Ridge_DE_1998   Folder Description

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Main Folders:

- **Data:** Contains raw data and matlab-format (.mat) files. Also contains Garmin Data. I have not analyzed any of the Garmin data.
- **Docs:** Contains field logs to explain the raw data and other documentation.
- **GPS:** Contains Static and Kinematic processed GPS data from the cross-dome profiles
- **Matlab_scripts:** Contains all the matlab script files to load and plot the data
- **Plots:** Contains postscript versions of the plots and also the associated matlab files (.m and .mat) that can be used to automatically re-generate the plot.
- **Layer_Model:** Layer Model files. I have made no attempt to clean this folder up.
- **Satellite_images:** contains annotated AVHRR images that show the ridges, ice streams, and the radar profiles. Files with extension .idr are Island Draw files. The file ISE_map.idr should give the annotated satellite image that includes labels for profiles.

Profile Names:

Main cross-margin profiles are named edip-east, emarC, and emarW for the East, Central, and Western crossings of Ice Stream E. Profiles across Ridge BC are named edomeE and edomeW for the eastern and western profiles, respectively. Profiles parallel to the margin are refered to as EparaN and EparaS for north and south profiles.

Data files (in Data Folder):

Most of the plotting routines work from the raw data. The plot script concatenates the files, performs bandpass filtering, and corrects for inconsistencies in pressure. I have saved most of the final assembled and filtered profiles that were used for layer picking. Data for the picked layers is saved in a separate file, usually with the same name. I have not done any bed reflection amplitude analysis for Ridge DE – The layers would need to be re-picked using Tony's picking routines to get the reflection amplitude values. I only picked the layers to get their shapes.

Image Data:

- Cross Margin: edip-east_data.mat, emarC_data.mat, emarW_data.mat
- Dome profiles: edomeE_noglitch.mat, EdomeW_glitch and noglitch,
- Margin Parallel profiles: eparanorth_data.mat, eparasouth_data.mat

Relevant Matlab Variables:
There may be a few other variables, but these are the important ones.

Hpos	Horizontal position (m)
Time	Travel time (s)

Filtdata	Matrix of filtered data
Pressure	Pressure record
Depth	Depth corresponding to travel time using 84m/us
Low/High_Corner_Freq	Frequencies used for the Butterworth filter
Xinc	scope sweep speed (horizontal scale)
Yinc	scope vertical scale (volts)
Averages	Number of stacks for each measurement
BikeCount	Number of ticks from the bike wheel.
RDE_KIN/RDE_STATE	EdomeE_noglitch – only. Kinematic and static GPS results. In polar stereographic coordinates. (last 3 columns)
Dist_kin and dist_poles (edomeE/W_noglitch-only)	Distance along profile calculated from variabiles above. Use plot(dis_kin, RDE_KIN(:,4)) to get an elevation profile. These GPS variables were calculated from GPS/load_rdegps.m
Glitch_time, Glitch_wave (edomeE/W_noglitch-only)	Shows the calculated "glitch" that was removed from each of the original waveforms. Glitch_wave was calculated by windowing the glitch and calculating its principal component in each waveform. See remove_glitch.m in the matlab_scripts folder for more information on this.

Layer Data:

- EdomeE_layer.m, edomeW_layer.m

Relevant Matlab Variables Common to all Layer Data files: The dimensions of these should correspond to the image data.

Hpos	Horizontal position (should be the same as the image data).
Bed_ieq	Ice Equiv. Depth for bed reflection
Bed_true	True Depth for bed reflection
Layer_time	Matrix of travel time for each layer. Row = layer number, Column = Horizontal position corresponding to Hpos. Last row contains values for the bed.
Layer_depth_ieq and _true	Matrix of ice-equivalent layer depth and true layer depth. Last row contains values for the bed.
Int_avg_velDE	Integrated average ice velocity for each travel time in variable time for Ridge DE. Calculated from dens_prof.m

Plotting routines (in Matlab Scripts Folder)

The plot routines in this folder are pretty much self explanatory. The routines that DON'T begin with PLOT are matlab scripts that are used within the plotting routines. Do not remove them from this folder.

Profile Plots

Plot_EmarE.m (and EmarC, EmarW) Plots the image, corrected for surface elevation.
Plot_edomeE_noglitch and edomeW. Plots the cross-dome profiles corrected for GPS surface elevation.
Plot_epara_north (and south). Plots the margin-parallel profiles with elevation correction.
Plot_cmp.m. Plots the results of the Central Midpoint Profile. Use script edome_vel.m to get an analysis of the travel time calculated from the CMP measurements.