

```
1 >> Espresso_read
2 Source:
3     http://tds.marine.rutgers.edu:8080/thredds/dodsC/roms/espresso/20
4 Format:
5     64bit
6 Global Attributes:
7     file = 'espresso_his_3479_0004.nc'
8     format = 'netCDF-4/HDF5 file'
9     Conventions = 'CF-1.4, _Coordinates'
10    type = 'ROMS/TOMS history file'
11    title = 'ROMS ESPRESSO Real-Time Operational IS4DVAR F
12    rst_file = 'espresso_rst_3479.nc'
13    his_base = 'espresso_his_3479'
14    avg_base = 'espresso_avg_3479'
15    flt_file = 'espresso_flt_3479.nc'
16    grd_file = '/home/om/roms/espresso/Data/espresso_grid_c05
17    ini_file = '/home/julia/ROMS/espresso/RealTime/Storage/ru
18    frc_file_01 = '/home/om/roms/espresso/Data/espresso_tide_c05
19    frc_file_02 = '../Data/espresso_river.nc'
20    frc_file_03 = '../Data/rain_ncepnam_3hourly_MAB_and_GoM.nc'
21    frc_file_04 = '../Data/swrad_ncepnam_3hourly_MAB_and_GoM.nc'
22    frc_file_05 = '../Data/Tair_ncepnam_3hourly_MAB_and_GoM.nc'
23    frc_file_06 = '../Data/Pair_ncepnam_3hourly_MAB_and_GoM.nc'
24    frc_file_07 = '../Data/Qair_ncepnam_3hourly_MAB_and_GoM.nc'
25    frc_file_08 = '../Data/lwrad_down_ncepnam_3hourly_MAB_and_Go
26    frc_file_09 = '../Data/Uwind_ncepnam_3hourly_MAB_and_GoM.nc'
27    frc_file_10 = '../Data/Vwind_ncepnam_3hourly_MAB_and_GoM.nc'
28    bry_file = '../Data/espresso_bdry_new.nc'
29    clm_file = '../Data/espresso_clm_new.nc'
30    script_file = 'nl_ocean_espresso.in'
31    fpos_file = '/home/om/roms/espresso/Data/espresso_floats_g
32    svn_url = 'https://www.myroms.org/svn/src/trunk'
33    svn_rev = 'exported'
34    code_dir = '/home/julia/ROMS/espresso/svn1409'
35    header_dir = '/home/julia/ROMS/espresso/RealTime/Compile/fw
36    header_file = 'espresso.h'
37    os = 'Linux'
38    cpu = 'x86_64'
39    compiler_system = 'pgi'
40    compiler_command = '/opt/pgisoft/openmpi/bin/mpif90'
41    compiler_flags = ' -O3 -Mfree'
42    tiling = '004x002'
43    history = 'ROMS/TOMS, Version 3.5, Wednesday - July 15,
44            FMRC Best Dataset'
45    ana_file = 'ROMS/Functionals/ana_btflux.h, /home/julia/RO
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46         CPP_options      = 'MyCPP, ADD_FS0BC, ADD_M20BC, ANA_BSFLUX, ANA_
47         _CoordSysBuilder = 'ucar.nc2.dataset.conv.CF1Convention'
48         cdm_data_type     = 'GRID'
49         featureType       = 'GRID'
50         location          = 'Proto fmrc:espresso_2013_da_his_best'
51         summary           = 'Operational nowcast/forecast system version 2
52 Dimensions:
53         ocean_time = 24      (UNLIMITED)
54         boundary   = 4
55         eta_psi    = 81
56         eta_rho    = 82
57         eta_u      = 82
58         eta_v      = 81
59         s_rho      = 36
60         s_w        = 37
61         time       = 19020
62         tracer     = 2
63         xi_psi     = 129
64         xi_rho     = 130
65         xi_u       = 129
66         xi_v       = 130
67 Variables:
68     ntimes
69         Size:          1x1
70         Dimensions:
71         Datatype:     int32
72         Attributes:
73                     long_name = 'number of long time-steps'
74     ndtfast
75         Size:          1x1
76         Dimensions:
77         Datatype:     int32
78         Attributes:
79                     long_name = 'number of short time-steps'
80     dt
81         Size:          1x1
82         Dimensions:
83         Datatype:     double
84         Attributes:
85                     units      = 'second'
86                     long_name = 'size of long time-steps'
87     dtfast
88         Size:          1x1
89         Dimensions:
90         Datatype:     double
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91         Attributes:
92             units      = 'second'
93             long_name = 'size of short time-steps'
94     dstart
95         Size:      1x1
96         Dimensions:
97         Datatype:  double
98         Attributes:
99             units      = 'days since 2006-01-01 00:00:00'
100            long_name = 'time stamp assigned to model initialization'
101     shuffle
102         Size:      1x1
103         Dimensions:
104         Datatype:  int32
105         Attributes:
106             long_name = 'NetCDF-4/HDF5 file format shuffle filter'
107     deflate
108         Size:      1x1
109         Dimensions:
110         Datatype:  int32
111         Attributes:
112             long_name = 'NetCDF-4/HDF5 file format deflate filter'
113     deflate_level
114         Size:      1x1
115         Dimensions:
116         Datatype:  int32
117         Attributes:
118             long_name = 'NetCDF-4/HDF5 file format deflate level'
119     nHIS
120         Size:      1x1
121         Dimensions:
122         Datatype:  int32
123         Attributes:
124             long_name = 'number of time-steps between history records'
125     ndefHIS
126         Size:      1x1
127         Dimensions:
128         Datatype:  int32
129         Attributes:
130             long_name = 'number of time-steps between the creation of history records'
131     nRST
132         Size:      1x1
133         Dimensions:
134         Datatype:  int32
135         Attributes:
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136         long_name = 'number of time-steps between restart rec
137     ntsAVG
138         Size:      1x1
139         Dimensions:
140         Datatype:  int32
141         Attributes:
142         long_name = 'starting time-step for accumulation of t
143     nAVG
144         Size:      1x1
145         Dimensions:
146         Datatype:  int32
147         Attributes:
148         long_name = 'number of time-steps between time-averag
149     ndefAVG
150         Size:      1x1
151         Dimensions:
152         Datatype:  int32
153         Attributes:
154         long_name = 'number of time-steps between the creatio
155     Falpha
156         Size:      1x1
157         Dimensions:
158         Datatype:  double
159         Attributes:
160         long_name = 'Power-law shape barotropic filter paramet
161     Fbeta
162         Size:      1x1
163         Dimensions:
164         Datatype:  double
165         Attributes:
166         long_name = 'Power-law shape barotropic filter paramet
167     Fgamma
168         Size:      1x1
169         Dimensions:
170         Datatype:  double
171         Attributes:
172         long_name = 'Power-law shape barotropic filter paramet
173     nl_tnu2
174         Size:      2x1
175         Dimensions: tracer
176         Datatype:  double
177         Attributes:
178         units      = 'meter2 second-1'
179         long_name = 'nonlinear model Laplacian mixing coeffic
180     nl_visc2
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181         Size:      1x1
182         Dimensions:
183         Datatype:   double
184         Attributes:
185             units    = 'meter2 second-1'
186             long_name = 'nonlinear model Laplacian mixing coefficient'
187     Akt_bak
188         Size:      2x1
189         Dimensions: tracer
190         Datatype:   double
191         Attributes:
192             units    = 'meter2 second-1'
193             long_name = 'background vertical mixing coefficient f
194     Akv_bak
195         Size:      1x1
196         Dimensions:
197         Datatype:   double
198         Attributes:
199             units    = 'meter2 second-1'
200             long_name = 'background vertical mixing coefficient f
201     Akk_bak
202         Size:      1x1
203         Dimensions:
204         Datatype:   double
205         Attributes:
206             units    = 'meter2 second-1'
207             long_name = 'background vertical mixing coefficient f
208     Akp_bak
209         Size:      1x1
210         Dimensions:
211         Datatype:   double
212         Attributes:
213             units    = 'meter2 second-1'
214             long_name = 'background vertical mixing coefficient f
215     rdrg
216         Size:      1x1
217         Dimensions:
218         Datatype:   double
219         Attributes:
220             units    = 'meter second-1'
221             long_name = 'linear drag coefficient'
222     rdrg2
223         Size:      1x1
224         Dimensions:
225         Datatype:   double
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226         Attributes:
227             long_name = 'quadratic drag coefficient'
228     Zob
229         Size:      1x1
230         Dimensions:
231         Datatype:  double
232         Attributes:
233             units      = 'meter'
234             long_name = 'bottom roughness'
235     Zos
236         Size:      1x1
237         Dimensions:
238         Datatype:  double
239         Attributes:
240             units      = 'meter'
241             long_name = 'surface roughness'
242     gls_p
243         Size:      1x1
244         Dimensions:
245         Datatype:  double
246         Attributes:
247             long_name = 'stability exponent'
248     gls_m
249         Size:      1x1
250         Dimensions:
251         Datatype:  double
252         Attributes:
253             long_name = 'turbulent kinetic energy exponent'
254     gls_n
255         Size:      1x1
256         Dimensions:
257         Datatype:  double
258         Attributes:
259             long_name = 'turbulent length scale exponent'
260     gls_cmu0
261         Size:      1x1
262         Dimensions:
263         Datatype:  double
264         Attributes:
265             long_name = 'stability coefficient'
266     gls_c1
267         Size:      1x1
268         Dimensions:
269         Datatype:  double
270         Attributes:
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271         long_name = 'shear production coefficient'
272     gls_c2
273         Size:      1x1
274         Dimensions:
275         Datatype:  double
276         Attributes:
277         long_name = 'dissipation coefficient'
278     gls_c3m
279         Size:      1x1
280         Dimensions:
281         Datatype:  double
282         Attributes:
283         long_name = 'buoyancy production coefficient (minus)'
284     gls_c3p
285         Size:      1x1
286         Dimensions:
287         Datatype:  double
288         Attributes:
289         long_name = 'buoyancy production coefficient (plus)'
290     gls_sigk
291         Size:      1x1
292         Dimensions:
293         Datatype:  double
294         Attributes:
295         long_name = 'constant Schmidt number for TKE'
296     gls_sigp
297         Size:      1x1
298         Dimensions:
299         Datatype:  double
300         Attributes:
301         long_name = 'constant Schmidt number for PSI'
302     gls_Kmin
303         Size:      1x1
304         Dimensions:
305         Datatype:  double
306         Attributes:
307         long_name = 'minimum value of specific turbulent kine
308     gls_Pmin
309         Size:      1x1
310         Dimensions:
311         Datatype:  double
312         Attributes:
313         long_name = 'minimum Value of dissipation'
314     Charnok_alpha
315         Size:      1x1
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316         Dimensions:
317         Datatype:    double
318         Attributes:
319             long_name = 'Charnok factor for surface roughness'
320     Zos_hsig_alpha
321         Size:         1x1
322         Dimensions:
323         Datatype:    double
324         Attributes:
325             long_name = 'wave amplitude factor for surface roughness'
326     sz_alpha
327         Size:         1x1
328         Dimensions:
329         Datatype:    double
330         Attributes:
331             long_name = 'surface flux from wave dissipation'
332     CrgBan_cw
333         Size:         1x1
334         Dimensions:
335         Datatype:    double
336         Attributes:
337             long_name = 'surface flux due to Craig and Banner wave dissipation'
338     Znudg
339         Size:         1x1
340         Dimensions:
341         Datatype:    double
342         Attributes:
343             units      = 'day-1'
344             long_name = 'free-surface nudging/relaxation inverse time scale'
345     M2nudg
346         Size:         1x1
347         Dimensions:
348         Datatype:    double
349         Attributes:
350             units      = 'day-1'
351             long_name = '2D momentum nudging/relaxation inverse time scale'
352     M3nudg
353         Size:         1x1
354         Dimensions:
355         Datatype:    double
356         Attributes:
357             units      = 'day-1'
358             long_name = '3D momentum nudging/relaxation inverse time scale'
359     Tnudg
360         Size:         2x1
```



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361         Dimensions: tracer
362         Datatype: double
363         Attributes:
364             units      = 'day-1'
365             long_name = 'Tracers nudging/relaxation inverse time'
366     FSobc_in
367         Size: 4x1
368         Dimensions: boundary
369         Datatype: double
370         Attributes:
371             units      = 'second-1'
372             long_name = 'free-surface inflow, nudging inverse time'
373     FSobc_out
374         Size: 4x1
375         Dimensions: boundary
376         Datatype: double
377         Attributes:
378             units      = 'second-1'
379             long_name = 'free-surface outflow, nudging inverse time'
380     M2obc_in
381         Size: 4x1
382         Dimensions: boundary
383         Datatype: double
384         Attributes:
385             units      = 'second-1'
386             long_name = '2D momentum inflow, nudging inverse time'
387     M2obc_out
388         Size: 4x1
389         Dimensions: boundary
390         Datatype: double
391         Attributes:
392             units      = 'second-1'
393             long_name = '2D momentum outflow, nudging inverse time'
394     Tobc_in
395         Size: 2x4
396         Dimensions: tracer,boundary
397         Datatype: double
398         Attributes:
399             units      = 'second-1'
400             long_name = 'tracers inflow, nudging inverse time s'
401             _ChunkSize = [4 2]
402     Tobc_out
403         Size: 2x4
404         Dimensions: tracer,boundary
405         Datatype: double
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406         Attributes:
407             units      = 'second-1'
408             long_name   = 'tracers outflow, nudging inverse time
409             _ChunkSize = [4 2]
410     M3obc_in
411         Size:          4x1
412         Dimensions:    boundary
413         Datatype:      double
414         Attributes:
415             units      = 'second-1'
416             long_name   = '3D momentum inflow, nudging inverse tim
417     M3obc_out
418         Size:          4x1
419         Dimensions:    boundary
420         Datatype:      double
421         Attributes:
422             units      = 'second-1'
423             long_name   = '3D momentum outflow, nudging inverse ti
424     rho0
425         Size:          1x1
426         Dimensions:
427         Datatype:      double
428         Attributes:
429             units      = 'kilogram meter-3'
430             long_name   = 'mean density used in Boussinesq approxi
431     gamma2
432         Size:          1x1
433         Dimensions:
434         Datatype:      double
435         Attributes:
436             long_name   = 'slipperiness parameter'
437     LtracerSrc
438         Size:          2x1
439         Dimensions:    tracer
440         Datatype:      int32
441         Attributes:
442             long_name    = 'tracer point sources and sink activ
443             flag_values  = [0 1]
444             flag_meanings = '.FALSE. .TRUE.'
445     spherical
446         Size:          1x1
447         Dimensions:
448         Datatype:      int32
449         Attributes:
450             long_name    = 'grid type logical switch'
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451         flag_values = [0 1]
452         flag_meanings = 'Cartesian spherical'
453     xl
454         Size:      1x1
455         Dimensions:
456         Datatype:  double
457         Attributes:
458             units      = 'meter'
459             long_name = 'domain length in the XI-direction'
460     el
461         Size:      1x1
462         Dimensions:
463         Datatype:  double
464         Attributes:
465             units      = 'meter'
466             long_name = 'domain length in the ETA-direction'
467     Vtransform
468         Size:      1x1
469         Dimensions:
470         Datatype:  int32
471         Attributes:
472             long_name = 'vertical terrain-following transformation'
473     Vstretching
474         Size:      1x1
475         Dimensions:
476         Datatype:  int32
477         Attributes:
478             long_name = 'vertical terrain-following stretching factor'
479     theta_s
480         Size:      1x1
481         Dimensions:
482         Datatype:  double
483         Attributes:
484             long_name = 'S-coordinate surface control parameter'
485     theta_b
486         Size:      1x1
487         Dimensions:
488         Datatype:  double
489         Attributes:
490             long_name = 'S-coordinate bottom control parameter'
491     Tcline
492         Size:      1x1
493         Dimensions:
494         Datatype:  double
495         Attributes:
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496             units      = 'meter'
497             long_name   = 'S-coordinate surface/bottom layer width'
498     hc
499         Size:          1x1
500         Dimensions:
501         Datatype:      double
502         Attributes:
503             units      = 'meter'
504             long_name   = 'S-coordinate parameter, critical depth'
505     Cs_r
506         Size:          36x1
507         Dimensions:    s_rho
508         Datatype:      double
509         Attributes:
510             long_name   = 'S-coordinate stretching curves at RH0-p
511             valid_min   = -1
512             valid_max   = 0
513             field       = 'Cs_r, scalar'
514     Cs_w
515         Size:          37x1
516         Dimensions:    s_w
517         Datatype:      double
518         Attributes:
519             long_name   = 'S-coordinate stretching curves at W-poi
520             valid_min   = -1
521             valid_max   = 0
522             field       = 'Cs_w, scalar'
523     h
524         Size:          130x82
525         Dimensions:    xi_rho,eta_rho
526         Datatype:      double
527         Attributes:
528             units      = 'meter'
529             long_name   = 'bathymetry at RH0-points'
530             coordinates = 'lat_rho lon_rho '
531             field       = 'bath, scalar'
532             _ChunkSize  = [82 130]
533             standard_name = 'sea_floor_depth'
534     f
535         Size:          130x82
536         Dimensions:    xi_rho,eta_rho
537         Datatype:      double
538         Attributes:
539             units      = 'second-1'
540             long_name   = 'Coriolis parameter at RH0-points'
    
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541             coordinates = 'lat_rho lon_rho '
542             field        = 'coriolis, scalar'
543             _ChunkSize   = [82 130]
544     pm
545         Size:          130x82
546         Dimensions:    xi_rho,eta_rho
547         Datatype:      double
548         Attributes:
549             units       = 'meter-1'
550             long_name    = 'curvilinear coordinate metric in XI'
551             coordinates = 'lat_rho lon_rho '
552             field        = 'pm, scalar'
553             _ChunkSize   = [82 130]
554     pn
555         Size:          130x82
556         Dimensions:    xi_rho,eta_rho
557         Datatype:      double
558         Attributes:
559             units       = 'meter-1'
560             long_name    = 'curvilinear coordinate metric in ETA'
561             coordinates = 'lat_rho lon_rho '
562             field        = 'pn, scalar'
563             _ChunkSize   = [82 130]
564     angle
565         Size:          130x82
566         Dimensions:    xi_rho,eta_rho
567         Datatype:      double
568         Attributes:
569             units       = 'radians'
570             long_name    = 'angle between XI-axis and EAST'
571             coordinates = 'lat_rho lon_rho '
572             field        = 'angle, scalar'
573             _ChunkSize   = [82 130]
574     mask_rho
575         Size:          130x82
576         Dimensions:    xi_rho,eta_rho
577         Datatype:      double
578         Attributes:
579             long_name    = 'mask on RHO-points'
580             flag_values  = [0 1]
581             flag_meanings = 'land water'
582             coordinates = 'lat_rho lon_rho '
583             _ChunkSize   = [82 130]
584     mask_u
585         Size:          129x82
    
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586         Dimensions: xi_u,eta_u
587         Datatype:   double
588         Attributes:
589             long_name      = 'mask on U-points'
590             flag_values    = [0 1]
591             flag_meanings  = 'land water'
592             coordinates    = 'lat_u lon_u '
593             _ChunkSize    = [82 129]
594     mask_v
595         Size:        130x81
596         Dimensions: xi_v,eta_v
597         Datatype:   double
598         Attributes:
599             long_name      = 'mask on V-points'
600             flag_values    = [0 1]
601             flag_meanings  = 'land water'
602             coordinates    = 'lat_v lon_v '
603             _ChunkSize    = [81 130]
604     mask_psi
605         Size:        129x81
606         Dimensions: xi_psi,eta_psi
607         Datatype:   double
608         Attributes:
609             long_name      = 'mask on psi-points'
610             flag_values    = [0 1]
611             flag_meanings  = 'land water'
612             coordinates    = 'lat_psi lon_psi '
613             _ChunkSize    = [81 129]
614     zeta
615         Size:        130x82x19020
616         Dimensions: xi_rho,eta_rho,time
617         Datatype:   single
618         Attributes:
619             units          = 'meter'
620             long_name      = 'free-surface'
621             time           = 'ocean_time'
622             coordinates    = 'time_run time lat_rho lon_rho '
623             field          = 'free-surface, scalar, series'
624             _FillValue     = 9.999999933815813e+36
625             _ChunkSize    = [1 82 130]
626             standard_name = 'sea_surface_height'
627     ubar
628         Size:        129x82x19020
629         Dimensions: xi_u,eta_u,time
630         Datatype:   single
    
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631         Attributes:
632             units      = 'meter second-1'
633             long_name   = 'vertically integrated u-momentum comp
634             time       = 'ocean_time'
635             coordinates = 'time_run time lat_u lon_u '
636             field       = 'ubar-velocity, scalar, series'
637             _FillValue  = 9.999999933815813e+36
638             _ChunkSize  = [1  82 129]
639     DU_avg1
640         Size:      129x82x19020
641         Dimensions: xi_u,eta_u,time
642         Datatype:  single
643         Attributes:
644             units      = 'meter3 second-1'
645             long_name   = 'time averaged u-flux for 2D equations
646             time       = 'ocean_time'
647             coordinates = 'time_run time lat_u lon_u '
648             field       = 'DU_avg1, scalar, series'
649             _FillValue  = 9.999999933815813e+36
650             _ChunkSize  = [1  82 129]
651     DU_avg2
652         Size:      129x82x19020
653         Dimensions: xi_u,eta_u,time
654         Datatype:  single
655         Attributes:
656             units      = 'meter3 second-1'
657             long_name   = 'time averaged u-flux for 3D equations
658             time       = 'ocean_time'
659             coordinates = 'time_run time lat_u lon_u '
660             field       = 'DU_avg2, scalar, series'
661             _FillValue  = 9.999999933815813e+36
662             _ChunkSize  = [1  82 129]
663     vbar
664         Size:      130x81x19020
665         Dimensions: xi_v,eta_v,time
666         Datatype:  single
667         Attributes:
668             units      = 'meter second-1'
669             long_name   = 'vertically integrated v-momentum comp
670             time       = 'ocean_time'
671             coordinates = 'time_run time lat_v lon_v '
672             field       = 'vbar-velocity, scalar, series'
673             _FillValue  = 9.999999933815813e+36
674             _ChunkSize  = [1  81 130]
675     DV_avg1
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676         Size:      130x81x19020
677         Dimensions: xi_v,eta_v,time
678         Datatype:   single
679         Attributes:
680             units      = 'meter3 second-1'
681             long_name   = 'time averaged v-flux for 2D equations
682             time        = 'ocean_time'
683             coordinates = 'time_run time lat_v lon_v '
684             field       = 'DV_avg1, scalar, series'
685             _FillValue  = 9.999999933815813e+36
686             _ChunkSize  = [1   81  130]
687     DV_avg2
688         Size:      130x81x19020
689         Dimensions: xi_v,eta_v,time
690         Datatype:   single
691         Attributes:
692             units      = 'meter3 second-1'
693             long_name   = 'time averaged v-flux for 3D equations
694             time        = 'ocean_time'
695             coordinates = 'time_run time lat_v lon_v '
696             field       = 'DV_avg2, scalar, series'
697             _FillValue  = 9.999999933815813e+36
698             _ChunkSize  = [1   81  130]
699     u
700         Size:      129x82x36x19020
701         Dimensions: xi_u,eta_u,s_rho,time
702         Datatype:   single
703         Attributes:
704             units      = 'meter second-1'
705             long_name   = 'u-momentum component'
706             time        = 'ocean_time'
707             coordinates = 'time_run time s_rho lat_u lon_u '
708             field       = 'u-velocity, scalar, series'
709             _FillValue  = 9.999999933815813e+36
710             _ChunkSize  = [1   36   82  129]
711             standard_name = 'eastward_sea_water_velocity'
712     v
713         Size:      130x81x36x19020
714         Dimensions: xi_v,eta_v,s_rho,time
715         Datatype:   single
716         Attributes:
717             units      = 'meter second-1'
718             long_name   = 'v-momentum component'
719             time        = 'ocean_time'
720             coordinates = 'time_run time s_rho lat_v lon_v '
    
```



```
721             field          = 'v-velocity, scalar, series'
722             _FillValue     = 9.999999933815813e+36
723             _ChunkSize     = [1  36  81 130]
724             standard_name = 'northward_sea_water_velocity'
725     w
726         Size:          130x82x37x19020
727         Dimensions: xi_rho,eta_rho,s_w,time
728         Datatype:     single
729         Attributes:
730             units      = 'meter second-1'
731             long_name   = 'vertical momentum component'
732             time        = 'ocean_time'
733             coordinates = 'time_run time s_w lat_rho lon_rho '
734             field       = 'w-velocity, scalar, series'
735             _FillValue  = 9.999999933815813e+36
736             _ChunkSize  = [1  37  82 130]
737     temp
738         Size:          130x82x36x19020
739         Dimensions: xi_rho,eta_rho,s_rho,time
740         Datatype:     single
741         Attributes:
742             units      = 'Celsius'
743             long_name   = 'potential temperature'
744             time        = 'ocean_time'
745             coordinates = 'time_run time s_rho lat_rho lon_rho'
746             field       = 'temperature, scalar, series'
747             _FillValue  = 9.999999933815813e+36
748             _ChunkSize  = [1  36  82 130]
749             standard_name = 'sea_water_potential_temperature'
750     salt
751         Size:          130x82x36x19020
752         Dimensions: xi_rho,eta_rho,s_rho,time
753         Datatype:     single
754         Attributes:
755             long_name   = 'salinity'
756             time        = 'ocean_time'
757             coordinates = 'time_run time s_rho lat_rho lon_rho'
758             field       = 'salinity, scalar, series'
759             _FillValue  = 9.999999933815813e+36
760             _ChunkSize  = [1  36  82 130]
761             standard_name = 'sea_water_salinity'
762     shflux
763         Size:          130x82x19020
764         Dimensions: xi_rho,eta_rho,time
765         Datatype:     single
```

```
766         Attributes:
767             units          = 'watt meter-2'
768             long_name      = 'surface net heat flux'
769             negative_value = 'upward flux, cooling'
770             positive_value = 'downward flux, heating'
771             time           = 'ocean_time'
772             coordinates    = 'time_run time lat_rho lon_rho '
773             field          = 'surface heat flux, scalar, series'
774             _FillValue     = 9.999999933815813e+36
775             _ChunkSize     = [1  82  130]
776     sustr
777         Size:      129x82x19020
778         Dimensions: xi_u,eta_u,time
779         Datatype:  single
780         Attributes:
781             units          = 'newton meter-2'
782             long_name      = 'surface u-momentum stress'
783             time           = 'ocean_time'
784             coordinates    = 'time_run time lat_u lon_u '
785             field          = 'surface u-momentum stress, scalar, se
786             _FillValue     = 9.999999933815813e+36
787             _ChunkSize     = [1  82  129]
788     svstr
789         Size:      130x81x19020
790         Dimensions: xi_v,eta_v,time
791         Datatype:  single
792         Attributes:
793             units          = 'newton meter-2'
794             long_name      = 'surface v-momentum stress'
795             time           = 'ocean_time'
796             coordinates    = 'time_run time lat_v lon_v '
797             field          = 'surface v-momentum stress, scalar, se
798             _FillValue     = 9.999999933815813e+36
799             _ChunkSize     = [1  81  130]
800     bustr
801         Size:      129x82x19020
802         Dimensions: xi_u,eta_u,time
803         Datatype:  single
804         Attributes:
805             units          = 'newton meter-2'
806             long_name      = 'bottom u-momentum stress'
807             time           = 'ocean_time'
808             coordinates    = 'time_run time lat_u lon_u '
809             field          = 'bottom u-momentum stress, scalar, ser
810             _FillValue     = 9.999999933815813e+36
```

```

811         _ChunkSize = [1  82 129]
812     bvstr
813         Size:      130x81x19020
814         Dimensions: xi_v,eta_v,time
815         Datatype:  single
816         Attributes:
817             units      = 'newton meter-2'
818             long_name   = 'bottom v-momentum stress'
819             time        = 'ocean_time'
820             coordinates = 'time_run time lat_v lon_v '
821             field       = 'bottom v-momentum stress, scalar, ser
822             _FillValue  = 9.999999933815813e+36
823             _ChunkSize = [1  81 130]
824     time_offset
825         Size:      19020x1
826         Dimensions: time
827         Datatype:  double
828         Attributes:
829             long_name     = 'offset hour from start of run for c
830             standard_name = 'forecast_period'
831             units         = 'hours since 2013-05-18T00:00:00Z'
832             missing_value = NaN
833     s_rho
834         Size:      36x1
835         Dimensions: s_rho
836         Datatype:  double
837         Attributes:
838             units      = ''
839             long_name   = 'S-coordinate at RH0-poin
840             valid_min   = -1
841             valid_max   = 0
842             positive    = 'up'
843             standard_name = 'ocean_s_coordinate_g1'
844             formula_terms = 's: s_rho C: Cs_r eta: ze
845             field       = 's_rho, scalar'
846             _CoordinateTransformType = 'Vertical'
847             _CoordinateAxisType      = 'GeoZ'
848             _CoordinateZisPositive    = 'up'
849             _CoordinateAxes          = 's_rho'
850     s_w
851         Size:      37x1
852         Dimensions: s_w
853         Datatype:  double
854         Attributes:
855             units      = ''
    
```

```
856         long_name           = 'S-coordinate at W-points'
857         valid_min            = -1
858         valid_max            = 0
859         positive              = 'up'
860         standard_name         = 'ocean_s_coordinate_g1'
861         formula_terms         = 's: s_w C: Cs_w eta: zeta'
862         field                  = 's_w, scalar'
863         _CoordinateTransformType = 'Vertical'
864         _CoordinateAxisType    = 'GeoZ'
865         _CoordinateZisPositive = 'up'
866         _CoordinateAxes        = 's_w'
867     lon_rho
868         Size:                  130x82
869         Dimensions: xi_rho,eta_rho
870         Datatype: double
871         Attributes:
872             units              = 'degrees_east'
873             long_name           = 'longitude of RH0-points'
874             standard_name       = 'longitude'
875             field                = 'lon_rho, scalar'
876             _ChunkSize          = [82 130]
877             _CoordinateAxisType = 'Lon'
878     lat_rho
879         Size:                  130x82
880         Dimensions: xi_rho,eta_rho
881         Datatype: double
882         Attributes:
883             units              = 'degrees_north'
884             long_name           = 'latitude of RH0-points'
885             standard_name       = 'latitude'
886             field                = 'lat_rho, scalar'
887             _ChunkSize          = [82 130]
888             _CoordinateAxisType = 'Lat'
889     lon_u
890         Size:                  129x82
891         Dimensions: xi_u,eta_u
892         Datatype: double
893         Attributes:
894             units              = 'degrees_east'
895             long_name           = 'longitude of U-points'
896             standard_name       = 'longitude'
897             field                = 'lon_u, scalar'
898             _ChunkSize          = [82 129]
899             _CoordinateAxisType = 'Lon'
900     lat_u
```

```
901         Size:      129x82
902         Dimensions: xi_u,eta_u
903         Datatype:   double
904         Attributes:
905             units           = 'degrees_north'
906             long_name       = 'latitude of U-points'
907             standard_name   = 'latitude'
908             field           = 'lat_u, scalar'
909             _ChunkSize      = [82 129]
910             _CoordinateAxisType = 'Lat'
911     lon_v
912         Size:      130x81
913         Dimensions: xi_v,eta_v
914         Datatype:   double
915         Attributes:
916             units           = 'degrees_east'
917             long_name       = 'longitude of V-points'
918             standard_name   = 'longitude'
919             field           = 'lon_v, scalar'
920             _ChunkSize      = [81 130]
921             _CoordinateAxisType = 'Lon'
922     lat_v
923         Size:      130x81
924         Dimensions: xi_v,eta_v
925         Datatype:   double
926         Attributes:
927             units           = 'degrees_north'
928             long_name       = 'latitude of V-points'
929             standard_name   = 'latitude'
930             field           = 'lat_v, scalar'
931             _ChunkSize      = [81 130]
932             _CoordinateAxisType = 'Lat'
933     lon_psi
934         Size:      129x81
935         Dimensions: xi_psi,eta_psi
936         Datatype:   double
937         Attributes:
938             units           = 'degrees_east'
939             long_name       = 'longitude of PSI-points'
940             standard_name   = 'longitude'
941             field           = 'lon_psi, scalar'
942             _ChunkSize      = [81 129]
943             _CoordinateAxisType = 'Lon'
944     lat_psi
945         Size:      129x81
```

```
946         Dimensions: xi_psi,eta_psi
947         Datatype:    double
948         Attributes:
949             units          = 'degrees_north'
950             long_name      = 'latitude of PSI-points'
951             standard_name  = 'latitude'
952             field          = 'lat_psi, scalar'
953             _ChunkSize     = [81 129]
954             _CoordinateAxisType = 'Lat'
955     ocean_time
956         Size:          24x1
957         Dimensions:    ocean_time
958         Datatype:      double
959         Attributes:
960             units          = 'seconds since 2006-01-01 00:00:00'
961             long_name      = 'time since initialization'
962             calendar       = 'gregorian'
963             field          = 'time, scalar, series'
964             _ChunkSize     = 1
965             _CoordinateAxisType = 'Time'
966     time
967         Size:          19020x1
968         Dimensions:    time
969         Datatype:      double
970         Attributes:
971             long_name      = 'Forecast time for ForecastModel'
972             standard_name  = 'time'
973             units          = 'hours since 2013-05-18T00:00:00Z'
974             missing_value  = NaN
975             _CoordinateAxisType = 'Time'
976     time_run
977         Size:          19020x1
978         Dimensions:    time
979         Datatype:      double
980         Attributes:
981             long_name      = 'run times for coordinate = time'
982             standard_name  = 'forecast_reference_time'
983             units          = 'hours since 2013-05-18T00:00:00Z'
984             missing_value  = NaN
985             _CoordinateAxisType = 'RunTime'
986 >>
```