

DATA SETS DOWNLOADED FROM THE JAPAN ATOMIC ENERGY AGENCY ENVIRONMENT MONITORING DATABASE

UNSCEAR 2020/2021 Report, Annex B, Levels and effects of radiation exposure due to the accident at the Fukushima Daiichi Nuclear Power Station: implications of information published since the UNSCEAR 2013 Report

Contents

The Japan Atomic Energy Agency (JAEA) collected environmental monitoring data published by various organizations related to the following Fukushima Daiichi Nuclear Power Station (FDNPS) accident, including dose rate in air (from airborne and deposited radionuclides), and radionuclide concentrations (air, ground surface, soil, seawater, marine soil, river water, river sediment, groundwater, drinking water and food) to form the Environment Monitoring Database (EMDB) which is available to the public through an online website at [JAEA, WEB].

A total of 62 data sets related to the measurement of dose rate in air, radionuclide ground deposition density, and radionuclide concentrations in air and in food and drinking water were downloaded from EMDB by the Committee over the period between August and October 2018. These data sets reported the results of over 200 radiation surveys carried out in Japan between March 2011 and March 2018 by Government bodies and other organizations. The Committee has systematically catalogued these downloaded EMDB data sets, with the files renamed to reflect the source and type of data in the data files. This attachment provides a list of the downloaded EMDB data sets. The Committee undertook a process of quality assurance, including extensive checks to determine whether the measurements were scientifically sound and fit for purpose, consistent with the processes undertaken in the preparation of the UNSCEAR 2013 Report.

Notes

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Information on Uniform Resource Locators (URLs) and links to Internet sites contained in the present publication are provided for the convenience of the reader and are correct at the time of issue. The United Nations takes no responsibility for the continued accuracy of that information or for the content of any external website.

© United Nations, March 2022. All rights reserved, worldwide.

This publication has not been formally edited.

Table A-5.1. Data sets downloaded from the Japan Atomic Energy Agency Environment Monitoring Database website at [JAEA, WEB]

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Fukushima Prefecture Environmental Radiation Monitoring-Mesh Investigation (detail survey)	The Fukushima Prefecture Government has continuously been conducting the Mesh survey with 2 km grids covering the whole Fukushima Prefecture to understand the distribution of air dose rate in the whole prefecture after the FDNPS accident. The Fukushima Prefecture Government conducted detail surveys with grids more detailed than 2 km grids and released the results to the public. These data were compiled by JAEA based on the results of Fukushima Prefecture Environmental Radiation Monitoring in Mesh Survey (detail survey) (from FY 2014 to FY 2016) released to the public in the Fukushima Prefecture Government website. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1010118/	Fukushima Prefecture	Ambient dose rate	FY 2014 to FY 2016
Fukushima Prefecture Environmental Radiation Monitoring-Mesh Investigation	This series of data was compiled by JAEA based on results of Fukushima Prefecture Environmental Radiation Monitoring-Mesh Investigation (FY 2011 to FY 2017). These data were created based on the results of the Fukushima Prefecture Environmental Radiation Monitoring in Mesh Survey (1st to 10th surveys) released to the public in the Fukushima Prefecture Government website. In these surveys, the whole Fukushima Prefecture was divided into 4 × 4 km grids and 1 to 6 measurement points were selected in each grid that includes urban areas and residential areas. The air dose rates at the height of 1 m and 1 cm were measured. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1010117/	The Secretariat of the Nuclear Regulatory Authority, and Fukushima Prefecture	Ambient dose rate	FY 2011 to FY 2017
Air dose rate measurements in the Distribution Survey of Radioactive Substances	This series of data was compiled by JAEA based on results of the air dose rates measured using NaI(Tl) scintillation survey metres and ionization chamber type survey metres from FY 2011 to FY 2016 in the Distribution Survey of Radioactive Substances by the Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1010116/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Ambient dose rate	FY 2011 to FY 2016

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Readings of environmental radiation monitoring (at hot springs) in Fukushima Prefecture	These data were compiled by JAEA based on the measurement results of hot springs from the “Readings of environmental radiation monitoring at tourist spots in Fukushima Prefecture” released to the public in the Monitoring Information of Environmental Radioactivity Level portal site by the Secretariat of the Nuclear Regulatory Authority. The survey was conducted from July 2011 to August 2017. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1010112000/	Fukushima Prefecture	Ambient dose rate	July 2011 to August 2017
Readings of environmental radiation monitoring (at tourist spots) in Fukushima Prefecture	These data were compiled by JAEA based on the measurement results of tourist spots from the “Readings of environmental radiation monitoring at tourist spots in Fukushima Prefecture” released to the public in the Fukushima Prefecture Government website. The survey was conducted from July 2011 to August 2017. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1010111000/	Fukushima Prefecture	Ambient dose rate	July 2011 to August 2017
Results of measurement of air dose rates at fixed observation points using a monitoring car	These data were compiled by JAEA based on the “Results of measurement of air dose rates at fixed observation points using a monitoring car” released to the public in the Monitoring Information of Environmental Radioactivity Level portal site by the Secretariat of the Nuclear Regulatory Authority. The survey was conducted every day from March 2011 to March 2016 at the fixed observation points outside the 20-km zone of FDNPS. From April 2016, the survey was conducted from September to October every year. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1010110000/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Ambient dose rate	March 2011 to October 2016
Readings of accumulated dose outside the 20-km zone of TEPCO FDNPS (measured by digital dosimeter)	These data were compiled by JAEA based on the “Readings of accumulated dose outside the 20-km zone of TEPCO Fukushima Daiichi NPS” released to the public in the Monitoring Information of Environmental Radioactivity Level portal site by the Secretariat of the Nuclear Regulatory Authority. The measured accumulated doses were collected every day from 25 March 2011 to 31 December 2011. From January 2012 to March 2016, the measured accumulated doses were collected once or twice per week. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1010109000/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Ambient dose rate	March 2011 to March 2016

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Readings of accumulated dose outside the 20-km zone of TEPCO FDNPS (measured by glass badge dosimeter)	These data were compiled by JAEA based on the “Readings of accumulated dose outside the 20 km zone of TEPCO Fukushima Daiichi NPS” released to the public in the Monitoring Information of Environmental Radioactivity Level portal site by the Secretariat of the Nuclear Regulatory Authority. The measured accumulated doses were collected once or twice per week from April 2011 to March 2016. From April 2016, the measured accumulated doses were collected every three months. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1010108000/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Ambient dose rate	April 2011 to December 2016
Air dose rate readings inside the 20-km zone of FDNPS	These data were compiled by JAEA based on measurements within a 20-km radius of TEPCO Fukushima Daiichi NPS, available in the Monitoring Information of Environmental Radioactivity Level, the portal site run by the Nuclear Regulatory Authority. The survey was conducted every week from March 2011 to March 2016. In FY 2016, the survey was conducted in September. Dosimeters which were used: NaI (NaI scintillator detector) and IC (ionization chamber type survey metre). The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1010107000/	Power company	Ambient dose rate	March 2011 to September 2016
Readings of environmental radiation level by emergency monitoring	These data were compiled by JAEA based on the results of “Environmental radiation level by emergency monitoring by Fukushima Prefecture” released to the public in the Monitoring Information of Environmental Radioactivity Level portal site by the Secretariat of the Nuclear Regulatory Authority. The data includes air dose rates measured from March 2011. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1010106000/	Secretariat of the Nuclear Regulatory Authority	Ambient dose rate	March 2011 to March 2016
Readings of accumulated dose by the Federation of Electric Power Companies of Japan (member companies)	These data were compiled by JAEA based on the “Readings of accumulated dose by the Federation of Electric Power Companies of Japan (member companies)” released to the public in the Monitoring Information of Environmental Radioactivity Level portal site by the Secretariat of the Nuclear Regulatory Authority. The accumulated dose measurements were conducted every week from March 2011 at the fixed observation points outside the 20-km zone of FDNPS. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1010105000/	Federation of Electric Power Companies of Japan	Ambient dose rate	March 2011 to March 2016

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Results of environmental radiation monitoring for child welfare institutions	These data were compiled by JAEA based on the results of the environmental radiation monitoring for child welfare institutions by Fukushima Prefecture released to the public in the Fukushima Prefecture Government website. The survey has been conducted since April 2011. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1010104000/	Fukushima Prefecture	Ambient dose rate	April 2011 to September 2017
Survey results of environmental radioactivity level in the national forests in Fukushima Prefecture	These data were compiled by JAEA based on the results of the environmental radiation monitoring survey in the national forests in Fukushima Prefecture released to the public in the Kanto Forest Management Office. The surveys have been conducted once a year starting from July 2011. Using survey metres, the measurements were conducted at the height of 10, 50 and 100 cm from the ground. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1010103000/	Fukushima Prefecture	Ambient dose rate	July 2011 to June 2017
Measurement results of air dose rates at Tsukuba Center (air dose rates)	These data were compiled by JAEA based on the results of air dose rates from “The measurement results of air dose rates at Tsukuba Center” that was released to the public in the website of the National Institute of Advanced Industrial Science and Technology. In this survey, the air dose rates were obtained at Tsukuba Center from 15 March 2011 to 15 March 2013 by subtracting 0.06 $\mu\text{Sv/h}$ as background. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1010102000/	National Institute of Advanced Industrial Science and Technology	Ambient dose rate	March 2011 to March 2013
Results of the monitoring survey in the restricted areas and planned evacuation zones	These data were compiled by JAEA based on results of the monitoring survey in the restricted areas and planned evacuation zones, available in the Monitoring Information of Environmental Radioactivity Level, the portal site run by the Secretariat of the Nuclear Regulatory Authority. The basic data were obtained from 400 measurement points each around Namie station and Tomioka Town. In the wide range monitoring, the restricted areas and planned evacuation zones were divided into 2×2 km grids and measurements were conducted at 20 measurement points in each grid. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1010101000/	The Ministry of Education, Culture, Sports, Science and Technology	Ambient dose rate	June 2011 to August 2011

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Results of air dose rates measured by route buses in Fukushima Prefecture (4 buses, January 2013) – weekly average	These data were compiled by JAEA based on the air dose rate measurements using fixed-route buses in Fukushima Prefecture (4 route buses, from January 2013) released to the public through the JAEA website. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1010204/	JAEA	Ambient dose rate	January 2013 to March 2015
Vehicle-borne survey conducted by TEPCO	This series of data was compiled by JAEA based on results by vehicle-borne surveys in the restricted areas and planned evacuation zones publicly released in the Ministry of Economy, Trade and Industry. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1010203/	The Ministry of Economy, Trade and Industry, and Tokyo Electric Power Company	Ambient dose rate	FY 2011 to FY 2017
Vehicle-borne survey in the Distribution Survey of Radioactive Substances (KURAMA)	This series of data was compiled by JAEA based on the results of the vehicle-borne surveys conducted in the Distribution Survey of Radioactive Substances by the Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority from FY 2011 to FY 2015. The surveys used KURAMA (Kyoto University Radiation MApping system) that was inimitably developed by Kyoto University. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1010202/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Ambient dose rate	FY 2011 to FY 2015
Vehicle-borne survey in the Distribution Survey of Radioactive Substances (Radi-probe)	This series of data was compiled by JAEA based on the results of the vehicle-borne surveys conducted by the Ministry of Education, Culture, Sports, Science and Technology in FY 2011 and FY 2012. The measurement used the Radi-Probe developed by the National Institute of Radiological Sciences. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1010201/	The Ministry of Education, Culture, Sports, Science and Technology	Ambient dose rate	FY 2011 to FY 2012
Unmanned helicopter in the Distribution Survey of Radioactive Substances	This series of data was compiled by JAEA based on measurement results of air dose rate of the unmanned helicopter monitoring in the Distribution Survey of Radioactive Substances conducted by the Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority from FY 2012 to FY 2015. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1010302/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Ambient dose rate	FY 2012 to FY 2015

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Airborne dose rate: airborne monitoring in the Distribution Survey of Radioactive Substances	This series of data was compiled by JAEA based on the measurement results of the airborne monitoring surveys conducted by the Ministry of Education, Culture, Sports, Science and Technology, the United States Department of Energy, and the Secretariat of the Nuclear Regulatory Authority from FY 2011 to FY 2016. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1010301/	The Ministry of Education, Culture, Sports, Science and Technology, the United States Department of Energy, and the Secretariat of the Nuclear Regulatory Authority	Ambient dose rate	FY 2011 to FY 2016
Measurement results of air dose rates nationwide and in Fukushima Prefecture (real-time distribution) daily average	This series of data was compiled by JAEA based on the air dose rate measurement in whole Japan and Fukushima Prefecture (real-time distribution system) that is publicly available in the Monitoring Information of Environmental Radioactivity Level website of the Nuclear Regulatory Authority. This data converts 1 $\mu\text{Gy/h}$ (microgray per hour) = 1 $\mu\text{Sv/h}$ (microsievert per hour). The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1010403	Secretariat of the Nuclear Regulatory Authority	Ambient dose rate	FY 2011 to FY 2017
Measurement results of air dose rates nationwide and in Fukushima Prefecture (real-time distribution)	This series of data was compiled by JAEA based on the air dose rate measurement in whole Japan and Fukushima Prefecture (real-time distribution system) that is publicly available in the Monitoring Information of Environmental Radioactivity Level website of the Nuclear Regulatory Authority. This data converts 1 $\mu\text{Gy/h}$ (microgray per hour) = 1 $\mu\text{Sv/h}$ (microsievert per hour). The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1010402/	Secretariat of the Nuclear Regulatory Authority	Ambient dose rate	FY 2011 to FY 2017
Reading of air dose rate for the monitoring post in Momijiyama (Fukushima City)	These data were compiled by JAEA based on air dose rates from the monitoring post in Momijiyama (Fukushima City), available in the Monitoring Information of Environmental Radioactivity Level, the portal site run by the Secretariat of the Nuclear Regulatory Authority. Instantaneous values were obtained in $\mu\text{Gy/h}$ (microgray per hour) and the data here uses the conversion: 1 $\mu\text{Gy/h}$ (microgray per hour) = 1 $\mu\text{Sv/h}$ (microsievert per hour). The data included here are 30-minute interval data obtained from March 2011 to April 2011. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1010401000/	Fukushima Prefecture	Ambient dose rate	March 2011 to April 2011

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Deposition of gamma-emitting radionuclides in the Distribution Survey of Radioactive Substances	This series of data was compiled by JAEA based on results of soil deposition densities of gamma-emitting radionuclides measured from FY 2011 to FY 2015 in the Distribution Survey of Radioactive Substances by the Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority. In FY 2011, soil samples were collected and analysed using a fixed germanium semiconductor detector. From FY 2012, in-situ measurements were carried out using portable germanium semiconductor detectors. For areas with high air dose rates where in-situ measurement was suitable, soil sample analysis by the fixed germanium semiconductor detector was conducted as the same manner as FY 2011. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1020101/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Ground deposition density	FY 2011 to FY 2015
Unmanned helicopter monitoring in the Distribution Survey of Radioactive Substances	This series of data was compiled by JAEA based on measurement results of radioactive caesium by the unmanned helicopter monitoring in the Distribution Survey of Radioactive Substances conducted by the Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority from FY 2012 to FY 2016. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1020202/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Ground deposition density	FY 2012 to FY 2016
Airborne monitoring in the Distribution Survey of Radioactive Substances	This series of data was compiled by JAEA based on the radioactive caesium deposition density measurement results of the airborne monitoring survey by the Ministry of Education, Culture, Sports, Science and Technology, the United States Department of Energy, and the Secretariat of the Nuclear Regulatory Authority. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1020201/	The Ministry of Education, Culture, Sports, Science and Technology, the United States Department of Energy, and the Secretariat of the Nuclear Regulatory Authority	Ground deposition density	FY 2011 to FY 2013
Radioactivity concentration analysis of iodine in the Distribution Survey of Radioactive Substances	This series of data was compiled by JAEA to study if the deposition densities of ^{131}I and ^{129}I are correlated, and if the deposition density of ^{131}I can be derived using the deposition density of ^{129}I and the correlation between ^{131}I and ^{129}I . The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1020311/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Ground deposition density	FY 2011 to FY 2013

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Analysis results of plutonium in the Distribution Survey of Radioactive Substances	This series of data was compiled by JAEA based on results of analysis of plutonium deposition densities from FY 2011 to FY 2013 in the Distribution Survey of Radioactive Substances by the Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1020310/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Ground deposition density	FY 2011 to FY 2013
Results of the monitoring of soil samples	These data were compiled by JAEA based on the “Readings of dust, soil and environmental sampling” released to the public in the Monitoring Information of Environmental Radioactivity Level portal site by the Secretariat of the Nuclear Regulatory Authority. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1020309000/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Ground deposition density	March 2011 to October 2017
Readings of soil monitoring in 20-km zone of TEPCO FDNPS	These data were compiled by JAEA based on the “Readings of dust, soil and environmental sampling” released to the public in the Monitoring Information of Environmental Radioactivity Level portal site by the Secretariat of the Nuclear Regulatory Authority. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1020308000/	The Ministry of Education, Culture, Sports, Science and Technology	Ground deposition density	April 2011 to January 2016
Results of the monitoring of environmental monitoring samples	These data were compiled by JAEA based on the “Readings of dust, soil and environmental sampling” released to the public in the Monitoring Information of Environmental Radioactivity Level portal site by the Secretariat of the Nuclear Regulatory Authority. The analysis of environmental sample was conducted from March 2011 to September 2016. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1020307000/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Ground deposition density	March 2011 to September 2016

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Soil sample results for ⁸⁹ Sr and ⁹⁰ Sr in eastern Japan	This data was compiled by JAEA based on results of soil deposition densities of ⁸⁹ Sr and ⁹⁰ Sr measured in “The second survey on the distribution condition of radioactive substances by MEXT due to the accident at TEPCO’s Fukushima Daiichi NPP”. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1020306000/	The Ministry of Education, Culture, Sports, Science and Technology	Ground deposition density	Decay correction: 13 January 2012
Readings from radiation monitoring of soil in Fukushima Prefecture	These data were compiled by JAEA based on radiation monitoring of soil in Fukushima Prefecture, available in the Monitoring Information of Environmental Radioactivity Level, the portal site run by the Secretariat of the Nuclear Regulatory Authority. The purpose was to ascertain the change of deposition density of radioactive plutonium in the prefecture before and after the accident. The measurements were conducted for the soil samples obtained from August to October 2011. The data here was not converted to Bq/kg dry-soil. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1020305000/	Fukushima Prefecture	Ground deposition density	August 2011 to October 2011
Readings from radiation monitoring of soil (dry soil) in Fukushima Prefecture	These data were compiled by JAEA based on radiation monitoring of soil in Fukushima Prefecture, available in the Monitoring Information of Environmental Radioactivity Level, the portal site run by the Secretariat of the Nuclear Regulatory Authority. The purpose was to ascertain the change of deposition density of radioactive plutonium in the prefecture before and after the accident. The measurements were conducted for the soil samples obtained from August to October 2011. The data here was converted to Bq/kg dry-soil. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1020304000/	Fukushima Prefecture	Ground deposition density	August 2011 to October 2011

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Results of the nuclide analysis of soil sampling at 2,200 locations in Fukushima Prefecture and neighbouring prefectures	There was limited information provided on the JAEA EMDB website regarding this dataset, but it is described in more detail in the UNSCEAR 2013 Report where it was used for the dose assessments for public and non-human biota in Fukushima Prefecture. JAEA conducted the survey with cooperation of various universities and research institutes. Ministry of Education, Culture, Sports, Science and Technology (MEXT) was responsible for the coordination of the measurement data and assessment of validity [MEXT, web1; MEXT, web2]. Ambient dose equivalent rates were measured, and soil samples collected from 6 June to 8 July 2011 for areas within 100 km from FDNPS. From FDNPS out to 80 km these were undertaken on 2 × 2 km grids. Between 80 km and 100 km from FDNPS they were divided into 10 × 10 km grids. Ambient dose equivalent rates were measured at a height of 1 m above the ground surface at one location in each of these divided grids (nearly 2,200 locations in total), and soil samples were collected at five points at each location. Around 11,000 soil samples were taken; deposition densities of five gamma-emitting radionuclides (^{110m} Ag, ^{129m} Te, ¹³¹ I, ¹³⁴ Cs and ¹³⁷ Cs) were measured using germanium semiconductor detectors. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1020101001/	The Ministry of Education, Culture, Sports, Science and Technology	Ground deposition density	Decay correction: 14 June 2011
Readings of environmental radiation level of soil sampling in schools in Fukushima Prefecture	These data were compiled by JAEA based on soil sampling data from the environmental radiation level of dust and soil samplings in schools in Fukushima Prefecture, available in the Monitoring Information of Environmental Radioactivity Level, the portal site run by the Secretariat of the Nuclear Regulatory Authority. The soil samplings and air dose rate measurements were conducted from 5 to 6 April 2011 at schools in Fukushima Prefecture. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1020303000/	Fukushima Prefecture	Ground deposition density	April 2011
Readings of environmental monitoring (weeds, land water and land soil) by Fukushima Prefecture outside the 20-km radius from Fukushima Daiichi NPS	These data were compiled by JAEA based on measurement results of environmental monitoring (weeds, land water and land soil) by Fukushima Prefecture outside the 20-km radius from FDNPS, available in the Monitoring Information of Environmental Radioactivity Level, the portal site run by the Secretariat of the Nuclear Regulatory Authority. The samplings were conducted on 16 and 17 March 2011. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1020302000/	Fukushima Prefecture	Ground deposition density	March 2011

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Readings of radioactive strontium in land soil and plant	These data were compiled by JAEA based on analysis results of radioactive strontium in land soil and plants, available in the Monitoring Information of Environmental Radioactivity Level, the portal site run by the Secretariat of the Nuclear Regulatory Authority. The samplings were conducted on 16, 17 and 19 March 2011. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1020301000/	The Ministry of Education, Culture, Sports, Science and Technology	Ground deposition density	March 2011
Depth distribution of radioactive substances in model area soil in the Distribution Survey of Radioactive Substances	These data were compiled by JAEA from the results of scraper plate surveys from FY 2011 to FY 2013 to study the changing trend of the concentrations of radioactive substances in the forest, upland field and grass land in Yamakiya District Kawamata Town Date County Fukushima Prefecture. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1020405/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Ground deposition density	FY 2011 to FY 2013
Depth distribution of radioactive caesium in soil collected using a scraper plate in the Distribution Survey of Radioactive Substances	These data were compiled by JAEA from the results of studies of the depth distribution of radioactive caesium comprehensively mainly within a 80 km radius of FDNPS, based on soil samples collected at various depths using a scraper plate which is the standard method to measure radioactive nuclides in soil profiles employed at the International Atomic Energy Agency and researched the depth distribution of radioactive caesium. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1020404/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Ground deposition density	FY 2011 to FY 2016
Depth distribution of radioactive substances in soil samples from Namie Town, Kawamata Town, etc. in the Distribution Survey of Radioactive Substances	These data were compiled by JAEA from the results of depth distribution surveys of radioactive substances conducted at the areas including Namie Town Futaba County, and Kawamata Town Date County Fukushima Prefecture using a geoslicer and a soil sampler of large diameter. Results are described as activity per unit soil weight (Bq/kg) and activity per unit volume (Bq/m ³). The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1020403/	The Ministry of Education, Culture, Sports, Science and Technology	Ground deposition density	FY 2011 to FY 2012
Depth distribution of radioactive substances sampled in Fukushima Prefecture and neighbouring prefectures in the Distribution Survey of Radioactive Substances	This series of data was compiled by JAEA based on results of depth distribution analysis of radioactive caesium in Fukushima Prefecture and neighbouring prefectures. Soil core samples were collected using an iron pipe. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1020402/	The Ministry of Education, Culture, Sports, Science and Technology	Ground deposition density	FY 2011 to FY 2012

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Results of the measurement of depth distribution of radioactive substances in soil in 2 × 2 km grids southwest of Fukushima City	This series of data was compiled by JAEA based on results of depth distribution analysis of radioactive substances in soil for sampling points located in the southwest of Fukushima City. Sampling points were selected from three ecosystems with different land uses (agricultural land, grass land and forest) within a 2 × 2 km square. A total of 15 sampling points of which 6 points were of agricultural land, 4 points of grass land and 5 points of forest were chosen. Radioactivity concentration and error are reported as decay-compensated values as of 14 June 2011. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1020401000/	The Ministry of Education, Culture, Sports, Science and Technology	Ground deposition density	Decay correction: 14 June 2011
Reading of environmental radioactivity level by Prefecture (monthly fallout)	These data were compiled by JAEA based on the “Reading of environmental radioactivity level by prefecture (monthly fallout)” released to the public in the Monitoring Information of Environmental Radioactivity Level portal site by the Secretariat of the Nuclear Regulatory Authority. The data includes measured data from February 2011. The Secretariat of the Nuclear Regulatory Authority compiled the data reported from each prefecture government and released on the website. The one-month accumulated fallout substances were measured every month. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1050106000/	Secretariat of the Nuclear Regulatory Authority	Radioactivity in air	February 2011 to January 2015
Readings of dust sampling in 20-km zone of TEPCO FDNPS	These data were compiled by JAEA based on dust radioactivity concentration measurements within 20km radius of TEPCO FDNPS, available in the Monitoring Information of Environmental Radioactivity Level, the portal site run by the Nuclear Regulatory Authority. The measurement results have been released since April 2011 and subsequent results are continuously released. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1050105000/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Radioactivity in air	April 2011 to July 2017

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Readings of detailed monitoring in restricted area and planned evacuation zone (dust monitoring (radioactivity concentrations in the air))	These data were compiled by JAEA based on the results of the dust measurements from “The detailed monitoring in the restricted area and planned evacuation zone (6th Vehicle-borne Survey and Dust Monitoring)” that was released to the public in the website of the Ministry of Economy, Trade and Industry. In this survey, measurements of radioactivity concentration in the air were conducted in Tomioka town that was located within the 20-km range of FDNPS. The ¹³⁴ Cs and ¹³⁷ Cs in the air were measured at two measurement points including the area close to the forest and the city centre in Tomioka Town. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1050104000/	Ministry of Economy, Trade and Industry	Radioactivity in air	August 2011 to March 2012
Reading of environmental radioactivity level by Prefecture (fallout)	These data were compiled by JAEA based on the daily fallout monitoring results by prefectures from March 2011 to December 2011 in the “Reading of environmental radioactivity level by prefecture (fallout)” released to the public in the Monitoring Information of Environmental Radioactivity Level portal site by the Secretariat of the Nuclear Regulatory Authority. The fallout substances were collected with a precipitation collector and measured using a germanium semiconductor detector. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1050103000/	The Ministry of Education, Culture, Sports, Science and Technology, and the Secretariat of the Nuclear Regulatory Authority	Radioactivity in air	March 2011 to December 2011
Readings of dust sampling by the Federation of Electric Power Companies of Japan (member companies)	These data were compiled by JAEA based on the “Readings of dust sampling by the Federation of Electric Power Companies of Japan (member companies)” released to the public in the Monitoring Information of Environmental Radioactivity Level portal site by the Secretariat of the Nuclear Regulatory Authority. The sampling of dust was conducted from March 2011 to July 2011 for six points outside the 20-km zone of TEPCO FDNPS. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1050102000/	Electric Power Companies of Japan	Radioactivity in air	March 2011 to July 2011
Readings of environmental radiation level of dust sampling in schools in Fukushima Prefecture	These data were compiled by JAEA based on dust sampling data from the environmental radiation level of dust and soil samplings in schools in Fukushima Prefecture, available in the Monitoring Information of Environmental Radioactivity Level, the portal site run by the Secretariat of the Nuclear Regulatory Authority. The dust samplings and air dose rate measurements were conducted from 5 to 6 April 2011 at schools in Fukushima Prefecture. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1050101000/	Fukushima Prefecture	Radioactivity in air	April 2011

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Readings of environmental radioactivity levels measured by Fukushima Prefecture (fallout)	These data were created based on the “Reading of environmental radioactivity level measured by Fukushima Prefecture (fallout)” released to the public in the Monitoring Information of Environmental Radioactivity Level portal site by the Secretariat of the Nuclear Regulatory Authority. The survey has been conducted since December 2011 at the Environmental Radioactivity Monitoring Center of Fukushima, Fukushima Branch. The accumulated daily fallout substance was measured every day using a germanium semiconductor detector. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1050201000/	Fukushima Prefecture	Radioactivity in air	December 2011 to March 2014
Drinking water results measured by Environmental Radioactivity Monitoring Center of Fukushima, Fukushima Branch	These data were compiled by JAEA based on the radioactivity concentration measurement for drinking water conducted by the Environmental Radioactivity Monitoring Center of Fukushima, Fukushima Branch (in Fukushima Hokida jinai) released to the public in the Fukushima Prefecture Government website. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/b1040105/	Fukushima Prefecture	Activity concentrations in food and water	FY 2011 to FY 2016
Measurement results of radioactivity concentrations in the drinking water by water suppliers/local governments conducted by the Nuclear Regulatory Authority (MEXT till April 2013) and 10 prefectures near Fukushima Prefecture (Miyagi, Yamagata, Niigata, Ibaraki, Tochigi, Gumma, Saitama, Tokyo, Kanagawa and Chiba Prefecture)	These data were compiled by JAEA based on the measurements of radioactivity concentrations in the drinking water by water suppliers/local governments conducted by the Nuclear Regulatory Authority (MEXT till April 2013) and 10 prefectures near Fukushima Prefecture (Miyagi, Yamagata, Niigata, Ibaraki, Tochigi, Gumma, Saitama, Tokyo, Kanagawa and Chiba Prefecture) released to the public in the Ministry of Health, Labour and Welfare website. The measurements have been conducted since March 2011 in 10 prefectures near Fukushima Prefecture. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1040104000/	Ministry of Health, Labour and Welfare	Activity concentrations in food and water	March 2011 to September 2014
Readings of radioactivity level in drinking water by prefecture	These data were compiled by JAEA based on the results of drinking water (tap water) monitoring released to the public in the Secretariat of the Nuclear Regulatory Authority website. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1040103000/	Secretariat of the Nuclear Regulatory Authority	Activity concentrations in food and water	March 2011 to July 2014

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Results of radiation monitoring of tap water	These data were compiled by JAEA based on the measurement results of tap water and raw water including river water from March 2011 to March 2014 from the “Results of radiation monitoring of tap water” released to the public in the Ibaraki Prefecture Government website. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1040102000/	Ibaraki Prefecture	Activity concentrations in food and water	March 2011 to March 2014
Results of the radionuclide analysis of well water sampled from wells in Fukushima Prefecture	These data were compiled by JAEA based on results of the nuclide analysis of well water sampled from wells in Fukushima Prefecture from July 2011 to August 2011. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1040101000/	The Ministry of Education, Culture, Sports, Science and Technology	Activity concentrations in food and water	July 2011 to August 2011
Measurement results of radioactivity concentration in food products in Fukushima Prefecture	These data were compiled by JAEA based on the measurement results of food products released to the public in the Fukushima Prefecture Government website. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1040202000/	Fukushima Prefecture	Activity concentrations in food and water	March 2011 to March 2018
Monitoring information for the agricultural, forest and fishery products in Ibaraki Prefecture	These data were compiled by JAEA based on the “Monitoring information for the agricultural, forest and fishery products” released to the public in the Ibaraki Prefecture Government website. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1040201000/	Ibaraki Prefecture	Activity concentrations in food and water	March 2011 to January 2018
Measurement results of the test operation fish catches	These data were compiled by JAEA based on the measurement results of the “test operation fish catches” released to the public in the Fukushima Prefectural Federation of Fisheries Co-operative Associations website. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1040302000/	Fukushima Prefectural Federation of Fisheries Co-operative Associations	Activity concentrations in food and water	September 2012 to February 2018
Monitoring results of strontium in fisheries products conducted by Fisheries Research Agency	These data were compiled by JAEA based on the radioactivity concentration measurements of fisheries products for strontium released to the public in the Ministry of Agriculture, Forestry and Fisheries website. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1040301000/	Fisheries Agency – Ministry of Agriculture, Forestry and Fisheries	Activity concentrations in food and water	April 2011 to July 2017

<i>EMDB website data set title</i>	<i>Website data set description</i>	<i>Organization(s)</i>	<i>Measurement type</i>	<i>Period covered</i>
Measurement results of radioactivity concentration in rice produced in FY 2011	These data were compiled by JAEA based on the “Measurement results of radioactivity concentration in rice produced in FY 2011” released to the public in the Ministry of Agriculture, Forestry and Fisheries website. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1040401000/	Ministry of Agriculture, Forestry and Fisheries	Activity concentrations in food and water	August 2011 to November 2011
Radiation monitoring survey results of wild birds and animals	These data were compiled by JAEA based on the radioactivity concentration measurement results released to the public in the Fukushima Prefecture government website about the wild birds and animals captured in Fukushima Prefecture. The JAEA compilation of the original data sets were accessed in August 2018 from the JAEA EMDB website at https://emdb.jaea.go.jp/emdb/en/portals/1040501000/	Fukushima Prefecture	Activity concentrations in food and water	May 2011 to March 2018

REFERENCES

- JAEA. Database for radioactive substance monitoring data. Japan Atomic Energy Agency. [Internet] Available from (<https://emdb.jaea.go.jp/emdb/en/>) on 17 February 2020.¹
- MEXT. Radiation dose distribution. Ministry of Education, Culture, Sports, Science and Technology. [Internet] Available from (<http://ramap.jmc.or.jp/map>) on 14 September 2020. WEB1. (Japanese).
- MEXT. Results of analyses of radionuclides (Cs-134 and Cs-137) in soil. Ministry of Education, Culture, Sports, Science and Technology. [Internet] Available from (https://www.mext.go.jp/b_menu/shingi/chousa/gijyutu/017/shiryo/__icsFiles/afieldfile/2011/09/02/1310688_1.pdf) on 14 September 2020. WEB2. (Japanese).
- UNSCEAR. Sources, Effects and Risks of Ionizing Radiation. Volume I: Report to the General Assembly and Scientific Annex A. UNSCEAR 2013 Report. United Nations Scientific Committee on the Effects of Atomic Radiation. United Nations sales publication E.14.IX.1. United Nations, New York, 2014.

¹ Later updated to https://emdb.jaea.go.jp/emdb_old/en/