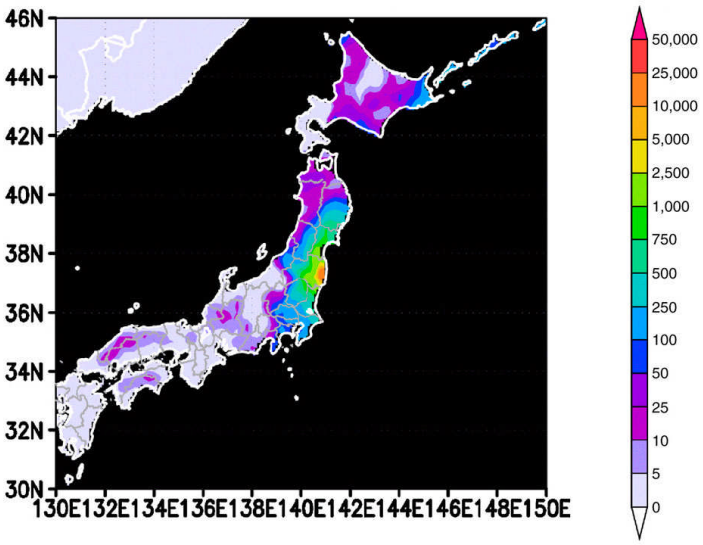
Thème scientifique – Santé : prévention et soin

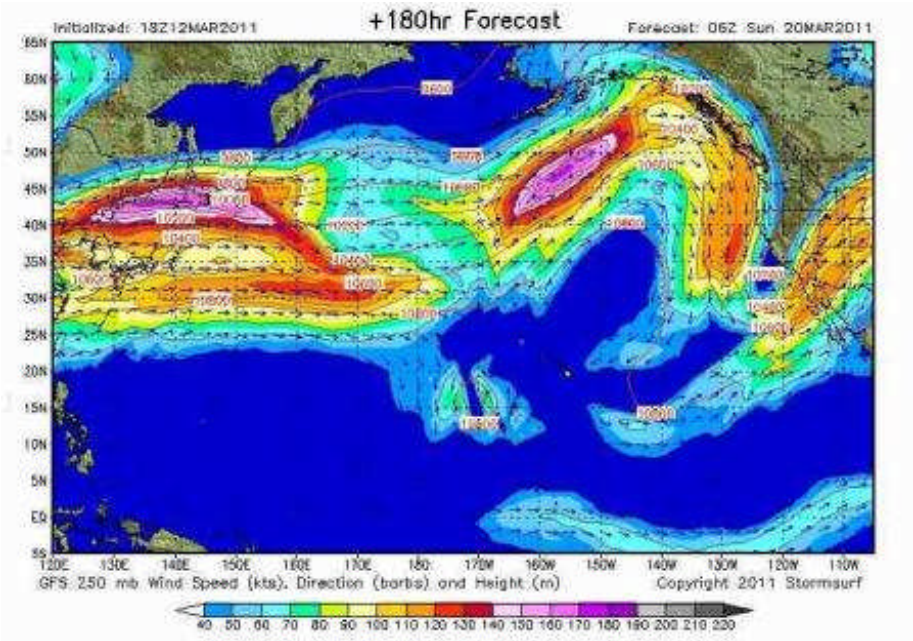
Post-Fukushima Radiation Mapped



SOIL CONTAMINATION : *Cesium-137 in Japan's soil in Becquerels per kilogram.*

More than eight months after a tsunami triggered a meltdown at the Fukushima Dai-ichi nuclear power plant, the broad impact of the accident on Japan's people and lands is becoming clear. Three recently published academic studies show that while direct radiation exposure of Fukushima residents isn't as high as was initially feared, soils across northeastern Japan are contaminated and could affect public health for decades through the produce farmed there. […] The Fukushima Dai-ichi accident—rated 7, the highest possible on the International Nuclear Event Scale released 160 petabecquerels of iodine-131 and 15 PBq of cesium-137, according to Japan's Nuclear and Industrial Safety Agency. Both radioactive nuclides cause an increased risk of cancer, but cesium-137, with its half-life of about 30 years (compared with eight days for I-131) poses the most concern over the long term : The isotope is still responsible for radiation in the dead zone surrounding the Chernobyl site. The Japanese government considers a total cesium level—the sum of cesium-137 and cesium-134, which has a half-life of two years—higher than 5000 becquerels per kilogram of soil unsafe for farming […] According to the Japanese newspaper *The Asahi Shimbun*, the science ministry says that about 8 percent of the country's land has been contaminated with levels higher than 10 000 Bq/m^2, a threshold that Japan's science ministry defines as affected by a nuclear accident.

By Prachi PATEL, December 2011



Nuclear fallout from Fukushima (projection) as from jet stream winds.

Questions

1. **Introduce briefly and comment on the document.**
2. Why does radioactive contamination last so long and spread so far?

To answer this question, you can develop the concepts of radioactive nuclides, half-life and activity.