Installation: what is necessary?

Operating system:

- ☑ Linux, Mac: terminal
- ☑ Windows: Cygwin

Compilers:

- ☑ Fortran 77 — g77
- ☑ Fortran 95 — gfortran, ifort, pgf

Libraries:

- ☑ NetCDF: output format
- ☑ Gnuplot: plotting tools

Visualization:

- ☑ ncView, ncBrowse, Panoply: quick view of file content
- ☑ Octave/Matlab

Installation

Instructions available at:
http://modb.oce.ulg.ac.be/mediawiki/index.php/Diva_installation

1. Register to the user group: http://groups.google.com/group/diva_users
2. Download the last version: http://modb.oce.ulg.ac.be/mediawiki/upload/DIVA/releases/GODIVA_07_2012.tar.gz
3. Extract the archive:

```
.
|-- DIVA3D
|   |-- bin
|   |-- divastripped
|   |   |-- divawork
|   |   |-- gnuwork
|   |   |-- input
|   |   |-- meshgenwork
|   |   `-- output
|   `-- src
|       `-- Fortran
`-- JRA4
    `-- Climatology
        |-- input
        `-- output
```

- bin: contains binaries
- divastripped: directory for 2D runs
- src: source code
- JRA4/Climatology: directory for 4D runs

Installation

4. Compilation:
   - Edit file `divacompile_options`:

```
...
compiler=gfortran
flags='-O3'
nclib=/usr/local/lib/netcdf3ifort/libnetcdf.a
...
```

   - Run `divacompileall`
   - Check file `compilation.log`:

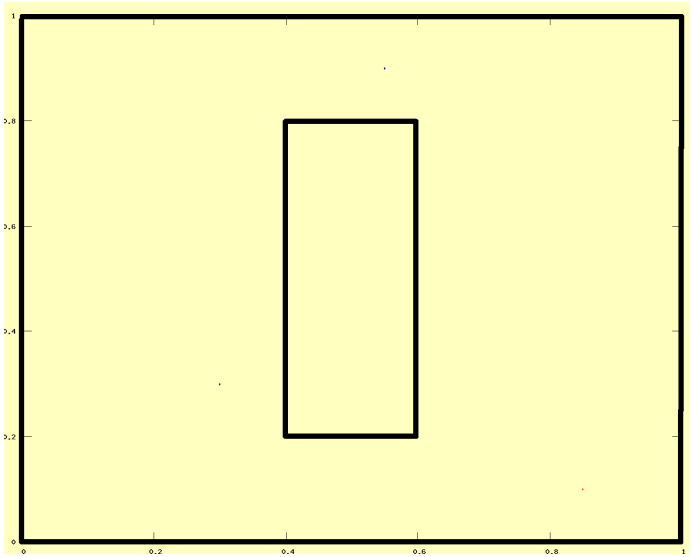
```
Compilation time:  Fri Oct 5 12:05:38 CEST 2012
compiler:          ifort
compilation flags: -O3
Calc directory:       1/1   program compiled
...
-------------------------------------------------------------
TOTAL:                93/93 programs compiled
-------------------------------------------------------------
Binaries are located in directory: ...
```

5. Run the code:
   - Go to DIVA3D/divastripped/
   - Run `divatest`

Input files

1. Contour file — `coast.cont`
2. Data file — `data.dat`
3. Parameter file — `param.par`

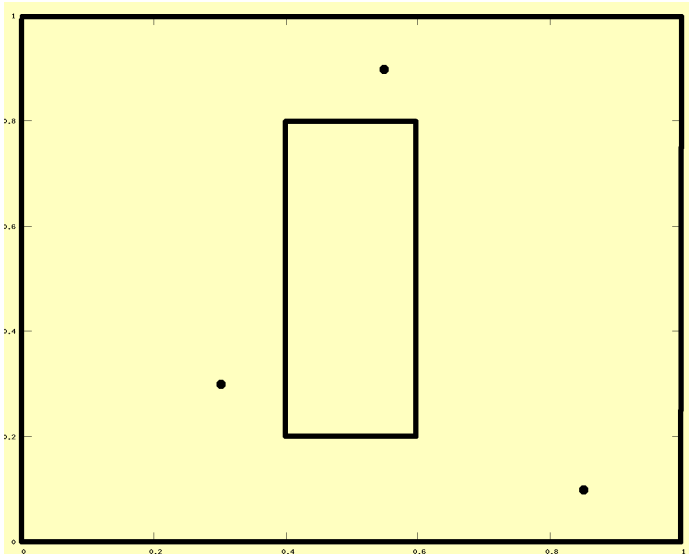
```
2
4
0 0
1 0
1 1
0 1
4
0.4 0.2
0.4 0.8
0.6 0.8
0.6 0.2
```



Input files

1. Contour file — `coast.cont`
2. Data file — `data.dat`
3. Parameter file — `param.par`

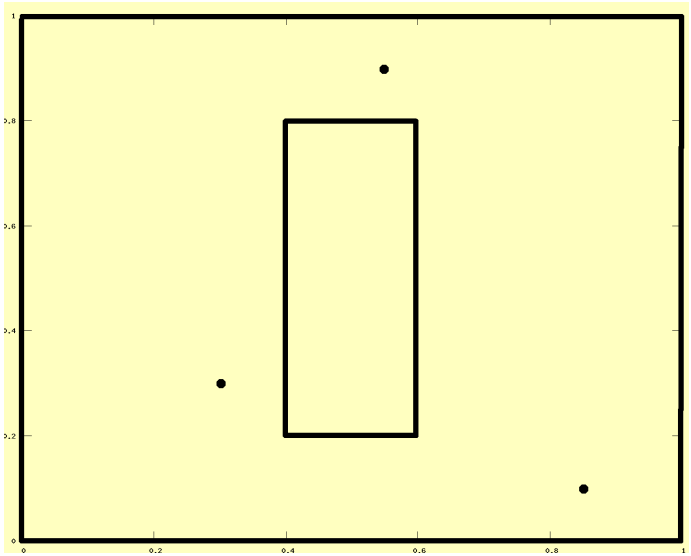
```
0.3 0.3 1
0.55 0.9 -1
0.85 0.1 0.2
```



Input files

1. Contour file — `coast.cont`
2. Data file — `data.dat`
3. Parameter file — `param.par`

```
# Correlation Length lc
0.2
# icoordchange
0
# ispec
11
# ireg
0
# xori
0
# yori
0
# dx
0.02
# dy
0.02
# nx
51
# ny
51
# valex
-99
#snr
1.0
# varbak
1.0
```



Analysis parameters

```
# Correlation Length lc
0.2
# icoordchange
0
# ispec
11
# ireg
0
# xori
0
# yori
0
# dx
0.02
# dy
0.02
# nx
51
# ny
51
# valex
-99
#snr
1.0
# varbak
1.0
```

- L_c: correlation length
- $icoord$: coordinate change
- $ispec$: output field selection
- $ireg$: background field

- $xori, yori, dx, dy, nx, ny$: output grid specification
- $valex$: exclusion value

- snr: signal-to-noise ratio
- $varbak$: variance of the background field

Analysis parameters

```
# Correlation Length lc
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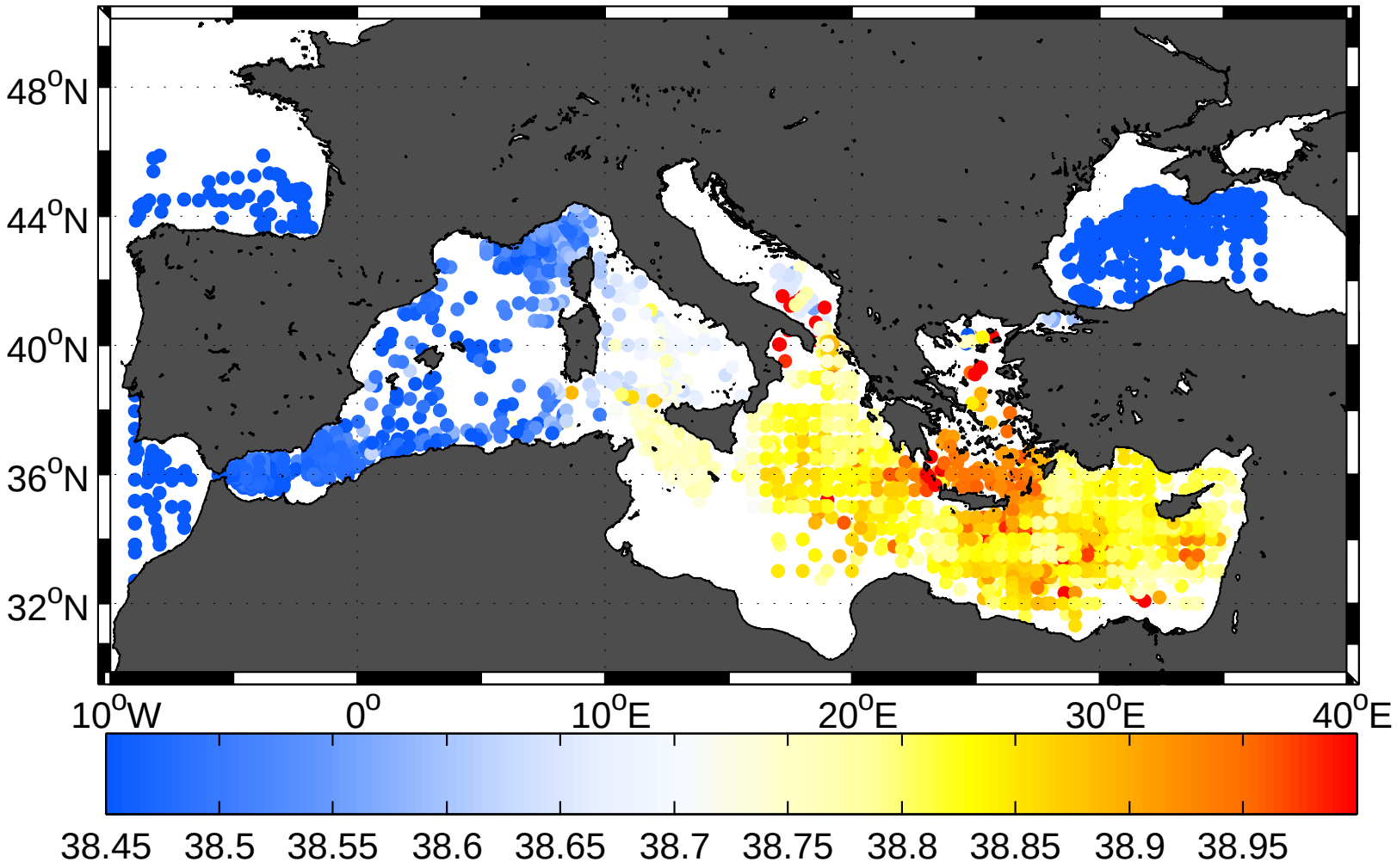
- $varbak$: variance of the background field

Example: salinity in the Mediterranean Sea

Input: Data, contour, parameters

Diva commands: `divamesh`, `divacalc`



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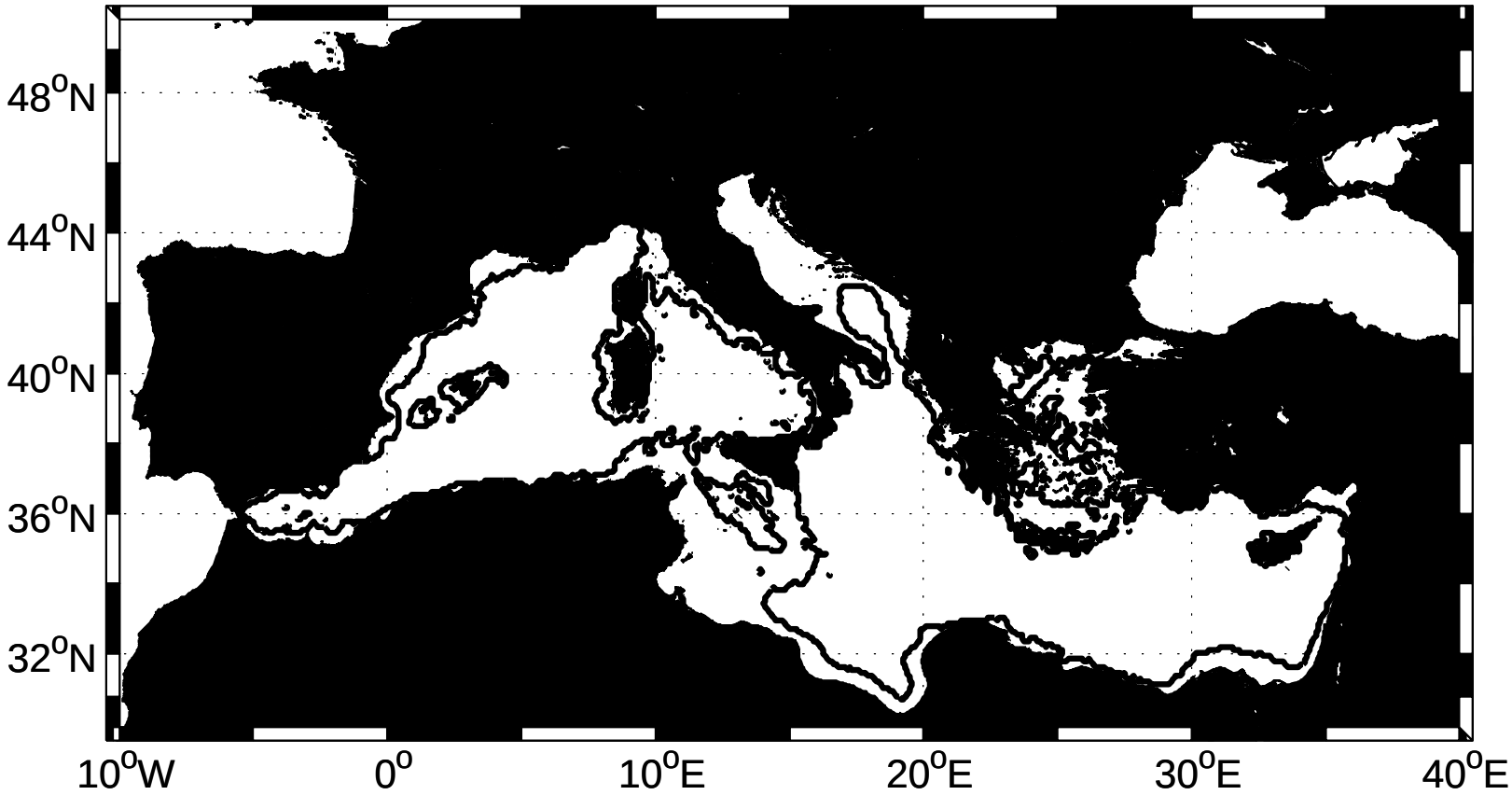


Example: salinity in the Mediterranean Sea

Input: Data, contour, parameters

Diva commands: `divamesh, divacalc`

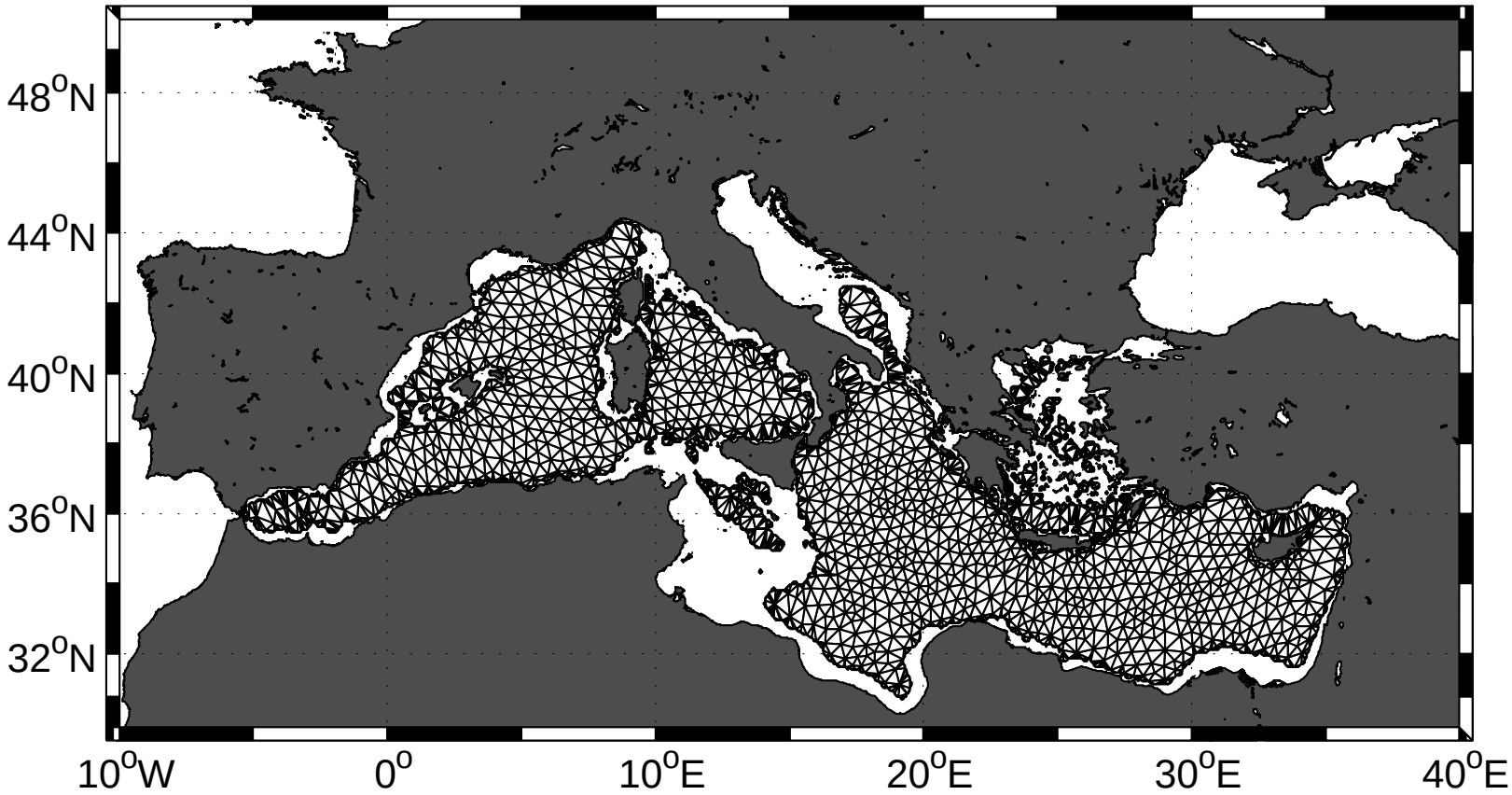
2Dexample : vi

```
# Correlation Length lc in km or degree??? according to param icoordchange
2
# icoordchange (=0 if position of data in km ; =1 if position of data in degree)
2
# ispec (output files required, comments to come)
0
# ireg
2
# xori (origin of output regular grid, min values of X)
-7
# yori (origin of output regular grid, min values of Y)
30.25
# dx (step of output grid)
0.09
# dy (step of output grid)
0.0625
# nx max x of output grid
500
# ny max y of output grid
250
# valex (exclusion value)
-99
# snr signal to noise ratio
0.5
# varbak variance of the background field 2.5
1
```

Example: salinity in the Mediterranean Sea

Input: Data, contour, parameters

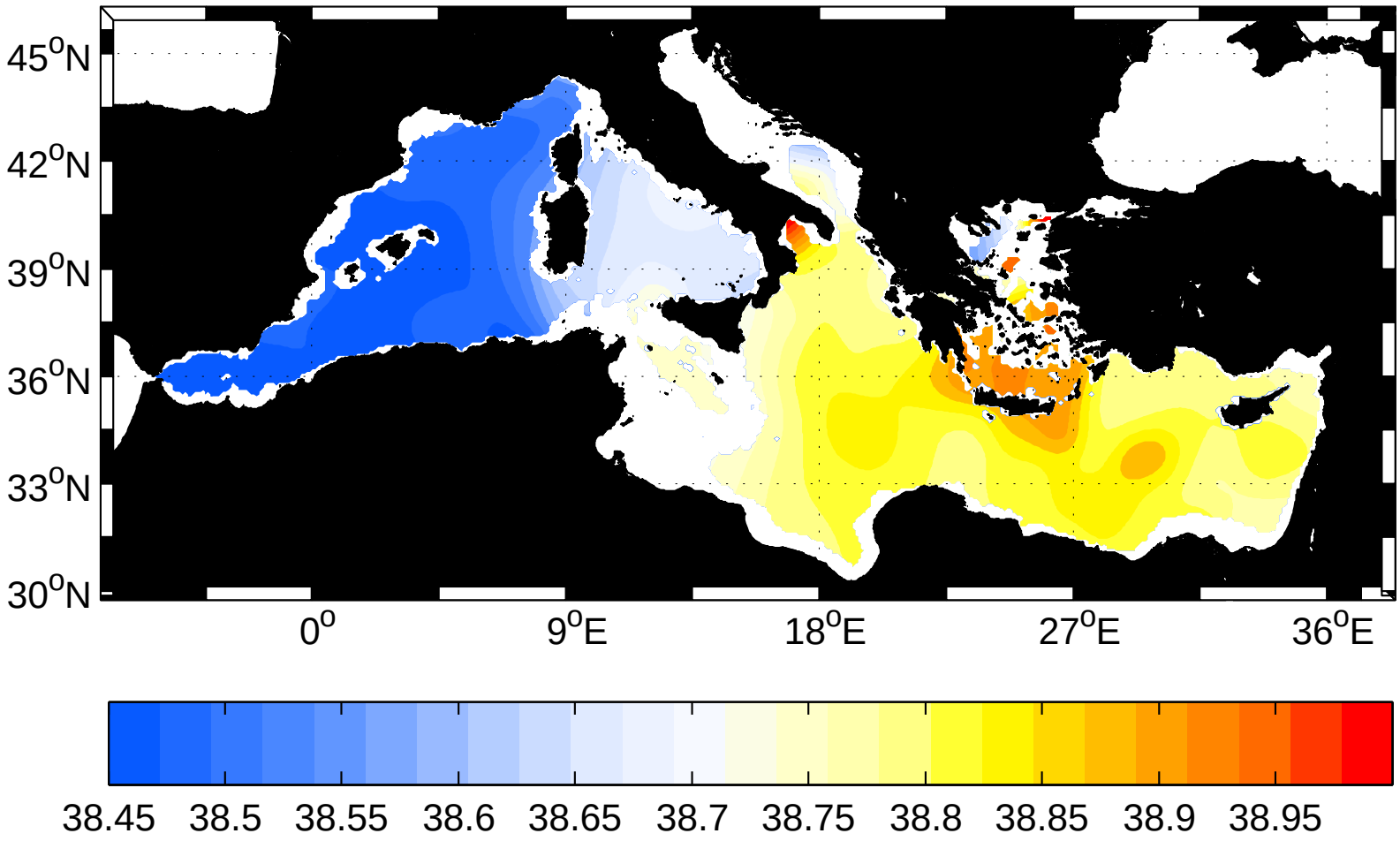
Diva commands: `divamesh`, `divacalc`



Example: salinity in the Mediterranean Sea

Input: Data, contour, parameters

Diva commands: `divamesh, divacalc`



Example: salinity in the Mediterranean Sea

Now play with analysis parameters: L, λ, ...

2Dexample : vi

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