Surface drifter measurements of temperature and drogue tension from cruises KOK1108 and MR11-06 in the Western Equatorial Pacific and Kuroshio Extension (Fukoshima Radionuclide Levels project)

Website: https://www.bco-dmo.org/dataset/3677
Version: 10 August 2012
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Project
» Establishing Radionuclide Levels in the Atlantic and Pacific Oceans Originating from the Fukushima Daiichi Nuclear Power Facility (Fukushima Radionuclide Levels)

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Dataset Description

Surface drifter measurements of temperature and drogue tension from 36 instruments deployed as part of the Fukushima radiation study: Establishing Radionuclide levels in the Atlantic and Pacific Oceans Originating from the Daiichi Nuclear Power Facility.

Methods & Sampling

Hourly measurements of sea surface temperature and drogue tension were recorded.

Data Processing Description

Hourly data was interpolated to six hours for the final data set. Drogue tension was checked manually to check the drifter's function.

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Data Files

File
surface_drifters.csv (Comma Separated Values (.csv), 2.47 MB) MD5:7a039d9b7a15201775b95bf192ba8abf Primary data file for dataset ID 3677

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Parameters

Parameter	Description	Units
lat	latitude, in decimal degrees, North is positive, negative denotes South; Reported in some datasets as degrees, minutes	decimal degrees
lon	longitude, in decimal degrees, East is positive, negative denotes West; Reported in some datsets as degress, minutes	decimal degrees
temp_ss	sea surface temperature, depth of temp sensor unknown or variable, degrees C.	degrees Celsius
tension_drogue_drifter	tension sensor on drifter buoy drogue	voltage
event	event or operation number; often derived from date/time (MMDDHHmm) of sampling and when combined with year (YYYY) is a unique sampling identifier/data processing key. Date/time is not necessarily in GMT. For Fukushima surface drifters, the date time are in local time.	dimensionless
date	date of sample	yyyymmdd
time	time of sample	hhmm
drifterid	drifter identification, used with drifter deployments	dimensionless
start_date	date of first measurement	yyyymmdd
end_date	date of last measurement	yyyymmdd
start_time	time of first sample	hhmm
end_time	time of last measurement	hhmm
sta	station number identifying data collection site	dimensionless
julian_day_yr0	A serial date number representing the whole and fractional number of days from a specific date and time, where 1 = January 1, 0000 00:00:00. (The year 0000 is merely a reference point and is not intended to be interpreted as a real year in time.	dimensionless
cruise	Cruise identifier	dimensionless

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Instruments

Dataset-specific Instrument Name	Drifter Buoy
Generic Instrument Name	Drifter Buoy
Dataset-specific Description	/*-->*/ SVP and SVP-barometer drifters
Generic Instrument Description	Drifting buoys are free drifting platforms with a float or buoy that keep the drifter at the surface and underwater sails or socks that catch the current. These instruments sit at the surface of the ocean and are transported via near-surface ocean currents. They are not fixed to the ocean bottom, therefore they "drift" with the currents. For this reason, these instruments are referred to as drifters, or drifting buoys. The surface float contains sensors that measure different parameters, such as sea surface temperature, barometric pressure, salinity, wave height, etc. Data collected from these sensors are transmitted to satellites passing overhead, which are then relayed to land-based data centers. definition sources: https://mmisw.org/ont/ioos/platform/drifting_buoy and https://www.aoml.noaa.gov/phod/gdp/faq.php#drifter1

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Deployments

KOK1108

Website	https://www.bco-dmo.org/deployment/58727
Platform	R/V Ka`imikai-O-Kanaloa
Report	http://bcodata.whoi.edu/Fukushima/Fukushima_KOK1108_dailyBlog.pdf
Start Date	2011-06-04
End Date	2011-06-19
Description	The purpose of the 16 day KOK1108 cruise aboard the University of Hawaii research vessel Ka'imikai-o-Kanaloa was to study the fate of radiation released into the ocean from the Fukushima Daiichi nuclear power plant that was badly damaged by a tsunami on March 11, 2011.

MR11-06

Website	https://www.bco-dmo.org/deployment/58840
Platform	R/V Mirai
Report	http://www.godac.jamstec.go.jp/cruisedata/mirai/MR11-06/MR11-06_summary_eng.pdf
Start Date	2011-08-13
End Date	2011-09-20
Description	Tropical Ocean Climate Study Ports call: Sekinehama(Japan) - Hachinohe (Japan) - Singapore (Republic of Singapore)

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Project Information

Establishing Radionuclide Levels in the Atlantic and Pacific Oceans Originating from the Fukushima Daiichi Nuclear Power Facility (Fukushima Radionuclide Levels)

Website: http://www.whoi.edu/page.do?pid=67796

Coverage: Northwest Pacific Ocean

The March 11, 2011 earthquake in Japan and the subsequent tsunami damaged and disrupted cooling systems at the Fukushima Daiichi nuclear power facility causing contamination of land and seas surrounding the site, as well as food supplies and drinking water. Small but measurable quantities of radioactivity have been detected in the atmosphere over the United States, including aerosol samples collected at the Woods Hole Oceanographic Institution, where I-131 was seen to increase to detectable levels as of March 21-22, 2011.

With major funding from the Moore Foundation, as well as a contribution from the National Science Foundation through a 2011 Grant for Rapid Response Research (RAPID) and support from the Woods Hole Oceanographic Institution, collaborating investigators from the United States, Japan, Spain, Monaco, and the United Kingdom were able to obtain samples off Japan for an early assessment of impacts.

From June 4 through June 19, 2011, a research cruise was carried out aboard the RV Kaimikai-O-Kanaloa, a research vessel operated by the University of Hawaii. During the cruise, hundreds of samples were collected in an area off the coast of Japan as close as 30 kilometers from the Fukushima Nuclear Power Plant and extending as far out as 600 kilometers off shore. The essential components of the program include: radionuclide measurements of water and particles; a radioecological study of biota, especially species at the base of the food chain and key fish species and a physical oceanographic study to characterize transport and water masses. A baseline radionuclide data set for the Atlantic and Pacific was obtained along an east to west network of sampling stations. Three hundred sampling events took place at thirty major stations for a total of more than 1500 samples. Along with 41 CTD stations, bottle samples of salinity, oxygen, radionuclides, and particulates were taken to depths of about 1000 meters. A list of the radionuclides sampled and a sampling summary map is available. One hundred net tows resulted in approximately fifty pounds of biological samples, including plankton and small fish. Daily samples of aerosol were also taken.

Early investigation following an accidental release of man-made radionuclides is key to understanding the magnitude of the release and the relationship to public health issues The research results also set the stage for the use of the longer lived radionuclides as tracers in subsequent studies by the community to understand ocean processes.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1136693
Gordon and Betty Moore Foundation (GBMF)	unknown Fukushima Radionuclide Levels Moore

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