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Descriptions of contents:

Ferret

Ferret is a computer graphing and analysis program designed for oceanographers and meteorologists to work with large gridded data sets. In order for Ferret to run on Windows machine, x windows must be run for the display. The x windows program chosen here is Xming, but if you have an x windows program already installed, it should work with that and do not install Xming onto your computer. The version of Ferret on this disk runs on Windows XP/NT/9x. For more information on Ferret, look at the user's guide or go to http://ferret.wrc.noaa.gov/Ferret/ferret_home.html. The authors wish to acknowledge use of the Ferret program for analysis and graphics in this Atlas. Ferret is a product of NOAA's Pacific Marine Environmental Laboratory. (Information available at <http://ferret.pmel.noaa.gov/Ferret/>)

This program is command line driven meaning typed commands are sent to Ferret to perform calculations on the data and to produce graphs. Since it often takes several commands to load the data, set the correct parameters on the graph and do any other calculations necessary, journal files are often created to combine all these commands into one text file that can be called each time you want to create a certain graph. There are several journal files on this disk that graph temperature, salinity, dynamic height, etc. For the beginner user, the Atlas graphical user interface (GUI) enters all the commands into Ferret based on the choices made in the GUI. For the advanced user who wishes to create their own plots not included in the GUI, look at the jnl files that have already been created (in C:\marineatlas\ferret\TMAP\go) as a starting place to creating your own jnl files. The Ferret website also offers tutorials on how to use Ferret.

Xming

Xming is an X Window Server for Windows which runs on XP, Vista and Windows7. The Public Domain version of Xming is used in the Atlas as the graphical output for the plots made in Ferret. If you already have an x windows program, please do not install Xming. The authors wish to thank Colin Harrison for Xming. For more information see: <http://www.straightrunning.com/XmingNotes/> and <http://sourceforge.net/projects/xming>.

User's manuals for Ferret

User's guides are provided for Ferret.

Netcdf gridded data files

RG_ArgoClim_Temp.nc and RG_ArgoClim_Psal.nc are 4 dimensional netcdf files containing gridded Argo temperature and salinity data for the globe from 60 degrees to -60 degrees. Besides the latitude and longitude dimensions, there are 58 depth levels starting at 2.5 dbars to 1975 dbars. The depth levels given are the middle of the depth box. The size of the boxes are not uniform throughout the water column. The final dimension is time and there are monthly averages for each month for starting in Jan 2004.

RG_ArgoClim_Real_Time.nc is a 3 dimensional netcdf file containing gridded Argo temperature and salinity data for the equatorial region from -30 to 30 degrees. There are several depth levels going down to 600 dbars. This real time netcdf file is produced every 10 days and contains the most recent possible snapshot of Argo data within that 10 day time period. A new file is available every 10 days.

aviso_grid.nc is a 3 dimensional netcdf file containing gridded satellite altimeter data for the globe and monthly values starting in January 2004 and continuing through the most recently available data. The grid contains modified Copernicus Climate Change Service (C3S) information [2004 – 2017]. <https://cds.climate.copernicus.eu/cdsapp#!/dataset/satellite-sea-level-global>

etopo2_grid.nc is a 2 dimensional netcdf file containing the bathymetry in 2 minute detail. For each 2 minute box, a height value is provided. This file is used to draw in the land.

etopo6_grid.nc is the same as etopo2_grid.nc except the bathymetry is in 6 minute detail.

etopo12_grid.nc is similar to etopo2_grid.nc in 12 minute bathymetry.

reynolds_sst_grid.nc is a 3 dimensional netcdf file containing Reynolds sea surface temperature in monthly values, starting in January 2004 and including the most recent month available.

AGVA_grid.nc is a 4 dimensional netcdf file containing the Absolute Geostrophic Velocities from Argo (AGVA) and monthly values starting in January 2004 and continuing through the most recent month available.

holte_argo_mld.nc is a 3 dimensional netcdf file containing climatology of monthly mixed layer depths and properties averaged into 1 degree bins, starting in January 2000 and continuing through the most recently available data.

Ferret journal files

There are several ferret journal files included on this disk. The files usually follow the naming convention of fer_program_name.jnl. The "fer" means it is a journal file for Ferret. The

program_name should provide some short description of the program and ".jnl" means it is a journal file. These journal files are designed to load in data, set graphing parameters and create the desired graph.

Instructions on how to start using the Global_Marine Atlas

Step 1: Double click on Global_Marine_Atlas_setup.exe to copy the programs to your C:\ drive. This program will create a C:\marineatlas folder on your computer which will contain all the components of the DVD.

Step 2: After everything is installed, a Global_Marine_Atlas.exe shortcut should appear on your desktop. Double click on this to start the Atlas.

Step 3: The welcome page for the Atlas should appear. If you already have an X server installed, make sure to start it before trying to make any plots. Next, pick one of the options: Map view, Vertical section, Time series, Line drawing, or Products and start creating plots.

Update button:

Clicking on the update button will ask the Atlas to check if there are any data updates available on the ftp server. If new data is available, the Atlas will take it off the ftp server and place it in the correct place on your hard drive. This button should be able to check both the real time data and the monthly datasets. The goal is to have a monthly update with new Argo and Reynolds SST data each month by the 15th for the previous month. The goal is to have a real time update with only Argo data every 10 days. The update process can take time depending on the speed of your connection.

To quit the Atlas and Xming:

Click "Exit Atlas only" if you plan on using the Xserver without the Atlas running, or click on "Stop Xserver, close plot windows, exit Atlas" to quit the Xserver and the Atlas.

To uninstall these programs and remove them from your hard drive, go to c:\marineatlas\uninstall and double click on the unins000 file.

Other Acknowledgements:

Winteracter was used to make the user interface of the Atlas. See <http://www.winteracter.com/iss.htm> for details.

GNU Wget is a free software package used to retrieve files using HTTP, HTTPS and FTP. In this case, it is used to update the Atlas. For more information see: <http://www.gnu.org/software/wget>

gzip is another free software program used in the Atlas. For more information see: <http://www.gzip.org>