Photo 2   HW 6
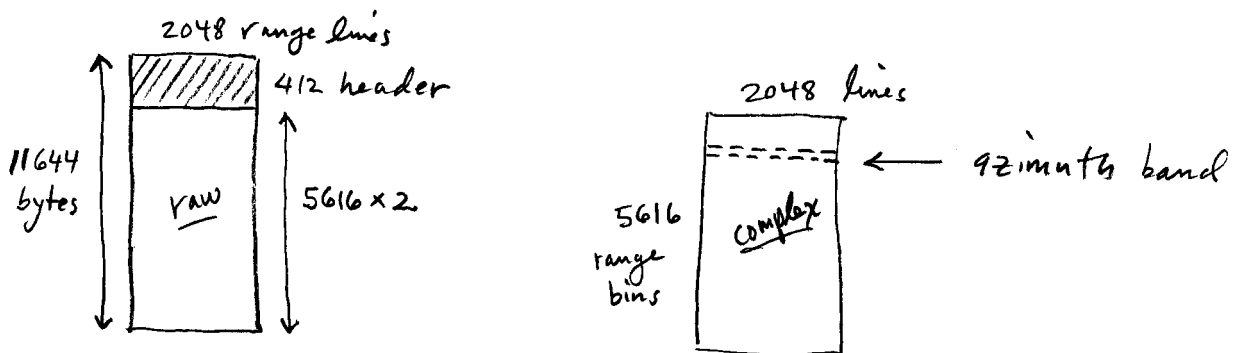### SAR Azimuth Analysis, f_{dc} determination

assigned Wed 6 April, due Wed 13 April

Find <u>crop3.raw</u> in ftp site   (first 2048 range lines from Lafayette ERS scene)

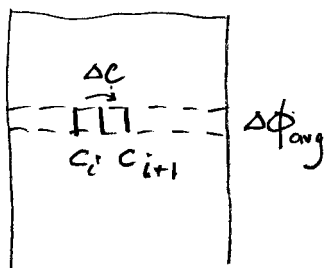Find <u>read_rawsar.m</u>   which reads the file & converts to complex :

for each "azimuth ~~band~~" in complex data (phase described by coordinate components) determine the <u>average phase change</u> from one line to the next. Do this for each of the 5616 range bins.

(a) graph average phase change vs. bin number

(b) find the <u>grand mean</u> from all of the individual means convert to f_{dc} : $\boxed{f_{dc} = \dfrac{\Delta\phi_{avg}}{2\pi \, \Delta T}}$ $\Delta T = .000595$ (1680 Hz)

$$\Delta C = C_i^{*} \cdot C_{i+1}$$

$$\text{sum}\Delta C = \text{sum}\Delta C + \Delta C$$

loop over 2048 lines

$$\Delta\phi_{avg} = \text{angle} \, (\text{sum}\,\Delta C)$$