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Routines in this directory allow the user to extract current time series from an HF radar location and make polar plots.

The user is prompted for the file containing the current information. It is assumed that the currents are saved with the variable name TUVorig.

Example scripts and plots for COCMP / CenCOOS.

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Getting Started:

1. User must have the m_map toolbox installed.
2. User must have the HFR_Progs toolbox installed.
3. Put this collection in a Matlab script folder, and set up the Matlab search path.
4. Run the routine GenerateHFRosePlotTest by typing:

```
[PolarDataIn]=GenerateHFRosePlotTest();
```

Choose the file ExampleTotals.mat when asked to choose a file containing currents information. The selection of data is prompt driven.

The user can choose a different file containing current information if so desired.

Outputs:

The user is prompted to save: (1) a polar histogram in text file format, (2) a black and white polar plot of the histogram, and (3) a color polar plot of the histogram. These files are saved in the directory containing the input file of currents.

See the folder ExampleOutPut for examples of saved plots and text files.

Routine Flow:

GenerateHFRosePlotTest.m - The driver routine. Prompts user for specifications of file, selects data, obtains histograms, saves files, etc. Should be rewritten and "compartmentalized", but the form of the final routine will depend on the final input / output methods, so the routine left as is for now.

GenerateHFRosePlot.m - Creates the black and white polar figure.

GenerateHFRosePlotColor.m - Creates the color polar figure.

myhist2dRose.m - Used to get the 2d histogram. An old routine djinned up years ago.

CovertComponentsToSpeedDirRose.m - To go from east/west and north/south velocities to speed and direction.

PutOutTextFileRose.m - To print out the summary analysis information and the polar histogram data.

Selection of Data:

User is prompted for thresholding (analyzing only the data above and/or below given speed limits).

User is prompted for date restrictions.

User is prompted for hourly restrictions. The hour can "wrap" (go past 24 hours GMT, i.e., from 23 to 5 hours).

The percentage of data contained within the speed limits is printed on the figures and in the saved text file.

Map Selection:

A map is not displayed. The grid points of the TUV structure are displayed on the screen, and the user is asked to select the points with a mouse click. The routine is far more flexible this way.

Data/File Selection:

Only one file is selected at a time (the example file contains one month worth of data). This may need to be modified depending

on how data is archived on the CenCOOS storage site. I have routines to allow the loading of data from multiple files if needed, but thought that level of detail was overkill until a decision about data storage and access is made.

The routines can be djinned up to interface with other routines that read CODAR format, if necessary. As we are not storing data in CODAR format at the moment, I didn't think that was needed. Feel free to contact me for help with this as required.

Color Scale!!!!

Using the upper speed limit (or less than the upper thresholding limits) presented by the program yields the greatest color range. Picking a higher thresholding limit just pushes most of the colors to a low level. Option is left in case user wants a standard scale across pictures.
