```
 &generic_tracer_nml
     do_generic_tracer=.false.
     do_generic_CFC=.false.
     do_generic_TOPAZ=.false.
/

 &ice_albedo_nml
     t_range = 10.
/

 &ice_spec_nml
     mcm_ice = .false.
     do_leads = .false.
     minimum_ice_concentration = 0.5
     minimum_ice_thickness = 0.1
     sst_degk = .true.
/

 &ocean_adv_vel_diag_nml
     diag_step=360
     verbose_cfl=.false.
     max_cfl_value=100.0
     large_cfl_value=10.0
/

 &ocean_advection_velocity_nml
     max_advection_velocity = 0.5
/

 &ocean_albedo_nml
     ocean_albedo_option = 5
/

 &ocean_barotropic_nml
     smooth_pbot_t_biharmonic_legacy=.true.
     debug_this_module=.false.
     zero_tendency=.false.
     barotropic_time_stepping_A=.true.
     barotropic_time_stepping_B=.false.
     pred_corr_gamma=.20
     smooth_eta_t_laplacian=.false.
     smooth_pbot_t_laplacian=.false.
     smooth_eta_t_biharmonic=.true.
     smooth_pbot_t_biharmonic=.true.
     vel_micom_lap=.05
     truncate_eta=.false.
     eta_max=8.0
     verbose_truncate=.true.
     frac_crit_cell_height=0.20
     diag_step=360
/

 &ocean_bbc_nml
     uresidual=0.05
     cdbot=1.0e-3
     cdbot_law_of_wall=.false.
     use_geothermal_heating=.false.
```

```
/

 &ocean_bih_friction_nml
     bih_friction_scheme='general'
/

 &ocean_bih_tracer_nml
     use_this_module=.false.
/

 &ocean_bihcst_friction_nml
     use_this_module=.false.
/

 &ocean_bihgen_friction_nml
     use_this_module=.false.
     k_smag_iso=2.0
     k_smag_aniso=0.0
     vel_micom_iso=0.08
     vel_micom_aniso=0.0
     vel_micom_bottom=0.01
     eq_vel_micom_iso=0.0
     eq_vel_micom_aniso=0.0
     eq_lat_micom=0.0
     visc_crit_scale=.50
     equatorial_zonal=.false.
     equatorial_zonal_lat=20.0
     bottom_5point=.true.
/

 &ocean_blob_nml

/

 &ocean_convect_nml
     use_this_module=.true.
     convect_full_scalar=.true.
     convect_full_vector=.false.
/

 &ocean_coriolis_nml
     use_this_module=.true.
     acor=0.50
/

 &ocean_density_nml
     potrho_min=1028.0
     potrho_max=1038.0
     neutralrho_min=1020.0
     neutralrho_max=1030.0
     layer_nk=80
     eos_linear=.false.
     eos_preteos10=.true.
     do_bitwise_exact_sum=.true.
/

 &ocean_domains_nml
```

```
/

&ocean_drifters_nml

/

 &ocean_form_drag_nml
     use_this_module=.false.
/

 &ocean_frazil_nml
     use_this_module=.true.
     debug_this_module=.false.
     freezing_temp_simple=.true.
     frazil_only_in_surface=.true.
/

 &ocean_grids_nml
     debug_this_module=.true.
     read_rho0_profile=.false.
/

 &ocean_increment_eta_nml
/

 &ocean_increment_tracer_nml
/

 &ocean_increment_velocity_nml
/

 &ocean_lap_friction_nml
     lap_friction_scheme='general'
/

 &ocean_lap_tracer_nml
     use_this_module=.false.
/

 &ocean_lapcst_friction_nml
     use_this_module=.false.
/

 &ocean_lapgen_friction_nml
     use_this_module=.true.
     k_smag_iso=2.0
     k_smag_aniso=0.0
     bottom_5point=.true.
     vel_micom_iso=0.10
     eq_vel_micom_iso=0.0
     eq_lat_micom=0.0
     equatorial_zonal=.true.
     equatorial_zonal_lat=20.0
     equatorial_no_smag=.true.
     viscosity_ncar=.true.
     viscosity_ncar_2000= .true.
     viscosity_ncar_2007= .false.
     ncar_only_equatorial=.true.
```

```
    vconst_1=8.e6
    vconst_2=0.0
    vconst_3=0.80
    vconst_4=0.5e-8
    vconst_5=3
    vconst_6=3e8
    vconst_7=100.0
    restrict_polar_visc=.true.
    restrict_polar_visc_lat=60.0
    restrict_polar_visc_ratio=0.35
/

 &ocean_mixdownslope_nml
    use_this_module=.false.
    debug_this_module=.false.
    read_mixdownslope_mask=.false.
    mixdownslope_mask_gfdl=.false.
    mixdownslope_npts=4
/

 &ocean_model_nml
    dt_ocean =7200,
    time_tendency='twolevel'
    vertical_coordinate='zstar'
    baroclinic_split = 1
    surface_height_split = 1
    barotropic_split = 80
    debug=.false.
    layout=6,5
/

 &ocean_momentum_source_nml
    use_this_module=.false.
/

 &ocean_nphysicsA_nml
    use_this_module=.true.
    debug_this_module=.false.
    neutral_physics_limit=.true.
    neutral_physics_simple=.false.
    neutral_linear_gm_taper=.true.
    neutral_sine_taper=.true.
    tmask_neutral_on=.true.
/

 &ocean_nphysicsB_nml
    use_this_module=.false.
/

 &ocean_nphysicsC_nml
    use_this_module=.false.
/

 &ocean_nphysics_nml
    use_this_module=.true.
    debug_this_module=.false.
    use_nphysicsA=.true.
    use_nphysicsB=.false.
```

```
    use_nphysicsC=.false.
/

 &ocean_nphysics_util_nml
    smax=0.002
    swidth=0.002
    aredi=600.0
    agm=100.0
    aredi_equal_agm=.false.
    drhodz_mom4p1=.false.
    drhodz_smooth_horz=.false.
    drhodz_smooth_vert=.false.
    tracer_mix_micom=.false.
    vel_micom=0.0
    agm_closure=.true.
    agm_closure_scaling=0.07
    agm_closure_min=100.0
    agm_closure_max=600.0
    agm_closure_length_fixed=.false.
    agm_closure_length_rossby=.false.
    agm_closure_length_bczone=.false.
    agm_closure_baroclinic=.true.
    agm_closure_length=50.e3
    agm_closure_buoy_freq=.004
    agm_closure_upper_depth=100.0
    agm_closure_lower_depth=2000.0
    rossby_radius_max=100e3
    rossby_radius_min=15e3
/

 &ocean_obc_nml
/

 &ocean_obs_nml
/

 &ocean_operators_nml
      use_legacy_DIV_UD=.true.
/

 &ocean_overexchange_nml
    use_this_module=.false.
    debug_this_module=.false.
    overexch_npts=4
    overexch_weight_far=.false.
    overflow_umax=5.0
    overexch_check_extrema=.false.
/

 &ocean_overflow_nml
    use_this_module=.false.
    debug_this_module=.false.
/

 &ocean_passive_nml
/

 &ocean_polar_filter_nml
```

```
    use_this_module=.false.
/

 &ocean_pressure_nml
/

 &ocean_rivermix_nml
    use_this_module=.true.
    debug_this_module=.false.
    river_insertion_thickness=40.0
    river_diffusion_thickness=0.0
    river_diffusivity=0.0
    river_diffuse_salt=.false.
    river_diffuse_temp=.false.
/

 &ocean_riverspread_nml
    use_this_module=.false.
/

 &ocean_rough_nml
    rough_scheme = 'beljaars'
/

 &ocean_sbc_nml
    use_waterflux=.true.
    temp_restore_tscale=-10.
    salt_restore_tscale=-60.
    salt_restore_under_ice=.false.
    salt_restore_as_salt_flux=.false.
    read_restore_mask=.false.
    restore_mask_gfdl=.false.
    max_ice_thickness=4.0
    zero_net_water_restore=.false.
    zero_net_water_coupler=.false.
    zero_net_water_couple_restore=.false.
    zero_net_salt_restore=.false.
    avg_sfc_velocity=.true.
    avg_sfc_temp_salt_eta=.true.
    zero_water_fluxes=.false.
    zero_heat_fluxes=.false.
    zero_surface_stress=.false.
    waterflux_tavg=.false. ! false is default setting
/

 &ocean_shortwave_csiro_nml
    use_this_module=.false.
/

 &ocean_shortwave_gfdl_nml
    use_this_module=.true.
    debug_this_module=.false.
    read_chl=.true.
    zmax_pen=100.0
    enforce_sw_frac=.true.
    override_f_vis=.false.
    sw_morel_fixed_depths=.true.
    optics_morel_antoine=.true.
```

```
    optics_manizza=.false.
/

 &ocean_shortwave_jerlov_nml
    use_this_module=.false.
/

 &ocean_shortwave_nml
    use_this_module=.true.
    use_shortwave_gfdl=.true.
    use_shortwave_csiro=.false.
    use_shortwave_jerlov=.false.
/

 &ocean_sigma_transport_nml
    use_this_module=.true.
    sigma_diffusion_on=.true.
    sigma_advection_on=.false.
    sigma_advection_sgs_only=.false.
    sigma_just_in_bottom_cell=.true.
    tmask_sigma_on=.false.
    sigma_diffusivity_ratio=1.e-6
    tracer_mix_micom=.true.
    vel_micom=0.50
    sigma_umax=0.01
    smooth_sigma_thickness=.true.
    smooth_sigma_velocity=.true.
    smooth_velmicom=0.2
    thickness_sigma_layer= 100.0
    thickness_sigma_max  = 100.0
    thickness_sigma_min  = 100.0
/

 &ocean_sponge_nml
    use_this_module=.false.
    damp_coeff_3d=.false.
/

 &ocean_sponges_tracer_nml
/

 &ocean_sponges_velocity_nml
/

 &ocean_sponges_eta_nml
/

 &ocean_submesoscale_nml
    use_this_module=.false.
    debug_this_module=.false.
    min_kblt=4
    front_length_const=10e3
    smooth_hblt=.true.
/

 &ocean_tempsalt_nml
    debug_this_module=.false.
    temperature_variable='potential_temp'
```

```
    pottemp_2nd_iteration=.true.
    t_min=-5.0
    t_max = 55.0
    s_min = -1.0
    s_max = 55.0
    t_min_limit =-2.0
    t_max_limit =32.0
    s_min_limit =0.0
    s_max_limit =42.0
/

 &ocean_thickness_nml
    debug_this_module=.false.
    debug_this_module_detail=.false.
    thickness_dzt_min_init=10.0
    thickness_dzt_min=2.0
    thickness_method='energetic'
    read_rho0_profile=.false.
/

 &ocean_time_filter_nml
    use_this_module=.false.
/

 &ocean_topog_nml
    min_thickness=5.0
/

 &ocean_tracer_advect_nml
    debug_this_module=.false.
    advect_sweby_all=.true.
    limit_with_upwind=.false.
/

 &ocean_tracer_diag_nml
    tracer_conserve_days=100.0
    diag_step=360
    do_bitwise_exact_sum=.false.
/

 &ocean_tracer_nml
    debug_this_module=.false.
    zero_tendency=.false.
    remap_depth_to_s_init=.false.
    zero_tracer_source=.false.
    limit_age_tracer=.true.
    age_tracer_max_init=10.0
    frazil_heating_before_vphysics=.true.
    frazil_heating_after_vphysics=.false.
/

 &ocean_velocity_advect_nml
/

 &ocean_velocity_diag_nml
    debug_this_module=.false.
    diag_step=360
    energy_diag_step=360
```

```
    max_cfl_value=100.0
    large_cfl_value=10.0
/

 &ocean_velocity_nml
    truncate_velocity=.false.
    truncate_verbose=.true.
    truncate_velocity_value=2.0
    zero_tendency=.false.
    adams_bashforth_third=.true.
/

 &ocean_vert_chen_nml
/

 &ocean_vert_const_nml
/

 &ocean_vert_gotm_nml
/

 &ocean_vert_kpp_iow_nml
    use_this_module=.false.
/

 &ocean_vert_kpp_mom4p0_nml
    use_this_module=.true.
    diff_cbt_iw=1.34e-7
    visc_cbu_iw=1.0e-4
    double_diffusion=.true.
    Ricr=0.3
    smooth_blmc=.true.
    coastal_tidal_mix=.true.
/

 &ocean_vert_kpp_nml
    use_this_module=.false.
    diff_cbt_iw=1.34e-7
    visc_cbu_iw=1.0e-4
    double_diffusion=.true.
    Ricr=0.3
    smooth_blmc=.true.
/

 &ocean_vert_mix_nml
    aidif=1.0
    vert_mix_scheme='kpp_mom4p0'
    vert_diff_back_via_max=.true.
    use_diff_cbt_table=.false.
    linear_taper_diff_cbt_table=.true.
    bryan_lewis_diffusivity=.true.
    bryan_lewis_lat_depend=.true.
    bryan_lewis_lat_transition=35.0
    afkph_90=0.75
    dfkph_90=0.95
    sfkph_90=4.5e-5
    zfkph_90=2500.0e2
    afkph_00=0.65
```

```
    dfkph_00=1.15
    sfkph_00=4.5e-5
    zfkph_00=2500.0e2
/

 &ocean_vert_pp_nml
/

 &ocean_vert_tidal_nml
    use_legacy_methods=.true.
    use_this_module=.false.
    use_wave_dissipation=.false.
    use_drag_dissipation=.true.
    read_wave_dissipation=.false.
    fixed_wave_dissipation=.false.
    read_tide_speed=.true.
    read_roughness=.true.
    reading_roughness_amp=.true.
    reading_roughness_length=.false.
    roughness_scale=30.e3
    tide_speed_data_on_t_grid=.true.
    drhodz_min=1.e-12
    mixing_efficiency_n2depend=.true.
    max_wave_diffusivity=100.0e-4
    wave_energy_flux_max=0.10
    decay_scale=300.0
    shelf_depth_cutoff=-1000.0
    background_diffusivity=0.0
    background_viscosity=0.0
/

 &ocean_xlandinsert_nml
    use_this_module=.true.
    verbose_init=.true.
/

 &ocean_xlandmix_nml
    use_this_module=.true.
    verbose_init=.true.
    xlandmix_kmt=.true.
/

 &oda_core_nml
/

 &oda_nml
/
```