OUTLINE OF PRESENTATION

- INTRODUCTION
- INSTRUMENTATION
- FIELD ACQUISITION
- RESULTS
- CONCLUSION
INTRODUCTION

PURPOSE:

- Test a downhole 3C clamping geophone and hydrophone array by collecting a shallow VSP dataset.

- Teach students to basic field procedures for VSP acquisition.
INSTRUMENTATION AND ACQUISITION
FIELD RESULTS
FIXED SOURCE OFFSET
VERTICAL SEISMIC PROFILE

hammer

geophone or hydrophone
FIXED RECEIVER
WALK-AWAY PROFILE

Diagram:
- ▼ Hammer
- ⬤ Geophone or Hydrophone
BHG Depth = 15m. Transverse Component.
BHG Depth = 15m. Inline Component
BHG Depth = 40m. Inline component.
Raw hydrophone data (AGC)
Wavefield Separation: 
(a) alignment of raw data to first arrivals; 
(b) AGC; 
(c) removal of first arrivals via 15-trace median filter; 
(d) FK filter to enhance upgoing wavefield.

Down-going events aligned to first arrivals.

Up-going events aligned to first arrivals.
CONCLUSIONS

- At this site, a hammer was an effect source for shallow VSP.

- The BHG-2 triaxial geophone gave good P and S arrivals.

- Hydrophones produced good P-wave first arrivals.

- Velocities (unconsolidated overburden) are: 1000 to 1600 m/sec for P-waves; 350 to 400 m/sec for S-waves.
ACKNOWLEDGEMENTS

We thank the Castle Mountain Ski Resort for access to their property and water wells.

GEDCO for VISTA software

JODEX Applied Geoscience Limited provided essential support field equipment for the shallow VSP experiment.