ZAMG
Zentralanstalt für Meteorologie und Geodynamik

Accident in the Japanese NPP Fukushima: Synthesis of our current calculations and CTBTO data shows global spread of air masses originating from Japan (Update: 25 March 2011 16:00)

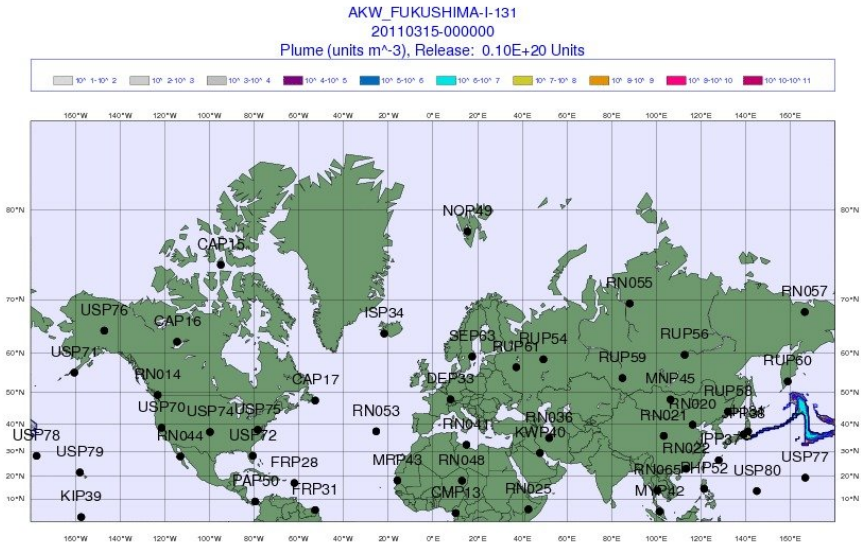
CTBTO data: what can be measured with modern technology?

There are currently 60 certified radionuclide stations in the CTBTO global network. This network has been set up to monitor the compliance with the Comprehensive Nuclear-Test-Ban Treaty. These stations measure airborne radioactivity with unprecedented accuracy. The network is, on the other hand, significantly less dense compared with the national radiation monitoring networks. Detection at a CTBTO station does by no means indicate the presence of harmful radioactivity. In fact, never in history any CTBTO station measured potentially harmful radiation levels.

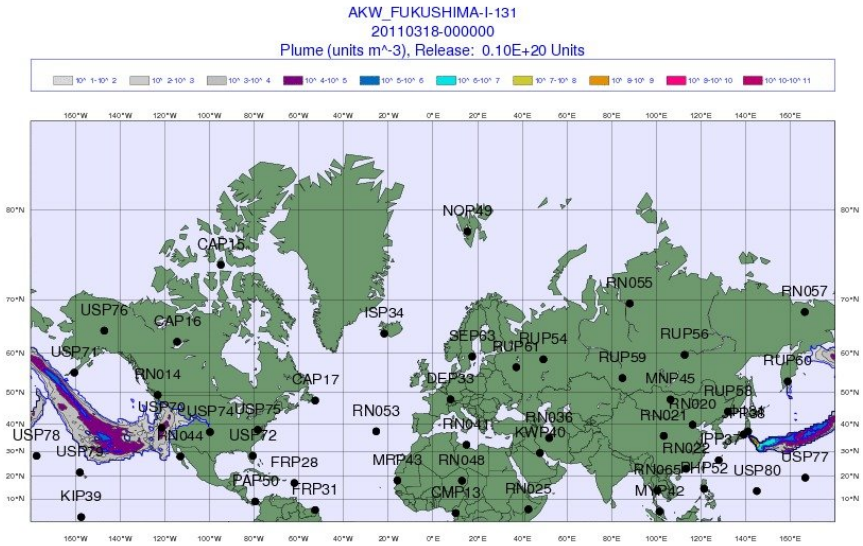
The CTBTO system does not measure effective dose rates, but the activity concentrations of individual isotopes like Iodine-131 and Cesium-137. Therefore, it can detect substances that are not usually present in the atmosphere with high precision, even if their individual dose rate contribution would be negligible compared with natural radioactivity.

As of today, a total of 24 CTBTO stations detected airborne radioactivity from the Fukushima plant. New detections were reported from places like Stockholm/Sweden and stations in the European parts of the Russian Federation. This shows that the – extremely diluted – cloud has already crossed much of the northern hemisphere. Simulations of ZAMG nicely show the spread of radiation during the past two weeks. In general, the model worked fully satisfactory.

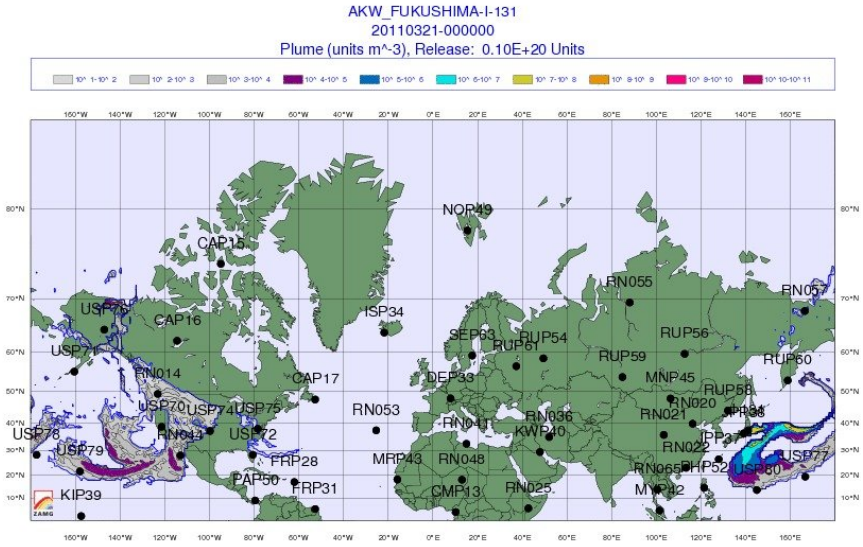
The Figures as displayed below have a different scaling compared with that that used for the operational runs. This scaling was optimized to show small activity concentrations, in accordance with the exceptional accuracy of the CTBTO network.



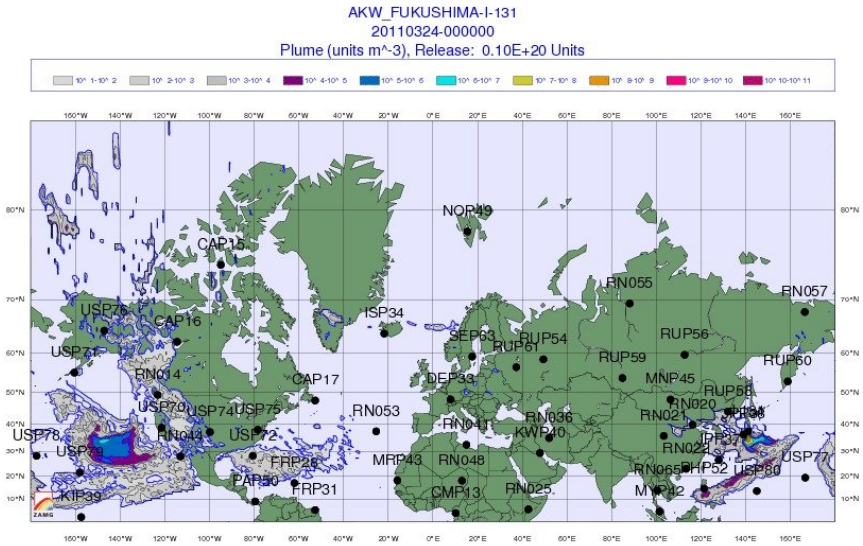
Spread of radioactivity (Iodine-131) released from Fukushima 3 days after the start of the accident



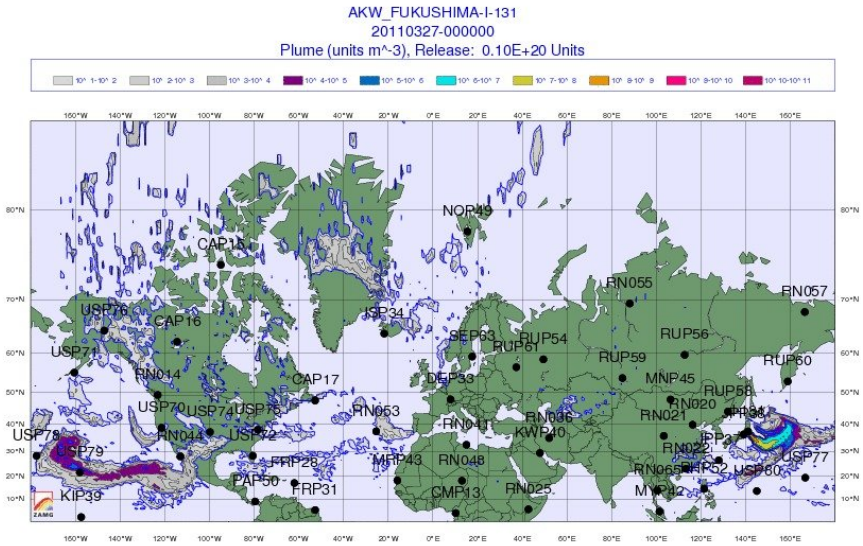
Spread of radioactivity (Iodine-131) released from Fukushima 6 days after the start of the accident: cloud reaches USA



Spread of radioactivity (Iodine-131) released from Fukushima 9 days after the start of the accident extremely diluted cloud has crossed North America.



Spread of radioactivity (Iodine-131) released from Fukushima 12 days after the start of the accident: extremely diluted radioactivity over Europe



Spread of radioactivity (Iodine-131) released from Fukushima 15 days after the start of the accident (forecast)

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Videos:

Reanalysis of Plume spread from Fukushima/Permanent Release/Iodine-131 (First period)

Reanalysis of Plume spread from Fukushima/Permanent Release/Iodine-131 (Second period)