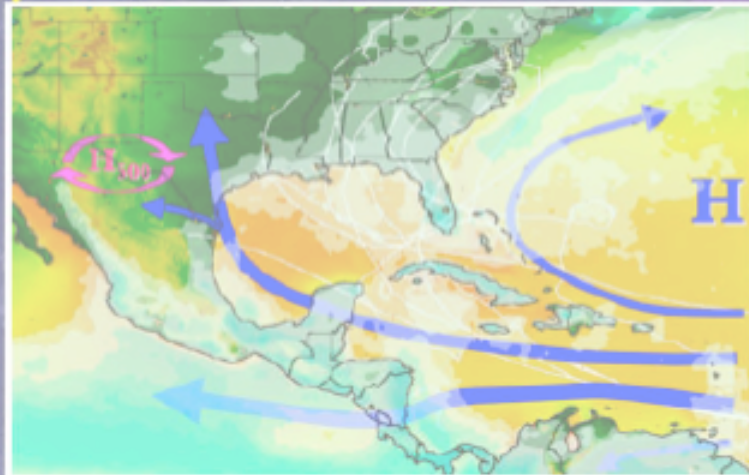


IASCLIP – Working Group on Regional Applications & Outreach



Eric Alfaro (chair), Lisa Goddard (co-chair)

Tereza Cavazos, Victor Magaña,
Chidong, Zhang, Michael Taylor



International requirements

Comments in the IASCLIP Science and Implementation Plan:

"The IAS region is a unique location in the world where so many countries are affected by the same set of climate phenomena."

"International collaboration is pivotal to the success of any climate research program for the IAS region. By the same token, a successful climate research program for the IAS region would yield broad international benefits."
"

"Identify the broad IASCLIP community. This would start from interested scientists from the IAS region. They will contact other interested parties in the region. (ii) The **IASCLIP Alliance** will be organized mainly through communications via emails and electronic newsletters. Workshops and special sessions at major international conferences can be considered to convene alliance members on specific issues."

Guiding Questions & Issues

1. What are the likely needs of the IAS region?
2. What are the highest priorities for applications?
3. Which kinds of training would be most useful?
4. Which institutions are key to success?
5. What mechanisms exist for reaching the desired goals?

1. Likely Needs of the IAS Region?

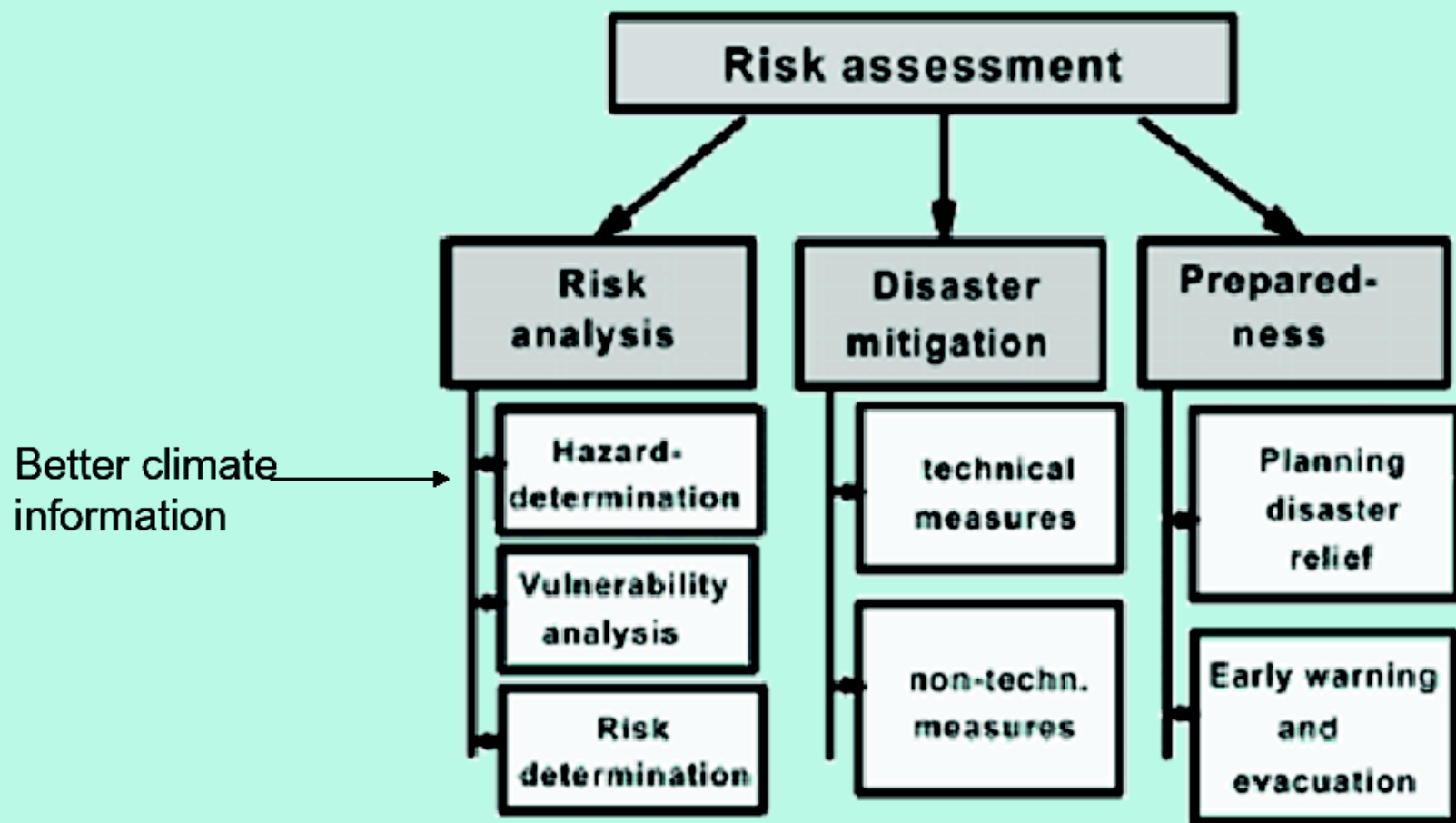
- Climate Impacts:
 - Climate variability (hurricanes, drought)
 - Climate change (SLR, hurricanes, drought)
- Societal impacts:
 - Disasters, health (e.g. malaria), coastal environments, agriculture, water
- Rather than anticipate needs, start discussions about the problems.
 - ➔ **IASCLIP ALLIANCE**
- Increase numbers of climate scientists in the region, and increase capacity of institutions and individuals on understanding and predictability of CV&CC
 - Necessity in the region for formal capacity building at professional level, BSc, MSc or PhD especially in Atmosphere and Ocean Sciences.



1-2 June 2009

IASCLIP - VPM12 -San Juan, PR

Una adecuada gestión del riesgo requiere, entre otras cosas, de la determinación del peligro y la vulnerabilidad para poder definir acciones de prevención



Source: V. Magaña

Bringing Climate Information In

- Improved understanding of impact of WHWP relative to ENSO
- Communication – e.g. participating in WMO-type trainings
- General tools for “tailoring” of climate information
 - Bias correction (models aren’t perfect)
 - Statistical/dynamical approaches (e.g. CPT, Wx generators : These still require **capacity building**)
- Flexible and open data

Examples:

- + Some applications, including benefit to forecasts
- + Strengthening institutional policies so societies can actually use climate information (e.g. climate-based insurance systems)

Caracas Venezuela Floods and Landslides 1999/2000



View Downstream



Matthew C. Larsen, USGS

Debris-flow scars, remains of houses and two-lane highway on Caribbean coast.

Slide from **USGS**: <http://pr.water.usgs.gov/public/venezuela/>

1-2 June 2009

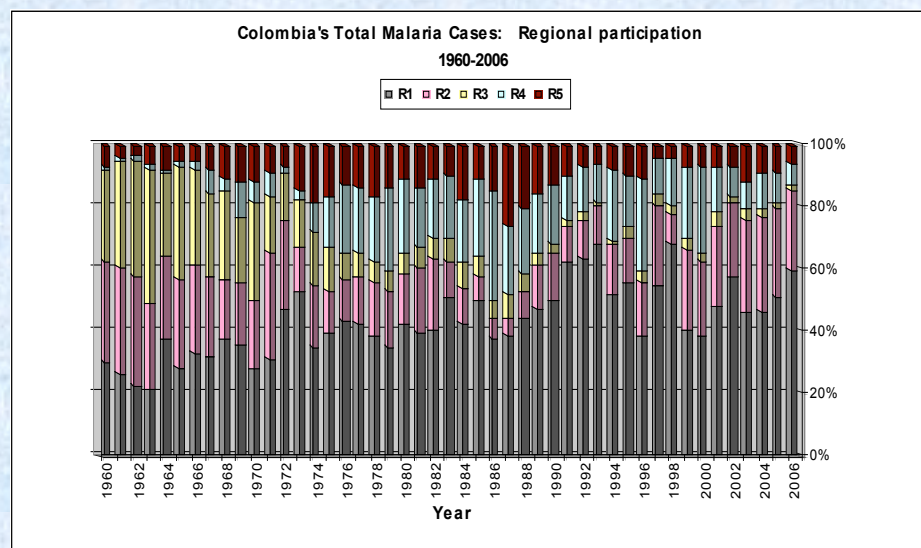
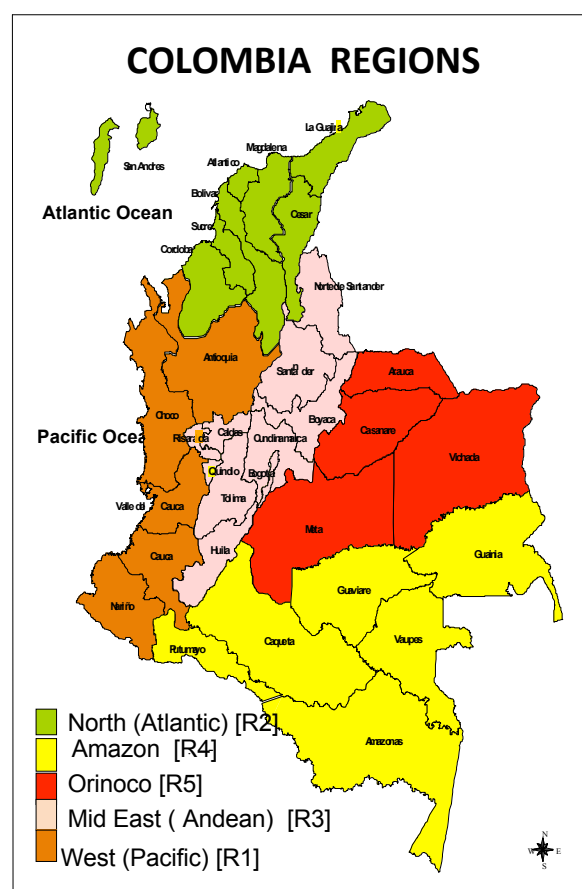
IASCLIP - VPM12 -San Juan, PR

Source: B. Lyon

Malaria and Dengue Early Warning in Colombia

GEF/World Bank Project: “Integrated National Adaptation Pilot: High Mountain Ecosystems, Colombia's Caribbean Insular Areas, and Human Health (INAP)”

Important figures to understand Colombia's Malaria cases



Highlights:

- Downward trend participation of R3 on the total malaria cases from 1960-2006
- High and upward trend participation of R1 and R2 on the total malaria cases from 1960-2006

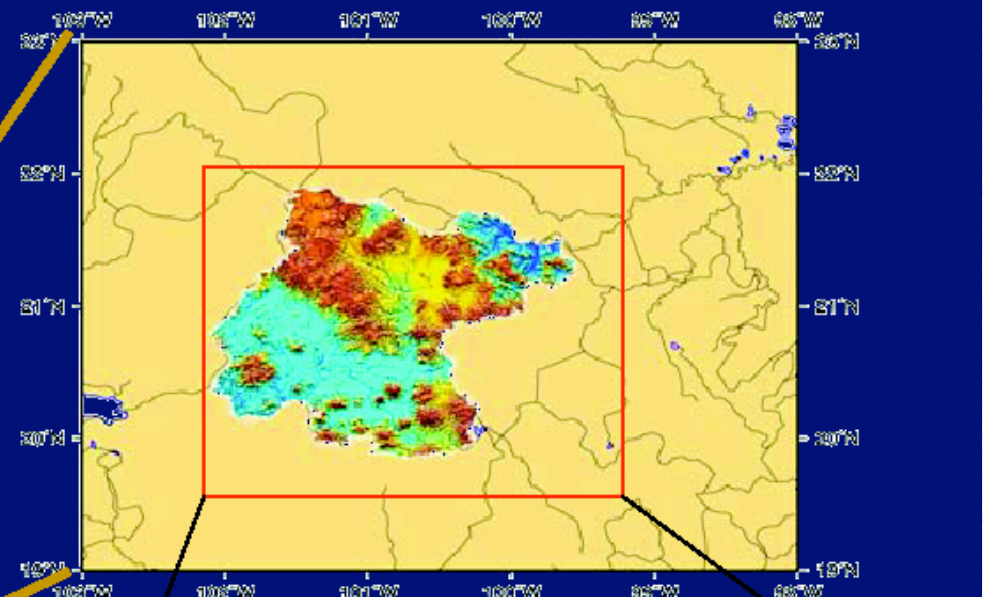
Index Insurance in Central America

- IRI is supporting the research, design, training, and implementation of drought index insurance for rainfed crops in Nicaragua and Honduras
- Partners include World Bank CRMG, IDB, CABEI, FIDES, Zamorano, Governments of Honduras and Nicaragua, and others.
- Some key climate questions in implementation:
 - How does the climate impact crop losses?
 - How can an understanding of regional processes be utilized to design higher quality, lower cost insurance products?
 - How could the forecast be integrated into insurance products?
 - How can short time series data be responsibly used in determining climatology to quantify risk?
 - Can Paleo analysis be used to better quantify risk?
- For more information contact:
Daniel Osgood deo@iri.columbia.edu



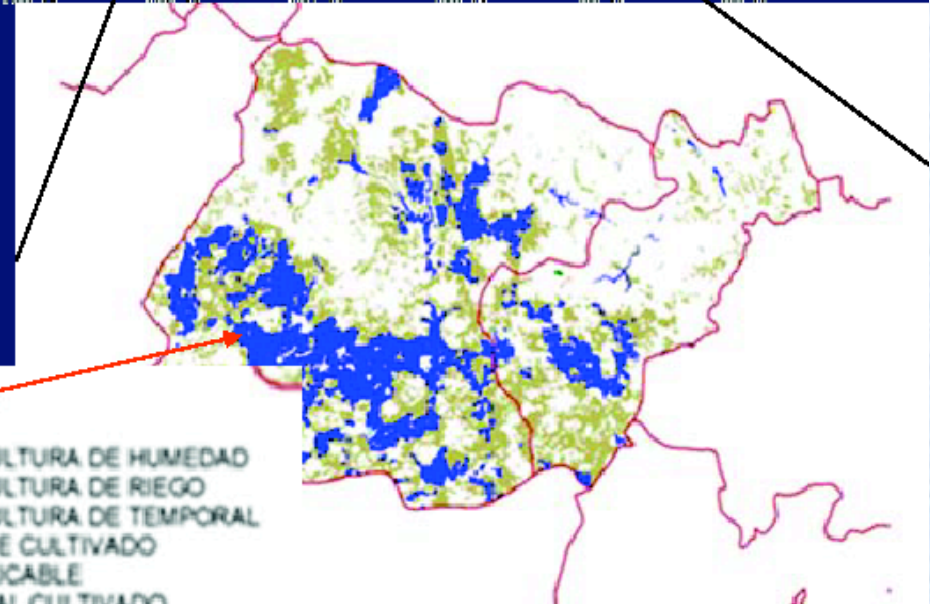
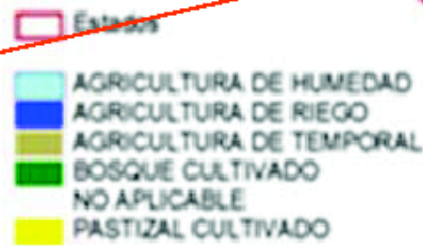
Agriculture in central Mexico

Énfasis en los estados de Guanajuato y Querétaro

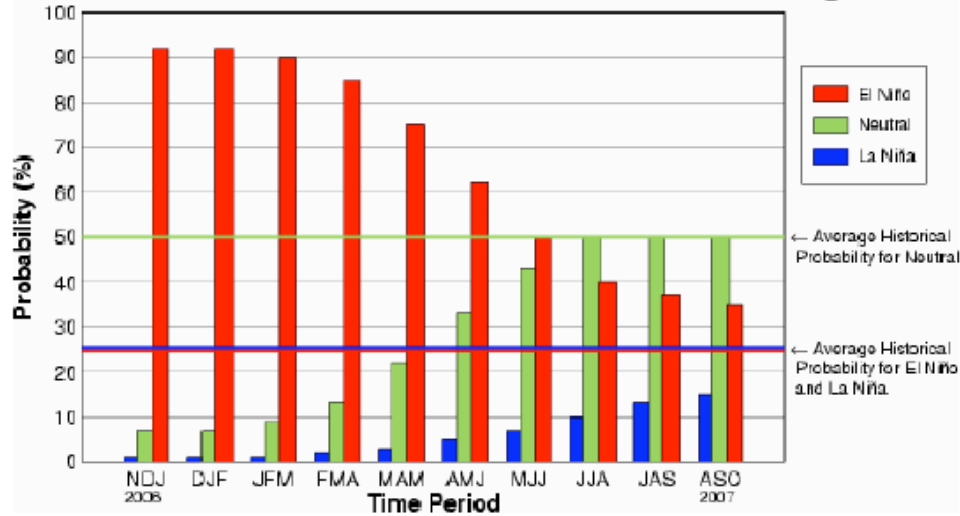


Rainfed agriculture

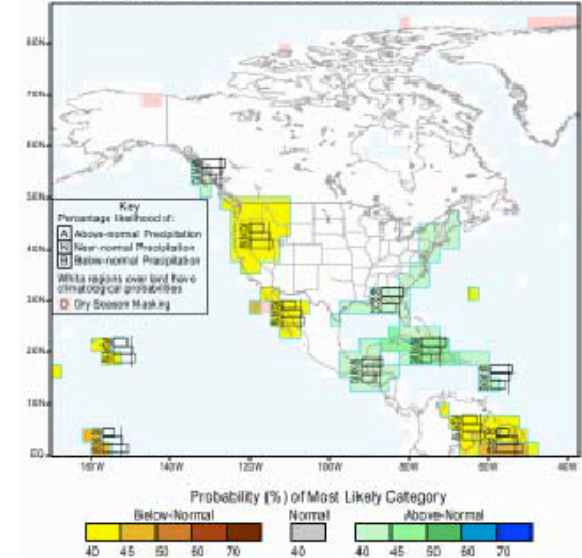
Source: V. Magaña



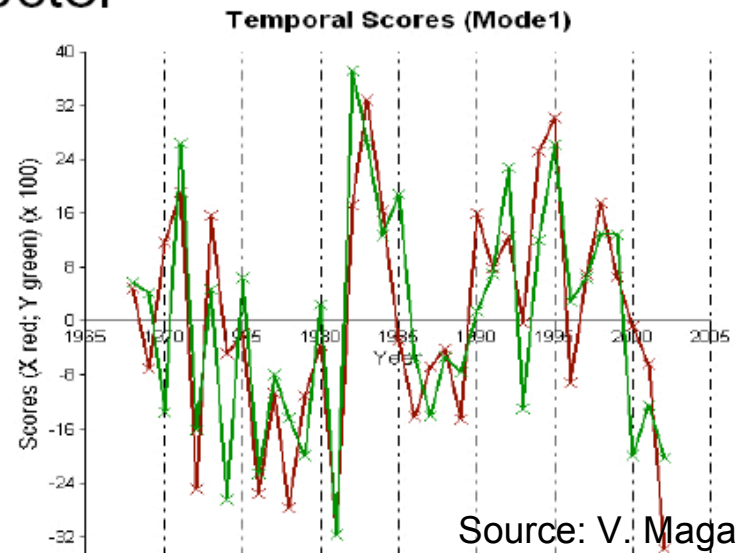
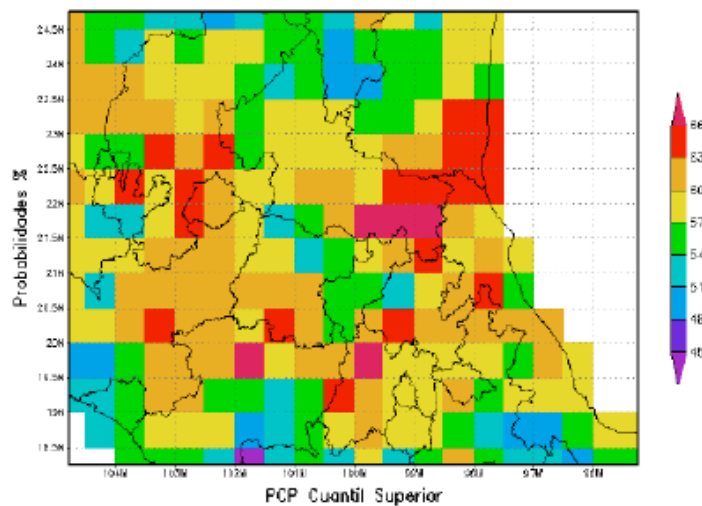
IRI Probabilistic ENSO Forecast for NINO3.4 Region



IRI Multi-Model Probability Forecast for Precipitation for August-September-October 2007, Issued July 2007



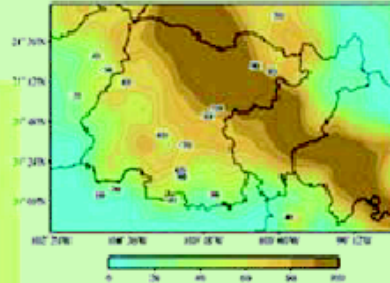
Improved capacity to predict ENSO and regional climate is of major importance in the decision making process in the agricultural sector



Source: V. Magaña

Gestión de Riesgo Climático en Agricultura

AMENAZA CLIMÁTICA
(Mapas de probabilidad de condición climática por encima o por debajo de un umbral
Datos meteorológicos de estación o malla

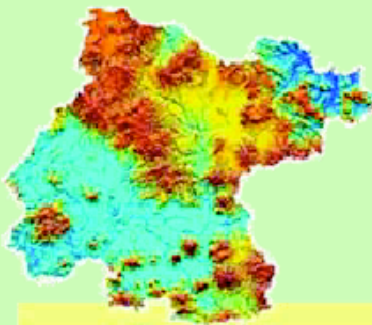


RIESGO CLIMÁTICO

Probabilidad de que dada una amenaza, se presenten pérdidas dada un nivel de vulnerabilidad

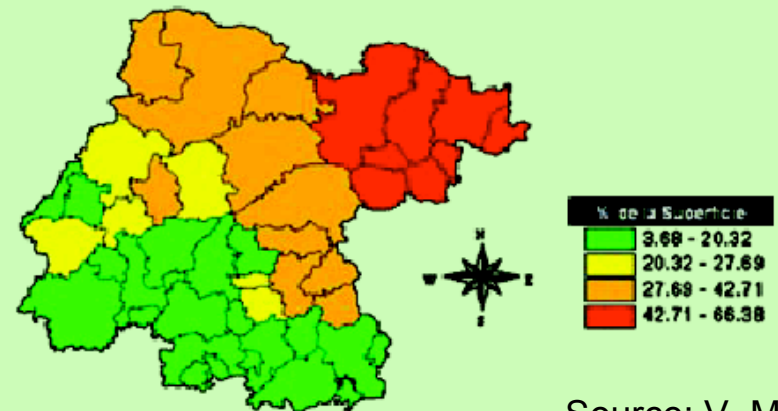
$$P(E1|E2)$$

Construida a partir de la historia de rendimientos o áreas siniestradas en cada lugar (datos SIACON O AGROASEMEX)



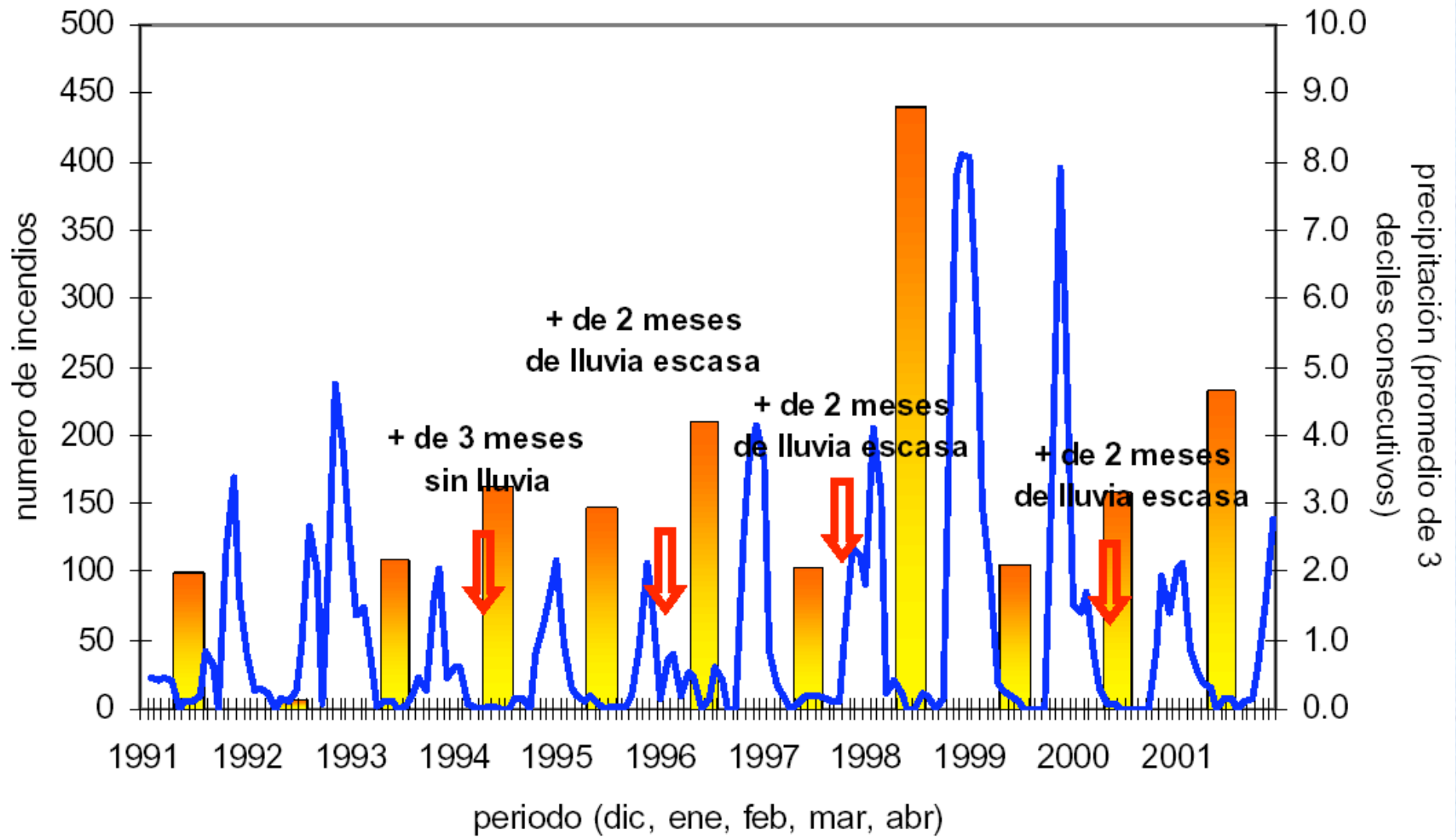
VULNERABILIDAD

Probabilidad de impactos negativos en agricultura resultado de diversos factores como son pérdida de suelos, malos manejos de cultivo, falta de apoyos, envejecimiento o migración



Source: V. Magaña

Relación del número de incendios y precipitación. Tlaxcala. Periodo 1991-2001



2. Highest Priorities for Applications?

- Climate Prediction across time and space scales.
 - Extreme events (tropical cyclones trajectories & landfall risk, cold surges, droughts, etc.)
 - Downscaling (numerical and/or statistical), it also would address in a more proper way the impacts study of main features in which IASCLIP will focus.
 - Climate change (drought, sea level rise/storm surges)
- Establishing communication networks
 - From climate science/prediction to climate risk management/policy (***IASCLIP ALLIANCE***)

3. Most Useful Training?

List below concerns training on climate...

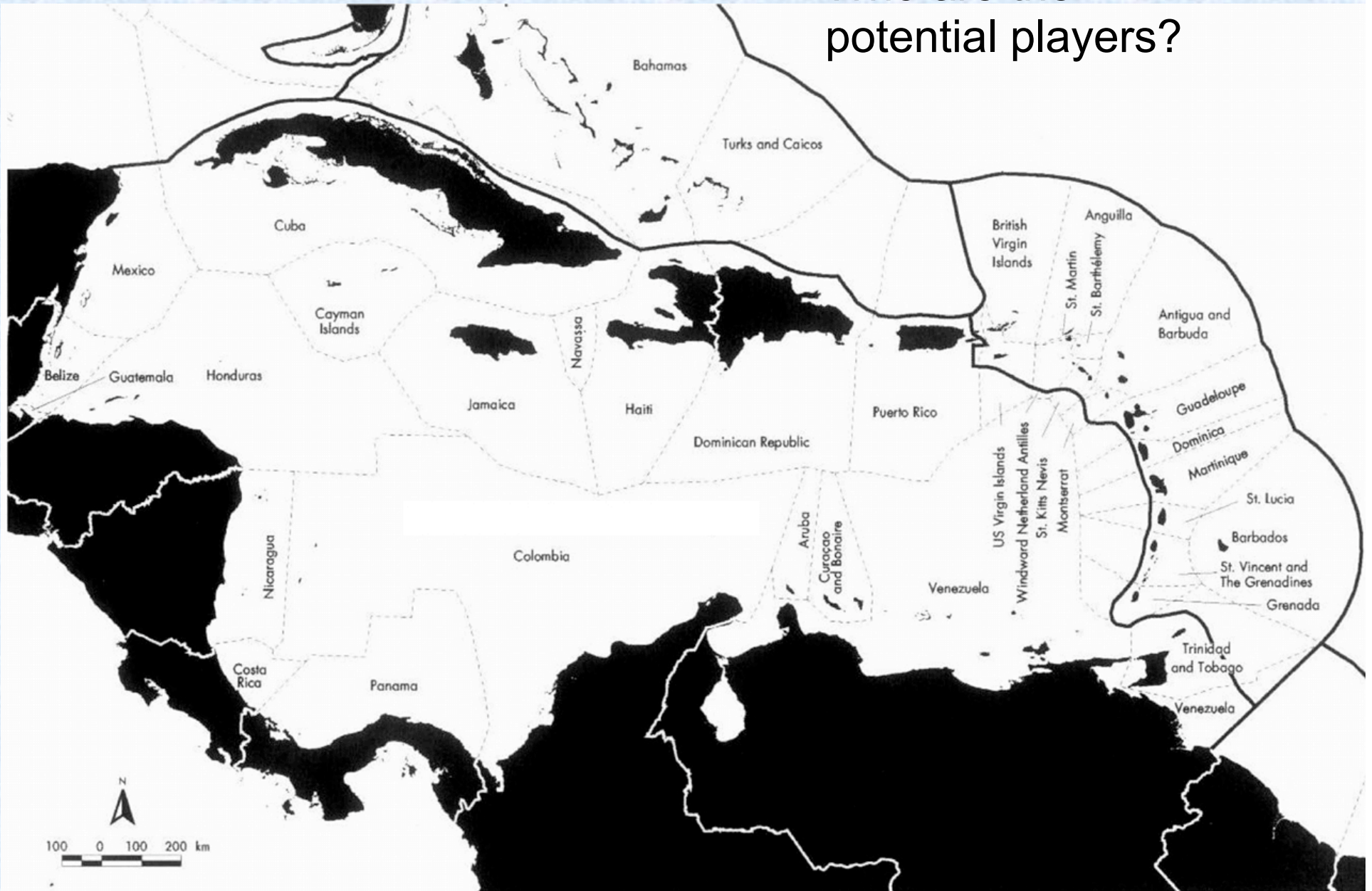
Climate scientists could learn from sectoral or social professionals also.

- Academic interchange (researchers and students)
- Workshops with RCOFs (e.g. Climate, Media, Sectoral)
- WMO CLIPS training and other focused workshops (e.g. IAI RCNs, IRI CPT)

4. Key Institutions for Success?

- WMO-Regional Meteorological Training Centers (RMTC), (e.g. University of Costa Rica and the Center in Barbados)
- Universities in the region with academic programs that finish with a thesis elaboration in atmosphere and ocean sciences at graduate and/or non graduate level (e.g. University of Costa Rica, University of West Indies, University of Puerto Rico, UNAM, CICESE, etc)
- Regional mechanisms (e.g. Central American Integration System, SICA; and Inter-American Institute for Climate Change Research, IAI)
- Regional climate centers (e.g. CATHALAC, CIIFEN)
- International research centers (e.g. IRI)
- National, international, and non-governmental agencies tasked with climate risk management/policy/decisions (e.g. IFRC; ministries of health, agriculture, etc.)

Who are the potential players?



1-2 June 2009

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Regional Climate Outlook Forums in the Caribbean

1st Caribbean RCOF: Kingston, Jamaica, May 1998
(2 more since then – 1999, 2000)

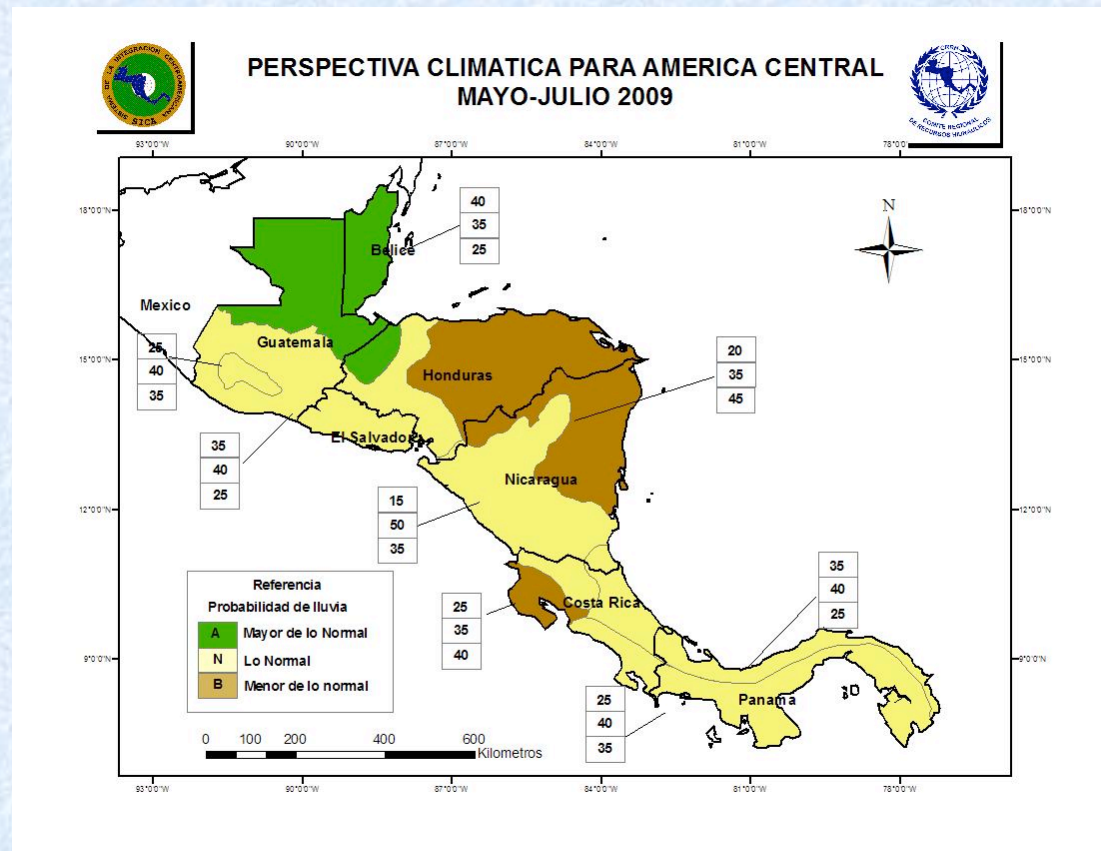
Sponsors included the:

- International Research Institute for Climate and Society (IRI)
- U.S. Agency for International Development through its Office of Foreign Disasters Assistance (USAID-OFDA)
- The World Meteorological Organization (WMO)
- The Inter-American Institute for Global Change Research (IAI)
- National Oceanic and Atmospheric Administration (NOAA-OGP)
- Regional institutions such as the Caribbean Institute of Meteorology and Hydrology (CIMH).

Regional Climate Outlook Forums for Central America

XXVII Foro Climático de América Central held May 2009

- www.insivumeh.gob.gt
- www.hydromet.gov.bz
- www.snet.gob.sv
- www.smn.gob.hn
- www.imn.ac.cr
- www.etesa.com.pa
- www.hidromet.com.pa
- www.ineter.gob.ni



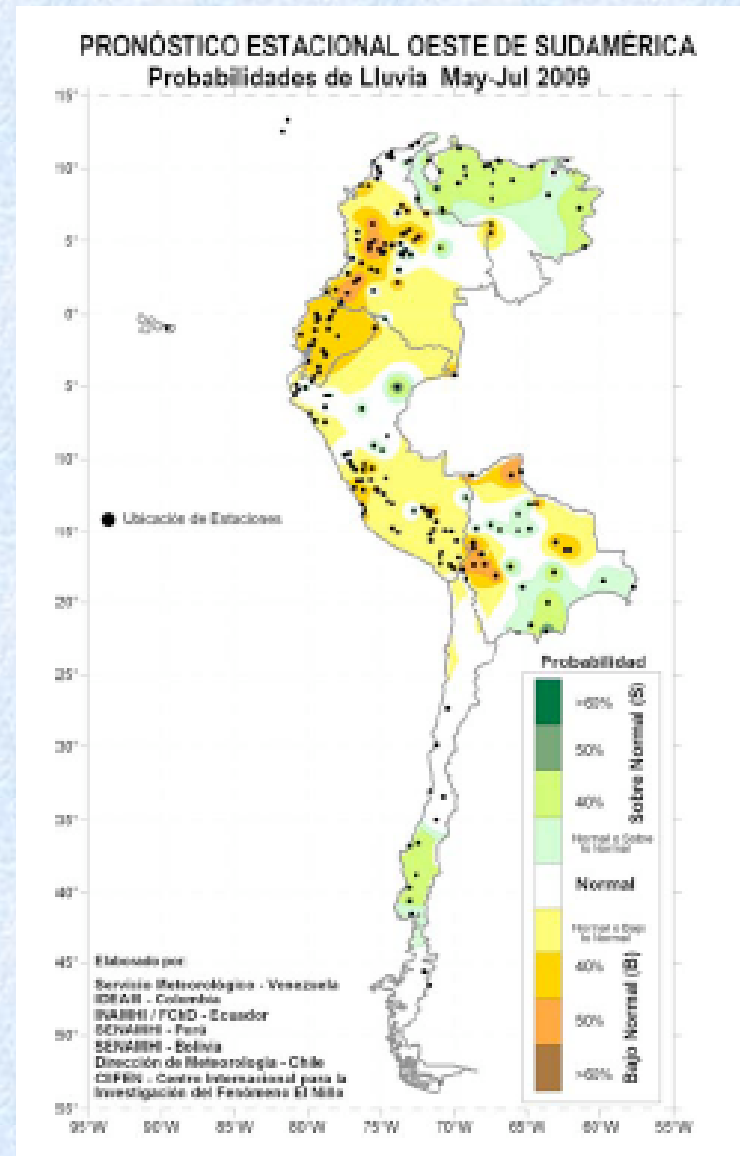
1-2 June 2009

IASCLIP - VPM12 -San Juan, PR

Regional Climate Centers

- e.g. **CIIFEN**

Training regional NMHSs to produce more localized, probabilistic seasonal forecasts using CPT and recent model predictions together with observations



Int'l Climate Centers/Boundary Organizations



Data Library

Flexible Forecasts

Temperature

Temperature

Africa

Asia Indonesia

Australia

Central America

Europe

Global

Middle East

North America

South America

help@iri

Printable Page

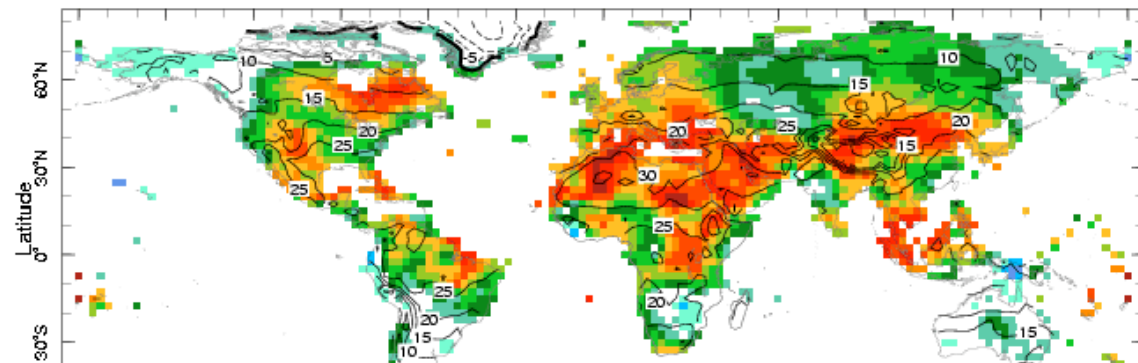
IRI Seasonal Temperature Flexible Forecast

Forecast issued: May 2002 Target Season: JJA JAS ASO SON

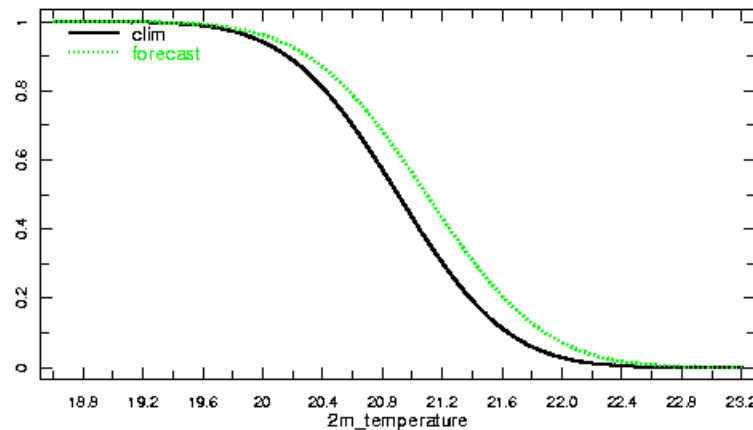
Probability of exceedance non-exceedance Percentile threshold: 50 %-ile

Climatology: 1970 - 1999

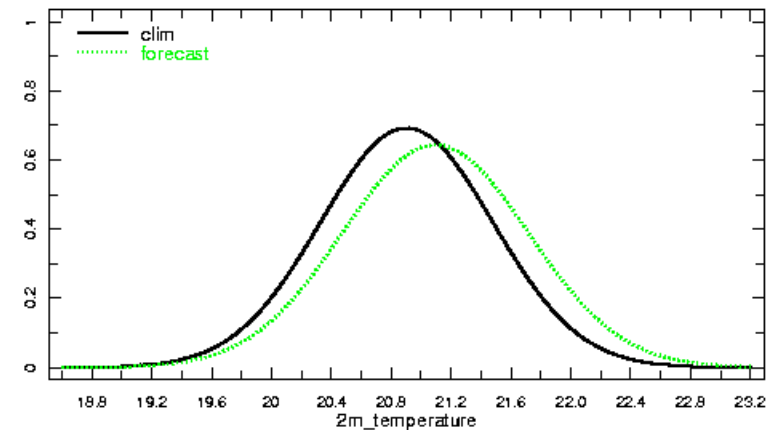
80N



Forecast issued	Target Season
May 2002	JAS



Longitude 122.5W Latitude 40N lead 3.5 months start 0000 1 May
Probability of Exceedance



Longitude 122.5W Latitude 40N lead 3.5 months start 0000 1 May
Probability Distribution

1-2 Jun

Non-Governmental Organizations

A PARTNERSHIP TO SAVE LIVES



 International Federation
of Red Cross and Red Crescent Societies

 The International Research Institute
for Climate and Society

Early-warning, early-action. Science meets the Federation.

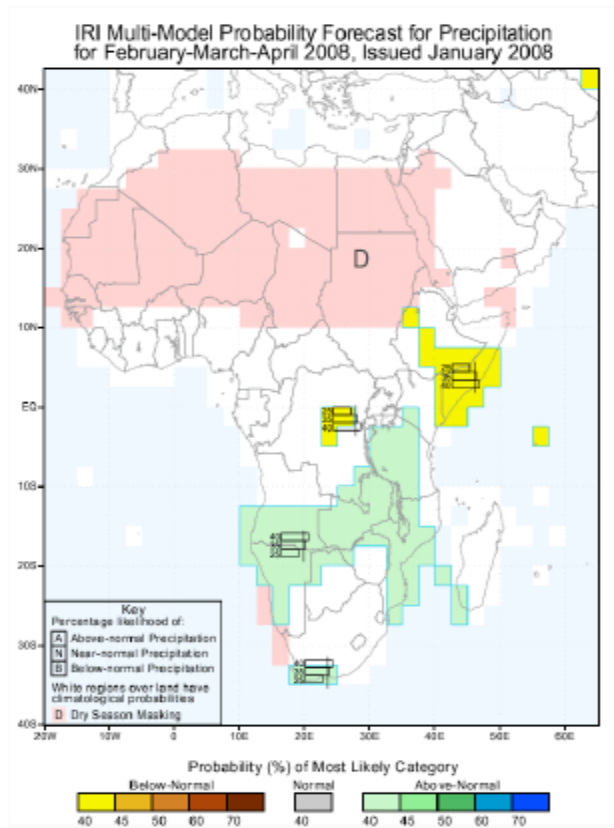
“Improved early warning can have a significant impact on a more strategic approach to disaster response.”

1-2 June 2009

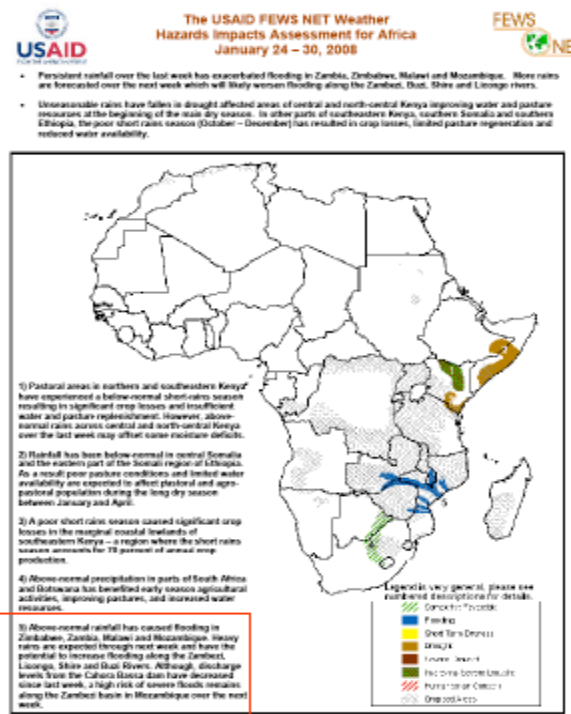
IASCLIP - VPM12 -San Juan, PR



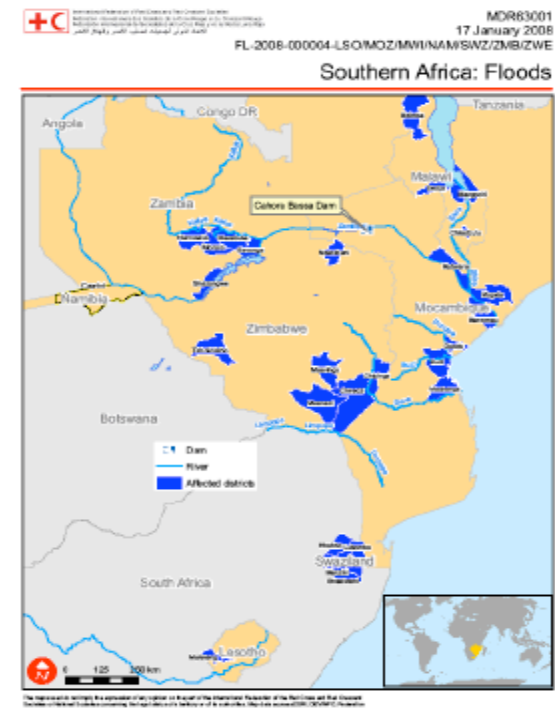
Seasonal forecast



One week forecast



Observation



Above-normal rainfall has caused flooding in Zimbabwe, Zambia, Malawi and Mozambique. Heavy rains are expected through next week and have the potential to increase flooding along the Zambezi, Limpopo, Shire and Buzi Rivers. Although, discharge levels from the Cahora Bassa dam have decreased since last week, a high risk of severe floods remains along the Zambezi basin in Mozambique over the next week.

Emergency appeal



International Federation
of Red Cross and Red Crescent Societies

West and Central Africa: Flood preparedness

Emergency appeal n° MDR61003
11 July 2008

This preliminary Emergency Appeal seeks CHF 750,000 (USD 731,134 or EUR 462,475) in cash, kind, or services to support the National Societies of West and Central Africa to assist 47,500 beneficiaries.

CHF 483,047 has been allocated from the Federation's Disaster Relief Emergency Fund (DREF) to start the planned activities. Discussions are currently taking place to reallocate approximately CHF 550,000 remaining from the 2007 West Africa floods appeal to support this appeal. While these discussions are underway, partners are encouraged to provide timely support to this appeal.



Red Cross Volunteer, Lomé, Togo, June, 2008

“Schemes” for Society to Benefit from Climate Predictions/Projections

1. Technology transfer
2. Development of ‘tailored’ forecasts and decision support schemes
3. Integrated models to evaluate value of climate information in planning activities

“Good Communication”

“IASCLIP Alliance”

(Capacity building, Model improvements & applications, human capacity)

5. Mechanisms for Reaching Goals?

- Develop means of communication across **Alliance**
 - Dissemination of research (results & in-progress), climate observations & attribution, forecasts (maps, tools, etc)
 - Calendar of events (meetings, obs campaigns, funding opportunities)
 - Facilitate networking & points of contact
- Active participation in RCOFs & other WMO-esque trainings
- Funded collaborations
 - IASCLIP-related projects (e.g. supported by NOAA and IAI, possibly EU initiatives) and the own local mechanisms that some institutions or universities have to facilitate the academic interchange.

IAI Funded Projects in the Region

INTER-AMERICAN INSTITUTE FOR GLOBAL CHANGE RESEARCH							
<p>FROM LANDSCAPE ENVIRONMENTS</p> <p>Rapid changes in the functioning taking place world-wide as a result of population and the globalized ecosystems, their boundaries and conditions is still unclear. How change? Can we predict environmental and land use vegetation sites under different American areas and in north questions.</p> <p>GOALS</p> <ul style="list-style-type: none"> Analyze interactions between time and space Identify current boundaries changes due to land use and Examine the dynamics of different scenarios of climate Predict future displacement of different scenarios of climate Communicate our results to increase awareness of the risk <p>ACTIVITIES</p> <ul style="list-style-type: none"> Monitor microclimate gradient Construct inventories of vegetation Assess the competitive ability to low temperatures, drought Determine seasonal patterns Monitor environmental drivers Interpret and model field forest-grassland mosaics in <p>Lead agency and principal investigator</p> <p>Universidad de los Andes - I (Venezuela)</p> <p>Guillermo Sarmiento (PI) - gms1@ula.ve</p> <p>Michele Astaroff (AIR) - mstaroff@ula.ve</p> <p>Co-Investigators</p> <p>Famín Rada (ICAE, Venezuela), Marcelo (Argentina), Ana María Cingo Lucía R. Dillenburg (UFROG, Argentina), Fidel A. Roig (IANIGLA, Argentina), Lázaro Ordoñez (Laurentian University, Canada), Chacón (ICAE, Venezuela), T. (ICAE, Venezuela), Julia Zúñiga</p> <p>Co-Investigators</p> <p>Alexandre Adalardo de Oliveira (UNESP, Brazil), Sybilie Breithorn (University of Virginia, USA), Julio Calvo, Ruperto Quintero (Medio Ambiente, Cuba), Jafet Wilson (UNESP, Brazil), Patrícia Morello (UNESP, Brazil)</p> <p>Logos: DiverSus, TROP-DRY</p>	<p>FUNCTIONAL BIODIVERSITY SERVICES AND SERVICES (DIVERSUS)</p> <p>The provision of ecosystem services is changing land-use patterns ecosystems. This has implications for land use change and properties must be integrated of ecosystems to human well-being. DiverSus Collaborative Research is developing and testing a field studies of land use change on (1) functional biodiversity properties; and (2) ecosystem services properties and their</p> <p>GOALS</p> <ul style="list-style-type: none"> Construct a network of soil functional biodiversity, ecosystem people use towards their lives Develop the first comprehensive biodiversity and establish link Examine links between functional biodiversity and ecosystem services as perceived Develop a conceptual framework recommendations, available society to be used in land-use and potentially conflicting in <p>ACTIVITIES</p> <ul style="list-style-type: none"> Measure functional biodiversity the functional traits values of Characterize ecosystem processes under contrasting land-use types Develop statistical tools to ecosystem properties Identify ecosystem service livelihoods (in Argentina) and Develop and apply an inter stakeholder livelihoods in all <p>Lead agency and principal investigator</p> <p>Instituto Multidisciplinario de Ecología (CONICET, Argentina)</p> <p>Sandra M. Diaz (PI) - sdiaz@imae-conicet.gov.ar</p> <p>Co-Investigators</p> <p>Alexandre Adalardo de Oliveira (UNESP, Brazil), Sybilie Breithorn (University of Virginia, USA), Julio Calvo, Ruperto Quintero (Medio Ambiente, Cuba), Jafet Wilson (UNESP, Brazil), Patrícia Morello (UNESP, Brazil)</p> <p>Logos: DiverSus, TROP-DRY</p>	<p>HUMAN, ECOLOGICAL (TROPIDRY)</p> <p>Tropical dry forests are located conditions for human settlement Tropidry's research network for strategy to produce comprehensive in tropical dry forests in collaboration organizations. Tropidry analyze dry forests and the socio-economic and degradation.</p> <p>GOALS</p> <p>TROPIDRY's goal is to bring to and evolution, remote sensing anthropology, policy analysis, the art' understanding of the:</p> <p>ACTIVITIES</p> <ul style="list-style-type: none"> Develop a comprehensive arid tropical dry forest successions Annual inventories of ecosystem and litter trap data at selected ecological variables continue Analyze satellite imagery (C) trends in forest extent arid area for Mexico, Costa Rica, Bolivia Develop innovative linkages communities to promote the dry forests Link research activities to local policy experts <p>LINKS TO OTHER IAI PROJECTS</p> <p>TROPIDRY and AMFOODS (see chosen ecosystems integrating) collaborating with Small Grant Conservation policy impacts in natural drivers of land use (see)</p> <p>Lead agency and principal investigator</p> <p>The University of Alberta (Canada)</p> <p>Arturo Sanchez-Azofeifa (PI) - arturo.sanchez@ualberta.ca</p> <p>Co-Investigators</p> <p>John Omon (University of Alberta, Canada), Alicia Castillo (ICIECO-UNAM, Mexico), Lawrence (University of Virginia, USA), Julio Calvo, Ruperto Quintero (Medio Ambiente, Cuba), Jafet Wilson (UNESP, Brazil), Patrícia Morello (UNESP, Brazil)</p> <p>Logos: TROP-DRY</p>	<p>DOCUMENTING, UNIC (TROPIDRY)</p> <p>Fresh water will be an increasing water supply that will require Mountain areas provide good water supply that will require Mountain areas provide good water supply that will require Mountain areas provide good water supply that will require</p> <p>GOALS</p> <ul style="list-style-type: none"> Examine and develop content them to the dominant causes (NAO, etc.) over the past 200 years Representative of climate Document and model mass streamflow in selected areas Assess modeled and project test methodologies for quantifying the next 50-100 years In conjunction with social impact of changes in water availability implications for future water <p>ACTIVITIES</p> <p>Assembly of databases for stream in the target regions; selected chronologies and climate records (PDSI, streamflow etc); training</p> <p>LINKS TO OTHER IAI PROJECTS</p> <p>Collaboration with Small Grant "Climate change and irrigated down the mountain: understanding hydroclimatic variability"</p> <p>Lead agency and principal investigator</p> <p>Department of Geography, University of Western Ontario</p> <p>B. H. Luckman (PI) - luckman@uwo.ca</p> <p>Co-Investigators</p> <p>José Villanueva-Díaz (INIFAP, Mexico), Andrés Boliuá, Ricardo Villalba (IANIGLA, Argentina), Edmo Campos (other Co-PI)</p> <p>Logos: IASCLIP</p>	<p>TROPICAL CYCLONE A WARMER CLIMATE</p> <p>The atmosphere-ocean system changes in complex ways. Tropical regions of the Americas number of tropical cyclones studied; perhaps because the Ocean, without affecting the Central America, the associated benefit to dry regions, such as</p> <p>GOALS</p> <ul style="list-style-type: none"> Improve the understanding East Pacific, through observations Identify the most important scenarios Evaluate the impact of coastal warming scenarios <p>ACTIVITIES</p> <ul style="list-style-type: none"> Analysis of satellite-derived gridded data; and data from Operational modeling using during the cyclone season; modeling Training: Course on tropical August 2007; 1st spring course collaboration with CRN 2050 <p>LINKS TO OTHER IAI PROJECTS</p> <p>This project works with Small "Information flows and policy adaptive water-resources in America" (see GSP-H0005).</p> <p>Lead agency and principal investigator</p> <p>Universidad Nacional Autónoma de México</p> <p>Graciela Binimelis de Rega (PI)</p> <p>Co-Investigators</p> <p>Jorge Zavala-Hidalgo (CCA-U), Jorge Sánchez Serna (IMTA), Sánchez Montaña (IGCATA), (INSMET, Cuba), Ido Mitrani (I recently decided to withdraw), Romero Centeno, Julio Marin (Cuba)</p> <p>Logos: TROP-DRY</p>	<p>PALEOTEMPESTOLOGY STUDY OF THE SPATIAL ACTIVITY</p> <p>The pan-Caribbean region, in the U.S. Gulf coast, is one of the most vulnerable to hurricanes. Impacts are of environmental and economic importance. This project studies the interannual variability of tropical cyclone activity in the study of past tropical cyclone techniques.</p> <p>GOALS</p> <ul style="list-style-type: none"> Produce proxy records of pan-Caribbean region by analyzing stalagmites, tree-rings, and coral Understand the climate and historical hurricane records Assess the vulnerability of tropical strikes by developing a historical Caribbean societies <p>ACTIVITIES</p> <ul style="list-style-type: none"> Collect sediment cores and Mexico; the Dominican Republic, Cuba, and other Caribbean Laboratory analyses of these hurricane records Conduct numerical analysis data to understand the hurricane attention on links to ENSO, sea level rise, and teleconnections Develop a historical database on Caribbean societies Develop a geographic information potential loss of life, economic health hazards in the region <p>Lead agency and principal investigator</p> <p>Louisiana State University, Baton Rouge, LA</p> <p>Kam-biu Liu (PI) - kliu1@lsu.edu</p> <p>Co-Investigators</p> <p>Nina Lam (Louisiana State University), Claudia Mora (University of New Orleans), US (Newfound, Canada), M Deslozes (University of Toronto), Jorge Amorim (University of Costa Rica, Costa Rica)</p> <p>Logos: TROP-DRY</p>	<p>EFFECTIVE ADAPTATION TO CLIMATIC SHOCKS: L</p> <p>Climate variability and price volatility in crop production in developing countries selected regions in Mexico. Our study identifies livelihood adaptation to fluctuation, climate change and</p> <p>GOALS</p> <ul style="list-style-type: none"> Identify key impacts of economic shocks on the livelihoods of Analyze and evaluate current economic and climatic crises in Identify strategies that farmers enhancing resilience Analyze the facilitating and other organizations in coffee growers Explore implications of household operation Foster communication between in a participatory process to climate change, economic fluctuation <p>ACTIVITIES</p> <ul style="list-style-type: none"> Collect and analyze socioeconomic and historical data that influence as global changes to determine successful adaptation strategies Conduct global chain communication Conduct semi-structured interviews from local organizations in Guatemala, Honduras, and Costa Conduct household questionnaires Analyze satellite images to <p>Lead agency and principal investigator</p> <p>Universidad del Valle de Guatemala</p> <p>Edwin Castellanos (PI) - ecastell@uv.edu.gt</p> <p>Co-Investigators</p> <p>Rafael Díaz Porras, Gerardo Jimenez, Francisco Anzures (IANIGLA), Sándra De Urzúa-Stone, Jim Catherine Tucker (Indiana University), Eskin (School of Sustainability, Francisco Barrera (El Colegio de</p>	<p>CARIBBEAN COASTAL SCENARIOS (CCS): AN INTEGRATED ANALYSIS OF INLAND-COASTAL LINKAGES TO GUIDE SUSTAINABLE USE AND PROTECTION OF COASTAL ECOSYSTEMS</p> <p>The island nations of the Caribbean are among the countries most vulnerable to global environmental change. Precipitation may decline by as much as 20% and temperature is increasing across the region. This project will quantify the impacts of land-based activities on coastal resources under different scenarios of development and climate change. It applies the best available scientific knowledge to the modeling and evaluation of possible futures for Cuba, Hispaniola, Jamaica, and Puerto Rico.</p> <p>GOALS</p> <ul style="list-style-type: none"> Provide knowledge, understanding and predictive models to support island nations in assessing, anticipating and adapting to current and future coastal environmental problems Simulate seasonal and inter-annual fluxes of water, sediments, and contaminants to coasts as a function of climate and catchment characteristics Estimate the impact of inland fluxes on coastal resources Construct scenarios for future development, management, conservation and remediation of the coastal zones in a stakeholder dialogue <p>ACTIVITIES</p> <ul style="list-style-type: none"> Collect and integrate data on the relationships between island-scale inland development and coastal ecosystems, quantifying freshwater and pollution inputs Increase awareness, institutional and stakeholder cooperation through national and regional dialogue and outreach activities on the consequences of current and future development and management activities Build capacity for analysis and cooperation to explore sustainable and desirable scenarios in the future Hold workshops to share models with government partners and train technicians on how to use the Soil-Water Assessment Tool model, in Dominican Republic, Jamaica and Puerto Rico Encourage the participation of local and international partners, universities, governments, The Nature Conservancy and of projects such as the White Water to Blue Water Initiative, GEF-UNEP's Watershed and Coastal Management (WICAM), UNEP's Protection of the Marine Environment, NEPA/USAID's Jamaica Ridge to Reef Watershed (R2RW), the Land-Ocean Interactions in the Coastal Zone (LOICZ) and UNESCO's International Hydrology Programme (IHP) <p>LINKS TO OTHER IAI PROJECTS</p> <p>Integration with project for the Human Dimension "Designing a methodology to evaluate local knowledge on global change and its role in the construction of future land use scenarios by local actors" (GSP-HD009)</p> <p>Lead agency and principal investigator</p> <p>Florida International University (FIU) - USA</p> <p>Michael E. McClain (PI) - michael.mcclain@fiu.edu</p> <p>Co-Investigators</p> <p>Zhaohui Jennifer, Jennifer Gebelstein, Assaf Melesse (FIU, USA), Lianna Talauer-McClain (IUM, USA), Felipe Vitozzo (Universidad Autónoma de Santo Domingo, Dominican Republic), Dale Webber (West Indies University, Jamaica), Jorge Ortiz (University of Mayaguez, Puerto Rico), William McDowell (University of New Hampshire, USA), Francisco Núñez, Pedro Martínez (The Nature Conservancy, Dominican Republic)</p> <p>Logos: IASCLIP</p>

Landscape Under Change in Venezuela

Ecosystems Under Change in Costa Rica, Venezuela, and Mexico

Tropical Under Change in Mexico

Spatial of Caribbean Mexico, Luis

Adaptation for Climate Change in Guatemala, US

Sustainable Use & Protection of Coastal Ecosystems in the US, Dominican Republic, Jamaica, Puerto Rico

Suggested Emphasis for IASCLIP Applications and Outreach

1) “Good Communication”

- Regional Climate Outlook Forums (RCOFs)
- Active dialog with real-time forecast centers, and regional and int’l climate centers (e.g. CATHALAC, CIIFEN, IRI)

2) “IASCLIP Alliance”

- Capacity building
 - Professional training (Summer schools, workshops w/ RCOFs, IAI RCNs)
 - Scholar and student exchange
- Model improvements [for forecasts and applications]
- Information Sharing