

Refurbished in 1989 at a cost of \$3.5 million, the Yellowknife Seismic Array (YKA) is a key listening post, sensing vibrations caused by underground nuclear explosions and other seismic sources. The updated YKA preserves the cruciform layout of the original teleseismic array established in 1962 (a). The broadband (BB) and high frequency (HF) instruments are three-component new additions installed during the refurbishment. The remaining instruments – 18 in total – are short-period vertical-component stations, modernized to gain enhanced reliability. All are digital stations relaying their data by radio to the Control Centre (d) and on to the Geological Survey of Canada in Ottawa by Anik satellite.

Strategically located to place most major test sites within efficient teleseismic recording distance (3,000 to 10,000 km), the YKA registers seismic signals from the most distant test site – French Tuamotu – in less than 13 minutes (b).

While the remote location of the YKA – away from coastlines, urban areas and other sources of seismic noise – facilitates acquisition of clearer seismic signals for forensic analysis, the difficult nature of the local terrain imposes some unusual demands, such as the specialized vehicles needed to move between the stations (c).



c)



d)

Photos courtesy Geological Survey of Canada