72 6	72 6	144 6			
	spec_ice	False	False	False	False	False			
	t_range_melt	1.0	10.0	1.0	1.0	1.0			
0:	wd_turn	0.0	0.0	0.0	0.0	0.0			
&icebergs_nml	add_weight_to_ocean bergy_bit_erosion_fraction		0.0	False 0.0	False 0.0	False 0.0			
	debug		False	False	False	False			
	make_calving_reproduce	True							
	parallel_reprod		True	True	True	True			
	really_debug sicn_shift		False 0.1	False 0.1	False 0.1	False 0.1			
	speed_limit	0.5	<b>0.1</b>	0.1	V.1	V. <u>-</u>			
	time_average_weight	False	=	=	=	-			
	traj_sample_hrs	0	0 True	0 True	0 True	0 True			
	use_operator_splitting use_roundoff_fix	True	True	True	True	True			
	verbose	True	False	False	False	False			
	verbose_hrs	120	2400	2400	2400	2400			
&lake_data_nml	dat_emis_dry dat_emis_sat	1.0							
	dat_emis_sat dat_heat_capacity_ref	1.0 0.0							
	f_geo_ice	0.0, 0.0							
	f_geo_liq	0.0, 0.0							

Group (continued)	Variable	original/ GFDL ESM2M input.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	original/ hogg_acces- som2 - 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
	f_iso_ice	0.02, 0.01				putannit	прислип	прислин	прислип
	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'							
&lake_nml	num_l albedo_to_use	20 'brdf-							
Ctarc_min	atocuo_to_usc	params'							
	float_ice_to_top	True							
&land_debug_nml &land_model_nml	watch_point io_layout	0, 0, 0, 1							
&tanu_modet_miit	layout	1, 30							
pro	hibit_negative_canopy_water	False							
&landuse_nml	tau_snow_t_adj	604 800.0 False							
&tanuuse_nint	do_landuse_change input_file	'INPUT/							
	•	landuse.nc'							
&lscale_cond_nml	do_evap	True							
&lw_gases_stdtf_nml &mg_drag_nml	nstdco2lvls acoef	496 1.0							
ag_urug_tiitt	do_conserve_energy	True							
	gmax	1.0							
&microphys_rad_nml	source_of_sgsmtn lwem_form	'computed' 'fuliou'							
&moist_conv_nml	beta	0.0							
&moist_processes_nml	do_cmt	True							
	do_diag_clouds	False							
	do_donner_deep do_gust_cv	False False							
	do_legacy_strat_cloud	True							
	do_lsc	False							
	do_mca do_ras	False True							
	do_rh_clouds	False							
	do_strat	True							
&mom_oasis3_interface_nm	include_donmca_in_cosp	False					·. a	2. 42	·. a
&mom_oasis5_interrace_nii	nl fields_in						'u_flux', 'v_flux',	'u_flux', 'v_flux',	'u_flux' 'v_flux'
							'lprec', 'fprec',	'lprec', 'fprec',	'lprec', 'fprec'
							'salt_flx',	'salt_flx',	'salt_flx'
							'mh_flux', 'sw_flux',	'mh_flux', 'sw_flux',	'mh_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'
	E-134						'wfiform'	'wfiform'	'wfiform
	fields_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 True	7 True	7 True
	<pre>send_after_ocean_update send_before_ocean_update</pre>						False	True False	False
&monin_obukhov_nml	neutral		True	True	True	True		True	True
	rich_crit	10.0							
	stable_option zeta_trans	2 0.5							
&mpp_io_nml	deflate_level					5			5
	shuffle					1			1
&my25_turb_nml	akmin_land akmin_sea	5.0 0.0							
	do_thv_stab	True							
	tkemin	$1  imes 10^{-8}$							
&ocean_adv_vel_diag_nml	diag_step	1200	12	4320	4320	43200	4320	4320	576 10.0
	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
	a.t_crt_rutut	200.0	2000	200.0	200.0	200.0	200.0	200.0	100.0

Group (continued)	Variable	original/ GFDL ESM2M input.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	original/ hogg_acces- som2 - 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
	verbose_cfl	False	False	True	True	True	True	True	True
&ocean_advection_velocity_nr	nl max_advection_velocity	0.5	0.5	0.5	0.5	0.2	0.5	0.5	0.2
&ocean_albedo_nml	ocean_albedo_option	5	2	2	2	2		2	2
&ocean_barotropic_nml	barotropic_halo		False	10	10	10	10	10	10
	barotropic_leap_frog barotropic_pred_corr		False True						
Ь	arotropic_time_stepping_a	True	1140	True	True	True	True	True	True
	arotropic_time_stepping_b	False		False	False	False	False	False	False
	ic_time_stepping_mom4p0		True						
barotrop	ic_time_stepping_mom4p1 debug_this_module	Falco	False False	Falso	False	False	False	Falso	Ealco
	debug_this_module diag_step	False 1200	12	False 4320	4320	43200	4320	False 4320	False 576
	do_bitwise_exact_sum	True		.520	.520	.5200	.525	.520	3,0
	eta_max	8.0	8.0	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	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	0.2 True	0.2 True
•	smooth_eta_t_biharmonic	True	True	True True	True	False	False	False	False
	smooth_eta_t_laplacian	False	False	False	False	True	True	True	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
us	se_legacy_barotropic_halos vel_micom_bih	0.01	0.01	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	0.05	0.05	0.05	0.05	0.05	0.05
	vel_micom_lap_diag	1.0	1.0	0.5	0.5	0.5	0.2	0.2	0.5
	verbose_truncate	True	True	True	True	True	True	True	True
Passan bha nml	zero_tendency	False	False	False	False	False		False	False
&ocean_bbc_nml	bmf_implicit cdbot	0.002	0.002	True 0.001	True 0.001	True 0.001	0.001	True 0.001	True 0.001
	cdbot_hi	0.002	0.002	0.007	0.001	0.007	0.001	0.007	0.001
	cdbot_law_of_wall						False		
	cdbot_roughness_length			False	False	False		False	False
	cdbot_roughness_uamp	0.05	0.05	True	True	True		True	True
	uresidual use_geothermal_heating	0.05 True	0.05 True	0.05 False	0.05 False	0.05 False	False	0.05 False	0.05 False
&ocean_bbc_ofam_nml	read_tide_speed	iiuc	iiue	1 0130	1 0130	i alse	False	1 0130	1 0130
Coccuration and the coccur	uresidual2_max						1.0		
&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		True	True
	use_this_module vel_micom	False	False	False 0.001	False 0.001	False 0.001	False	False 0.001	False 0.001
&ocean_bihcst_friction_nml	use_this_module	False	False	False	False	False	False	False	False
&ocean_bihgen_friction_nml	bottom_5point	True	True	False	False	False	True	False	False
<b>3</b>	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 k_smag_aniso	False 0.0	False 0.0	False 0.0	False 0.0	False 0.0	False 0.0	False 0.0	False 0.0
	k_smag_iso	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	ncar_boundary_scaling	True	True	True	True	True	True	True	True
n	car_boundary_scaling_read			False	True	True		True	True
	ncar_rescale_power	2	2	2	2	2	2	2 10=8	2
	ncar_vconst_4	$2 \times 10^{-8}$	$2 \times 10^{-8}$	$2 \times 10^{-8}$	$2 \times 10^{-8}$	$2 \times 10^{-8}$	$2 \times 10^{-8}$	$2 \times 10^{-8}$	$2 \times 10^{-8}$
	ncar_vconst_5 use_this_module	5 True	5 True	5 True	5 True	5 True	5 True	5 True	5 True
	vel_micom_aniso	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	vel_micom_bottom	0.01	0.01	0.0	0.0	0.0	0.01	0.0	0.0
	vel_micom_iso	0.04	0.04	0.0	0.0	0.0	0.04	0.0	0.0
Pagan convert need	visc_crit_scale	0.25	0.25	1.0	1.0	1.0	0.25	1.0	1.0 True
&ocean_convect_nml	convect_full_scalar convect_full_vector			True False	True False	True False	False True	True False	True False
	use_this_module	False	False	False	False	False	False	False	False
		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
&ocean_coriolis_nml	acor			True	True	True	True	True	True
	use_this_module	True	True						
&ocean_coriolis_nml &ocean_density_nml	use_this_module eos_linear	False	irue	False	False	False	False	False	False
	use_this_module eos_linear eos_preteos10	False True		False True	True	True	True	True	True
	use_this_module eos_linear eos_preteos10 layer_nk	False	80	False					
	use_this_module eos_linear eos_preteos10 layer_nk linear_eos	False True 80	80 False	False True 80	True 80	True 80	True 80	True 80	True 80
	use_this_module eos_linear eos_preteos10 layer_nk	False True 80 1030.0	80 False 1030.0	False True 80 1038.0	True 80 1038.0	True 80 1038.0	True 80 1030.0	True 80 1038.0	True 80 1038.0
	use_this_module eos_linear eos_preteos10 layer_nk linear_eos neutralrho_max	False True 80	80 False	False True 80	True 80	True 80	True 80	True 80	True 80

Group (continued)	Variable	original/ GFDL ESM2M input.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	original/ hogg_acces- som2 - 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
&ocean_domains_nml	max_tracers					-	10	5	5
&ocean_drifters_nml	use_this_module	False	False						
&ocean_form_drag_nml	cprime_aiki	False	False	False	Falsa	Falsa	0.6	Falsa	False
&ocean_frazil_nml	use_this_module  debug_this_module	False False	False False	False False	False False	False False	False	False False	False False
Woccum_mazit=nint	frazil_only_in_surface	True	True	True	True	True		False	False
	freezing_temp_accurate		False						
f	reezing_temp_preteos10	-	-	-	-	-	-	True	True
	freezing_temp_simple use_this_module	True True	True True	True True	True True	True True	True True	False True	False True
&ocean_grids_nml	debug_this_module	True	True	False	False	False	True	False	False
	do_bitwise_exact_sum	True							
	read_rho0_profile	False	False				False		
&ocean_increment_eta_nml	days_to_increment						0		
	fraction_increment secs_to_increment						1.0 1800		
	use_this_module	False	False	False	False	False	False	False	False
&ocean_increment_tracer_nml	days_to_increment						0		
	fraction_increment						1.0		
	<pre>secs_to_increment use_this_module</pre>	False	Ealaa	False	False	False	1800 False	False	False
&ocean_increment_velocity_nml		raise	False	False	raise	raise	Paise 0	False	False
a decun american care vetocity a little	fraction_increment						1.0		
	secs_to_increment						1800		
	use_this_module	False	False	False	False	False	False	False	False
&ocean_lap_friction_nml	lap_friction_scheme	'general'	'general'	'general'	'general'	'general'	'general'	'general'	'general'
&ocean_lap_tracer_nml &ocean_lapcst_friction_nml	use_this_module use_this_module	False False	False False	False False	False False	False False	False False	False False	False False
&ocean_lapgen_friction_nml	bottom_5point	True	True	1 4136	1 4130	raise	True	1 4136	ruise
	k_smag_aniso	0.0	0.0				0.0		
	k_smag_iso	0.0	0.0	2.0	2.0	2.0	_0.0	2.0	2.0
	ncar_only_equatorial restrict_polar_visc	Truo	Truo				True True		
	restrict_polar_visc_lat	True 60.0	True 60.0				60.0		
	restrict_polar_visc_ratio	0.35	0.35				0.35		
	use_this_module	True	True	False	False	False	True	False	False
	vconst_1						8 000 000.0		
	vconst_2 vconst_3						0.0 0.8		
	vconst_4						$5 \times 10^{-9}$		
	vconst_5						3		
	vconst_6						300 000 000.0		
	vconst_7 vel_micom_iso	0.1	0.1				100.0 0.1		
	viscosity_ncar	False	False				True		
	viscosity_ncar_2000						False		
	viscosity_ncar_2007	_	_				True		
	viscosity_scale_by_rossby v_scale_by_rossby_power	True	True				True		
&ocean_mixdownslope_nml	debug_this_module	4.0 False	4.0 False	False	False	False	4.0 False	False	False
	nixdownslope_mask_gfdl	True	True	. 3.50	. 4150	. 3150	False	. 4.50	. 4150
	mixdownslope_npts	4	4				4		
re	ead_mixdownslope_mask	True	True	F-1	F-1	F-1	False	F-1	F-1
&ocean_model_nml	use_this_module baroclinic_split	True 1	True 1	False 1	False 1	False 1	True 1	False 1	False 1
woccun_mouct_mmt	barotropic_split	80	80	80	80	60	80	80	80
	cmip_units	False					True	True	
	debug	False	False	False	False	False	False	False	False
	dt_ocean impose_init_from_restart	7200 True	7200 False	3600	1800	150	3600	1200	150
	inpose_init_ironi_restart io_layout	1, 4	rdise		64, 30	8,9	4, 3	6, 5	10, 15
	layout	12,8	6, 4	10, 12	64, 30	40, 45	16, 15	48,40	80,75
	surface_height_split	1	1	1	1	1	1	1	1
	time_tendency	'twolevel'	'twolevel'	'twolevel' 'zstar'	'twolevel'	'twolevel' 'zstar'	'twolevel' 'zstar'	'twolevel' 'zstar'	'twolevel'
&ocean_momentum_source_nml	vertical_coordinate	'zstar'	'zstar'	'zstar' False	'zstar' False	'zstar' False	'zstar'	'zstar' False	'zstar' False
rayleigh_damp_exp_from_bottor				1 4150	iuuc	i disc		i disc	i uisc
	use_rayleigh_damp_table			True	True	True	True	True	True
	use_this_module	False	False	True	True	True	True	True	True
0									
&ocean_nphysics_nml	debug_this_module	False	False	False	False	False	False	False	False
&ocean_nphysics_nml		False False False	False False True	False False False	False False False	False False False	False False False	False False False	False False False

Group (continued)	Variable	original/ GFDL ESM2M input.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	original/ hogg_acces- som2 - 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
	use_this_module	True	True	False	False	False	True	False	False
&ocean_nphysics_util_nml	agm	800.0	800.0	100.0	100.0	100.0	600.0	100.0	100.0
	agm_closure	True	True	True	True	True	True	True	True
	agm_closure_baroclinic	True	True	True	True	True	True	True	True
	agm_closure_buoy_freq	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
ag	m_closure_eady_ave_mixed agm_closure_eady_cap	True	True True				True		
am	_closure_eady_smooth_horz	True True	True				True True		
	_closure_eady_smooth_vert	True	True				True		
	agm_closure_eden_gamma	0.0	0.0				0.0		
	m_closure_eden_greatbatch	False	False				False		
-9:	agm_closure_grid_scaling	True	True				True		
	agm_closure_length	50 000.0	50 000.0	50 000.0	50 000.0	50 000.0	50 000.0	50 000.0	50 000.0
ā	agm_closure_length_bczone	False	False	False	False	False	False	False	False
	agm_closure_length_fixed	False	False	False	False	False	False	False	False
	agm_closure_length_rossby	False	False	False	False	False	False	False	False
	agm_closure_lower_depth	2000.0	2000.0	2000.0	2000.0	2000.0	2000.0	2000.0	2000.0
	agm_closure_max	800.0	0.008	600.0	600.0	600.0	600.0	600.0	600.0
	agm_closure_min	100.0	100.0	100.0	100.0	100.0	50.0	100.0	100.0
	agm_closure_scaling	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
	agm_closure_upper_depth	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	agm_damping_time	45.0	45.0				45.0		
	agm_smooth_space	False	False				False		
	agm_smooth_time	False	False	(000	(00.0		False	(000	(00.0
	aredi	600.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0
	aredi_equal_agm	False	False	False	False	False	False	False	False
	drhodz_mom4p1	True	True	False	False	False	True	False	False
	drhodz_smooth_horz drhodz_smooth_vert	False	False	False	False False	False	False	False	False False
	nphysics_util_zero_init	False True	False True	False	raise	False	False True	False	raise
	rossby_radius_max	100 000.0	100 000.0	100 000.0	100 000.0	100 000.0	100 000.0	100 000.0	100 000.0
	rossby_radius_min	15 000.0	15 000.0	15 000.0	15 000.0	15 000.0	15 000.0	15 000.0	15 000.0
	smax	0.005	0.005	0.002	0.002	0.002	15 000.0	0.002	0.002
	swidth	0.002	0.002	0.002	0.002	0.002		0.002	0.002
	tracer_mix_micom	False	False	False	False	False	False	False	False
	vel_micom	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
&ocean_nphysicsa_nml	debug_this_module	False	False						
. ,	neutral_linear_gm_taper	True	True						
	neutral_physics_limit	True	True						
	neutral_physics_simple	False	False						
	neutral_sine_taper	True	True						
	tmask_neutral_on	True	True						
	use_this_module	False	False	False	False	False	False	False	False
&ocean_nphysicsb_nml	debug_this_module	False	False						
	nblayer_smooth	True	True						
	neutral_physics_limit	True	True						
	surf_turb_thick_min	50.0	50.0						
	surf_turb_thick_min_k	5	5	F 1	F 1	F 1	F.1		F 1
0	use_this_module	False	True	False	False	False	False	False	False
&ocean_nphysicsc_nml	bv_freq_smooth_vert	True					True		
	bvp_bc_mode	2 0.1					2 0.1		
	bvp_min_speed bvp_speed	0.0					0.0		
	debug_this_module	False					False		
	do_qm_skewsion	True					True		
	do_neutral_diffusion	True					True		
	epsln_bv_freq	$1 \times 10^{-12}$					$1 \times 10^{-12}$		
	gm_skewsion_bvproblem	True					True		
	qm_skewsion_modes	False					False		
	neutral_eddy_depth	True					True		
	neutral_physics_limit	True					True		
	number_bc_modes	2					2		
	regularize_psi	False					False		
	smax_psi	0.01					0.01		
	smooth_psi	True					True		
	tmask_neutral_on	True					True		
	turb_blayer_min	50.0					50.0		
	use_this_module	True	False	False	False	False	True	False	False
&ocean_operators_nml	use_legacy_div_ud	True		False	False	False		False	False
&ocean_overexchange_nml	debug_this_module	False	False	False	False	False	False	False	False
-	overexch_check_extrema	False	False				False		
	overexch_npts	4	4	4	4	4	4	4	4
	overexch_weight_far	False	False	False	False	False	False	False	False

Group (continued)	Variable	original/ GFDL ESM2M input.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	original/ hogg_acces- som2 - 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
	overflow_umax	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
&ocean_overflow_nml	use_this_module debug_this_module	False False	False False	False False	False False	False False	False False	False False	False False
&ocean_overitow_nint	use_this_module	False	False	False	False	False	False	False	False
&ocean_overflow_ofp_nml	debug_this_module	1 4130	1 4130	False	False	False	1 4130	False	False
	diag_step			4320	4320	43200		4320	5760
	do_entrainment_para_ofp			False	False	False True		False	False
	do_mass_ofp frac_exchange_src			True 1.0	True 1.0	1.0		True 1.0	True 1.0
	max_vol_trans_ofp			10 000 000.0	10 000 000.0	10 000 000.0		10 000 000.0	10 000 000.0
	use_this_module			False	False	False		False	False
&ocean_polar_filter_nml	use_this_module	False	False	False	False False	False False	False	False	False
&ocean_pressure_nml &ocean_rivermix_nml	zero_pressure_force calving_insertion_thickness	40.0	40.0	False	False	False		False	False
COCCUT_TIVETHIN_TIME	debug_this_module	False	False	False	False	False	False	False	False
disch	narge_combine_runoff_calve	False	True						
	do_bitwise_exact_sum	True	F 1	F.1	F 1	F.1	F 1	F 1	-
	river_diffuse_salt river_diffuse_temp	False False	False False	False False	False False	False False	False False	False False	True True
	river_diffusion_thickness	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	river_diffusivity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	river_insertion_thickness	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
	runoff_insertion_thickness use_this_module	40.0 Truo	40.0 Truo	Т	Т	True	True	Т	T
&ocean_riverspread_nml	debug_this_module	True	True	True '.false'	True '.false'	'false'	irue	True	True False
Coccun_inverspread_init	use_this_module	False	False	True	True	True	True	False	True
&ocean_rough_nml	rough_scheme	'beljaars'	'beljaars'	'beljaars'	'beljaars'	'beljaars'		'beljaars'	'beljaars'
&ocean_sbc_nml	avg_sfc_temp_salt_eta	True	True	True	True	True	True	True	True
	avg_sfc_velocity calvingspread	True False	True False	True False	True False	True False	True	True False	True False
	do_bitwise_exact_sum	raise	raise	False	False	False		False	False
	do_flux_correction	True		False	False	False		False	False
	eta_restore_tscale	-10.0							
	land_model_heat_fluxes	True	False	False	False	False	٥٢	False	False
	max_delta_salinity_restore max_ice_thickness	8.0	8.0	0.5 1.0	0.5 1.0	0.5 1.0	0.5 8.0	0.5 0.0	0.5 0.0
	read_restore_mask	0.0	0.0	False	False	False	False	False	False
	restore_mask_gfdl			False	False	False	False	False	False
	runoff_salinity	F-1	Falsa	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
	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	15.0	60.0	60.0
	salt_restore_under_ice	0.0		True	True	True	True	True	True
	tau_x_correction_scale tau_y_correction_scale	0.0 0.0							
	temp_correction_scale	1.0							
	temp_restore_tscale	-10.0	-10.0	-10.0	-10.0	-10.0	-1.0	-10.0	-10.0
Į.	use_full_patm_for_sea_level	True	True	False	False	False	-	False	False
	use_waterflux	True	True	True	True	True	True	True	True
	_waterflux_override_calving se_waterflux_override_evap	False False							
	se_waterflux_override_fprec	False							
	waterflux_tavg	False	False				False		
	zero_heat_fluxes	Falsa		False	False	False	False	False	False
	zero_net_pme_eta_restore 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
zero	o_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 zero_river_fluxes			nuc	iiue	False False	iiuc	iiue	nue
	zero_runoff_fluxes zero_surface_stress			False	False	True False	False	False	False
	zero_water_fluxes			False	False	False	False	False	False
&ocean_sbc_ofam_nml	restore_mask_ofam						False		
0 h	river_temp_ofam						False	-	
&ocean_shortwave_csiro_nm	l debug_this_module read_depth			True			True	False True	
	use_this_module	False	False	True	False	False	True	False	False
	zmax_pen			7000			7000	7000	

Group (continued)	Variable	original/ GFDL ESM2M input.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	original/ hogg_acces- som2 - 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
&ocean_shortwave_gfdl_nml	debug_this_module	False	False	False	False	False	False	False	False
	enforce_sw_frac	True	True	True	True	True	True	True	True
	optics_manizza	True	True	True	True	True	True	True	True
	optics_morel_antoine override_f_vis	False False	False False	False	False	False		False	False
	read_chl	False	False	False	True	True	False	True	True
	sw_pen_fixed_depths						False		
	use_this_module	True	True	False	True	True	False	True	True
	zmax_pen	200.0	200.0	300.0	300.0	300.0	200.0	300.0	300.0
&ocean_shortwave_jerlov_nml &ocean_shortwave_nml	use_this_module use_shortwave_csiro	False False	False False	False True	False False	False False	False True	False False	False False
QUCEAH_SHULLWAVE_HILL	use_shortwave_csitu	True	True	False	True	True	False	True	True
	use_shortwave_jerlov	False	False	False	False	False	False	False	False
	use_this_module	True	True	True	True	True	True	True	True
&ocean_sigma_transport_nml	sigma_advection_on	False	False	False	False	False	False	False	False
:	sigma_advection_sgs_only	False	False	False	False	False	False	False	False
	sigma_diffusion_on sigma_diffusivity_ratio	$\begin{array}{c} \text{True} \\ 1\times 10^{-6} \end{array}$	True $1  imes 10^{-6}$	True $1  imes 10^{-6}$	True $1  imes 10^{-6}$	True $1  imes 10^{-6}$	True $1  imes 10^{-6}$	True $1  imes 10^{-6}$	True $1  imes 10^{-6}$
9	sigma_just_in_bottom_cell	True	True	True	True	True	True	True	True
-	sigma_umax	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	smooth_sigma_thickness	True	True	True	True	True	True	True	True
	smooth_sigma_velocity	True	True	True	True	True	True	True	True
	smooth_velmicom thickness_sigma_layer	0.2 100.0	0.2 100.0	0.2 100.0	0.2 100.0	0.2 100.0	0.2 100.0	0.2 100.0	0.2 100.0
	thickness_sigma_max	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	100.0	100.0	100.0
	tmask_sigma_on	False	False	False	False	False	False	False	False
	tracer_mix_micom	True	True	True	True	True	True	True	True
	use_this_module	True	True	False	False	False	True	False	False
&ocean_solo_nml	vel_micom calendar	0.05	0.05	0.05	0.05	0.05	0.05 'NOLEAP'	0.05 'NOLEAP'	0.05 'NOLEAP'
Wocean_Solo_min	date_init						1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0	1, 1, 1, 0, 0, 0
	days						1460	31	30
	debug_this_module						False		
	dt_cpld						3600	1200	150
	hours minutes						0	0	0
	months						0	0	0
	seconds						0	0	0
	years						0	0	0
&ocean_sponges_eta_nml	use_this_module	False	False	False	False	False	False	False	False
&ocean_sponges_tracer_nml	damp_coeff_3d use_this_module	False False	False False	False False	False False	False False	False False	False False	False False
&ocean_sponges_velocity_nml	use_this_module	False	False	False	False	False	False	False	False
&ocean_submesoscale_nml	coefficient_ce	ruse	ruse	0.05	0.05	0.05	ruise	0.05	0.05
•	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
fro	ont_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	0.5 4	4	0.5 4	0.5 4	4
	smooth_advect_transport	•	•	True	True	True	•	True	True
	oth_advect_transport_num			4	4	4		4	4
	smooth_hblt	False	False	False	False	False	False	False	False
	smooth_psi			True 3	True	True		True	True
	smooth_psi_num submeso_advect_flux			5 False	3 False	3 False		3 False	3 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			False	False	False		False	False
subm	neso_diffusion_biharmonic submeso_diffusion_scale			True 10.0	True 10.0	True 10.0		True 10.0	True 10.0
	submeso_limit_flux	True	True	10.0	10.0	10.0	True	10.0	10.0
	submeso_skew_flux	nuc	nuc	True	True	True	nuc	True	True
	use_hblt_equal_mld	True	True	True	True	True	True	True	True
	use_psi_legacy	True	_	False	False	False	_	False	False
0 4- 1:	use_this_module	True	True	True	True	True	True	True	True
&ocean_tempsalt_nml	debug_this_module	False	False	False	False	False	False	False	True
	pottemp_2nd_iteration pottemp_equal_contemp	True	True	True True	True True	True True	True	True True	True True
	s_max	55.0	55.0	70.0	70.0	70.0	55.0	70.0	70.0
	s_max_limit	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0

Group (continued)	Variable	original/ GFDL ESM2M input.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	original/ hogg_acces- som2 - 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
	s_min	-1.0	-1.0	0.0	0.0	0.0	-1.0	0.0	0.0
	s_min_limit	5.0	5.0	2.0	2.0	2.0	0.0	2.0	2.0
	t_max	55.0	55.0	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	32.0	32.0
	t_min	-5.0	-5.0	-20.0	-20.0	-20.0	-5.0	-20.0	-20.0
	t_min_limit	—1.9 'potential	—1.9 'potential	— 5.0 'potential	—5.0 'potential	— 5.0 'potential	- 2.0 conservative	— 5.0 'potential	— 5.0 'potential
	temperature_variable	potentiat temp'	temp'	temp'	temp'	temp'	temp'	temp'	temp'
&ocean_thickness_nml	debug_this_module	False	False	False	False	False	False	False	False
Coccun_tinekness_mmt	debug_this_module_detail	False	False	False	False	False	False	False	False
	initialize_zero_eta	False	False				False		
	read_rescale_rho0_mask	True	True				False		
	rescale_mass_to_get_ht_mod			False	False	False		False	False
	rescale_rhoO_basin_label	7.0	7.0				7.0		
	rescale_rho0_mask_gfdl	True	True				False		
	rescale_rho0_value	0.75	0.75	20	2.0	2.0	0.75	2.0	2.0
	thickness_dzt_min thickness_dzt_min_init	2.0 2.0	2.0 2.0	2.0 10.0	10.0	2.0 10.0	1.0 2.0	10.0	2.0 10.0
	thickness_method	'energetic'	'energetic'	'energetic'	'energetic'	'energetic'	'energetic'	'energetic'	'energetic'
&ocean_time_filter_nml	use_this_module	False	False	chergetie	chergetie	chergetic	energene	chergetic	energetie
&ocean_topog_nml	min_thickness	5.0	5.0				25.0		
&ocean_tracer_advect_nml	advect_sweby_all async_domain_update	False	False	False	False	False	True True		
	debug_this_module	False	False	False	False	False	False	False	False
	limit_with_upwind	False	False						
	read_basin_mask			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	700	700	700	4.0	700	700
	tracer_conserve_days	100.0	100.0	30.0	30.0	30.0	1.0	30.0	30.0
&ocean_tracer_nml	age_tracer_max_init	1 × 10 <sup>+40</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	debug_this_module frazil_heating_after_vphysics	False True	False True	False True	False True	False True	False True	False True	False True
	razil_heating_before_vphysics	False	False	False	False	False	False	False	False
	interpolate_tdiag_to_pbott	False	raisc	raisc	raisc	raisc	Taisc	raisc	raisc
	interpolate_tproq_to_pbott	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	True	True						
	use_tempsalt_check_range					True	True	True	True
	zero_tendency	False	False	False	False	False	False	False	False
0	zero_tracer_source	False	False	False	False	False	False	False	False
&ocean_velocity_diag_nml	debug_this_module diag_step	False 1200	False 12	False 4320	False 4320	False 43200	False 4320	False 4320	False 576
	energy_diag_step	1200	12	4320	4320	43200	4320	4320	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
•	max_cgint			1.5	1.5	1.0	1.0	1.5	1.0
	truncate_velocity	False	False	False	False	False	True	False	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			False	False	False		False	False
	zero_tendency_explicit_b zero_tendency_implicit			False False	False False	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		False	False	1 0130	1 0130	i auc	False	i disc	1 0130
&ocean_vert_kpp_mom4p1		0.0		0.0	0.0	0.0	0.0 0.1	0.0	0.0
	double_diffusion kbl_standard_method	True		True	True	True False	True False	True False	True 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					True	True	True	True
	use_this_module	True		True	True	True	True	True	True
	visc_cbu_iw	0.0		0.0	0.0	0.0	0.0	0.0	0.0
	visc_con_limit						0.1		
	wsfc_combine_runoff_calve	False							
&ocean_vert_kpp_nml	diff_cbt_iw		0.0						
	double_diffusion		True						
	ricr		0.3						
	smooth_blmc		True						

Group (continued)	Variable	original/ GFDL ESM2M input.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	original/ hogg_acces- som2 - 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
	use_this_module		True			putanit	прислин	тристи	прислипс
&ocean_vert_mix_nml	visc_cbu_iw afkph_00	0.675	0.0 0.675				0.65		
COCCUIT_VCTC_ITIIX_ITIIIC	afkph_90	0.725	0.725				0.75		
	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	True 35.0	False	False
	dfkph_00	1.15	1.15				1.15		
	dfkph_90	1.15	1.15				0.95		
	hwf_diffusivity			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
	linear_taper_diff_cbt_table	False	False	20.0	20.0	20.0	False	20.0	20.0
	quebec_2009_10_bug	False							
	sfkph_00	$4.5 \times 10^{-5}$	$4.5 \times 10^{-5}$				$4.5 \times 10^{-5}$		
	sfkph_90	$4.5 \times 10^{-5}$	$4.5 \times 10^{-5}$		F 1		$4.5 \times 10^{-5}$	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 zfkph_90	mom4p1' 250 000 000.0 250 000 000.0	250 000 000.0 250 000 000.0	mom4p1'	mom4p1'	mom4p1'	mom4p1' 250 000.0 250 000.0	mom4p1'	mom4p1'
&ocean_vert_tidal_nml	background_diffusivity	0.0	0.0	0.0	0.0	0.0	$5 \times 10^{-6}$	0.0	0.0
	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	300.0	500.0	500.0
	drag_dissipation_use_cdbot	$1 \times 10^{-12}$	$1 \times 10^{-12}$	True $1  imes 10^{-10}$	True $1 \times 10^{-10}$	True $1  imes 10^{-10}$	$1 \times 10^{-12}$	True $1  imes 10^{-10}$	True $1 \times 10^{-10}$
	drhodz_min fixed_wave_dissipation max_drag_diffusivity	False	False	False	False	False	False 0.01	False	False
	max_wave_diffusivity	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	mixing_efficiency_n2depend	True	True	True	True	True	True	True	True
	read_roughness read_tide_speed	True True	True True	True True	True True	True True	True True	True True	True True
	read_wave_dissipation	False	False	False	False	False	False	False	False
	reading_roughness_amp	True	True	True	True	True	True	True	True
	reading_roughness_length	False	False	False	False	False	False	False	False
	roughness_scale shelf_depth_cutoff	30 000.0 160.0	30 000.0 160.0	12 000.0 —1000.0	12 000.0 —1000.0	12 000.0 —1000.0	20 000.0 160.0	12 000.0 —1000.0	12 000.0 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	T	False	False	False	Т	False	False
	use_this_module use_wave_dissipation	True True	True True	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	0.1	0.1
&ocean_xlandinsert_nml	use_this_module	True	True	False	False	False	False	False	False
	verbose_init	True	True				True		
&ocean_xlandmix_nml	use_this_module	True	True	False	False	False	False	False	False
	verbose_init xlandmix_kmt	True True	True True				True True		
&ozone_nml	basic_ozone_type	'fixed_year'							
	data_name	'ozone'							
	filename ozone_dataset_entry	'o3.climatology. 1860, 1, 1, 0, 0, 0	nc'						
&physics_driver_nml	do_modis_yim	False							
&rad_output_file_nml	write_data_file	True							
&radiation_diag_nml	iradprt_gl jradprt_gl num_pts_ij	20,6 12,20 0							
&radiation_driver_diag_nm		True							
&radiation_driver_nml	do_clear_sky_pass	True			·				
	rad_package rad_time_step	'sea_esf' 10800							
	renormalize_sw_fluxes	True							
	use_co2_tracer_field	True							
	using_restart_file	False							
	zenith_spec	'diurnally							
&radiative_gases_nml	ch4_data_source	varying' 'input'							
a.aaaaare_gases_IIIII	ch4_dataset_entry	1860, 1, 1, 0, 0, 0							
	ch4_specification_type	'time_series'							

Group (continued)	Variable	original/ GFDL ESM2M input.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-	original/ hogg_acces- som2 - 1deg jra55_ryf	original/ kiss_acces- som2 025deg jra55_ryf	original/ hogg_acces- som2 01deg jra55_ryf
						put.nml	input.nml	input.nml	input.nml
	ch4_variation_type co2_base_time	'linear' 101, 1, 1, 0, 0, 0							
	co2_ceiling	0.0016							
	co2_data_source	'predicted'							
	co2_dataset_entry co2_floor	1, 1, 1, 0, 0, 0 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 f113_variation_type	'time_series' '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_data_source	1860, 1, 1, 0, 0, 0							
	f12_specification_type	'time_series'							
	f12_variation_type	'linear'							
	f22_data_source f22_dataset_entry	'input' 1860, 1, 1, 0,							
	122_data3ct_cntry	0,0							
	f22_specification_type	'time_series'							
	f22_variation_type	'linear' 240							
	gas_printout_freq n2o_data_source	'input'							
	n2o_dataset_entry	1860, 1, 1, 0, 0, 0							
	n2o_specification_type	'time_series'							
	n2o_variation_type time_varying_ch4	'linear' False							
	time_varying_co2	False							
	time_varying_f11	False							
	time_varying_f113 time_varying_f12	False False							
	time_varying_f22	False							
	time_varying_n2o	False							
&random_number_streams_n	verbose	5 True							
do_legacy_seed_generation	orce_use_of_temp_for_seed	False							
&ras_nml	a	1.6851,							
		1.1686,							
		0.7663, 0.5255, 0.41,							
		0.3677,							
		0.3151,							
		0.2216, 0.1521,							
		0.1321,							
		0.0, 0.0, 0.0,							
	aratio	0.0 1.0							
	modify_pbl	True							
	puplim	2000.0							
	rn_frac_bot	0.5							
	rn_frac_top rn_pbot	0.975 80 000.0							
	rn_ptop	50 000.0							
	tokioka_con	0.025							
	tokioka_on tokioka_plim	True 50 000.0							
&redseafix_nml	redsea_gulfbay_sfix	0.000		True					
&rh_based_clouds_nml	cirrus_cld_prop_form	'part'							
&river_nml	cldht_type_form all_big_outlet_ctn0	'93' True							
Girrer Linite	dt_slow	86 400.0							

Group (continued)	Variable	original/ GFDL- ESM2M input.nml	original/ MOM_SIS TOPAZ input.nml	original/ fabio momsis1 input.nml	original/ paul_mom- sis025_in- put.nml	original/ original/ fanghua hogg_acces- mom- som2 sis01v5KDS75 1deg W0A13_in- jra55_ryf put.nml input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
	land_area_called_cellarea	True				рислин прислин	присти	прислипс
&river_physics_nml	lake_sfc_w_min	20.0						
&sat_vapor_pres_nml	construct_table_wrt_liq construct_table_wrt_liq_and_ice show_all_bad_values	True True	True True			True		True
&sealw99_nml	continuum_form	'ckd2.1'						
	do_lwcldemiss do_nlte	True False						
	do_thick	False						
	linecatalog_form	'hitran 2000'						
0 -1	verbose	5						
&shortwave_driver_nml	do_cmip_diagnostics solar_dataset_entry	True 1860, 1, 1, 0, 0, 0						
	swform	'esfsw99'						
2 space data pul	time_varying_solar_constant depth_crit	False 0.05						
&snow_data_nml	deptii <u>cht</u> dz	0.05, 0.2, 0.5, 0.2, 0.05, 0.0, 0.0, 0.0, 0.0,						
		0.0						
	emis_snow_max emis_snow_min	1.0 1.0						
	f_geo_cold	0.0, 0.0						
	f_geo_warm	0.0, 0.0						
	f_iso_cold f_iso_warm	0.9, 0.6 0.9, 0.6						
	f_vol_cold	0.09, 0.13						
	f_vol_warm	0.09, 0.13						
	num_l z0_momentum	5 0.01						
&snow_nml	albedo_to_use	'brdf-						
		params'						
	max_snow min_snow_mass	$1000.0 \\ 1 \times 10^{-10}$						
&soil_data_nml	comp	0.0001						
	dat_emis_dry	1.0, 1.0, 1.0, 1.0, 1.0, 1.0,						
	dat_emis_sat	1.0, 1.0, 1.0 1.0, 1.0, 1.0, 1.0, 1.0, 1.0,						
	dat_tf_depr	1.0, 1.0, 1.0 2.0, 2.0, 2.0, 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	2.5 2.0						
	geohydrology_to_use gw_scale_soil_depth	'hill_ar5' 10.0						
	num_l	20						
&soil_nml a	ctive_layer_drainage_acceleration albedo_to_use	100.0 'brdf-maps'						
	init_w	500.0						
	uptake_oneway	True						
	uptake_to_use	'darcy2d- linearized'						
	write_soil_carbon_restart	False						
&stable_bl_turb_nml	alsh alsm	500.0 500.0						
&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'						

Group (continued)	Variable	original/ GFDL ESM2M input.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	original/ hogg_acces- som2 - 1deg jra55_ryf input.nml	original/ kiss_acces- som2 025deg jra55_ryf input.nml	original/ hogg_acces- som2 01deg jra55_ryf input.nml
	use_static_veg	False				<b>P</b>			
&strat_cloud_nml	diff_thresh	0.1							
	dmin	$1 \times 10^{-7}$							
	do_old_snowmelt	True							
	eros_choice	True							
	eros_scale	$1 \times 10^{-6} \ 8 \times 10^{-6}$							
	eros_scale_c	$8 \times 10^{-6}$ $5 \times 10^{-5}$							
	eros_scale_t mc_thresh	0.001							
	n_land	300 000 000.0							
	retain_cm3_bug	True							
	rthresh	8.0							
	super_choice	True							
	tracer_advec	True							
	u00	_0.8							
	u00_profile	True		_					
&surface_flux_nml	ncar_ocean_flux	Falsa		True	True	True		True	True
	old_dtaudv raoult_sat_vap	False		True	True	True		True	True
&topo_rough_nml	max_topo_rough	100.0		iiue	iiue	iiue		iiue	iiuc
a topo i ough i mit	topo_rough_factor	0.01							
	use_topo_rough	True							
&topography_nml	topog_file	'INPUT/	'INPUT/						
		navy_topog-	navy_topog-						
		ra-	ra-						
		phy.data.nc'	phy.data.nc'						
&vegn_nml	co2_for_photosynthesis	0.000 286							
	co2_to_use_for_photosynthesis do_biogeography	'interactive' True							
	do_cohort_dynamics	True							
	do_patch_disturbance	True							
	do_phenology	True							
	do_seed_transport	True							
	init_tv	288.0							
	photosynthesis_to_use	'leuning'							
	rad_to_use	'two-stream'							
	snow_rad_to_use	'paint-							
	tau_smooth_ncm	leaves' 22.0							
_diff_driver_nml	do_conserve_energy	True							
_turb_driver_nml	do_diffusivity	False							
G 7 C 1 C 1 C 1 C 1 C 1 C 1 C 1 C 1 C 1 C	do_edt	False							
	do_entrain	True							
	do_mellor_yamada	False							
	do_shallow_conv	False							
	do_stable_bl	True							
	gust_scheme	'beljaars'							
8.varid nml	use_tau do_alltoall	False		True	True	True			True
&xgrid_nml	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
	xgrid_log			False	False	False			False