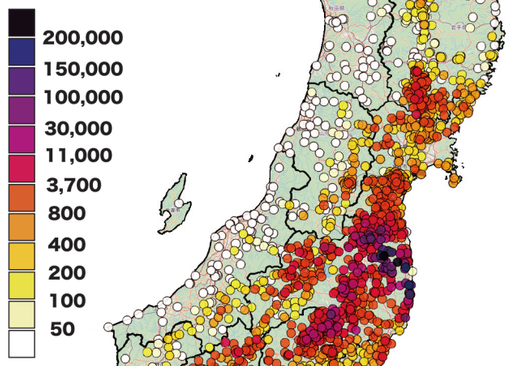
East Japan Soil Becquerel Measurement Project

Estimate of Radioactive Cesium Contamination Over 100 years

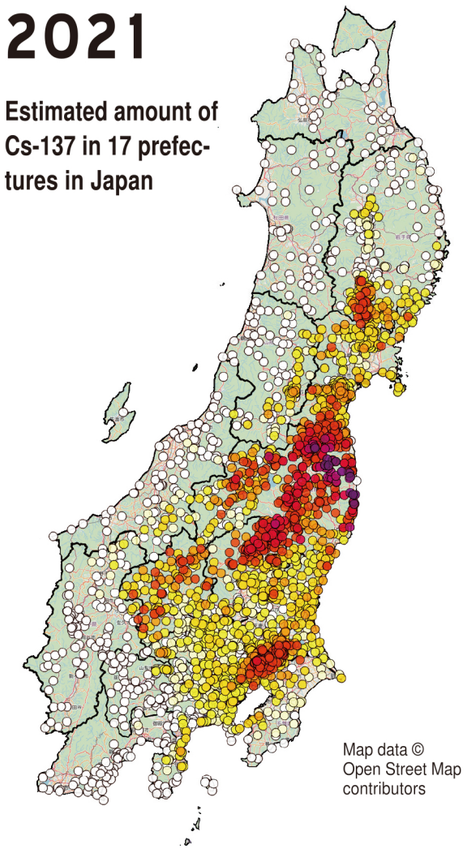
2011

Cs-134 and Cs-137 in 17 prefectures in Japan (as of March 2011)



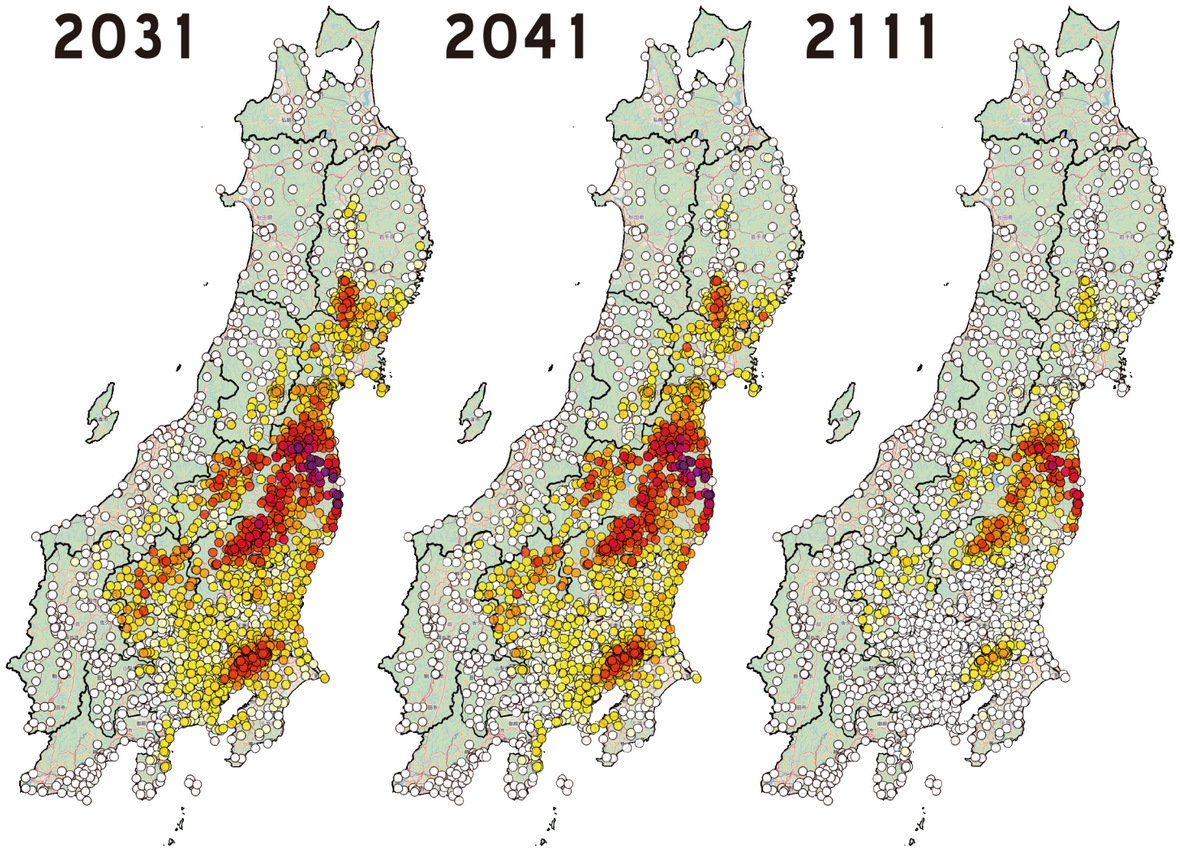
2021

Estimated amount of Cs-137 in 17 prefectures in Japan



Map data © Open Street Map contributors

2031 2041 2111



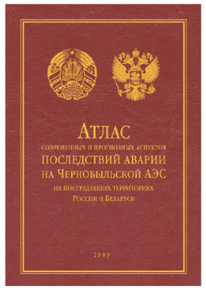
WITH REFERENCE TO "THE ATLAS" PUBLISHED AFTER CHERNOBYL ACCIDENT

Five years after the 1986 Chernobyl Nuclear Power Plant Accident, the three ex-Soviet countries which suffered heavy contamination (Russia, Ukraine, Belarus) enacted the Chernobyl Law, which aimed to reduce human radiation exposure by establishing strict contamination exclusion zones based on air dose and detailed soil contamination measurement data.

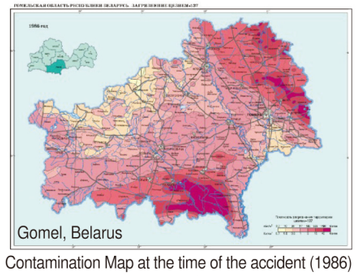
In the Contamination Atlas published by the Russian Federation and the Belarus Ministry for Chernobyl Affairs, there are eight maps that show contamination in each province from immediately after the accident for every ten years until seventy years after the accident. These maps are being used as the basis for when the general poulation will be able to return to their respective hometowns.

After the Fukushima accident, the Japanese government only once carried out a soil measurement, which was limited to soil in selective locations in Fukushima Prefecture, and after that, it has relied solely on the air dose rate when drafting contamination countermeasures.

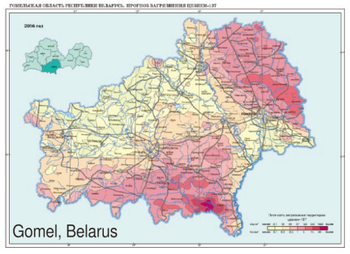
Moreover, the government is imposing a severe standard of 20mSv/year (which in Chernobyl corresponds to the Mandatory Resettlement Zone), and residents are being forced to return to their hometowns if the exposure dose goes below this threshold.



THE ATLAS: Forecast of Radioactive Contamination due to the Chernobyl Accident in Russia and Belarus 2009 Edition



Contamination Map at the time of the accident (1986)



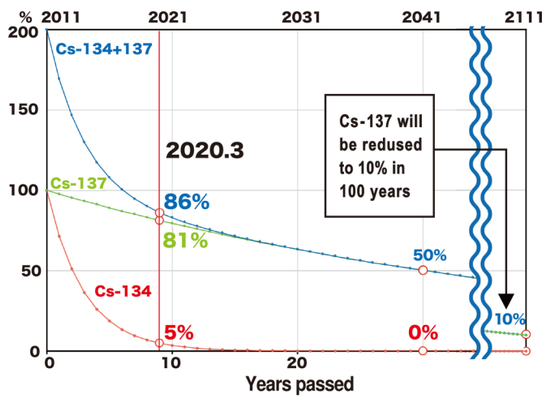
Contamination Map seventy years later (2056)

A "100 YEARS FROM NOW" PREDICTION MAP IS ONLY POSSIBLE, PRECISELY, BECAUSE SOIL BECQUEREL MEASUREMENTS HAVE BEEN CONDUCTED

The map above is a prediction of radioactive contamination in eastern Japan, which was drafted following the example of the Chernobyl Atlas. It would not be possible to draft such a prediction map, based solely on the estimates of air dose that the government carried out by aircraft monitoring.

Cs-134 has a half-life of two years and rapidly decays, whereas Cs-137, which has a half-life of thirty years, decreases at a much slower rate along the green decay curve to the right. According to this prediction map, there will still be many areas not suitable for people to live one hundred years from now. Because it was not possible to carry out soil measurements in the "diffi cult-to-return zone" adjacent to the Fukushima Nuclear Power Plant, the forecast there is even more serious than what is shown on this map.

*The Atlas was drafted using Ci/km^2 (37 billion Bq/km^2), but this map uses Bq/kg. When converting cesium into area the Data Site analysis uses the same area conversion method as the Japanese Ministry of Environment which assumes that the specifi c gravity of the soil is 1.3, while radioactive cesium remains in the soil surface layer (0-5 cm).



In the Fukushima Daiichi NPP accident, Cs-134 and Cs-137 were emitted at a ratio of about 1:1. Because the ratio of Cs-134 is larger in comparison to the Chernobyl accident, the sum of the two nuclides is being monitored in Japan.

*Due to weather disturbances and other factors, it is possible that radioactivity reduction proceeds at a faster rate than anticipated in this map, but this should not be overly expected.

Minna-no Data Site
Collective Database of Citizens' Radioactivity Measuring Labs