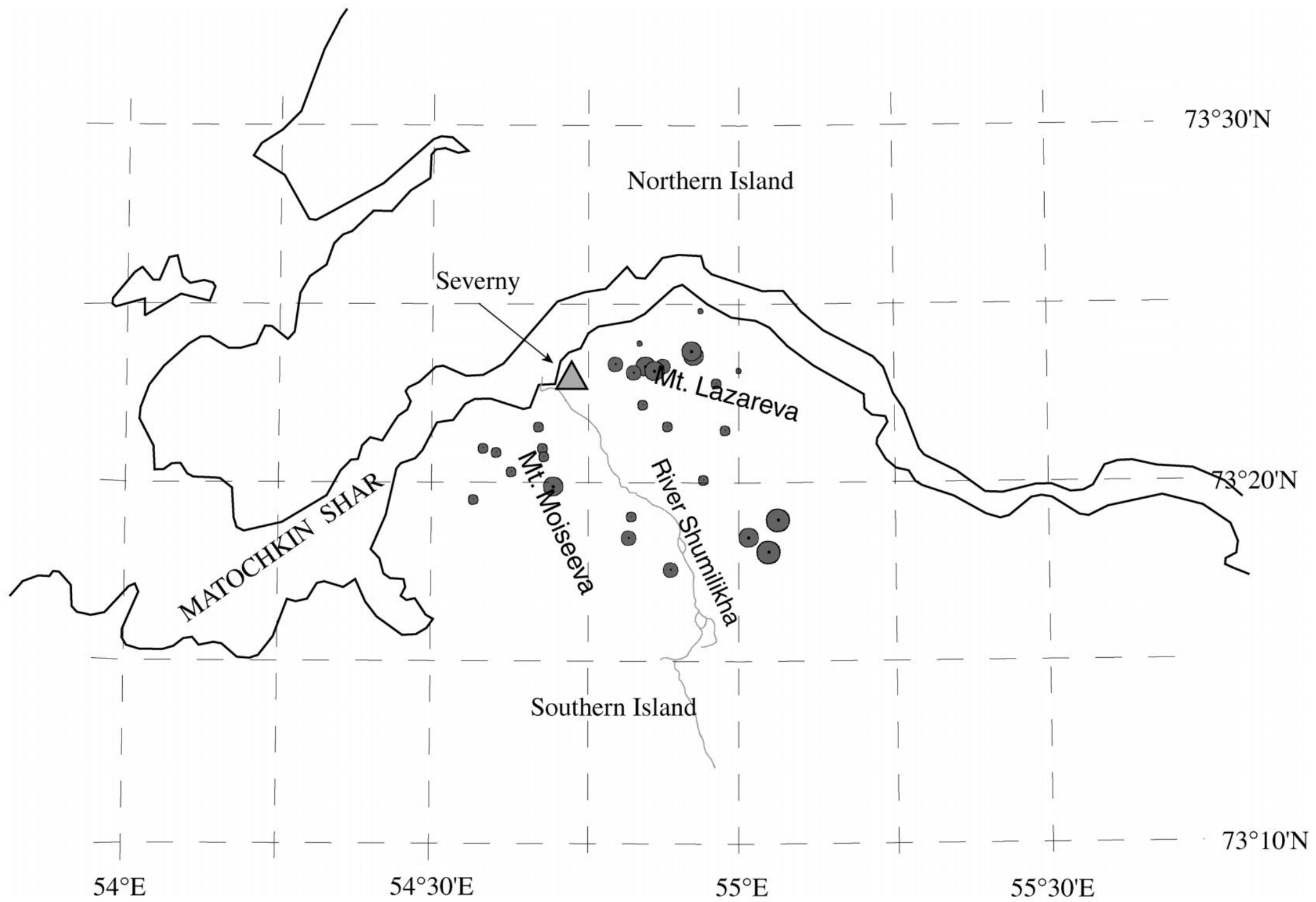
A satellite image of a rugged, mountainous landscape. The terrain is brown and rocky, with a small settlement of buildings visible on a ridge. A small lake is visible in the lower right. The image is overlaid with a semi-transparent grey box containing text.

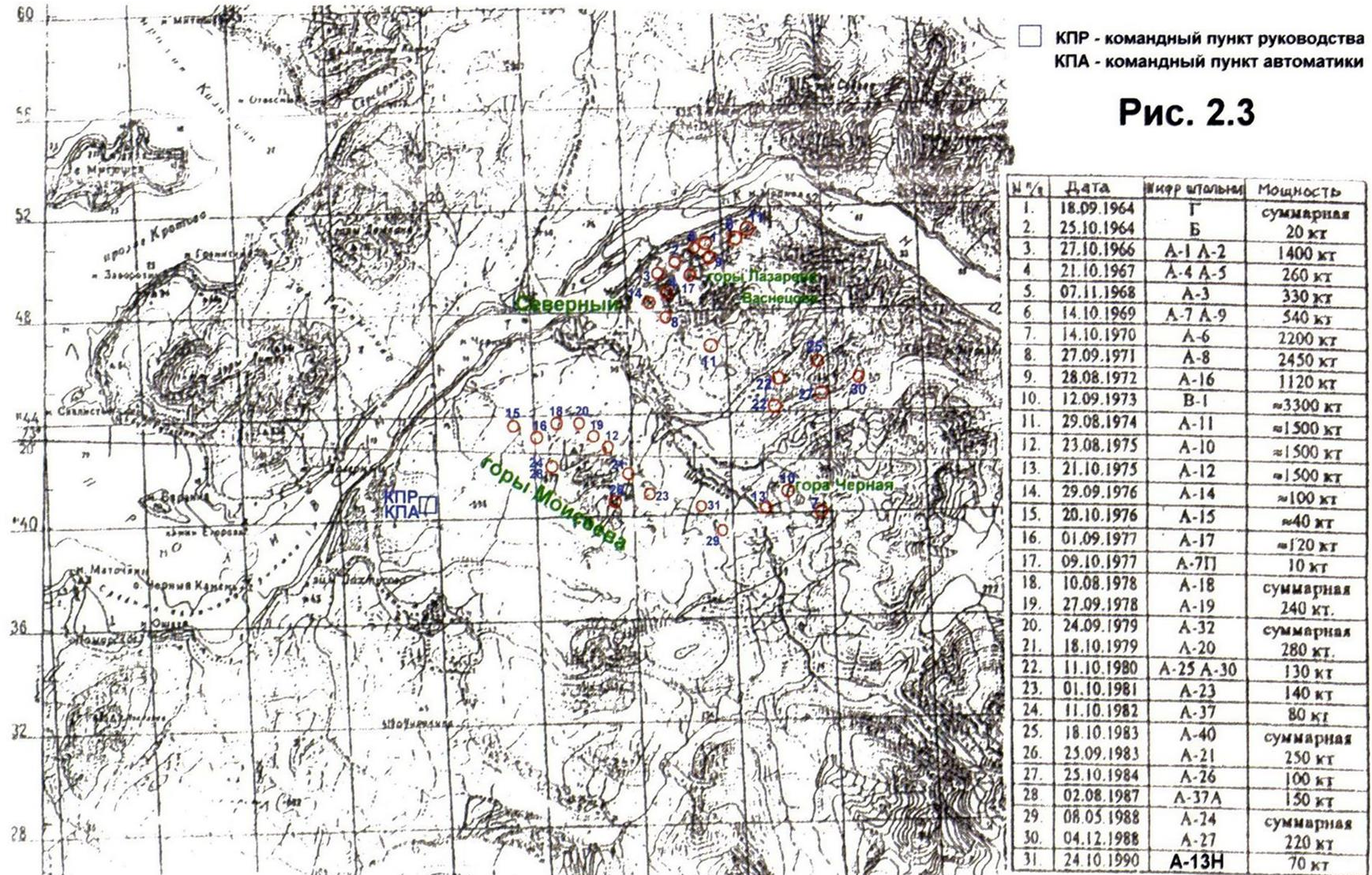
T2.5-03 Using Satellite Imagery to Map Russia's Underground Nuclear Test Site on Novaya Zemlya

Anne Pellegrino



Место проведения подземных ядерных испытаний в штольнях в районе пролива Маточкин Шар.
 (Начиная с 1976 г. все ядерные взрывы за №№ 14 – 31 имели мощность менее 150 кт.)

Приложение



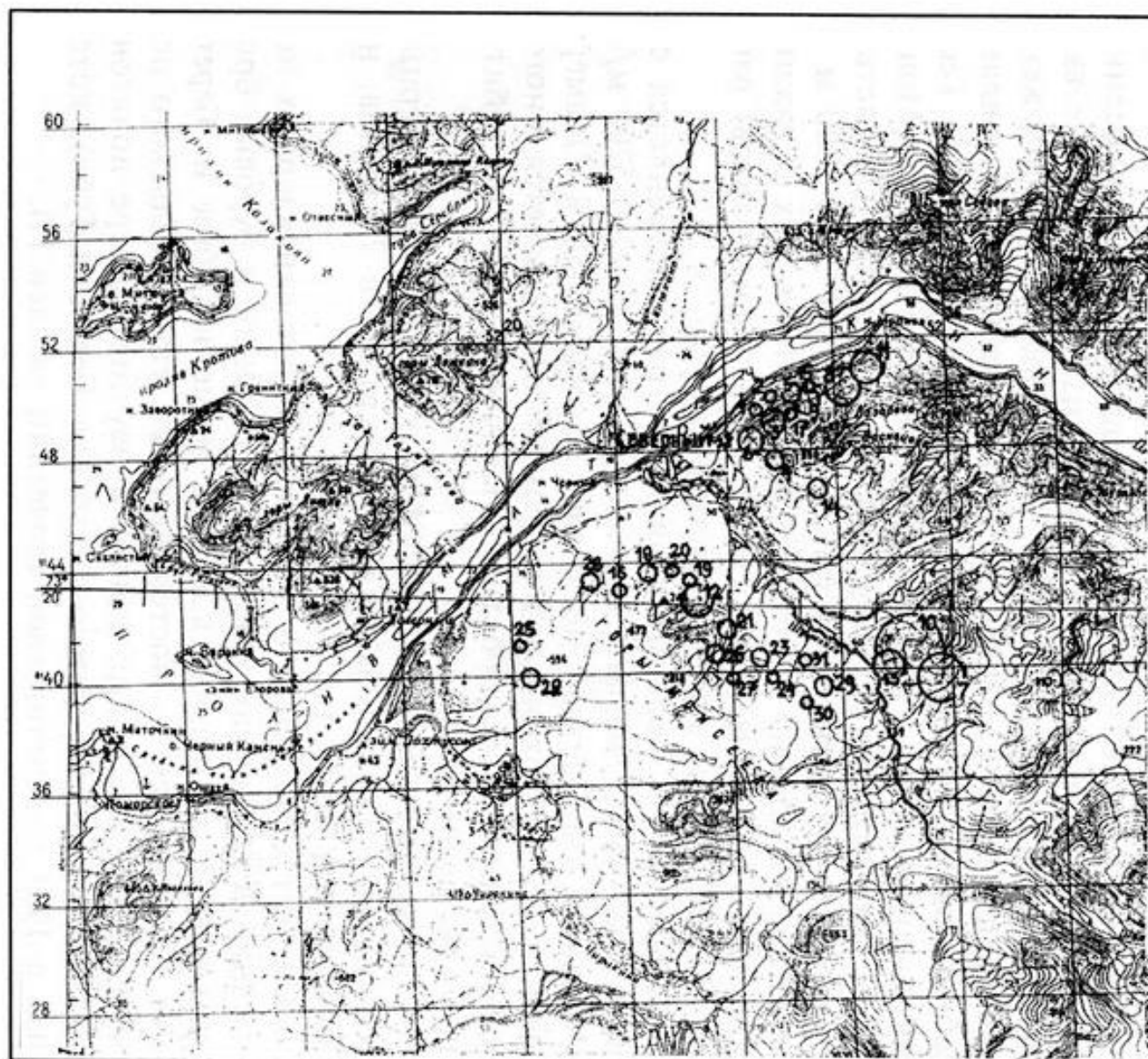
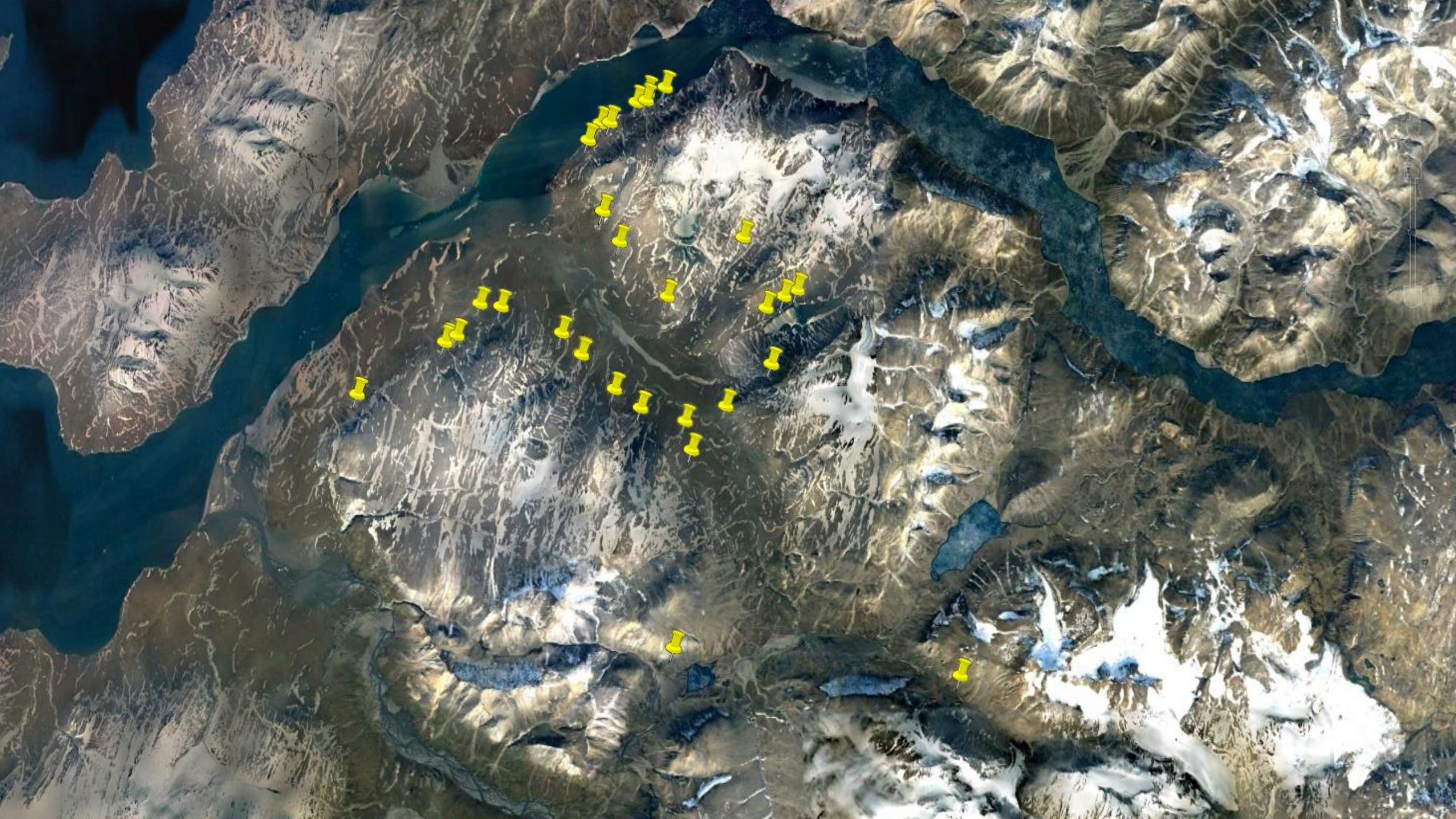
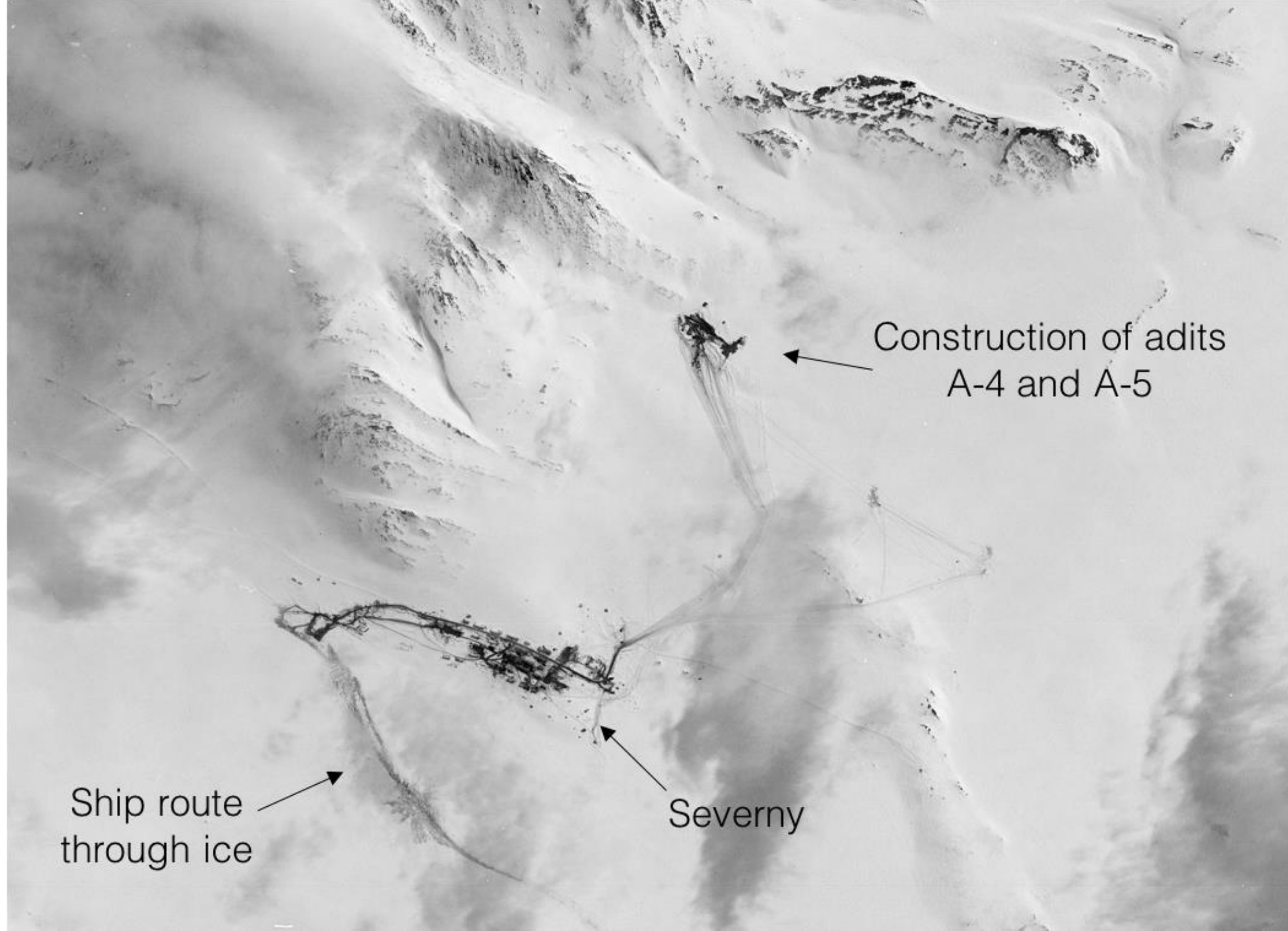


Рис. 6.1. Место проведения подземных ядерных испытаний в штольнях в районе пролива Маточкин Шар. Начиная с 1976 г., все ядерные взрывы (№14-3) имели мощность менее 150 кт

№	Дата	Штольня	Мощность
1.	18.09.1964	Г	суммарная
2.	25.10.1964	Б	20 кт
3.	27.10.1966	А-1 А-2	1400 кт
4.	21.10.1967	А-4 А-5	260 кт
5.	07.11.1968	А-3	330 кт
6.	14.10.1969	А-7 А-9	540 кт
7.	14.10.1970	А-6	2200 кт
8.	27.09.1971	А-8	2450 кт
9.	28.08.1972	А-16	1120 кт
10.	12.09.1973	В-1	≈3300 кт
11.	29.08.1974	А-11	≈1500 кт
12.	23.08.1975	А-10	≈1500 кт
13.	21.10.1975	А-12	≈1500 кт
14.	29.09.1976	А-14	≈100 кт
15.	20.10.1976	А-15	≈40 кт
16.	01.09.1977	А-17	≈120 кт
17.	09.10.1977	А-7П	10 кт
18.	10.08.1978	А-18	суммарная
19.	27.09.1978	А-19	240 кт.
20.	24.09.1979	А-32	суммарная
21.	18.10.1979	А-20	280 кт.
22.	11.10.1980	А-25 А-30	130 кт
23.	01.10.1981	А-23	140 кт
24.	11.10.1982	А-37	80 кт
25.	18.10.1983	А-40	суммарная
26.	25.09.1983	А-21	250 кт
27.	25.10.1984	А-26	100 кт
28.	02.08.1987	А-37А	150 кт
29.	08.05.1988	А-24	суммарная
30.	04.12.1988	А-27	220 кт
31.	24.10.1990	А-34Н	70 кт







Construction of adits
A-4 and A-5

Ship route
through ice

Severny



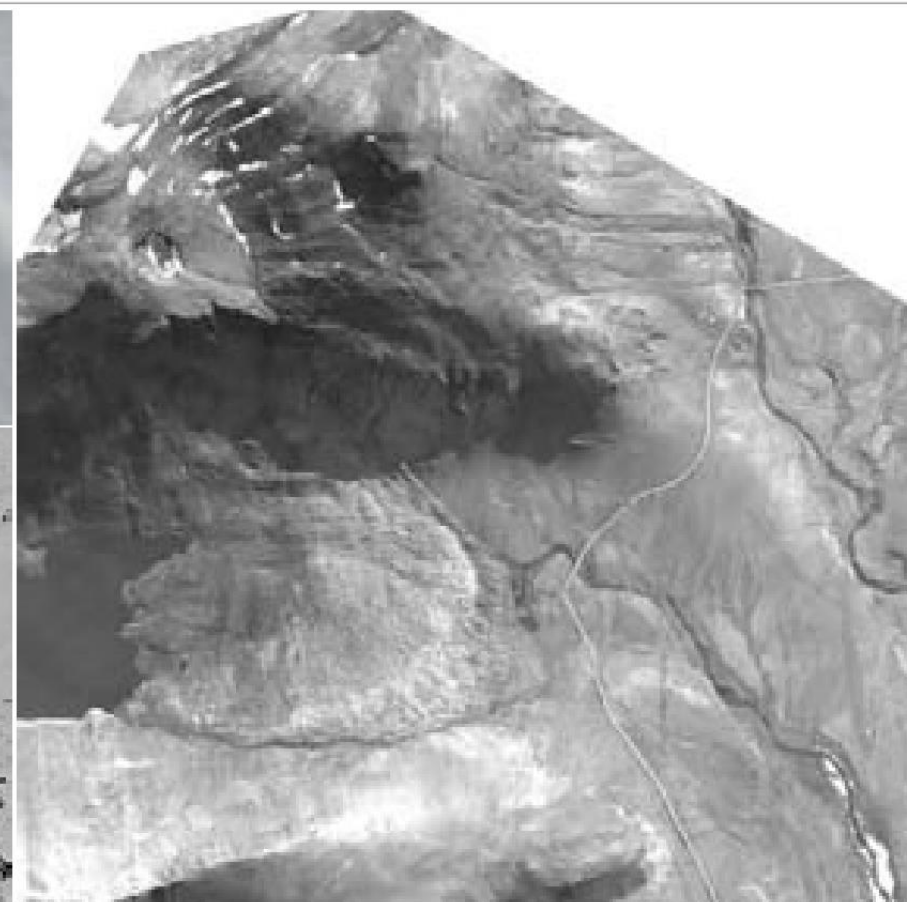
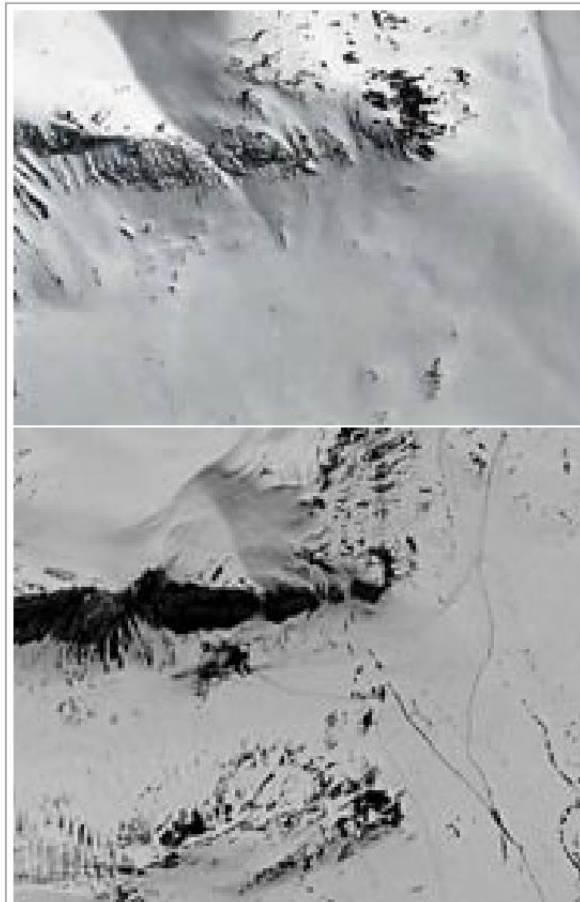


Fig. 9, 10 and 11. The 1973 testing site before and after the explosions

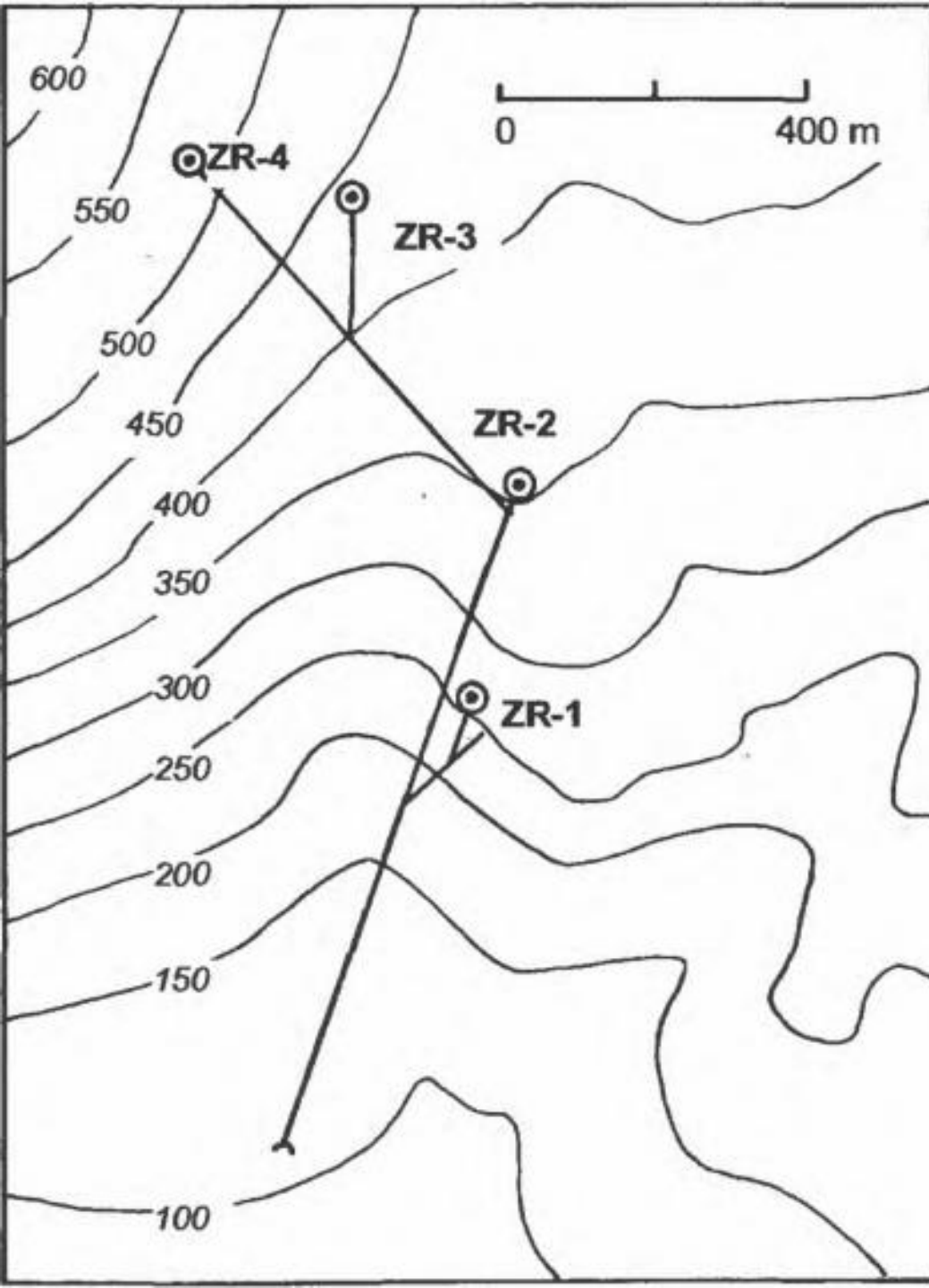
Development of the Zhuralevka Valley nuclear testing area over time, shown on three images.

1. Oblique KH-7 photograph, spring 1967, 25A
2. Oblique CORONA photograph, spring 1970, 25B
3. Vertical Quick Bird image, summer 2002, 25C

The 1967 photograph shows the area before any human influence.

The 1970 photograph reveals construction of a base camp for the September 1973 underground nuclear test.

The Quick Bird image shows how the area has looked since 1973, when the massive rockslide and newly-formed Lake Nalivnoye covered most of the Zhuralevka Valley.

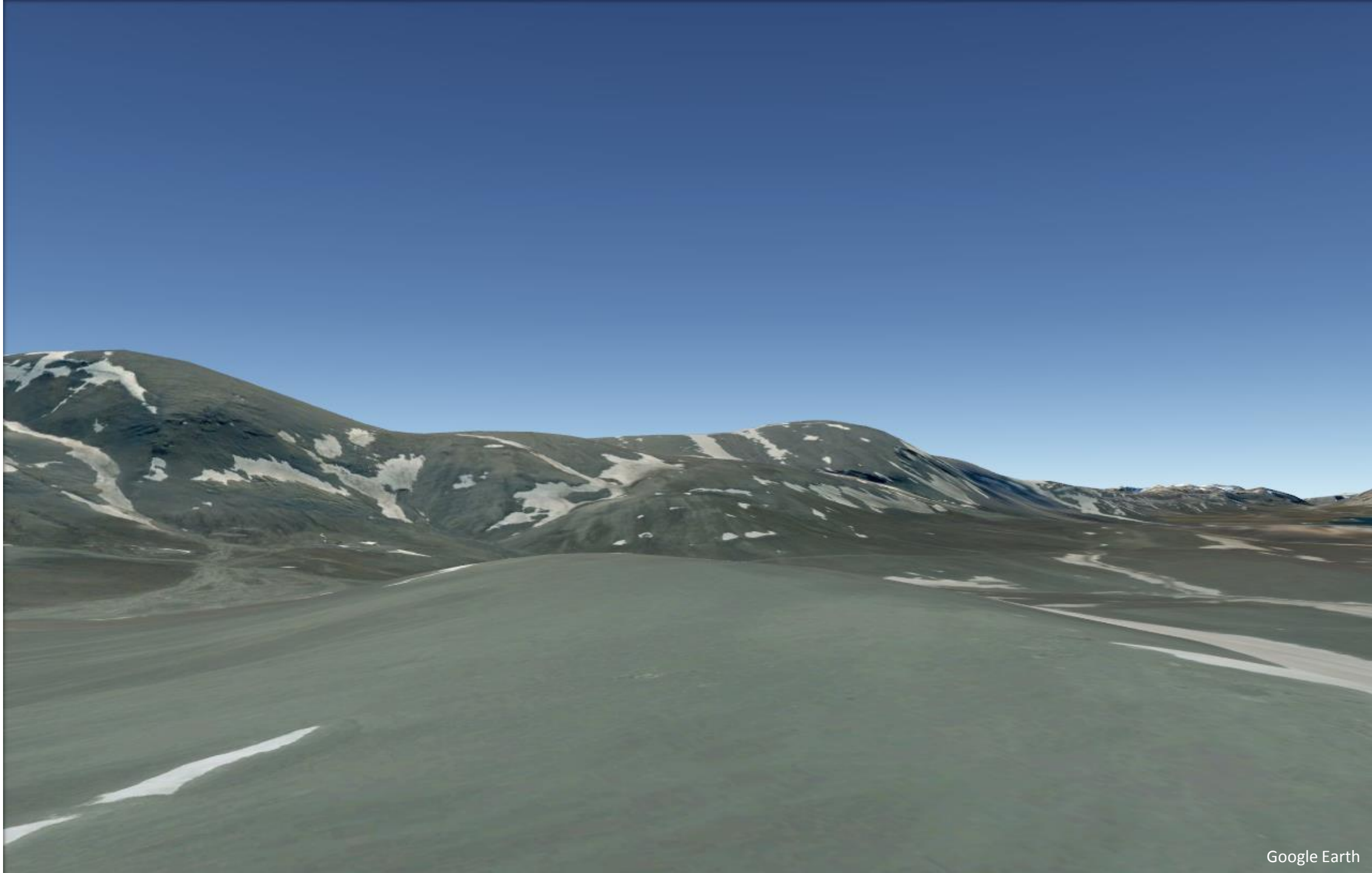


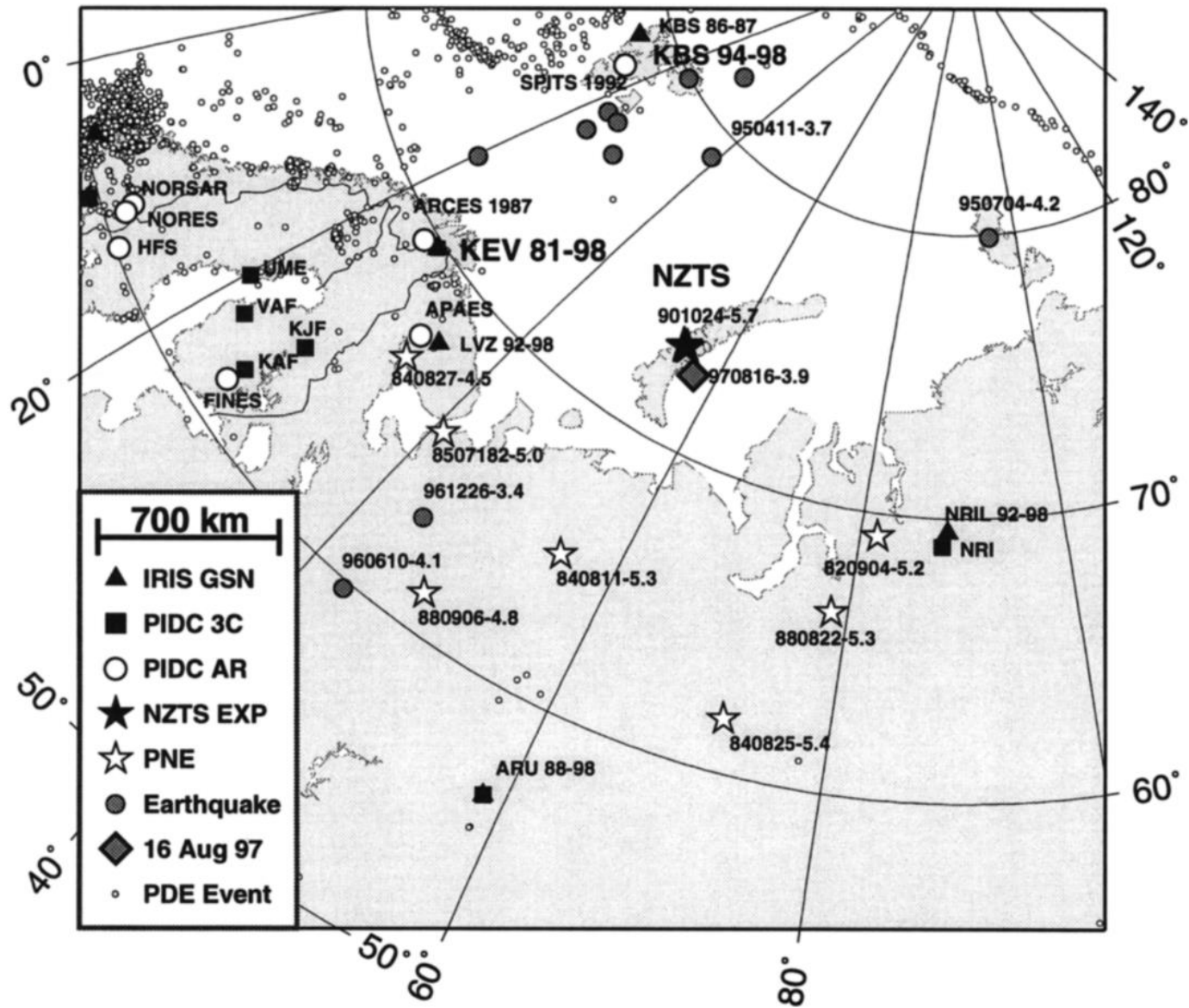
<u>Test No.</u>	<u>Date</u>	<u>release (Ci)</u>	<u>dose rate note</u>
A7, A9	14-Oct-69	large	>> 200 R/h significant vent
A1,A2	27-Oct-66	10,000,000	7 R/h megaton class,
A6	14-Oct-70	2,000,000	250 R/h megaton class
A26	25-Oct-84	1,081,081	500 R/h
A16	28-Aug-72	1,000,000	100 R/h megaton class
B	25-Oct-64	1,000,000	1.5 R/h low yield
A12	21-Oct-75	297,297	250 R/h megaton class
A3	07-Nov-68	10,000	5 R/h
A11	29-Aug-74	4,865	< 3 R/h megaton class
G	18-Sep-64	3,784	2 R/h low yield
A7P	09-Oct-77	2,973	1000 R/h at adit
A24	08-May-88	1,081	< 1 R/h
A37A	02-Sep-87	1,000	> 500 R/h significant vent
A37	11-Oct-82	1,000	0.25 R/h





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▲ **Figure 1.** Regional map of northern Europe and northwest Asia showing seismicity, seismic arrays, and seismic stations. Dates next to station labels indicate time periods over which digital data is available. I analyzed data recorded at stations KEV and KBS. The black stars near the NZTS label indicate the Russian test site. I used events denoted by large gray circles, stars, and the diamond (16 August event) in my discrimination analysis. Labels next to event symbols indicate event date (yrmody) and magnitude. Small open circles denote seismic events from the years 1982–1997 that are reported in USGS PDE catalogs but are not used in this study.

The New York Times

U.S. Suspects Russia Set Off Nuclear Test

Asks for Explanation Of a 'Seismic Event'

By STEVEN LEE MYERS

WASHINGTON, Aug. 28 — The Clinton Administration said today that Russia might have detonated a nuclear weapon on a remote Arctic island less than two weeks ago, in spite of its support for an international moratorium on nuclear tests. The Administration said it was investigating the matter and seeking an explanation from Moscow.

Administration officials said "a seismic event" took place on Aug. 16 near Novaya Zemlya, an island where Russia maintains a nuclear testing site. The officials said that while it was not yet clear that the seismic activity was the result of a nuclear explosion, the activity could not readily be explained as a natural phenomenon, like an earthquake.

The Washington Post

U.S. Asks for Assurance on Test Ban After Activity Detected at Russian Site

By R. Jeffrey Smith
Washington Post Staff Writer

For the second time in the past two years, the Clinton administration has asked the Russian government to explain suspicious seismic signals emanating from its former Arctic nuclear test site and to allay concerns that the signals may have come from a prohibited underground nuclear test.

The questions arose after seismic sensors maintained in the region by Russia, the United States, Norway and Finland picked up an unusually powerful signal originating near the island of Novaya Zemlya on Aug. 16. Some of the features of the signal appeared to be characteristic of a man-made explosion instead of an earthquake, according to U.S. officials.

White House and Defense Department spokesmen said yesterday that the administration has reached no conclusion on the signal's cause and that it is discussing the matter with the Russian government. Officials in Moscow expressed surprise at the U.S. statement and strongly denied any nuclear test had been conducted.

After raising concerns with Moscow about another suspicious signal in early 1996, the Clinton administration determined that it had been caused by an earthquake. The island site, roughly 550 miles from Norway, experiences seismic

made explosions, according to U.S. officials and independent experts.

Russia promised in 1992 that it would not conduct further nuclear explosions and last year signed the Comprehensive Test Ban treaty barring such blasts. The treaty has not yet gone into effect, but the more than 140 nations that signed it are legally bound by its provisions under a common reading of international law.

This month's signal was generated by an event with a rated magnitude of 3.8 on the Richter scale, making it comparable to the detona-

tion of up to 100 tons of TNT. "We believe that there was an explosion," said National Security Council spokesman Robert D. Black.

Other officials said the signal was marked by a compression of the earth's crust and a shear along a fault line, more common in earthquakes. The question is the precise location of the epicenter, of the event is being studied. The analysis indicates that the event likely was offshore of the island. The 1986 earthquake near the island was three kilometers from the site.

The issue is complicated by intelligence satellite data indicating that Russian scientists have been unusually active at the test site in the last few months. Technicians there have been flying around in helicopters, lowering equipment, plugging test holes and stringing cables for diagnostic equipment, according to several sources. Viktor Mikhailov, Russia's minister of atomic energy, visited the site several weeks ago.

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2004



2013



2015



The Underground Nuclear Test Site at Novaya Zemlya

Annotations by Anne Pellegrino and Jeffrey Lewis

THE HISTORY OF
NOVAYA ZEMLYA

U.S.-RUSSIA
ARMS CONTROL

NOVAYA ZEMLYA
TEST SITE TODAY

OPEN SOURCE
MONITORING

Monitoring the Test Site: In 1997, the United States accused Russia of conducting a clandestine nuclear test at the Novaya Zemlya test site, only to later admit that the event had been an earthquake in the nearby Kara Sea. Open source information can help independent analysts monitor the test site, assess claims of covert testing, and devise confidence-building and arms control measures.

