# CLIMATE QUICK REFERENCE GUIDE | Hawaii (Statewide)

# **Historic Changes**

### **Temperature:**

From 1950 to 2020, temperatures have risen by about 2°F, with a pronounced increase over the last decade.

## **Rainfall:**

From 1950 to 2020, annual rainfall has decreased throughout the island chain, particularly during the typical wet season in recent years.

### Drought:

Drought duration and magnitude have significantly increased in the last century, with most droughts associated with El Niño events.



1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 **Drought Magnitude and Drought Duration:** Drought Duration = hatched bars, and Drought Magnitude = unhatched bars. Shown in Standardized Precipitation Index for a 12-month period (SPI-12) per decade from 1920 – 2020. **Source:** https://doi.org/10.3390/su141912023

## Sea Level Rise:

Long-term observational data (1950-2020) show sea level is rising, but varies between islands, with 0.6 inches per decade for Kauai, Oahu, and Maui to 1.6 inches per decade for Hawaii island.

# **Top Crop Loss Causes:**

In the last few decades, drought and excess moisture have been the leading causes of crop losses.

Cause of Loss	Indemnity (\$)	Acres Affected
Drought	10,199,995	20,595
Excess Moisture	5,354,597	87,178
Other	1,998,021	21,530

Risk Management Agency indemnity payments for crop loss for the state of Hawaii (1996- 2021). **Source:** https://swclimatehub.info/rma/rma-data-viewer.html

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# Resources:

USDA Climate Resources: www.usda.gov/climate-solutions Pacific Drought Knowledge Exchange: http://www.soest.hawaii.edu/pdke/

# Projected Changes

# **Temperature:**

Future projections suggest an increase in temperature across all islands ranging from 1.6°F to 2.5°F by mid-century.

### **Rainfall:**

The magnitude and direction of projected rainfall changes are highly uncertain, with one projection suggesting annual rainfall may decline by 5 to 15 inches across islands.



Temperature and rainfall projections for mid-century (2040-2070), Representative Concentration Pathway 4.5 (RCP 4.5, moderate greenhouse gas emission scenario), statistical downscaling: Temperature (a.; °F change from present) and Rainfall (b.; % change in inches per year from present). Source:

http://www.soest.hawaii.edu/pdke/products/climate-portfolios/

## Sea Level Rise:

The intermediate sea level rise scenario suggests that levels will rise by about 1 foot by 2050. If sea level rises another 3.2 feet over the 21st century, the state stands to lose over 25,800 acres of coastal and low-lying land to chronic flooding. Visit the <u>Hawaii Sea Level Rise Viewer</u> to explore the vulnerability of a specific region.

#### Hawaii Climate Data Portal:

https://www.hawaii.edu/climate-data-portal/

Fifth National Climate Assessment: Hawaii and U.S. Affiliated Pacific Islands: <u>https://nca2023.globalchange.gov/chapter/30</u>

