Environmental impact caused by the nuclear power accident at Fukushima Daiichi nuclear power station： As of October 6th

<table>
<tr><th>Environmental effect</th><th>Area within 30 km radius</th><th>Area in Fukushima Pref beyond 30 km</th><th>Other prefectures in east Japan</th></tr>
<tr><td>Air Dose Rate

Radiation Level of dust</td><td colspan="3"><Trend and Pattern of air dose rate distribution>
Trend : Air dose was decreasing gradually after the accident occurred and have reached a stable state in all places. Pattern: Relatively high level of radiation has been monitored in the area north east of the power station.
NSC evaluates the Environmental Monitoring Results published by MEXT almost every day.(Japanese)

<Distribution map of radiation dose> →http://radioactivity.mext.go.jp/ja/distribution_map_around_FukushimaNPP/
MEXT creates various kinds of radiation maps and releases them for the use of understanding complete picture of environmental impact and also lifting residential restriction according to “The Plan for Strengthening Environmental Monitoring.”
There are some areas that exceed 20mSv/year, which is reference dose for evacuation, in terms of estimated integrated over 1 year.
<Radioactivity Concentration of Nuclide in the air>
Slight amount of radioactive Cesium was detected in air samples taken from area beyond 20 km from the power plan. These samples are taken between Sep 26 and Sep29.</td></tr>
<tr><td>Residency Restriction</td><td><Establishing Evacuation area and other special area >
・Evacuation area :Area within 20km radius (R)
・Deliberate Evacuation Area：Area in which more than 20 milleSv/year of radiation is detected within 30km R beyond 20 km R of the power plant.
・Emergency Evacuation Preparation Areas, which is not Evacuation area or Deliberate Evacuation Area within a 30-kilometer radius of the plant, was lifted on Sep 30. Gov’t conducted intensive monitoring before this lifting restrictiuon.
→http://radioactivity.mext.go.jp/ja/monitoring_action_plan/
<School>
All preschools and schools close in evacuation area or Deliberate Evacuation Area. Schools in Emergency Evacuation Preparation Area are to reopen later in this October after lifting restriction of September 30th.</td><td><Specific Spots Recommended for Evacuation>
There are some specific spots estimated to exceed an integral dose of 20mSv over a one year outside 30km R from the power plant.
The central government designated the some hundreds households in Date City, Minami Soma City and Kawauchi Village as “Specific Spots Recommended for Evacuation” and call the attention of these residents and assist and promote their evacuation.
<School>
・MEXT will lower the threshold for cumulative external radiation permitted at schools and kindergartens to a maximum annual exposure of 1 mSv.(News of August 24)
・Integral dosimeters has been distributed to every school and other applicable institutions throughout Fukushima Pref.</td><td></td></tr>
<tr><td>Radioactivity in the Soil</td><td colspan="3"><Survey of the soil for contamination>
MEXT released a map on Monday showing how land is contaminated with radioactive Cesium and Iodine. It is for the use of considering lifting restricted zones. Distribution pattern of contaminant shown in this map is similar to airborne monitoring survey. →http://radioactivity.mext.go.jp/ja/distribution_map_around_FukushimaNPP/0002/11555_0830.pdf　→http://radioactivity.mext.go.jp/ja/distribution_map_around_FukushimaNPP/0002/5600_0921.pdf
Gov’t detected plutonium and strontium in soil samples taken outside the power plant.→http://radioactivity.mext.go.jp/ja/distribution_map_around_FukushimaNPP/0002/5600_0930.pdf</td></tr>
<tr><td rowspan="2">Decontamination work</td><td colspan="2"><Radioactive substance>
It is reported that Cesium, Strontium and slight amount of Peritoneum has been found in soil sample taken from some towns in Fukushima pref.
<Restriction of farming>
・Rice planting has been restricted within the evacuation area, the deliberate evacuation area and the emergency evacuation preparation areas.</td><td></td></tr>
<tr><td colspan="2"><Basic Plan>
The Gov’t has compiled a basic decontamination plan. The Gov’t plans to cut the contamination levels in residential areas by almost half over the next 2 years.
→http://www.meti.go.jp/press/2011/08/20110826001/20110826001.html
<Municipality>
Fukushima City, about 60 kilometers from the power plant plans to spend 2 years decontaminating all 110,000 private houses in the city.(News of Sep 27)
<R&D>
After successful demonstration, MAFF decided to apply it’s own method to the decantation program with certainty that radioactive cesium per kilogram of soil will be reduced to less than 5,000 becquerels, which is the government’s guideline for rice planting .(News of Sep.7)
<Forest>
The Forest Agency released the result of survey on radioactive contaminant distribution and provides guidance decontamination of forest.
→http://www.rinya.maff.go.jp/j/press/hozen/110930.html</td><td></td></tr>
<tr><td>Agricultural and livestock products</td><td colspan="2"><Shipment/intake restraint, voluntary restraint of shipment>
・Radioactive substance in excess of provisional standard was found in some products from some areas. Instruction of shipment/intake restraint has been imposed on designated products. →See the box of ”Shipment/intake restrain” below.

<Rice>
Radioactive tests on rice being conducted in Tohoku and Kanto regions. Radioactive cesium measuring just at the government-set safety limit of 500Bq/kg has been detected in rice samples collected in Nihonmatsu city, northeastern Fukushima Pref. (News of Sep 25)</td><td><Agricultural product>
・Tea leaves grown in some area outside Fukushima are subject to request of shipment/intake restrain.→See the box of ”Shipment/intake restrain” below.
・Radioactive cesium exceeding the government’s safety limit has been detected in tea leaves from Saitama prefecture through unannounced tests of food products. The local government has asked tea producers of the area in question to avoid shipping.(News of Sep 6)</td></tr>
</table>

	<Beef Cattle> Municipality set up safety control system including inspection for beef cattle given the fact that contaminated beef was found in market. **<Rice>**The Gov't creates guideline for radioactivity check for rice in preparation for coming harvest season. →http://www.maff.go.jp/j/soushoku/kaigi_siryo/110803.html	
	<Pasture grass and rice straw to be fed> ・Radioactive substance in excess of provisional standard was found in pasture grass growing in some area. Shipment of milk cow and beef cattle has been voluntarily restrained in some area. ・Given the fact that contaminated rice straw to be used for feeding cattle has been widely circulated, MAFF conducted investigation. →http://www.maff.go.jp/j/soushoku/kaigi_siryo/110803.html	
River (Drinking water)	**<Tap water>**The health ministry panel studying radiation levels in tap water concluded that it contains no safety risks for the time being. (As of Sep 1)	
	<River fish> ・Cs in excess of 500Bq/kg was found in river fish caught. Instruction of shipment/intake restraint is being imposed on designated products.	
Other	**<Sludge at sewerage processing plant, Debris created after Earthquake and Tunami, Ashfrom waste incineration plant>** ・Radioactive substance was found in sludge from sewerage processing plant, debris created after Tsunami hit and ashes generated at waste disposal facilities in some prefectures. ・The Gov't set standard in terms of radiation level for land disposing radioactively contaminated waste such as ashes from incineration plant and so on by landfill.	
Sea	**<Sea water>** ・MEXT re-analyzed sea water sample taken in the end of July with the method that has much lower detection limit. Small amount of radioactive substance was detected in the samples taken from the sea 30km far from the power plant.→ http://radioactivity.mext.go.jp/ja/monitoring_around_FukushimaNPP_sea/2011/09/1335_0912_2.pdf **<Soil on seabed>** ・Radioactive Cesium was found in the soil samples taken from the seabed beyond 30km off the coast of Miyagi, Fukushima and Ibaragi prefectures. (News of June 12) ・Radioactive Strontium up to 44 becquerels per kilogram has been detected for the first time on the seabed near the power plant. ・Radioactive Strontium was not found on a sea bed beyond 30km off the coast according to the data of investigation that MEXT issued on August 19, **<Marine plankton>** ・Radioactive cesium was found in animal plankton collected 35 kilometers off Iwaki City. The level was measured at 6 becquerels per kilogram. (News of July 9) **<Fishily>** ・Fishing activity is restricted in the area within 20 km from the power plant, which is designated as evacuation area by the government .	
	<Marine Product> ・Sand lane fish caught in Fukushima is subject to request of shipment/intake restrain.(As of Sep 1)	**<Marine Product>** Over 500 becquerels of cesium per kilogram was detected in brown hakeling caught off the coast of Hitachi. The local government asked to avoid shipping and selling fishes in question.(News of Sep 6)
Shipment/intake restrain	・Products subject to request of shipment/intake restrainand voluntary restraint of shipment→http://www.maff.go.jp/e/quake/press_110312-1.html	
Monitoring plan and activities	**Various kinds of radiation monitoring and survey have been conducted on a regional scale under the cooperation of national government, local government and civil agency in line with plan made by national government. Result of these monitoring are shown at the MEXT's HP.** →http://www.mext.go.jp/english/incident/1303962.htm Monitoring Plan, Environmental radioactivity level, Drinking water, Fallout, Monitoring Post, Dust sampling, Dose rate measurement at schools, Airborne Monitoring, Sea Area Monitoring, Simulation of Radioactivity Concentrations in the Sea Area, Pu&U at Monitoring, Strontium in land soil, Distribution map, Outdoor Swimming Pools at Schools, Forest Resources Utilization Facilities, Bathing Resort, Cultural Facilities etc	
Standard and guideline	・Establishment of provisional standard for radioactive substance contained foods based on food sanitation act.(Japanese)→http://www.nsc.go.jp/info/20100823.pdf ・Guideline for food inspection and specifying products and area of production for shipment/intake and its cancellation(Japanese)→http://www.mhlw.go.jp/stf/houdou/2r9852000001h0ni-att/2r9852000001h0tr.pdf ・Important school-related information(Japanese)→http://www.mext.go.jp/a_menu/saigaijohou/syousai/1303574_14098.html ・Roadmap for Immediate Actions for the Assistance of Nuclear Sufferers (5/17：Nuclear Emergency Response Headquarters)→http://www.meti.go.jp/english/earthquake/nuclear/roadmap/ ・Regarding Response to the Specific Spots Estimated to Exceed an Integral Dose of 20mSv Over a One Year Period After the Occurrence of the Accident ("Specific Spots Recommended for Evacuation") →http://www.nisa.meti.go.jp/english/press/2011/06/en20110621-2.pdf ・Draft evaluation report prepared by Food Safety Commission(Japanese)→http://www.fsc.go.jp/sonota/emerg/radio_hyoka.html ・Guidelines concerning lifting orders for taking emergent protection measure by Nuclear Safety Commission(Japanese)→http://www.nsc.go.jp/anzen/shidai/genan2011/genan059/siryo3-2.pdf ・Guidelines concerning radioactivity check for rice→ http://www.maff.go.jp/j/soushoku/kaigi_siryo/110803.html ・Provisional allowable limit for Manure, humus and feeding stuff contaminated with radioactive Cesium (Japanese)→http://www.maff.go.jp/j/syouan/soumu/saigai/shizai.html ・Other important information released by the national government (Beef, Marine products, etc)→http://www.kantei.go.jp/saigai/genpatsu_houshanou.html#syoku_anzen ・Guideline on how to deal with radio logically contaminated byproducts created through water treatment process or sewage treatment process in which radioactive substance is detected (Japanese) →http://www.meti.go ・Guidelines for management of Disaster Waste in Fukushim(Japanese)→http://www.env.go.jp/jishin/attach/fukushima_hoshin110623.pdf ・Guideline on how to deal with waste contaminated with radioactive substances from waste processing plants (Japanese) →http://www.env.go.jp/jishin/attach/osenhaiki-shori20110829.pdf ・Guideline for disposing incinerated ash which is contaminated with cesium more than 8000Bq/kg and less than 100,000Bq/kg(Japanese)→http://www.o-sanpai.or.jp/pdf/topics/2011/0831_02.pdf ・Interim report on radioactive substances distribution and results of the analysis(Japanese)→http://www.rinya.maff.go.jp/j/press/hozen/110930.html	
Radioactive substance to the environment	Total amount I-131and Cs-137 released to the environment through the air during the period from March 11 to April 5 estimated by Japan Atomic Energy Agency : I-131: 1.3E17Bq Cs-137: 1.1E16Bq (Nuclear Safety Commission 8/24)	

Abbreviation
NSC: Nuclear Safety Commission
MEXT: Ministry of Education, Culture, Sports, Science and Technology
MAFF: Ministry of Agriculture, Forestry and Fisheries
NISA: Nuclear and Industrial Safety Agency

Radiation in the Environment around Fukushima Daiichi NPS

Source: MEXT, U.S.DOE, and others

Air Dose Rate over 1 meter above Ground Level (microSv/h) Normalized to April 29

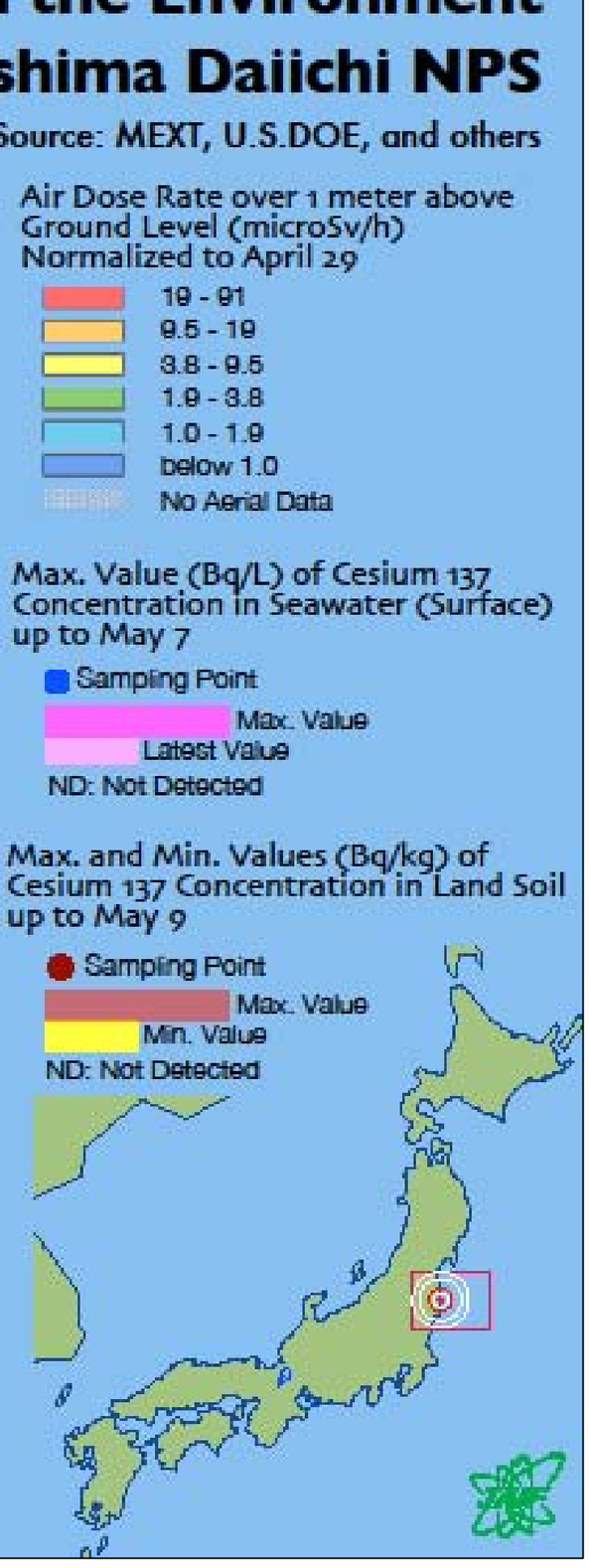
- 19 - 91
- 9.5 - 19
- 3.8 - 9.5
- 1.9 - 3.8
- 1.0 - 1.9
- below 1.0
- No Aerial Data

Max. Value (Bq/L) of Cesium 137 Concentration in Seawater (Surface) up to May 7

- Sampling Point
- Max. Value
- Latest Value
- ND: Not Detected

Max. and Min. Values (Bq/kg) of Cesium 137 Concentration in Land Soil up to May 9

- Sampling Point
- Max. Value
- Min. Value
- ND: Not Detected



Fukushima Daiichi

20km

30km

60km

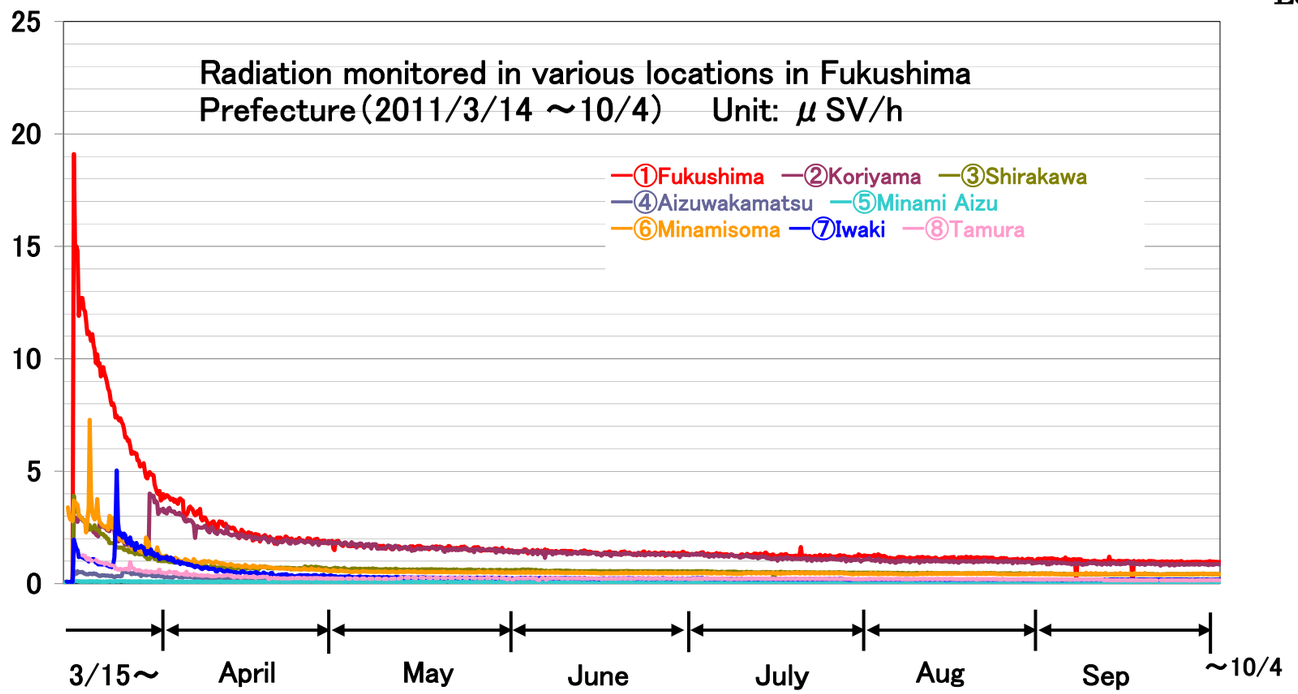
80km

Regulatory Standard Limit: 90.0 Bq/L

140,000 Bq/kg (May 5)
3,000 Bq/kg (March 26)
227,000 Bq/kg (March 26)
408 Bq/kg (March 30)
7,100 Bq/kg (April 25)
2,600 Bq/kg (May 9)
32,000 Bq/kg (April 27)
2,800 Bq/kg (May 8)
220,000 Bq/kg (April 22)
8,200 Bq/kg (May 3)
120,000 Bq/kg (April 20)
16,000 Bq/kg (April 16)
ND
ND
ND
17.8 Bq/L (April 29)
ND (May 5)
18.4 Bq/L (March 26)
ND (May 3)
10.0 Bq/L (April 29)
ND (May 5)
44.2 Bq/L (April 9)
ND (May 3)
186.0 Bq/L (April 16)
ND (May 5)
8,929 Bq/kg (April 17)
400 Bq/kg (April 7)
9,910 Bq/kg (April 22)
280 Bq/kg (May 2)
16,500 Bq/kg (March 21)
503 Bq/kg (April 20)
3,510 Bq/kg (March 18)
110 Bq/kg (May 1)
38,500 Bq/kg (April 4)
949 Bq/kg (March 31)
4,700 Bq/kg (May 3)
190 Bq/kg (April 17)
4,630 Bq/kg (March 19)
59 Bq/kg (March 26)
1,500 Bq/kg (April 17)
880 Bq/kg (April 27)
1,980 Bq/kg (April 19)
ND (March 30)
22,000 Bq/kg (May 5)
760 Bq/kg (April 28)
83.3 Bq/L (April 17)
ND (May 3)
39.5 Bq/L (April 15)
ND (May 5)
53.3 Bq/L (April 17)
11.4 Bq/L (May 3)
40.0 Bq/L (April 25)
10.7 Bq/L (May 5)
53.0 Bq/L (April 29)
ND (May 5)
38.5 Bq/L (April 17)
ND (May 7)
11.2 Bq/L (May 3)
ND (May 7)
12.1 Bq/L (April 29)
ND (May 5)

Shiroishi
Kakuda
Kunimi
Kori
Marumori
Shinchi
Yonezawa
Date
Soma
Fukushima
Iitate
Minamisoma
Kawamata
Inawashiro
Nihonmatsu
Motomiya
Katsurao
Namie
Futaba
Tamura
Okuma
Koriyama
Tomioka
Kawauchi
Naraha
Sukagawa
Tamura
Kawamata
Shirakawa
Furudono
Iwaki
Kitaibaraki
Takahagi

Trend of radiation in the environment at various locations



Locations for monitering