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Wai Halana

Hawaii Flood News



DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

NOAA Expects Below-Normal Central Pacific Hurricane Season

NOAA’s Central Pacific Hurricane Center today announced that climate conditions point to a below-normal season in the Central Pacific Basin this year.

For 2013, the outlook calls for a 70% chance of a below-normal season, a 25% chance of a near-normal season, and a 5% chance of an above-normal season. We expect 1 to 3 tropical cyclones to affect the central Pacific this season. An average season has 4-5 tropical cyclones, which include tropical depressions, tropical storms, and hurricanes.

The outlook for a below-normal season is based upon the continuation of neutral El Niño–Southern Oscillation conditions. The Central Pacific Basin also remains on the low activity side of a multi-decadal cycle. Historical records show that this combination of conditions tends to produce a less active hurricane season for the central Pacific.

This outlook is a general guide to the overall seasonal hurricane activity in the central Pacific and does not predict whether, where, when, or how many of these systems will affect Hawaii.

NOAA issued its Central Pacific hurricane outlook at a news conference in Honolulu, and urged Hawaii residents to be fully prepared before the hurricane season, which begins June 1 and runs until November 30th.

“I encourage the public to become weather-ready by signing up for weather alerts, developing a family emergency plan, and building an emergency kit before hurricane season begins,” said Ray Tanabe, director of NOAA’s Central Pacific Hurricane Center. “Just because the season is predicted to be “below normal” does not mean that a single storm cannot have significant impacts.”

The Central Pacific Hurricane Center continuously monitors weather conditions, employing a network of satellites, land- and ocean-based sensors and aircraft reconnaissance missions operated by NOAA and its partners. This array of data supplies the information for complex computer modeling and human expertise that serves as

Wai Halana is published quarterly by the Department of Land and Natural Resources (DLNR), Engineering Division. It is supported by the Federal Emergency Management Agency (FEMA) under the Community Assistance Program. The contents of this publications is to increase awareness about the National Flood Insurance Program. The authors and publishers are solely responsible for the accuracy, and do not necessarily reflect the views of DLNR and/or FEMA.

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Upcoming Events

9th Annual Hawaii Floodplain Managers Conference



The Department of Land and Natural Resources and The Federal Emergency Management Agency are pleased to host the 9th Annual Hawaii Floodplain Managers Conference on August 14 and 15, 2013 at the Manoa Grand Ballroom located at the Japanese Cultural Center, 2454 South Beretania Street, Honolulu, Hawaii. This conference is designed to increase awareness and knowledge of the National Flood Insurance Program, provide tools and resources for flood response and updates on strategies for flood mitigation.

Conference Topics Include:

- Subdivision Permitting in SFHAs
- Hurriplan
- DFIRM Mapping Updates
- Technical Bulletin 2 (Flood Damage Resistant Materials Requirements)
- Technical Bulletin 7 (Wet Floodproofing Requirements)
- No Rise Certification
- U.S. Army Corps of Engineers GIS Data
- Lessons Learned from Recent Hawaii Tsunami Warnings & Evacuations
- The Role of Social Media Tools in Disasters
- Statewide Digital Leveling
- Biggert-Waters Flood Insurance Reform Act of 2012
- Dam Inventory System

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Floodplain Manager's Notebook

www.RCQuinnConsulting.com

Can equipment be located below the BFE and still be compliant?

Well, yes. At least that's the answer according to the NFIP requirements. Whether it can actually be done in real life is the question I'd like you to ponder today.

Have you ever had a builder or property owner try to convince you that it's OK to put a heat pump or other building service equipment below Base Flood Elevation (BFE)? I have, but we'll get to my story later. If you haven't looked at your building code or local floodplain management ordinance in a while, the NFIP provision I refer to might not readily come to mind. I always express profound respect for the folks who, more than 40 years ago, wrote the National Flood Insurance Program (NFIP) regulations on which much of what we do is based: 44 Code of Federal Regulations Part 60. But this requirement about equipment has had me scratching my head for more than 30 years.

The requirement is in 44 CFR § 60.3(a)(3) where the broad goals for development and buildings are found (see below). Section 60.3(a)(3) is where "reasonably safe from flooding" is stated, along with other broad goals for new construction and substantial improvements. As with most regulations, broad goals are first established, followed by the details that will bring about the desired results. The NFIP regs are set up the same way: § 60.3(a) sets the goals and, depending on whether detailed analyses were conducted to produce the Flood Insurance Rate Map (FIRM) and depending on the nature of flooding, the details are found in § 60.3(b), (c), (d), and (e). [For most local officials, the designation or "level" of your ordinance doesn't mean much, but if you're curious: level (b) is Special Flood Hazard Areas (SFHA) without Base Flood Elevations; level (c) is SFHA with BFEs; level (d) is SFHA with BFEs and floodways; and level (e) is SFHAs that are coastal high hazard areas.]

The only place in § 60.3 where building equipment and utilities are called out is right up front with the broad goals: § 60.3(a)(3)(iv). It's all right there; there aren't any more details in any of the subsequent sections.

So, what does 60.3(a)(3)(iv) require? It requires equipment and utilities to be “designed and/or located” – the located part is easy. That turns into elevate (i.e., “locate”) all the equipment along with the elevated building. But what does the rest of the statement mean? What does it mean to be designed “to prevent water from entering or accumulating within the components during conditions of flooding”? And does that also mean that the equipment should function after being submerged by floodwaters?

Before we attempt to answer that question, let me point you to similar provisions in the International Code Series (on which virtually all state and local building codes are based). The International Residential Code has similar language, shown below, that requires equipment to be located at or above the elevation required for the building. An exception to that requirement allows equipment below the BFE if “designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy.” And the International Building Code, by reference to ASCE 24 Flood Resistant Design and Construction, uses similar language. The [link](#) to download flood excerpts from the I-Codes and “Highlights of ASCE 24” is shown below.

OK, so now we know that the rules do permit equipment below the BFE. But what about the rest of the question – can it actually be done? Is there equipment out there that can be submerged and still function? I think we can all agree that it is reasonable to interpret the NFIP rule to mean equipment should function after flooding – what good would it be to have equipment that is designed to prevent the entry and accumulation of water, but that didn't function afterward?

Here's where we pick up my story. Many years ago I was a permit engineer with the State of Maryland, working in the agency that regulates non-tidal waterways and floodplains and also serves as the NFIP State Coordinating Agency. A “deep pocket” developer (haven't we all dealt with at least one of those?) insisted he didn't need

to elevated the heat pumps for nearly 100 townhomes that he was planning for the floodplain of a large river. He didn't contest elevating the homes (it turns out the site was so tight, he was already planning ground-level garages, which happened to put the lowest floors several feet above the BFE).

After several meetings about the heat pumps (including with the director of my agency!), I'm sure he thought he'd worn me down. Since he wouldn't accept my “no,” I decided to exercise an option that all regulators have – the “show me” option. It's the applicant's responsibility to demonstrate that a proposal will satisfy the requirements. If we, as permit officials, can't determine compliance based on the submittals, we should ask for more documentation.

All I said was this: Show me that the manufacturer states that the heat pumps will function after being submerged. Guess how long it took for us to get revised plans showing heat pumps elevated on platforms? To my knowledge, that riverfront development has flooded at least twice in the last 15-20 years. But I'll bet none of the residents know they have my agency's vigilance to thank for the fact they're able to come home after floods and don't have to call the HVAC guy to replace their heat pumps.



Heat pumps elevated, but lower than the lowest floor.
Photo by Liz Roll/FEMA



Real Estate Connection

Buying or Selling a Property may Trigger Flood Insurance Rate Changes

In July 2012, the U.S. Congress passed the Biggert-Waters Flood Insurance Reform Act of 2012 (BW-12) which calls on the Federal Emergency Management Agency (FEMA), and other agencies, to make a number of changes to the way the National Flood Insurance Program (NFIP) is run. Some of these changes already have occurred, and others will be implemented in the coming months. Key provisions of the legislation will require the NFIP to raise flood insurance rates to reflect true flood risk, make the program more financially stable, and change how Flood Insurance Rate Map (FIRM) updates impact policyholders.

Background:

In 1968, Congress created the National Flood Insurance Program (NFIP). Since most homeowners' insurance policies did not cover flood, property owners who experienced a flood often found themselves financially devastated and unable to rebuild. The NFIP was formed to fill that gap and was designed to incorporate community adoption of minimum standards for new construction and development to minimize future risk of flood damage. Pre-existing homes and businesses, however, could remain as they were. Owners of many of these older properties were eligible to obtain insurance at lower, subsidized rates that did not reflect the property's true flood risk.

In addition, as the initial flood risk identified by the NFIP has been updated, many homes and businesses that had been built in compliance with existing standards have received discounted rates in areas where the risk of flood was revised. This "Grandfathering" approach prevented rate increases for existing properties when the flood risk in their area increased.

After 45 years, flood risks continue and the costs and consequences of flooding are increasing dramatically. The BW-12 legislation aims to make the NFIP more sustainable and financially sound over the long term.

How will this affect a Home Buyer ?

Beginning October 1, 2013 additional classes of properties will experience increased flood insurance premium as a result of BW-12. Some newly purchased homes, property owners not insured as of the date of enactment of BW-12 (7/6/2013), or lapsed NFIP policyholders will be full-risk rated.

Key Points to Note:

- If you purchase a pre-FIRM home in a Special Flood Hazard Area (A or V zones) after July 6, 2012 and before October 1, 2013, the new flood insurance policy will be rated using the subsidized rates. However, upon the first renewal effective on or after October 1, 2013, the flood insurance premiums will be full-risk rated.
- If you purchase a pre-FIRM home in a Special Flood Hazard Area (A or V zones) on or after October 1, 2013, the new flood insurance policy premiums will be full-risk rated immediately.
- In order to be fully risk rated, a property owner must obtain an Elevation Certificate (EC) including photographs.
- Tentative or provisional rates will be utilized during the transition year until an EC is obtained for rating purposes. However, no claim can be paid while a policy is receiving a tentative or provisional rate, coverage cannot be added to a policy receiving tentative or provisional rates, and the policy cannot be renewed.

Grandfathering Changes Expected in 2014

The Act phases-out grandfathered rates and moves to risk-based rates for most properties when the community adopts a new Flood Insurance Rate Map. If you live in a community that adopts a new, updated Flood Insurance Rate Map (FIRM), grandfathered rates will be phased out. This will happen gradually, with new rates increasing by 20% per year for five years.

The following table outlines the timeline of BW-12 implementation:

Date of Implementation	Who is Affected ?	What Will Happen ?	Why Is it Changing ?
January 1, 2013	<ul style="list-style-type: none"> Homeowners with subsidized insurance rates on non-primary residences Properties receiving subsidized insurance rates are those structures built prior to the first Flood Insurance Rate Map (pre-FIRM properties) that not have been substantially damaged or improved. 	<ul style="list-style-type: none"> 25 percent increase in premium rates each year until premiums reflect full risk rates. 	<ul style="list-style-type: none"> BW-12 calls for the phase-out of subsidies and discounts on flood insurance premiums. This premium increase is outlined in Section 100205. The phase out of subsidies affecting non-primary residences was also mandated by earlier 2012 legislation, HR 5740.
October 1, 2013	<ul style="list-style-type: none"> Owners of business properties with subsidized premiums Owners of severe repetitive loss properties consisting of 1-4 residences with subsidized premiums. Owners of any property that has incurred flood-related damage in which the cumulative amounts of claims payments exceeded the fair market value of such property. 	<ul style="list-style-type: none"> 25 percent increase in premium rates each year until premiums reflect full risk rates. 	<ul style="list-style-type: none"> BW-12 calls for the phase-out of subsidies and discounts on flood insurance premiums. This premium increase is outlined in Section 100205.
	<p>Owners of Property</p> <ul style="list-style-type: none"> not insured as of the date of enactment of BW-12 (subject to a possible exception in Section 100207 of BW-12); with a lapsed NFIP policy; that has been purchased after the date of enactment of BW-12. 	<ul style="list-style-type: none"> Full-risk rates will apply to these policies. 	<ul style="list-style-type: none"> BW-12 calls for the elimination of subsidies and discounts on flood insurance premiums. This premium increase is outlined in Section 100205.
Late 2014	<ul style="list-style-type: none"> Other property owners, including non-subsidized policyholders, affected by map changes. 	<ul style="list-style-type: none"> Full-risk rates will be phased in over five years at a rate of 20 percent per year to reach full risk rates. 	<ul style="list-style-type: none"> BW-12 calls for the phase-out of subsidies and discounts on flood insurance premiums. This premium increase is outlined in Section 100207.

Sample of changes in subsidized premium rates under Biggert-Waters Flood Insurance Reform Act of 2012:

The rates quoted here are full-risk premium rates. Depending on individual circumstances, these new rates may be either phased-in over time, or may take effect immediately based on a number of triggering events.

Single Story Structure in an AE Zone \$250K/\$100K (Building/Content Coverage)	Pre-BW12 Subsidized Rates (No Elevation Certificate)	Post-BW12 Non-Subsidized Rates (with Elevation Certificate)
Lowest floor of property is 4 feet above base flood elevation	\$3,600	\$553
Lowest floor of property is at base flood elevation	\$3,600	\$1,815
Lowest floor of property is 4 feet below base flood elevation	\$3,600	\$10,723

Rates based on a policy with a \$1,000 deductible and \$250,000 building coverage and \$100,000 contents coverage. This scenario is based on a single-story building with no basement, crawlspaces or enclosures. An AE zone is an area subject to inundation by the 1-percent annual chance flood event. Base Flood Elevations are shown on Flood Insurance Rate Maps in these zones. AE zones are used on new and revised maps in place of numbered A zones from A1 to A30.

It is important to note that flood insurance policies protecting properties in high risk coastal areas (VE Zones) will see significantly higher premiums which could be in excess of \$20,000.

Only an insurance agent can accurately provide a detailed premium quote given specific circumstances because flood zones (where the property is located) and elevation of the lowest floor, will significantly impact premiums. It is important to work with insurance agents to see how policyholders may be able to reduce rates through elevating their buildings and/or choosing insurance levels and deductibles which provide proper protection.

For more information of BW-12, visit: <http://www.fema.gov/flood-insurance-reform-act-2012>

FLOOD MAPS Updates

Are you currently doing work in the Counties listed here? If so, please take note that FEMA has approved the following Letter of Map Changes (LOMCs) to the flood hazard information shown on the effective Flood Insurance Rate Maps.



Kauai County

Type: LOMA
 FIRM Panel 0311E
 Revision Date: March 12, 2013
 FEMA Case Number: 13-09-1270A
 Flooding Source:
 Pinau Reservoir

On-line readers can view LOMC [here](#)

Type: LOMA
 FIRM Panel 0311E
 Revision Date: March 21, 2013
 FEMA Case Number: 13-09-1408A
 Flooding Source:
 Pinau Reservoir

On-line readers can view LOMC [here](#)

Type: LOMA
 FIRM Panel 0328F
 Revision Date: April 18, 2013
 FEMA Case Number: 13-09-1662A
 Flooding Source:
 Puali Stream

On-line readers can view LOMC [here](#)

Maui County

Type: LOMR
 FIRM Panel 0670E
 Revision Date: July 8, 2013
 FEMA Case Number: 12-09-2563P
 Flooding Source:
 Kawaipapa Gulch

On-line readers can view LOMC [here](#)

Type: LOMA-OAS
 FIRM Panel 0586F
 Revision Date: March 28, 2013
 FEMA Case Number: 13-09-1144A
 Flooding Source:
 Pacific Ocean

On-line readers can view LOMC [here](#)

Type: LOMA
 FIRM Panel 0586F
 Revision Date: April 23, 2013
 FEMA Case Number: 13-09-1720A
 Flooding Source:
 Kulanihakoai Gulch

On-line readers can view LOMC [here](#)

Hawaii County

Type: LOMR
 FIRM Panel 0880C
 Revision Date: March 4, 2013
 FEMA Case Number: 12-09-1607P
 Flooding Source:
 Waiakea Tributary No. 3A / 3B

On-line readers can view LOMC [here](#)

Type: LOMA
 FIRM Panel 0880C
 Revision Date: March 12, 2013
 FEMA Case Number: 13-09-1063A
 Flooding Source:
 Palai Stream

On-line readers can view LOMC [here](#)

Type: LOMA
 FIRM Panel 0890C
 Revision Date: May 2, 2013
 FEMA Case Number: 13-09-1705A
 Flooding Source:
 Palai Stream

On-line readers can view LOMC [here](#)

New Preliminary Digital Flood Insurance Rate Maps for Honolulu



Preliminary FEMA Map Products

Download Preliminary data sets for review and purchase products only. By viewing preliminary data and maps, the user acknowledges that the information provided is preliminary and subject to change. Preliminary data, including new or revised FIRMs, FIS reports, and FIRM Corrections, are not final and are provided on the basis of the best information available at the time. Additionally, preliminary data cannot be used to file flood insurance policies or enforce the Federal mandatory purchase requirement. FEMA will continue to update this information as it becomes available.

For more information on what these three types of data entail, visit FEMA's [Preliminary Flood Hazard Data website](#).

State: Hawaii County: Honolulu County

• Preliminary Products Issued on 06/21/2013 for Honolulu County, Hawaii

FIRM#	Panel Name	Product Type	Revision Date	Area	Scale
130903040H	FLOOD INSURANCE RATE MAP #FIRM	06/29/2013	22,294	1:25,000	
130903024H	FLOOD INSURANCE RATE MAP #FIRM	06/29/2013	26,799	1:25,000	
130903032H	FLOOD INSURANCE RATE MAP #FIRM	06/29/2013	16,893	1:25,000	
130903028H	FLOOD INSURANCE RATE MAP #FIRM	06/29/2013	16,893	1:25,000	
130903072J	FLOOD INSURANCE RATE MAP #FIRM	06/29/2013	899	1:25,000	
130903069H	FLOOD INSURANCE RATE MAP #FIRM	06/29/2013	12,899	1:25,000	
130903039H	FLOOD INSURANCE RATE MAP #FIRM	06/29/2013	12,899	1:25,000	
130903035H	FLOOD INSURANCE RATE MAP #FIRM	06/29/2013	439	1:25,000	
130903032H	FLOOD INSURANCE RATE MAP #FIRM	06/29/2013	439	1:25,000	
130903067H	FLOOD INSURANCE RATE MAP #FIRM	06/29/2013	16,893	1:25,000	
130903068H	FLOOD INSURANCE RATE MAP #FIRM	06/29/2013	16,893	1:25,000	
130903069H	FLOOD INSURANCE RATE MAP #FIRM	06/29/2013	20,893	1:25,000	
130903060H	FLOOD INSURANCE RATE MAP #FIRM	06/29/2013	6,893	1:25,000	

FIS Reports

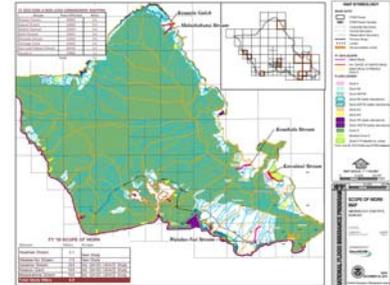
Panel ID	Panel Name	Product Type	Revision Date	Area	Scale
130903090C	FLOOD INSURANCE STUDY #FIS	06/29/2013	6,899	1:25,000	
130903090C	FLOOD INSURANCE STUDY #FIS	06/29/2013	2,899	1:25,000	
130903090C	FLOOD INSURANCE STUDY #FIS	06/29/2013	389	1:25,000	
130903090C	FLOOD INSURANCE STUDY #FIS	06/29/2013	14,893	1:25,000	

FIRM Database

Panel ID	Panel Name	Product Type	Revision Date	Area	Scale
130903060H	FIRM Database	06/29/2013	439	1:25,000	

Search More Preliminary Products

FEMA's Mapping Contractor, BakerAECOM completed Physical Map Revisions (PMR) for the City and County of Honolulu that will affect 12 FIRM panels. These map revisions are in response to the City's request to modify Base Flood Elevations (BFEs) and update the Special Flood Hazard Areas (SFHAs) of: Keaahala Stream, Waialae-nui Stream, Kawainui Marsh, Keaaulu Gulch, Malaekahana Stream, Waialele Stream, Kaupuni Stream, Mailiili Channel, Maili Channel, Waimalu Stream, Oneawa Channel, JCIP Drainage Canal, Halawa Stream, and Waimanalo Stream A.



The preliminary Digital Flood Insurance Rate Maps (DFIRMs) for panels 0045H, 0183H, 0192J, 0243H, 0270J, 0290H, 0316H, 0331H, 0332H, 0367H, 0369H, 0380H and updated Flood Insurance Study (FIS) were issued on June 21, 2013.

View maps and FIS at <http://hazards.fema.gov/femaportal/prelimdownload/> or on the Hawaii Flood Hazard Assessment Tool (<http://gis.hawaiiinfip.org/fhat/>). On-line readers: A video tutorial on how to view the preliminary DFIRM on the Hawaii Flood Hazard Assessment Tool can be viewed [here](#).

Now, let's spend a minute on elevation of equipment. Have you ever permitted equipment to be lower than the lowest floor, but still compliant? This scenario might occur if the owner/builder elects to raise the home higher than required, but then installs the equipment at the minimum required elevation, the BFE. If the heat pump is flooded but the house isn't, re-occupancy might be delayed or at least not as comfortable if flooding occurs in the dead of winter or middle of one of our record-hot summers. It only makes sense to match the equipment elevation to the lowest floor elevation. **Important reminder!** NFIP flood insurance policies will not be written using the best rates if heat pumps and other utilities and equipment are lower than the lowest floor, even if the lowest floor is several feet above the BFE. See my columns in the 2012 September and November editions of *The Insider* for more on "minus-rated" policies.

NFIP Regulations: 44 CFR § 60.3(a)(3) Review all permit applications to determine whether proposed building sites will be reasonably safe from flooding. If a proposed building site is in a flood-prone area, all new construction and substantial improvements shall (i) be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, (ii) be constructed with materials resistant to flood damage, (iii) be constructed by methods and practices that minimize flood damages, and (iv) be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding. [underlining added for emphasis]

International Residential Code: R322.1.6 Protection of mechanical and electrical systems.

Electrical systems, equipment and components; heating, ventilating, air conditioning; plumbing appliances and plumbing fixtures; duct systems; and other service equipment shall be located at or above the elevation required in Section R322.2 (flood hazard areas including A Zones) or R322.3 (coastal high-hazard areas including V Zones). If replaced as part of a substantial improvement, electrical systems, equipment and components; heating, ventilation, air conditioning and plumbing appliances and plumbing fixtures; duct systems; and other service equipment shall meet the requirements of this section. Systems, fixtures, and equipment and components shall not be mounted on or penetrate through walls intended to break away under flood loads.

Exception: Locating electrical systems, equipment and components; heating, ventilating, air conditioning; plumbing appliances and plumbing fixtures; duct systems; and other service equipment is permitted below the elevation required in Section R322.2 (flood hazard areas including A Zones) or R322.3 (coastal high-hazard areas including V Zones) provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation in accordance with ASCE 24. Electrical wiring systems are permitted to be located below the required elevation provided they conform to the provisions of the electrical part of this code for wet locations. [underlining added for emphasis]

Dept of Land & Natural Resources



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Make Hawaii a Great Place to Live !!

Hurricane Season ... (Continued from Page 1)

the basis for the hurricane center's track and intensity forecasts that extend out five days. The seasonal hurricane outlook is produced in collaboration with NOAA's Climate Prediction Center – a division of the National Weather Service.

NOAA's National Weather Service is the primary source of weather data, forecasts and warnings for the United States and its territories. NOAA's National Weather Service operates the most advanced weather and flood warning and forecast system in the world, helping to protect lives and property and enhance the national economy. Working with partners, NOAA's National Weather Service is building a Weather-Ready Nation to support community resilience in the face of increasing vulnerability to extreme weather. Visit us online at weather.gov and on Facebook.

Central Pacific Hurricane Center:

<http://www.weather.gov/cphc>

On Facebook, [http://www.facebook.com/](http://www.facebook.com/US.NationalWeatherService.Honolulu.gov)

US.NationalWeatherService.Honolulu.gov

Enhanced GIS Services for MSC and MIP

FEMA Risk MAP has successfully deployed **NEW Geographic Information System (GIS) services** for the FEMA Map Service Center (MSC) and the FEMA Mapping Information Platform (MIP). These updates and enhancements bring additional capabilities and greater ease-of-use for all users of these systems. Enhancements include:

- * Easier use of the [Map Product Search](#), now incorporating a familiar Bing™ Map interface and more flexible search bar
- * Replacement of the outdated MapViewer-Web (e-z Print and e-z Identify) with an updated National Flood Hazard Layer (NFHL) service for viewing in [Google Earth](#) and display in the [FEMA GeoPlatform](#)
- * Improvement in the usability of the NFHL WMS service and its implementation in *Google Earth*
- * Updating of the NFHL to the [2012 FIRM Database schema](#)

Plus, these improvements make additional services available to the public for the first time, including access to the [National Flood Hazard Layer \(NFHL\) through REST and WFS services](#).

For additional information please contact: outreach@riskmapcds.com.