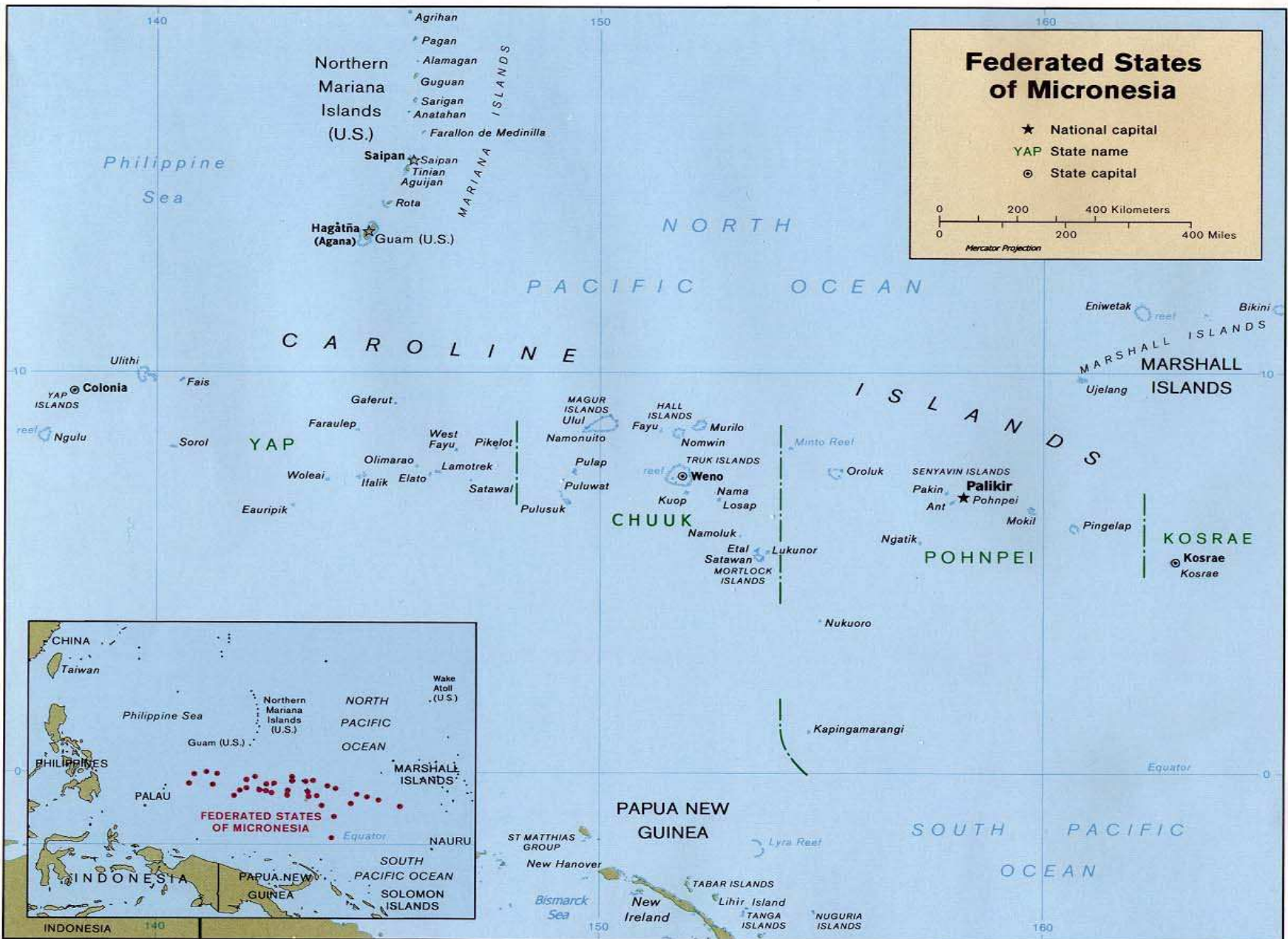


FSM- Report

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-Typical Climate- wet and dry

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Climate Drivers

- The climate drivers affecting FSM include: **ENSO, Monsoonal trough, ITCZ.**
- ENSO **El Nino phase** has an impact in FSM generally around the dry season (**DJFMA**). The **La Nina** phase has an impact in the wet season (**JJAS**). It is noted that due to the geographical spread of the islands in the FSM, the period of impacts can vary across the region.
- The **ENSO phases** generally **impact rainfall**, either to further suppress it during the dry season **causing drought, fires, poor crop harvest and water shortage**, or can influence rainfall leading to **flooding, landslides and storm surges** from gusty winds and active tropical storms within the region.

Driver	Time of Year	Impact
ENSO – El Nino	DJFMA <i>period of impacts vary from state to state</i>	<ul style="list-style-type: none"> • Drought, Fire hazards, Poor crop harvest • Monsoon shift to East • Water shortage (all islands)
ENSO – La Nina	JJAS <i>period of impacts vary from state to state</i>	<ul style="list-style-type: none"> • Flooding • Landslides • Storm surges
ITCZ	NH Summer (north migration) NH Winter (south migration)	<ul style="list-style-type: none"> • Rainy or dry depending on location of island wrt ITCZ position • Gusty winds and showers
Monsoon trough	NH Winter During El Nino, moves far East During La Nina, located around Pohnpei, Yap and Chuuk (West relocation)	<ul style="list-style-type: none"> • Position shifts and intensity of monsoon is highly related to ENSO phases • Gusty winds and showers, can develop storms, and some storms develop into typhoons •

Typical climate (e.g. different climate regimes, when it is wet season?)

The *climate of FSM* being *maritime tropical*, climate specific effects can vary from island to island, and can be influenced by the *topographies* of the islands where (some are high volcanic islands, and others are atolls).

The *general dry season* that occurs is usually from *November to April* (but with the central months of *December to February* are usually being the driest climatically), while the *wet season* is typically from *May to October* (with *wettest months* usually being *June to August*).

The tropical *temperatures* have *maximum average* of around *30C (86 F)* and *minimum average* of around *26C (78)*. The temperature mean does vary between the seasons but not much. *Rainfall* shows the *widest range* in terms of seasonal change and forced change by the large climate drivers that affect this region (*ENSO, monsoon, and the ITCZ. Shear-lines* which are subtropical fronts, do have an influence from time to time too).

Seasonal cycles and climate drivers - With temperatures being little influenced on an annual basis, rainfall is assessed in terms of the climate drivers in the region.

ENSO – both active phases of ENSO show clear influence and impact on rainfall in the region. El Nino tends to result in drier climatic conditions with the suppression of rainfall, while La Nina tends to bring above average monthly totals.

Monsoon – While remain active in this region annually, it has a high positioning correlation to the active ENSO phases (farther East during El Nino, and a more Western position during La Nina), with the impact on local rainfall as indicated above for ENSO. Additionally, the monsoon generally associated with the generation of typhoons in the region, its association with the El Nino phase (and activeness in the region) also brings negative impacts of storms, wind gusts and the seeding of typhoons.

ITCZ – The ITCZ positioning varies north (during NH summer) to south (during NH winter). There is more noticeable presence of gusty winds and rainfall in association with the ITCZ.

Impacts and Extremes

- What extreme events occur in the country? **DROUGHT, tropical storms, high winds, high surfs, flooding, landslides.**
- What are their impacts? **Fire, water and food shortage, diseases, landslides, coastal erosion, and inundation.**
- How often do they occur? **Drought occurs during El Nino, during La Nina tropical cyclones, high winds, high surfs, and flooding occurs.**
- How do climate drivers affect these extreme events? (e.g. TCs more frequent in La Niña years). **Drought is more frequent during El Nino, and Tropical storm is more frequent during La Nina.**

Observations Network:

- Five synoptic stations collecting rainfall, wind variability, temperature,
 - and pressure.
- Six surf stations collecting rainfall data and waves height.

Infrastructures and Technical Expertise:

- New rain gauges have been placed in some of the sites. Plan is to replace all
 - gauges with new ones.
- a new PEACESAT system has now operational in Chuuk (WSO). A new link
 - with audio, video, and internet capabilities.
- Chatty Bettles are already being distributed to all the three met. Offices, ready to be placed in selected sites.

Human Resources:

- an intern student at the University of Hawaii is expected to graduate within a year with a met.degree.
- a new Weather Service Specialist has just being certified in Aviation, synoptic, and upper air programs and has been placed on working shift.

Major Strength and Challenges:

- Majority of staff are young.
- station has the best communication system on island.
- gets full support by US- NOAA
- all staff are locally hired.
- only one meteorologist on station.
- new WSSs have no basic met. Course foundation.
- island power outages

Current Status of Climate Services

- -provides data climate to local contractors doing road constructions in the islands.
- -active members of the PEAC conference on climate monthly.
- -joins NGOs promoting climate change awareness.
- -conducts climate workshops in the islands in collaborations with Forecast Office in Guam.
- - provides climate data in terms of sea heights to mariners.
- - member of the PCCSP program.
- - dispersion of islands makes it difficult to effectively carrying out climate workshops in some of the islands.



Flooding



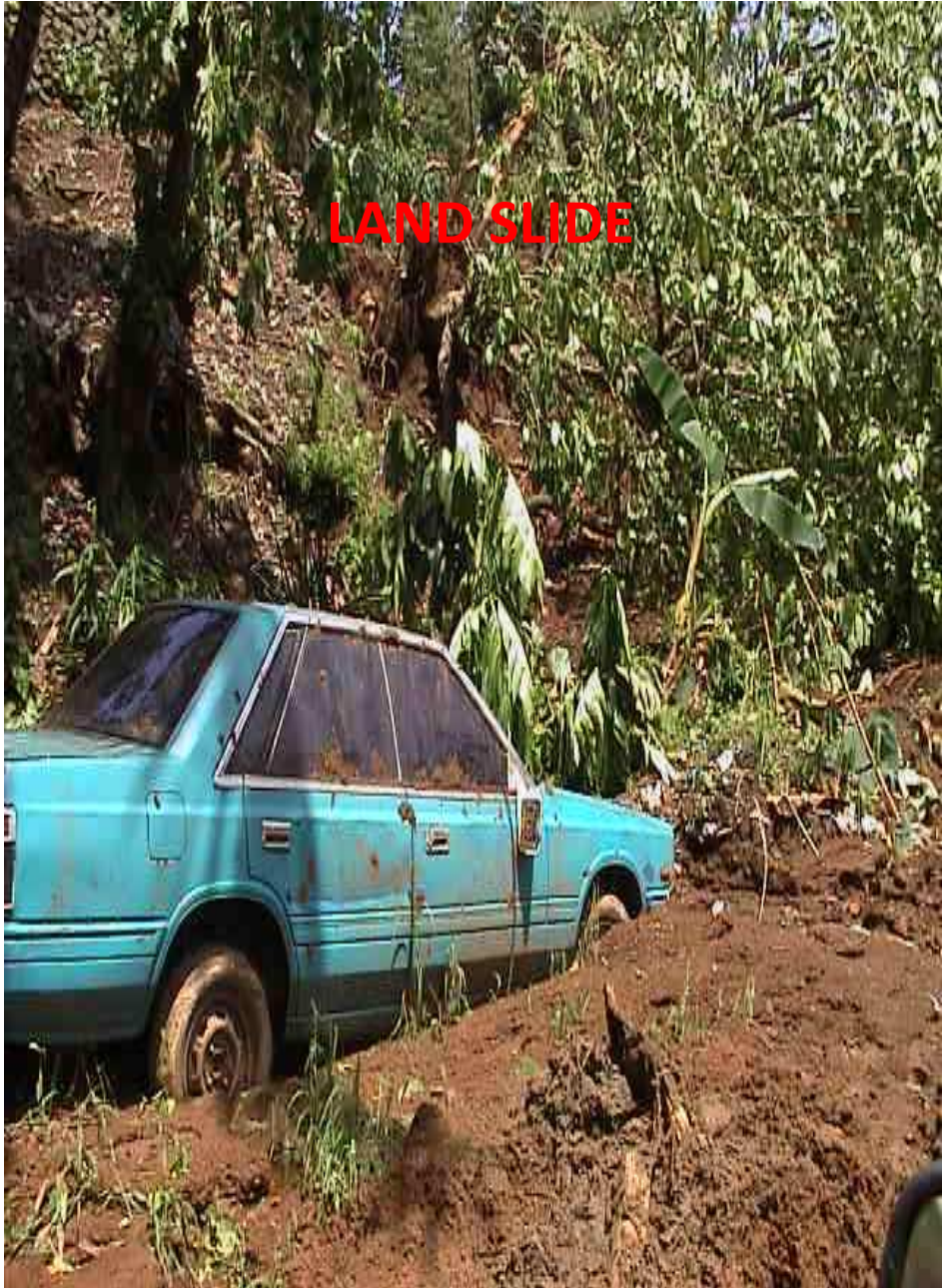
Land slide



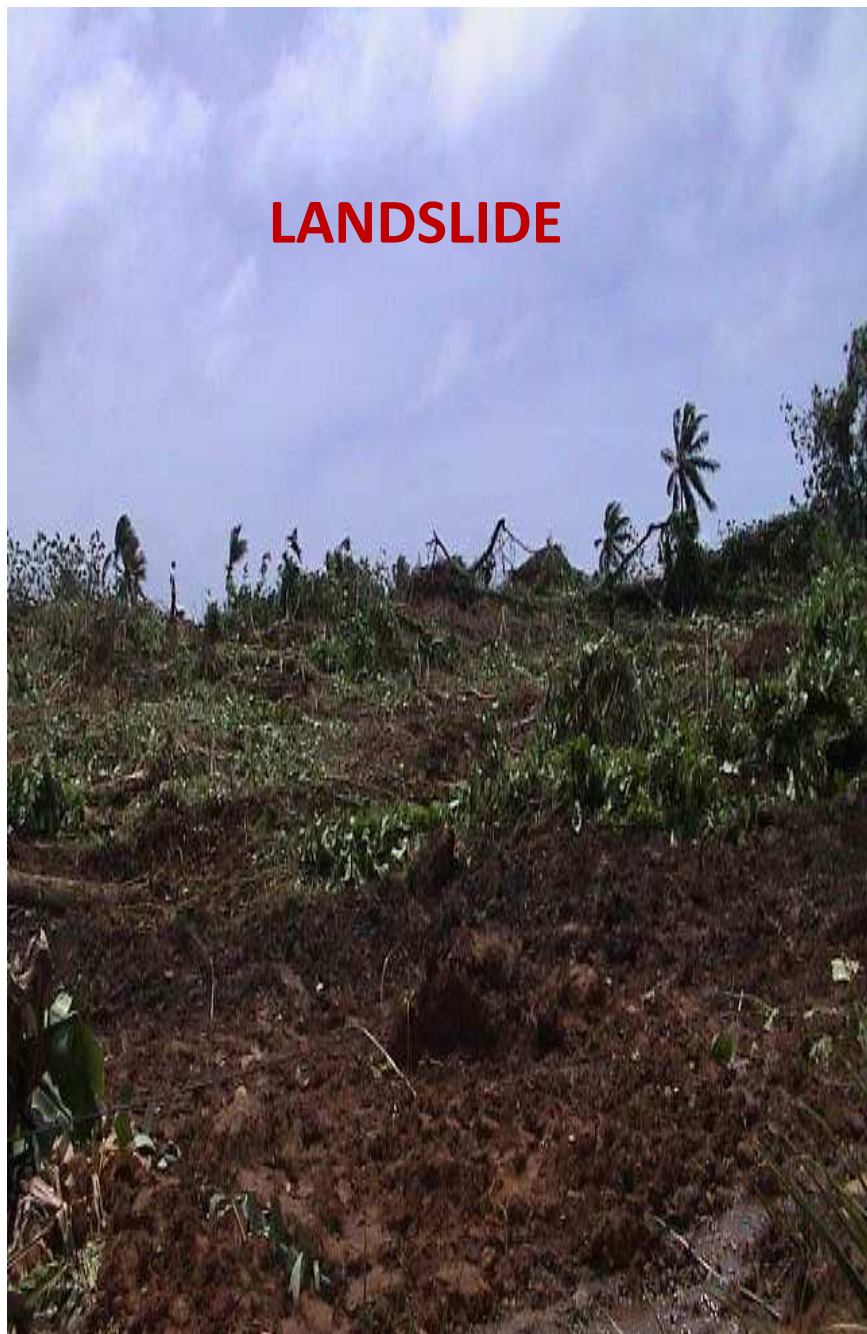
FLOODING



LAND SLIDE



LANDSLIDE



FLOODING





FLOODING



FLOODING

Taro Patch being contaminated by Salt Intrusion



Land Slide and Coastal Erosion- Chuuk, FSM



Summary

The climate drivers that affect the FSM are **EL Nino, La Nina, Monsoon Trough,** and **ITCZ, and MJO** at a smaller scale.

There seems to be an increase in maximum temperature trend and a decrease in minimum temperatures trend in the region.

For rainfall, Pohnpei and Chuuk show a decrease trend while Yap shows an increase trend.

Yap tends to **receive more rainfall** because of its **active convections** and being influenced by **monsoon** more frequently than the rest of the islands. The **region** is *influenced* mainly by **ENSO** and the *migration* of the **monsoon trough**.