CIEG 680 Homework 2 Due TUESDAY, MAR, 11

1. DD 3.2
2. DD 3.3
3. DD 3.4
4. DD 3.5
5. DD 3.7
6. Go to the Field Research Facility web page (frf.usace.army.mil) and download all the bathymetry data for 2006 (click DATA and then bathymetry on the left). These data are collected by a large amphibious buggy with GPS positioning to yield profile data along specific cross-shore lines. The data is in their format (.3D files) and you will need to load each individually into excel to remove gaps etc. The easiest way is to open in excel and remove the 1st, 3rd, 4th, 5th and last columns. You will not need these. Do not remove column 2 or 6, 7, 8. Column 2 is the profile line, and columns 6,7,8 are x,y,z respectively.

   Get this data into matlab. We are interested only in profile lines 62 and 190 for this problem. You can use the find command to isolate these points. Interpolate each profile line for each time (interp1) to a cross-shore vector of locations starting at 70 and ending at 2000 m with a spacing of 0.5 m. After doing this for profile line 62 and line 190, take the mean giving you the one year average for line 62 and line 190.

   Now, apply EBP theory assuming a constant grain size of 0.2 mm. Note the EBP profile can only be used for the wet portion and must start with a pseudo-cross-shore value of xpseudo =0. **Determine how well EBP works for these 2 averaged profiles. Integrating across the profile, what would the volumetric error be between the real profile and EBP if we assumed a constant grain size?**