

Integration of Socioeconomic & Geophysical Data into the Assessment of Climate Vulnerability across Mesoamerica and the Dominican Republic

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Overview

What is available re: socioeconomic baseline information for impact and vulnerability assessments / tools for scenario development?

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Which types of socioeconomic data are integral to the water resource component of CC vulnerability assessments?

Mainstreaming Climate Indices and Weather Derivatives into Decision-Making for Adaptation to Climate Change in Central America, Mexico, and the Dominican Republic

- US \$1.4 M project (2006-08), supported through USAID's Global Development Alliance (GDA) with USAID CC and biodiversity funds; contributions by ESRI / Cable & Wireless-Panama
- Implemented by CATHALAC, USAID, NASA, UAH and nat'l CC / biodiversity focal points from Mesoamerica / DR
- Overall objective is to strengthen regional capacity to use EOS data in CC adaptation activities

Climate change as geographically / spatially explicit phenomena

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What are climate change's possible impacts on the region's biodiversity?

Data Needs / Availability

1. **We need geophysical data**
 - We need data on the existing envt. to model future envt. (e.g. *infoNatura*, *Landsat GeoCover*)
 - Need the CC building blocks - **How might temp or rainfall patterns change?** (e.g. *SERVIR*, *WorldClim*)
2. **We need [georeferenced] socioeconomic and related data – inputs for vuln. modeling**
 - Where are / will be pop'n centers? (e.g. *LandScan*, *GPW*)
 - Where are / will be protected areas? (e.g. *WDPA*)
 - Where are / will be agricultural lands? (e.g. *GeoCover*)
 - Where are / will be tourism development zones?

Tools for Scenario Devt.

A2 scenario (CCSM3): Sept. 2099

A2 scenario (SERVIR downscaled)

Climate change (CC) scenario data from SERVIR

- Modeling on the Cheetah supercomputer at Oakridge National Lab (ORNL)
- Model runs for A2 ('worst case') scenario, thru 2099
- First downscaling attempt for Mesoamerica, highest spatial resolution data available
- Data is freely, publicly accessible through SERVIR (www.servir.net) for research purposes

Clima > Predicciones del Cambio Climático (2005, 2010, 2015, 2021, 2030 a 2099)

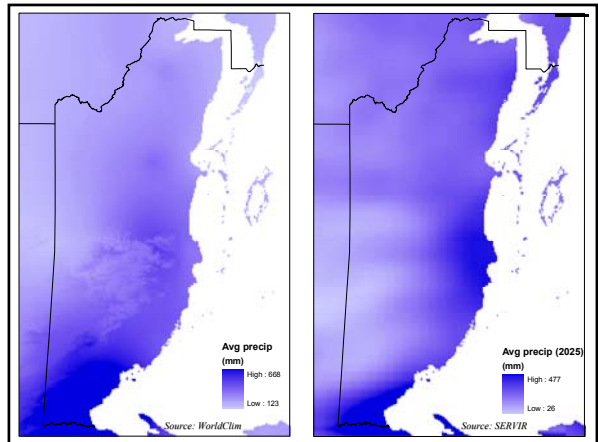
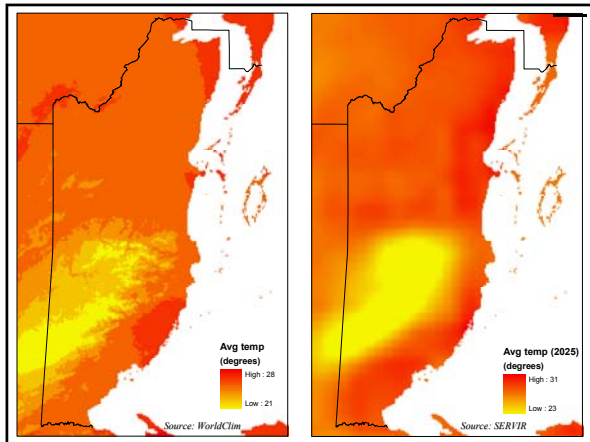
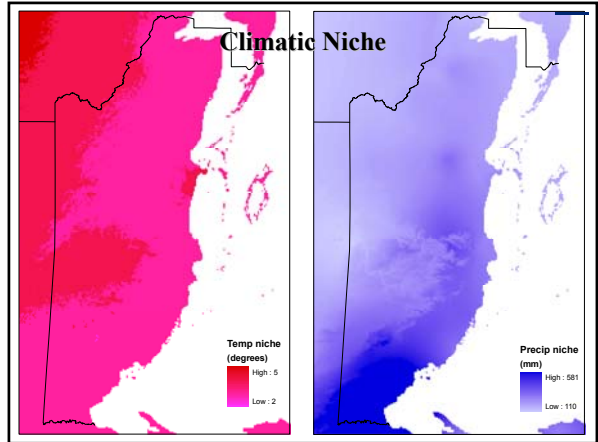
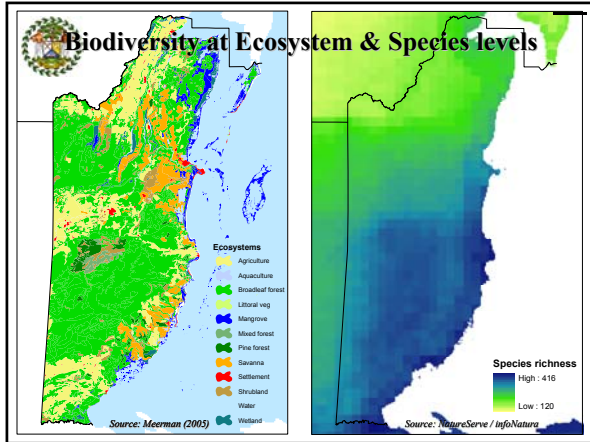
Producto	Día Inicial	Día Final	Datos
Radios Hertz (2M)	Jun - Sep 2005	Jun-Sep 2099	Descargar Datos
Temperatura (2M)	Jun - Sep 2005	Jun-Sep 2099	Descargar Datos
Vientos sobre el nivel (10M)	Jun - Sep 2005	Jun-Sep 2099	Descargar Datos
Vientos verticales (10M)	Jun - Sep 2005	Jun-Sep 2099	Descargar Datos
Nubes	Jun - Sep 2005	Jun-Sep 2099	Descargar Datos
Diferencia de Nubes	Jun - Sep 2005	Jun-Sep 2099	Descargar Datos
Presión del nivel del mar	Jun - Sep 2005	Jun-Sep 2099	Descargar Datos
Humedad del suelo (10 cm)	Jun - Sep 2005	Jun-Sep 2099	Descargar Datos
Humedad del suelo (40 cm)	Jun - Sep 2005	Jun-Sep 2099	Descargar Datos
Humedad del suelo (100 cm)	Jun - Sep 2005	Jun-Sep 2099	Descargar Datos
Humedad del suelo (200 cm)	Jun - Sep 2005	Jun-Sep 2099	Descargar Datos
Temperatura de la Superficie	Jun - Sep 2005	Jun-Sep 2099	Descargar Datos
Diferentes Temperaturas de Superficie	Jun - Sep 2005	Jun-Sep 2099	Descargar Datos

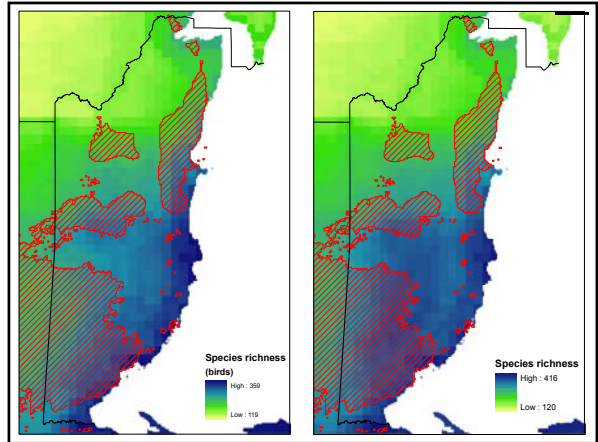
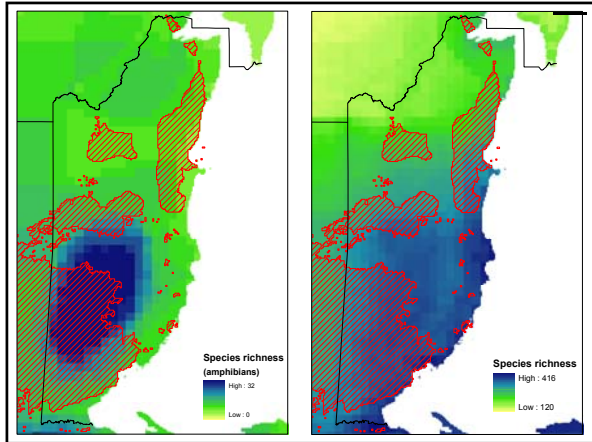
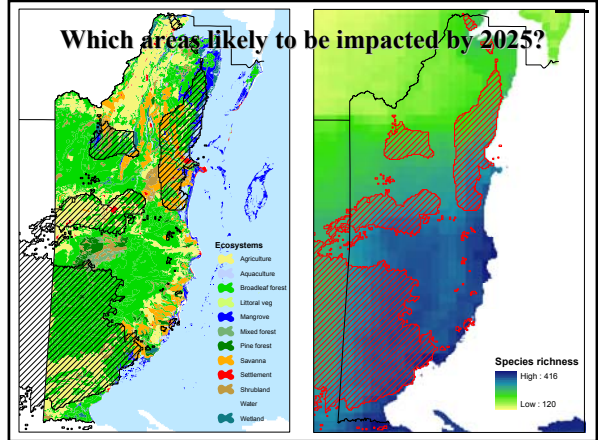
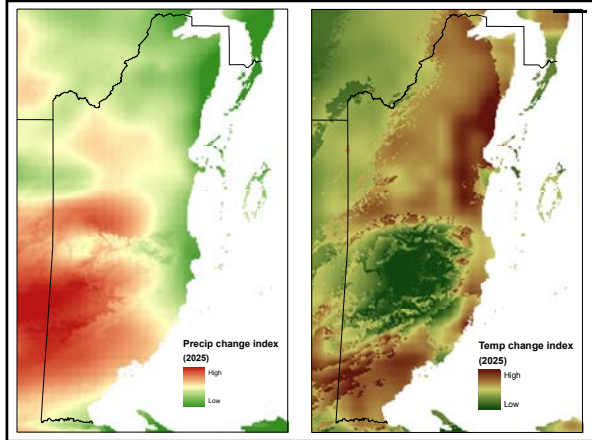
Clima > Climatología de nubes

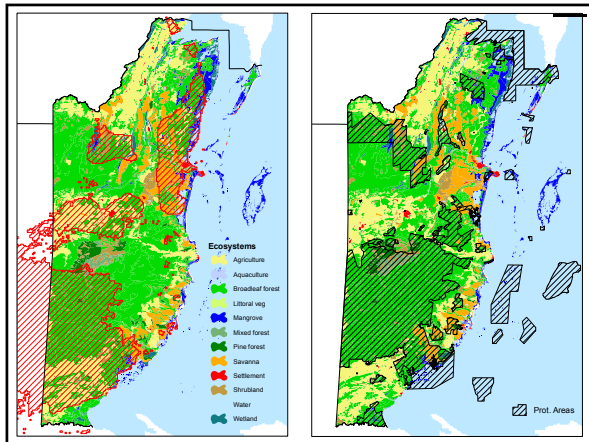
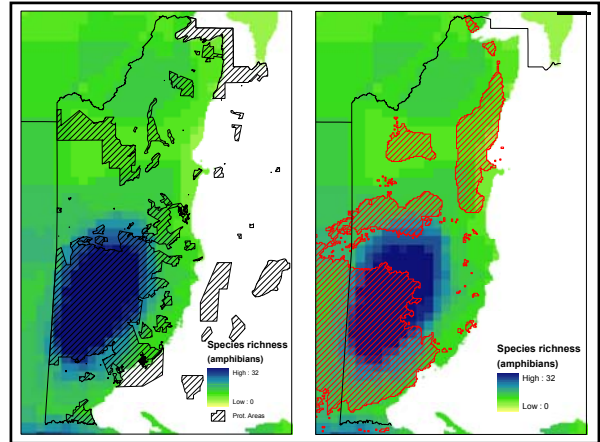
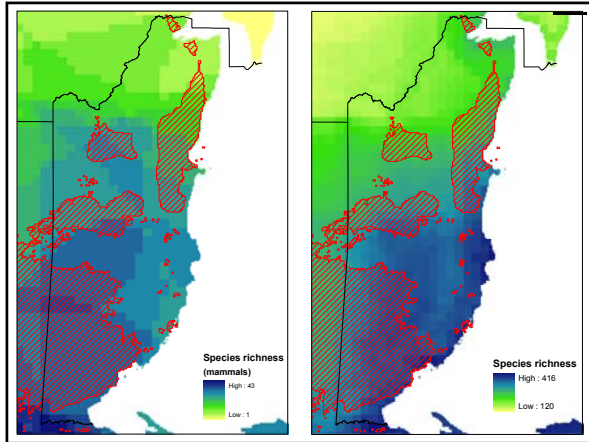
Producto	Día Inicial	Día Final	Datos
Compuento de 10 días	May 31, 1997	Dec. 31 2000	Descargar Datos
Compuento Mensual	May 1997	December 2000	Descargar Datos

Downscaled climate model outputs exist for Mesoamerica and Caribbean, BUT...

...What do these data mean?







Conclusions

- In addition to integrating socioeconomic data into climate change vulnerability assessments, **socioeconomic data** (data with socioeconomic implications) **are generated through such assessments**
- That is, through assessment process we respond to question **“What are the likely social and economic impacts of CC?”**
- Identifying vulnerable areas (*level 1 modeling*) allows us to assess (*level 2 modeling*), e.g. –
 - Which communities will be impacted by declines in future water quality?
 - Which agricultural crops will likely face declines?
 - Which tourism zones will be impacted?
- CC is spatially explicit phenomena, therefore understanding its effects **requires spatially explicit socioeconomic data** – some of which does not currently exist YET

