MICOM DIAGNOSTICS Version 1 Matlab PACKAGE

Detelina Ivanova

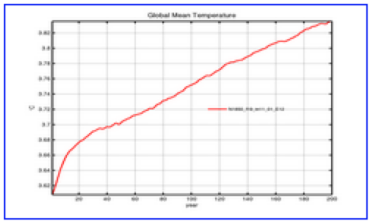
RG1 Meeting

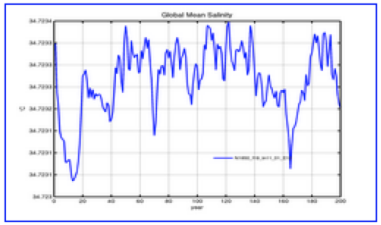
25/03/2015

MICOM DIAGNOSTICS PACKAGE

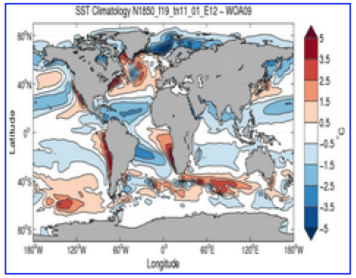
MICOM Diagnostics for N1850_f19_tn11_01_E12 Compared to Observations

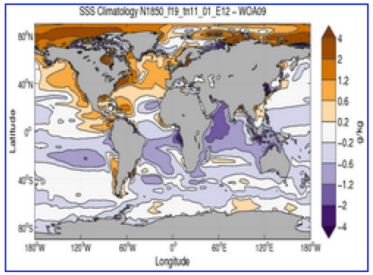
Global Means (Volume Averaged)



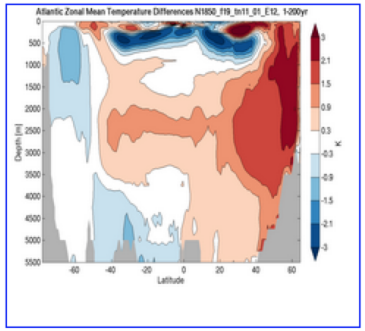


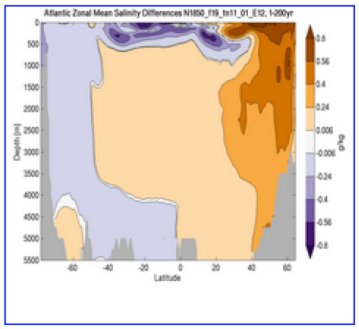
2-D Fields (Climatologies)



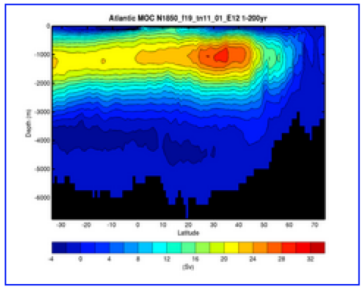


Zonal Means





Meridional Overturning Circulation



MICOM_DIAG Content

- NCO scripts – creating monthly, seasonal and annual climatologies
- Matlab scripts –creating global horizontal fields of T & S on regular grid; global and regional (Atlantic, Indo-Pacific) vertical zonal means of T, S & PD ; global and regional MOC (isopycnic or depth coordinates); time series in 3 locations of AMOC

Supported MICOM Grid configurations

- 2deg: tnx2v1 -> 2x2
- 1deg: tnx1v1 -> 1x1
- 0.25deg: tnx0.25v1 -> 0.25x0.25

MICOM_DIAG Content

- NCO scripts:

ann_av_hy.csh – creates annual/seasonal climatology from annual/monthly model output

Usage:
./ann_avg_hy.csh $DATE_FORMAT $FIRST_YEAR $LAST_YEAR
$DATE_FORMAT: “yyyy” – annual model output or “yyyy-mm” for monthly model output

Example: ./ann_avg_hy.csh yyyy 1 200
Note: no monthly weighting

MICOM_DIAG Content

- NCO scripts:

mon_climo.csh – creates monthly climatologies

Usage: ./mon_climo.csh $DATE_FORMAT $FIRST_YEAR $LAST_YEAR

Example: ./mon_climo.csh yyyy-mm 171 175

MICOM_DIAG Content

- Matlab scripts

temp2d/saln2d_climat_diff_xxx_woaxx.m

Horizontal plots of mean model climatology of T & S at different depths and differences with observations (WOA09 or WOA13) and differences with Control Case

atlantic_zonalmean_diff_obs/cntrl_woaxx_xxx.m

indopac_zonalmean_diff_obs/cntrl_woaxx_xxx.m

Vertical zonal means of T, S & PD for Atlantic and Indo-Pacific compared to observations and Control Case

MICOM_DIAG Content

- Matlab Scripts

plot_moc.m

plots the Meridional Overturning Circulation for region of choice: 1- Atlantic; 2- Indo-Pacific; 3- Global
and choice of vertical coordinates (0 – isopycnal; 1- depths)

amoc_ts_3exp.m

plots AMOC Time Series from extracted time series of MOC variables in 3 North Atlantic locations and for multiple experiments

MICOM_DIAG Location

Grunch: /work-common/shared/bjerknes/diagnostics/Packages/MICOM_DIAG

Grunch: /work-common/shared/noresm/diagnostics/Packages/MICOM_DIAG

Hexagon:/work/shared/noresm/diagnostics/Packages/MICOM_DIAG

Norstore: /projects/NS2345K/diagnostics/Packages/MICOM_DIAG

Usage on Grunch/Hexagon

- Grunch:

Copy in your local directory the Matlab and NCO codes from:
/work-common/shared/bjerknes/diagnostics/Packages/MICOM_DIAG/codes
Or
/work-common/shared/noresm/diagnostics/Packages/MICOM_DIAG/codes

- Hexagon:

Copy in your local directory the Matlab and NCO codes from:
/work/shared/noresm/diagnostics/Packages/MICOM_DIAG/codes

Local usage

- With access to Norstore: /projects/NS2345K/diagnostics/Packages/MICOM_DIAG/
- With no access:

Contact: Detelina Ivanova, detelina.ivanova@nersc.no

- Future plan to create SVN depository

Issues

- Packed data (“2” in ocn_in)
- Micom tripole grids have +1 element (385) in their model output
- Deriving annual climatologies from monthly model output should be weighted

Next MICOM DIAGNOSTICS version

- Converting to NCL
- Including metrics for SSH, U,V, MLD
- Automated macro-script
- SVN repository