

NWS Guam

Fire Watches/Warnings

Red Flag Weather Conditions: A combination of on-going dry weather (often drought-related), with stronger winds, and low humidities, that, when coupled with dry fuels (browning shrubbery, swordgrass, dead trees), could lead to dangerous, fast-spreading wildfires that are difficult to contain and require additional personnel and resources to bring wildfires under control. Wind shifts can make fire fighting more difficult and increase the erratic behavior of wildfires.

Guam Red Flag Criteria:

- 1: 10hr fuel moisture <13. (Often during dry season and monthly precipitation is <2" and dew no longer forms in the morning;
- 2: Winds of 20 mph or higher for more than 1hr;
- 3: Minimum RH <60% for more than an hour;
- 4: KBDI value > 600

Fire Weather Watch

- ◆ Issued when there is a high potential for the development of Red Flag conditions.
- ◆ Often issued 12 to 48 hours before conditions are met.

Red Flag Warning

- ◆ Issued when Red Flag Conditions **ARE OCCURRING** or **IMMINENT**.
- ◆ Usually not issued more than 12hrs in advance.
- ◆ Will remain in effect **ONLY** when conditions are being met

An RFW does not mean fires **WILL** occur, just that those that exist will be difficult to control.

Things you can do to reduce the risk of wildfires

- ◆ Check with your local fire department for burn conditions before starting a fire.
- ◆ When burning outdoors, ensure you have a reliable water supply and hoses to douse flames and to keep the fire from spreading. Hoses should be long enough to reach any area of your home and other structures on your property.
- ◆ Create a buffer around your house by maintaining vegetation to slow or stop the spread of wildfire.
- ◆ Keep your yard and shrubbery trimmed. Remove all dead and drying vegetation and combustible materials that are within 50 feet of your home.
- ◆ Trim trees to keep branches a minimum of 10 feet from structures.
- ◆ Report low-hanging power lines to proper authorities.

Guam Fire Weather Forecast

- ◆ Issued daily from 1 November - 31 May (or later into June or July until wet season rains return)
- ◆ Discusses the weather pattern and outlook of fire weather watches or warnings
- ◆ Includes a tabular forecast of various weather forecast parameters
- ◆ Can be found on our website under "Fire Weather"

Contact Us

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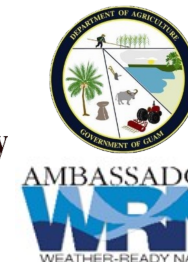
National Oceanic and Atmospheric Administration
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Last Updated: January 2022

WILDFIRES ON GUAM

A Guide to Understanding Guam's Fire Danger



"The tropics get a lot of rain...how can it ever be dry enough to burn?"

Guam's Seasons: **DRY** and **WET**

Dry season:

- ◆ Usually lasts from January - May*
- ◆ Averages ~6" of rain per month
- ◆ March often sees the lowest amount of rain
- ◆ **Trade winds** are stronger
- ◆ Showers are short-lived, low-intensity, and rapidly move off-island due to stronger trade winds. Thus, little accumulation of rainfall.

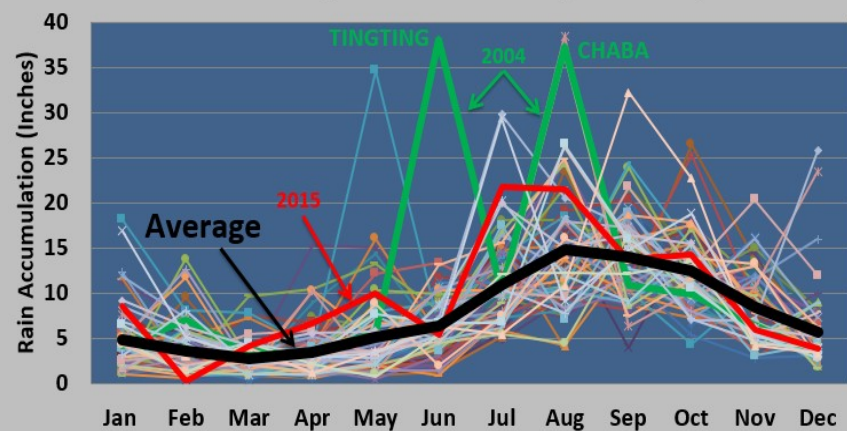
(Less than 4" in a month generally constitutes a drought on Guam)

Wet season:

- ◆ Usually lasts from July - November*
- ◆ Averages ~14-15" of rain per month
- ◆ August/September often see the largest amount of rain
- ◆ Winds are weaker, showers have more vertical development (taller clouds). This results in more intense showers that last longer, thus, a much greater accumulation of rainfall.

(Tropical cyclones greatly increase monthly rain—often measured in feet!!)

Guam Monthly Rainfall Amounts (1948-2015)



*June and December are usually transition months between the two seasons, but depending on the El Nino / La Nina cycle, either month could be much wetter or drier.

The El Nino / La Nina Cycle

- ◆ El Nino increases monsoon activity in the western Pacific, which leads to greatly increased rainfall and a 3x higher chance of tropical cyclones affecting Guam
- ◆ Enhanced rainfall leads to quicker-growing and thicker vegetation around the island
- ◆ Typhoons affecting Guam increase the amount of dead foliage and debris
- ◆ **Dry season** AFTER an El Nino is much drier and lasts longer, often lingering into July or August
- ◆ La Nina following an El Nino brings stronger **trade winds** and fewer clouds and showers to the island
- ◆ Vegetation quickly dries and browns—especially in the central and southern mountains.

(Lack of morning dew and cracking soil (dirt and clay) usually indicate a drought in progress)



Trade Winds *Increase Fire Spread*

- ◆ Trade winds are strongest in the dry season
- ◆ They quicken the drying of wildland fuels (low brush, swordgrass)
- ◆ They increase fire spread by sending heat up slopes (even faster drying) and carrying burning embers to new, unburned fuels—creating spot fires
- ◆ Aid combustion by increasing the supply of oxygen

Guam's Fire Danger Rating

The National Weather Service office of Guam uses the **Keetch-Byrum Drought Index (KBDI)** and forecast winds to assess the daily fire danger rating. The drought index assesses the amount of moisture in the soil by considering the daily maximum temperature and the 24hr rainfall for that day. The KBDI is calculated once a day.

The KBDI ranges from 0 (meaning fully saturated ground) to 800 (extreme drought conditions).

The KBDI value indicates how many ***hundredths of an inch*** of rain is needed to saturate the soil, i.e. a KBDI of 542 means 5.42 inches of rain would be needed to saturate the ground.

KBDI values are divided into 5 categories:

LOW 0-299 KBDI	MODERATE 300-499 KBDI	HIGH 500-800 KBDI <i>Low Wind</i>	VERY HIGH 600-699 KBDI <i>Strong Wind</i>	EXTREME 700-800 KBDI <i>Strong Wind</i>
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"Strong Winds" are sustained winds exceeding 20 mph.

LOW: Fires are hard to start and will be slow to spread.

MODERATE: Some brushfires are possible; use caution if burning.

HIGH: Wildfires are possible. Fires can spread rapidly and could become difficult to control if windy.

VERY HIGH: Fires will start easily, spread rapidly, and intensify quickly.

EXTREME: Fires can spread furiously. Every fire has the potential to become large.

Once the KBDI enters the **HIGH** category, outdoor burning is not recommended. However, even when the fire danger is in a lower category and outdoor burning is permitted, steps should always be taken to reduce the chance of the fire spreading to other flammable objects or, on windy days, burning embers floating downwind and possibly starting additional fires.