

CREWES in the field 2016, a brief overview

Kevin L. Bertram*, Kristopher A.H. Innanen, Don C. Lawton, Kevin W. Hall and Malcolm B. Bertram
klbertra@ucalgary.ca

Abstract

CREWES has the distinction of being one of the very few research consortiums that has year round access to industry acquisition equipment. This allows acquisition research to be carried out by CREWES as well as giving students the opportunity to witness in field data acquisition. This benefits the students greatly in that it shows them what is possible as well as some of the limitations of data gathering.

Acquisition projects that CREWES has been a part of in 2016 include: a) two collaborative seismic projects in New Zealand; b) a seismic acquisition test at the Priddis Test Site using both downhole 3C receivers and two different types of surface 3C receivers; c) the 2016 undergraduate field school which performed a 1C 2D line near Pincher Creek, Alberta; d) a return to Priddis to use a shear wave source to record a 3C 2D surface line and downhole 3C.

NZ

CREWES returned to New Zealand at the beginning of 2016 to participate in two collaborative surveys (Hall et. al., 2016). CREWES supplied a cabled Aries 1C acquisition system as well as the IVI Evirovibe source.



FIG. 1. CREWES in New Zealand.

Priddis

In April of 2016 an experiment using the shear wave thumper as a source was discussed. The goal was to use the shear wave source with both surface and downhole 3C receivers, specifically the new Hawk nodal system. Around this time Inova Geophysical approached CREWES to discuss the viability of testing new firmware/software for the Hawk nodal system. After meeting with Inova, it was decided that CREWES would provide the equipment for recording two lines of cabled receivers and the downhole receivers and Inova would provide the nodes (Bertram et. al. 2016).

After the June Priddis field experiment there was significant interest in using the shear wave thumper with the downhole geophones. After the thumper was fixed it was decided to return in October to perform a quick one day survey with just the thumper, the downhole geophones and a single 3C line of surface receivers to the North of the well (Lawton et. al., 2016).

Field School

CREWES has been aiding the University of Calgary's Geoscience department with their Geophysics 549 undergraduate course for many years now. For many students this is the first opportunity they get to experience the methods of actual data acquisition. CREWES provides knowledgeable staff to aid in the use and maintenance of the equipment as well as providing a wealth of in field experience. Field school is typically broken up into two main sections, one being seismic methods and the other being non seismic methods. CREWES primarily aids with the seismic methods section.



FIG. 3. U of C Students learning and performing seismic acquisition.



FIG. 2. CREWES using a variety of sources and receivers at the Priddis Test Site.

Acknowledgements

CREWES would like to thank the industry sponsors that continue to make this work possible. This work was funded by CREWES industry sponsors and NSERC (Natural Science and Engineering Research Council of Canada) through the grant CRDPJ 461179-13. CREWES would also like to acknowledge the following: Outsource Geophysical for permitting and navigating the paperwork for the GOPH549 field school; The Seismic Group for the use of the acquisition equipment; Inova Geophysical for equipment and continued technical support that is second to none.