24All News

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Fukushima's Radioactive Ocean Plume Due To Reach US Waters In 2014

Fukushima Jeremy Hsu LiveScience 3 hours ago AP An aerial photo shows theFukushima Dai-ichi nuclear plant in northern Japan. Radioactive water spilled during a tsunami-caused catastrophe in 2011 is slowly making its way toward the U.S.

Fukushima

Jeremy Hsu LiveScience

3 hours ago

AP

An aerial photo shows the Fukushima Dai-ichi nuclear plant in northern Japan.
Radioactive water spilled during a tsunami-caused catastrophe in 2011 is slowly making its way toward the U.S. coastal area.

A radioactive plume of water in the Pacific Ocean from Japan's Fukushima nuclear plant, which wascrippled in the 2011 earthquake and tsunami, will likely reach U.S. coastal waters starting in 2014, according to a new study. The long journey of the radioactive particles could help researchers better understand how the ocean's currents circulate around the world.

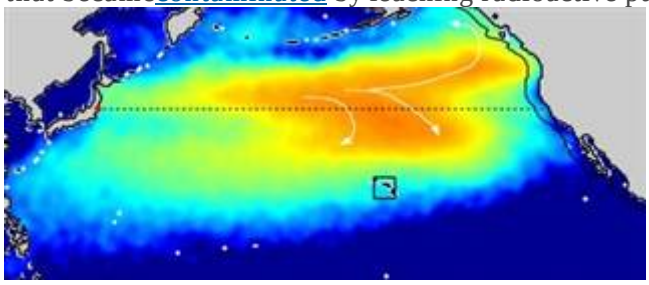
Ocean simulations showed that the plume of radioactive cesium-137 released by the Fukushima disasterin 2011 could begin flowing into U.S. coastal waters starting in early 2014 and peak in 2016. Luckily, two ocean currents off the eastern coast of Japan — the Kuroshio Current and the Kuroshio Extension — has diluted the radioactive material so much that its concentration fell well below the World Health Organization's safety levels within four months of the Fukushima incident. But it could have been a different story if nuclear disaster struck on the other side of Japan.

"The environmental impact could have been worse if the contaminated water would have been released in another oceanic environment in which the circulation was less energetic and turbulent," said Vincent Rossi, an oceanographer and postdoctoral research fellow at the Institute for Cross-Disciplinary Physics and Complex Systems in Spain.

Fukushima's radioactive water release has taken its time journeying across the Pacific. By comparison, atmospheric radiation from the Fukushima plant began reaching the U.S. West Coast within just days of the disaster back in 2011. [Fukushima Radiation Leak: 5 Things You Should Know]

Tracking radioactivity's path

The radioactive plume has three different sources: radioactive particles falling out from the atmosphere into the ocean, contaminated water directly released from the plant, and water that becamecontaminated by leaching radioactive particles from tainted soil.



Rossi et al. / Deep-Sea Research I

This computer projection shows the estimated extent of the Fukushima spill's plume of radioactive water in 2014. The extent of U.S. coastal waters is indicated by a black line, with a black box enclosing Hawaii.

The release of cesium-137 from Fukushima in Japan's more turbulent eastern currents means the radioactive material is diluted to the point of posing little threat to humans by the time it leaves Japan's coastal waters. Rossi worked with former colleagues at the Climate Change Research Center at the University of New South Wales in Australia to simulate the spread of Fukushima's radioactivity in the oceans — a study detailed in the October issue of the journal Deep-Sea Research Part 1.

Researchers averaged 27 experimental runs of their model — each run starting in a different year — to ensure that the simulated spread of the cesium-137 as a "tracer" was not unusually affected by initial ocean conditions. Many oceanographers prefer using cesium-137 to track the ocean currents because it acts as a passive tracer in seawater, meaning it doesn't interact much with other things, and decays slowly with a long half-life of 30 years.

"One advantage of this tracer is its long half-life and our ability to measure it quite accurately, so that it can be used in the future to test our models of ocean circulation and see how well they represent reality over time," Rossi told LiveScience. "In 20 years' time, we could go out, grab measurements everywhere in the Pacific and compare them to our model."

Journey across the Pacific Rim

The team focused on predicting the path of the radioactivity until it reached the continental shelf waters stretching from the U.S. coastline to about 180 miles (300 kilometers) offshore. About 10 to 30 becquerels (units of radioactivity representing decay per second) per cubic meter of cesium-137 could reach U.S. and Canadian coastal waters north of Oregon between 2014 and 2020. (Such levels are far below the U.S. Environmental Protection Agency's limits for drinking water.)

By comparison, California's coast may receive just 10 to 20 becquerels per cubic meter from 2016 to 2025. That slower, lesser impact comes from Pacific currents taking part of the radioactive plume down below the ocean surface on a slower journey toward the Californian coast, Rossi explained.

A large proportion of the radioactive plume from the initial Fukushima release won't even reach U.S. coastal waters anytime soon. Instead, the majority of the cesium-137 will remain in the North Pacific gyre — a region of ocean that circulates slowly clockwise and has trapped debris in its center to form the "Great Pacific Garbage Patch" — and continue to be diluted for approximately a decade following the initial Fukushima release in 2011. (The water from the current power plant leak would be expected to take a similar long-term path to the initial plume released, Rossi said.)

But the plume will eventually begin to escape the North Pacific gyre in an even more diluted form. About 25 percent of the radioactivity initially released will travel to the Indian Ocean

and South Pacific over two to three decades after the Fukushima disaster, the model showed.

You can follow Jeremy Hsu on Twitter @jeremyhsu. Follow us @livescience, Facebook and Google+. Original article on LiveScience.

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Read this article:
Fukushima's radioactive ocean plume due to reach US waters in 2014

- Imagen

Radiación de Fukushima llegará hasta Estados Unidos

Las partículas contaminantes liberadas tras el terremoto de 2011 llegarán a las costas norteamericanas tres años después de la tragedia.

POR 24HORAS .CL

31 agosto 2013

Un efecto tardío y aparentemente inofensivo tendrá el **desastre nuclear de Fukushima** en Estados Unidos.

Durante el **año 2014** se espera que las **partículas contaminantes de Cesio-137**liberadas al mar tras el terremoto y maremoto que afectó a Japón en marzo de 2011**lleguen a las costas norteamericanas**.

Así lo indica un estudio elaborado por un equipo de científicos liderado por el investigador del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC) del CSIC y la Universidad de las Islas Baleares (UIB) Vicent Rossi.

"Los observadores de la costa oeste de los Estados Unidos podrán ver un aumento de material radiactivo tres años después del vertido", señaló Erik van Sebille, uno de los participantes de la investigación en declaraciones reproducidas por *ABC.es*.

Luego del desastre nuclear de Fukushima se detectó contaminación atmosférica pocos días después del incidente, sin embargo el material radioactivo en el océano demora mucho más tiempo en recorrer la misma distancia que alcanzó en el aire.

Los investigadores llamaron a la calma y aseguraron que **los niveles de radiación que presente el mar no deberían ser motivo de alarma**, ya que se encontrará por debajo de los límites de seguridad para el consumo humano definido por la Organización Mundial de la Salud (OMS).

Las corrientes de Kuroshio en la costa japonesa han permitido la aceleración en la dilución del material radiactivo, gracias a remolinos y torbellinos gigantes.

Además, los científicos señalaron que durante la primera década posterior al desastre, la **mayoría de los materiales radiactivos se quedará en el Pacífico Norte** para luego extenderse a otros sectores, particularmente el océano Pacífico del sur de India, pero en niveles que no causarán preocupación.

ABC.es

SOCIEDAD

La radiación de Fukushima llegará hasta las costas de Estados Unidos en 2014

EFE / PALMA DE MALLORCA

Día 30/08/2013 - 18.39h

Un estudio prevé que se extiendan en cantidades inofensivas para los estándares que marca la OMS, «por lo que no debería ser motivo de alarma»

REUTERS

Un estudio prevé que la radiación en Fukushima llegue a las costas del EE.UU. al año que viene

La **radiación de Fukushima** llegará por mar a las costas de **Estados Unidos** en 2014 en cantidades inofensivas para los estándares que marca la Organización Mundial de la Salud (OMS) que no deberían ser motivo de alarma, según un estudio científico que se acaba de publicar.

Las partículas radioactivas de Cs-37 liberadas al mar debido al desastre de Fukushima **se detectarán en 2014**, tres años después, en la costa oeste de Estados Unidos, según sugieren las simulaciones elaboradas por un equipo de científicos liderado por el investigador del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC) del CSIC y laUniversidad de las Islas Baleares (UIB) Vicent Rossi, ha informado el IFISC en un comunicado.

Que la radiación llegue en esos niveles **no debería ser motivo de alarma** puesto que la concentración de material se encuentra muy por debajo de los límites de seguridad para el consumo humano marcados por la OMS, según el estudio elaborado por investigadores del IFISC, el Climate Chang Research Centre de Australia y el Laboratoire d'Etude en Géophysique et Océanographie Spatiales de Francia.

Partículas radiactividad en el mar

Tras el desastre de Fukushima de marzo de 2011, grandes cantidades de**agua contaminada** con elementos como el **cesio-137** se liberaron en el Pacífico. Con una vida media de 30 años, el cesio-137 tiene el potencial de viajar grandes distancias en el océano. Si bien la radiación atmosférica ya se detectó en la costa oeste de Estados Unidos pocos días después del incidente de Japón, las partículas radiactivas en el océano necesitan mucho más tiempo para recorrer la misma distancia.

Los resultados publicados ahora por los investigadores se centran, por medio de simulaciones por ordenador, en como se moverá la radiación a través de las corrientes marinas durante 10 años. «Los observadores de la costa oeste de los Estados Unidos podrán ver un aumento de material radiactivo tres años después del vertido», ha dicho uno de los autores del estudio, Erik van Sebille.

«Sin embargo, la gente en las costas no debe preocuparse puesto que la concentración de material radiactivo empezó a descender rápidamente, por debajo de los niveles de seguridad de la Organización Mundial de la Salud, tan pronto como salió de aguas japonesas», ha puntualizado

Impacto diferente según la zona

Dos **corrientes de la costa japonesa**, la de Kuroshio y la extensión Kurushio, son las principales responsables de la aceleración de la dilución del material radiactivo, llevándola muy por debajo de los niveles de seguridad de la OMS dentro de los primeros cuatro meses. Remolinos y torbellinos gigantes (de varias decenas de kilómetros de ancho), y otras corrientes en el océano abierto, siguen este proceso de dilución y dirigen las partículas radiactivas a diferentes zonas de la costa oeste estadounidense.

«A pesar de algunas incertidumbres en torno a la cantidad total liberada y las probables concentraciones que se pueden observar, hemos demostrado inequívocamente que el contacto con las costas del noroeste americano no será el mismo en todas partes», afirma el autor principal del estudio, el doctor Vincent Rossi. «En aguas de la plataforma al norte de 45° N se experimentarán concentraciones más altas durante un período más corto, en comparación con la costa de California» según Rossi.

Esta exposición prolongada se debe «a las vías de tres dimensiones de la nube radiactiva». Según detalla, la parte superior se sumergirá a zonas más profundas

del océano hacia el subtrópico antes de subir de nuevo a lo largo de la plataforma del sur de California.

En la primera década tras el desastre, **la mayoría de los materiales radiactivos se quedará en el Pacífico Norte**. Finalmente, la radiación se extenderá a otras cuencas oceánicas, particularmente el océano Pacífico del sur de India, pero nunca en niveles que deban causar preocupación

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Monday 02 September, 2013

Afternoon VOICE

Published On: Thu, Aug 29th, 2013

World | By **Afternoon Voice**

Fukushima radioactive plume to reach US coast in three years

Atmospheric RadiationCentre Of ExcellenceClimate SystemDeep Sea ResearchDilutionEddiesJapanese CoastJapanese WatersNuclear PlantOpen OceanRadioactive MaterialRadioactive ParticlesSafety LevelsSouth Pacific OceansSystem ScienceTravel PathU S WestVincent RossiWhirlpoolsWorld Health Organisation

A recent study has revealed that the radioactive particles leaked by the crippled Fukushima nuclear plant into the Pacific Ocean, will reach the U.S. coastline within the three years of the incident.

The study showed while atmospheric radiation was detected on the U.S. west coast within days of the incident, the radioactive particles in the ocean plume take considerably longer to travel the same distance.

However, it is likely to be harmless according to the new paper in the journal Deep-Sea Research 1.

The researchers from the Centre of Excellence for Climate System Science have identified the travel path of the contaminated ocean plume through the world's oceans for the next 10 years.

They have claimed that the concentration of radioactive material will quickly drop below World Health Organisation (WHO) safety levels as soon as it leaves Japanese waters.

The study revealed that two energetic currents off the Japanese coast, the Kuroshio Current and the Kurushio Extension, were primarily responsible for accelerating the dilution of the radioactive material, taking it well below WHO safety levels within four months.

Later, eddies, giant whirlpools and other currents in the open ocean were continuing this dilution process and direct the radioactive particles to different areas along the US west coast.

Dr. Vincent Rossi said that there were some uncertainties around the total amount released and the likely concentrations that would be observed, but the contact with the north-west American coasts will not be identical everywhere.

The great majority of the radioactive material will stay in the North Pacific, with very little crossing south of the Equator in the first decade.

Only a measurable, but otherwise harmless, signature of the radiation will spread into other ocean basins, particularly the Indian and South Pacific oceans.

The researchers have also developed a website, adrift.org.au, to track the path of the radiation.

0/08/2013--15:34 GMT
BAL-FUKUSHIMA RADIACIÓN

Estudio prevé que la radiación de Fukushima llegue a EEUU, aunque sin peligro

Palma, 30 ago (EFE).- La radiación de Fukushima llegará por mar a las costas de Estados Unidos en 2014 en cantidades inofensivas para los estándares que marca la Organización Mundial de la Salud (OMS) que no deberían ser motivo de alarma, según un estudio científico que se acaba de publicar.

Las partículas radioactivas de Cs-37 liberadas al mar debido al desastre de Fukushima se detectarán en 2014, tres años después, en la costa oeste de Estados Unidos, según sugieren las simulaciones elaboradas por un equipo de científicos liderado por el investigador del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC) del CSIC y la Universidad de las Islas Baleares (UIB) Vicent Rossi, ha informado el IFISC en un comunicado.

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Referència: **18692512**
Temàtica: **CYT:Ciencia y tecnología:Investigación:Estudio**
CYA:Catástrofes y accidentes:Accidente nuclear
EDU:Educación:Universidad

Fukushima radioactive plume to reach U.S. coast in three years

Aug 29, 11:48 am

Sydney, Aug. 29 (ANI): A recent study has revealed that the radioactive particles leaked by the crippledFukushima nuclear plant into the Pacific Ocean, will reach the U.S. coastline within the three years of the incident.

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Only a measurable, but otherwise harmless, signature of the radiation will spread into other ocean basins, particularly the Indian and South Pacific oceans.

The researchers have also developed a website, adrift.org.au, to track the path of the radiation. (ANI)

Japan, Fukushima, US, west coast, Indian ocean, radioactive, pacific, WHO

Fukushima’s Radioactive Plume to Reach U.S. by 2014 via Discovery

A radioactive plume of water in the Pacific Ocean from Japan’s Fukushima nuclear plant, which was crippled in the 2011 earthquake and tsunami, will likely reach U.S. coastal waters starting in 2014, according to a new study. The long journey of the radioactive particles could help researchers better understand how the ocean’s currents circulate around the world.

Ocean simulations showed that the plume of radioactive cesium-137 released by the Fukushima disaster in 2011 could begin flowing into U.S. coastal waters starting in early 2014 and peak in 2016. Luckily, two ocean currents off the eastern coast of Japan — the Kuroshio Current and the Kuroshio Extension — would have diluted the radioactive material so that its concentration fell well below the World Health Organization’s safety levels within four months of the Fukushima incident. But it could have been a different story if nuclear disaster struck on the other side of Japan.

“The environmental impact could have been worse if the contaminated water would have been released in another oceanic environment in which the circulation was less energetic and turbulent,” said Vincent Rossi, an oceanographer and postdoctoral research fellow at the Institute for Cross-Disciplinary Physics and Complex Systems in Spain.

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No comments
By yukimiyamotodepaul – 2013/09/01

Fukushima's radioactive ocean plume due to reach US waters in 2014

Saturday, August 31, 2013 16:12

(Before It's News)

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Fukushima's radioactive water release has taken its time journeying across the Pacific. By comparison, atmospheric radiation from the Fukushima plant began reaching the U.S. West Coast within just days of the disaster back in 2011.

Learn more:
http://www.nbcnews.com/science/fukushima...8C11050755

8/28/2013

Multi-decadal projections of surface and interior pathways of the Fukushima Cesium-137 radioactive plume (ScienceDirect/EurekAlert, abstract, edited)

[Source: Science Direct, full page: (LINK). Abstract, edited. Via EurekAlert.]

Deep Sea Research Part I: Oceanographic Research Papers, Volume 80, October 2013, Pages 37–46

Multi-decadal projections of surface and interior pathways of the Fukushima Cesium-137 radioactive plume

Vincent Rossi[a, b], Erik Van Sebille[b, c], Alexander Sen Gupta[b, c], Véronique Garçon[d], Matthew H. England[b, c]

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Received 8 February 2013 - Revised 16 May 2013 - Accepted 29 May 2013 - Available online 15 June 2013

Highlights

- Cs-137 plume strongly diluted by July 2011, reaches American coast by 2014.
- Mode water formation and persistent upwelling affect Cs-137 concentrations.
- Cs-137 enters the deep ocean and exits the North Pacific in the next 30 years.
- Sensitivity to uncertainties in the source function and to interannual variability.

Abstract

Following the March 2011 Fukushima disaster, large amounts of water contaminated with radionuclides, including Cesium-137, were released into the Pacific Ocean. With a half-life of 30.1 years, Cs-137 has the potential to travel large distances within the ocean. Using an ensemble of regional eddy-resolving simulations, this study investigates the long-term ventilation pathways of the leaked Cs-137 in the North Pacific Ocean. The simulations suggest that the contaminated plume would have been rapidly diluted below 10,000 Bq/m^3 by the energetic Kuroshio Current and Kurushio Extension by July 2011. Based on our source function of 22 Bq/m^3, which sits at the upper range of the published estimates, waters with Cs-137 concentrations >10 Bq/m^3 are projected to reach the northwestern American coast and the Hawaiian archipelago by early 2014. Driven by quasi-zonal oceanic jets, shelf waters north of

45°N experience Cs-137 levels of 10–30 Bq/m^3 between 2014 and 2020, while the Californian coast is projected to see lower concentrations (10–20 Bq/m^3) slightly later (2016–2025). This late but prolonged exposure is related to subsurface pathways of mode waters, where Cs-137 is subducted toward the subtropics before being upwelled from deeper sources along the southern Californian coast. The model suggests that Fukushima-derived Cs-137 will penetrate the interior ocean and spread to other oceanic basins over the next two decades and beyond. The sensitivity of our results to uncertainties in the source function and to inter-annual to multi-decadal variability is discussed.

-

Posted by: Giuseppe Michieli a 8/28/2013 11:09:00 AM
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Tags: ABSTRACTS, ENVIRONMENTAL DISASTERS, ENVIRONMENTAL POLLUTION, JAPAN, NUCLEAR EVENTS, RESEARCH, WORLDWIDE

Fukushima radioactive plume to reach US in three years

The radioactive ocean plume from the 2011 Fukushima nuclear plant disaster will reach the shores of the US within three years from the date of the incident but is likely to be harmless according to new paper in the journal Deep-Sea Research 1.

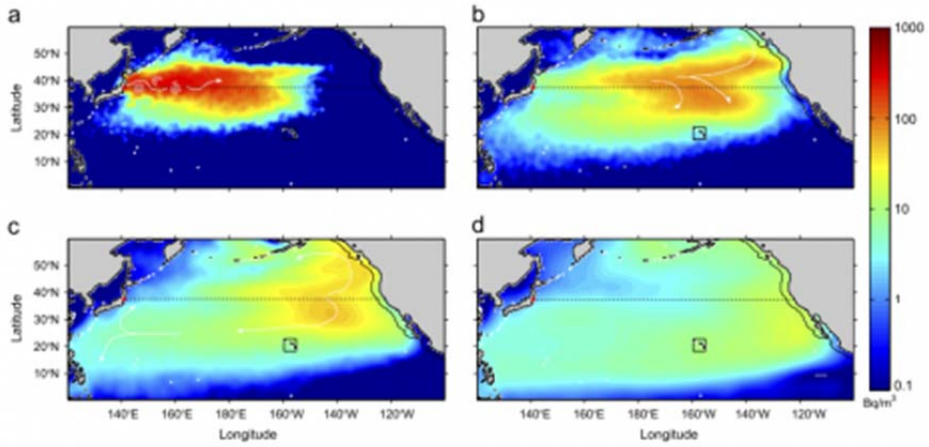
While atmospheric radiation was detected on the US west coast within days of the incident, the radioactive particles in the ocean plume take considerably longer to travel the same distance.

In the paper, researchers from the Centre of Excellence for Climate System Science and others used a range of ocean simulations to track the path of the radiation from the Fukushima incident.

The models identified where it would likely travel through the world's oceans for the next 10 years.

"Observers on the west coast of the United States will be able to see a measurable increase inradioactive material three years after the event," said one of the paper's authors, Dr Erik van Sebille.

"However, people on those coastlines should not be concerned as the concentration of radioactive material quickly drops below World Health Organisation safety levels as soon as it leaves Japanese waters."



Surface (0–200m) of Cesium-137 concentrations (Bq/m3) by (a)April 2012, (b) April 2014 (c) April 2016 and (d) April 2021

Two energetic currents off the Japanese coast - the Kuroshio Current and the Kurushio Extension – are primarily responsible for accelerating the dilution of the radioactive material, taking it well below WHO safety levels within four months.

Eddies and giant whirlpools – some tens of kilometres wide – and other currents in the open ocean continue this dilution process and direct the radioactive particles to different areas along the US west coast.

"Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere," said Dr. Vincent Rossi.

"Shelf waters north of 45°N will experience higher concentrations during a shorter period, when compared to the Californian coast. This late but prolonged exposure is due to the three-dimensional pathways of the plume. The plume will be forced down deeper into the ocean toward the subtropics before rising up again along the southern Californian shelf."

Interestingly, the great majority of the radioactive material will stay in the North Pacific, with very little crossing south of the Equator in the first decade. Eventually over a number of decades, a measurable but otherwise harmless signature of the radiation will spread into other ocean basins, particularly the Indian and South Pacific oceans.

"Australia and other countries in the Southern Hemisphere will see little if any radioactive material in their coastal waters and certainly not at levels to cause concern," Dr van Sebille said. "For those interested in tracking the path of the radiation, we have developed a **website** to help them. Using this website, members of the public can click on an area in the ocean and track the movement of the radiation or any other form of pollution on the ocean surface over the next 10 years."

Citation: Vincent Rossi, Erik Van Sebille, Alexander Sen Gupta, Veronique Garcon, Matthew H. England. *Multi-decadal projections of surface and interior pathways of the Fukushima Cesium-137 radioactive plume*. DOI: 10.1016/j.dsr.2013.05.015

¿EN QUE TIEMPO DE LA HISTORIA NOS ENCONTRAMOS?

"***Satanás ha ideado un estado de cosas por el cual la proclamación del mensaje del tercer ángel será detenida***. *Debemos precavernos de sus planes y métodos. No debe suavizarse el tono de la verdad, no debe disimularse el mensaje para este tiempo. El mensaje del tercer ángel debe ser fortalecido y confirmado.* ***El capítulo dieciocho de Apocalipsis revela la importancia de presentar la verdad no en términos mesurados, sino con valentía y poder****. Ha habido demasiados rodeos en la proclamación del mensaje del tercer ángel. El mensaje no ha sido dado tan clara y distintamente como debiera haber sido proclamado*" (Manuscrito 16, 1900).

El Evangelismo 171.

¡¡SIENTASE BIENVENIDO AL MENSAJE DEL CUARTO ÁNGEL, UN MENSAJE ANTI NWO!!

sábado, 31 de agosto de 2013

La radiación de Fukushima llegará a las costas de EE UU

La radiación de Fukushima llegará por mar a las costas de Estados Unidos el año que viene en **cantidades inofensivas** para **los estándares que marca la Organización Mundial de la Salud** y que no deberían ser motivo de alarma, según un estudio científico que se acaba de publicar. Las partículas radioactivas de cesio-37 liberadas al mar debido al desastre de la central nuclear se detectarán en 2014, tres años después, en la costa Oeste de Estados Unidos, según sugieren las simulaciones elaboradas por un equipo de científicos liderado por el investigador del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC) del CSIC y la Universidad de las Islas Baleares Vicent Rossi.

Que la radiación llegue en esos niveles no debería ser motivo de alarma, puesto que la concentración de material se encuentra muy por debajo de los límites de seguridad para el consumo humano marcados por la OMS, según el estudio elaborado por investigadores del IFISC, el Climate Chang Research Centre de Australia y el Laboratoire d'Etude en Géophysique et Océanographie Spatiales de Francia.

Tras el desastre de Fukushima de marzo de 2011, grandes cantidades de agua contaminada con elementos como el cesio-137 se liberaron en el Pacífico. Con una vida media de 30 años, el cesio-137 tiene el potencial de viajar grandes distancias en el océano.***Si bien la radiación atmosférica ya se detectó en la costa Oeste de Estados Unidos pocos días después del incidente de Japón, las partículas radiactivas en el océano necesitan mucho más tiempo para recorrer la misma distancia***.

http://www.elcorreo.com/vizcaya/v/20130831/sociedad/radiacion-fukushima-llegara-costas-20130831.html

Nota: ¿Radiación inofensiva eh?

Entre Chernobyl y Fukushima vamos listos, las compañías farmacéuticas van a hacer su agosto dentro de unas décadas gracias a la epidemia de canceres que recorrerán el planeta como si de una invasión de los hunos se tratara..

La regla de oro es inviolable, los EEUU le disparan a sus enemigos proyectiles de uranio empobrecido, y la "naturaleza" le devuelve la radiación a través del clima.

Tomemos nota para las próximas terribles enfermedades que aparecerán en un futuro no muy lejano..

alas97

Publicado por alas97 en 11:34
Etiquetas: CATASTROFES

Radiation Safety Philippines

The Japan Nuclear Crisis and its potential effect on the country

Sunday, September 1, 2013

NBC News is now reporting the arrival time of radioactive ocean water arising from Fukushima

The West Coast of North America can expect contamination "as early as 2014 and peak in 2016"

This is the first major news source I've come across addressing the speculation. The researcher quoted in the article is Vincent Rossi, an oceanographer and postdoctoral research fellow at the Institute for Cross-Disciplinary Physics and Complex Systems in Spain. "Rossi worked with former colleagues at the Climate Change Research Center at the University of New South Wales in Australia to simulate the spread of Fukushima's radioactivity in the oceans — a study detailed in the October issue of the journal Deep-Sea Research Part 1".

Based on their research, waters 180 miles off the West Coast may experience an additional "**10-30** becquerels***per cubic meter*** of cesium-137", or **.01-.03** becquerels ***per liter***. Before everyone runs off to panic, the U.S. EPA limit for radioactive cesium in *drinking water* is 200 picocuries per liter, which converts to (7.41 Bq/L). Given that we all don't dwell in the ocean every minute of the year - and even if we did - the additional radiation would result in an absurdly miniscule increase to the general population's yearly maximum permissible dose.

Based on available info and the leaks accounted for in Dai-chi, It's difficult to make an argument that Fukushima ocean spillage will adversely affect the health of people living in North America. However, Tepco must get a handle on the problem and find a sustainable solution. Future leaks with higher concentrations of radioisotopes, a massive volume leak, and contamination for years to come may bump concentrations up to the point where it will register in tuna and other fish caught in the open pacific.

Keep an eye on the **Hawaii Department of Health's website** for an early warning into ocean water and fish contamination levels spreading across the Pacific. Interestingly enough, as of August 16 of this year, the Hawaii DOH has "no near-term plans to test", and "does not anticipate contamination of living marine resources in U.S. waters at this time. For this reason, sampling of U.S. harvested seafood is not currently planned".

Posted by Karl at

Hitech @ Glance

- NASA Realtime TV HD

Tag: Japan

Fukushima's Radioactive Ocean Plume to Reach US Waters by 2014

Aug. 31 Science no comments

A radioactive plume of water in the Pacific Ocean from Japan's Fukushima nuclear plant, which was crippled in the 2011 earthquake and tsunami, will likely reach U.S. coastal waters starting in 2014, according to a new study. The long journey of the radioactive particles could help researchers better understand how the ocean's currents circulate around the world.

Ocean simulations showed that the plume of radioactive cesium-137 released by the Fukushima disaster in 2011 could begin flowing into U.S. coastal waters starting in early 2014 and peak in 2016. Luckily, two ocean currents off the eastern coast of Japan — the Kuroshio Current and the Kuroshio Extension — would have diluted the radioactive material so that its concentration fell well below the World Health Organization's safety levels within four months of the Fukushima incident. But it could have been a different story if nuclear disaster struck on the other side of Japan.

"The environmental impact could have been worse if the contaminated water would have been released in another oceanic environment in which the circulation was less energetic and turbulent," said Vincent Rossi, an oceanographer and postdoctoral research fellow at the Institute for Cross-Disciplinary Physics and Complex Systems in Spain.

Fukushima's radioactive water release has taken its time journeying across the Pacific. By comparison, atmospheric radiation from the Fukushima plant began reaching the U.S. West Coast within just days of the disaster back in 2011. [Fukushima Radiation Leak: 5 Things You Should Know]

Tracking radioactivity's path

The radioactive plume has three different sources: radioactive particles falling out from the atmosphere into the ocean, contaminated water directly released from the plant, and water that became contaminated by leaching radioactive particles from tainted soil.

The release of cesium-137 from Fukushima in Japan's more turbulent eastern currents means the radioactive material is diluted to the point of posing little threat to humans by the time it leaves Japan's coastal waters. Rossi worked with former colleagues at the Climate Change Research Centre at the University of New South Wales in Australia to simulate the spread of Fukushima's radioactivity in the oceans — a study detailed in the October issue of the journal Deep-Sea Research Part 1.

Researchers averaged 27 experimental runs of their model — each run starting in a different year — to ensure that the simulated spread of the cesium-137 as a "tracer" was not unusually affected by initial ocean conditions. Many oceanographers studying the ocean's currents prefer using cesium-137 to track the ocean currents because it acts as a passive tracer in seawater, meaning it doesn't interact much with other things, and decays slowly with a long half-life of 30 years.

“One advantage of this tracer is its long half-life and our ability to measure it quite accurately, so that it can be used in the future to test our models of ocean circulation and see how well they represent reality over time,” Rossi told LiveScience. “In 20 years’ time, we could go out, grab measurements everywhere in the Pacific and compare them to our model.”

Journey across the Pacific Rim

The team focused on predicting the path of the radioactivity until it reached the continental shelf waters stretching from the U.S. coastline to about 180 miles (300 kilometers) offshore. About 10 to 30 becquerels (units of radioactivity representing decay per second) per cubic meter of cesium-137 could reach U.S. and Canadian coastal waters north of Oregon between 2014 and 2020. (Such levels are far below the U.S. Environmental Protection Agency’s limits for drinking water.)

By comparison, California’s coast may receive just 10 to 20 becquerels per cubic meter from 2016 to 2025. That slower, lesser impact comes from Pacific currents taking part of the radioactive plume down below the ocean surface on a slower journey toward the Californian coast, Rossi explained.

A large proportion of the radioactive plume from the initial Fukushima release won’t even reach U.S. coastal waters anytime soon. Instead, the majority of the cesium-137 will remain in the North Pacific gyre — a region of ocean that circulates slowly clockwise and has trapped debris in its center to form the “Great Pacific Garbage Patch” — and continue to be diluted for approximately a decade following the initial Fukushima release in 2011. (The water from the current power plant leak would be expected to take a similar long-term path to the initial plume released, Rossi said.)

But the plume will eventually begin to escape the North Pacific gyre in an even more diluted form. About 25 percent of the radioactivity initially released will travel to the Indian Ocean and South Pacific over two to three decades after the Fukushima disaster, the model showed.

You can follow Jeremy Hsu on Twitter @jeremyhsu. Follow us @livescience, Facebook & Google+. Original article on LiveScience.

- In Pictures: Japan Earthquake & Tsunami
- 7 Craziest Ways Japan’s Earthquake Affected Earth
- Inside Japan’s Nuclear Reactors (Infographic)

Tags: Japan, Pacific Rim, US

LONDON IRVINE REPORT

FUKUSHIMA'S RADIOACTIVE OCEAN PLUME DUE TO REACH US WATERS IN 2014

Aug. 31, 2013 at 1:49 PM ET

A radioactive plume of water in the Pacific Ocean from Japan's Fukushima nuclear plant, which was crippled in the 2011 earthquake and tsunami, will likely reach U.S. coastal waters starting in 2014, according to a new study. The long journey of the radioactive particles could help researchers better understand how the ocean's currents circulate around the world.

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More

http://www.nbcnews.com/science/fukushimas-radioactive-ocean-plume-due-reach-us-waters-2014-8C11050755

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UNDERGROUND

Fukushima's toxic ocean plume will reach US waters in 2014

THEN will the New York Times report it?
MCM
Fukushima's radioactive ocean plume due to reach US waters in 2014
Jeremy Hsu LiveScience

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Read more.

September 1, 2013 // General // No Comments //

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VIDEO: Tsunami Warning Center Uses Top Technology

Fukushima's radioactive water release has taken its time journeying across the Pacific. By comparison, atmospheric radiation from the Fukushima plant began reaching the U.S. West Coast within just days of the disaster back in 2011. (Fukushima Radiation Leak: 5 Things You Should Know)

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PHOTOS: The Lost Pets of Fukushima

The release of cesium-137 from Fukushima in Japan's more turbulent eastern currents means the radioactive material is diluted to the point of posing little threat to humans by the time it leaves Japan's coastal waters. Rossi worked with former colleagues at the Climate Change Research Centre at the University of New South Wales in Australia to simulate the spread of Fukushima's radioactivity in the oceans ——dy detailed in the October issue of the journal Deep-Sea Research Part 1.

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Business Standard

ANI | Sydney August 29, 2013 Last Updated at 11:57 IST

Fukushima radioactive plume to reach U.S. coast in three years

Read more on: World Health Organisation

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A recent study has revealed that the radioactive particles leaked by the crippled Fukushima nuclear plant into the Pacific Ocean, will reach the U.S. coastline within the three years of the incident.

The study showed while atmospheric radiation was detected on the U.S. west coast within days of the incident, the radioactive particles in the ocean plume take considerably longer to travel the same distance.

However, it is likely to be harmless according to the new paper in the journal Deep-Sea Research 1.

The researchers from the Centre of Excellence for Climate System Science have identified the travel path of the contaminated ocean plume through the world's oceans for the next 10 years.

They have claimed that the concentration of radioactive material will quickly drop below World Health Organisation (WHO) safety levels as soon as it leaves Japanese waters.
The study revealed that two energetic currents off the Japanese coast, the Kuroshio Current and the Kurushio Extension, were primarily responsible for accelerating the dilution of the radioactive material, taking it well below WHO safety levels within four months.

Later, eddies, giant whirlpools and other currents in the open ocean were continuing this dilution process and direct the radioactive particles to different areas along the U.S. west coast.

Dr. Vincent Rossi said that there were some uncertainties around the total amount released and the likely concentrations that would be observed, but the contact with the north-west American coasts will not be identical everywhere.

The great majority of the radioactive material will stay in the North Pacific, with very little crossing south of the Equator in the first decade.

Only a measurable, but otherwise harmless, signature of the radiation will spread into other ocean basins, particularly the Indian and South Pacific oceans.

The researchers have also developed a website, adrift.org.au, to track the path of the radiation.

Read more on:

World Health Organisation

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THE CHRISTIAN POST
The Christian Post > US|Thu, Aug. 29 2013 12:53 PM EDT

Científicos afirman que la radiación de la planta nuclear Fukushima en Japón llegará a la costa de California en marzo del 2014

PorVicente Menjivar | Christian Post Contributor

Un grupo de cientiíficos de España, Australia y Francia afirma que los desechos radioactivos que se están fugando de la planta de Fukushima Daiichi en Japón llegarán a la costa Oeste de Estados Unidos, específicamente en el estado de California, en marzo del 2014.

La planta nuclear fue clausurada después de sufrir daños estructurales después de que un tsunami y un terremoto sacudieran a la región en el 2011.

La semana pasada la compañía Tokyo Electric Power Company, (TEPCO, por sus siglas en inglés), admitió que aproximadamente 300 toneladas de agua altamente tóxica se habían fugado de uno de sus tanques de almacenamiento.

De acuerdo con los prónosticos de los científicos que realizaron el estudio, que pertenecen al Centro para la Excelencia del Sistema Climático, en Australia, el agua radioactiva está siguiendo el curso de la corriente marítima y llegará a la costa de California tres años después del incidente de Fukushima, ocurrido el 11 de marzo del 2011 tras sufrir los desastres naturales.

“Después del desastre de Fukushima en marzo del 2011, grandes cantidades de agua contaminada con radionucleidos, incluyendo Cesium-137, fueron liberadas al Océano Pacífico. Con una vida media de 30.1 años, el Cs-137 tiene el potencial para viajar distancias lárgas en el océano,” indicó el estudio, publicado en la revista científica Oceanographic Research Papers.

Los expertos también dijeron que aunque gran cantidad del material radioactive llegará a California, gran parte permanecerá en la parte Norte del Océano Pacífico, sin afectar al Sur del Ecuador, al menos en la primer década.

“A pesar de que todavía existe una falta de certeza sobre la cantidad total liberada y las concentraciones probables que podrían ser observadas, hemos mostrado

inequívocamente que el contacto con la costa Noroeste de Estados Unidos no será similar en ninguna otra parte," dijo Vincent Rossi, uno de los investigadores a cargo del estudio y quien es parte del Instituto de Física Interdisciplinaria y Sistemas Complejos (IFISC) en Palma de Mallorca, España.

Según el pronóstico, eventualmente el agua radioactiva llegará a otros océanos "durante las próximas dos décadas" e incluso mucho después.

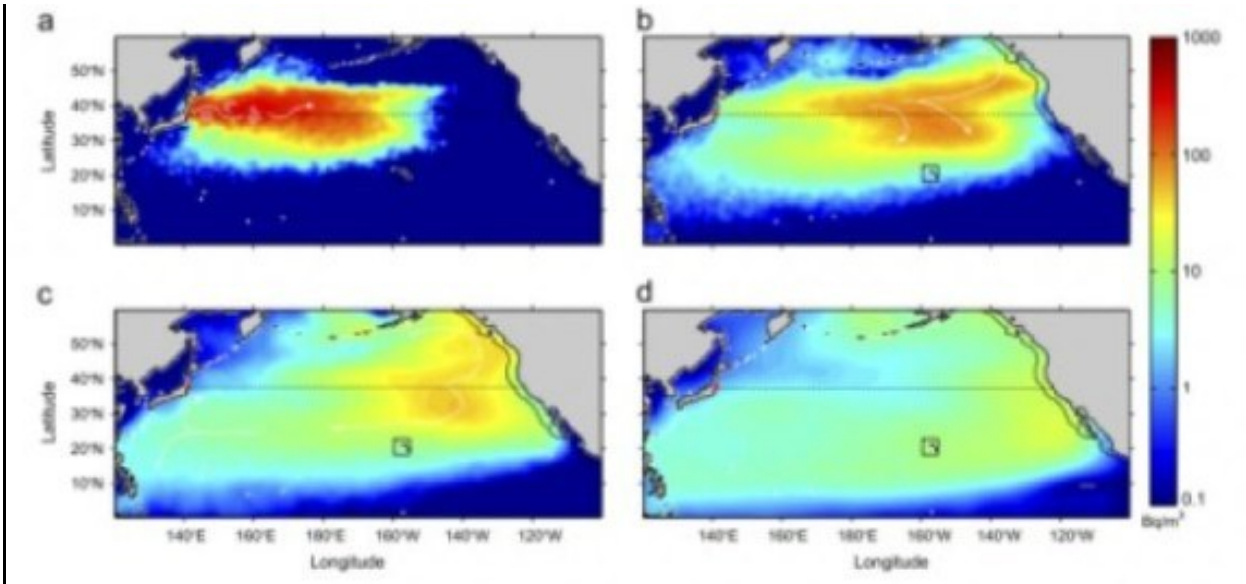
Científicos también dijeron que a pesar de la llegada del agua radioactiva a la costa Oeste de Estados Unidos, los habitantes de esa región no tienen de qué preocuparse, ya que los niveles de radiación están por debajo de los considerados dañinos para los humanos de acuerdo con indices de seguridad de la Organización Mundial de la Salud (OMS).

Fukushima Radioactive Plume To Hit The US By Early 2014

The first radioactive ocean plume released by the Fukushima nuclear power plant disaster will finally be reaching the shores of the United States sometime in 2014, according to a new study from the University of New South Wales — a full three or so years after the date of the disaster.

Many researchers, and also officials from the World Health Organization, have argued that the radioactive particles that do make their way to the US will have a very limited effect on human health — as the concentration of radioactive material in US waters will be well below World Health Organization safety levels. But needless to say, there is some debate on this matter…

For the new work, the researchers utilized a number of different ocean simulations to track the path of the radiation from the Fukushima incident — the models used have identified the most likely path that the plume will take over the next ten years.



Surface (0–200m) of Cesium-137 concentrations (Bq/m3) by (a)April 2012, (b) April 2014 (c) April 2016 and (d) April 2021.
Image Credit: University of New South Wales

“Observers on the west coast of the United States will be able to see a measurable increase in radioactive material three years after the event,” stated study author Dr Erik van Sebille. “However, people on those coastlines should not be concerned as the concentration of

radioactive material quickly drops below World Health Organization safety levels as soon as it leaves Japanese waters."

The University of New South Wales has more:

Two energetic currents off the Japanese coast — the Kuroshio Current and the Kurushio Extension — are primarily responsible for accelerating the dilution of the radioactive material, taking it well below WHO safety levels within four months.

Eddies and giant whirlpools — some tens of kilometers wide — and other currents in the open ocean continue this dilution process and direct the radioactive particles to different areas along the US west coast.

Interestingly, the great majority of the radioactive material will stay in the North Pacific, with very little crossing south of the Equator in the first decade. Eventually over a number of decades, a measurable but otherwise harmless signature of the radiation will spread into other ocean basins, particularly the Indian and South Pacific oceans.

"Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere," stated Dr. Vincent Rossi.

"Shelf waters north of 45°N will experience higher concentrations during a shorter period, when compared to the Californian coast. This late but prolonged exposure is due to the three-dimensional pathways of the plume. The plume will be forced down deeper into the ocean toward the subtropics before rising up again along the southern Californian shelf."

"Australia and other countries in the Southern Hemisphere will see little if any radioactive material in their coastal waters and certainly not at levels to cause concern," Dr van Sebille continued.

Those interested in doing so can track the path of the radiation on a website created by the researchers.

The new research was just published new in the journal *Deep-Sea Research 1*.

Read more at http://cleantechnica.com/2013/09/02/fukushima-radioactive-plume-to-hit-the-us-by-early-2014/#hCE231eQlQKGxWJM.99

Diario Córdoba | Lunes, 2 de septiembre de 2013

CÓRDOBA

Internacional

17:38 H. CONSECUENCIAS DE LA EXPLOSIÓN NUCLEAR

Un estudio prevé que la radiación de Fukushima llegará a EEUU en cantidades inofensivas

EFE 30/08/2013

La radiación de Fukushima llegará por mar a las costas de Estados Unidos en 2014 en cantidades inofensivas para los estándares que marca la Organización Mundial de la Salud (OMS) que no deberían ser motivo de alarma, según un estudio científico que se acaba de publicar.

Las partículas radioactivas de Cs-37 liberadas al mar debido al desastre de Fukushima se detectarán en 2014, tres años después, en la costa oeste de Estados Unidos, según sugieren las simulaciones elaboradas por un equipo de científicos liderado por el investigador del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC) del CSIC y la Universidad de las Islas Baleares (UIB) Vicent Rossi, ha informado el IFISC en un comunicado.

Que la radiación llegue en esos niveles no debería ser motivo de alarma puesto que la concentración de material se encuentra muy por debajo de los límites de seguridad para el consumo humano marcados por la OMS, según el estudio elaborado por investigadores del IFISC, el Climate Chang Research Centre de Australia y el Laboratoire d'Etude en Géophysique et Océanographie Spatiales de Francia.

Tras el desastre de Fukushima de marzo de 2011, grandes cantidades de agua contaminada con elementos como el cesio-137 se liberaron en el Pacífico. Con una vida media de 30 años, el cesio-137 tiene el potencial de viajar grandes distancias en el océano.

Si bien la radiación atmosférica ya se detectó en la costa oeste de Estados Unidos pocos días después del incidente de Japón, las partículas radiactivas en el océano necesitan mucho más tiempo para recorrer la misma distancia.

Los resultados publicados ahora por los investigadores se centran, por medio de simulaciones por ordenador, en como se moverá la radiación a través de las corrientes marinas durante 10 años.

"Los observadores de la costa oeste de los Estados Unidos podrán ver un aumento de material radiactivo tres años después del vertido", ha dicho uno de los autores del estudio, Erik van Sebille.

"Sin embargo, la gente en las costas no debe preocuparse puesto que la concentración de material radiactivo empezó a descender rápidamente, por debajo de los niveles de seguridad de la Organización Mundial de la Salud, tan pronto como salió de aguas japonesas", ha puntualizado

Dos corrientes de la costa japonesa, la de Kuroshio y la extensión Kurushio, son las principales responsables de la aceleración de la dilución del material radiactivo, llevándola muy por debajo de los niveles de seguridad de la OMS dentro de los primeros cuatro meses.

Remolinos y torbellinos gigantes (de varias decenas de kilómetros de ancho), y otras corrientes en el océano abierto, siguen este proceso de dilución y dirigen las partículas radiactivas a diferentes zonas de la costa oeste estadounidense.

"A pesar de algunas incertidumbres en torno a la cantidad total liberada y las probables concentraciones que se pueden observar, hemos demostrado inequívocamente que el contacto con las costas del noroeste americano no será el mismo en todas partes", afirma el autor principal del estudio, el doctor Vincent Rossi.

"En aguas de la plataforma al norte de 45 ° N se experimentarán concentraciones más altas durante un período más corto, en comparación con la costa de California" según Rossi.

Esta exposición prolongada se debe "a las vías de tres dimensiones de la nube radiactiva". Según detalla, la parte superior se sumergirá a zonas más profundas del océano hacia el subtrópico antes de subir de nuevo a lo largo de la plataforma del sur de California.

En la primera década tras el desastre, la mayoría de los materiales radiactivos se quedará en el Pacífico Norte. Finalmente, la radiación se extenderá a otras cuencas oceánicas, particularmente el océano Pacífico del sur de India, pero nunca en niveles que deban causar preocupación.

diariovasco.com

Estudio prevé que la radiación de Fukushima llegue a EEUU, aunque sin peligro

ÚLTIMAS NOTICIAS DE SOCIEDAD 17:37

Estudio prevé que la radiación de Fukushima llegue a EEUU, aunque sin peligro

Agencia EFE

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Dos corrientes de la costa japonesa, la de Kuroshio y la extensión Kurushio, son las principales responsables de la aceleración de la dilución del material radiactivo, llevándola muy por debajo de los niveles de seguridad de la OMS dentro de los primeros cuatro meses.

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"A pesar de algunas incertidumbres en torno a la cantidad total liberada y las probables concentraciones que se pueden observar, hemos demostrado inequívocamente que el contacto con las costas del noroeste americano no será el mismo en todas partes", afirma el autor principal del estudio, el doctor Vincent Rossi.

"En aguas de la plataforma al norte de 45 ° N se experimentarán concentraciones más altas durante un período más corto, en comparación con la costa de California" según Rossi.

Esta exposición prolongada se debe "a las vías de tres dimensiones de la nube radiactiva". Según detalla, la parte superior se sumergirá a zonas más profundas del océano hacia el subtrópico antes de subir de nuevo a lo largo de la plataforma del sur de California.

En la primera década tras el desastre, la mayoría de los materiales radiactivos se quedará en el Pacífico Norte. Finalmente, la radiación se extenderá a otras cuencas oceánicas, particularmente el océano Pacífico del sur de India, pero nunca en niveles que deban causar preocupación. EFE

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La radiación de Fukushima llegará a las costas de EE UU

ALERTA ECOLÓGICA

La radiación de Fukushima llegará a las costas de EE UU

31.08.13 - 00:36 -

EFE | PALMA DE MALLORCA.

La radiación de Fukushima llegará por mar a las costas de Estados Unidos el año que viene en cantidades inofensivas para los estándares que marca la Organización Mundial de la Salud y que no deberían ser motivo de alarma, según un estudio científico que se acaba de publicar. Las partículas radioactivas de cesio-37 liberadas al mar debido al desastre de la central nuclear se detectarán en 2014, tres años después, en la costa Oeste de Estados Unidos, según sugieren las simulaciones elaboradas por un equipo de científicos liderado por el investigador del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC) del CSIC y la Universidad de las Islas Baleares Vicent Rossi.

Que la radiación llegue en esos niveles no debería ser motivo de alarma, puesto que la concentración de material se encuentra muy por debajo de los límites de seguridad para el consumo humano marcados por la OMS, según el estudio elaborado por investigadores del IFISC, el Climate Chang Research Centre de Australia y el Laboratoire d'Etude en Géophysique et Océanographie Spatiales de Francia.

Tras el desastre de Fukushima de marzo de 2011, grandes cantidades de agua contaminada con elementos como el cesio-137 se liberaron en el Pacífico. Con una vida media de 30 años, el cesio-137 tiene el potencial de viajar grandes distancias en el océano. Si bien la radiación atmosférica ya se detectó en la costa Oeste de Estados Unidos pocos días después del incidente de Japón, las partículas radiactivas en el océano necesitan mucho más tiempo para recorrer la misma distancia.

elnortedecastilla.es

ÚLTIMAS NOTICIAS DE VIDA Y OCIO 17:37

Estudio prevé que la radiación de Fukushima llegue a EEUU, aunque sin peligro

Agencia EFE

Palma, 30 ago (EFE).- La radiación de Fukushima llegará por mar a las costas de Estados Unidos en 2014 en cantidades inofensivas para los estándares que marca la Organización Mundial de la Salud (OMS) que no deberían ser motivo de alarma, según un estudio científico que se acaba de publicar.

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el Periódico de Aragón

CONSECUENCIAS DE LA EXPLOSIÓN NUCLEAR

Un estudio prevé que la radiación de Fukushima llegará a EEUU en cantidades inofensivas

EFE 30/08/2013

La radiación de Fukushima llegará por mar a las costas de Estados Unidos en 2014 en cantidades inofensivas para los estándares que marca la Organización Mundial de la Salud (OMS) que no deberían ser motivo de alarma, según un estudio científico que se acaba de publicar.

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ENENEWS
ENERGY NEWS

UPI: Fukushima plume to reach U.S. West Coast in months; Measurable increase in radioactive material — Study: Prolonged exposure for California lasting 10 years; Hits Hawaii early 2014... may already be surrounded (PHOTO)

Published: August 28th, 2013 at 9:27 pm ET
By ENENews

Email Article
93 comments

UPI, Aug. 28, 2013: *Fukushima radioactive plume being tracked toward U.S. West Coast* [...] The radioactive plume from the 2011 Fukushima nuclear disaster will reach U.S. shores within 3 years of the date of the incident, Australian researchers say. [...] “Observers on the West Coast of the United States will be able to see a measurable increase in radioactive material three years after the event,” researcher Erik van Sebille said in an ARC release Wednesday. “However, people on those coastlines should not be concerned as the concentration of radioactive material quickly drops below World Health Organization safety levels as soon as it leaves Japanese waters.” [...]

Surface (0-200m) of Cesium-137 concentrations (Bq/m3) by (a) April 2012, (b) April 2014 (c) April 2016 and (d) April 2021 — Hawaii seen in black square (SOURCE: Rossi, et al.)

Phys.org, Aug. 28, 2013: [...] [Eddies and giant whirlpools] direct the radioactive particles to different areas along the US west coast. “Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere,” said Dr Vincent Rossi. “Shelf waters north of 45°N will experience higher concentrations during a shorter period, when compared to the Californian coast. [...] The plume will be forced down deeper into the ocean toward the subtropics before rising up again along the southern Californian shelf.” [...] Eventually over a number of decades, a measurable but otherwise harmless signature of the radiation will spread into other ocean basins, particularly the Indian and South Pacific oceans. [...]

Abstract of Multi-decadal projections of surface and interior pathways of the Fukushima Cesium-

137 radioactive plume, October 2013 (print): [...] The simulations suggest that the contaminated plume would have been rapidly diluted below 10,000 Bq/m3 by the energetic Kuroshio Current and Kurushio Extension by July 2011. Based on our source function of 22 Bq/m3, which sits at the upper range of the published estimates, waters with Cs-137 concentrations >10 Bq/m3 are projected to reach the northwestern American coast and the Hawaiian archipelago by early 2014. Driven by quasi-zonal oceanic jets, shelf waters north of 45°N experience Cs-137 levels of 10–30 Bq/m3 between 2014 and 2020, while the Californian coast is projected to see lower concentrations (10–20 Bq/m3) slightly later (2016–2025). This late but prolonged exposure is related to subsurface pathways of mode waters, where Cs-137 is subducted toward the subtropics before being upwelled from deeper sources along the southern Californian coast. The model suggests that Fukushima-derived Cs-137 will penetrate the interior ocean and spread to other oceanic basins over the next two decades and beyond. [...]

See also: Gundersen: Radioactive plume to impact West Coast in a year -- Not going away after it hits... likely to only get stronger -- Fukushima will keep releasing contamination for years to come -- Must demand officials test fish and make data public (AUDIO)

Published: August 28th, 2013 at 9:27 pm ET
By ENENews

ENN ENVIRONMENTAL NEWS NETWORK

From: JEREMY HSU, LIVESCIENCE.COM via Discovery News
Published September 2, 2013 06:21 AM

Oceanic plume of radioactivity predicted to reach US by 2014

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A radioactive plume of water in the Pacific Ocean from Japan's Fukushima nuclear plant, which was crippled in the 2011 earthquake and tsunami, will likely reach U.S. coastal waters starting in 2014, according to a new study. The long journey of the radioactive particles could help researchers better understand how the ocean's currents circulate around the world.

Ocean simulations showed that the plume of radioactive cesium-137 released by the Fukushima disaster in 2011 could begin flowing into U.S. coastal waters starting in early 2014 and peak in 2016. Luckily, two ocean currents off the eastern coast of Japan — the Kuroshio Current and the Kuroshio Extension — would have diluted the radioactive material so that its concentration fell well below the World Health Organization's safety levels within four months of the Fukushima incident. But it could have been a different story if nuclear disaster struck on the other side of Japan.

"The environmental impact could have been worse if the contaminated water would have been released in another oceanic environment in which the circulation was less energetic and turbulent," said Vincent Rossi, an oceanographer and postdoctoral research fellow at the Institute for Cross-Disciplinary Physics and Complex Systems in Spain.

Fukushima's radioactive water release has taken its time journeying across the Pacific. By comparison, atmospheric radiation from the Fukushima plant began reaching the U.S. West Coast within just days of the disaster back in 2011.

Photo credit ral.ucar.edu

Read more at Discovery News.

Radioactive ocean plume to hit U.S. West Coast next year from Fukushima disaster

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Green Peace

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September 1, 2013

The radioactive ocean plume, which is the fallout from theFukushima nuclear disaster in 2011, is due to hit the Pacific coastline of the U.S. by next year. Scientists tracking the radioactive ocean plume creeping toward U.S. shores in the Pacific Ocean said it would take three years from the date of the disaster to reach the Californiacoastline. That brings the plume to the nation's shores sometime in 2014, according to "Fox and Friends Weekend" on Sunday, Sept. 1

According to Science World Report, within days of the Fukushima incident atmospheric radiation was detected on the U.S. west coast, but the water carries the radioactive plume at a much slower rate. Scientists have calculated a time line and have charted the radioactive plume's course for the next 10 years as it reaches many of the world's oceans.

Just in time for the plume to reach the West Coast of the U.S. there should be a drop in the concentration of the radioactivity. This is caused by the dilution process from ocean currents, eddies and whirlpools. The scientist have also found that the radioactive material drops below the World Organization safety levels as soon as it leaves Japanese waters.

"Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere," said Vincent Rossi, one of the researchers.

Map of the radioactive ocean plum: To check out that time line and charted world course for the**radioactive ocean plume click here** to check out the map.

Giuseppe Michieli
Membro del Comitato Consultivo, Editore e Direttore del Forum Italiano di FluTrackers

Join Date: Dec 2007
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ENVR **Deep Sea Research. Multi-decadal projections of surface and interior pathways of the Fukushima Cesium-137 radioactive plume**

[Source: Science Direct, full page: (LINK). Abstract, edited. Via EurekAlert.]

Deep Sea Research Part I: Oceanographic Research Papers, Volume 80, October 2013, Pages 37–46

Multi-decadal projections of surface and interior pathways of the Fukushima Cesium-137 radioactive plume

Vincent Rossi[a, b], Erik Van Sebille[b, c], Alexander Sen Gupta[b, c], Véronique Garçon[d], Matthew H. England[b, c]

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Received 8 February 2013 - Revised 16 May 2013 - Accepted 29 May 2013 - Available online 15 June 2013

Highlights

- Cs-137 plume strongly diluted by July 2011, reaches American coast by 2014.
- Mode water formation and persistent upwelling affect Cs-137 concentrations.
- Cs-137 enters the deep ocean and exits the North Pacific in the next 30 years.

- Sensitivity to uncertainties in the source function and to interannual variability.

Abstract

Following the March 2011 Fukushima disaster, large amounts of water contaminated with radionuclides, including Cesium-137, were released into the Pacific Ocean. With a half-life of 30.1 years, Cs-137 has the potential to travel large distances within the ocean. Using an ensemble of regional eddy-resolving simulations, this study investigates the long-term ventilation pathways of the leaked Cs-137 in the North Pacific Ocean. The simulations suggest that the contaminated plume would have been rapidly diluted below 10,000 Bq/m^3 by the energetic Kuroshio Current and Kurushio Extension by July 2011. Based on our source function of 22 Bq/m^3, which sits at the upper range of the published estimates, waters with Cs-137 concentrations >10 Bq/m^3 are projected to reach the northwestern American coast and the Hawaiian archipelago by early 2014. Driven by quasi-zonal oceanic jets, shelf waters north of 45°N experience Cs-137 levels of 10–30 Bq/m^3 between 2014 and 2020, while the Californian coast is projected to see lower concentrations (10–20 Bq/m^3) slightly later (2016–2025). This late but prolonged exposure is related to subsurface pathways of mode waters, where Cs-137 is subducted toward the subtropics before being upwelled from deeper sources along the southern Californian coast. The model suggests that Fukushima-derived Cs-137 will penetrate the interior ocean and spread to other oceanic basins over the next two decades and beyond. The sensitivity of our results to uncertainties in the source function and to inter-annual to multi-decadal variability is discussed.

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G_MICHIELI (aka IRONOREHOPPER)

LUNATIC OUTPOST

Post: #1

NBC NEWS Fukushima Radation Alert: ocean plume due to reach US waters in 2014

Fukushima's radioactive ocean plume due to reach US waters in 2014

A radioactive plume of water in the Pacific Ocean from Japan's Fukushima nuclear plant, which was crippled in the 2011 earthquake and tsunami, will likely reach U.S. coastal waters starting in 2014, according to a new study. The long journey of the radioactive particles could help researchers better understand how the ocean's currents circulate around the world.

Ocean simulations showed that the plume of radioactive cesium-137 released by the Fukushima disaster in 2011 could begin flowing into U.S. coastal waters starting in early 2014 and peak in 2016. Luckily, two ocean currents off the eastern coast of Japan — the Kuroshio Current and the Kuroshio Extension — has diluted the radioactive material so much that its concentration fell well below the World Health Organization's safety levels within four months of the Fukushima incident. But it could have been a different story if nuclear disaster struck on the other side of Japan.

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Fukushima radioactive plume to reach US in 3 years

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2013-08-28 13:08:04

Fukushima radioactive plume to reach US in 3 years **Public release date: 27-Aug-2013**

Contact: Alvin Stonealvin.stone@unsw.edu.au61-293-858-953University of New South Wales

Tuesday, August 27: The radioactive ocean plume from the 2011 Fukushima nuclear plant disaster will reach the shores of the US within three years from the date of the incident but is likely to be harmless according to new paper in the journal Deep-Sea Research 1

While atmospheric radiation was detected on the US west coast within days of the incident, the radioactive particles in the ocean plume take considerably longer to travel the same distance.

In the paper, researchers from the Centre of Excellence for Climate System Science and others used a range of ocean simulations to track the path of the radiation from the Fukushima incident.

The models identified where it would likely travel through the world's oceans for the next 10 years.

"Observers on the west coast of the United States will be able to see a measurable increase in radioactive material three years after the event," said one of the paper's authors, Dr Erik van Sebille.

"However, people on those coastlines should not be concerned as the concentration of radioactive material quickly drops below World Health Organisation safety levels as soon as it leaves Japanese waters."

Two energetic currents off the Japanese coast - the Kuroshio Current and the Kurushio Extension are primarily responsible for accelerating the dilution of the radioactive material, taking it well below WHO safety levels within four months.

Eddies and giant whirlpools some tens of kilometres wide and other currents in the open ocean continue this dilution process and direct the radioactive particles to different areas along the US west coast.

"Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere," said Dr Vincent Rossi.

"Shelf waters north of 45°N will experience higher concentrations during a shorter period, when compared to the Californian coast. This late but prolonged exposure is due to the three-dimensional pathways of the plume. The plume will be forced down deeper into the ocean toward the subtropics before rising up again along the southern Californian shelf."

Interestingly, the great majority of the radioactive material will stay in the North Pacific, with very little crossing south of the Equator in the first decade. Eventually over a number of decades, a measurable but otherwise harmless signature of the radiation will spread into other ocean basins, particularly the Indian and South Pacific oceans.

"Australia and other countries in the Southern Hemisphere will see little if any radioactive material in their coastal waters and certainly not at levels to cause concern," Dr van Sebille said.

"For those interested in tracking the path of the radiation, we have developed a website to help them.

"Using this website, members of the public can click on an area in the ocean and track the movement of the radiation or any other form of pollution on the ocean surface over the next 10 years."

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The paper: Multi-decadal projections of surface and interior pathways of the Fukushima Cesium-137 radioactive plume. (dx.doi.org/10.1016/j.dsr.2013.05.015)

The Website: adrift.org.au.

La radiación de la central nuclear de Fukushima llegará a las costas de EEUU

La radiación de Fukushima llegará por mar a las costas de EEUU en 2014 en cantidades inofensivas para los estándares que marca la Organización Mundial de la Salud (OMS), según reciente estudio científico.

GARA | TOKIO

Las partículas radioactivas de Cs-37 liberadas al mar debido al desastre de Fukushima se detectarán en 2014, tres años después, en la costa oeste de EEUU, según sugieren las simulaciones elaboradas por un equipo de científicos liderado por el investigador del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC) del CSIC y la Universidad de las Islas Baleares (UIB) Vicent Rossi, informó el IFISC en un comunicado.

Que la radiación llegue en esos niveles no debería ser motivo de alarma puesto que la concentración de material se encuentra muy por debajo de los límites de seguridad para el consumo humano marcados por la OMS, según el estudio elaborado por investigadores del IFISC, el Climate Chang Research Centre de Australia y el Laboratoire d'Etude en Géophysique et Océanographie Spatiales del Estado francés.

Tras el desastre de Fukushima de marzo de 2011, grandes cantidades de agua contaminada con elementos como el cesio-137 se liberaron en el Pacífico. Con una vida media de 30 años, el cesio-137 tiene el potencial de viajar grandes distancias en el océano.

Si bien la radiación atmosférica ya se detectó en la costa oeste de EEUU pocos días después de la catástrofe de Japón, las partículas radiactivas en el océano necesitan mucho más tiempo para recorrer la misma distancia.

Los resultados publicados ahora por los investigadores se centran, por medio de simulaciones por ordenador, en cómo se moverá la radiación a través de las corrientes marinas durante diez años.

«Los observadores de la costa oeste de EEUU podrán ver un aumento de material radiactivo tres años después del vertido», dijo uno de los autores del estudio, Erik van Sebille. «Sin embargo, la gente en las costas no debe preocuparse puesto que la concentración de material radiactivo empezó a descender rápidamente, por debajo de los niveles de seguridad de la Organi- ación Mundial de la Salud, tan pronto como salió de aguas japonesas», precisó.

Dos corrientes de la costa japonesa, la de Kuroshio y la extensión Kurushio, son las principales responsables de la aceleración de la dilución del material radiactivo.

En la primera década tras el desastre, la mayoría de los materiales radiactivos se quedará en el Pacífico Norte. Finalmente, la radiación se extenderá a otras cuencas oceánicas, particularmente el océano Pacífico del sur de India.

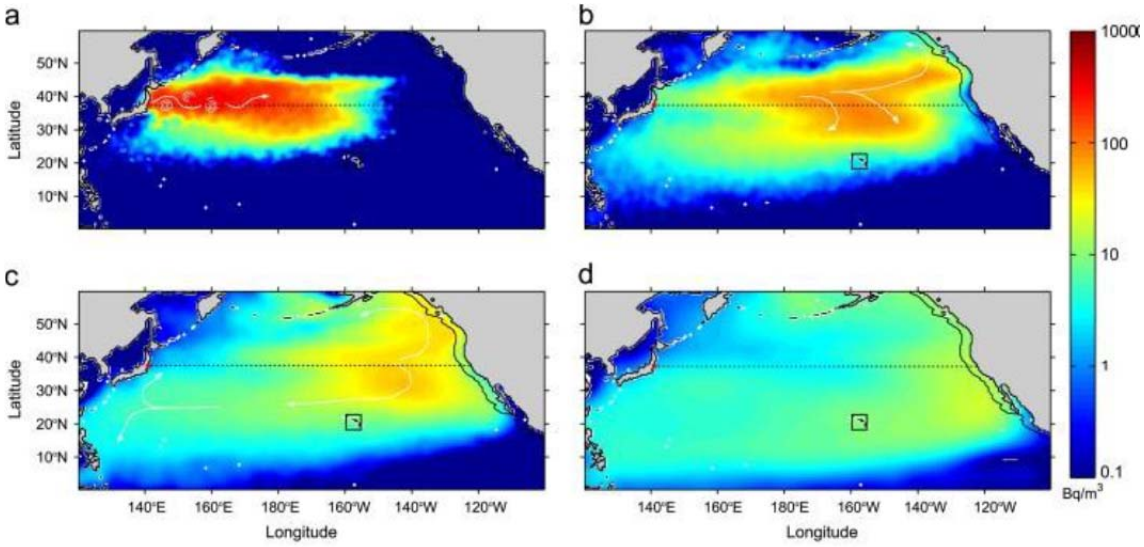
Fukushima plume to hit U.S. West Coast in a few months

Published on Wednesday, 28 August 2013 22:00

UPI: Fukushima plume to hit U.S. West Coast in a few months, will see measurable increase in radioactive material — Study: 'Prolonged exposure' for California coast to last 10 years; Contamination surrounds Hawaii starting in 2014 or sooner (PHOTO)

Published: August 28th, 2013 at 9:27 pm ET
By ENENews

UPI, Aug. 28, 2013: *Fukushima radioactive plume being tracked toward U.S. West Coast* [...] The radioactive plume from the 2011 Fukushima nuclear disaster will reach U.S. shores within 3 years of the date of the incident, Australian researchers say. [...] "Observers on the West Coast of the United States will be able to see a measurable increase in radioactive material three years after the event," researcher Erik van Sebille said in an ARC release Wednesday. "However, people on those coastlines should not be concerned as the concentration of radioactive material quickly drops below World Health Organization safety levels as soon as it leaves Japanese waters." [...]



Surface (0-200m) of Cesium-137 concentrations (Bq/m3) by (a) April 2012, (b) April 2014 (c) April 2016 and (d) April 2021 (SOURCE: Phys.org)

Phys.org, Aug. 28, 2013: [...] [Eddies and giant whirlpools] direct the radioactive particles to different areas along the US west coast. "Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown

unambiguously that the contact with the north-west American coasts will not be identical everywhere," said Dr Vincent Rossi. "Shelf waters north of 45°N will experience higher concentrations during a shorter period, when compared to the Californian coast. [...] The plume will be forced down deeper into the ocean toward the subtropics before rising up again along the southern Californian shelf." [...] Eventually over a number of decades, a measurable but otherwise harmless signature of the radiation will spread into other ocean basins, particularly the Indian and South Pacific oceans. [...]

Abstract of Multi-decadal projections of surface and interior pathways of the Fukushima Cesium-137 radioactive plume, Publication Date: October 2013: [...] The simulations suggest that the contaminated plume would have been rapidly diluted below 10,000 Bq/m3 by the energetic Kuroshio Current and Kurushio Extension by July 2011. Based on our source function of 22 Bq/m3, which sits at the upper range of the published estimates, waters with Cs-137 concentrations >10 Bq/m3 are projected to reach the northwestern American coast and the Hawaiian archipelago by early 2014. Driven by quasi-zonal oceanic jets, shelf waters north of 45°N experience Cs-137 levels of 10–30 Bq/m3 between 2014 and 2020, while the Californian coast is projected to see lower concentrations (10–20 Bq/m3) slightly later (2016–2025). This late but prolonged exposure is related to subsurface pathways of mode waters, where Cs-137 is subducted toward the subtropics before being upwelled from deeper sources along the southern Californian coast. The model suggests that Fukushima-derived Cs-137 will penetrate the interior ocean and spread to other oceanic basins over the next two decades and beyond. [...]

http://enenews.com/upi-fukushima-plume-to-hit-u-s-shores-early-next-year-will-see-measurable-increase-in-radioactive-material-study-prolonged-exposure-for-californian-coast-to-last-10-years-contamination-to

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Terrifying New Discovery About Fukushima's Radioactive Plume

By Jeremy Hsu, LiveScience Contributor:

A radioactive plume of water in the Pacific Ocean from Japan's Fukushima nuclear plant, which was crippled in the 2011 earthquake and tsunami, will likely reach U.S. coastal waters starting in 2014, according to a new study. The long journey of the radioactive particles could help researchers better understand how the ocean's currents circulate around the world.

Ocean simulations showed that the plume of radioactive cesium-137 released by the Fukushima disaster in 2011 could begin flowing into U.S. coastal waters starting in early 2014 and peak in 2016. Luckily, two ocean currents off the eastern coast of Japan — the Kuroshio Current and the Kuroshio Extension — would have diluted the radioactive material so that its concentration fell well below the World Health Organization's safety levels within four months of the Fukushima incident. But it could have been a different story if nuclear disaster struck on the other side of Japan.

"The environmental impact could have been worse if the contaminated water would have been released in another oceanic environment in which the circulation was less energetic and turbulent," said Vincent Rossi, an oceanographer and postdoctoral research fellow at the Institute for Cross-Disciplinary Physics and Complex Systems in Spain.

Fukushima's radioactive water release has taken its time journeying across the Pacific. By comparison, atmospheric radiation from the Fukushima plant began reaching the U.S. West Coast within just days of the disaster back in 2011. [Fukushima Radiation Leak: 5 Things You Should Know]

Tracking radioactivity's path

The radioactive plume has three different sources: radioactive particles falling out from the atmosphere into the ocean, contaminated water directly released from the plant, and water that became contaminated by leaching radioactive particles from tainted soil.

The release of cesium-137 from Fukushima in Japan's more turbulent eastern currents means the radioactive material is diluted to the point of posing little threat to humans by the time it leaves Japan's coastal waters. Rossi worked with former colleagues at the Climate Change Research Centre at the University of New South Wales in Australia to simulate the spread of Fukushima's radioactivity in the oceans — a study detailed in the October issue of the journal Deep-Sea Research Part 1.

Researchers averaged 27 experimental runs of their model — each run starting in a different year — to ensure that the simulated spread of the cesium-137 as a "tracer" was not unusually affected by initial ocean conditions. Many oceanographers studying the ocean's currents prefer using cesium-137 to track the ocean currents because it acts as a passive tracer in seawater, meaning it doesn't interact much with other things, and decays slowly with a long half-life of 30 years.

"One advantage of this tracer is its long half-life and our ability to measure it quite accurately, so that it can be used in the future to test our models of ocean circulation and see how well they represent reality over time," Rossi told LiveScience. "In 20 years' time, we could go out, grab measurements everywhere in the Pacific and compare them to our model."

Journey across the Pacific Rim

The team focused on predicting the path of the radioactivity until it reached the continental shelf waters stretching from the U.S. coastline to about 180 miles (300 kilometers) offshore. About 10 to 30 becquerels (units of radioactivity representing decay per second) per cubic meter of cesium-137 could reach U.S. and Canadian coastal waters north of Oregon between 2014 and 2020. (Such levels are far below the U.S. Environmental Protection Agency's limits for drinking water.)

By comparison, California's coast may receive just 10 to 20 becquerels per cubic meter from 2016 to 2025. That slower, lesser impact comes from Pacific currents taking part of the radioactive plume down below the ocean surface on a slower journey toward the Californian coast, Rossi explained.

A large proportion of the radioactive plume from the initial Fukushima release won't even reach U.S. coastal waters anytime soon. Instead, the majority of the cesium-137 will remain in the North Pacific gyre — a region of ocean that circulates slowly clockwise and has trapped debris in its center to form the "Great Pacific Garbage Patch" — and continue to be diluted for approximately a decade following the initial Fukushima release in 2011. (The water from the current power plant leak would be expected to take a similar long-term path to the initial plume released, Rossi said.)

But the plume will eventually begin to escape the North Pacific gyre in an even more diluted form. About 25 percent of the radioactivity initially released will travel to the Indian Ocean and South Pacific over two to three decades after the Fukushima disaster, the model showed.

You can follow Jeremy Hsu on Twitter @jeremyhsu. Follow us @livescience, FacebookGoogle+. Original article on LiveScience.

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Ocean Plume from Japan Nuke Disaster Will Reach U.S. by 2014

But radioactive material from 2011 meltdown is expected to be harmless, experts say

Nuclear plants on Japan's East Coast
Map: International Nuclear Safety Center.

FRIDAY, Aug. 30 (HealthDay News) -- Within three years of the Fukushima nuclear plant meltdown that was triggered by a tsunami in Japan in March 2011, the radioactive ocean plume resulting from the disaster will reach the shores of the United States, researchers say.

However, according to the Australian Research Council's Centre of Excellence for Climate System Science, by the time the plume hits the west coast of the United States it is expected to be harmless.

"Observers on the west coast of the United States will be able to see a measurable increase in radioactive material three years after the event," Erik van Sebille, one of the paper's authors, said in a news release from the research council.

"However," he added, "people on those coastlines should not be concerned, as the concentration of radioactive material quickly drops below World Health Organization safety levels as soon as it leaves Japanese waters."

Within four months of the incident, two currents off the coast of Japan, known as the

Kuroshio Current and the Kurushio Extension, diluted the radioactive material to levels considered safe by the WHO, the authors of the report said.

Although atmospheric radiation was detected on the west coast of the United States within days of the nuclear disaster, the researchers said radioactive particles in the ocean plume take much longer to travel. Using various ocean simulations to track the path of the radiation, scientists plotted where the radioactive particles would likely move through the Earth's oceans over the next decade.

The study authors added that eddies, giant whirlpools and other currents in the open ocean accelerate this dilution process and will ultimately disperse radioactive particles along the west coast.

"Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere," researcher Vincent Rossi said in the news release.

"Shelf waters north of 45 degrees north will experience higher concentrations during a shorter period, when compared to the Californian coast," Rossi said. "This late but prolonged exposure is due to the three-dimensional pathways of the plume. The plume will be forced down deeper into the ocean toward the subtropics before rising up again along the southern Californian shelf."

The research, published online Aug. 28 in *Deep-Sea Research 1*, predicts that most of the radioactive material from the disaster will remain in the North Pacific, and only a small amount will move south of the Equator within 10 years of the incident. Eventually, the researchers said, a harmless amount of the radiation will spread into other waters, including the Indian and South Pacific oceans.

"Australia and other countries in the Southern Hemisphere will see little if any radioactive material in their coastal waters and certainly not at levels to cause concern," van Sebille said.

More information

The U.S. Environmental Protection Agency provides more information on Fukushima radiation monitoring.

August 30 2013

HUFF POST GREEN

Fukushima's Radioactive Plume Could Reach U.S. Waters By 2014

Posted: 09/01/2013 6:06 pm EDT

335

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120

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By Jeremy Hsu, LiveScience Contributor:

A radioactive plume of water in the Pacific Ocean from Japan's Fukushima nuclear plant, which was crippled in the 2011 earthquake and tsunami, will likely reach U.S. coastal waters starting in 2014, according to a new study. The long journey of the radioactive particles could help researchers better understand how the ocean's currents circulate around the world.

Ocean simulations showed that the plume of radioactive cesium-137 released by theFukushima disaster in 2011 could begin flowing into U.S. coastal waters starting in early 2014 and peak in 2016. Luckily, two ocean currents off the eastern coast of Japan — the Kuroshio Current and the Kuroshio Extension — would have diluted the radioactive material so that its concentration fell well below the World Health Organization's safety levels within four months of the Fukushima incident. But it

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The radioactive plume has three different sources: radioactive particles falling out from the atmosphere into the ocean, contaminated water directly released from the plant, and water that became contaminated by leaching radioactive particles from tainted soil.

The release of cesium-137 from Fukushima in Japan’s more turbulent eastern currents means the radioactive material is diluted to the point of posing little threat to humans by the time it leaves Japan’s coastal waters. Rossi worked with former colleagues at the Climate Change Research Centre at the University of New South Wales in Australia to simulate the spread of Fukushima’s radioactivity in the oceans — a study detailed in the October issue of the journal Deep-Sea Research Part 1. Researchers averaged 27 experimental runs of their model — each run starting in a different year — to ensure that the simulated spread of the cesium-137 as a "tracer" was not unusually affected by initial ocean conditions. Many oceanographers studying the ocean’s currents prefer using cesium-137 to track the ocean currents because it acts as a passive tracer in seawater, meaning it doesn't interact much with other things, and decays slowly with a long half-life of 30 years.

“One advantage of this tracer is its long half-life and our ability to measure it quite accurately, so that it can be used in the future to test our models of ocean circulation and see how well they represent reality over time,” Rossi told LiveScience. “In 20 years' time, we could go out, grab measurements everywhere in the Pacific and compare them to our model.”

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The team focused on predicting the path of the radioactivity until it reached the continental shelf waters stretching from the U.S. coastline to about 180 miles (300 kilometers) offshore. About 10 to 30 becquerels (units of radioactivity representing decay per second) per cubic meter of cesium-137 could reach U.S. and Canadian coastal waters north of Oregon between 2014 and 2020. (Such levels are far below the U.S. Environmental Protection Agency’s limits for drinking water.)

By comparison, California's coast may receive just 10 to 20 becquerels per cubic meter from 2016 to 2025. That slower, lesser impact comes from Pacific currents taking part of the radioactive plume down below the ocean surface on a slower journey toward the Californian coast, Rossi explained.

A large proportion of the radioactive plume from the initial Fukushima release won't even reach U.S. coastal waters anytime soon. Instead, the majority of the cesium-137 will remain in the North Pacific gyre — a region of ocean that circulates slowly clockwise and has trapped debris in its center to form the "Great Pacific Garbage Patch" — and continue to be diluted for approximately a decade following the initial Fukushima release in 2011. (The water from the current power plant leak would be expected to take a similar long-term path to the initial plume released, Rossi said.)
But the plume will eventually begin to escape the North Pacific gyre in an even more diluted form. About 25 percent of the radioactivity initially released will travel to the Indian Ocean and South Pacific over two to three decades after the Fukushima disaster, the model showed.

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- In Pictures: Japan Earthquake & Tsunami
- 7 Craziest Ways Japan's Earthquake Affected Earth
- Inside Japan's Nuclear Reactors (Infographic)

THE INQUISITR

Fukushima Radiation To Reach US Waters Next Year

Radiation from Japan's Fukushima nuclear plant will reach United States waters next year. The plant was crippled during the 2011 Japanese earthquake and tsunami.

The radioactive plume of water is currently floating in the Pacific Ocean, but a new study suggests it will enter US coastal waters in 2014.

Simulations of ocean current showed that the plume of radioactive cesium-137 released in the 2011 disaster will likely begin hitting next year and peak in 2016, reports Live Science.

While the radiation is a concern, it was be diluted by the Kuroshio Current and the Kuriosho Extension within four months of the disaster. Its concentration is believed to be well below the safety levels put forth by the World Health Organization.

There are three sources for the radioactive plume, notes NBC News. Along with radioactive particles from the atmosphere, contaminated water released from the plant and water that was contaminated when touched by tainted soil are all part of the mass.

The study is detailed in the October issue of the journal Deep-Sea Research Part 1. It was headed by Vincent Rossi, an oceanographer and postdoctoral research fellow at the Institute for Cross-Disciplinary Physics and Complex Systems in Spain.

Rossi explained of the Fukushima contaminated water, "The environmental impact could have been worse if the contaminated water would have been released in another oceanic environment in which the circulation was less energetic and less turbulent." But Japan's turbulent eastern currents have allowed the radioactive water to mix with ocean water.

Researchers averaged 27 experimental runs of their model to predict the spread of cesium-137. Each run started in a different year to make sure that the spread wasn't affected by any ocean conditions. Cesium-137 is preferred by oceanographers who want to track the ocean currents. This is because it doesn't interact much with things in the water and decays slowly.

The team predicted the path of the radioactive plume until it released the US continental shelf waters, which stretch offshore about 180 miles. While some of the radiation will reach US and Canadian coastal waters starting next year, the majority of it will get stuck in the North Pacific gyre, a portion of the ocean that circulates clockwise. It is also home to the notorious Great Pacific Garbage Patch — the resting place of tons and tons of Japan tsunami debris.

[Image via Wikimedia Commons] Melissa Stusinski Category: Asia Tags: fukushima ocean contamination, Fukushima Radiation, radioactive water us, us radioactive water Love it? Share it!
Read more at http://www.inquisitr.com/930834/fukushima-radiation-to-reach-us-waters-next-year/#0d2p8pfDWYYYMAC3.99

Ocean Plume from Japan Nuke Disaster Will Reach U.S. by 2014

August 30, 2013

FRIDAY, Aug. 30 (HealthDay News) -- Within three years of the Fukushima nuclear plant meltdown that was triggered by a tsunami in Japan in March 2011, the radioactive ocean plume resulting from the disaster will reach the shores of the United States, researchers say.

However, according to the Australian Research Council's Centre of Excellence for Climate System Science, by the time the plume hits the west coast of the United States it is expected to be harmless.

"Observers on the west coast of the United States will be able to see a measurable increase in radioactive material three years after the event," Erik van Sebille, one of the paper's authors, said in a news release from the research council.

"However," he added, "people on those coastlines should not be concerned, as the concentration of radioactive material quickly drops below World Health Organization safety levels as soon as it leaves Japanese waters."

Within four months of the incident, two currents off the coast of Japan, known as the Kuroshio Current and the Kurushio Extension, diluted the radioactive material to levels considered safe by the WHO, the authors of the report said.

Although atmospheric radiation was detected on the west coast of the United States within days of the nuclear disaster, the researchers said radioactive particles in the ocean plume take much longer to travel. Using various ocean simulations to track the path of the radiation, scientists plotted where the radioactive particles would likely move through the Earth's oceans over the next decade.

The study authors added that eddies, giant whirlpools and other currents in the open ocean accelerate this dilution process and will ultimately disperse radioactive particles along the west coast.

"Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere,"

researcher Vincent Rossi said in the news release.

"Shelf waters north of 45 degrees north will experience higher concentrations during a shorter period, when compared to the Californian coast," Rossi said. "This late but prolonged exposure is due to the three-dimensional pathways of the plume. The plume will be forced down deeper into the ocean toward the subtropics before rising up again along the southern Californian shelf."

The research, published online Aug. 28 in Deep-Sea Research 1, predicts that most of the radioactive material from the disaster will remain in the North Pacific, and only a small amount will move south of the Equator within 10 years of the incident. Eventually, the researchers said, a harmless amount of the radiation will spread into other waters, including the Indian and South Pacific oceans.

"Australia and other countries in the Southern Hemisphere will see little if any radioactive material in their coastal waters and certainly not at levels to cause concern," van Sebille said.

More information

The U.S. Environmental Protection Agency provides more information on Fukushima radiation monitoring.

Radiación de Fukushima llegará hasta Estados Unidos

www.24horas.cl - *sáb, ago 31, 2013 - 02:40 AM* - Un efecto tardío y aparentemente inofensivo tendrá el desastre nuclear de Fukushima en Estados Unidos.Durante el año 2014 se espera que las partículas contaminantes de Cesio-137 liberadas al mar tras el terremoto y maremoto que afectó a Japón en marzo de 2011 lleguen a las costas norteamericanas.Así lo indica un estudio elaborado por un equipo de científicos liderado por el investigador del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC) del CSIC y la Universidad de las Islas Baleares (UIB) Vicent Rossi."Los observadores de la costa oeste de los Estados Unidos podrán ver un aumento de material radiactivo tres años después del vertido", señaló Erik van Sebille, uno de los participantes de la investigación en declaraciones reproducidas por ABC.es.Luego del desastre nuclear de Fukushima se detectó contaminación atmosférica pocos días después del incidente, sin embargo el material radioactivo en el océano demora mucho más tiempo en recorrer la misma distancia que alcanzó ... Leer más

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Fukushima radioactive plume being tracked toward U.S. West Coast

Wednesday, August 28, 2013 3:55 PM

Fukushima radioactive plume being tracked toward U.S. West Coast

CANBERRA, Australia, Aug. 28 (UPI) -- The radioactive plume from the 2011 Fukushima nuclear disaster will reach U.S. shores within 3 years of the date of the incident, Australian researchers say.

Atmospheric radiation was detected on the U.S. West Coast within days of the incident, but radioactive particles in the ocean plume take considerably longer to travel the same distance.

Writing in the journal Deep-Sea Research 1, scientists with the Australian Research Council's Center of Excellence for Climate System Science said it is likely to be harmless when it arrives.

"Observers on the West Coast of the United States will be able to see a measurable increase in radioactive material three years after the event," researcher Erik van Sebille said in an ARC release Wednesday.

"However, people on those coastlines should not be concerned as the concentration of radioactive material quickly drops below World Health Organization safety levels as soon as it leaves Japanese waters."

Two energetic currents off the Japanese coast -- the Kuroshio Current and the Kurushio Extension -- are primarily responsible for accelerating the dilution of the radioactive material to safe levels, the researchers said.

Other currents in the open ocean will contribute to this dilution process and direct the radioactive particles to different areas along the U.S. West Coast, they said.

"Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere," researcher Vincent Rossi said.

(Source: UPI)
(Source: Quotemedia)

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Estudio prevé que la radiación de Fukushima llegue a EEUU, aunque sin peligro

ÚLTIMAS NOTICIAS DE SOCIEDAD 17:37

Estudio prevé que la radiación de Fukushima llegue a EEUU, aunque sin peligro

Agencia EFE

Palma, 30 ago (EFE).- La radiación de Fukushima llegará por mar a las costas de Estados Unidos en 2014 en cantidades inofensivas para los estándares que marca la Organización Mundial de la Salud (OMS) que no deberían ser motivo de alarma, según un estudio científico que se acaba de publicar.

Las partículas radioactivas de Cs-37 liberadas al mar debido al desastre de Fukushima se detectarán en 2014, tres años después, en la costa oeste de Estados Unidos, según sugieren las simulaciones elaboradas por un equipo de científicos liderado por el investigador del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC) del CSIC y la Universidad de las Islas Baleares (UIB) Vicent Rossi, ha informado el IFISC en un comunicado.

Que la radiación llegue en esos niveles no debería ser motivo de alarma puesto que la concentración de material se encuentra muy por debajo de los límites de seguridad para el consumo humano marcados por la OMS, según el estudio elaborado por investigadores del IFISC, el Climate Chang Research Centre de Australia y el Laboratoire d'Etude en Géophysique et Océanographie Spatiales de Francia.

Tras el desastre de Fukushima de marzo de 2011, grandes cantidades de agua contaminada con elementos como el cesio-137 se liberaron en el Pacífico. Con una vida media de 30 años, el cesio-137 tiene el potencial de viajar grandes distancias en el océano.

Si bien la radiación atmosférica ya se detectó en la costa oeste de Estados Unidos pocos días después del incidente de Japón, las partículas radiactivas en el océano necesitan mucho más tiempo para recorrer la misma distancia.

Los resultados publicados ahora por los investigadores se centran, por medio de simulaciones por ordenador, en como se moverá la radiación a través de las corrientes marinas durante 10 años.

"Los observadores de la costa oeste de los Estados Unidos podrán ver un aumento de material radiactivo tres años después del vertido", ha dicho uno de los autores del estudio, Erik van Sebille.

"Sin embargo, la gente en las costas no debe preocuparse puesto que la concentración de material radiactivo empezó a descender rápidamente, por debajo de los niveles de seguridad de la Organización Mundial de la Salud, tan pronto como salió de aguas japonesas", ha puntualizado

Dos corrientes de la costa japonesa, la de Kuroshio y la extensión Kurushio, son las principales responsables de la aceleración de la dilución del material radiactivo, llevándola muy por debajo de los niveles de seguridad de la OMS dentro de los primeros cuatro meses.

Remolinos y torbellinos gigantes (de varias decenas de kilómetros de ancho), y otras corrientes en el océano abierto, siguen este proceso de dilución y dirigen las partículas radiactivas a diferentes zonas de la costa oeste estadounidense.

"A pesar de algunas incertidumbres en torno a la cantidad total liberada y las probables concentraciones que se pueden observar, hemos demostrado inequívocamente que el

contacto con las costas del noroeste americano no será el mismo en todas partes", afirma el autor principal del estudio, el doctor Vincent Rossi.
"En aguas de la plataforma al norte de 45 ° N se experimentarán concentraciones más altas durante un período más corto, en comparación con la costa de California" según Rossi.
Esta exposición prolongada se debe "a las vías de tres dimensiones de la nube radiactiva". Según detalla, la parte superior se sumergirá a zonas más profundas del océano hacia el subtrópico antes de subir de nuevo a lo largo de la plataforma del sur de California.
En la primera década tras el desastre, la mayoría de los materiales radiactivos se quedará en el Pacífico Norte. Finalmente, la radiación se extenderá a otras cuencas oceánicas, particularmente el océano Pacífico del sur de India, pero nunca en niveles que deban causar preocupación. EFE

La Voz de Galicia.es

SOCIEDAD

La radiación de Fukushima llegará a Estados Unidos a través del mar en el 2014

El estudio hecho a partir de un simulacro también apunta que lo hará en un nivel bajo y para nada preocupante

EFE

30 de agosto de 2013 **17:49**

6 votos

Según un estudio, la radiación emanada desde la **central nuclear de Fukushima** llegará a las costas de Estados Unidos en el 2014 en cantidades inofensivas para los estándares de la Organización Mundial de la Salud (OMS), por lo que no tiene que ser un motivo de alarma.

Según la simulación hecha por el estudio del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC), las partículas radioactivas Cs-37 llegarán a la costa oeste del estado americano tres años después de la catástrofe.

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Auto-ResumenUn efecto tardío y aparentemente inofensivo tendrá el desastre nuclear de Fukushima en Estados Unidos. Las corrientes de Kuroshio en la costa japonesa han permitido la aceleración en la dilución del material radiactivo, gracias a remolinos y torbellinos gigantes. Así lo indica un estudio elaborado por un equipo de científicos liderado por el investigador del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC) del CSIC y la Universidad de las Islas Baleares (UIB) Vicent Rossi.

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Durante el año 2014 se espera que las partículas contaminantes de Cesio-137 liberadas al mar tras el terremoto y maremoto que afectó a Japón en marzo de 2011 lleguen a las costas norteamericanas.

Así lo indica un estudio elaborado por un equipo de científicos liderado por el investigador del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC) del CSIC y la Universidad de las Islas Baleares (UIB) Vicent Rossi.

"Los observadores de la costa oeste de los Estados Unidos podrán ver un aumento de material radiactivo tres años después del vertido", señaló Erik van Sebille, uno de los participantes de la investigación en declaraciones reproducidas por ABC.es.

Luego del desastre nuclear de Fukushima se detectó contaminación atmosférica pocos días después del incidente, sin embargo el material radioactivo en el océano demora mucho más tiempo en recorrer la misma distancia que alcanzó en el aire.

Los investigadores llamaron a la calma y aseguraron que los niveles de radiación que presente el mar no deberían ser motivo de alarma, ya que se encontrará por debajo de los

límites de seguridad para el consumo humano definido por la Organización Mundial de la Salud (OMS).

Las corrientes de Kuroshio en la costa japonesa han permitido la aceleración en la dilución del material radiactivo, gracias a remolinos y torbellinos gigantes.

Además, los científicos señalaron que durante la primera década posterior al desastre, la mayoría de los materiales radiactivos se quedará en el Pacífico Norte para luego extenderse a otros sectores, particularmente el océano Pacífico del sur de India, pero en niveles que no causarán preocupación.

#ESTADOS UNIDOS #ORGANIZACIÓN MUNDIAL DE LA SALUD #INSTITUTO DE FÍSICA INTERDISCIPLINAR #UNIVERSIDAD DE LAS ISLAS BALEARES #RADIACIÓN DE FUKUSHIMA

Fukushima's Radioactive Ocean Plume to Reach US Waters by 2014

Fukushima's Radioactive Ocean Plume to Reach US Waters by 2014 By Jeremy Hsu, LiveScience Contributor | August 30, 2013 04:20pm ET A radioactive plume of water in the Pacific Ocean

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By Jeremy Hsu, LiveScience Contributor | August 30, 2013 04:20pm ET

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The environmental impact could have been worse if the contaminated water would have been released in another oceanic environment in which the circulation was less energetic and turbulent," said Vincent Rossi, an oceanographer and postdoctoral research fellow at the Institute for Cross-Disciplinary Physics and Complex Systems in Spain.

Fukushima's radioactive water release has taken its time journeying across the Pacific. **By comparison, atmospheric radiation from the Fukushima plant began reaching the U.S. West Coast within just days of the disaster back in 2011.**

http://www.livescience.com/39340-fukushima-radioactive-plume-reach-us-2014.html

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The Fukushima Daiichi Nuclear Power Plant in Japan.
Credit: TEPCO
View full size image

A radioactive plume of water in the Pacific Ocean from Japan's Fukushima nuclear plant, which was crippled in the 2011 earthquake and tsunami, will likely reach U.S. coastal waters starting in 2014, according to a new study. The long journey of the radioactive particles could help researchers better understand how the ocean's currents circulate around the world.

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Fukushima's radioactive water release has taken its time journeying across the Pacific. By comparison, atmospheric radiation from the Fukushima plant began reaching the U.S. West Coast within just days of the disaster back in 2011. [Fukushima Radiation Leak: 5 Things You Should Know]

Tracking radioactivity's path

The radioactive plume has three different sources: radioactive particles falling out from the atmosphere into the ocean, contaminated water directly released from the plant, and water that became contaminated by leaching radioactive particles from tainted soil.

The release of cesium-137 from Fukushima in Japan's more turbulent eastern currents means the radioactive material is diluted to the point of posing little threat to humans by the time it leaves Japan's coastal waters. Rossi worked with former colleagues at the Climate Change Research Centre at the University of New South Wales in Australia to simulate the spread of

Fukushima's radioactivity in the oceans — a study detailed in the October issue of the journal Deep-Sea Research Part 1.

Researchers averaged 27 experimental runs of their model — each run starting in a different year — to ensure that the simulated spread of the cesium-137 as a "tracer" was not unusually affected by initial ocean conditions. Many oceanographers studying the ocean's currents prefer using cesium-137 to track the ocean currents because it acts as a passive tracer in seawater, meaning it doesn't interact much with other things, and decays slowly with a long half-life of 30 years.

"One advantage of this tracer is its long half-life and our ability to measure it quite accurately, so that it can be used in the future to test our models of ocean circulation and see how well they represent reality over time," Rossi told LiveScience. "In 20 years' time, we could go out, grab measurements everywhere in the Pacific and compare them to our model."

Journey across the Pacific Rim

The team focused on predicting the path of the radioactivity until it reached the continental shelf waters stretching from the U.S. coastline to about 180 miles (300 kilometers) offshore. About 10 to 30 becquerels (units of radioactivity representing decay per second) per cubic meter of cesium-137 could reach U.S. and Canadian coastal waters north of Oregon between 2014 and 2020. (Such levels are far below the U.S. Environmental Protection Agency's limits for drinking water.)

By comparison, California's coast may receive just 10 to 20 becquerels per cubic meter from 2016 to 2025. That slower, lesser impact comes from Pacific currents taking part of the radioactive plume down below the ocean surface on a slower journey toward the Californian coast, Rossi explained.

A large proportion of the radioactive plume from the initial Fukushima release won't even reach U.S. coastal waters anytime soon. Instead, the majority of the cesium-137 will remain in the North Pacific gyre — a region of ocean that circulates slowly clockwise and has trapped debris in its center to form the "Great Pacific Garbage Patch" — and continue to be diluted for approximately a decade following the initial Fukushima release in 2011. (The water from the current power plant leak would be expected to take a similar long-term path to the initial plume released, Rossi said.)

But the plume will eventually begin to escape the North Pacific gyre in an even more diluted form. About 25 percent of the radioactivity initially released will

travel to the Indian Ocean and South Pacific over two to three decades after the Fukushima disaster, the model showed.

You can follow Jeremy Hsu on Twitter @jeremyhsu. Follow us@livescience, Facebook & Google+. Original article on LiveScience.

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Ocean Plume from Japan Nuke Disaster Will Reach U.S. by 2014

But radioactive material from 2011 meltdown is expected to be harmless, experts say

FRIDAY, Aug. 30 (HealthDay News) -- Within three years of the Fukushima nuclear plant meltdown that was triggered by a tsunami in Japan in March 2011, the radioactive ocean plume resulting from the disaster will reach the shores of the United States, researchers say.

Nuclear plants on Japan's East Coast
Map: International Nuclear Safety Center.

However, according to the Australian Research Council's Centre of Excellence for Climate System Science, by the time the plume hits the west coast of the United States it is expected to be harmless.

"Observers on the west coast of the United States will be able to see a measurable increase in radioactive material three years after the event," Erik van Sebille, one of the paper's authors, said in a news release from the research council.

"However," he added, "people on those coastlines should not be concerned, as the concentration of radioactive material quickly drops below World Health Organization safety levels as soon as it leaves Japanese waters."

Within four months of the incident, two currents off the coast of Japan, known as the Kuroshio Current and the Kurushio Extension, diluted the radioactive material to levels considered safe by the WHO, the authors of the report said.

Although atmospheric radiation was detected on the west coast of the United States within days of the nuclear disaster, the researchers said radioactive particles in the ocean plume take much longer to travel. Using various ocean simulations to track the path of the radiation, scientists plotted where the radioactive particles would likely move through the Earth's oceans over the next decade.

The study authors added that eddies, giant whirlpools and other currents in the open ocean accelerate this dilution process and will ultimately disperse radioactive particles along the west coast.

"Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere," researcher Vincent Rossi said in the news release.

"Shelf waters north of 45 degrees north will experience higher concentrations during a shorter period, when compared to the Californian coast," Rossi said. "This late but prolonged exposure is due to the three-dimensional pathways of the plume. The plume will be forced down deeper into the ocean toward the subtropics before rising up again along the southern Californian shelf."

The research, published online Aug. 28 in *Deep-Sea Research 1*, predicts that most of the radioactive material from the disaster will remain in the North Pacific, and only a small amount will move south of the Equator within 10 years of the incident. Eventually, the researchers said, a harmless amount of the radiation will spread into other waters, including the Indian and South Pacific oceans.

"Australia and other countries in the Southern Hemisphere will see little if any radioactive material in their coastal waters and certainly not at levels to cause concern," van Sebille said.

More information

The U.S. Environmental Protection Agency provides more information on Fukushima radiation monitoring.

SOURCE: Australian Research Council, news release, Aug. 27, 2013

NBC NEWS SCIENCE

Fukushima's radioactive ocean plume due to reach US waters in 2014

Jeremy HsuLiveScience Email

Aug. 31, 2013 at 1:49 PM ET

AP

An aerial photo shows the Fukushima Dai-ichi nuclear plant in northern Japan. Radioactive water spilled during a tsunami-caused catastrophe in 2011 is slowly making its way toward the U.S. coastal area.

A radioactive plume of water in the Pacific Ocean from Japan's Fukushima nuclear plant, which was crippled in the 2011 earthquake and tsunami, will likely reach U.S. coastal waters starting in 2014, according to a new study. The long journey of the radioactive particles could help researchers better understand how the ocean's currents circulate around the world.

Ocean simulations showed that the **plume of radioactive cesium-137** released by the**Fukushima disaster** in 2011 could begin flowing into U.S. coastal waters starting in early 2014 and peak in 2016. Luckily, two ocean currents off the eastern coast of Japan — the Kuroshio Current and the Kuroshio Extension —

has diluted the radioactive material so much that its concentration fell **well below the World Health Organization's safety levels**within four months of the Fukushima incident. But it could have been a different story if nuclear disaster struck on the other side of Japan.

"The environmental impact could have been worse if the contaminated water would have been released in another oceanic environment in which the circulation was less energetic and turbulent," said Vincent Rossi, an oceanographer and postdoctoral research fellow at the Institute for Cross-Disciplinary Physics and Complex Systems in Spain.

Fukushima's radioactive water release has taken its time journeying across the Pacific. By comparison, atmospheric radiation from the Fukushima plant began reaching the U.S. West Coast within just days of the disaster back in 2011. [**Fukushima Radiation Leak: 5 Things You Should Know**]

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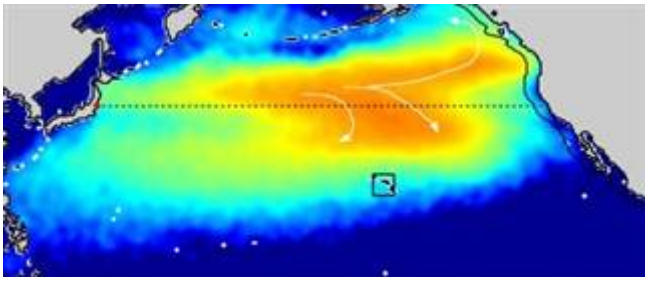

Rossi et al. / Deep-Sea Research I

This computer projection shows the estimated extent of the Fukushima spill's plume of radioactive water in 2014. The extent of U.S. coastal waters is indicated by a black line, with a black box enclosing Hawaii.

The release of **cesium-137** from Fukushima in Japan's more turbulent eastern currents means the radioactive material is diluted to the point of posing little threat to humans by the time it leaves Japan's coastal waters. Rossi worked with former colleagues at the Climate Change Research Center at the University of New South Wales in Australia to simulate the spread of Fukushima's radioactivity in the oceans — a study detailed in the October issue of the journal Deep-Sea Research Part 1.

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But the plume will eventually begin to escape the North Pacific gyre in an even more diluted form. About 25 percent of the radioactivity initially released will travel to the Indian Ocean and South Pacific over two to three decades after the Fukushima disaster, the model showed.

You can follow Jeremy Hsu on Twitter @jeremyhsu. Follow us @livescience, Facebookand Google+. Original article on LiveScience.

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Fukushima's Radioactive Plume to Reach U.S. by 2014

SEP 1, 2013 07:00 AM ET // BY JEREMY HSU, LIVESCIENCE.COM

The Fukushima Daiichi Nuclear Power Plant in Japan.

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VIDEO: Tsunami Warning Center Uses Top Technology

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PHOTOS: The Lost Pets of Fukushima

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Un estudio prevé que la radiación de Fukushima llegará a EEUU en cantidades inofensivas

Extraído del: elperiodicodearagon.internacional **agosto 30, 2013**

La radiación de Fukushima llegará por mar a las costas de Estados Unidos en 2014 en cantidades inofensivas para los estándares que marca la Organización Mundial de la Salud (OMS) que no deberían ser motivo de alarma, según un estudio científico que se acaba de publicar.

Las partículas radioactivas de Cs-37 liberadas al mar debido al desastre de Fukushima se detectarán en 2014, tres años después, en la costa oeste de Estados Unidos, según sugieren las simulaciones elaboradas por un equipo de científicos liderado por el investigador del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC) del CSIC y la Universidad de las Islas Baleares (UIB) Vicent Rossi, ha informado el IFISC en un comunicado.

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Autor: Asociado en elperiodicodearagon.internacional

NEWSROOM AMERICA

Fukushima Radioactive Plume To Reach US In Three Years

By **Newsroom America Staff** at 29 Aug 08:04

(Newsroom America) -- The radioactive ocean plume from the 2011 Fukushima nuclear plant disaster will reach the shores of the US within three years from the date of the incident but is likely to be harmless according to new paper in the journal Deep-Sea Research 1.

While atmospheric radiation was detected on the US west coast within days of the incident, the radioactive particles in the ocean plume take considerably longer to travel the same distance.

In the paper, researchers from the Centre of Excellence for Climate System Science and others used a range of ocean simulations to track the path of the radiation from the Fukushima incident.

The models identified where it would likely travel through the world's oceans for the next 10 years.

"Observers on the west coast of the United States will be able to see a measurable increase in radioactive material three years after the event," said one of the paper's authors, Dr Erik van Sebille.

"However, people on those coastlines should not be concerned as the concentration of radioactive material quickly drops below World Health Organisation safety levels as soon as it leaves Japanese waters."

Two energetic currents off the Japanese coast - the Kuroshio Current and the Kurushio Extension – are primarily responsible for accelerating the dilution of the radioactive material, taking it well below WHO safety levels within four months.

Eddies and giant whirlpools – some tens of kilometres wide – and other currents in the open ocean continue this dilution process and direct the radioactive particles to different areas along the US west coast.

"Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere," said Dr. Vincent Rossi.

"Shelf waters north of 45°N will experience higher concentrations during a shorter period, when compared to the Californian coast. This late but prolonged exposure is due to the three-dimensional pathways of the plume. The plume will be forced down deeper into the ocean toward the subtropics before rising up again along the southern Californian shelf."

Interestingly, the great majority of the radioactive material will stay in the North Pacific, with very little crossing south of the Equator in the first decade.

Eventually over a number of decades, a measurable but otherwise harmless signature of the radiation will spread into other ocean basins, particularly the Indian and South Pacific oceans.
“Australia and other countries in the Southern Hemisphere will see little if any radioactive material in their coastal waters and certainly not at levels to cause concern,” Dr van Sebille said.
“For those interested in tracking the path of the radiation, we have developed a website (adrift.org.au) to help them.
“Using this website, members of the public can click on an area in the ocean and track the movement of the radiation or any other form of pollution on the ocean surface over the next 10 years.”

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La radiación de Fukushima llegará a las costas de EUA en 2014

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Las partículas radiactivas de cesio-137 que se liberaron al mar debido al desastre ocurrido en la central nuclear de Fukushima tras el terremoto en Japón se detectarán en 2014 en la costa oeste de Estados Unidos.

Así lo han demostrado unas simulaciones por ordenador realizadas por investigadores de varios países, quienes afirman que la concentración de material se encuentra muy por debajo de los límites de seguridad para el consumo humano marcados por la Organización Mundial de la Salud y que, por lo tanto, son cantidades inofensivas.

Es la principal conclusión de un estudio publicado en la revista Elsevier y encabezado por el miembro del Instituto de Física Interdisciplinar y Sistemas Complejos ligado al CSIC (IFISC), Vincent Rossi. En él también han participado científicos del Climate Change Research Centre (Australia) y del Laboratoire de Étude en Géophysique te Océanographie Spatiales (Francia), según recoge la UIB en un comunicado.

Viaje lento del cesio-137 en el océano

Después del desastre de Fukushima de marzo de 2011, se liberaron grandes cantidades de agua contaminada con radionucleidos, como el cesio-137 en el océano Pacífico. Con una media de vida de 30 años, el cesio-137 tiene la capacidad de recorrer grandes distancias en el océano.

Aunque la radiación atmosférica ya se detectó en la costa oeste de EE. UU. pocos días después del incidente, las partículas radiactivas necesitan mucho más tiempo para recorrer la misma distancia en el agua del océano.

Los resultados publicados por los investigadores se centran en cómo se moverá la radiación a través de las corrientes marinas durante diez años, aunque ya han avanzado algunos datos a más largo plazo, ya que estas simulaciones y las características propias del cesio-137 permiten seguir el camino de la radiación vertida desde Fukushima a través del océano en períodos más largos de tiempo.

Riesgo bajo del material radiactivo por mar

“Los observadores de la costa oeste de Estados Unidos podrán ver un aumento de material radiactivo tres años después del vertido”, han afirmado los autores del estudio, “sin embargo, los residentes de la costa no debe

preocuparse, dado que la concentración de material radiactivo comenzó a bajar rápidamente, por debajo de los niveles de seguridad de la OMS tan pronto como salió de aguas japonesas”.

http://www.rtve.es/noticias/20130902/radiacion-fukushima-llegara-mar-costas-ee-uu-2014-cantidades-inofensivas/744366.shtml

terra

30 de agosto de 2013•17:31

Estudio prevé que la radiación de Fukushima llegue a EEUU, aunque sin peligro

La radiación de Fukushima llegará por mar a las costas de Estados Unidos en 2014 en cantidades inofensivas para los estándares que marca la Organización Mundial de la Salud (OMS) que no deberían ser motivo de alarma, según un estudio científico que se acaba de publicar.

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Que la radiación llegue en esos niveles no debería ser motivo de alarma puesto que la concentración de material se encuentra muy por debajo de los límites de seguridad para el consumo humano marcados por la OMS, según el estudio elaborado por investigadores del IFISC, el Climate Chang Research Centre de Australia y el Laboratoire d'Etude en Géophysique et Océanographie Spatiales de Francia.

Tras el desastre de Fukushima de marzo de 2011, grandes cantidades de agua contaminada con elementos como el cesio-137 se liberaron en el Pacífico. Con una vida media de 30 años, el cesio-137 tiene el potencial de viajar grandes distancias en el océano.

Si bien la radiación atmosférica ya se detectó en la costa oeste de Estados Unidos pocos días después del incidente de Japón, las partículas radiactivas en el océano necesitan mucho más tiempo para recorrer la misma distancia.

Los resultados publicados ahora por los investigadores se centran, por medio de simulaciones por ordenador, en como se moverá la radiación a través de las corrientes marinas durante 10 años.

"Los observadores de la costa oeste de los Estados Unidos podrán ver un aumento de material radiactivo tres años después del vertido", ha dicho uno de los autores del estudio, Erik van Sebille.

"Sin embargo, la gente en las costas no debe preocuparse puesto que la concentración de material radiactivo empezó a descender rápidamente, por debajo de los niveles de seguridad de la Organización Mundial de la Salud, tan pronto como salió de aguas japonesas", ha puntualizado

Dos corrientes de la costa japonesa, la de Kuroshio y la extensión Kurushio, son las principales responsables de la aceleración de la dilución del material radiactivo, llevándola muy por debajo de los niveles de seguridad de la OMS dentro de los primeros cuatro meses.

Remolinos y torbellinos gigantes (de varias decenas de kilómetros de ancho), y otras corrientes en el océano abierto, siguen este proceso de dilución y dirigen las partículas radiactivas a diferentes zonas de la costa oeste estadounidense.

"A pesar de algunas incertidumbres en torno a la cantidad total liberada y las probables concentraciones que se pueden observar, hemos demostrado inequívocamente que el contacto con las costas del noroeste americano no será el mismo en todas partes", afirma el autor principal del estudio, el doctor Vincent Rossi.

"En aguas de la plataforma al norte de 45 ° N se experimentarán concentraciones más altas durante un período más corto, en comparación con la costa de California" según Rossi.

Esta exposición prolongada se debe "a las vías de tres dimensiones de la nube radiactiva". Según detalla, la parte superior se sumergirá a zonas más profundas del océano hacia el subtrópico antes de subir de nuevo a lo largo de la plataforma del sur de California.

En la primera década tras el desastre, la mayoría de los materiales radiactivos se quedará en el Pacífico Norte. Finalmente, la radiación se extenderá a otras cuencas oceánicas, particularmente el océano Pacífico del sur de India, pero nunca en niveles que deban causar preocupación.

UPI: Fukushima plume to reach U.S. West Coast in months; Measurable increase in radioactive material — Study: Prolonged exposure for California lasting 10 years; Hits Hawaii early 2014… may already be surrounded

Submitted by Anonymous on Wed, 2013-08-28 20:59

- Berkeley Radiological Air and Water Monitoring Forum

http://enenews.com/upi-fukushima-plume-to-hit-u-s-shores-early-next-year...

UPI, Aug. 28, 2013: Fukushima radioactive plume being tracked toward U.S. West Coast [...] The radioactive plume from the 2011 Fukushima nuclear disaster will reach U.S. shores within 3 years of the date of the incident, Australian researchers say. [...] “Observers on the West Coast of the United States will be able to see a measurable increase in radioactive material three years after the event,” researcher Erik van Sebille said in an ARC release Wednesday. “However, people on those coastlines should not be concerned as the concentration of radioactive material quickly drops below World Health Organization safety levels as soon as it leaves Japanese waters.” [...]

Surface (0-200m) of Cesium-137 concentrations (Bq/m3) by (a) April 2012, (b) April 2014 (c) April 2016 and (d) April 2021 — Hawaii seen in black square (SOURCE: Rossi, et al.)

Phys.org, Aug. 28, 2013: [...] [Eddies and giant whirlpools] direct the radioactive particles to different areas along the US west coast. “Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere,” said Dr Vincent Rossi. “Shelf waters north of 45°N will experience higher concentrations during a shorter period, when compared to the Californian coast.

[...] The plume will be forced down deeper into the ocean toward the subtropics before rising up again along the southern Californian shelf." [...] Eventually over a number of decades, a measurable but otherwise harmless signature of the radiation will spread into other ocean basins, particularly the Indian and South Pacific oceans. [...]

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nuclear-news

The News That Matters about the Nuclear Industry

US West Coast to get Fukushima radioactive plume over next 3 years

Fukushima radioactive plume being tracked toward U.S. West Coast *iStock*

***Analyst CANBERRA, Australia, Aug. 28 (UPI)* — The radioactive plume from the 2011 Fukushima nuclear disaster will reach U.S. shores within 3 years of the date of the incident, Australian researchers say.**

Atmospheric radiation was detected on the U.S. West Coast within days of the incident, but radioactive particles in the ocean plume take considerably longer to travel the same distance.....

"Observers on the West Coast of the United States will be able to see a measurable increase in radioactive material three years after the event," researcher Erik van Sebille said in an ARC release Wednesday..... wo energetic currents off the Japanese coast — the Kuroshio Current and the Kurushio Extension — are primarily responsible for accelerating the dilution of the radioactive material to safe levels, the researchers said.

Other currents in the open ocean will contribute to this dilution process and direct the radioactive particles to different areas along the U.S. West Coast, they said.

"Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere," researcher Vincent Rossi said.

August 29, 2013 - Posted by **Christina MacPherson** | **general**

Pentagon Post

Fukushima Nuclear Disaster's Radioactive Materials Reaches U.S. Coast In Three Years

posted by Ethan Jones August 29, 2013 Health, News

The 2011′s radioactive ocean plume from Japan's Fukushima nuclear plant disaster may reach the U.S. California Coast within three years from the date of incident, said scientists in a new finding.

Within few days of the incident in 2011 atmospheric radiation on the U.S. west coast was detected. However, in the ocean radioactive particles take longer time to travel the same distance. To find out how long it will take to travel, researchers performed few calculations.

ScienceWorldReport.com writes, "The scientists employed a range of ocean simulations in order to track the path of the radiation from the Fukushima incident. After examining the data, the researchers were able to track where this plume would likely travel through the world's oceans for the next 10 years."

The researchers found in about three years after the incident the west coast of the U.S. will start seeing measurable increase in the radioactive material. However, the findings say the concentrations of these radioactive material drops quickly after leaving the Japanese waters. The measurable radioactive materials at the U.S. coast are believed to be below the safety levels of World Health Organization (WHO) too.

The reasons behind the dilution are two energetic currents called Kurushio Extension and Kuroshio Current in the ocean.

One of the researchers Vincent Rossi said, “Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere.”

About Author

Ethan Just loves to be in tune with the world of internet technology. Ethan is adept at giving accurate and truthful reviews of the latest Smartphone and tablet release into the market. He is always in tune with the vibrant tech community and is always first to the latest news available on any gadgets that have the potential to make your life just a little bit easier.

Radiación de Fukushima llegará a costas de EEUU en 2014

Viernes 30 de agosto del 2013 | 14:13

Presencia de partículas radioactivas Cs-37 en el océano Pacífico no debe causar alarma, señala simulación.

Costa oeste de los Estados Unidos podrá ver un aumento de material radiactivo. (Reuters)

La radiación emanada desde la central nuclear de Fukushima llegará a las costas de Estados Unidos en el 2014 **en cantidades inofensivas** para los estándares de la Organización Mundial de la Salud (OMS), por lo que no tiene que ser un motivo de alarma.

Según la simulación hecha por el estudio del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC), **las partículas radioactivas Cs-37** llegarán a la costa oeste del estado americano tres años después de la catástrofe.

Si bien la radiación atmosférica ya se detectó en la costa oeste de Estados Unidos pocos días después del incidente de Japón, las partículas radiactivas en el océano necesitan mucho más tiempo para recorrer la misma distancia.

“Los observadores de la costa oeste de los Estados Unidos podrán ver un aumento de material radiactivo tres años después del vertido”, dijo uno de los autores del estudio, Erik van Sebille.

“Pero la gente en las costas no debe preocuparse puesto que la concentración de material radiactivo empezó a descender rápidamente, por debajo de los niveles de seguridad de la Organización Mundial de la Salud, tan pronto como salió de aguas japonesas”, resaltaron.

Tags:

Fukushima

Japón

Central nuclear

Estados Unidos

Océano Pacífico

Central nuclear de Fukushima

philly.com

Ocean Plume from Japan Nuke Disaster Will Reach U.S. by 2014

Friday, August 30, 2013, 12:00 PM

FRIDAY, Aug. 30 (HealthDay News) -- Within three years of the Fukushima nuclear plant meltdown that was triggered by a tsunami in Japan in March 2011, the radioactive ocean plume resulting from the disaster will reach the shores of the United States, researchers say.

However, according to the Australian Research Council's Centre of Excellence for Climate System Science, by the time the plume hits the west coast of the United States it is expected to be harmless.

"Observers on the west coast of the United States will be able to see a measurable increase in radioactive material three years after the event," Erik van Sebille, one of the paper's authors, said in a news release from the research council.

"However," he added, "people on those coastlines should not be concerned, as the concentration of radioactive material quickly drops below World Health Organization safety levels as soon as it leaves Japanese waters."

Within four months of the incident, two currents off the coast of Japan, known as the Kuroshio Current and the Kurushio Extension, diluted the radioactive material to levels considered safe by the WHO, the authors of the report said.

Although atmospheric radiation was detected on the west coast of the United States within days of the nuclear disaster, the researchers said radioactive particles in the ocean plume take much longer to travel. Using various ocean simulations to track the path of the radiation, scientists plotted where the radioactive particles would likely move through the Earth's oceans over the next decade.

The study authors added that eddies, giant whirlpools and other currents in the open ocean accelerate this dilution process and will ultimately disperse radioactive particles along the west coast.

"Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere," researcher Vincent Rossi said in the news release.

"Shelf waters north of 45 degrees north will experience higher concentrations during a shorter period, when compared to the Californian coast," Rossi said. "This late but prolonged exposure is due to the three-dimensional pathways of the plume. The plume will be forced down deeper into the ocean toward the subtropics before rising up again along the southern Californian shelf."

The research, published online Aug. 28 in Deep-Sea Research 1, predicts that most of the radioactive material from the disaster will remain in the North Pacific, and only a small amount will move south of the Equator within 10 years of the incident. Eventually, the researchers said, a harmless amount of the radiation will spread into other waters, including the Indian and South Pacific oceans.

"Australia and other countries in the Southern Hemisphere will see little if any radioactive material in their coastal waters and certainly not at levels to cause concern," van Sebille said.

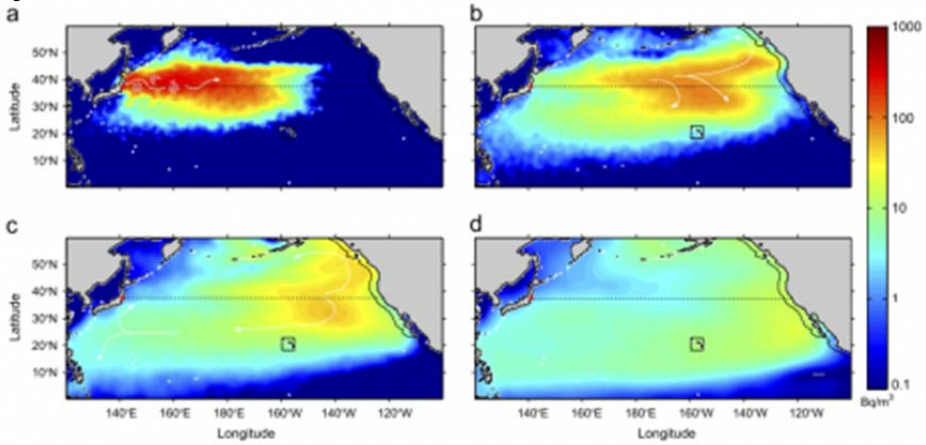
More information

The U.S. Environmental Protection Agency provides more information on Fukushima radiation monitoring. -- Mary Elizabeth Dallas SOURCE: Australian Research Council, news release, Aug. 27, 2013

- August 28, 2013

Fukushima radioactive plume to reach US in three years

Aug 28, 2013



Surface (0–200m) of Cesium-137 concentrations (Bq/m3) by (a)April 2012, (b) April 2014 (c) April 2016 and (d) April 2021

The radioactive ocean plume from the 2011 Fukushima nuclear plant disaster will reach the shores of the US within three years from the date of the incident but is likely to be harmless according to new paper in the journal *Deep-Sea Research 1*.

While atmospheric radiation was detected on the US west coast within days of the incident, the radioactive particles in the ocean plume take considerably longer to travel the same distance.

In the paper, researchers from the Centre of Excellence for Climate System Science and others used a range of ocean simulations to track the path of the radiation from the Fukushima incident.

The models identified where it would likely travel through the world's oceans for the next 10 years.

"Observers on the west coast of the United States will be able to see a measurable increase in radioactive material three years after the event," said one of the paper's authors, Dr Erik van Sebille.

"However, people on those coastlines should not be concerned as the concentration of radioactive material quickly drops below World Health Organisation safety levels as soon as it leaves Japanese waters."

Two energetic currents off the Japanese coast - the Kuroshio Current and the Kurushio Extension – are primarily responsible for accelerating the dilution of the radioactive material, taking it well below WHO safety levels within four months.

Eddies and giant whirlpools – some tens of kilometres wide – and other currents in theopen ocean continue this dilution process and direct the radioactive particles to different areas along the US west coast.

"Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere," said Dr Vincent Rossi.

"Shelf waters north of 45°N will experience higher concentrations during a shorter period, when compared to the Californian coast. This late but prolonged exposure is due to the three-dimensional pathways of the plume. The plume will be forced down deeper into the ocean toward the subtropics before rising up again along the southern Californian shelf."

Interestingly, the great majority of the radioactive material will stay in the North Pacific, with very little crossing south of the Equator in the first decade. Eventually over a number of decades, a measurable but otherwise harmless signature of the radiation will spread into other ocean basins, particularly the Indian and South Pacific oceans.

"Australia and other countries in the Southern Hemisphere will see little if any radioactive material in their coastal waters and certainly not at levels to cause concern," Dr van Sebille said.

"For those interested in tracking the path of the radiation, we have developed a**website** to help them.

"Using this website, members of the public can click on an area in the ocean and track the movement of the radiation or any other form of pollution on the ocean surface over the next 10 years."

Explore further: Fukushima accident raised levels of radioactive strontium off the east coast of Japan by up to a hundred times

More information: Multi-decadal projections of surface and interior pathways of the Fukushima Cesium-137 radioactive plume. **DOI: 10.1016/j.dsr.2013.05.015**

Provided by University of New South Wales

Popular Resistance
Daily Movement News and Resources

Fukushima To Impact West Coast In Months

EDUCATE! ENERGY, ENVIRONMENT, FOOD AND WATER, NUCLEAR ENERGY

By Staff, enenews.com

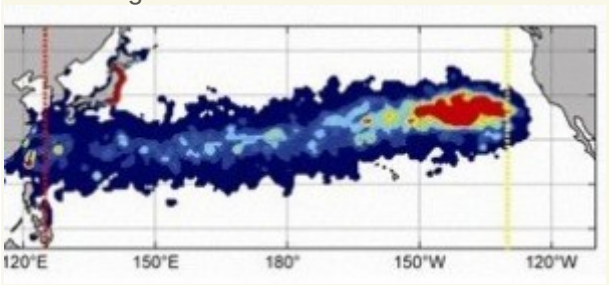
August 31st, 2013

7

Above: Fukushima workers in 2013, visitors and workers are required to wear protective suits and masks at Japan's Fukushima nuclear power plant, which was rocked by the March 11, 2011 tsunami and earthquake.

Note: There are some conflicting opinions about the danger of this plume on the US west coast. The article below minimizes those risks. But, a nuclear expert who we have a lot of respect for, Arnie Gunderson, has a different view:

Arnie Gundersen, Fairewinds chief engineer: For the people in Japan and people on the West Coast there is a wedge of radioactivity working its way across the Pacific — called a plume — of cesium-137, strontium, and other isotopes. The plume is about a year away from hitting the coast of the Pacific Northwest.

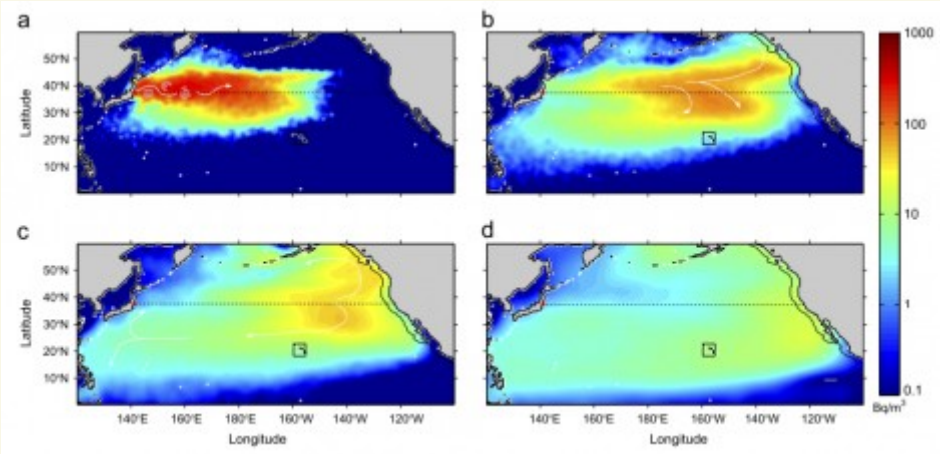


It's not over, it's not like it's going to hit and go away. The nuclear plant is continuing to leak. That plume is 10 times more radioactive than the ocean was before (cesium in the ocean from bomb testing was the only source of radioactivity) and now it's 10 times that — and likely to grow — because the Daiichi site is going to continue to leak into the environment for years to come.

Source: *Gundersen: Radioactive plume to impact West Coast in a year — Not going away after it hits… likely to only get stronger — Fukushima will keep releasing contamination for years to come — Must demand officials test fish and make data public (AUDIO)*

UPI: Fukushima plume to reach U.S. West Coast in months; Measurable increase in radioactive material — Study: Prolonged exposure for California lasting 10 years; Hits Hawaii early 2014… may already be surrounded

UPI, Aug. 28, 2013: *Fukushima radioactive plume being tracked toward U.S. West Coast* [...] The radioactive plume from the 2011 Fukushima nuclear disaster will reach U.S. shores within 3 years of the date of the incident, Australian researchers say. [...] "Observers on the West Coast of the United States will be able to see a measurable increase in radioactive material three years after the event," researcher Erik van Sebille said in an ARC release Wednesday. "However, people on those coastlines should not be concerned as the concentration of radioactive material quickly drops below World Health Organization safety levels as soon as it leaves Japanese waters." [...]



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RedLionTrader
Trading Insight

Terrifying New Discovery About Fukushima's Radioactive Plume

By : ***HuffingtonPost***

By Jeremy Hsu, LiveScience Contributor:

A radioactive plume of water in the Pacific Ocean from Japan's Fukushima nuclear plant, which was crippled in the 2011 earthquake and tsunami, will likely reach U.S. coastal waters starting in 2014, according to a new study. The long journey of the radioactive particles could help researchers better understand how the ocean's currents circulate around the world.

Ocean simulations showed that the plume of radioactive cesium-137 released by the Fukushima disaster in 2011 could begin flowing into U.S. coastal waters starting in early 2014 and peak in 2016. Luckily, two ocean currents off the eastern coast of Japan — the Kuroshio Current and the Kuroshio Extension — would have diluted the radioactive material so that its concentration fell well below the World Health Organization's safety levels within four months of the Fukushima incident. But it could have been a different story if nuclear disaster struck on the other side of Japan.

"The environmental impact could have been worse if the contaminated water would have been released in another oceanic environment in which the circulation was less energetic and turbulent," said Vincent Rossi, an oceanographer and postdoctoral research fellow at the Institute for Cross-Disciplinary Physics and Complex Systems in Spain.

Fukushima's radioactive water release has taken its time journeying across the Pacific. By comparison, atmospheric radiation from the Fukushima plant began reaching the U.S. West Coast within just days of the disaster back in 2011. [Fukushima Radiation Leak: 5 Things You Should Know]

Tracking radioactivity's path

The radioactive plume has three different sources: radioactive particles falling out from the atmosphere into the ocean, contaminated water directly released from the plant, and water that became contaminated by leaching radioactive particles from tainted soil.

The release of cesium-137 from Fukushima in Japan's more turbulent eastern currents means the radioactive material is diluted to the point of posing little threat to humans by the time it leaves Japan's coastal waters. Rossi worked with former colleagues at the Climate Change Research Centre at the University of New South Wales in Australia to simulate the spread of Fukushima's radioactivity in the oceans — a study detailed in the October issue of the journal Deep-Sea Research Part 1.

Researchers averaged 27 experimental runs of their model — each run starting in a different year — to ensure that the simulated spread of the cesium-137 as a "tracer" was not unusually affected by initial ocean conditions. Many oceanographers studying the ocean's currents prefer using cesium-137 to track the ocean currents because it acts as a passive tracer in seawater, meaning it doesn't interact much with other things, and decays slowly with a long half-life of 30 years.

"One advantage of this tracer is its long half-life and our ability to measure it quite accurately, so that it can be used in the future to test our models of ocean circulation and see how well they represent reality over time," Rossi told LiveScience. "In 20 years' time, we could go out, grab measurements everywhere in the Pacific and compare them to our model."

Journey across the Pacific Rim

The team focused on predicting the path of the radioactivity until it reached the continental shelf waters stretching from the U.S. coastline to about 180 miles (300 kilometers) offshore. About 10 to 30 becquerels (units of radioactivity representing decay per second) per cubic meter of cesium-137 could reach U.S. and Canadian coastal waters north of Oregon between 2014 and 2020. (Such levels are far below the U.S. Environmental Protection Agency's limits for drinking water.)

By comparison, California's coast may receive just 10 to 20 becquerels per cubic meter from 2016 to 2025. That slower, lesser impact comes from Pacific currents taking part of the radioactive plume down below the ocean surface on a slower journey toward the Californian coast, Rossi explained.

A large proportion of the radioactive plume from the initial Fukushima release won't even reach U.S. coastal waters anytime soon. Instead, the majority of the cesium-137 will remain in the North Pacific gyre — a region of ocean that circulates slowly clockwise and has trapped debris in its center to form the "Great Pacific Garbage Patch" — and continue to be diluted for approximately a decade following the initial Fukushima release in 2011. (The

water from the current power plant leak would be expected to take a similar long-term path to the initial plume released, Rossi said.)

But the plume will eventually begin to escape the North Pacific gyre in an even more diluted form. About 25 percent of the radioactivity initially released will travel to the Indian Ocean and South Pacific over two to three decades after the Fukushima disaster, the model showed.

You can follow Jeremy Hsu on Twitter @jeremyhsu. Follow us @livescience, Facebook & Google+. Original article on LiveScience.

- In Pictures: Japan Earthquake & Tsunami
- 7 Craziest Ways Japan's Earthquake Affected Earth
- Inside Japan's Nuclear Reactors (Infographic)

Fukushima Radioactive Ocean Plume Expected To Reach US Shores By 2014

August 29, 2013

42 10 0

Image Credit: Sergey Kamshylin / Shutterstock

redOrbit Staff & Wire Reports – Your Universe Online

The radioactive ocean plume created as a result of the 2011 Fukushima nuclear power plant disaster is expected to reach North America by next year, according to research appearing in the latest edition of the journal *Deep-Sea Research 1*.

Fortunately, the study authors report the plume will be harmless by the time it reaches US shores.

"Observers on the west coast of the United States will be able to see a measurable increase in radioactive material three years after the event," study author Dr. Erik van Sebille of the Climate Change Research Centre at the University of New South Wales said in a statement.

"However, people on those coastlines should not be concerned as the concentration of radioactive material quickly drops below World Health Organization (WHO) safety levels as soon as it leaves Japanese waters," he added.

Some degree of atmospheric radiation was detected on the west coast of the US just days following the accident at the Japanese power plant, but Dr. van Sebille's team explains the actual radioactive particles in the ocean plume take far more time to travel the same distance.

In the study, the authors used a series of ocean simulations in order to track the path of the radiation. The models identified it would most likely spend the better part of the next decade travelling through the world's oceans.

A pair of energetic currents off the Japanese coast (the Kuroshio Current and the Kurushio Extension) has played a key role in diluting the radioactive material. Thanks to those currents, the radioactivity was considerably below WHO safety levels in under four months time, and the dilution process continued since then because of eddies, giant whirlpools, and other currents in the open ocean.

“Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere,” explained Dr. Vincent Rossi of the Institute for Cross-Disciplinary Physics and Complex Systems (IFISC).
“Shelf waters north of 45°N will experience higher concentrations during a shorter period, when compared to the Californian coast,” he added. “This late but prolonged exposure is due to the three-dimensional pathways of the plume. The plume will be forced down deeper into the ocean toward the subtropics before rising up again along the southern Californian shelf.”

According to the investigative team, the majority of the radioactive material will remain in the North Pacific, with only minute amounts crossing south of the Equator during the first 10 years. However, a measurable yet harmless signature of the radiation will spread into the Indian and South Pacific oceans over the course of several decades.

“Australia and other countries in the Southern Hemisphere will see little if any radioactive material in their coastal waters and certainly not at levels to cause concern,” Dr. van Sebille said.

He added the researchers had developed a website to help people keep track of the path of the radiation. “Using this website,” Dr. van Sebille said, “members of the public can click on an area in the ocean and track the movement of the radiation or any other form of pollution on the ocean surface over the next 10 years.”

Source: redOrbit Staff & Wire Reports - Your Universe Online

Topics: Environment, Bikini Atoll, Radiobiology, Radioactivity, Physics, Io, Ocean, Radioactive decay, Operation Crossroads, Ionizing radiation, Nuclear physics, Erik van Sebille

Seemorerocks

Posts

Comments

Monday, 2 September 2013

Fukushima

Fukushima's radioactive ocean plume due to reach US waters in 2014

NBC,
31 August, 2013

A radioactive plume of water in the Pacific Ocean from Japan's Fukushima nuclear plant, which was crippled in the 2011 earthquake and tsunami, will likely reach U.S. coastal waters starting in 2014, according to a new study. The long journey of the radioactive particles could help researchers better understand how the ocean’s currents circulate around the world.

Ocean simulations showed that the plume of radioactive cesium-137 released by the Fukushima disaster in 2011 could begin flowing into U.S. coastal waters starting in early 2014 and peak in 2016. Luckily, two ocean currents off the eastern coast of Japan — the Kuroshio Current and the Kuroshio Extension — has diluted the radioactive material so much that its concentration fell well below the World Health Organization’s safety levels within four months of the Fukushima incident. But it could have been a different story if nuclear disaster struck on the other side of Japan.

“The environmental impact could have been worse if the contaminated water would have been released in another oceanic environment in which the circulation was less energetic and turbulent,” said Vincent Rossi, an oceanographer and postdoctoral research fellow at the Institute for Cross-Disciplinary Physics and Complex Systems in Spain.

Fukushima’s radioactive water release has taken its time journeying across the Pacific. By comparison, atmospheric radiation from the Fukushima plant began reaching the U.S. West Coast within just days of the disaster back in 2011.

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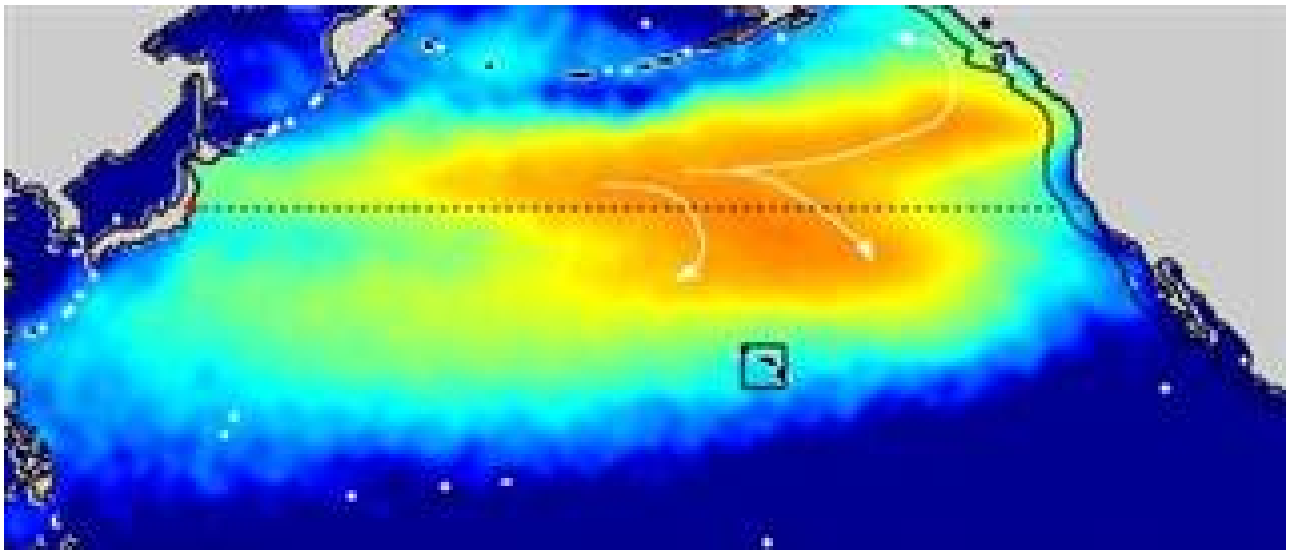
The radioactive plume has three different sources: radioactive particles falling out from the atmosphere into the ocean, contaminated water directly released from the plant, and water that became contaminated by leaching radioactive particles from tainted soil.



This computer projection shows the estimated extent of the Fukushima spill's plume of radioactive water in 2014. The extent of U.S. coastal waters is indicated by a black line, with a black box enclosing Hawaii

The release of cesium-137 from Fukushima in Japan's more turbulent eastern currents means the radioactive material is diluted to the point of posing little threat to humans by the time it leaves Japan's coastal waters. Rossi worked with former colleagues at the Climate Change Research Center at the University of New South Wales in Australia to simulate the spread of Fukushima's radioactivity in the oceans — a study detailed in the October issue of the journal Deep-Sea Research Part 1.

Researchers averaged 27 experimental runs of their model — each run starting in a different year — to ensure that the simulated spread of the cesium-137 as a "tracer" was not unusually affected by initial ocean conditions. Many oceanographers prefer using cesium-137 to track the ocean currents because it acts as a passive tracer in seawater, meaning it doesn't interact much with other things, and decays slowly with a long half-life of 30 years.

"One advantage of this tracer is its long half-life and our ability to measure it quite accurately, so that it can be used in the future to test our models of ocean circulation and see how well they represent reality over time," Rossi told LiveScience. "In 20 years' time, we could go out, grab measurements everywhere in the Pacific and compare them to our model."

Journey across the Pacific Rim

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to about 180 miles (300 kilometers) offshore. About 10 to 30 becquerels (units of radioactivity representing decay per second) per cubic meter of cesium-137 could reach U.S. and Canadian coastal waters north of Oregon between 2014 and 2020. (Such levels are far below the U.S. Environmental Protection Agency's limits for drinking water.)

By comparison, California's coast may receive just 10 to 20 becquerels per cubic meter from 2016 to 2025. That slower, lesser impact comes from Pacific currents taking part of the radioactive plume down below the ocean surface on a slower journey toward the Californian coast, Rossi explained.

A large proportion of the radioactive plume from the initial Fukushima release won't even reach U.S. coastal waters anytime soon. Instead, the majority of the cesium-137 will remain in the North Pacific gyre — a region of ocean that circulates slowly clockwise and has trapped debris in its center to form the "Great Pacific Garbage Patch" — and continue to be diluted for approximately a decade following the initial Fukushima release in 2011. (The water from the current power plant leak would be expected to take a similar long-term path to the initial plume released, Rossi said.)

But the plume will eventually begin to escape the North Pacific gyre in an even more diluted form. About 25 percent of the radioactivity initially released will travel to the Indian Ocean and South Pacific over two to three decades after the Fukushima disaster, the model showed.

La radiación de Fukushima llegará a las costas de EE. UU. en 2014 en cantidades inofensivas

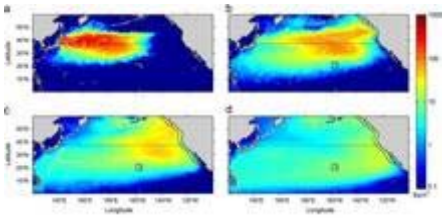
Son partículas de cesio-137 que se liberaron al mar en 2011

Los científicos demuestran el fenómeno con simulaciones por ordenador

Afirman que la concentración de material radiactivo es inofensiva

Ampliar foto

Surferos en la playa Toyoma a 50 km de la central nuclear de Fukushima.AFP PHOTO/Toru YAMANAKA



Mapa con las radiaciones hacia EE. UU.IFISC

Noticias relacionadas

Detectan altos niveles de radiación en otros tres tanques de Fukushima
Japón eleva a "incidente serio" la gravedad del último vertido de agua de la central de Fukushima
TEPCO creará una fuerza especial para controlar las fugas de agua radiactiva en Fukushima
La OMS alerta de que la población más afectada por Fukushima tiene alto riesgo de padecer cáncer

RTVE.ES 02.09.2013

Las **partículas radiactivas de cesio-137** que se liberaron al mar debido al desastre ocurrido en la central nuclear de Fukushima tras el terremoto en Japón **se detectarán en 2014 en la costa oeste de Estados Unidos**.

Así lo han demostrado unas simulaciones por ordenador realizadas por investigadores de varios países, quienes afirman que **la concentración de material se encuentra muy por debajo de los límites de seguridad para el consumo humano**marcados por la Organización Mundial de la Salud y que, por lo tanto, son cantidades inofensivas.
Es la principal conclusión de un estudio publicado en la revista *Elsevier* y encabezado por el miembro del Instituto de Física Interdisciplinar y Sistemas Complejos ligado al CSIC (IFISC), Vincent Rossi. En él también han participado científicos del Climate Change Research Centre (Australia) y del Laboratoire de Étude en Géophysique te Océanographie Spatiales (Francia), según recoge la UIB en un comunicado.

Viaje lento del cesio-137 en el océano

Después del desastre de Fukushima de marzo de 2011, se liberaron grandes cantidades de **agua contaminada con radionucleidos, como el cesio-137** en el océano Pacífico. Con una media de vida de 30 años, el cesio-137 tiene la capacidad de recorrer grandes distancias en el océano.
Aunque la radiación atmosférica ya se detectó en la costa oeste de EE. UU. pocos días después del incidente, las partículas radiactivas necesitan mucho más tiempo para recorrer la misma distancia en el agua del océano.

Los resultados publicados por los investigadores se centran en **cómo se moverá la radiación a través de las corrientes marinas durante diez años**, aunque ya han avanzado algunos datos a más largo plazo, ya que estas simulaciones y las características propias del cesio-137 permiten **seguir el camino de la radiación vertida desde Fukushima a través del océano** en períodos más largos de tiempo .

Riesgo bajo del material radiactivo por mar

"Los observadores de la costa oeste de Estados Unidos podrán ver un aumento de material radiactivo tres años después del vertido", han afirmado los autores del estudio, "sin embargo, los residentes de la costa no debe preocuparse, dado que **la concentración de material radiactivo comenzó a bajar rápidamente**, por debajo de los niveles de seguridad de la OMS tan pronto como salió de aguas japonesas".
Dos corrientes de la costa japonesa, la corriente de Kuroshio y la extensión Kurushio, son las **principales responsables de la aceleración de la dilución del material radiactivo**. Remolinos y torbellinos gigantes -de alguna decenas de kilómetros de ancho - y otras corrientes en el océano abierto siguen este proceso de dilución y dirigen las partículas radiactivas a diferentes zonas de la costa oeste de EE. UU.
"A pesar de algunas incertidumbres en torno a la cantidad total liberada y las probables concentraciones que se pueden observar, hemos demostrado inequívocamente que **el contacto con las costas del noroeste americano no será la misma en todas partes**", ha afirmado Rossi .
"En aguas de la plataforma al norte de 45º N se experimentarán concentraciones más altas durante un período más corto en comparación con la costa de California", según indica Rossi , "y esta exposición prolongada se debe a las vías de tres dimensiones del nube radiactiva. La parte superior se sumergirá en zonas más profundas del océano hacia el subtrópico antes de subir de nuevo a lo largo de la plataforma del sur de California".

En la primera década, la gran mayoría de los materiales radiactivos quedará en el Pacífico Norte. Finalmente, la radiación se extenderá a otras cuencas oceánicas, particularmente en el océano Pacífico del sur de la India, pero nunca en niveles que deban causar preocupación .

Science News

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Fukushima Radioactive Plume to Reach US in 3 Years

Aug. 28, 2013 — The radioactive ocean plume from the 2011 Fukushima nuclear plant disaster will reach the shores of the US within three years from the date of the incident but is likely to be harmless according to new paper in the journal Deep-Sea Research 1.

While atmospheric radiation was detected on the US west coast within days of the incident, the radioactive particles in the ocean plume take considerably longer to travel the same distance.

In the paper, researchers from the Centre of Excellence for Climate System Science and others used a range of ocean simulations to track the path of the radiation from the Fukushima incident.

The models identified where it would likely travel through the world's oceans for the next 10 years.

"Observers on the west coast of the United States will be able to see a measurable increase in radioactive material three years after the event," said one of the paper's authors, Dr Erik van Sebille.

"However, people on those coastlines should not be concerned as the concentration of radioactive material quickly drops below World Health Organisation safety levels as soon as it leaves Japanese waters."

Two energetic currents off the Japanese coast -- the Kuroshio Current and the Kurushio Extension -- are primarily responsible for accelerating the dilution of the radioactive material, taking it well below WHO safety levels within four months.

Eddies and giant whirlpools -- some tens of kilometres wide -- and other currents in the open ocean continue this dilution process and direct the radioactive particles to different areas along the US west coast.

"Although some uncertainties remain around the total amount released and the likely concentrations that would be observed, we have shown unambiguously that the contact with the north-west American coasts will not be identical everywhere," said Dr. Vincent Rossi.

"Shelf waters north of 45°N will experience higher concentrations during a shorter period, when compared to the Californian coast. This late but prolonged exposure is due to the three-dimensional pathways of the plume. The plume will be forced down deeper into the ocean toward the subtropics before rising up again along the southern Californian shelf."

Interestingly, the great majority of the radioactive material will stay in the North Pacific, with very little crossing south of the Equator in the first decade. Eventually over a number of decades, a measurable but otherwise harmless signature of the radiation will spread into other ocean basins, particularly the Indian and South Pacific oceans.

"Australia and other countries in the Southern Hemisphere will see little if any radioactive material in their coastal waters and certainly not at levels to cause concern," Dr van Sebille said.

"For those interested in tracking the path of the radiation, we have developed a website (adrift.org.au) to help them.

"Using this website, members of the public can click on an area in the ocean and track the movement of the radiation or any other form of pollution on the ocean surface over the next 10 years."

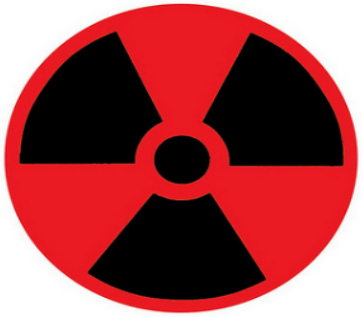
Story Source:
The above story is based on materials provided by **University of New South Wales**.
Note: Materials may be edited for content and length. For further information, please contact the source cited above.

Journal Reference:

1. Vincent Rossi, Erik Van Sebille, Alexander Sen Gupta, Véronique Garçon, Matthew H. England. **Multi-decadal projections of surface and interior pathways of the Fukushima Cesium-137 radioactive plume**. *Deep Sea Research Part I: Oceanographic Research Papers*, 2013; 80: 37 DOI: 10.1016/j.dsr.2013.05.015

Radioactive ocean plume from Fukushima to reach U.S. coast in 2014

The researchers have created a website to track the path of the radiation.



Science Recorder | Stephanie Verkoeyen | **Thursday, August 29, 2013**

According to new **research**, within 3 years of the 2011 Fukushima nuclear plant disaster, the resulting radioactive ocean plume will reach American shores. It is likely to be harmless. Atmospheric radiation was detected within days of the incident along the west coast, but ocean particles take considerably longer to travel the same distance...

Read more:http://www.sciencerecorder.com/news/radioactive-ocean-plume-from-fukushima-to-reach-u-s-coast-in-2014/#ixzz2dixJgP5S

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SCIENCE — nature — radioactive

Fukushima Radioactive Plume to Reach US in 3 Years

Posted 5 days ago
by University of New South Wales

Tuesday, August 27: The radioactive ocean plume from the 2011 Fukushima nuclear plant disaster will reach the shores of the US within three years from the date of the incident but is likely to be harmless according to new paper in the journal *Deep-Sea Research 1*.

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Fukushima radioactive plume to reach US in three years

Posted August 29, 2013 - 09:45 **by Thomas Anderson**

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Read more at http://www.tgdaily.com/general-sciences-features/78404-fukushima-radioactive-plume-to-reach-us-in-three-years#epMmM5WOslkeRHbC.99

The daily journal of life in and around water
UnderwaterTimes.com

Study: 'Harmless' Fukushima Radioactive Plume To Reach United States In 3 Years

by Underwatertimes.com News Service - August 29, 2013 19:15 EST

Marine Debris Will Likely Worsen In The 21st Century; 'The United States Must Take The Lead'

Melting Greenland Ice Sheets May Threaten Northeast United States, Canada; Impacts 'This Century'

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Costa Rican Shrimp Embargo Continued By The United States; 'No Interest Whatsoever In Marine Conservation'

Report: Shark Attacks Suffer During Recesion; Sharp Declines In Florida And The United States Last Year

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Science & Technology

Fukushima radioactive plume being tracked toward U.S. West Coast

Published By United Press International

CANBERRA, Australia, Aug. 28 (UPI) -- The radioactive plume from the 2011 Fukushima nuclear disaster will reach U.S. shores within 3 years of the date of the incident, Australian researchers say.

Atmospheric radiation was detected on the U.S. West Coast within days of the incident, but radioactive particles in the ocean plume take considerably longer to travel the same distance.

Writing in the journal Deep-Sea Research 1, scientists with the Australian Research Council's Center of Excellence for Climate System Science said it is likely to be harmless when it arrives.

"Observers on the West Coast of the United States will be able to see a measurable increase in radioactive material three years after the event," researcher Erik van Sebille said in an ARC release Wednesday.

"However, people on those coastlines should not be concerned as the concentration of radioactive material quickly drops below World Health Organization safety levels as soon as it leaves Japanese waters."

Two energetic currents off the Japanese coast -- the Kuroshio Current and the Kurushio Extension -- are primarily responsible for accelerating the dilution of the radioactive material to safe levels, the researchers said.

Other currents in the open ocean will contribute to this dilution process and direct the radioactive particles to different areas along the U.S. West Coast, they said.

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Science News

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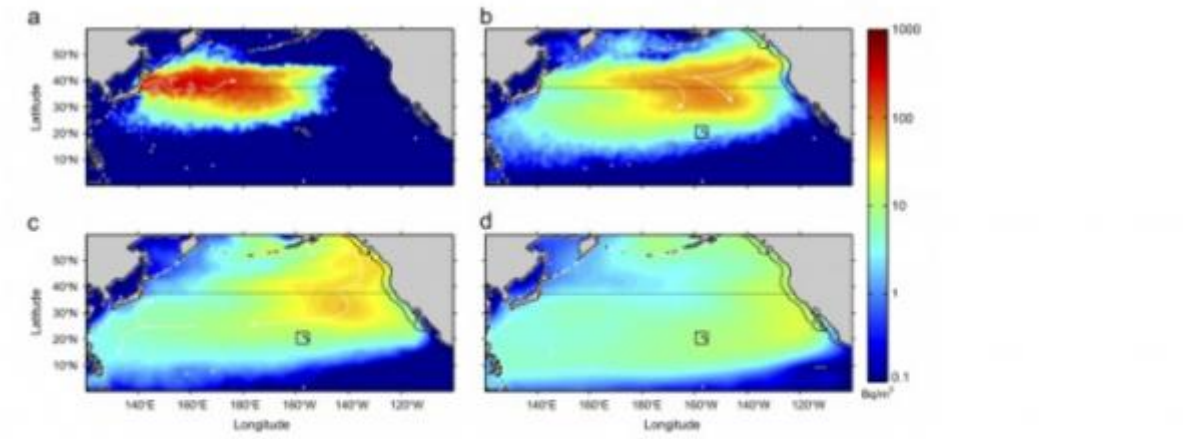

Surface (0–200m) of Cesium-137 concentrations (Bq/m3) by (a)April 2012, (b) April 2014 (c) April 2016 and (d) April 2021

Radioactive concentrations in the Fukushima plume in (a) April 2012, (b) April 2014, (c) April 2016 and (d) April 2012. Credti: ARC

Published: Aug. 28, 2013 at 3:55 PM

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Estudio prevé que la radiación de Fukushima llegue a EEUU, aunque sin peligro

EFE
30/08/2013 (17:30)
AA

Palma, 30 ago (EFE).- La radiación de Fukushima llegará por mar a las costas de Estados Unidos en 2014 en cantidades inofensivas para los estándares que marca la Organización Mundial de la Salud (OMS) que no deberían ser motivo de alarma, según un estudio científico que se acaba de publicar.

Las partículas radioactivas de Cs-37 liberadas al mar debido al desastre de Fukushima se detectarán en 2014, tres años después, en la costa oeste de Estados Unidos, según sugieren las simulaciones elaboradas por un equipo de científicos liderado por el investigador del Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC) del CSIC y la Universidad de las Islas Baleares (UIB) Vicent Rossi, ha informado el IFISC en un comunicado.

Que la radiación llegue en esos niveles no debería ser motivo de alarma puesto que la concentración de material se encuentra muy por debajo de los límites de seguridad para el consumo humano marcados por la OMS, según el estudio elaborado por investigadores del IFISC, el Climate Chang Research Centre de Australia y el Laboratoire d'Etude en Géophysique et Océanographie Spatiales de Francia.

Tras el desastre de Fukushima de marzo de 2011, grandes cantidades de agua contaminada con elementos como el cesio-137 se liberaron en el Pacífico. Con una vida media de 30 años, el cesio-137 tiene el potencial de viajar grandes distancias en el océano.

Si bien la radiación atmosférica ya se detectó en la costa oeste de Estados Unidos pocos días después del incidente de Japón, las partículas radiactivas en el océano necesitan mucho más tiempo para recorrer la misma distancia.

Los resultados publicados ahora por los investigadores se centran, por medio de simulaciones por ordenador, en como se moverá la radiación a través de las corrientes marinas durante 10 años.

"Los observadores de la costa oeste de los Estados Unidos podrán ver un aumento de material radiactivo tres años después del vertido", ha dicho uno de los autores del estudio, Erik van Sebille.

"Sin embargo, la gente en las costas no debe preocuparse puesto que la concentración de material radiactivo empezó a descender rápidamente, por debajo de los niveles de seguridad de la Organización Mundial de la Salud, tan pronto como salió de aguas japonesas", ha puntualizado

Dos corrientes de la costa japonesa, la de Kuroshio y la extensión Kurushio, son las principales responsables de la aceleración de la dilución del material radiactivo, llevándola muy por debajo de los niveles de seguridad de la OMS dentro de los primeros cuatro meses.

Remolinos y torbellinos gigantes (de varias decenas de kilómetros de ancho), y otras corrientes en el océano abierto, siguen este proceso de dilución y dirigen las partículas radiactivas a diferentes zonas de la costa oeste estadounidense.

"A pesar de algunas incertidumbres en torno a la cantidad total liberada y las probables concentraciones que se pueden observar, hemos demostrado inequívocamente que el contacto con las costas del noroeste americano no será el mismo en todas partes", afirma el autor principal del estudio, el doctor Vincent Rossi.

"En aguas de la plataforma al norte de 45 ° N se experimentarán concentraciones más altas durante un período más corto, en comparación con la costa de California" según Rossi.

Esta exposición prolongada se debe "a las vías de tres dimensiones de la nube radiactiva". Según detalla, la parte superior se sumergirá a zonas más profundas del océano hacia el subtrópico antes de subir de nuevo a lo largo de la plataforma del sur de California.

En la primera década tras el desastre, la mayoría de los materiales radiactivos se quedará en el Pacífico Norte. Finalmente, la radiación se extenderá a otras cuencas oceánicas, particularmente el océano Pacífico del sur de India, pero nunca en niveles que deban causar preocupación. EFE

TEKNOLOGI

Limbah Nuklir Fukushima Diprediksi Sampai ke Amerika

Zat radioaktif mencemari lautan mulai tahun 2014.

Senin, 2 September 2013, 12:44Muhammad Chandrataruna, Amal Nur Ngazis

VIVAnews - Para ahli nuklir memperkirakan radiasi nuklir dari pembangkit tenaga nuklir Fukushima, Jepang, yang rusak akibat bencana tsunami besar dua tahun silam, diperkirakan segera sampai ke perairan pesisir Amerika Serikat pada tahun 2014 nanti.

Limbah radioaktif itu diketahui sudah menyebar lewat lautan lepas tak lama setelah instalasi itu dihantam tsunami, seperti dikabarkan *LiveScience*, Senin 2 September 2013.

Prediksi itu berdasarkan perjalanan segumpal radioaktif di Samudera Pasifik. Simulasi laut menunjukkan gumpalan radioaktif cesium -137 akan mencemari perairan AS sekitar tahun depan dan puncaknya akan terjadi tahun 2016.

Tapi, dua arus di lepas pantai timur Jepang —Arus Kuroshio dan Ekstensi Kuroshio—akan

mencairkan zat radioaktif itu, sehingga tingkat konsentrasinya jauh di bawah tingkat bahaya WHO sejak empat bulan insiden Fukushima.

"Masalahnya, dampak akan menjadi sangat buruk jika limbah itu mencemari lingkungan laut lain, dengan sirkulasi arus yang kurang enerjik dan bergolak," jelas Vincent Rossi, peneliti*postdoctoral* di *Institute for Cross-Disciplinary Physics and Complex Systems*, Spanyol, yang juga ahli fotografi lautan.

Perjalanan Radioaktif

Penyebaran limbah nuklir diketahui berasal dari tiga sumber, yaitu partikel radioaktif yang jatuh dari atmosfer ke laut, air yang terkontaminasi langsung dari instalansi pembangkit nuklir, dan air yang terkontaminasi oleh pelarutan partikel radioaktif dari tanah tercemar.

Bersama dengan mantan rekannya di Pusat Penelitian Perubahan Iklim Universitas New South Wales, Australia, Rossi mensimulasikan 27 model penyebaran radioaktif Fukushima di lautan. Simulasi ini guna memastikan penyebaran radioaktif cesium -137, sehingga bisa diantisipasi di kemudian hari.

Tim peneliti itu fokus memprediksi jalur radioaktif sampai pada garis pantai AS, yakni sekitar 300 kilometer lepas pantai daratan AS.

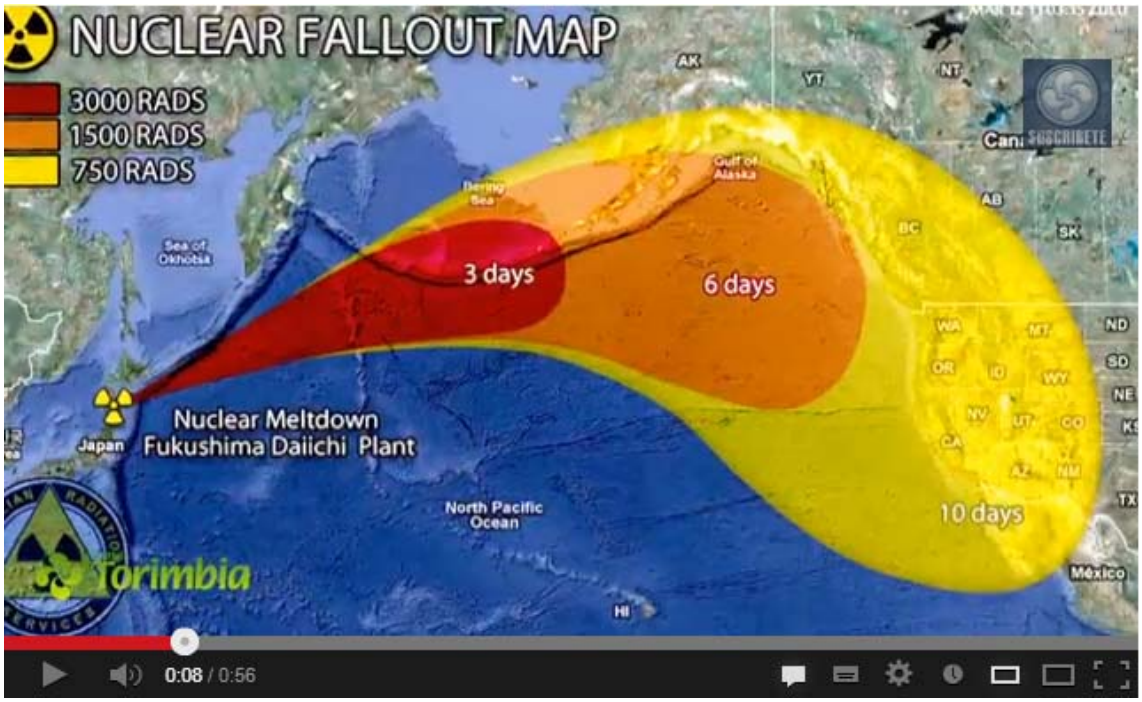
Disebutkan sekitar 10 sampai 30 becquerel —unit radioaktif yang mewakili pembusukan per detik— per meter kubik radioaktif cesium -137 dapat mencapai AS dan pesisir utara Kanada antara tahun 2014 dan tahun 2020.

Sebagai perbandingan, pesisir pantai California diprediksi hanya menerima 10 hingga 20 becquerel per meter kubik radioaktif pada 2016 sampai 2025. Sebagian besar bagian gumpalan radioaktif dari reaktor Fukushima diperkirakan tidak akan sampai di perairan AS dalam waktu dekat.

"Radioaktif cesium -137 diperkirakan akan tetap berada di lautan Pasifik utara dan akan mencair kira-kira satu dekade setelah peluncuran radioaktif Fukushima dua tahun silam," ungkap Rossi.

Namun, lanjut dia, gumpalan itu akhirnya mulai lepas dari lautan Pasifik utara dalam bentuk yang lebih encer.

Model menunjukkan, sekitar 25 persen dari radioaktif itu akan menuju Samudra Hindia dan Pasifik selatan selama dua hingga tiga dekade setelah bencana Fukushima.



http://www.youtube.com/watch?v=2Od6-sIAxNw

La radiación de Fukushima llegará a las costas de EE.UU. en 2014

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Publicado el 02/09/2013

Las partículas radiactivas de cesio-137 que se liberaron al mar tras el desastre en la central nuclear de Fukushima tras el terremoto en Japón se detectarán en 2014 en la costa Oeste de Estados Unidos. Así lo han demostrado unas simulaciones por ordenador realizadas por investigadores de varios países, quienes afirman que la concentración de material se encuentra muy por debajo de los límites de seguridad para el consumo humano marcados por la Organización Mundial de la Salud y que, por lo tanto, son cantidades inofensivas. Es la principal conclusión de un estudio publicado en la revista Elsevier y encabezado por el miembro del Instituto de Física Interdisciplinar y Sistemas Complejos ligado al CSIC (IFISC), Vincent Rossi. En él también han participado científicos del Climate Change Research Centre (Australia) y del Laboratoire de Étude en Géophysique te Océanographie Spatiales (Francia), según recoge la UIB en un comunicado.

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Fukushima radioactive plume to reach US coast in three years

Tag: Japan, Fukushima nuclear plant, Radioactive, US

Last Updated: Thursday, August 29, 2013, 13:20

Sydney: A recent study has revealed that the radioactive particles leaked by the crippled Fukushima nuclear plant into the Pacific Ocean, will reach the U.S. coastline within the three years of the incident.

The study showed while atmospheric radiation was detected on the U.S. west coast within days of the incident, the radioactive particles in the ocean plume take considerably longer to travel the same distance.

However, it is likely to be harmless according to the new paper in the journal Deep-Sea Research 1.

The researchers from the Centre of Excellence for Climate System Science have identified the travel path of the contaminated ocean plume through the world's oceans for the next 10 years.

They have claimed that the concentration of radioactive material will quickly drop below World Health Organisation (WHO) safety levels as soon as it leaves Japanese waters.

The study revealed that two energetic currents off the Japanese coast, the Kuroshio Current and the Kurushio Extension, were primarily responsible for accelerating the dilution of the radioactive material, taking it well below WHO safety levels within four months.

Later, eddies, giant whirlpools and other currents in the open ocean were continuing this dilution process and direct the radioactive particles to different areas along the US west coast.

Dr. Vincent Rossi said that there were some uncertainties around the total amount released and the likely concentrations that would be observed, but the contact with the north-west American coasts will not be identical everywhere.

The great majority of the radioactive material will stay in the North Pacific, with very little

crossing south of the Equator in the first decade.

Only a measurable, but otherwise harmless, signature of the radiation will spread into other ocean basins, particularly the Indian and South Pacific oceans.

The researchers have also developed a website, adrift.org.au, to track the path of the radiation.

ANI