

ATMO 102 Pacific Climates and Cultures

Lecture 1: Course Introduction and Fun Info

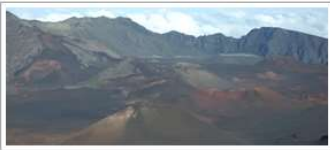
Course Information

- **Instructor: Associate Professor Jennifer Griswold**
 - Email: smalljen@hawaii.edu
 - Phone: 808-956-3636 (office), 831-239-6529 (cell for emergencies)
- **Class Website:** http://jenniferdsmallphd.com/ATMO_102.html
- **Syllabus:** On Class Website!
- **Lecture Notes:** On Class Website
- **Readings:** ALL PDFs On Class Website! NO BOOK REQUIRED!
- **Assignments and Final Project:** All posted on Class Website!

ATMO 102: Pacific Climates & Cultures

[Home](#) [Readings](#) [Lectures](#) [Assignments](#) [Final Project](#)

Welcome to ATMO 102: Pacific Climates and Cultures!



This is one of the Department of Atmospheric Sciences newest courses at the University of Hawaii at Manoa.

This course is designed to give you an overview of the interface between the observed Weather and Climate of the Pacific Island region and the past and future the culture of the people of the Pacific Islands. You will learn about the Earth's atmosphere, temperature, precipitation, winds, storm systems, hurricanes, tornadoes, air pollution, weather and agriculture, rainbows, and climate change. As we learn about each weather or climate topic we will view these natural phenomena through the cultural lenses of the native peoples of the Pacific region through the historical writings and poetry, music, dance and films of Native Hawaiian and Indigenous Pacific Islanders.

Important Links and Downloadable Documents

[Download the course Syllabus](#)

Make sure to have a copy of the syllabus at all times!

[Final Project](#)

The final project instructions will be posted soon.



ANNOUNCEMENTS

Upcoming Assignments

As the course progresses I'll post a note here when an assignment related to your semester project is about to be due and you can click on the link below to visit the "Assignments" page for more information.

[View Details](#)

Final Project

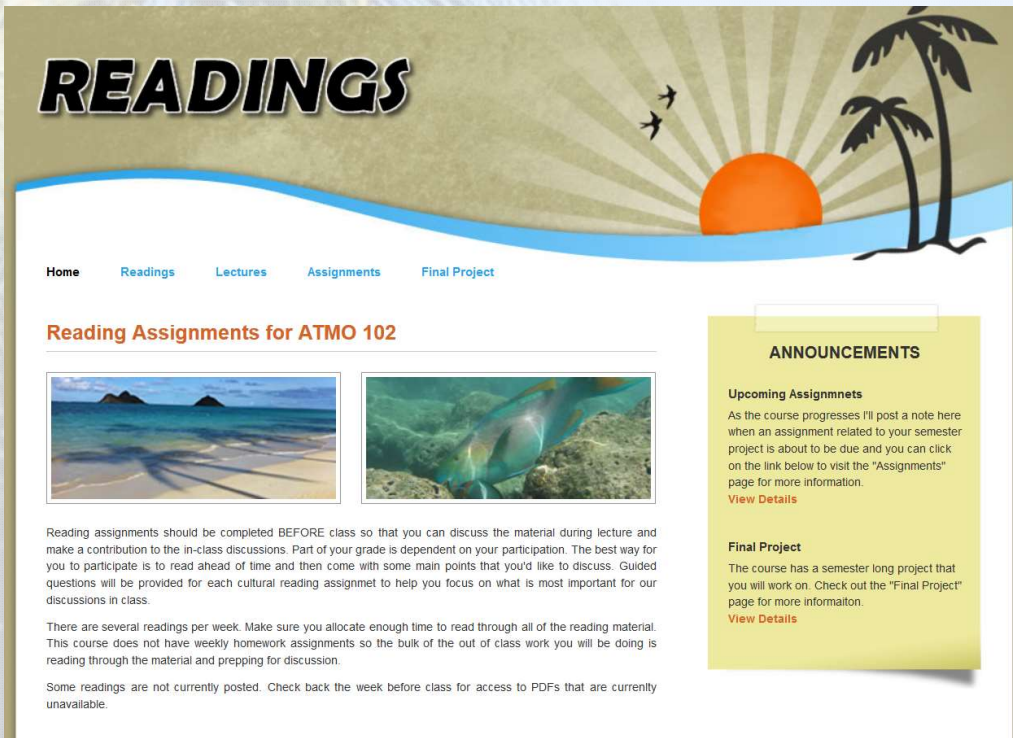
The course has a semester long project that you will work on. Check out the "Final Project" page for more information.

[View Details](#)

Course Website

- Your **MOST** important Resource
- All announcements, updates, study guides, changes to reading assignments will be found on the website.
- There are separate **tabs** for different parts:
 - Readings
 - Lectures
 - Assignments
 - Final Project



Reading Assignments



READINGS

Home Readings Lectures Assignments Final Project

Reading Assignments for ATMO 102



Reading assignments should be completed BEFORE class so that you can discuss the material during lecture and make a contribution to the in-class discussions. Part of your grade is dependent on your participation. The best way for you to participate is to read ahead of time and then come with some main points that you'd like to discuss. Guided questions will be provided for each cultural reading assignment to help you focus on what is most important for our discussions in class.

There are several readings per week. Make sure you allocate enough time to read through all of the reading material. This course does not have weekly homework assignments so the bulk of the out of class work you will be doing is reading through the material and prepping for discussion.

Some readings are not currently posted. Check back the week before class for access to PDFs that are currently unavailable.

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- Readings are assigned for each Class from both a **“Weather”** and **“Culture”** perspective:
 - Some are long
 - Some are short
 - **Read them BEFORE Class**
- **All are in PDF format**
 - <https://get.adobe.com/reader/>

Lectures

- Lectures will be posted online in PPTX and PDF format.
 - I cannot guarantee they will be up prior to class.
 - They may be updated at any time.
- **They are NOT a replacement for attending class**



LECTURES

Home Readings Lectures Assignments Final Project

Lectures for ATMO 102



Lectures are posted to help you study for the midterm and final exams. As you will notice, only a few of the lectures are posted thus far. The lectures will be posted either before or after lecture. Dr. Griswold does not guarantee that all the lectures will be available before class. Sometimes it takes longer to prepare and they are not ready until right before class.

IMPORTANT: Reading through the lectures is NOT the same as ATTENDING CLASS! You MUST attend class to hear the explanation for the slides and the discussion with the students in the class! If you do not attend class you will miss CRITICAL information that will NOT be included on the slides.

Lectures by Class

Date	Topic	Lecture Notes (PPTX)	Lecture Notes (PDF)
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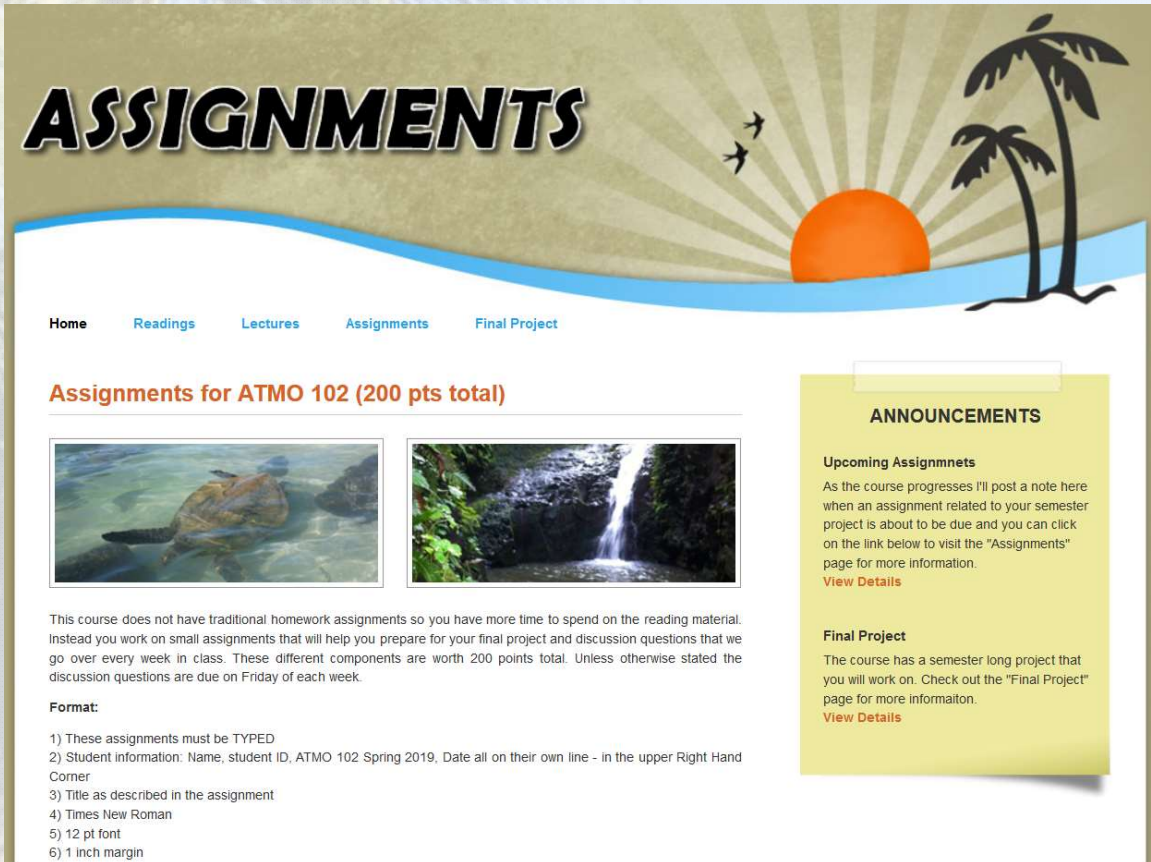
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Assignments



- You will be researching a particular Country/Island in the Pacific throughout the semester.
- **15 Sets of Discussion Questions**
 - Questions on the readings for each week.
 - Will need to turn in typed in answers.
- **Four Assignments**
 - Geography and Climate
 - Population and Economy
 - Agriculture and Tourism
 - Severe Weather and Risks
- Will become part of your final project.



ASSIGNMENTS

Home Readings Lectures Assignments Final Project

Assignments for ATMO 102 (200 pts total)



This course does not have traditional homework assignments so you have more time to spend on the reading material. Instead you work on small assignments that will help you prepare for your final project and discussion questions that we go over every week in class. These different components are worth 200 points total. Unless otherwise stated the discussion questions are due on Friday of each week.

Format:

- 1) These assignments must be TYPED
- 2) Student information: Name, student ID, ATMO 102 Spring 2019, Date all on their own line - in the upper Right Hand Corner
- 3) Title as described in the assignment
- 4) Times New Roman
- 5) 12 pt font
- 6) 1 inch margin

ANNOUNCEMENTS

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FINAL PROJECT



[Home](#) [Readings](#) [Lectures](#) [Assignments](#) [Final Project](#)

Guidelines and Expectations for ATMO 102 Final Project



For ATMO 102 you will be handing in a final project that is worth 150 points. Each student will be assigned a country that is covered under our discussion of "Hawaiian, Asian, and Pacific" cultures. For your final project you will be writing a 10 page report on your country and how some aspect (music, art, dance, etc) as has been affected by the weather it experiences and it's overall climate.

Throughout the semester you will complete four (4) homework assignments that will provide that background information for country about it's location, geography, typical weather, economic stability, population, agriculture, tourism and what types of extreme weather and risks your country may face.

The final project will combine the work compiled in the first four assignments with an integrated analysis of the "intersection" of culture of your country and it's climate (and weather).

The full project description will be posted shortly after the beginning of the semester. Check back for announcements.

Physical, Political, and Economic Aspects you will Write About

- Geography and Climate Type Identification
- Population and Economy
- Detailed Climate Characteristics
- Severe Weather and Risks

Intersection of Culture and Climate: Cultural Aspects

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Final Project

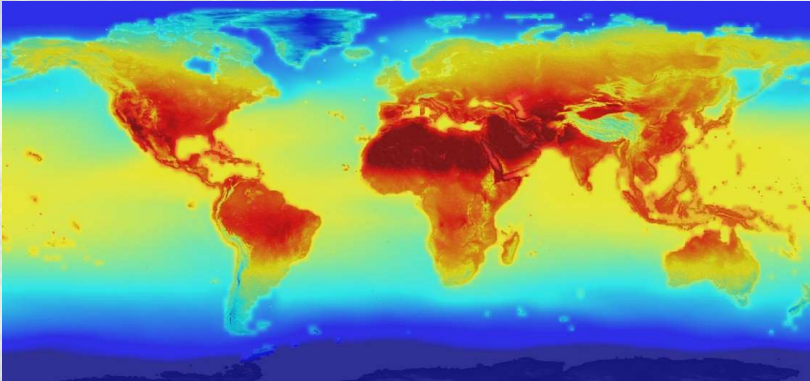
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Final Project

- You will be researching a particular Country/Island in the Pacific throughout the semester.
- **Four Assignments**
 - Geography and Climate
 - Population and Economy
 - Agriculture and Tourism
 - Severe Weather and Risks
- You will then combine information from these 4 assignment with other information that you choose to research related to your country

Mean Global Air Temperatures



http://www.nasa.gov/mission_pages/noaa-n/climate/climate_weather.html

Super Typhoon Haiyan hitting Philippines



<http://www.taylormarsh.com/2013/11/super-typhoon-haiyan-seen-space/>

Course Weather Topics

- Air Temperature
- Humidity and Clouds
- Precipitation Processes
- Pressure and Wind
- Global and Local Winds
- Ocean Currents and Waves
- Sea Surface Temperature
- Storm Systems, Hurricanes, and Typhoons
- Thunderstorms and Tornadoes
- Air Pollution
- Atmospheric Optics (Rainbows & Mirages)
- Climate Change

Halemau' mau' Crater Emissions & Rainbow



<http://weather.hawaii.edu/vmap/>

Tahitian Dance at the ORI I TAHITI 2014



<http://www.polynesian-art.com/photos-by-manuia-geek/tahiti-events/tahiti-events-ori-i-tahiti-20141122/>

Course Culture Topics

- Clothing and Fabric Choices
- Natural Environment in Folktales
- Weather Themes in Hula and Tahitian Dance
- Weather Themes in Poetry and Chants
- Local Wind Names and Origins
- Ocean Navigation
- Severe Weather in Folktales
- Current impacts of Hurricanes & Typhoons
- Air Quality – Volcanic, Fires, Nuclear Tests
- Rainbows and their meaning
- Island Agriculture
- Sea-Level Rise Impacts

Weather vs. Climate

- What's the difference?
- What concepts do you associate with each?

Weather

The current state of the atmosphere at a moment in time in a particular place.

Example questions you'd ask related to weather:

- How hot is it outside?
- Will it rain today?
- Is it windy outside?
- Will it be sunny or cloudy?

Climate

The average weather in a place over many years. While the weather can change in just a few hours, climate takes hundreds, thousands, even millions of years to change.

Example questions you'd ask related to climate:

- How hot are summers in Honolulu?
- Does it rain often in December in CA?
- Do I need air conditioning or heaters in my new house or both?

How did Polynesian people understand/forecast the weather?

- What methods can you think of that help Polynesian peoples understand weather and climate? http://archive.hokulea.com/ike/hookele/weather_forecasting.html

Before the invention of modern weather instruments, Polynesians (seafarers) relied on observations of nature to predict weather:

the wind, sea state, clouds, appearance of celestial bodies, smells, and animal behavior contain clues to current and approaching weather.

Once regional and seasonal patterns were understood they could be included in oral history, stories, chants, and other methods to pass on the information to the next generation.

How do we observe and report weather today?

Today, weather station and buoy reports, National Weather Service forecasts, and satellite imagery are excellent sources of weather information.

- What types of weather instruments can you name?
- How can we summarize all this info to make it easy to understand the current weather in a particular location?

AWOS/ASOS

Automated Weather/Surface Observing System



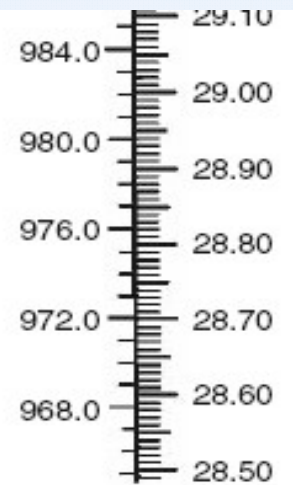
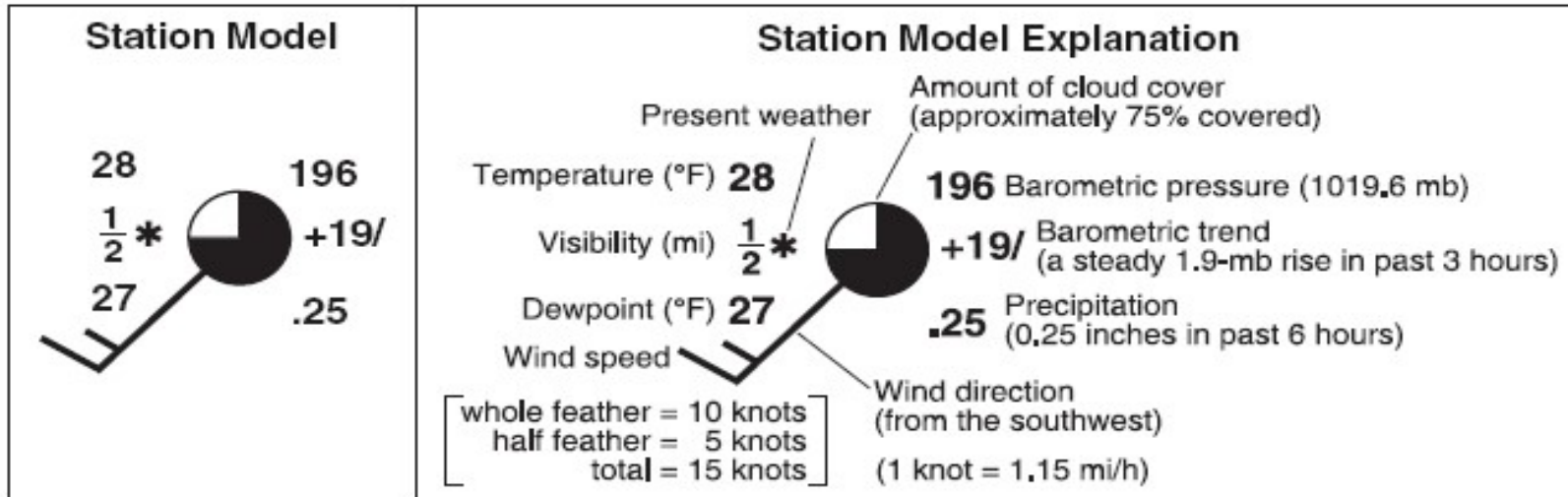
Weather Variables

Weather Variable	Unit	How it's Measured
Air Temperature	C, F, K	Thermometers
Dew Point Temperature	C, F, K	Thermometers
Precipitation Amount	inches	Rain Gauge or other Gauge
Precipitation Type	Description	Precipitation Discriminator
Humidity	%	Calculated
Cloud Cover	%	Ceilometers and by Eye
Wind Speed	Knots or	Anemometer
Wind Direction	Degree or direction	Wind Vane
Air Pressure	Millibars (mb)	Barometer
Visibility	Miles	Light Scattering Instruments



Weather Map Symbols!

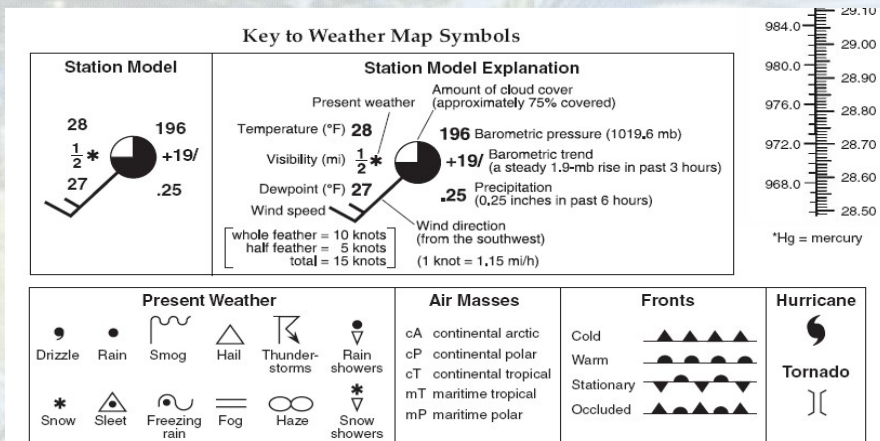
Key to Weather Map Symbols



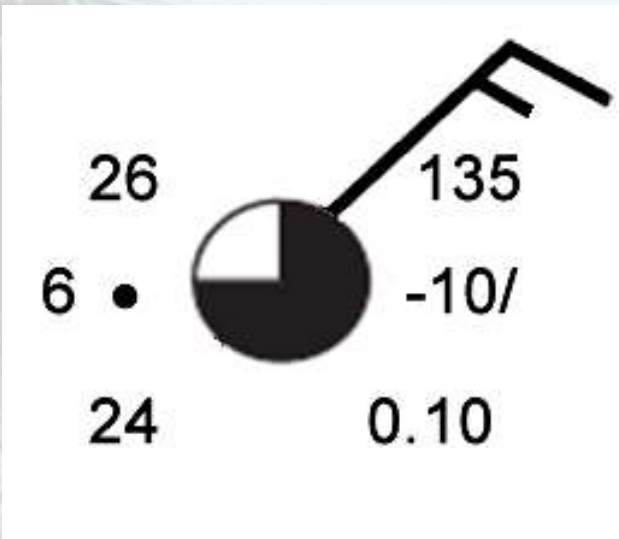
*Hg = mercury

Present Weather						Air Masses		Fronts		Hurricane	Tornado
Drizzle	Rain	Smog	Hail	Thunderstorms	Rain showers	cA continental arctic	Cold				
Snow	Sleet	Freezing rain	Fog	Haze	Snow showers	cP continental polar	Warm				
						cT continental tropical	Stationary				
						mT maritime tropical	Occluded				
						mP maritime polar					

Test your Knowledge!



Example:



What is the temperature? **26 C**

What is the dew point temperature? **24 C**

What is the current pressure in mb? **1013.5 mb**

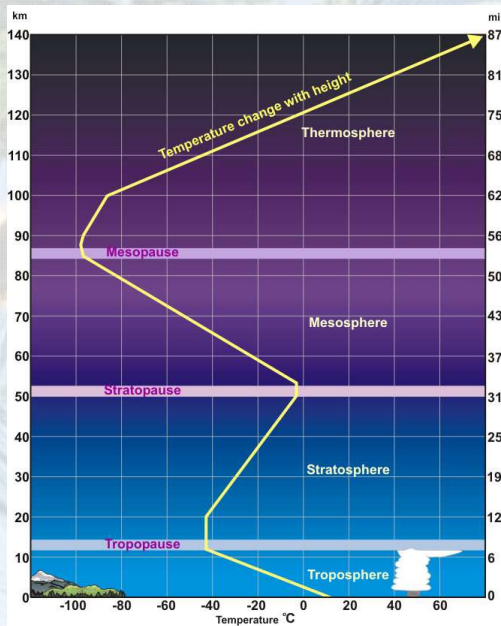
Is the pressure increasing or decreasing? By how much?
decreasing by 0.1 mb

What is the current weather? **Rain**

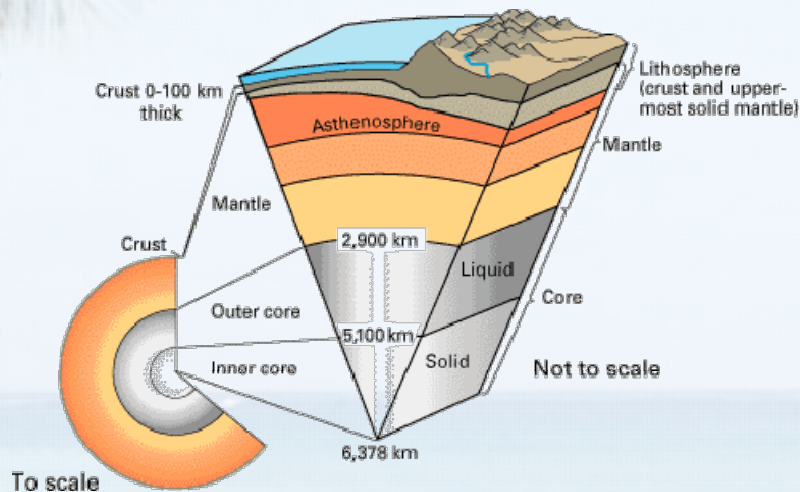
Has there been any precipitation? **Yes, .10 in in the past 6 hrs**

What is the wind speed and direction? **15 kts, NE**

Earth as a System



- What are the main parts of the Earth?
 - Geosphere
 - Hydrosphere
 - Atmosphere
 - Biosphere
- How can we think of each of these in the context of the Pacific Islands?
 - Land is very limited, Often Volcanic
 - The ocean and precipitation are the most important, rivers and streams not as much
 - Wind and storms
 - Tropical plants and agriculture

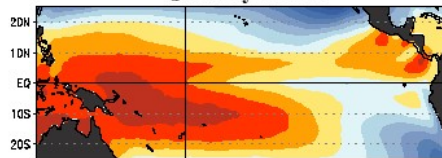


Where on Earth are the Islands?

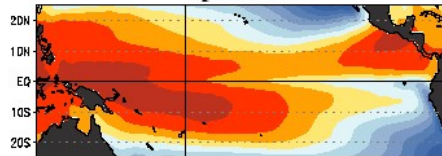


- The majority of the island are found in the tropics with warm ocean and air temperatures year round.
 - 23.5°N to 23.5°S
- Affected by events such as El Niño (we'll talk about this in detail later)
- Located in a region of increased sea level rise.

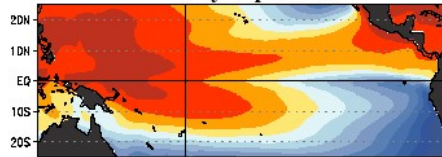
Average Ocean Temperatures (°C)
January-March



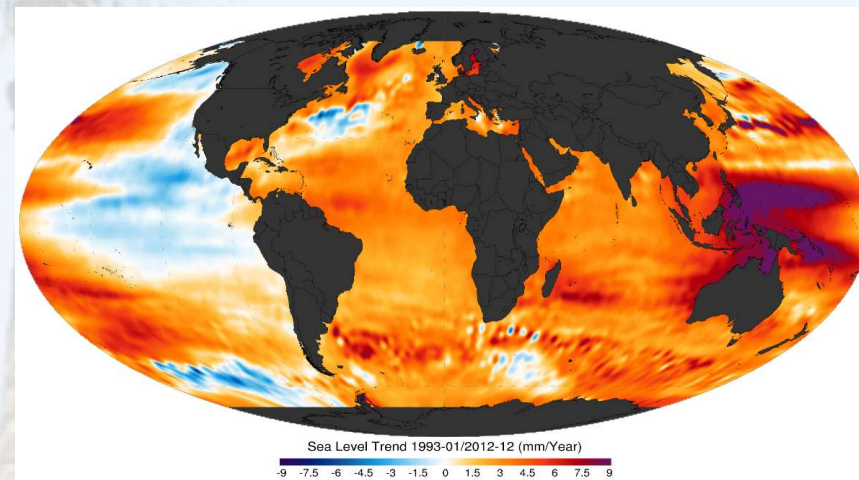
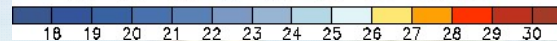
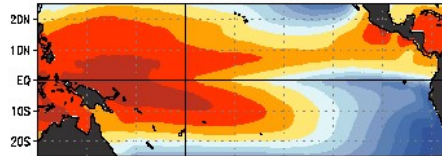
April-June



July-September



October-December



Discussion - Weather in the Pacific

- Which of the weather variables do you think would be most important to the Pacific Islands when they were first colonized (not by Europeans)? Why?
- What variables do you think are most important now in the present day? Why?