Hints/matlab techniques for OC4213 – Nearshore and Wave Processes:

Specific Lab1 hints:

What follows are some specific hints for lab 1. The text in **bold** are matlab commands that can be entered as shown.

To create the week long plot of 10 minute averaged data change the axis limits after creating the plot, i.e.:

- **plot(tme,prs)**
- **set(gca,'xlim',[tme(1) tme(1)+7])**
- **datetick('x','keeplimits')**

To create the semilog plot of the frequency spectra use the command **semilogy(f,bps)** where f is the frequency and bps is the spectra. Also, for the 10 minute averaged data set the max. for the x axis to 0.5 to better see the tidal peaks at the low frequency, So, to calculate the spectra and create the plot for the 10 minute average data do the following:

- **[bps,f]=psd(prs,1024,6,'mean');**
- **semilogy(f,bps)**
- **set(gca,'xlim',[0 .5]);**

To compare the week long plots of the 10 minute averaged data from the three different locations I suggest using a 3 row subplot, i.e:

- **subplot(311)**
- plot data from Duck94
- **subplot(312)**
- plot data from NCEX
- **subplot(313)**
- plot data from SAX04

General Matlab techniques/hints:

- when plotting data vs. time where time is in matlab's datenum format use the **datetick('x')** command to have the x-axis units appear as regular date/time values. **datetick('x','keeplimits')** will do the same thing and keep matlab from changing the actual axis limits.
- to change axis limits use the command **set(gca,'xlim',[x1 x2])** where [x1 x2] are the desired minimum and maximum axis values.
- the matlab functions **datenum, datevec**, and **datestr** are useful for manipulating matlab's date and time numbers. For more information type **help datenum.**