



Practicing – Assignments (Chapters 1 and 2)

1. Sampling Theorem. Use MATLAB routines, *nyquist* * (3 routines) to demonstrate the idea/use of Nyquist frequency in synthetic and real (earthquake, regional_EQ.V) data.
2. Inversion of dipoles - Please, use the *dipole minphase conv* MATLAB routine to reproduce Figures 2.4, 2.5 and 2.6 from Sacchi (2008).
3. Reproduce Figure 2.8 from Sacchi (2008) computing the amplitude and phase of min/max phase dipole. Use the MATLAB routine, *min max dipole*
4. Try to reproduce Figures 2.9 & 2.10 from Sacchi (2008) applying two different least square inversion routines in minimum phase functions (use *leastsq minphase wavelet* and *leastsq simple* MATLAB routines)
5. By applying the *condition norm varred* routine, please explore the effect of condition number, filter size, L2norm, and variance reduction variations.
6. Use the *crosscorr* MATLAB routine to feel familiar with cross correlation (of 2 two function) and autocorrelation (of a function).

Deadline: in a week