Technical Assessment of Environmental Contamination From the Fukushima Dai-ichi Reactors

September 11, 2012

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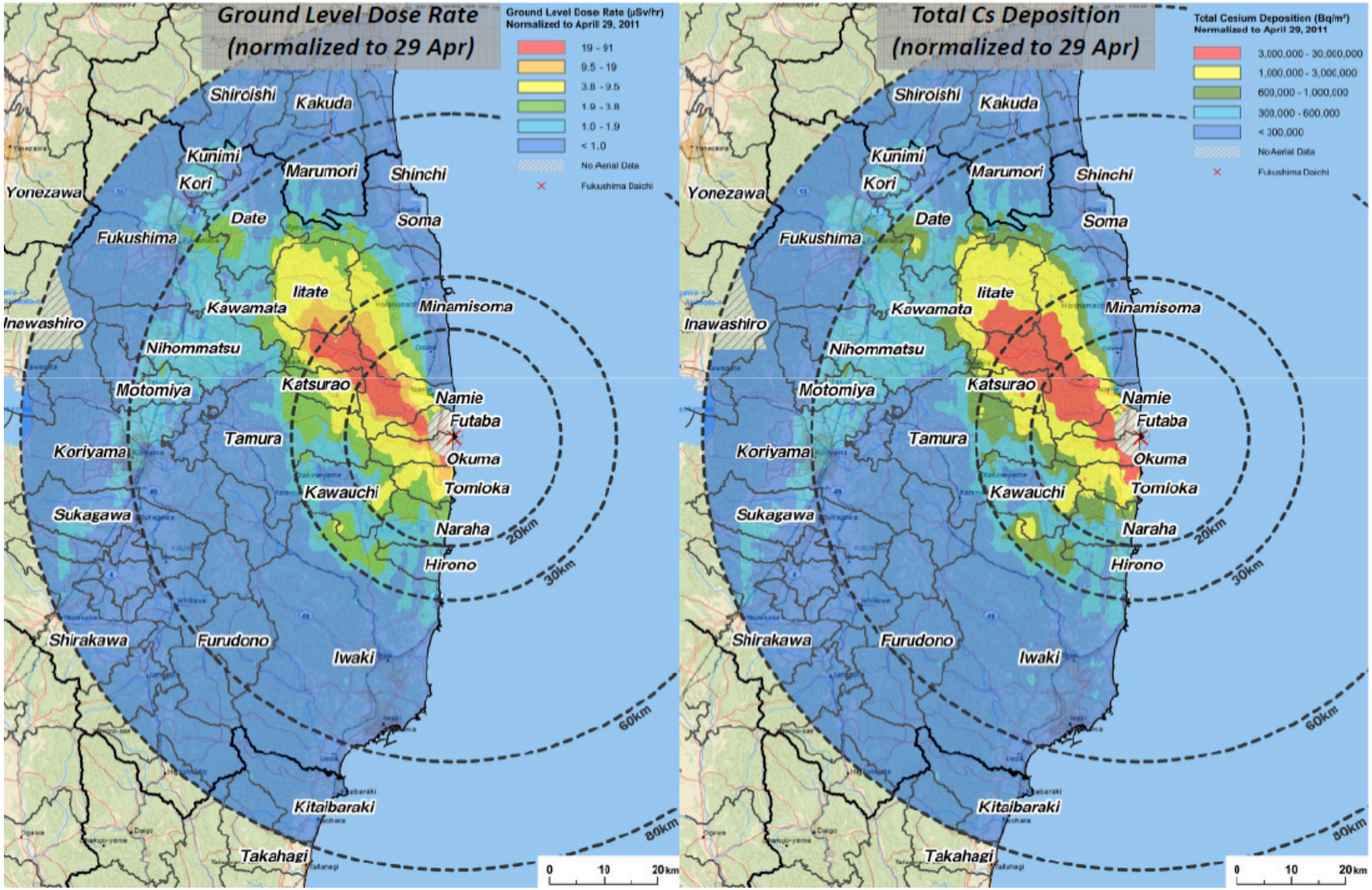
Aerial Measuring Results
Joint US/Japan Survey Data

FUKUSHIMA DAIICHI
JAPAN



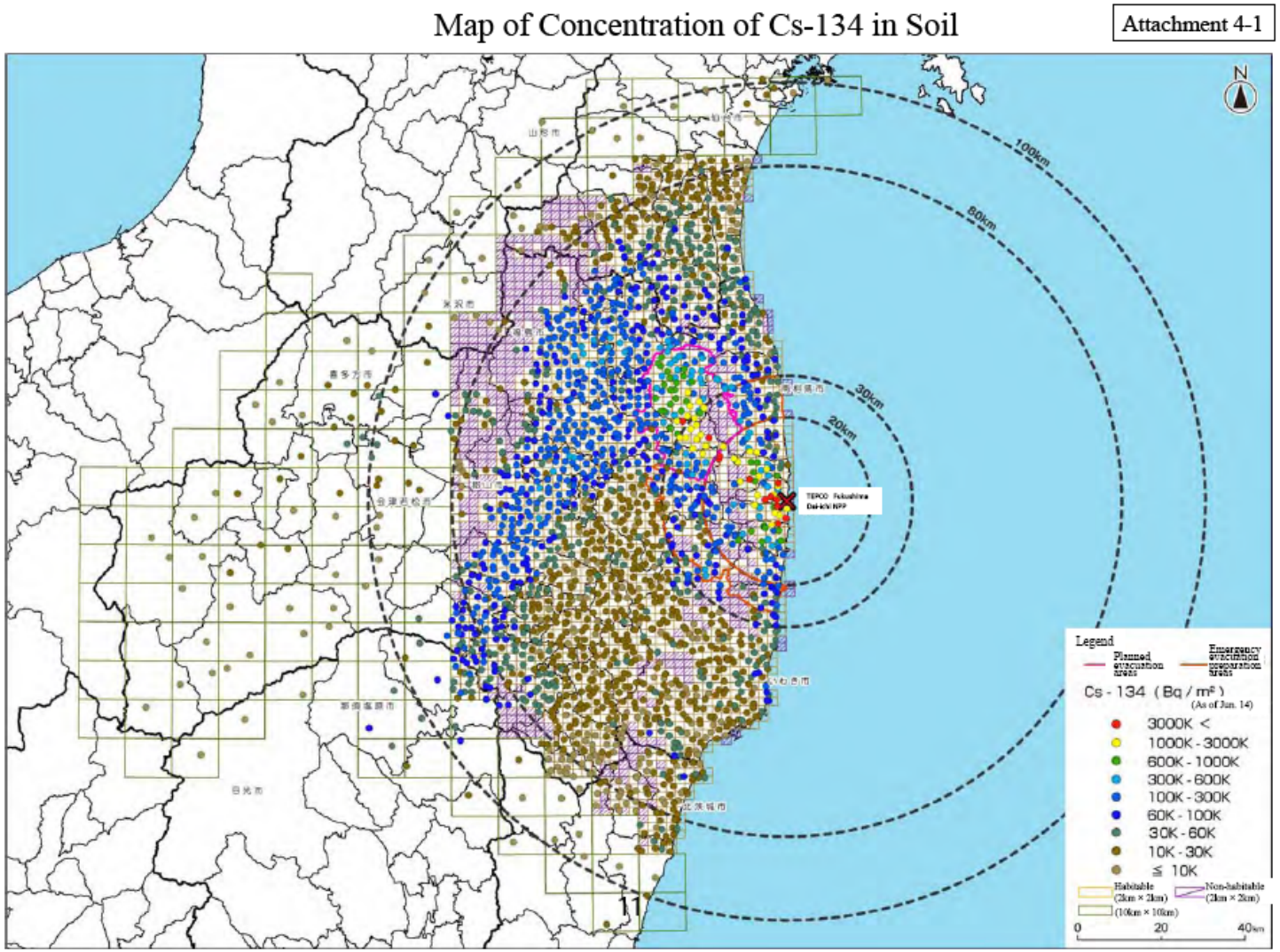
80 km

Government of Japan Replicated Joint Aerial Measuring Results with Soil Samples

Deposition Map From Soil Samples

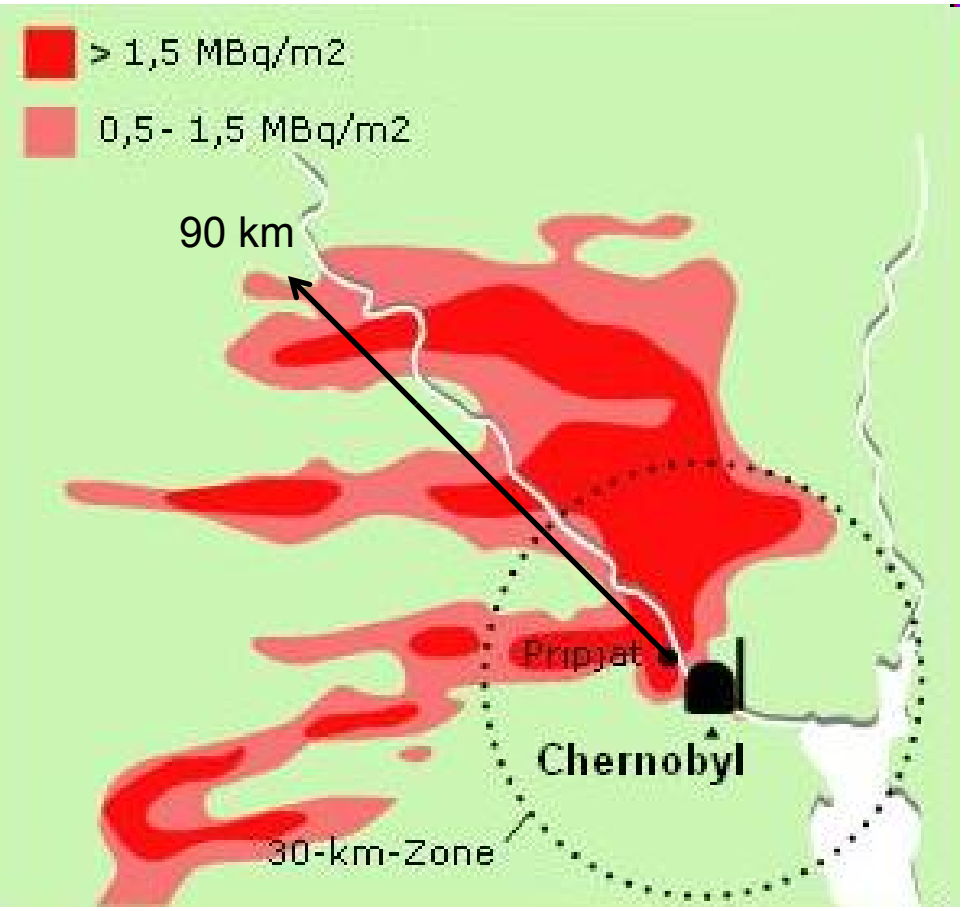
2,200 Locations

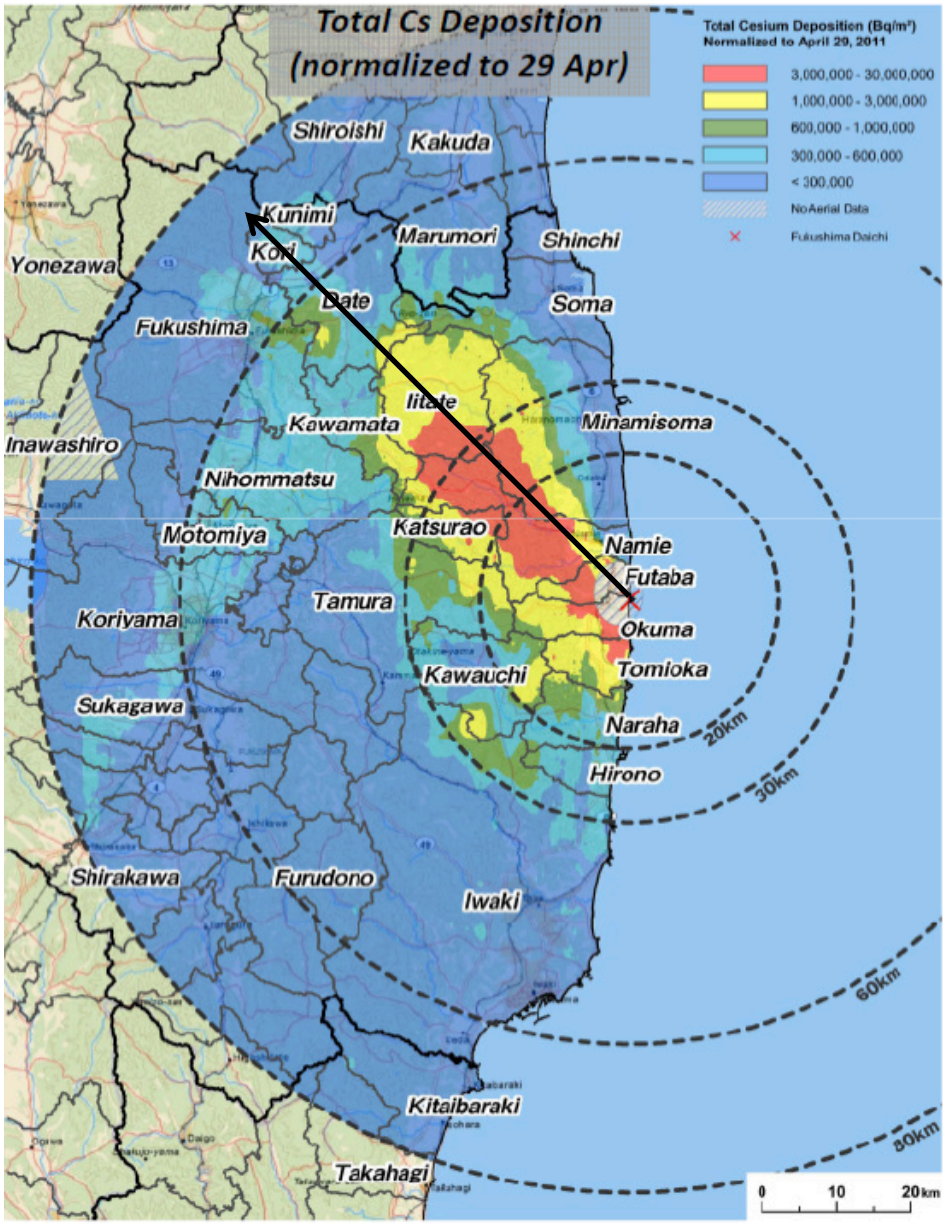
5 points per locations



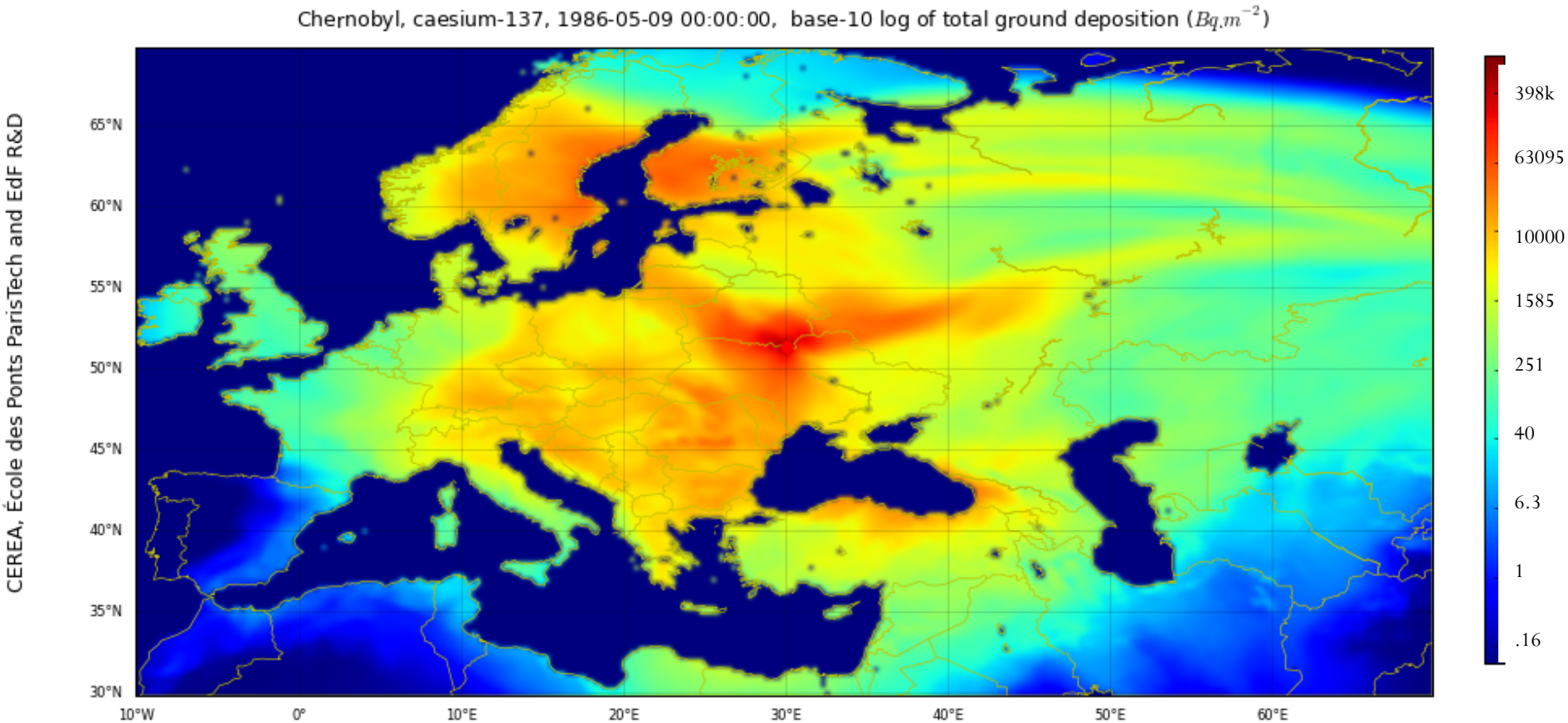
Preparation of Distribution Map of Radiation Doses, etc., (Map of Radioactive Cesium Concentration in Soil) by MEXT, August 30, 2011

Chernobyl Cs-137 Deposition



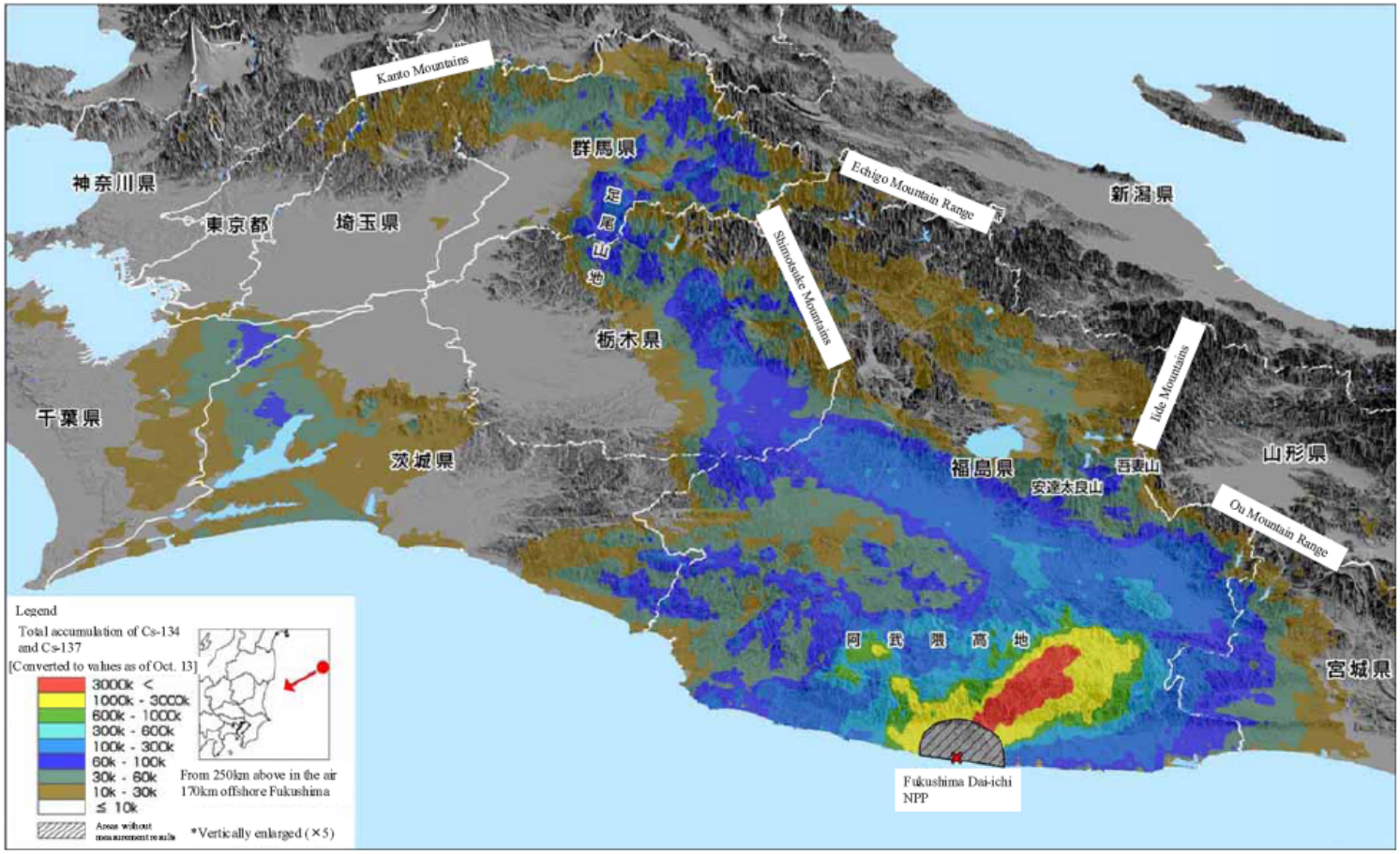


Chernobyl Cs-137 Deposition



Color scale not the same as Joint US-Japan and GOJ products

Effects of Terrain

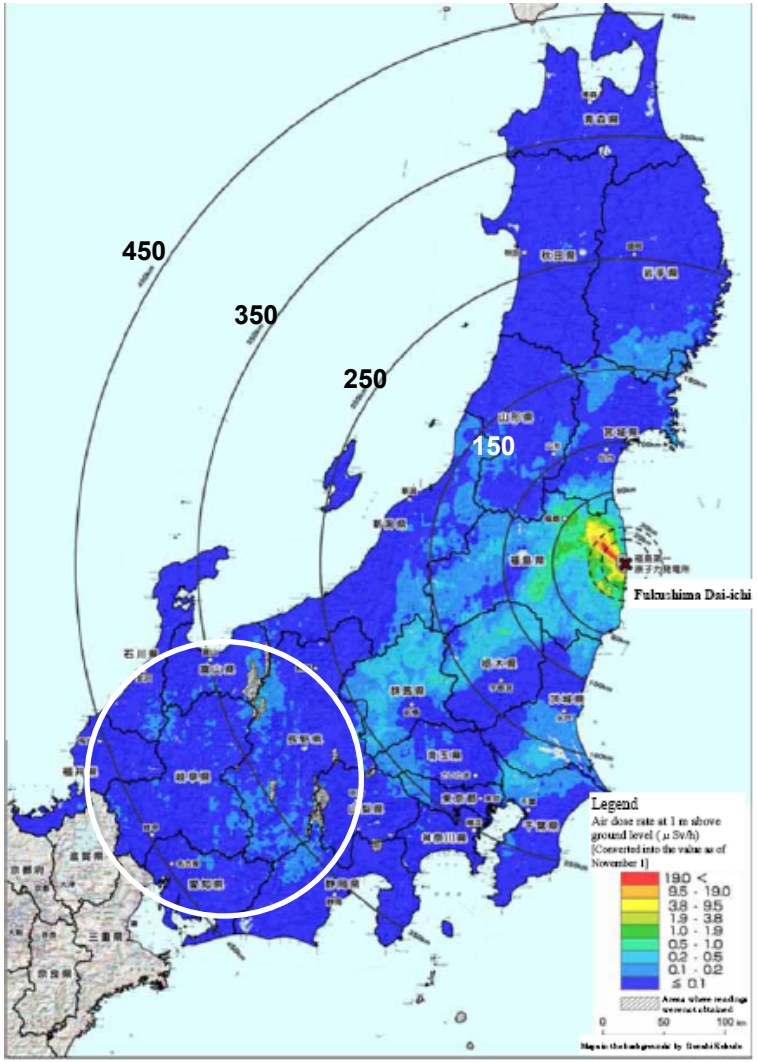


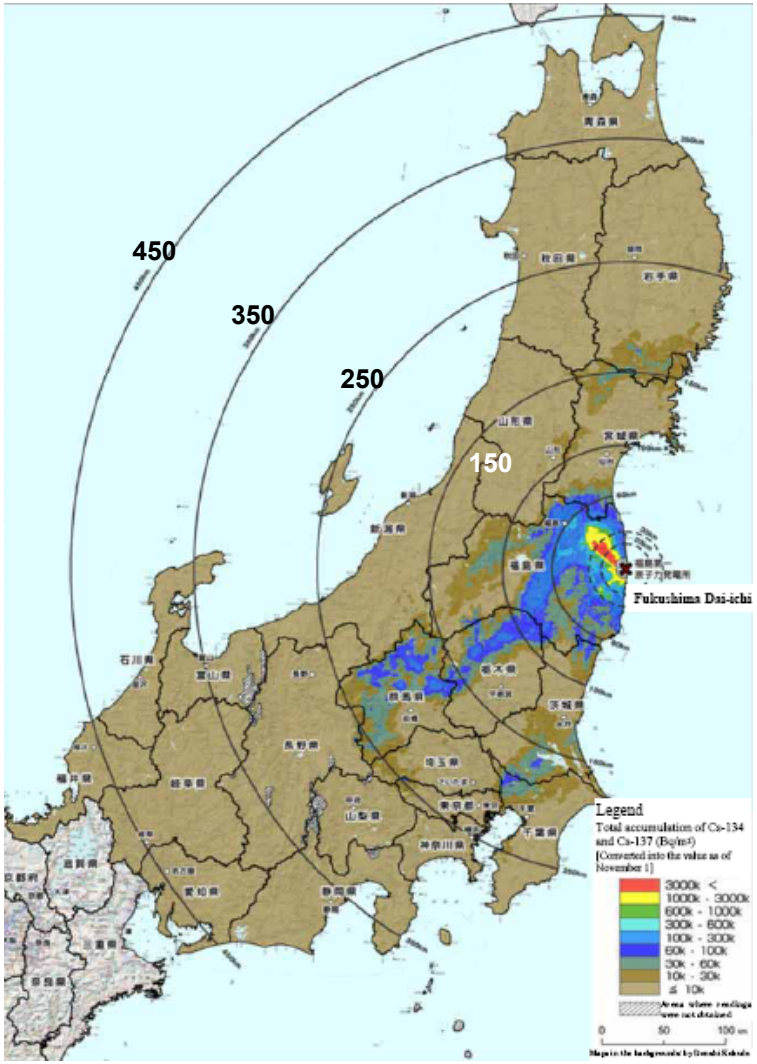
*Measurement results of 10kBq/m^2 or less (the total deposition of Cs-134 and Cs-137) are omitted from the map to clarify the relevant relations.

Results of Airborne Monitoring Survey by MEXT in Aichi, Aomori, Ishikawa, and Fukui Prefectures, November 25, 2011

Extent of Contamination

Ariel survey as of November 11, 2011

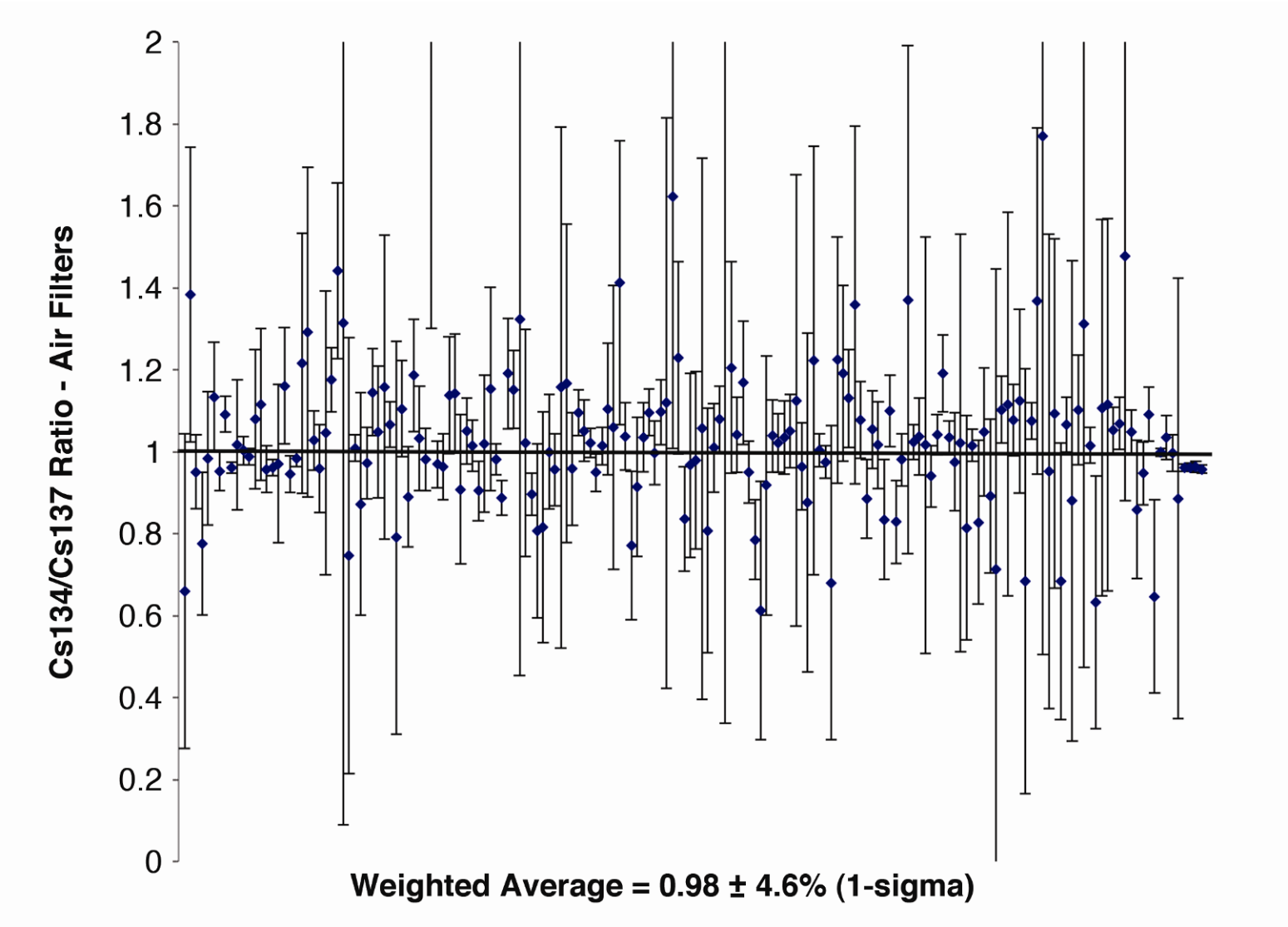




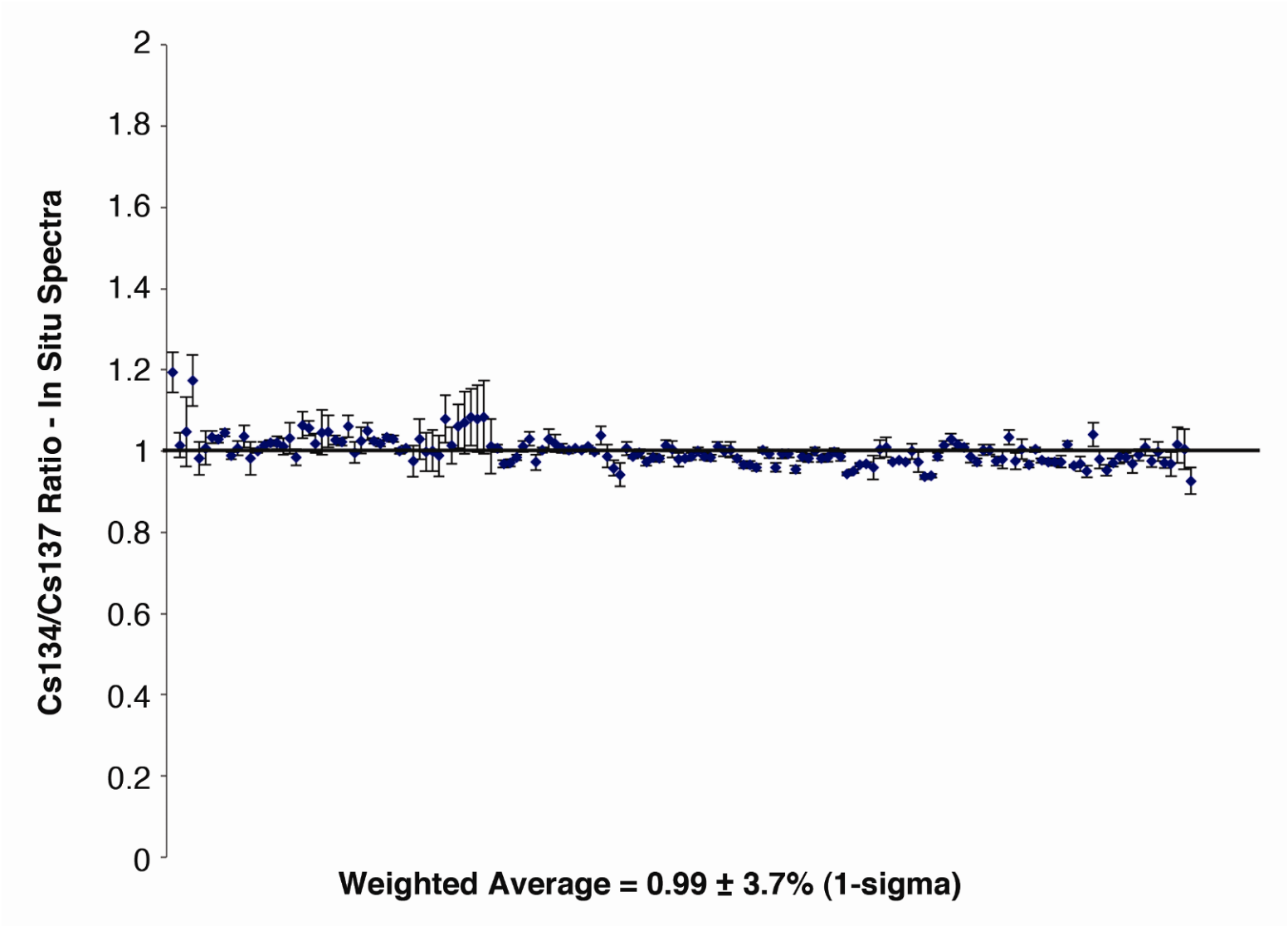
Results of Airborne Monitoring Survey by MEXT in Aichi, Aomori, Ishikawa, and Fukui Prefectures, November 25, 2011

Isotopic Mix Consistent for $^{134,137}Cs$

Air Filters (DOE)



Soil Samples (DOE)



Refractory Material Not Detected

Refractory Material Not Detected

- Trace amounts of $^{89,\ 90}Sr$ detected in DOE soil samples
- ^{103}Ru not detected in DOE in situ gamma spectroscopy
- Plutonium ^{238}Pu, $^{239,\ 240}Pu$ not detected in soil samples by MEXT‡
  - Uranium detected in the samples naturally occurring ^{235}U/ ^{238}U ratio

2 . Readings of Pu&U

Sampling Point	Sampling Date and Time	radiation dose rate [μ Sv/h]	Pu-238	Pu-239+240	U-235/U-238
Around Kodeya in Kuzuo Village	3/23 About 10:20	43.5	Not Detectable (Below 0.1 Bq/kg)	Not Detectable (Below 0.1 Bq/kg)	0.00731
East Side of Hirusone Tunnel ,Namie Town	3/23 About 10:40	46.5	Not Detectable (Below 0.1 Bq/kg)	Not Detectable (Below 0.1 Bq/kg)	0.00726
Akougi Namie Town	3/22 About 11:30	50.1	Not Detectable (Below 0.1 Bq/kg)	Not Detectable (Below 0.1 Bq/kg)	0.00723

* Isotope abundance ratio of U-235/U-238 in a state of nature : 0.00725

Boiling Point °C

Cs – 671
Sr – 1384
Zircaloy – 1850
Pu – 3235
Ru – 4150

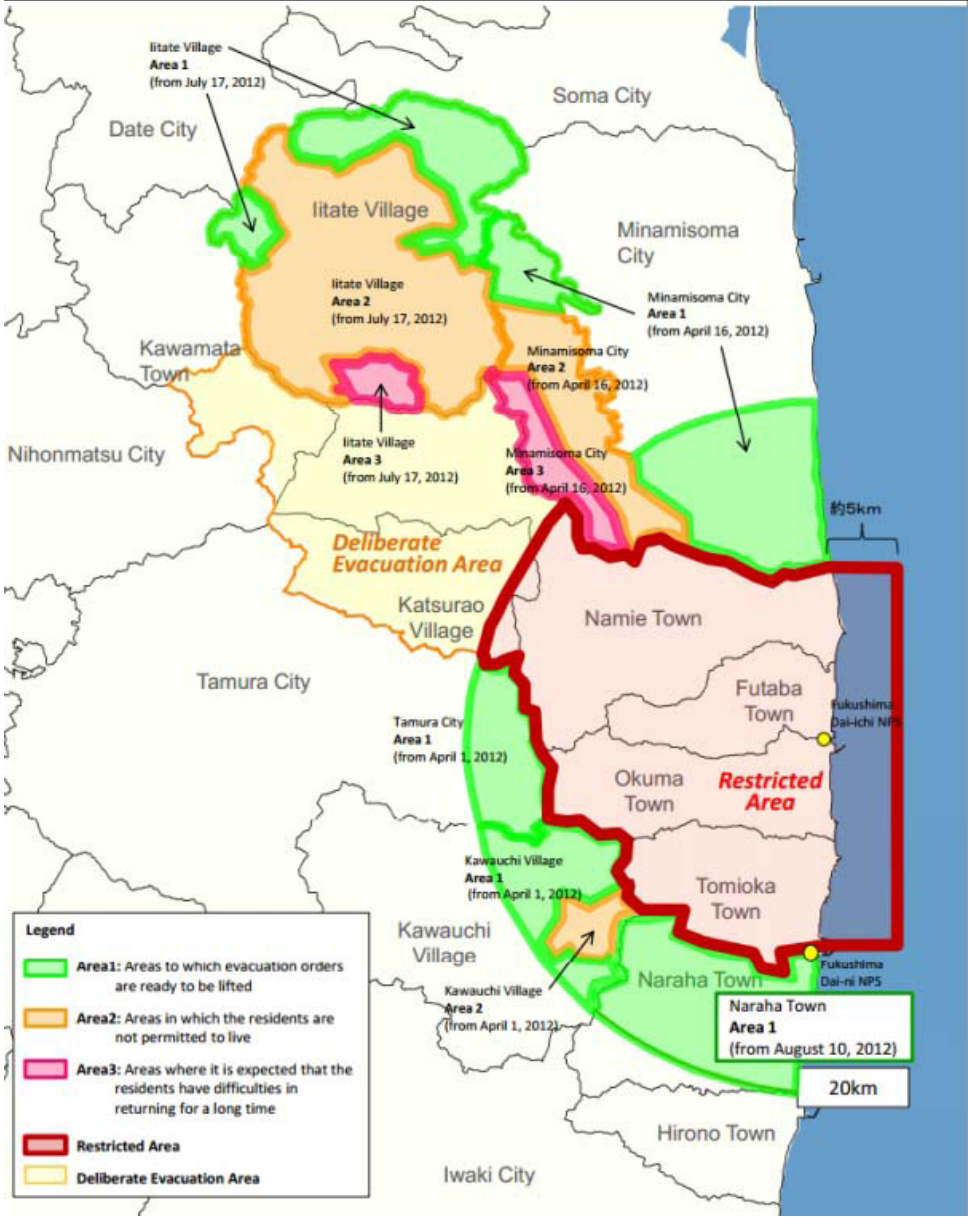
‡ "Readings of Pu&U at Monitoring Post out of 20&30 Km Zone of Fukushima Dai-ichi NPP", MEXT, April 1, 2011

^{89,90}Sr in Soil and Vegetation (GOJ)

Sample	Sampling Point (Number or Name)	Sampling Date	^{131}I	^{134}Cs	^{137}Cs	^{89}Sr	^{90}Sr	Unit
Land Soil	31*2	3/17	30,000	2,300	2,300	13	3.3	Bq/kg WetSoil
Land Soil	32*2	3/16	100,000	20,000	19,000	81	9.4	Bq/kg WetSoil
Land Soil	33*3	3/16	160,000	52,000	51,000	260	32	Bq/kg WetSoil
Plant	Ootama Village	3/19	43,000	89,000	90,000	61	5.9	Bq/kg raw
Plant	Motomiya City	3/19	21,000	57,000	57,000	28	3.7	Bq/kg raw
Plant	Ono Town	3/19	22,000	12,000	12,000	12	1.8	Bq/kg raw
Plant	Nishigou Village	3/19	12,000	25,000	25,000	15	3.8	Bq/kg raw

Analysis by MEXT

GOJ Evacuation as of August 2012



IAEA Fukushima Dai-ichi Status Report, 31 August 2012