ZAMG
Zentralanstalt für Meteorologie und Geodynamik

# Accident in the Japanese NPP Fukushima: Spread of Radioactivity/weather currently not favourable/low level radioactivity meanwhile observed over Canada and Alaska (Update: 21 March 2011 15:00)

## Weather in the crisis region

Currently, there is a weather front with rainfall lying across the crisis region. In Tokyo, rain was observed during the last hours. The snowfall limit is at about 1000 m. The winds are weak, mostly from northerly to easterly directions. Air from the reactors can thus be blown inland.

Tomorrow, we expect no significant change in the weather situation. A further precipitation band is expected to cross the area.

By Wednesday, the weather front will leave the region. Winds will predominantly blow from the north west, causing readioactivity to be blown out to the Pacific.

## Dispersion Modeling

The results of the dispersion model show that radioactivity is transported inland today and tomorrow and will be circulated around. Radioactive particles can be washed out and deposited to the ground. On Wednesday, the cloud is again transported to the Pacific Ocean.

The colour scale shows a total of 5 colours. The area marked „E“shows an area with estimated current equivalent dose rate of 10 mSv/h (in a 25x25 km$^2$ square). The violet colour on the outer edge of contaminated areas (Area A) represents 0,3 µSv/h, which corresponds to the amount of the natural background radiation dose.

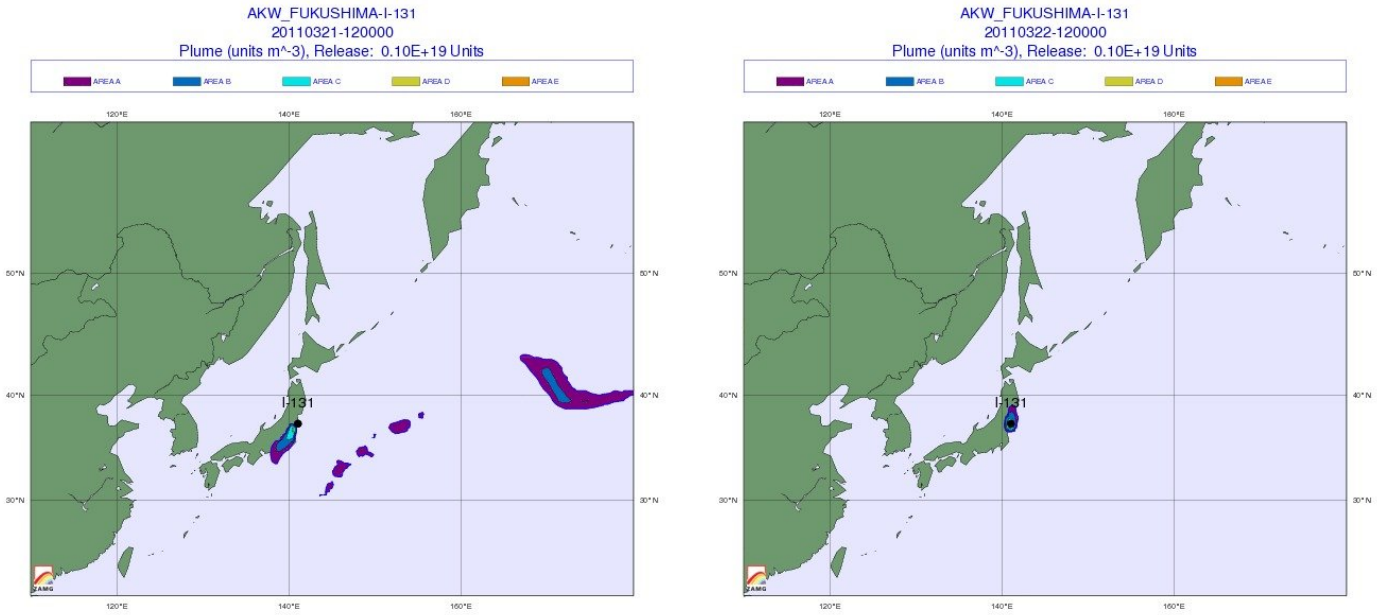


Figure: Spread of Radioactivity over Eastern Asia today and tomorrow 12:00 UTC

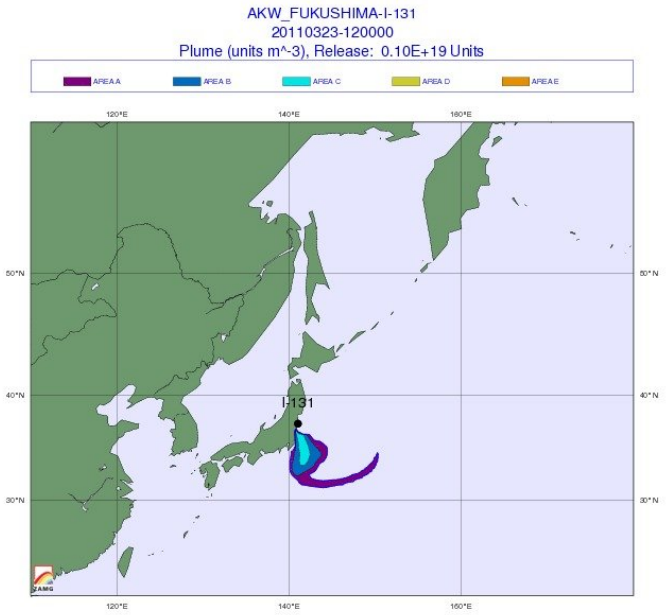


Figure: Spread of Radioactivity over Eastern Asia the day after tomorrow 12:00 UTC

Simulations of the passive noble gas $^{133}$Xe since start of the accident (10 March 8 UTC) show that highly diluted air (factors of 10 to 100 thousand) from the reactor has meanwhile reached eastern Russia, the U.S. West Coast, Alaska and Canada (see Figure below). Due to precipitation, particles are removed from the atmosphere, while the noble gas remains.

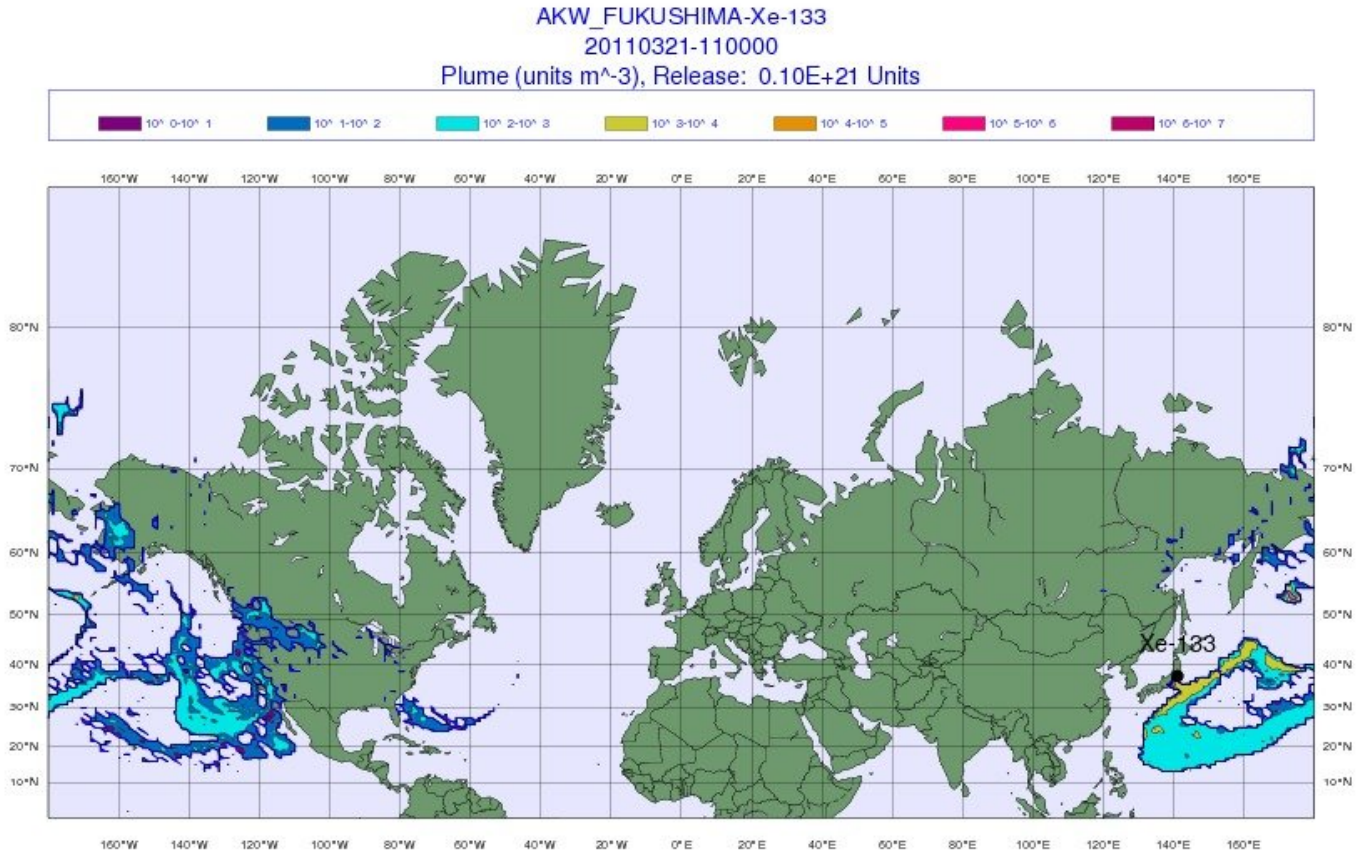


Figure: Simulated Radioxenon concentrations (Xenon-133) close to  he surface (0-30 m).

**Radiation data/CTBTO**

Currently, radiation data from CTBTO (last update today, data are from 18 March) show that low levels of radiations are meanwhile observed not only in Russia and California, but also in Alaska and Western Canada. The I-131 levels in Alaska (station Sand Point) were on the order of mBqm-3, in Canada (station Sydney, Vancouver) one order of magnitude lower. There is no health risk whatsoever.

**Dr. Gerhard Wotawa**

**Division for Data, Methods and Modelling**

**Central Institute for Meteorology and Geodynamics**

**Hohe Warte 38, 1190 Wien**

**gerhard.wotawa@zamg.ac.at**

**ZAMG will not answer any questions related to travel in Japan or in other parts of the world, since this is the responsibility of national radiation protection authorities. Travel advisories and warnings are available from your foreign ministry. In Austria, such advisories are available on www.bmeia.gv.at.**

This information is updated daily, and whenever the development of the situation requires it.

**Videos:**

Plume spread from Fukushima/Permanent Release/Iodine-131

Plume spread from Fukushima/Permanent Release/Cesium-137 (global image)

Plume spread from Fukushima/Permanent Release/Xenon-133 (global image)