

Knowledge-Sharing and Overcoming Information Barriers through the Implementation of the Regional Visualization & Monitoring System

A key challenge to climate change adaptation activities in developing regions such as Mesoamerica has been the lack of knowledge related to and understanding of climate change's potential impacts. In Mesoamerica, in addition to a lack of detailed information on the specific ways in which climate change might affect public health or national economies, an overall lack of harmonized information on the region's environment also proved a stumbling block. To address such challenges, the Water Center for the Humid Tropics of Latin America and the Caribbean (CATHALAC) – with the support of international partners – has been implementing a Regional Visualization & Monitoring System (SERVIR, in Spanish) which has effectively lowered barriers to data and information on climate change through the an ongoing process of North-South and South-South knowledge transfer.

SERVIR was established in February 2005 with support from USAID's climate change program and NASA, as a direct result of the expanded 2001 CONCAUSA cooperation agreement between the USA and Central America, which calls for intensive, integrated, efforts for climate change mitigation and disaster management. SERVIR is an information platform for Mesoamerica and the Dominican Republic, serving the region's nine countries via a bilingual virtual platform (www.servir.net), with an operational facility at CATHALAC, and a supporting prototyping facility at the NASA's Marshall Space Flight Center in Alabama. A regional facility for East Africa has recently been established at the Regional Centre for the Mapping of Resources for Development (RCMRD) in Kenya, and a facility for Asia is being developed.

SERVIR supports decision-making in the areas of climate change adaptation, environmental management, and early warning for disasters, among others, providing historic data, information on current environmental and weather conditions, forecasts and future scenarios. SERVIR possesses a suite of tools, providing access to information products in a variety of formats and tailored to the range of decision makers, from scientists to the general public. In terms of such knowledge transfer, among others, SERVIR integrates both satellite data (supplied by developed nations) with in-situ data from the Mesoamerican countries. For instance, the SERVIR Air component of the system provides access to forecasts, satellite-based estimates and ground sensor data on air quality.

The national climate change focal points from Mesoamerica and the Dominican Republic have served as SERVIR's focal points, participating in almost 30 technical training workshops that have been held across the region from mid-2004 through mid-2009 and training over 500 professionals, with capacity development being a key component of SERVIR's strategy. In early 2010, CATHALAC will also be rolling out Latin America and the Caribbean's first regional-level master's degree in climate change adaptation for. In addition to SERVIR's representing a contribution to the Nairobi Work Programme of the UNFCCC, at the Ministerial Summit of the intergovernmental Group on Earth

Observations (GEO), SERVIR was recognized as a first of its kind model in the implementation of the Global Earth Observation System of Systems (GEOSS) concept.



Figure 1: Climate change datasets are available through SERVIR

Through USAID funding to SERVIR, in 2005, global climate models were downscaled to provide the governments of Central America with the highest resolution climate change scenario data (Perez et al 2009). These outputs are publicly available through SERVIR, in a variety of formats and have been used by the various countries in their climate change adaptation studies (see **Figure 1**). For instance, El Salvador has used the data provided to assess future vulnerability to climate change in its southern municipalities of Zacatecoluca, Tecoluca, and Jiquilisco.

A USAID Global Development Alliance-funded project recently funded an innovative study on climate change's potential impacts on the region's biodiversity, demonstrating for instance, that the projected five degree rises in temperature could begin to negatively impact ecosystems on the Caribbean coasts of Honduras, Nicaragua, Costa Rica and Panama by the 2050s (see **Figure 2**). The study, also published in the scientific journal *Biodiversity*, points to areas where future investments and management activities will need to be targeted to protect the region's rich biological diversity (Anderson et al 2008). Overall, SERVIR efforts in climate change adaptation and mitigation have focused substantially on identification of areas at risk of climate change, and identification of the potential impacts of climate change on the natural resources which the region's economies are so dependent on.

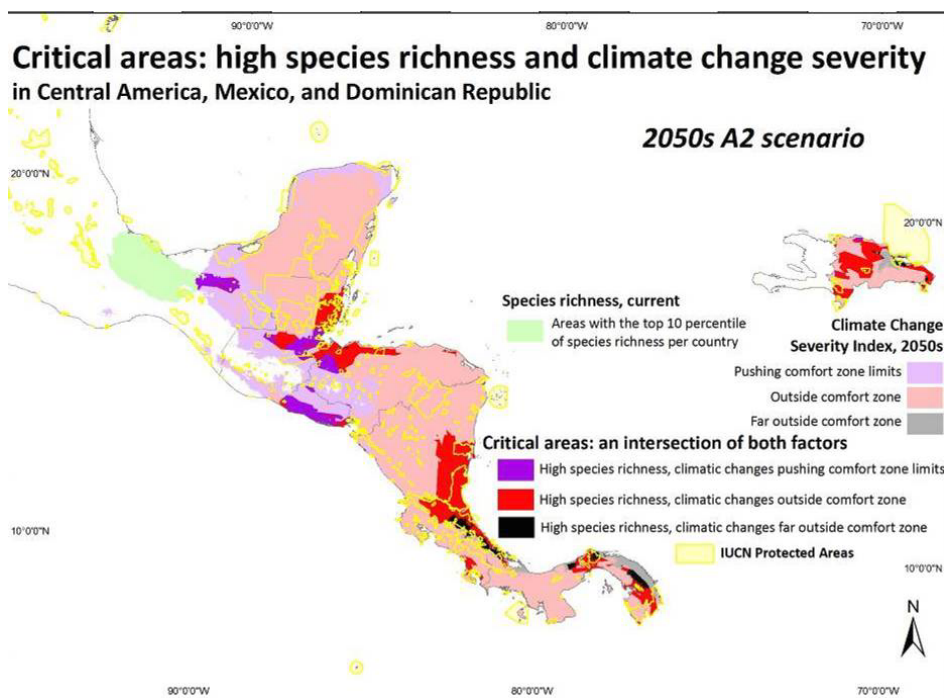


Figure 2: Potential impacts of climate change in Mesoamerica and the Dominican Republic

SERVIR is a regional clearinghouse of information relevant not only to climate change but also climate variability, serving as a virtual observatory of not only how the region’s climate varies over time, but also the overall effects that climate has exerted on the region. Since 2004, using satellite-based information, SERVIR has provided the region’s governments with some 30 disaster impact assessments related to extreme events including earthquakes, forest fires, floods, hurricanes, landslides, and volcanic eruptions. The information generated in these assessments is publicly available via www.servir.net. In addition to response to extreme events, SERVIR provides daily information on the region’s weather in the form of both (i) near-real time maps of current conditions, and (ii) the region’s highest resolution weather forecasts running off an advanced numerical weather forecasting system installed at CATHALAC in Panama.

For the region’s scientists, SERVIR houses baseline data on climate and related phenomena, and other information necessary for developing climate change adaptation and mitigation strategies. SERVIR houses the region’s largest publicly accessible catalog of geo-referenced environmental information, providing data on ecosystems, infrastructure, hydrology, agricultural capacity. In addition to the tools available through SERVIR, direct technical support services to the countries are provided through CATHALAC, which is host to a number of domain experts from across the region who provide technical support to the countries on a regular basis, particularly in the case of the assessments of the various extreme events.

In addition to the various SERVIR training workshops that have trained over 500 professionals from across Mesoamerica since mid-2004, in early 2010, CATHALAC will also be rolling out a master's degree in climate change adaptation for the Latin America and Caribbean region. With regard to capacity-strengthening for the climate change-related theme of Reducing Emissions from Deforestation and Forest Degradation, In follow-up to the earlier regional assessment of climate change's potential impacts on biodiversity in Mesoamerica, CATHALAC, NASA, USAID, and partners are currently modeling climate change's potential impacts on regional water quality and water availability, and potential impacts on carbon stocks. With regard to the latter, CATHALAC has also developed a monitoring system, the Tropical Carbon Monitoring System, TROPICARMS (see: <http://www.cathalac.org/Tropicarms>).

References

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