



“Hurricanes and coastal zone vulnerability in Central America and the Caribbean under a changing climate”

Inter-American Institute for Global Change Research (IAI) collaborative research in the Americas”

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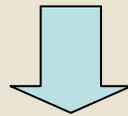
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What is the IAI?

Inter-American Institute for Global Change Research (IAI)

- Intergovernmental organization of 19 countries in the Americas
- IAI multinational research projects

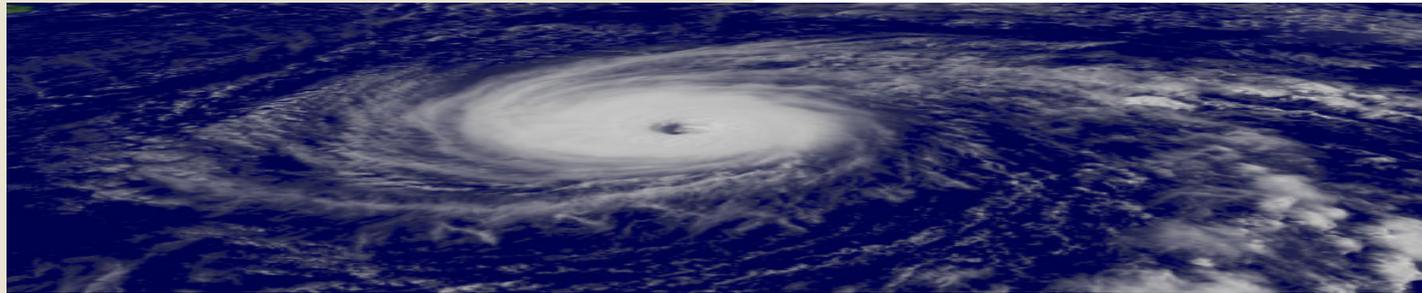


scientific advice for policy makers on critical global change issues in the region



IAI Research

- Collaborative Research Networks
 - multinational
 - scientists + institutions work together on a range of GEC issues in the region
- Plus Human Dimensions
- Together 221 scientists, 127 institutions, 18 countries in the Americas



Under a warmer future: are more intense hurricanes to be expected in the Caribbean?

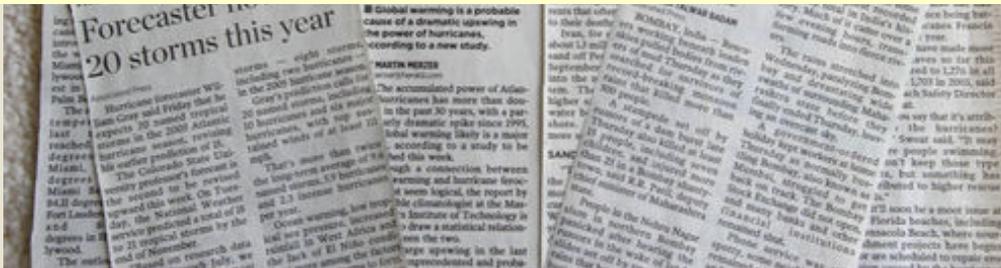
The vulnerability of people living in coastal areas



Improved cyclone predictions



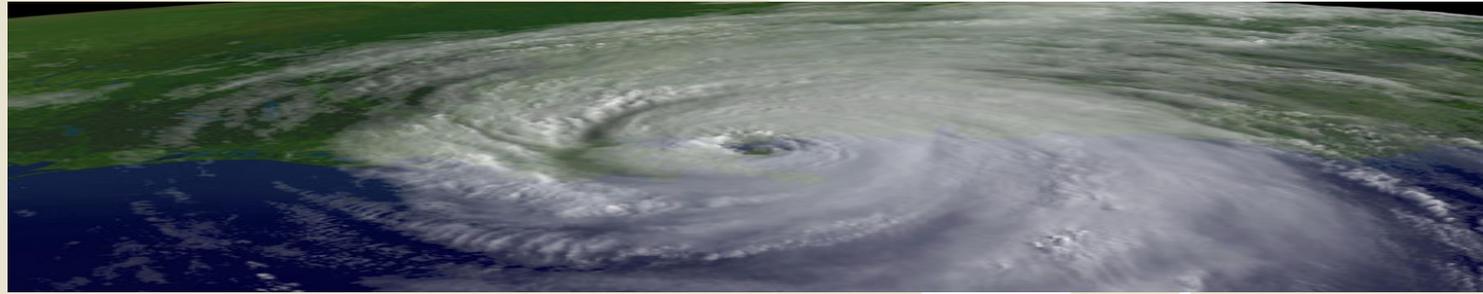
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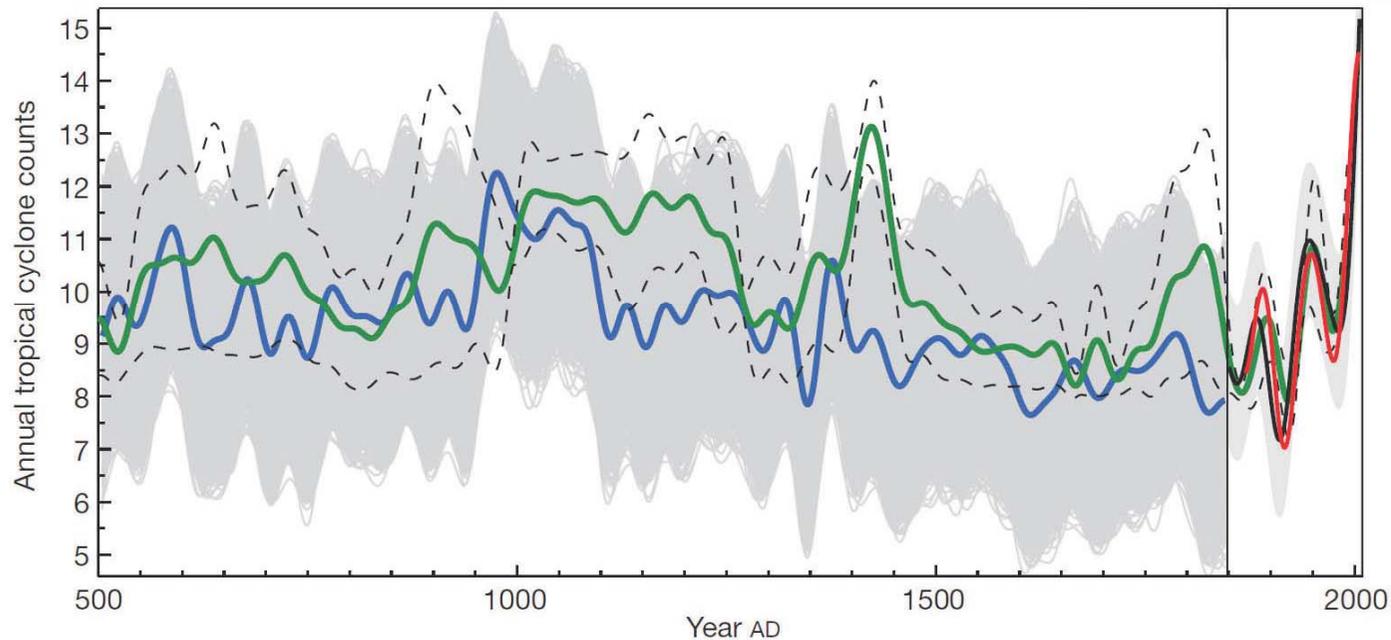
La Oficina de Coordinación de Asuntos Humanitarios de Naciones Unidas (OCHA) alertó hoy que Tomas amenaza con convertirse en huracán y llegar a Haití el viernes y "en el peor de los escenarios" dejará unos 500 mil afectados.

La portavoz de OCHA, Elisabeth Byrs, dijo en rueda de prensa que según la Organización Meteorológica Mundial (OMM) se estima que la tormenta tropical Tomas gane fuerza y llegue a costas haitianas, "hemos estimado que el peor escenario posible es que 500 mil personas se vean afectadas".

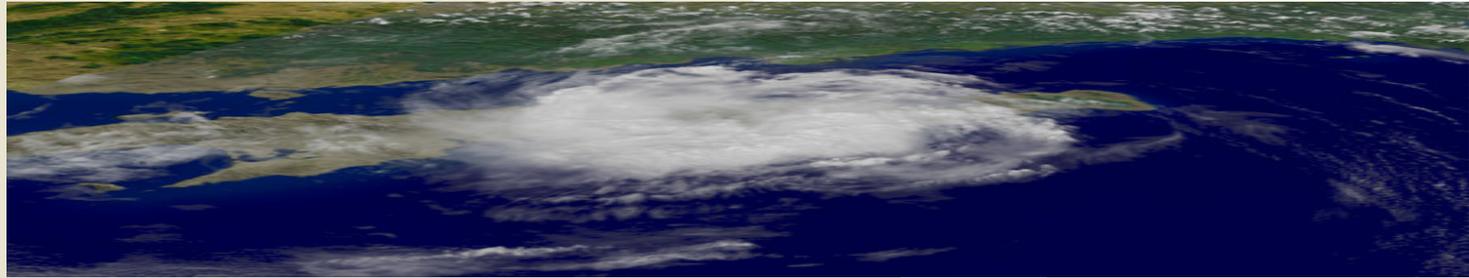
Señaló que OCHA, agencias de la ONU y la Organización Internacional para las Migraciones (OIM) han tomado medidas preventivas en puntos clave del país que pudieran ser afectados principalmente en Puerto Príncipe, Jeremy, Les Cayes, Jacmel y Léogane, que podrían sufrir los peores daños.



Paleotempestology of the Caribbean

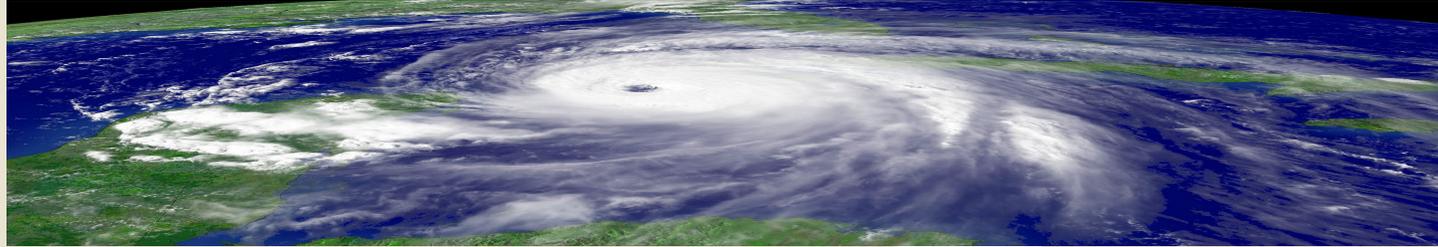


The data show a current peak in hurricane activity, but also a similar peak in medieval times (AD 900-1100). That the latter is present in both the model-predicted (green) and the proxy-reconstructed (blue) curves suggests that it can be explained by climate forcing. We do not yet fully understand all factors affecting hurricane dynamics, but the records show that warm Atlantic surface temperatures are associated with more hurricanes, and current global warming is also warming the oceans.



Increasing vulnerabilities of coastal populations





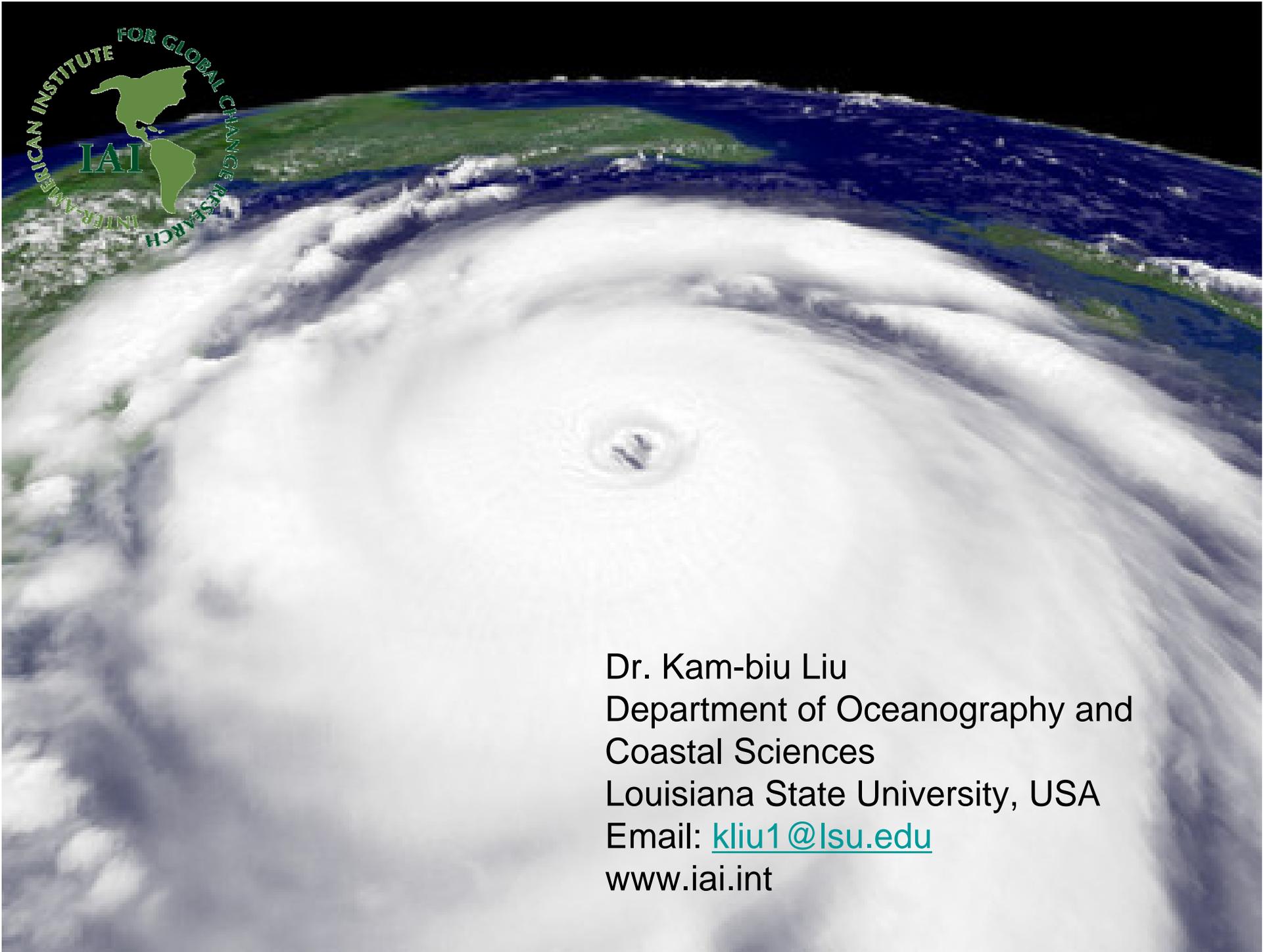
Large uncertainty in hurricane track prediction (e.g., Hurricane John, 2006)





Conclusions

- warm Atlantic temperatures → more intense hurricanes
 - current global warming is warming the oceans
- increased human use of coastal zones created new vulnerabilities
 - 12 million in conterminous U.S. live below 3 m elevation on coast
 - Anguilla, Antigua & Barbuda, Dominica, St. Kitts & Nevis, Turks & Caicos, and Netherlands Antilles will be inundated with a 3-m sea level rise
 - 20% of population in Bahamas, Belize, Guadeloupe affected by 6 m sea level rise
- more reliable track and intensity forecasts for tropical cyclones needed
 - to prevent human losses and destruction of assets
 - critical lack of data for models used in forecasting (e.g. upper air



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