

NOISE AND ARRAY THEORY SEMINAR 1-DAY COURSE OUTLINE

Day One

1. **Overview and Introduction (8:00-8:30)**
Introduce Mustagh and instructor(s)
Introduce participants and background
2. **Review of Basic Concepts (8:30-9:30)**
Stacking and Random Noise
The Seismic Wavefield
Spatial sampling at the surface
Sparse sampling of wavefield
3. **Review of Aliasing (9:30-10:00)**
Tiled reconstructions
Wrap-around

- 15 Minute Coffee Break -
4. **Types of Noise (10:15-12:00)**
Random – time variant
Source Generated – offset variant
Trapped Mode
 - Guided waves
 - Scattered surface waves
 - Ground Roll
 - Shear converted surface waves
- 1 Hour Lunch Break -
5. **Array Fundamentals (1:00-2:30)**
Definition of terminology
Introduce software
Estimation of Signal apparent wavelengths
Array response function for simple linear arrays
Effective array lengths

- 15 Minute Coffee Break -
6. **Complex Arrays (2:45-3:45)**
Compound arrays
Spatial Convolution and effective length
Practical limits of attenuation
Elevation changes and “in-group statics”
Arrays in 2D and 3D
7. **Spatial Anti-Alias Filters (3:45-4:45)**
Group interval aliasing
Sub-sampling
Analogy to Delta-Sigma process
8. **Summary and Wrap-Up (4:45-5:00)**