Daily mean fields

Daily mean, analysis and five-day forecast, target 1500 UTC

Surface parameters

1. temperature
2. salinity
3. currents
4. sea level
5. sea ice thickness
6. concentration
7. velocities

Multi Level parameters

1. potential temperature
2. salinity
3. currents

43 Levels (depths in metres)

1. 0
2. 5
3. 10
4. 15
5. 20
6. 25
7. 30
8. 40
9. 50
10. 60
11. 75
12. 100
13. 125
14. 150
15. 175
16. 200
17. 225
18. 250
19. 300
20. 400
21. 500
22. 600
23. 700
24. 800
25. 900
26. 1000
27. 1100
28. 1200
29. 1300
30. 1400
31. 1500
32. 1750
33. 2000
34. 2250
35. 2500

36. 2750
37. 3000
38. 3250
39. 3500
40. 4000
41. 4500
42. 5000
43. 5500

Region	Abbrev.	Source model	Resolution	Grid size	Geographical limits
Global	GLO	orca025	1/2°	721 x 359	180W to 180E 89S to 90N

The following table contains data volumes for a single daily mean.

Multiply by 6 for analysis plus five-day forecast – the maximum offering each day.

Region	3D pot. temp	3D salinity	3D currents	surface temp	surface salinity	surface currents	sea level	sea-ice
Global	7.6M	5M	10M	260K	210K	350K	160K	150K

Filenames will be of the form: metoffice_foam1_orca025_GLO_TEMP_b20091025_oi20091028.nc

Note: This data is exactly what was available from MyOcean. The data comes from the global 1/4° FOAM model.

Sample files and decode documents
The files are in NetCDF format (http://www.unidata.ucar.edu/software/netcdf/) and comply with CF conventions (http://cf-pcmdi.llnl.gov/). As such, the files are self-describing.

Grid resolution
The vertical and horizontal grids in these files are independent of model resolution, and will not be affected by future model upgrades.

Instantaneous 12-hourly fields

12-hourly instantaneous values, analysis and seven day forecast

Surface parameters

1. temperature
2. salinity
3. currents
4. sea level
5. mixed layer depth
6. sea ice thickness
7. concentration

Multi level parameters

1. in-situ temperature
2. salinity
3. currents

Note: the sub-surface temperature is in-situ temperature, in contrast to the daily mean files, which contain potential temperature.

43 Levels (depths in metres)

1. 0
2. 5
3. 10
4. 15
5. 20
6. 25
7. 30
8. 40
9. 50
10. 60
11. 75
12. 100
13. 125
14. 150
15. 175
16. 200
17. 225
18. 250
19. 300
20. 400
21. 500
22. 600
23. 700
24. 800
25. 900
26. 1000
27. 1100
28. 1200
29. 1300
30. 1400
31. 1500
32. 1750
33. 2000
34. 2250
35. 2500
36. 2750

37. 3000
38. 3250
39. 3500
40. 4000
41. 4500
42. 5000
43. 5500

Region	Abbrev.	Source model	Resolution	Grid size	Geographical limits
Global	GL4	orca025	1/4°	1440 x 692	0E to 360E 83S to 90N

The following table contains data volumes for a single validity time.

There will be 15 validity times produced per day (analysis plus seven-day forecast).
Total data volume per day is therefore around 1.2 GB.

Region	3D in-situ temp	3D salinity	3D currents	surface temp	surface salinity	surface currents	sea level	mixed layer depth	sea-ice
Global	27M	17M	34M	900K	770K	1.3M	500K	770K	250K

As with the daily mean data, each file contains a single variable and a single validity time. Filenames will be of the form:

metoffice_foam1_orca025_GL4_TEMP_b20091025_oi20091028_12.nc

Note: This data was not available from MyOcean. The data comes from the global 1/4° FOAM model.

Sample files and decode documents

The files are in NetCDF format (http://www.unidata.ucar.edu/software/netcdf/) and comply with CF conventions (http://cf-pcmdi.llnl.gov/). As such, the files are self-describing.

Grid resolution

The vertical and horizontal grids in these files are independent of model resolution, and will not be affected by future model upgrades.

Dataset structure and file names

Each file contains data for:

* the full spatial coverage of the model domain or tile
* one variable or variable group
* a single day

For example an analysis and six-day forecast is distributed in seven daily files, each of which contain a single daily mean or multiple higher-frequency values.

The filenames contain fields that identify the model, domain, variable and time of the contents:

metoffice_foam1_orca025_GL4_CRYS_b20091025_dm20091024[_00].nc

* metoffice: production centre that produced the file
* foam1: model system and version
* orca025: model configuration, see tables above
* GL4: region abbreviation, see tables above (GLO for ½ degree, GL4 for ¼ degree)
* CRYS: variable or variable group, see table below
* b20091025: bulletin (production) date YYYYMMDD
* dm20091024: temporal type (two letters, see below), then data validity date YYYYMMDD
* _00: validity hour (optional – only included for sub-daily instantaneous fields, if each validity time is in a different file)

Filename variable groups:

TEMP   Temperature (including SST)
PSAL   Salinity
RFVL   Water velocities
CRYS   Ice concentration, thickness, and velocities
ASLV   Sea level anomaly
MLDP   Mixed layer depth

Surface temperature, salinity and currents use region abbreviations followed by "-SRF".

For example, a surface temperature file in the ACC region will be called:

metoffice_foam1_orca025_ACC-SRF_TEMP_b20091025_dm20091024.nc

Temporal types are:

dm   daily mean
hi   hourly instantaneous
oi   other instantaneous (e.g. 3-hourly, 12-hourly)

The data are "packed" as 16-bit (short) integers using a scale factor and offset to reduce data volumes.

To unpack and recover the true value, use the following formula: float_value = (short_value * scale_factor) + add_offset

The scale_factor and add_offset are contained in the NetCDF file metadata.

Many NetCDF tools will perform this transformation automatically.