



Opening Speech at CSN Public Meeting on Stress Tests - Madrid, October 2012

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Great East Japan Earthquake 11/3/11

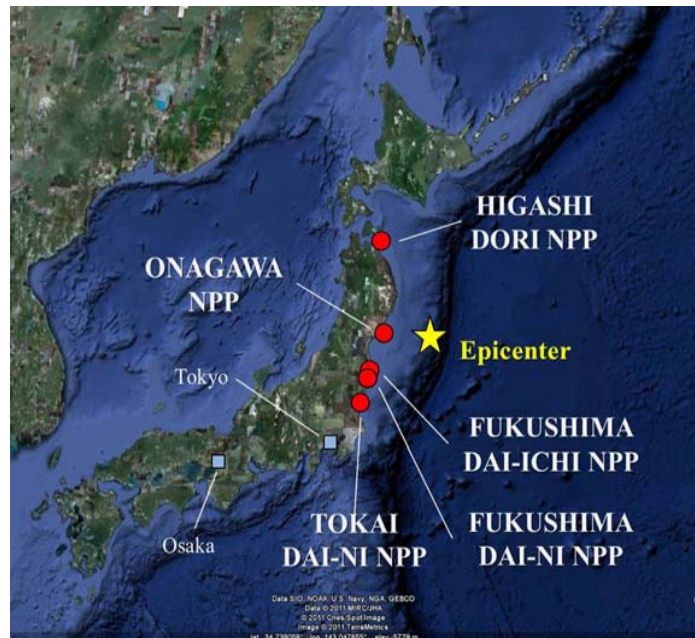
- Magnitude 9 earthquake
- Subsequent tsunami
- ~20000 dead or missing
- Massive destruction
- Impaired infrastructure
- Affected all nuclear plants on the east coast
- Greatest consequences at Fukushima Dai-ichi



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Nuclear Power Plants Affected



TEPCO Fukushima Dai-ichi Site

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Power of the Tsunami (1) Dai-ichi – tsunami hitting the turbine buildings



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Tsunami Inundation of the Site



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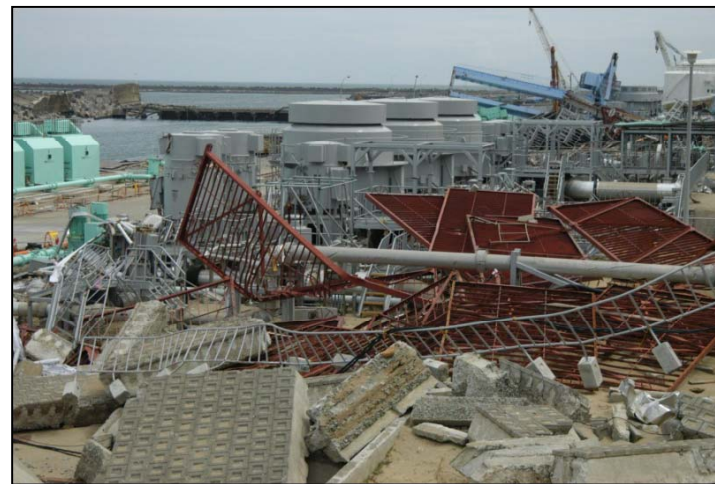
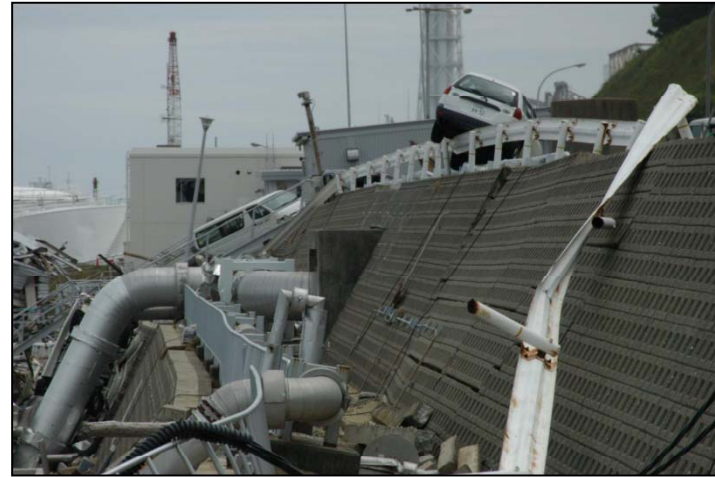
Tsunami Inundation of the Site



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Devastation across the site– 10 weeks after

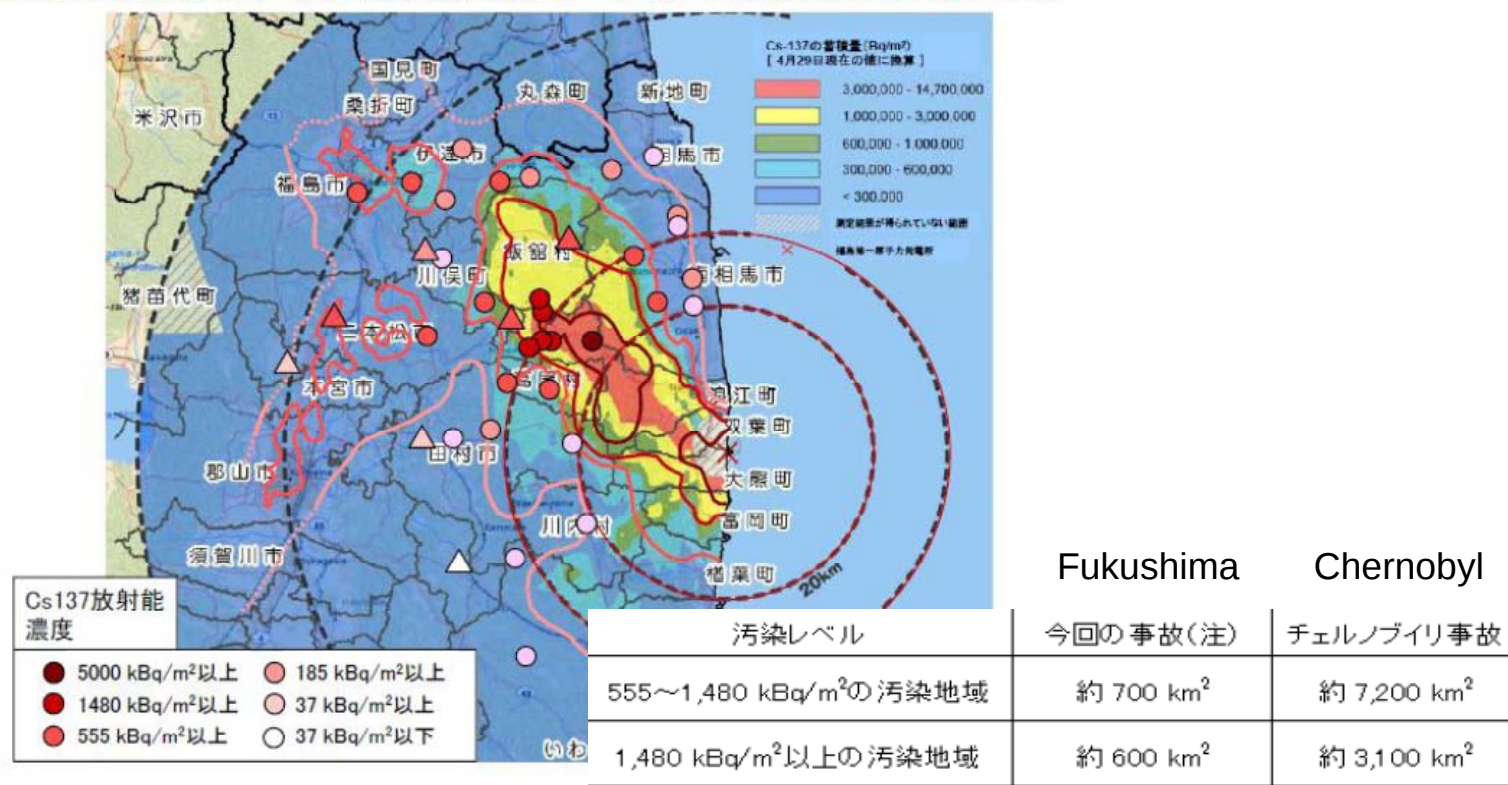


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Social Impact: Land Contamination

5月6日公表文科省・米国DOE航空機モニタリング結果との重ね合わせ



Source: T. Kawada, "Current Status of Soil Contamination and how to respond", Presentation at Japan Atomic Energy Commission Meeting, May 24, 2011

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Fukushima Dai-ichi

The Design/Regulatory basis for earthquake was more or less robust

But...

1. Design/Regulatory basis for associated tsunami inadequate – 3.1m cf 14-15m
2. Plant layout optimised for earthquake but not for associated flooding:
 - Emergency diesels & electrical switchgear located in low areas such as turbine hall basements
3. Lack of consideration of common mode vulnerabilities
 - Extensive use of water cooled diesels
 - Ultimate heat sink arrangements
 - Staffing arrangements
 - Instrumentation, communications, sources of power to valves
4. Severe Accident response inadequate



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