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# Fukushima: Radioactive Dust Extends South to Tokyo-Yokohama, Nagoya

By Arnie Gundersen
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ENE News

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*Gundersen: This video "confirms our worst fears" — Scientist: Reactor core materials found almost 500 km from Fukushima plant — 40,000,000,000,000,000,000 Bq/kg — Can travel very, very significant distances — Hot particles found in 25% of samples from Tokyo and Fukushima (VIDEO)*

Fairewinds Energy Education, Apr. 3, 2014:

- At 0:45 in – *Arnie Gundersen, Chief Engineer at Fairewinds Energy Education*: If Fairewinds Energy Education was a Japanese website, the State Secrets Law would likely prevent us from issuing this video.
- At 1:15 in — *Marco Kaltofen, Civil Engineer & Ph.D. Candidate at Worcester Polytechnic Institute (WPI)*: In looking at indoor environments, they tend to be much more contaminated than the surroundings outside. Houses act like a trap and they tend to collect outdoor contaminants and they expose people as much as 24 hours a day.
- At 9:15 in – *Kaltofen*: The sample that we got came from Nagoya in Japan, its 460 kilometers from the accident site. That's about 300 miles away.
- At 9:30 in — *Kaltofen*: It's actually in the size range of dusts that can be inhaled and then retained in the lungs. This is important because if your health physicist and calculating and you're calculating the dose that you would get from this particle you'd have to consider that this particle might actually be trapped and result in a lifetime exposure.
- At 10:00 in – *Kaltofen*: The particle we examined was a mixture of fission products from a nuclear reactor and nuclear fuels. We looked at materials like tellurium, radium-226, we saw cesium-134, and -137, cobalt-60, and a whole zoo of isotopes that probably you'll never hear about on CNN […] 80% by weight of this particle was made up of pure reactor core materials. That tells me that something that came directly from the accident, directly from the core can escape containment and travel a very, very significant distance. So it's a long distance to travel and what happens is the particle is so very small that it will essentially travel with whatever gas it's entrained in. The winds will blow it long distances.
- At 12:00 in – *Kaltofen*: This material was in the peta-becquerel per kilogram range […] 4 followed by 19 zeroes — that many Bq/kg. That's a very, very high number. […] It is a tiny particle […] about 310 becquerels for the particle.
- At 14:00 in – *Kaltofen*: If you look at the black dust – and we've received samples of that from Namie and Iitate, and a couple of other communities in northern Japan, this is very similar to the black sand that people see. The black sand – and

this particle, too – it's an aggregate, it's a mixture. If you think of a hunk of concrete, it's actually a mix of sand and cement and small stones, that's what it looks like under the microscope.

- At 15:45 in – *Kaltofen*: For our Japanese samples from Fukushima Prefecture and from Tokyo, about 25% of those samples contained at least a few measurable hot particles.
- At 16:15 in – *Kaltofen*: This data [was put] before a peer review panel at WPI.
- At 16:45 in – *Gundersen*: It is solid scientific material like this that you will not see or hear via traditional news stories, Tokyo Electric, or the IAEA. Fairewinds has long said that there will be significant increases in cancer in Japan as a result of the Fukushima Daiichi accident — and this video describing just one hot particle, confirms our worst fears.

*Watch the Fairewinds presentation here*



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