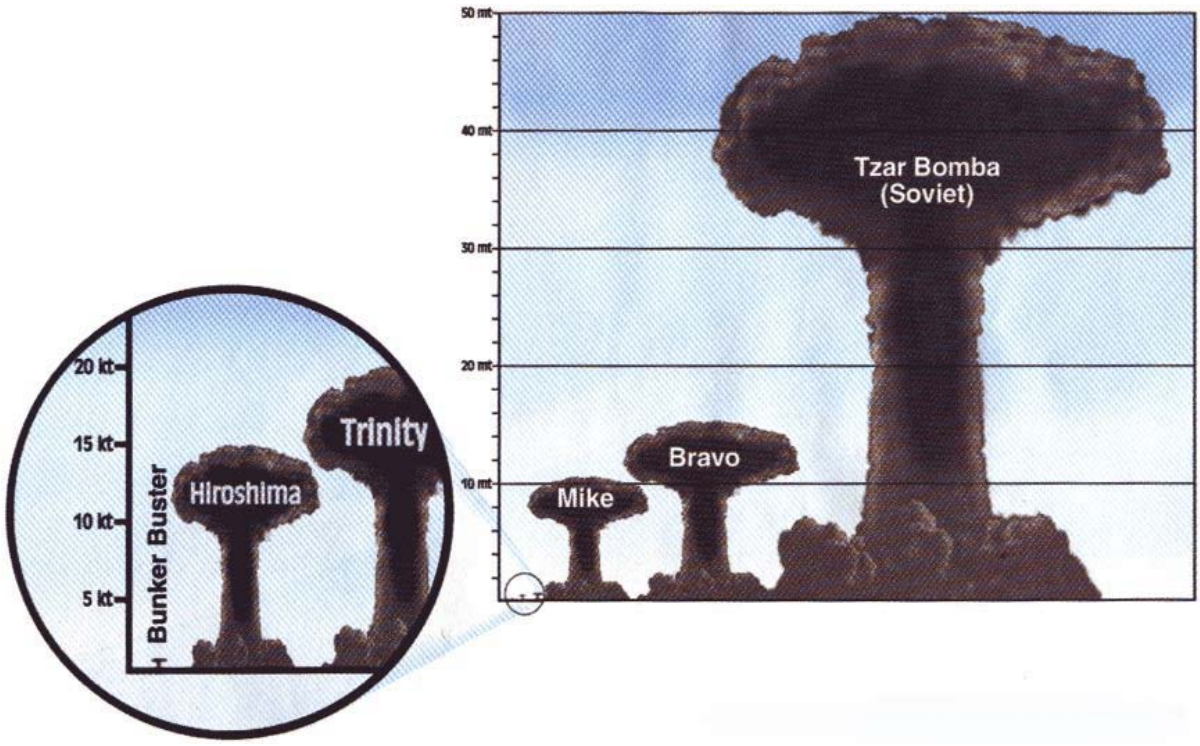
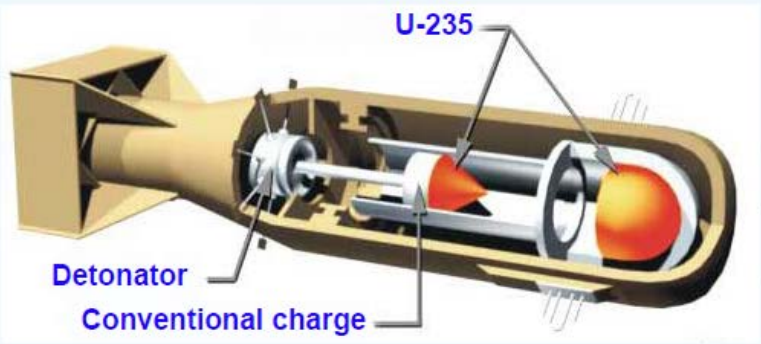
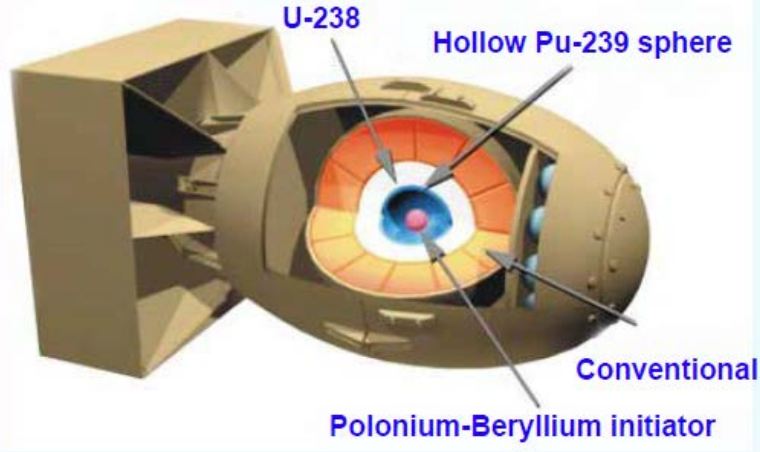

50 mt
40 mt
30 mt
20 mt
10 mt
Tzar Bomba
(Soviet)
Bravo
Mike
20 kt
15 kt
10 kt
5 kt
Bunker Buster
Trinity
Hiroshima



Hiroshima bomb
"Little boy"
Gun type

67 kg with 90 % enriched U-235. About 1 kg fissioned
Yield equivalent to 15 – 20 kton TNT.
The exposion caused about 100 000 immediate deaths.

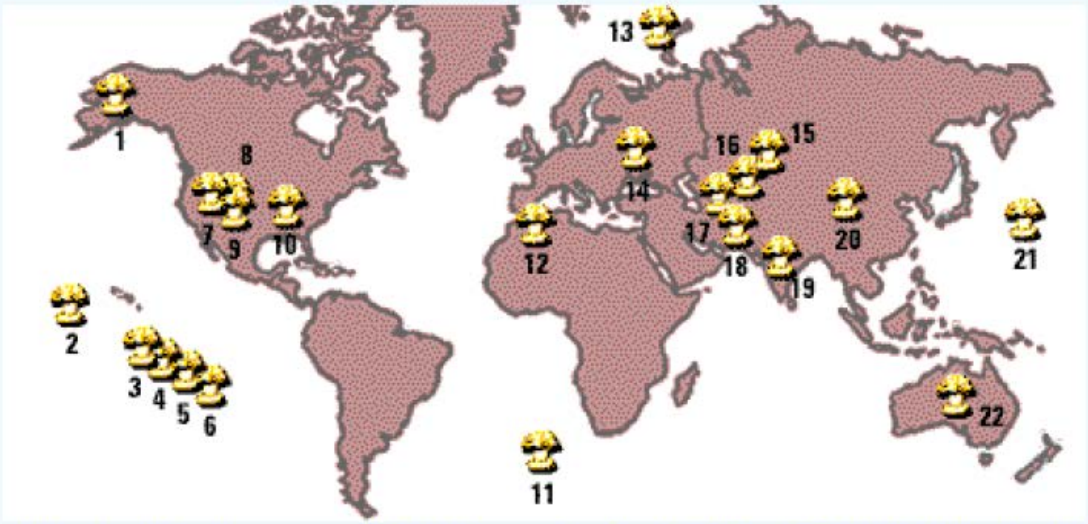


Nagasaki bomb
"Fatman"
Implosion type

6.4 kg of Pu-239.
Yield equivalent to 21 kton TNT.
About 40 000 immediate deaths.

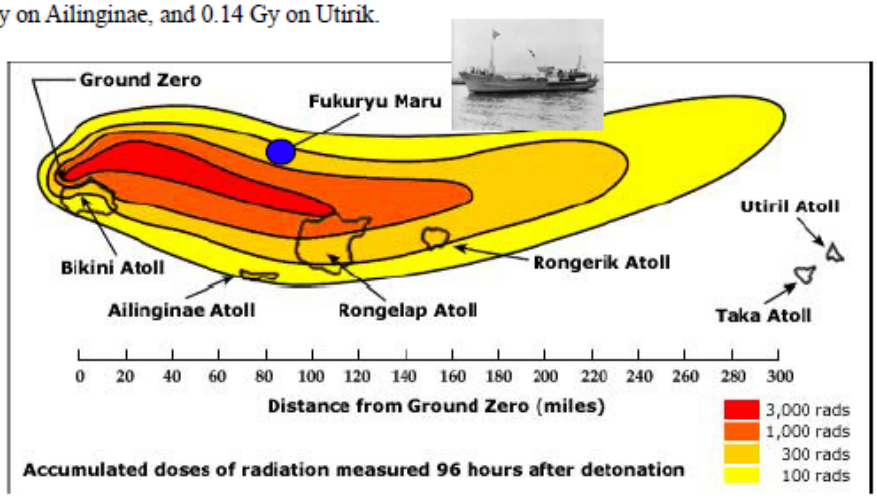
Nuclear weapon tests sites

The first nuclear bomb test took place near Almagordo in New Mexico (marked 9 in the map) in July of 1945. Since then, the United States, the Soviet Union, England, France, China, India, Pakistan and Korea have tested the weapons in the air, on the ground and underground. The map below shows most of the places used for these nuclear tests.



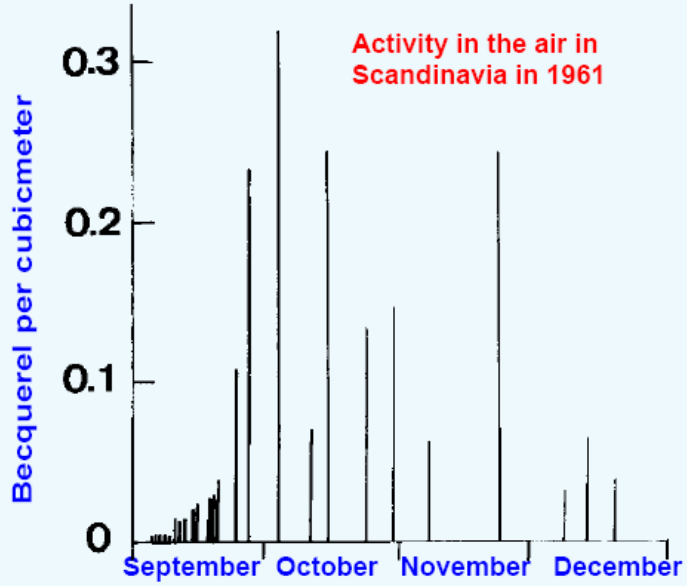
The following test sites are marked in the map: 1. Alaska (US) -- 3 Tests, 2. Johnston Island (US) -- 12 tests, 3. Christmas Island (UK & US) -- 30 tests, 4. Malden Island (UK) -- 3 tests, 5. Fangataufa Atoll (France) -- 12 tests, 6. Mururoa Atoll (France) -- 175 tests, 7. Nevada (US) -- 935 tests, 8. Colorado (US) -- 2 tests, 9. New Mexico (US) -- 2 tests, 10. Mississippi (US) -- 2 tests, 11. South Atlantic Ocean (US) -- 12 tests, 12. Algeria (France) -- 17 tests, 13. Russia (USSR) -- 214 tests (many at Novaya and Zemlya), 14. Ukraine (USSR) -- 2 tests, 15. Kazakhstan (USSR) -- 496 tests, 16. Uzbekistan (USSR) -- 2 tests, 17. Turkmenistan (USSR) -- 1 test, 18. Pakistan (Pakistan) -- 2 tests, 19. India (India) -- 4 tests, 20. Lop Nur (China) -- 41 tests, 21. Marshall Islands (US) -- 66 tests, 22. Australia (UK) -- 12 tests

A couple of hours after the blast, the instruments on the American weather station on Rongerik island (about 212 km away) indicated a high radiation level and the crew was evacuated the day after. Evacuations of the 154 Marshallese Islanders only 160 km from the shot did not begin until the morning of 3 March. The islanders received a whole-body radiation doses of about 1.7 Gy on Rongelap, 0.7 Gy on Ailinginae, and 0.14 Gy on Utirik.



Above is a dosemap that gives the accumulated dose 4 days after detonation. If you stayed outside during the 4 days you would attain that dose. The dose is given in rads – and remember that 1 Gy = 100 rads. The position of Fukuru Maru at the blast is indicated.

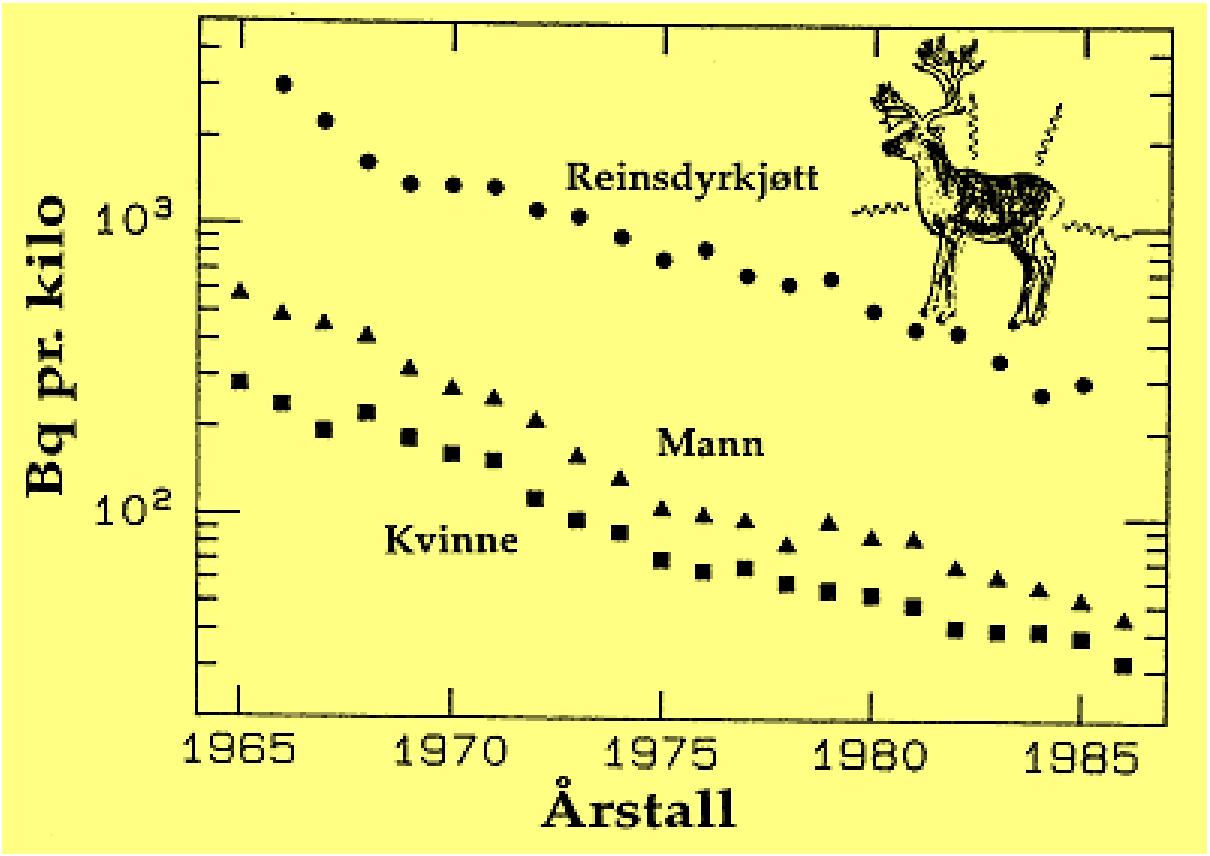
Because the fallout for these islands was so large, the inhabitants were not allowed to live there for 3 years. A lot of work has been done with cleaning up the islands – and they were declared safe for habitation in 1980.

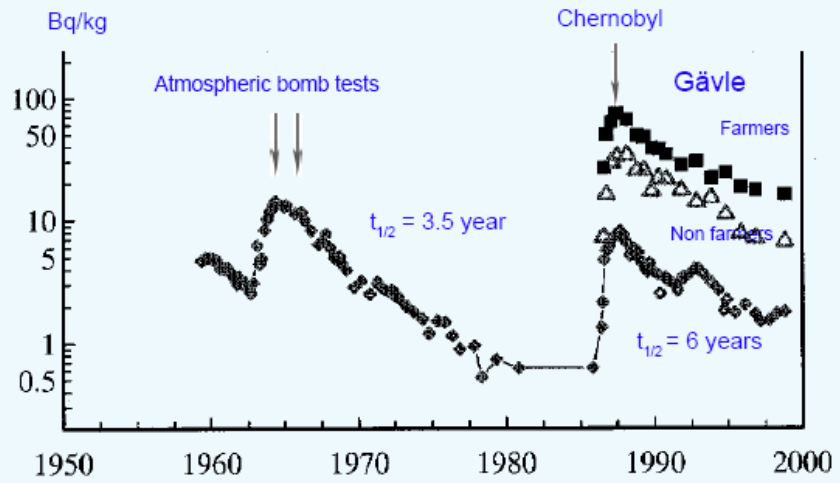


Ivar Mattingsdal

Courtesy of Anders Storruste and Ivar Mattingsdal, Inst. of Physics, Univ. of Oslo

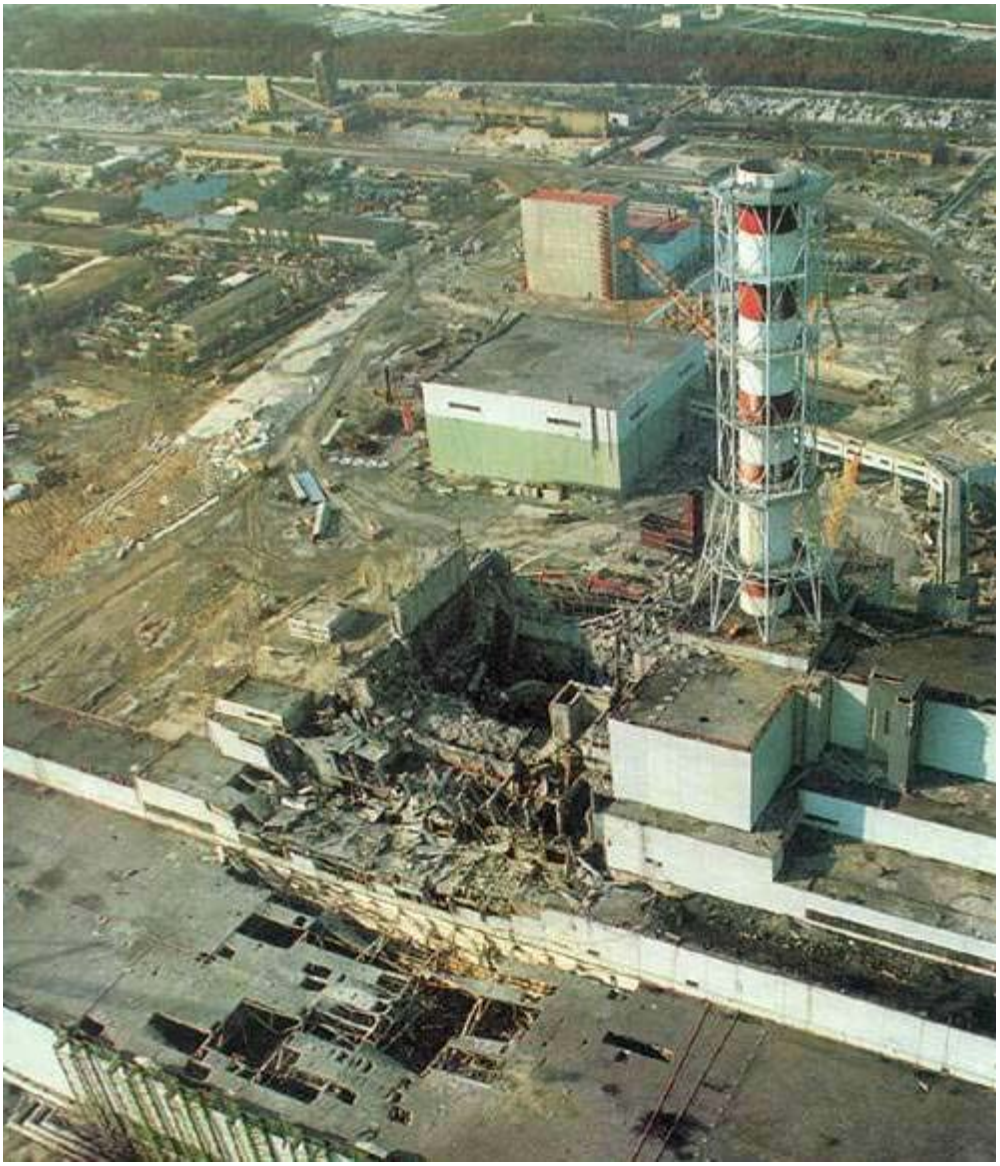
The measurements presented here serve as an example of airborne radioactivity in combination with nuclear tests in the atmosphere. The observations are made in Oslo – 2000 km from the test site on Novaja Zemlja. The activity is given in Bq per cubic meter air. As can be seen, the "Tzar Bomba" on October 30 did not give any peak value in the beginning of November – which confirm that it was a rather clean bomb.

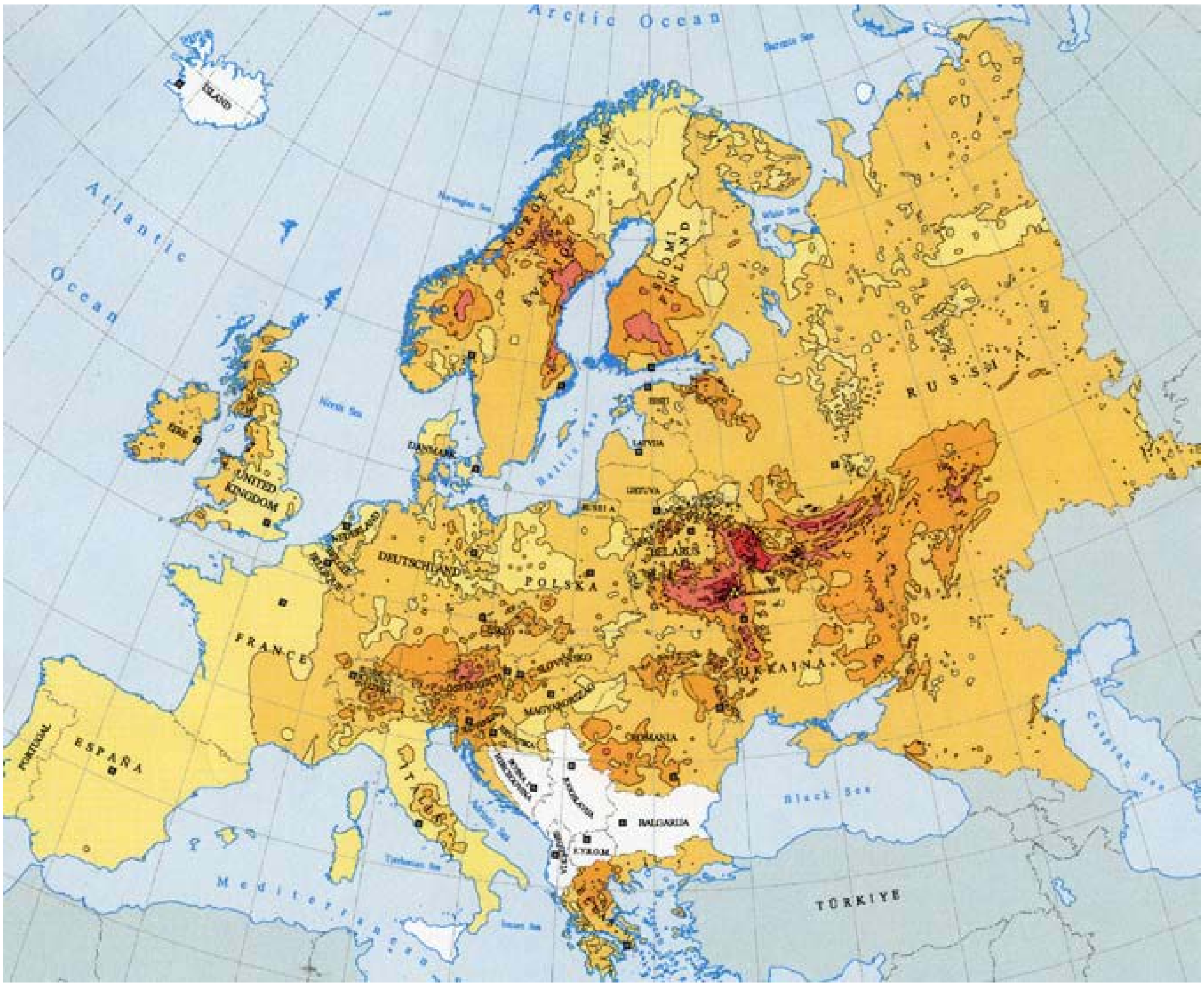

Bq pr. kilo
10³
10²
Reinsdyrkjøtt
Mann
Kvinne
1965
1970
1975
1980
1985
Årstall



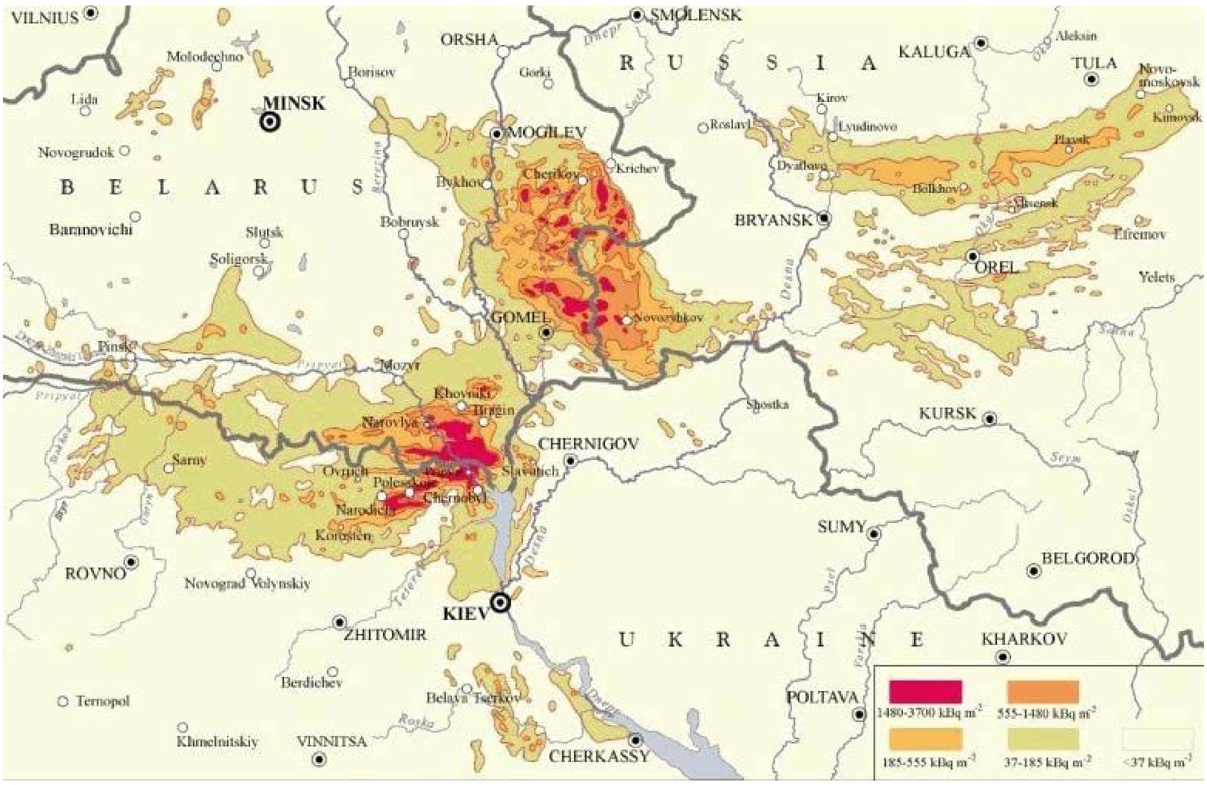
The figure shows the results of total body measurements on different groups of people in Sweden.

(Data courtesy of R. Falk, Swedish Radiation protection Institute, SSI).

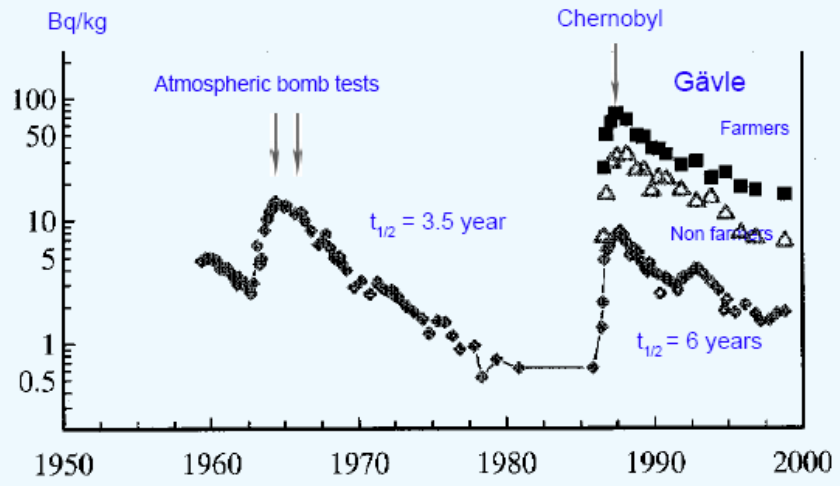




Arctic Ocean
Atlantic Ocean
ISLAND
NORGE
SVERIGE
SUOMI FINLAND
EIRE
UNITED KINGDOM
DANMARK
LATVIJA
LIETUVA
BELARUS
DEUTSCHLAND
POLSKA
FRANCE
ESPAÑA
PORTUGAL
ROMANIA
BALGARIJA
UKRAINA
RUSSIA
Black Sea
TÜRKIYE



VILNIUS
SMOLENSK
Molodechno
ORSHA
R U S S I A
KALUGA
Aleksin
TULA
Novo-moskovsk
Lida
Borisov
Gorki
MINSK
Kirov
Kimovsk
Roslavl
Lyudinovo
Novogrudok
MOGILEV
Plavsk
B E L A R U S
Bykhov
Cherikov
Krichev
Dyatkovo
Bolkhov
Mtsensk
Baranovichi
Bobruysk
BRYANSK
Efremov
Slutsk
Soligorsk
OREL
Yelets
GOMEL
Novozybkov
Pinsk
Mozyr
Khoyniki
Bragin
Shostka
KURSK
Narovlya
Sarny
CHERNIGOV
Ovruch
Pripyat
Polesskoe
Slavutich
Chernobyl
Narodichi
SUMY
Korosten
ROVNO
Novograd Volynskiy
BELGOROD
KIEV
ZHITOMIR
U K R A I N E
KHARKOV
Berdichev
Ternopol
Belaya Tserkov
POLTAVA
Khmelnitskiy
VINNITSA
CHERKASSY
1480-3700 kBq m-2
555-1480 kBq m-2
185-555 kBq m-2
37-185 kBq m-2
<37 kBq m-2



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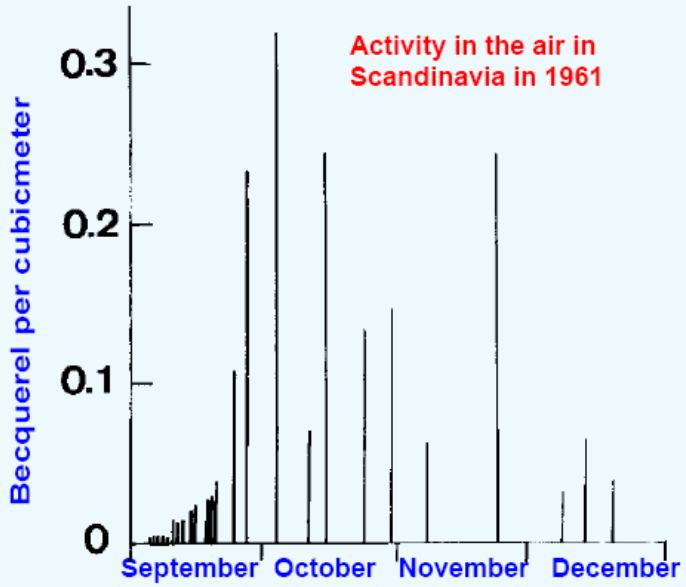

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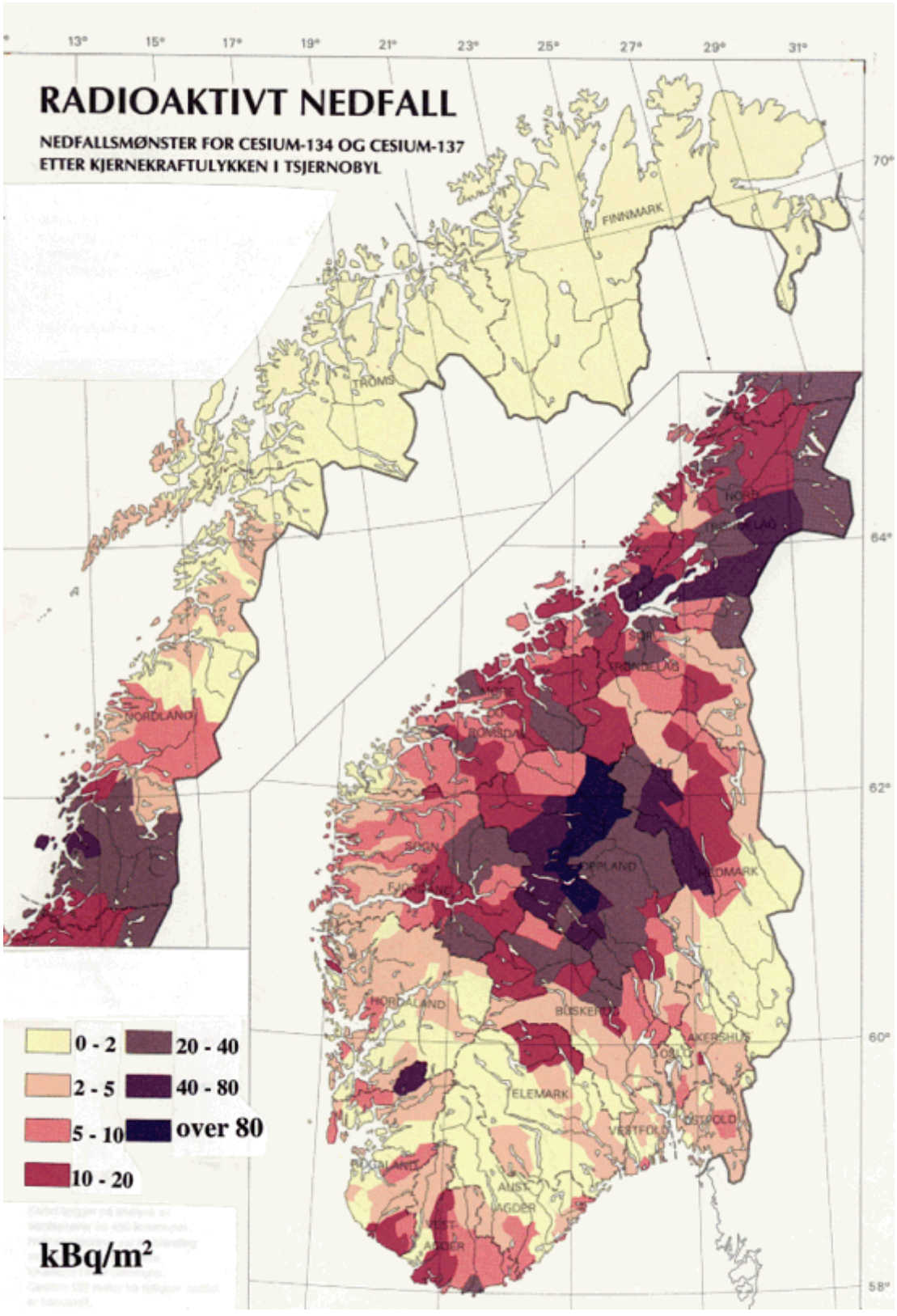
RADIOAKTIVT NEDFALL
NEDFALLSMØNSTER FOR CESIUM-134 OG CESIUM-137
ETTER KJERNEKRAFTULYKKEN I TSJERNOBYL
13°
15°
17°
19°
21°
23°
25°
27°
29°
31°
70°
64°
62°
60°
58°
FINNMARK
TROMS
NORDLAND
HEDMARK
AKERSHUS
OSLO
ELEMARK
VESTFOLD
ØSTFOLD
0 - 2
2 - 5
5 - 10
10 - 20
20 - 40
40 - 80
over 80
kBq/m²