

Chapter Three

A History of Canadian Involvement in Seismic Verification

Scientists and Diplomats

To sharpen the Canadian capability to monitor underground tests, an inter-governmental program was recently initiated wherein the Department of External Affairs' Arms Control and Disarmament Verification Research Unit has provided funding to the Earth Physics Branch of the Department of Energy, Mines and Resources for additional personnel and hardware. As part of this program, technical experts from Energy, Mines and Resources work closely with diplomats of External Affairs on international negotiations regarding treaties that would limit or prohibit testing of nuclear weapons.

The responsibilities of the Earth Physics Branch include operation of the Canadian Seismograph Network. With the data from this network, the branch makes a continuing contribution to global earthquake monitoring by sharing Canadian data with international agencies. The branch's primary purpose, however, is to monitor Canadian earthquakes and study seismic risk in Canada.

Canadian seismic experts have been involved in arms control efforts since it was realized that seismology could contribute to

the monitoring of underground explosions. In 1958-59, for example, the Earth Physics Branch was represented in a conference of experts that met in Geneva to discuss the possibility of seismic monitoring of a future test ban treaty.

Dr. Peter Basham, whose name is now well known in scientific literature on seismological matters, recalls that the single most significant event that brought experts from around the world together on that occasion was the first recorded underground testing of a nuclear device in Nevada in 1957. Its reverberations were detected by seismographs to a much greater distance than had ever been anticipated.

Although there had been negotiations between the USA and the USSR in the late 1950s, the 1958 Geneva meeting of experts was the first significant meeting of East and West to discuss seismic verification at a technical level. Those taking part concluded that an underground test ban treaty could be monitored by the combined efforts of 150-170 seismograph stations distributed throughout the world.