Southwest Regional Climate Hub and Climate Change in Hawaii

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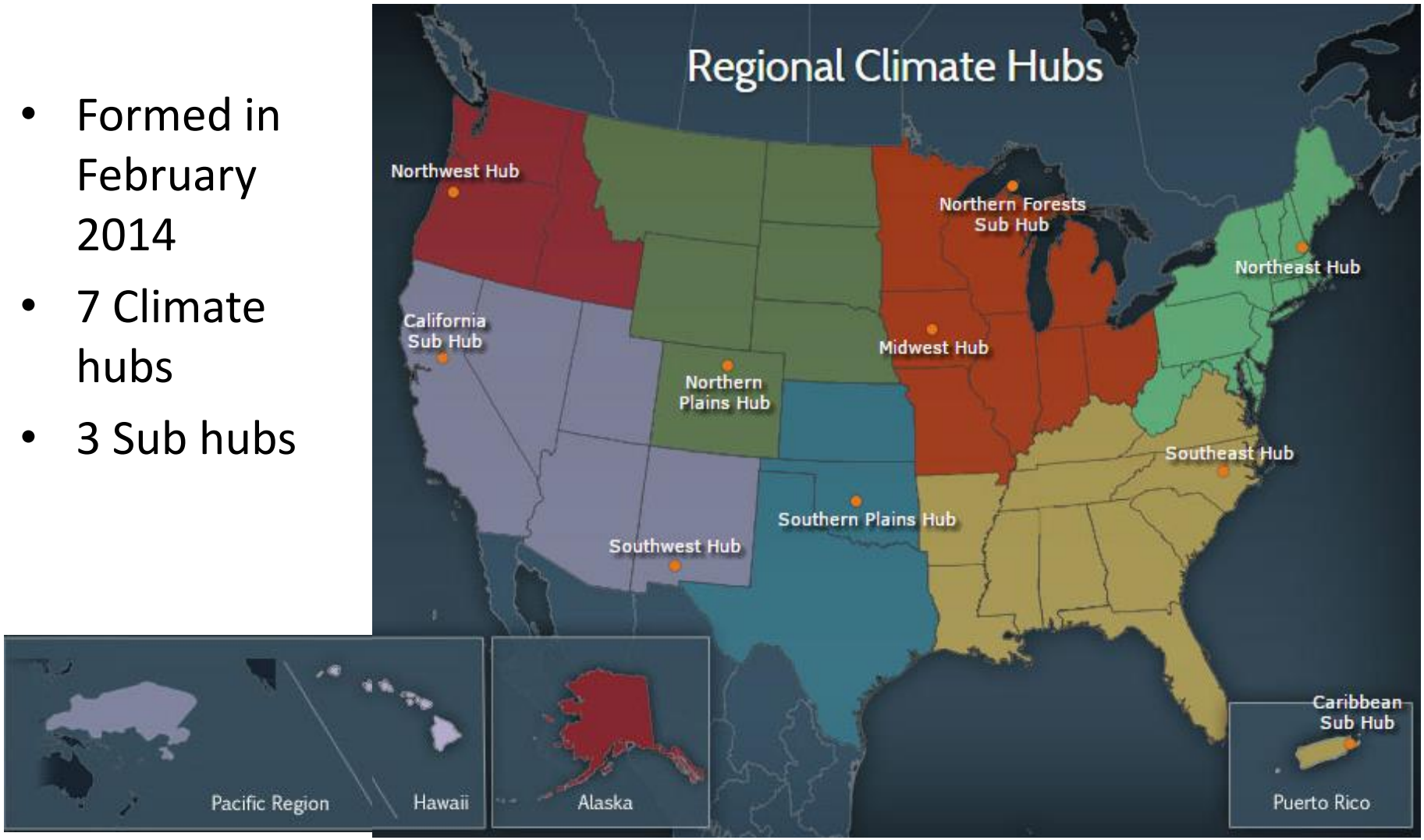
USDA Climate Hubs

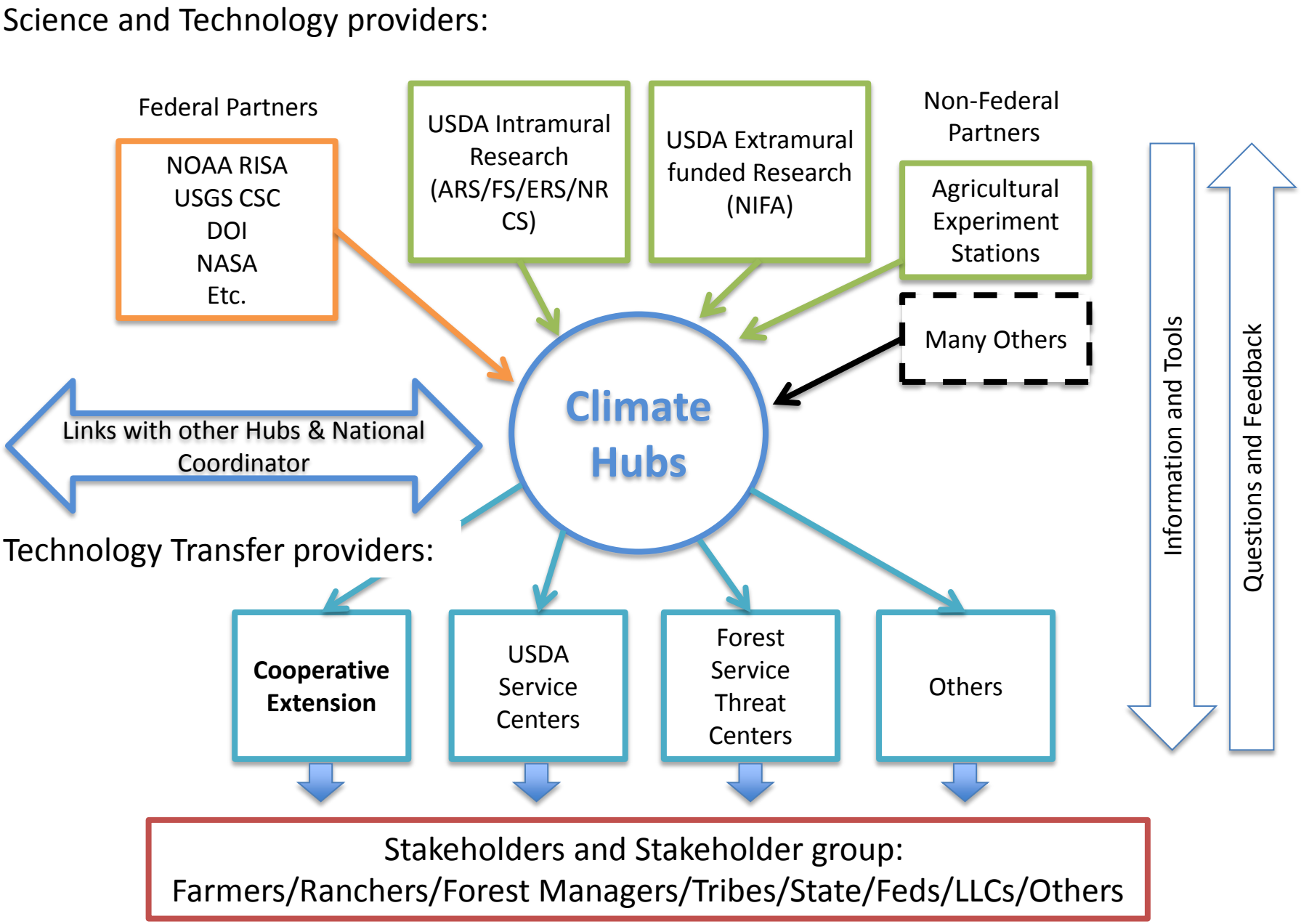
- Formed in February 2014
- 7 Climate hubs
- 3 Sub hubs



USDA Climate Hubs

- Multi-agency effort
  - USDA, ARS, Forest Service, NRCS, NOAA, DOI, Land Grant Universities (Cooperative extension)
- Maintain and Strengthen:
  - Agricultural Production
  - Natural Resource Management
  - Rural Economic Development
- Support Climate-informed Decision Making

Conceptual Framework for USDA Regional Hub



Objectives

- Provide **Science-Based** tech support for land managers
  - Drought, Heat stress, Flooding, Pests, Changes in growing season, Extreme weather
- Regional Assessment and Forecasts
- Education and Outreach
  - Mitigation strategies
  - Adaptation Planning

Southwest Regional Climate Hub

- Covers
  - Arizona
  - California
    - Sub hub
  - Hawaii
  - Nevada
  - New Mexico
  - Utah

USDA United States Department of Agriculture

Pacific Islands Climate Hub

- The Pacific Islands Climate Hub (PICH) was formed in 2014 as a vehicle for convening, sharing information, planning and delivering forums to educate and motivate further action on climate change

- Partners include leadership from Agricultural Research Center (DKY PBARC), Farm Service Agency (FSA), Natural Resources Conservation Service (NRCS), Forest Service (FS), Rural Development (RD), Animal and Plant Health Inspection Service (APHIS) and the College of Tropical Agriculture and Human Resources (CTAHR)

Ric Lopez, FS-IPIF 854-2601 or Diane Ley, FSA at 541-2600

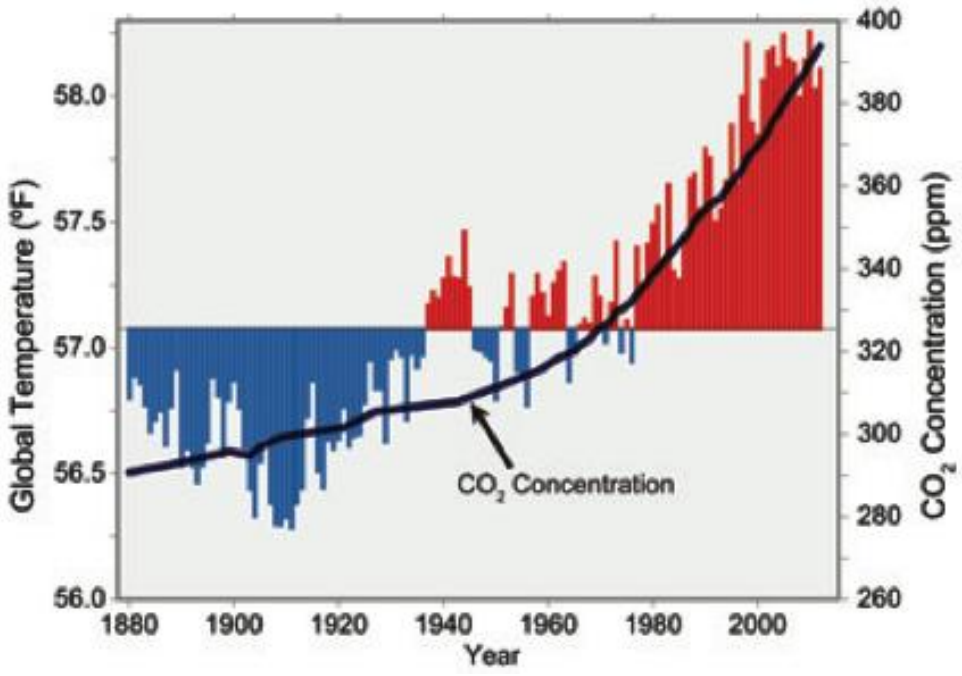
Cooperative Extension

College of Agriculture and Life Sciences
Cooperative Extension

University of Nevada
Cooperative Extension

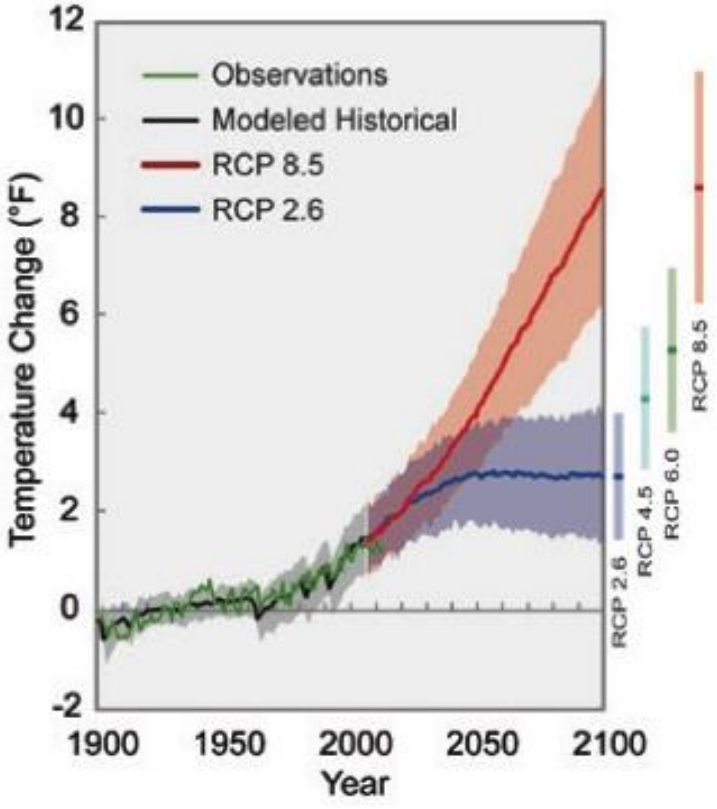
Cooperative Extension Service
College of Tropical Agriculture and Human Resources
University of Hawai'i at Mānoa

Warming trends linked to greenhouse gas emissions



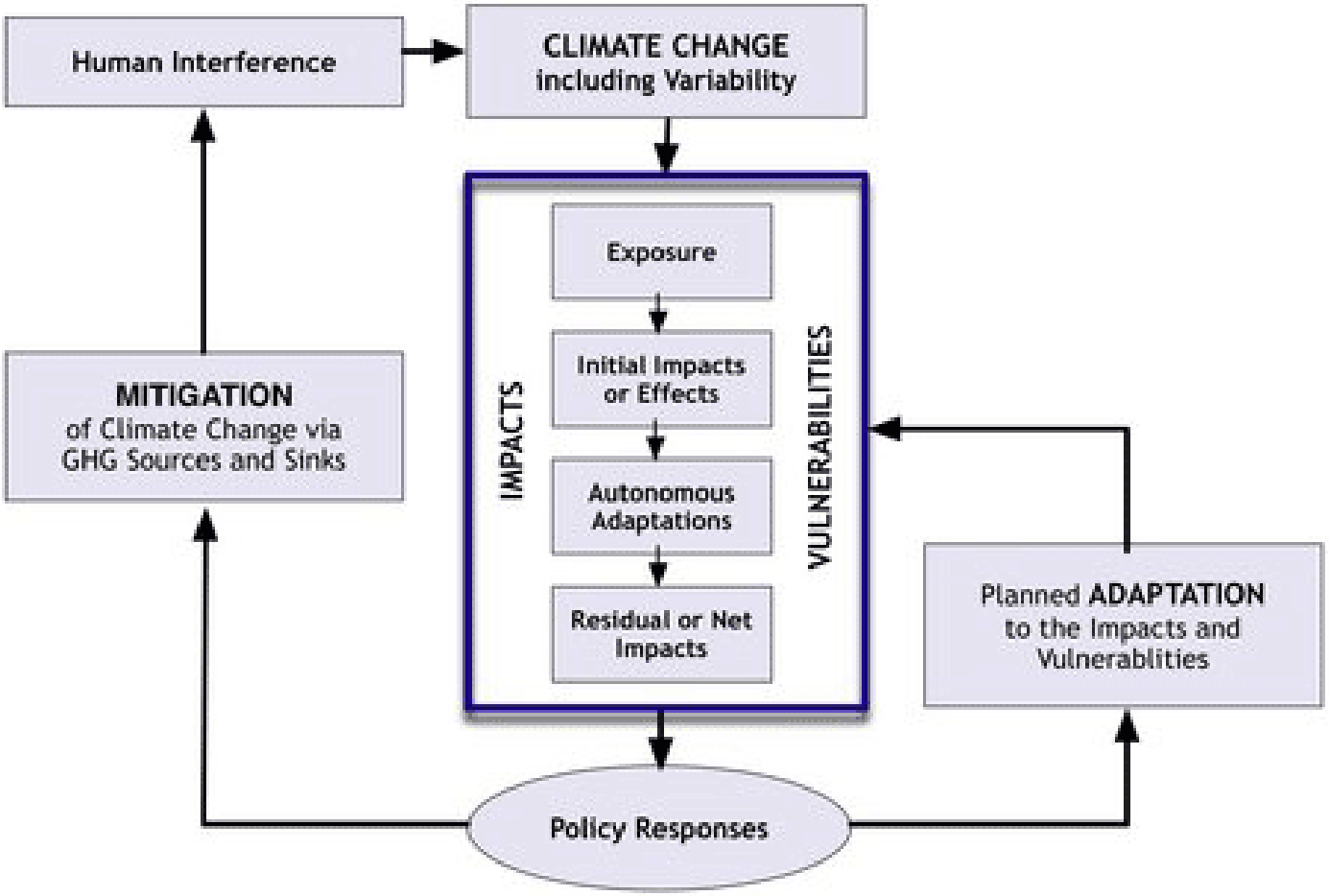
Melillo et al. 2014. National Climate Assessment.

Warming trends linked to greenhouse gas emissions



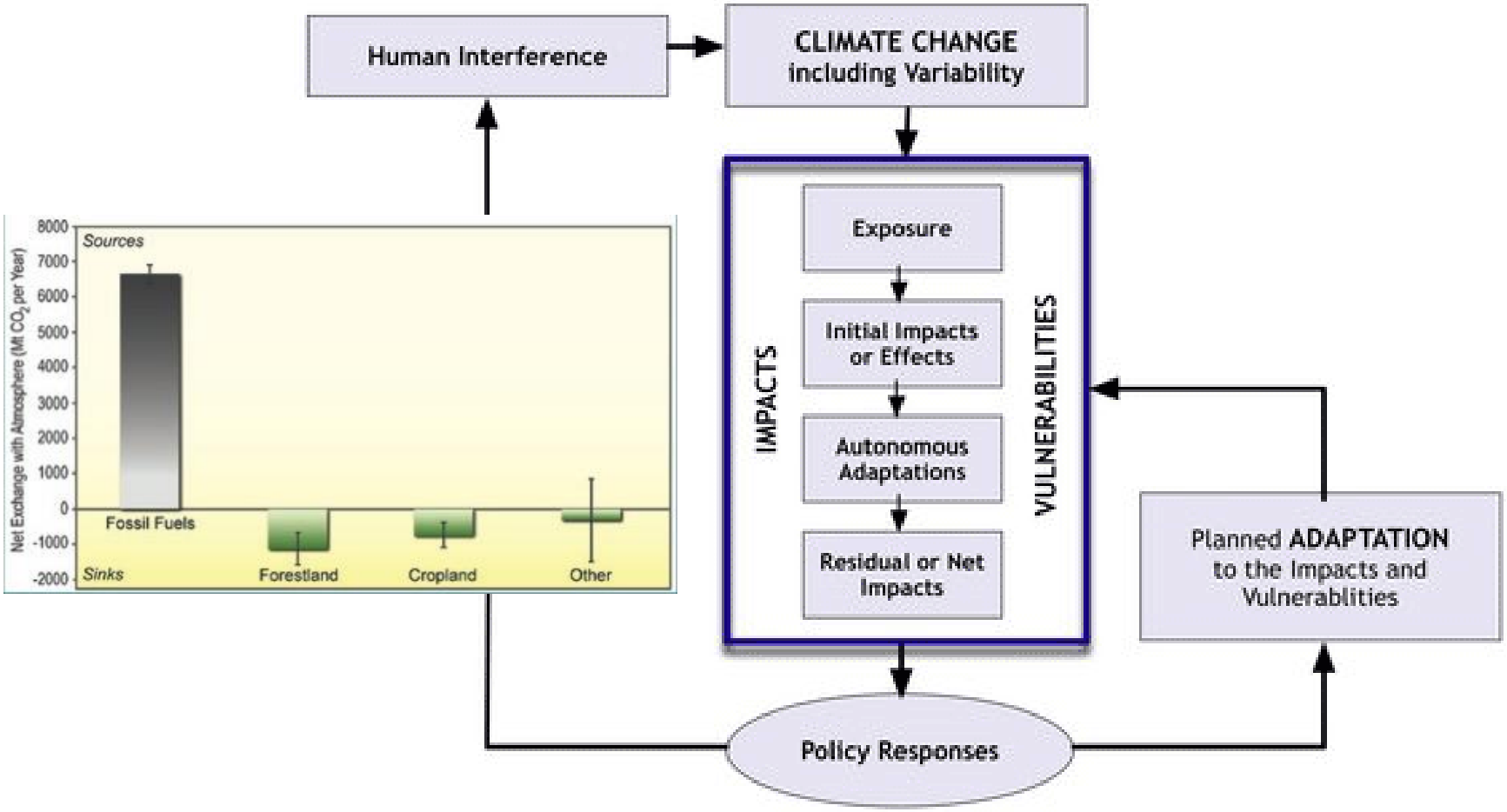
Melillo et al. 2014. National Climate Assessment.

Mitigation and Adaptation



(IPCC TAR 2001 WG2 after Smit *et al.*, 1999)

Mitigation and Adaptation



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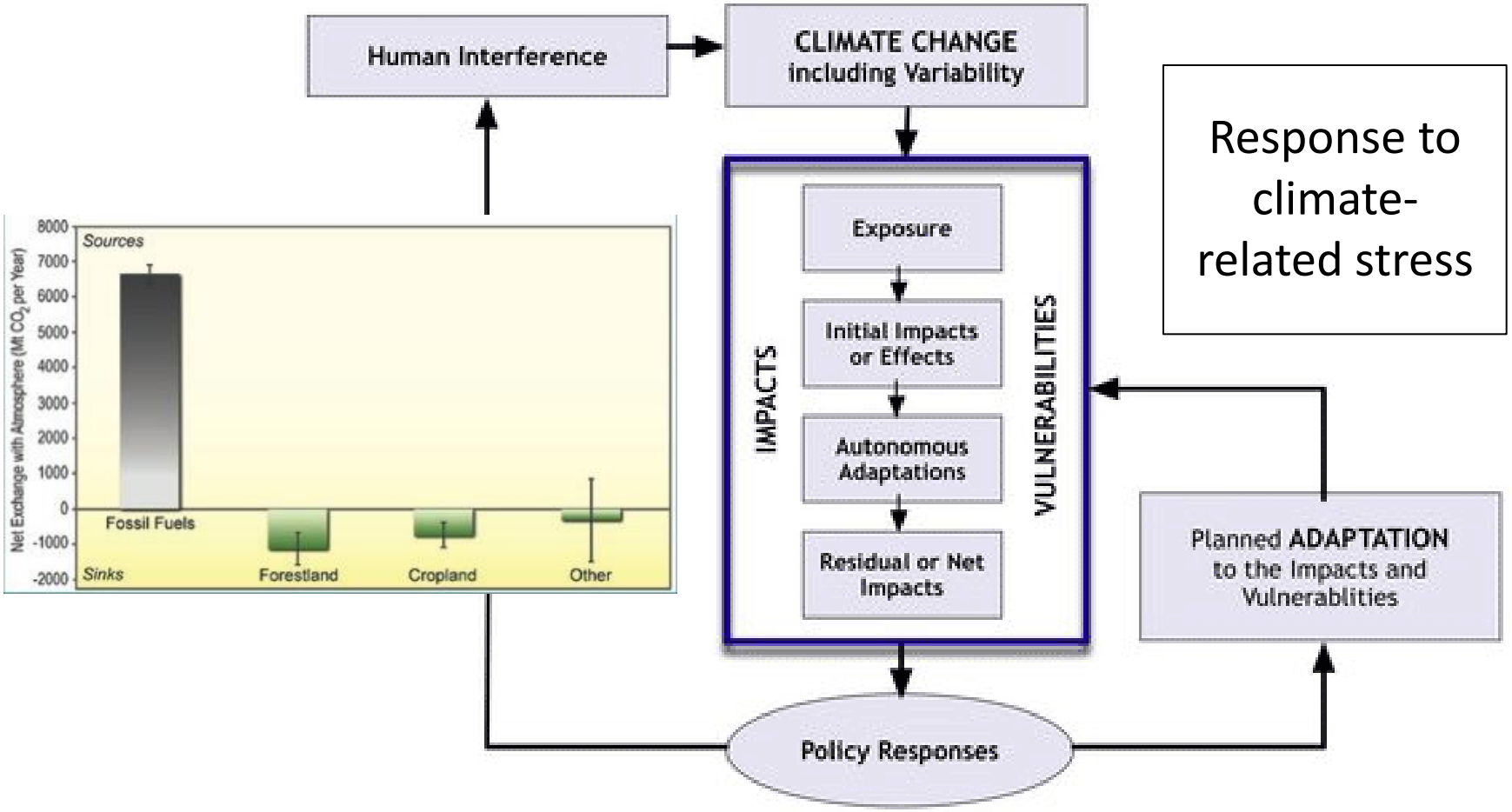
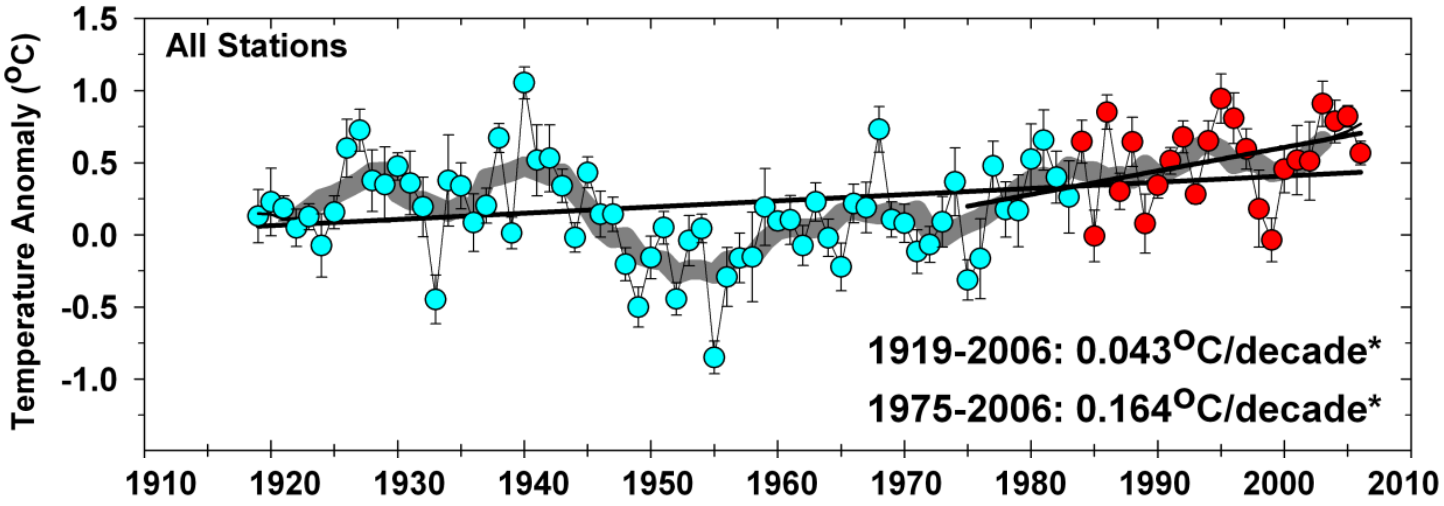
Mitigation and Adaptation

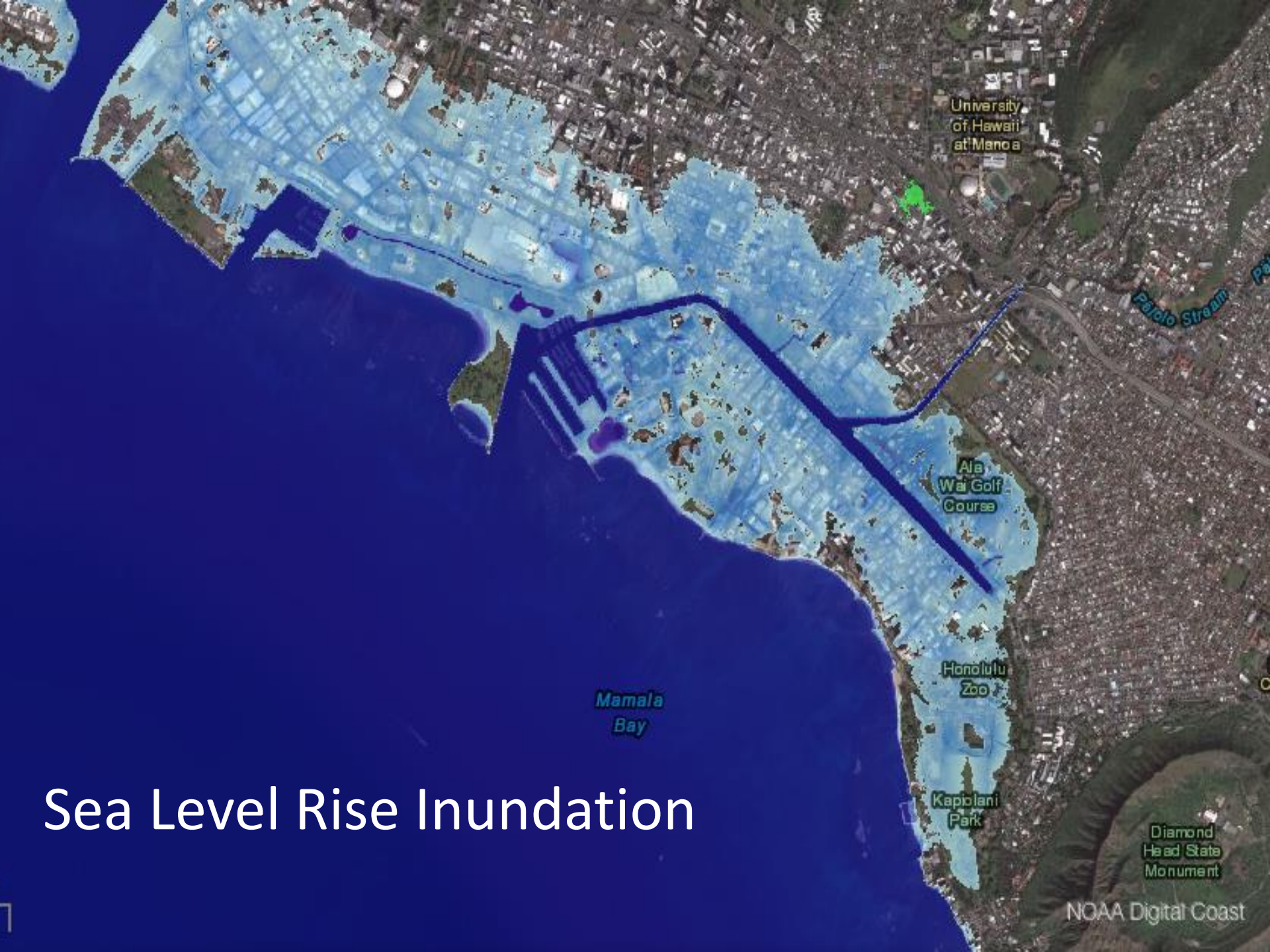


(IPCC TAR 2001 WG2 after Smit *et al.*, 1999)

Hawai‘i Temperature Index



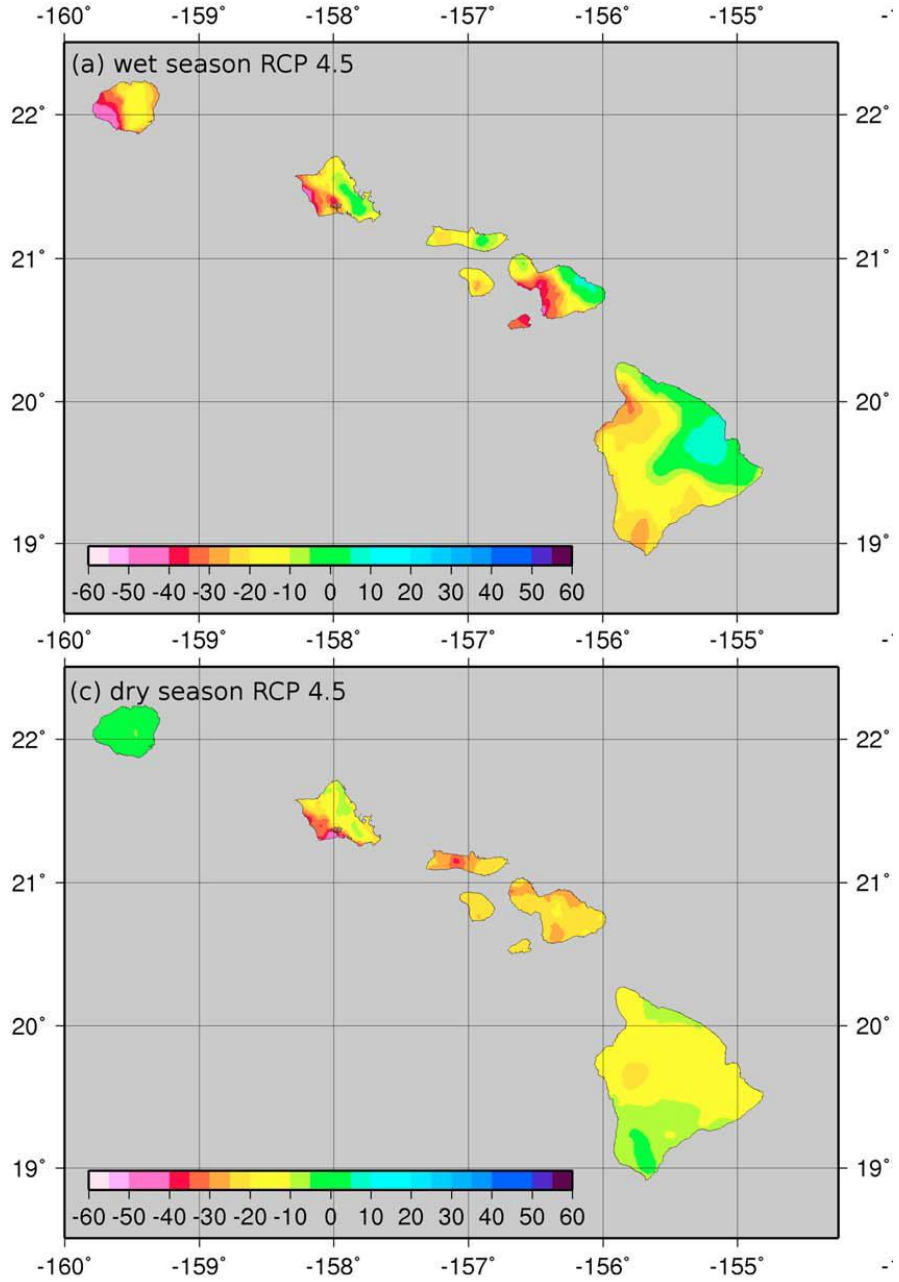
Giambelluca, T.W., *et al.* 2008. *Geophysical Research Letters* 35, L12702



Sea Level Rise Inundation

RAINFALL:

- Declines in dry areas
- Increases in wet areas



Ellison Timm et al. 2015. J. Geophysical Research: Atmospheres 120:92-112

Climate of Hawai'i

Geography Department - University of Hawai'i at Mānoa

Graphs | Tables

Air Temperature by Month

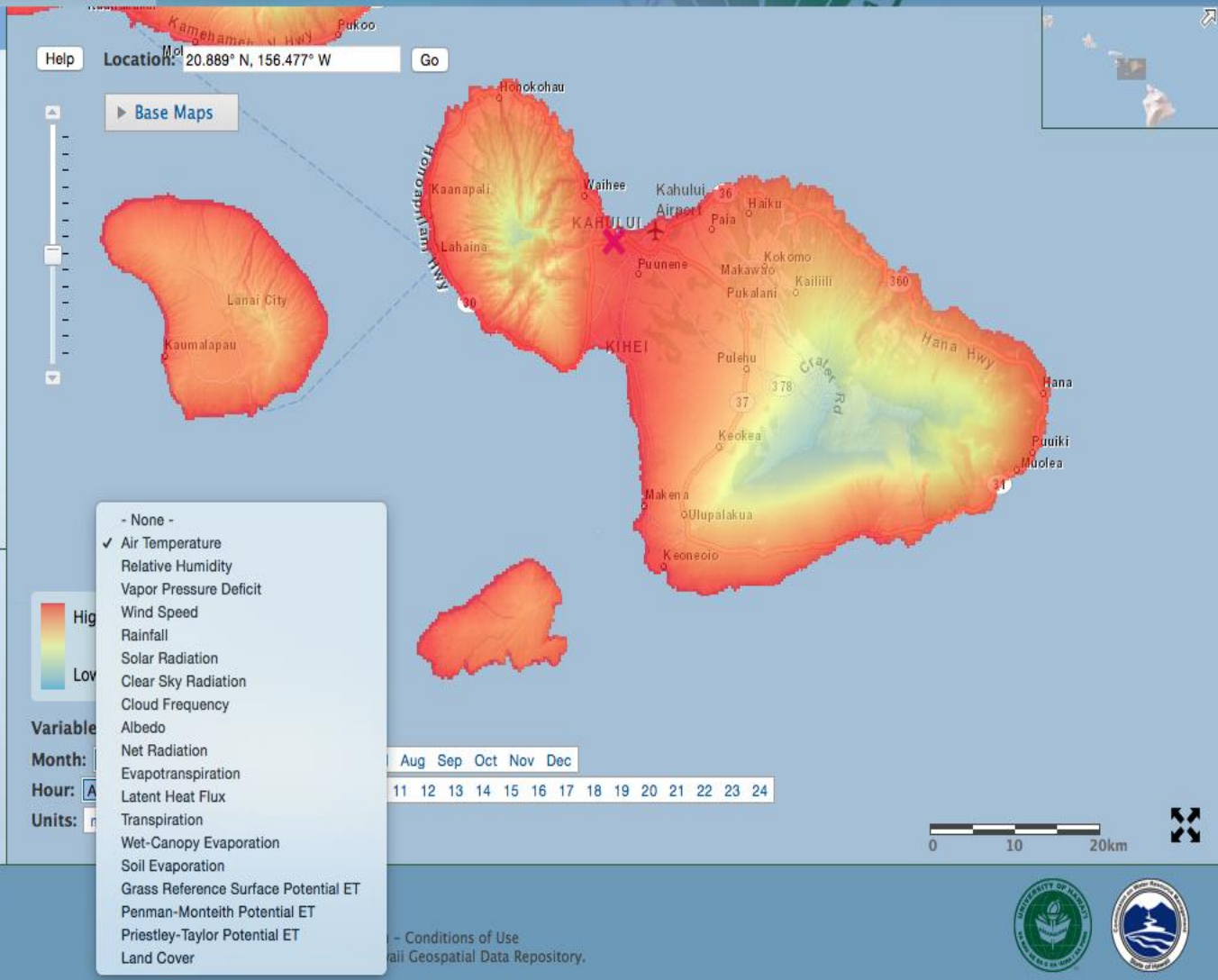
20.889° N, 156.477° W

	Air Temperature
January	71.05 °F
February	71.05 °F
March	71.81 °F
April	73.23 °F
May	74.93 °F
June	76.76 °F
July	77.65 °F
August	78.34 °F
September	77.80 °F
October	77.36 °F
November	74.76 °F
December	72.27 °F

Annual Air Temperature by Hour

20.889° N, 156.477° W

	Air Temperature
01:00	71.05 °F
02:00	70.94 °F
03:00	70.87 °F
04:00	70.81 °F
05:00	70.78 °F
06:00	70.91 °F



Hawaii Drought Monitor

Commission on Water Resource Management

Ke Kahuwai Pono

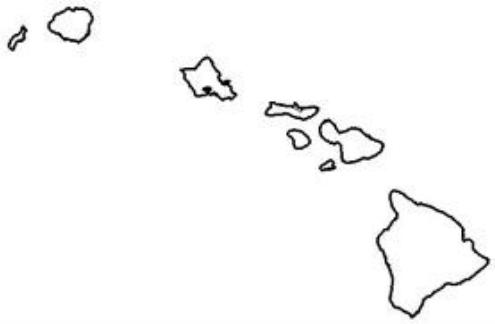
"The trustee who oversees the rightful sharing of water."

Click here

Current Conditions in Hawaii

U.S. Drought Monitor

Hawaii



October 6, 2015

(Released Thursday, Oct. 8, 2015)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	100.00	0.00	0.00	0.00	0.00	0.00
Last Week 9/29/2015	96.75	3.25	0.00	0.00	0.00	0.00
3 Months Ago 7/7/2015	32.60	67.40	24.23	1.33	0.00	0.00
Start of Calendar Year 12/30/2014	67.97	32.03	2.76	0.00	0.00	0.00
Start of Water Year 9/29/2015	96.75	3.25	0.00	0.00	0.00	0.00
One Year Ago 10/7/2014	44.08	55.92	2.68	0.00	0.00	0.00

Intensity:

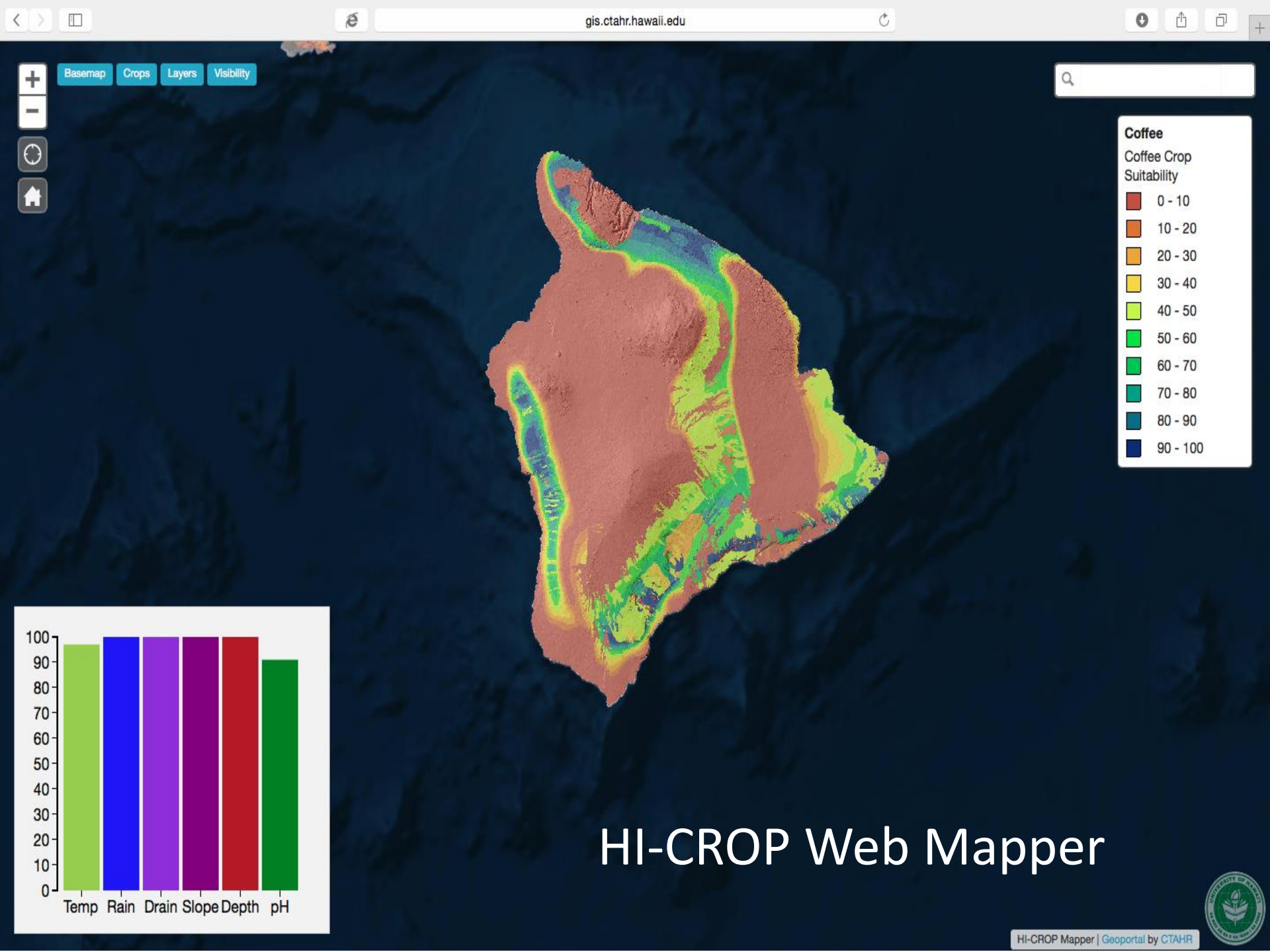
D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought
D3 Extreme Drought
D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
David Miskus
NOAA/NWS/NCEP/CPC

Quick Links

- NWS Drought Information Statement
- What are the drought conditions in Hawaii?
- How is the drought affecting me?
- How can I get help?
- USGS WaterWatch
- Current Hydrologic Conditions
- USDA Hawaii Weekly Crop Weather Report (Downloadable pdf)


gis.ctahr.hawaii.edu
Basemap
Crops
Layers
Visibility
Coffee
Coffee Crop Suitability
0 - 10
10 - 20
20 - 30
30 - 40
40 - 50
50 - 60
60 - 70
70 - 80
80 - 90
90 - 100
100
90
80
70
60
50
40
30
20
10
0
Temp
Rain
Drain
Slope
Depth
pH
HI-CROP Web Mapper
HI-CROP Mapper | Geoportal by CTAHR

Lahaina Series (0-3% Slope)

Descriptions | **Fertility Data**

Loca.. | Clim.. | Wate.. | Fert.. | Phos.. | Acid.. | Stru.. | Taxo..

Location:
This red soil once used for pineapple and sugarcane production covers extensive areas on the intermediate uplands of West Maui, Moloka'i, Lana'i, and O'ahu. It is primarily used for farming and pasture, with some areas converted to residential on O'ahu.

Water:
Moderate water holding capacity. Moderate permeability. Susceptible to erosion and runoff on steeper slopes. Dry conditions require irrigation.

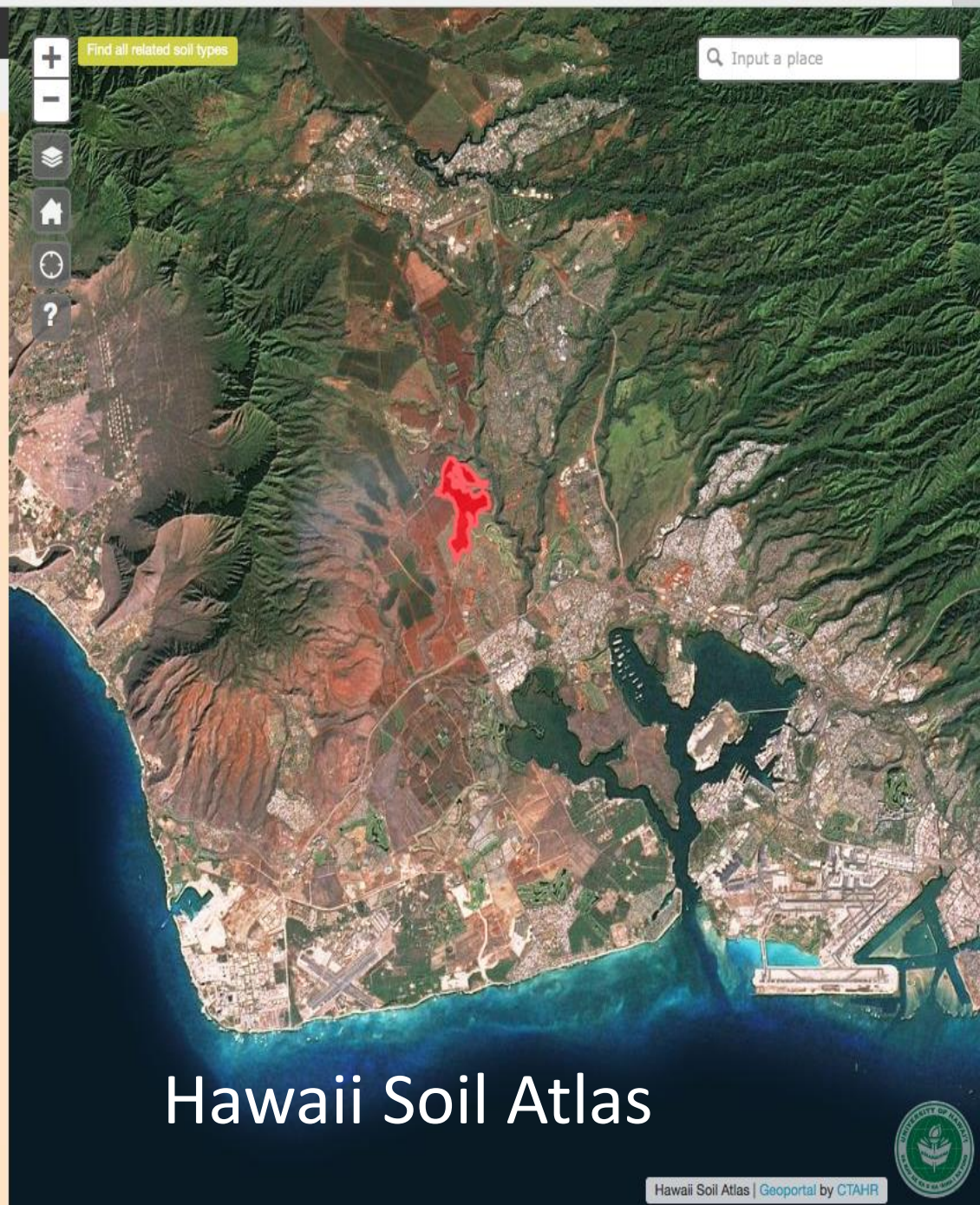
Structure:
Moderate physical structure that provides good soil tilth and stable conditions for engineering and cultivation. Unsuitable for engineering and cultivation on steeper slopes.

Climate:
Mean annual rainfall is 31 inches (mean January = 4.5 inches, mean July = 1.3 inches). Mean annual temperature is 72°F (mean January = 69.0°F, mean July = 74.8°F).

Acidity:
Strongly acidic to slightly acidic (pH = 5.1 - 6.0). Manganese and aluminum toxicity are common if pH drops below 5.5. May require liming when intensively farmed. Acidity expected to increase if have history of plantation agriculture (i.e. sugarcane, pineapple).

Phosphorous:
Moderate phosphorus reactivity. "Fixes" some phosphorus, making some added phosphorus initially unavailable to plants. Requires moderate phosphorus additions to compensate.

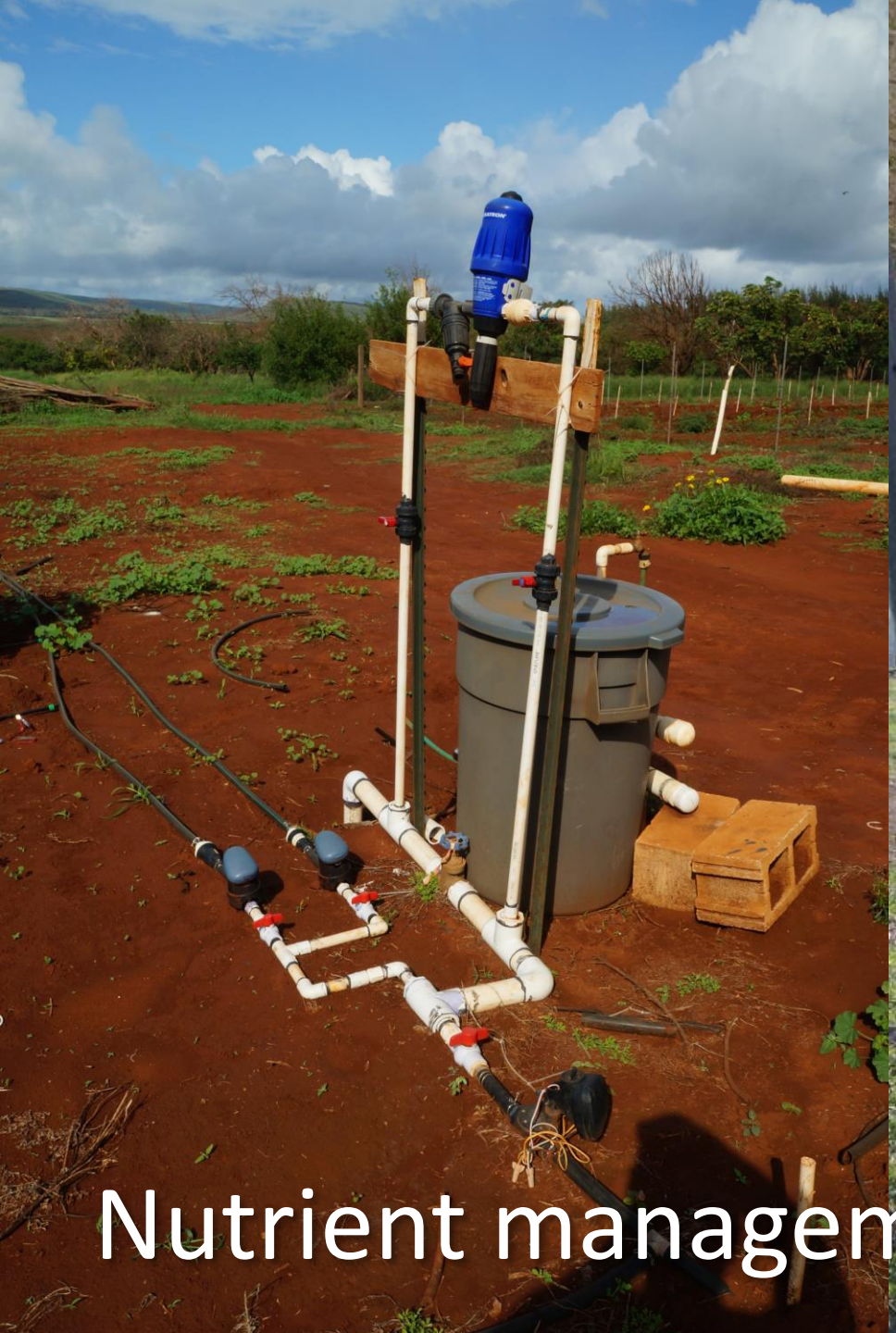
Fertility:
Naturally infertile (Fertility Class= Infertile). Low nutrient holding capacity. Moderately supplied in calcium, magnesium, and potassium. With proper nutrient amendment, it can be productive.



Mitigating forest loss and land cover change

Soil Health Management


Cover Cropping/No Till Systems



Nutrient management

Local Import Replacements

Crop Chemicals


Irrigation Management

Varietal Selection

Alternative Agricultural Systems


HOW WOULD THESE CHANGES POTENTIALLY IMPACT YOUR CLIENTS?


WHAT ARE YOU DOING THAT IS
CLIMATE CHANGE-RELATED?

WHAT KIND OF INFO WOULD YOU NEED AS AN EDUCATOR TO COMMUNICATE TO YOUR CLIENTS?

WOULD YOU (OR YOUR CLIENTELE) BE INTERESTED IN THIS INFORMATION?