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The Disarmament Bulletin

A review of Canada's arms
control and disarmament
activities

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Modernized Yellowknife Array Opened

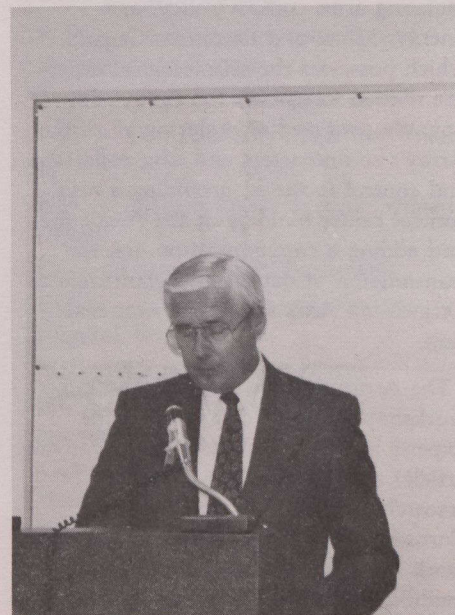
On September 11, 1989, the Honourable Jake Epp, Minister of Energy, Mines and Resources, officially opened the newly-modernized Yellowknife Geophysical Observatory, commonly known as the Yellowknife Seismological Array.

Considered among the most advanced facilities of its type in the world, the refurbished Array can monitor seismic events occurring up to 10,000 km away — a range that includes all known nuclear test sites, as well as most of the earth's active earthquake zones. The Array thus adds considerably to Canada's ability to monitor compliance with a comprehensive nuclear test ban (CTB) treaty.

The achievement of a negotiated, effective ban on nuclear testing in all environments for all time has long been a major objective of Canadian arms control and disarmament policy. Toward this end, since the late 1950s Canada has worked with other countries to develop a reliable means of verifying compliance with international agreements banning nuclear explosions.

In 1962, the British Ministry of Defence approached the Canadian Defence Research Board about the possibility of locating a seismic array in Canada. An agreement was reached whereby the UK would supply equipment while Canada would provide a site for the facility as well as the personnel to operate it. The Yellowknife area was selected for the site because of its position with respect to nuclear test sites, its remoteness from coastlines, urban areas and other sources of seismic noise, its good communication facilities and its location on the stable geological platform of the Canadian Shield.

The Array was completed in late 1962. Since that time, Canadian scientists have



The Honourable Jake Epp, Minister of Energy, Mines and Resources, opens the modernized Yellowknife Seismological Array.

used it to undertake research into the detection and identification of earthquakes and underground nuclear explosions.

In contrast to a standard seismograph station, which houses one or more seismic detectors (seismometers) at a single location, an array consists of a number of seismometers spread across an area. Computer processing of the recorded data allows the array to be steered like an antenna, not only to enhance detection of seismic signals, but also to estimate independently the locations from which they came.

The Yellowknife Array is composed of 19 seismometers, laid out in the form of a cross and installed in steel vaults anchored in rock, with a distance of 2.5 km between seismometers. Information collected on a seismic occurrence is

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