

# Forecasting and Adapting to Climate Impacts in Western Tanzania

Dr. Elizabeth Gray

Climate Change Specialist, The Nature Conservancy





















## Analysis Area

☐ United States ☒ Global

Global

## Time Period

☐ Past 50 Years

☐ Mid Century (2050s)

☒ End Century (2080s)

## Map Options

☐ Map of Average

☒ Map of Change

[Compare & Animate Models](#)

## Measurement

☒ Average Temperature

☐ Precipitation

Annual

## Resources

[Data Sources](#)

[Data Download](#)

[Data and Map Image Download](#)

[ClimateWizard Custom Reports](#)

[ClimateWizard Version](#)

## Future Climate Model

IPCC Fourth Assessment

Emission Scenario

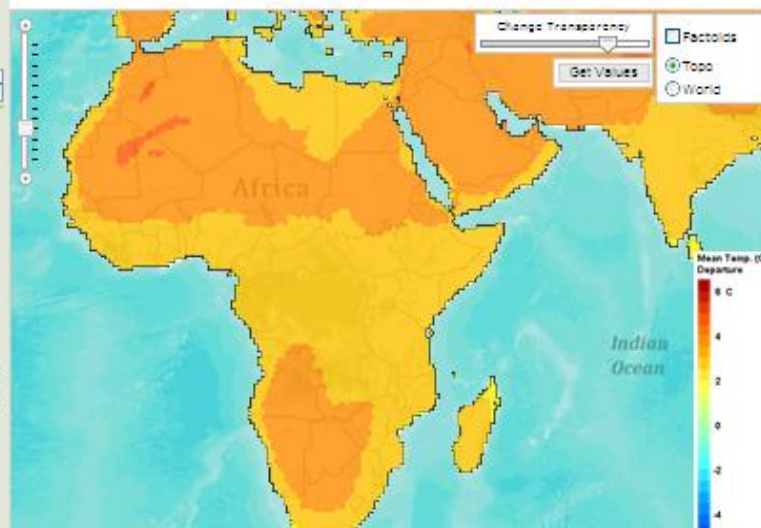
High A2

General Circulation Model

Scenario Coverage

## Change in Annual Temperature by the 2080s

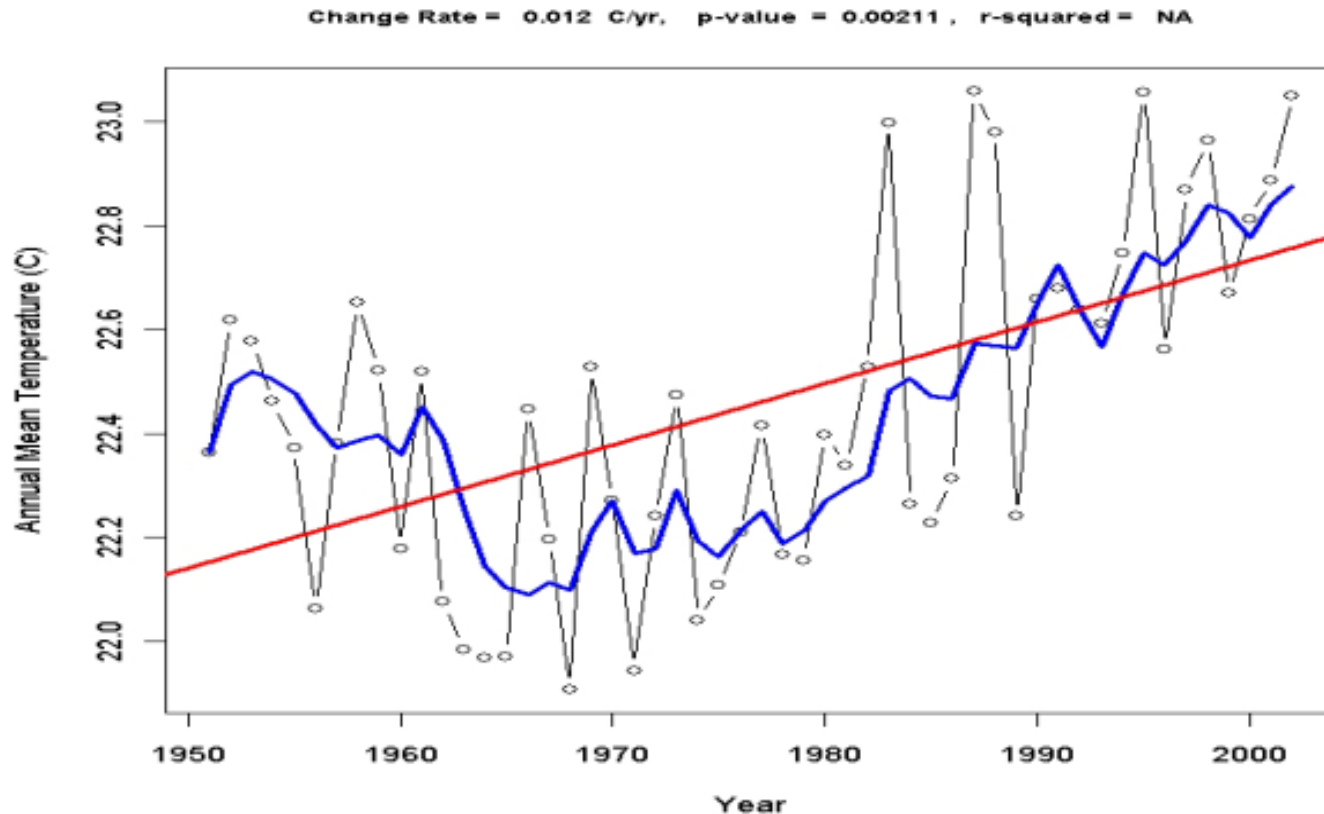
Model: Ensemble Average, SRES emission scenario: A2



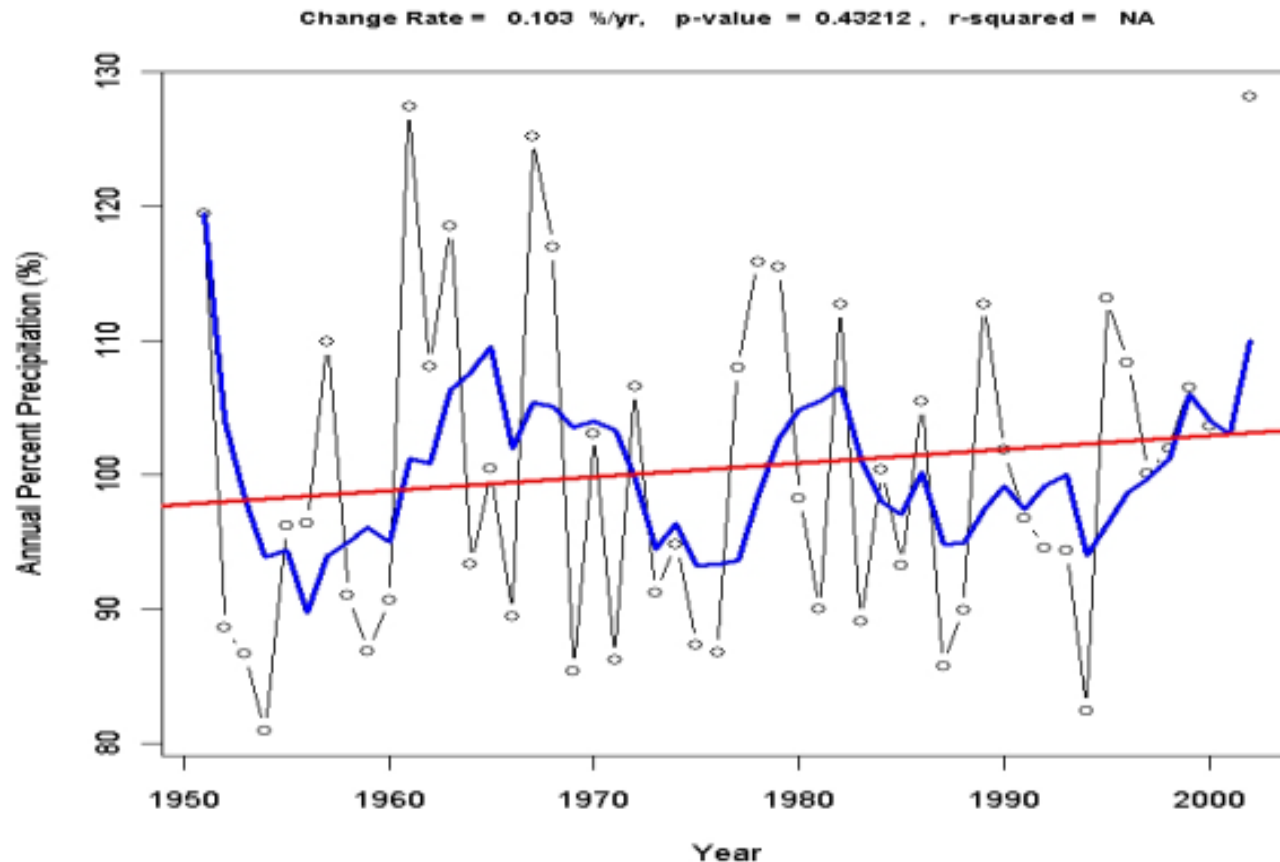
50%: This map shows the temperature change projected by the middle model. That is, half of the models project a greater amount of change, and half of the models project less change as compared to the 1951-1990 baseline average.

<http://ClimateWizard.org>

# Average yearly temperature since 1950s



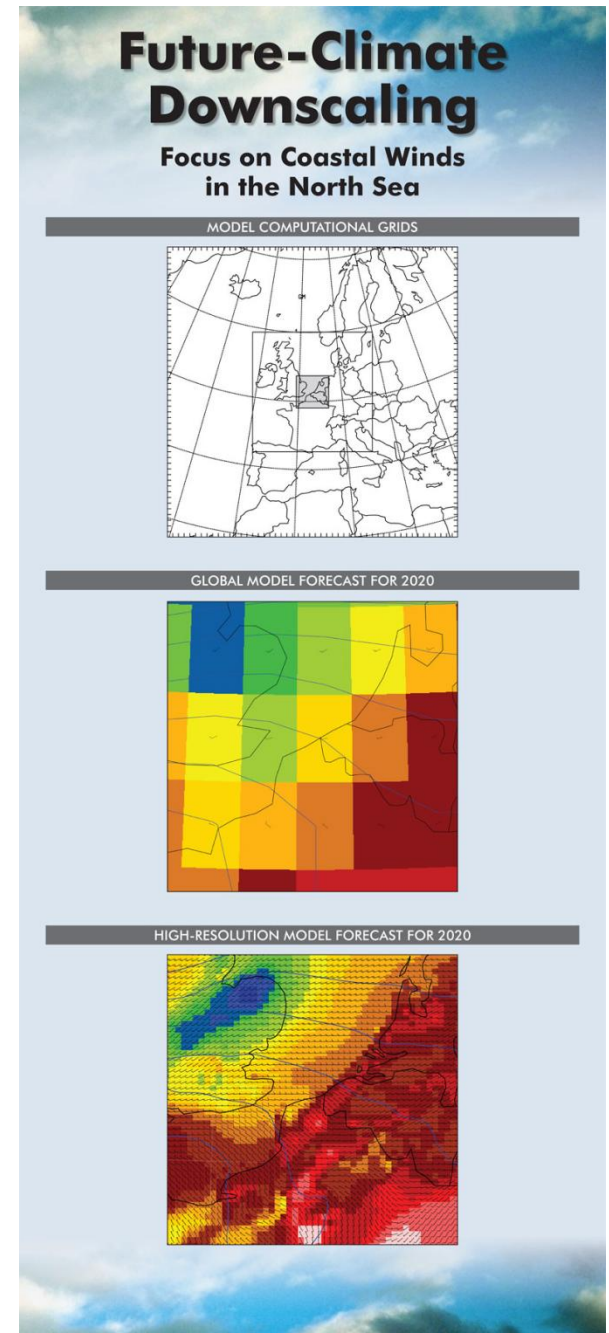
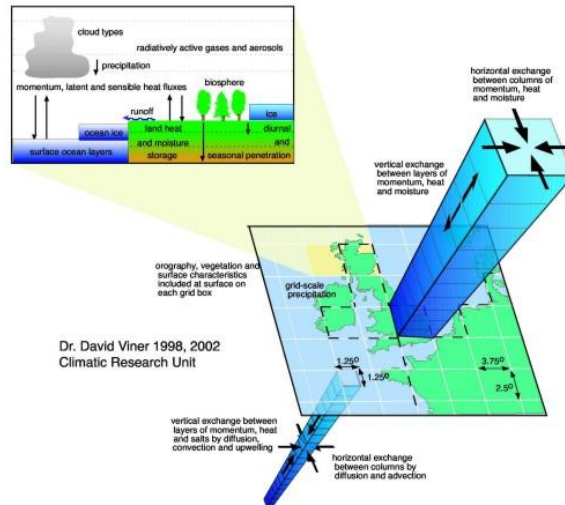
# Average yearly rainfall since 1950s





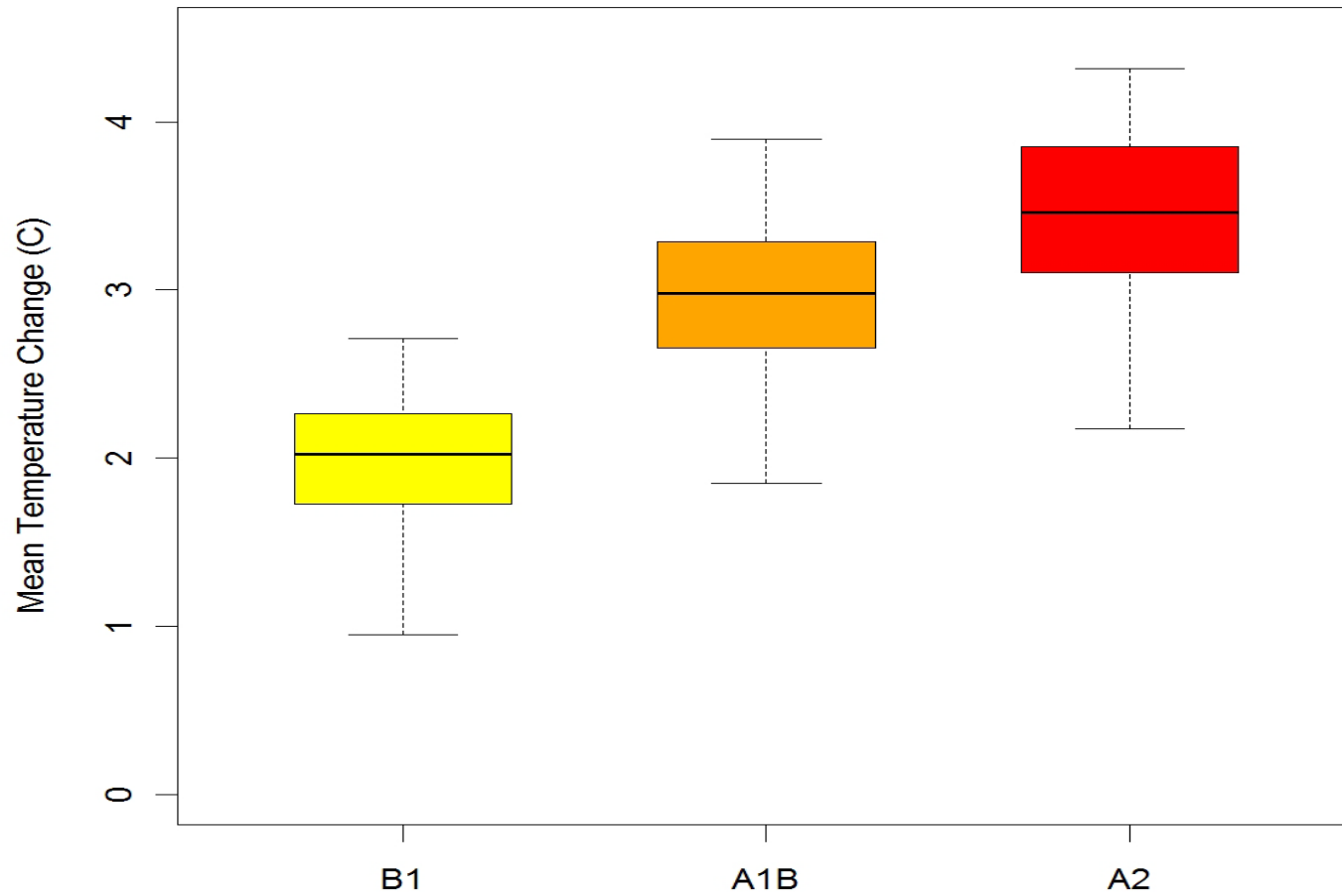
# Future Climate Projections

- Use information about historical climate and statistical techniques to interpolate to finer spatial scale.



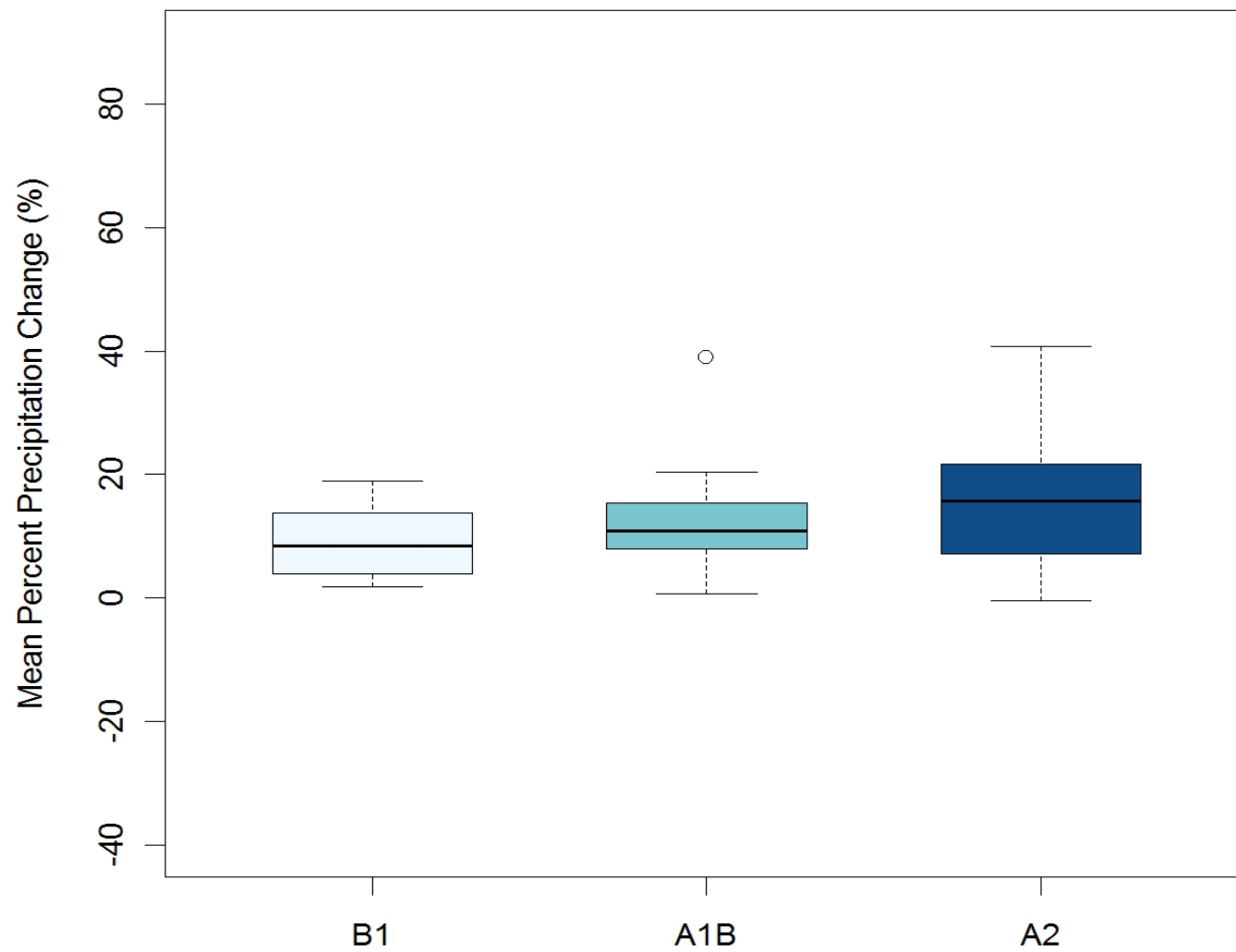


## End-of-Century: Annual Temperature Change





## End-of-Century: Annual Precipitation Change

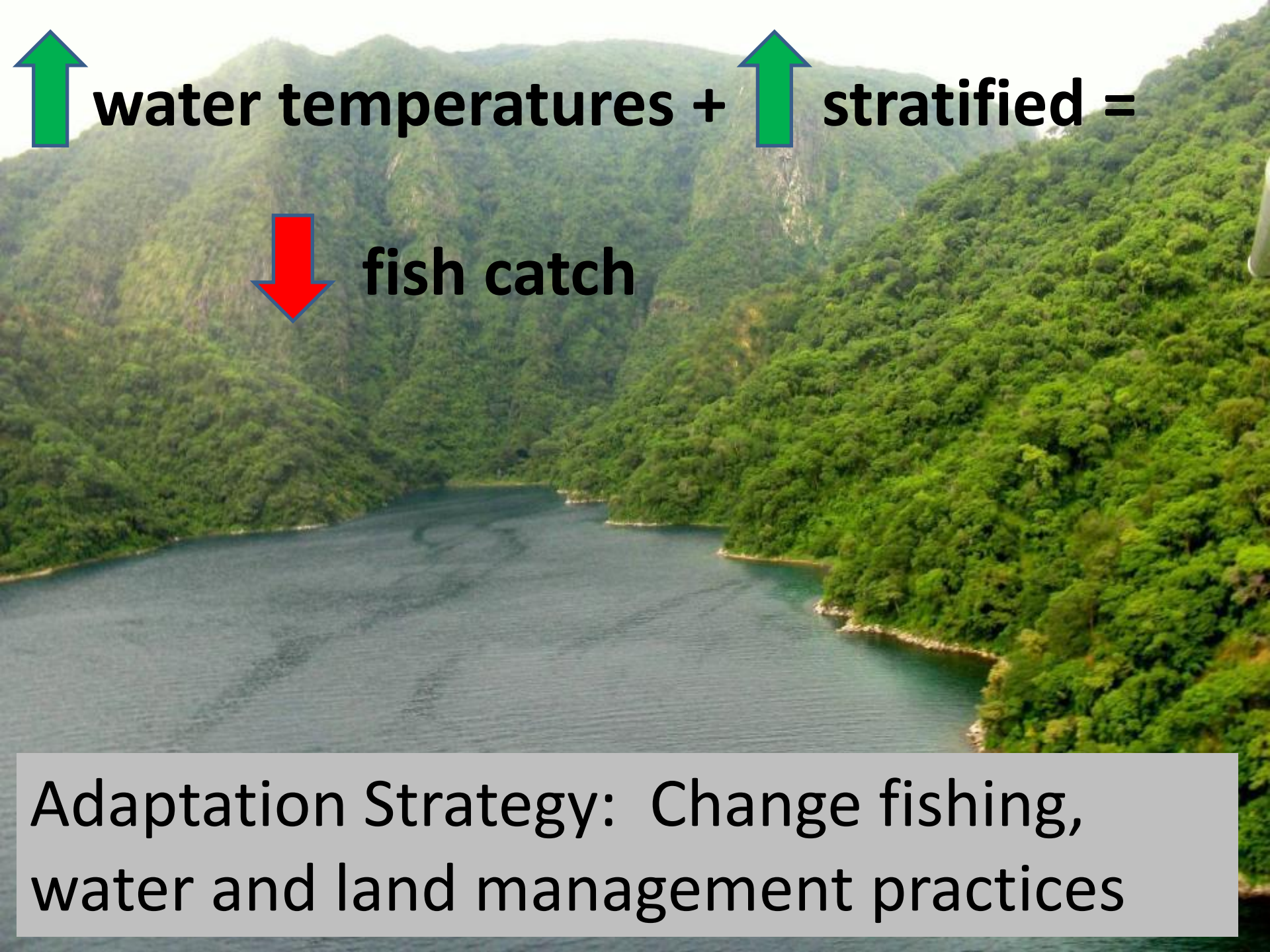




# Synthesis of Climate Wizard Analyses





- Temperatures will continue to rise, across all seasons
- Annual rainfall may not vary, but we will see changes in frequency, intensity & predictability
- Wet seasons will become wetter; dry seasons will become drier
- Despite increased rainfall, it will become more arid





↑ water temperatures + ↑ stratified =  
↓ fish catch

Adaptation Strategy: Change fishing,  
water and land management practices

 temperatures +  of the cloud layer =  
 drinking water and  in disease

Adaptation Strategy: Protect critical forest areas to secure water supply



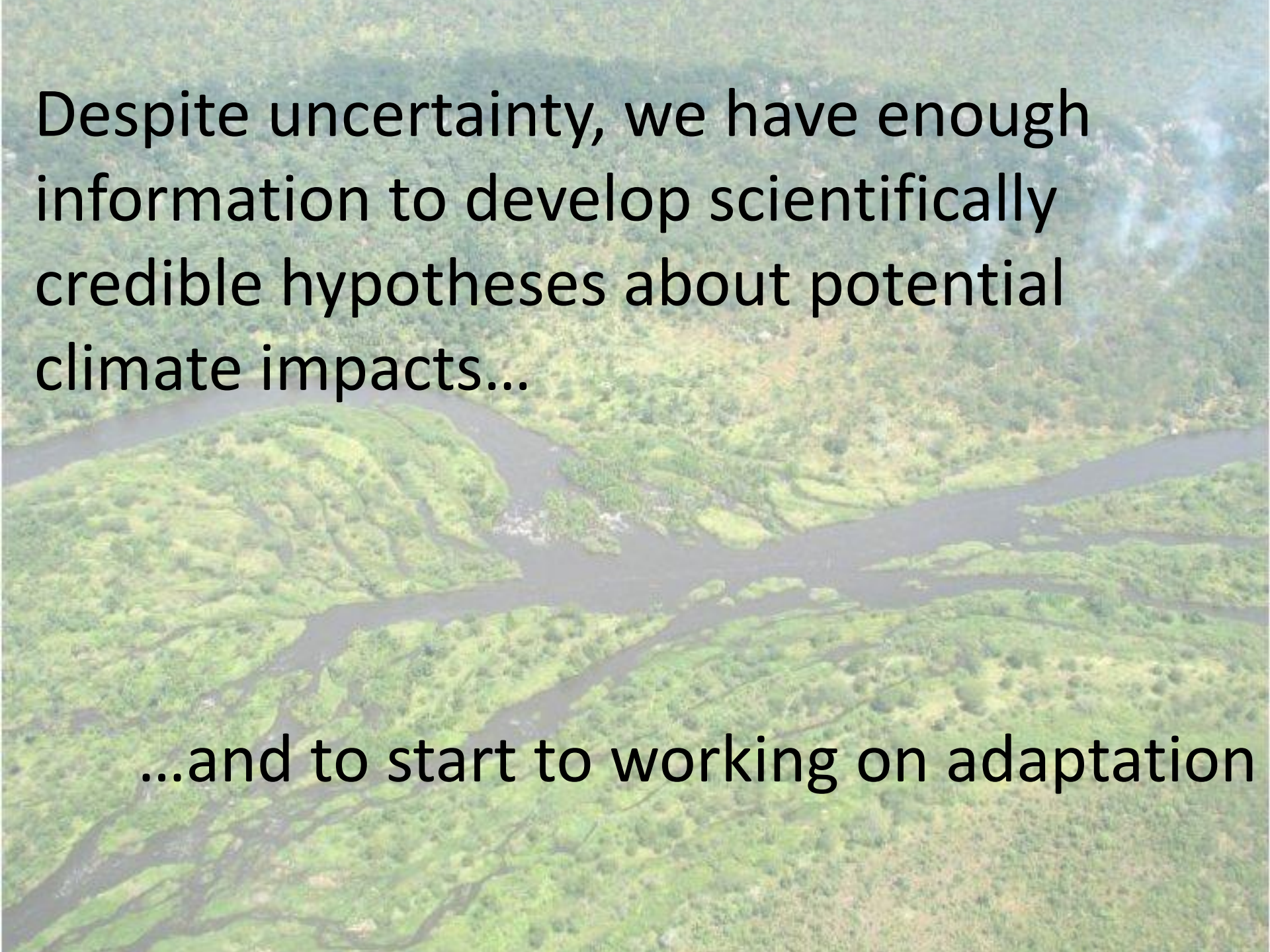
↓ flows + ↑ flooding + ↑ water temps =  
↓ food supply and ↑ water conflicts



Adaptation Strategy: Promote alternative crops and livelihoods

# ***Lessons Learned***



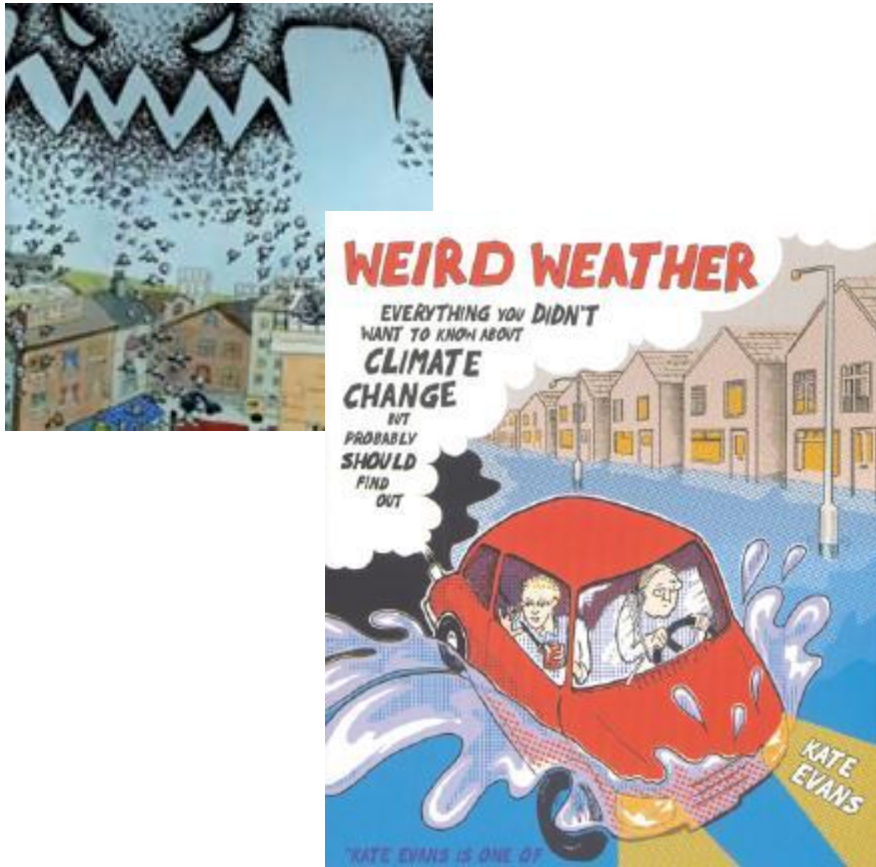
An aerial photograph of a river delta, likely the Amazon, showing a complex network of dark, winding water channels and islands covered in dense, vibrant green tropical forest. The perspective is from a high altitude, looking down on the landscape.

Despite uncertainty, we have enough information to develop scientifically credible hypotheses about potential climate impacts...

...and to start to working on adaptation

# People are empowered by demystifying climate change

# Before...



# After!





# There are many challenges to implementation, but also many solutions

## Challenges

- People do not understand the impacts
- Common to focus on short-term rather than long-term needs
- Time and resources

## Potential Solutions

- Use local examples to educate others
- Make long-term benefits clear and make them affordable in the short-term
- Be clear about the benefits of ecosystem based adaptation & drive funding efforts towards implementation

# Useful Links

The background of the slide is a photograph of a sunset or sunrise over a body of water. The sky is a gradient of orange and yellow. A small, bright orange sun is visible on the left side of the sky. The water is calm, reflecting the light from the sky. In the distance, a small boat is visible on the horizon. In the foreground, there are tall, thin grasses or reeds.

[www.climatewizard.org](http://www.climatewizard.org)

[www.NaturePeopleFuture.org](http://www.NaturePeopleFuture.org)

[www.conserveonline.org](http://www.conserveonline.org)