The University of the West Indies Medical & Environmental Research Areas

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Open Science Data Cloud NSF PIRE Workshop
University of Edinburgh, 16-19th July 2012

The University of the West Indies

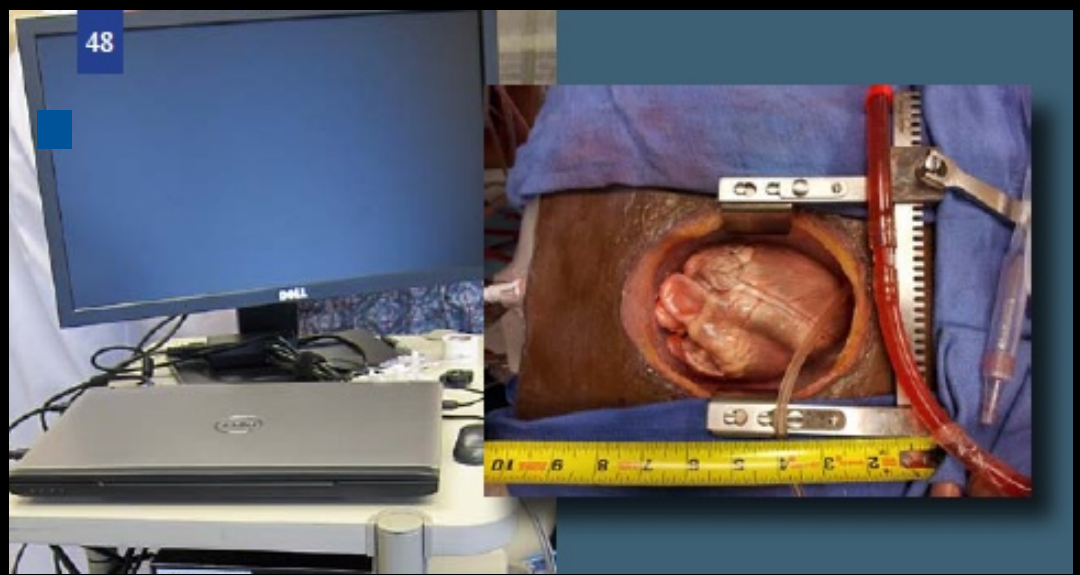
- Regional University with Four Campuses
- Student population of nearly 48,000
- Seven Faculties Offering over 700 programmes
  - Over 330 undergraduate level
  - Over 210 taught graduate level
  - Over 170 graduate research level and
  - Online programmes
- Leading research university in the region
  - 71% of publications cited by the Web of Knowledge coming from the CARICOM area originate from the UWI (2010 UNESCO World science Report)

Some Research Partner Institutions

Duke University - School of Nursing
Florida International University
Grand Valley State University
Lutheran Medical Centre
Pacific Lutheran University
University of Alabama at Birmingham - UAB
University of Mississippi
Utah State University
Towson University
Florida State University
University of Guelph
University of Prince Edward Island

Innovation from the Mona campus, Jamaica

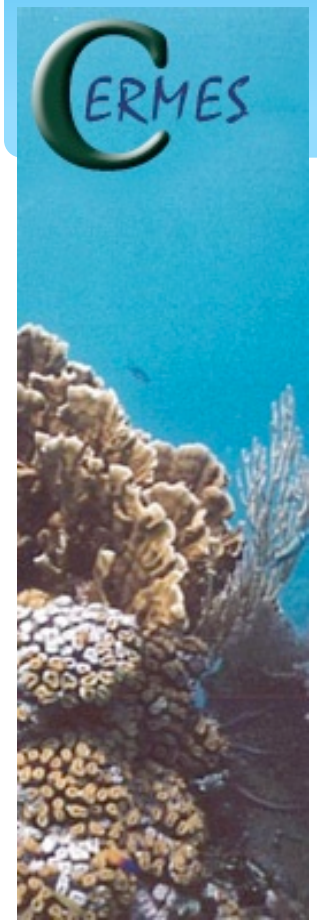
Interest from major US teaching Hospitals



- University of North Carolina
- John Hopkins University
- Massachusetts General Hosp
- University of Rochester
- Vanderbilt University
- The Mayo Clinic
- The University of Washington
- Stanford University

FIRST UNITS ALREADY SHIPPED!

Centre for Resource Management and Environmental Studies



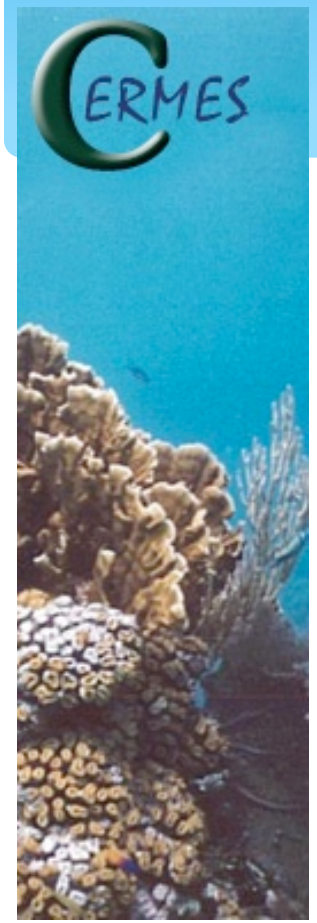
The Centre for Resource Management and Environmental Studies (CERMES) promotes and facilitates sustainable development in the Caribbean and beyond through:

- graduate education
- applied research
- innovative projects
- professional training
- involvement in the national regional and global initiatives that shape our future.

CERMES also:

- Provides advisory services to governments, NGOs and the private sector
- Offers applied consulting services related to environmental issues
- Builds awareness and capacity through outreach.

Centre for Resource Management and Environmental Studies



CERMES has purpose built premises with academic, technical and administrative staff offices, a teaching and conference room, tutorial room and student carrels, a student computer room, a specialised staff computer room, dry and marine equipment storage rooms and specialised research laboratories.

These are presently equipped for:

- molecular genetics research
- marine water quality analyses
- geographical information system (GIS) applications.

Centre for Resource Management and Environmental Studies

Strengthening Principled Ocean Governance Networks (*PROGOVNET*): Transferring Lessons from the Caribbean to the Wider Ocean Governance Community.

PROGOVNET is a two-year project funded by the **Nippon Foundation** in collaboration with Dalhousie University's Marine Affairs Program and the Marine and Environmental Law Institute, the International Ocean Institute - Canada and the University of the West Indies (Centre for Resource Management and Environmental Studies).

Centre for Resource Management and Environmental Studies

AusAID is currently supporting CERMES with a grant over the period 2011-2014.

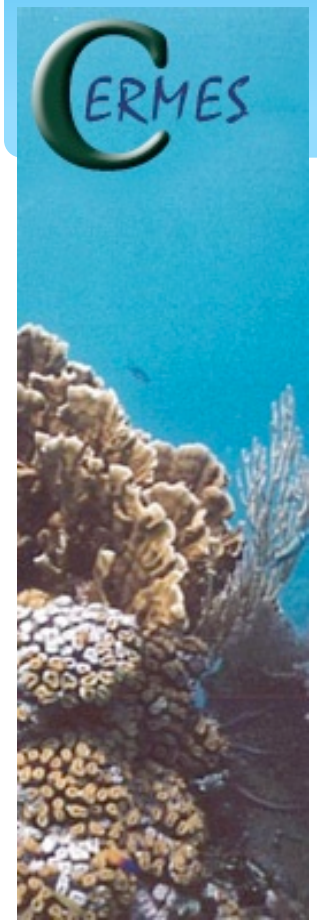
This grant covers:

- Scholarships for MSc, MPhil and PhD students
- Delivery of short courses
- Research in climate change adaptation and water resources management

USAID is currently supporting CERMES with a grant over the period 2011-2013.This grant covers:

- Expansion of the CERMES building
- Scholarships for MSc, MPhil and PhD students
- Development of short courses.
- Development of a MSc programme in climate change adaptation and water resources management.

Centre for Resource Management and Environmental Studies



- Department of Biology, McGill University, Canada
- Global Water Partnership - Caribbean (GWP-C)
- Gulf and Caribbean Fisheries Institute (GCFI), USA
- International Development Research Centre (IDRC), Canada
- International Union for the Conservation of Nature (IUCN), Costa Rica
- Lighthouse Foundation, Germany
- Marine Affairs Program, Dalhousie University, Canada
- National Oceanic and Atmospheric Administration (NOAA), USA
- Oak Foundation, USA
- Rosenstiel School for Marine and Atmospheric Sciences (RSMAS), University of Miami, Florida
- The Nature Conservancy (TNC), US Virgin Islands
- United Nations Development

Professor John Agard

Member of IPCC

IPCC is the leading international body for the assessment of climate change. It was established in 1988 by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO)

Aim: to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts.

Lead author on Small Islands Chapter

- Reported that small islands (tropical and otherwise) are vulnerable to
  - Climate Change
  - Sea level rise
  - Extreme events

Sea level is expected to exacerbate inundation, storm surge, erosion and other coastal hazards, thus threatening vital infrastructure, settlements and facilities that support the livelihood of island communities.

Global climate change is likely to seriously comprise water resources and adversely impact human health and subsistence and commercial agriculture. Also likely to be heavily impacted are coral reefs, fisheries and other marine based resources.

There is enough evidence that things are happening faster than expected; that small islands like T&T, where our sea level monitors show the sea level is rising more than a millimeter a year, we need to start adaptation now

In 2007, the Norwegian Nobel Committee, highlighting the link they see between the risk of accelerating climate change and the risk of violent conflict and wars, awarded the IPCC a shared Nobel Peace Prize.

* Modification, analysis and testing of a solar timber dryer for adoption by industry - ready for commercialisation
* Usability study of computer-oriented workplaces
* Caribbean-wide Healthcare Management system based on cellular phone technology
* Postharvest handling of important agricultural products

Centre for Geo-Spatial Studies

Goals of the Centre

- To undertake research for advancing theories and methods in geospatial studies

- To provide the infrastructure to foster interdisciplinary research in geospatial studies

- To expand and strengthen geospatial education at all levels

- to provide the support for the development of an information infrastructure in the Caribbean.

Centre for Geo-Spatial Studies

Research Areas

- Coastal zone management as strategy for pro-poor land management and land administration
- Spatial Data Infrastructure Development
- Spatial information support for climate change adaptation and mitigation
- Managing and Administering Marine and Coastal Spaces
- Hydrography
- A GIS-Based Approach to Coastal Risk Management and Impact Quantification

Centre for Geo-Spatial Studies

Research Areas

- Using geo-informatics to manage natural vegetation habitats
- Development of Watershed Management Plan
- Perspectives on Earthquake Risk Assessment and management
- Augmenting Tide Gauge Data with Satellite Altimetry in the Observation of Sea Level Rise in the Caribbean
- Flood Mapping and Analysis
- Land Records Information System and Geo-portals

Radioecology Laboratory

Department of Physics

* **MULTI-ELEMENT X-RAY FLUORESCENCE ANALYSIS**
  - **Geological and environmental samples: rocks, soils, sediments, dust, air particulates, biota, foodstuff, water.**
  - **Medical and healthcare materials, scrap metals, consumer products and arts objects.**

* **ANALYSIS OF NATURAL AND ANTHROPOGENIC RADIOACTIVITY**
  - **Air, soil, water and food (K-40, Rb-87, La-138, Sm-147, Lu-176, Th-232 and U-238 series, Cs-137, Sr-90, Pu-239,240, Am-241, Co-60, I-129 and I-131)**
  - **Radon (Rn-222) in air and soils; marine, surface, ground and drinking waters.**

Radioecology Laboratory

Department of Physics

* **ENVIRONMENTAL MONITORING**
  - **Mapping of the natural radioactivity in Jamaican soils**
  - **Mapping of submarine groundwater discharge in coastal areas using Rn-222 indicator.**

Medical and Health Physics Research

Department of Physics

* **BONE HEALTH**
  - **In-vivo X-ray Fluorescence analysis of Lead and Strontium in bone.**
  - **AccuDEXA Bone Mineral Density Assessment**

* **HEAVY METALS AND HEALTH**
  - **Biokinetic modelling of lead poisoning in children on body composition**
  - **Effect of mercury exposure on pregnancy and child development**

Medical and Health Physics Research

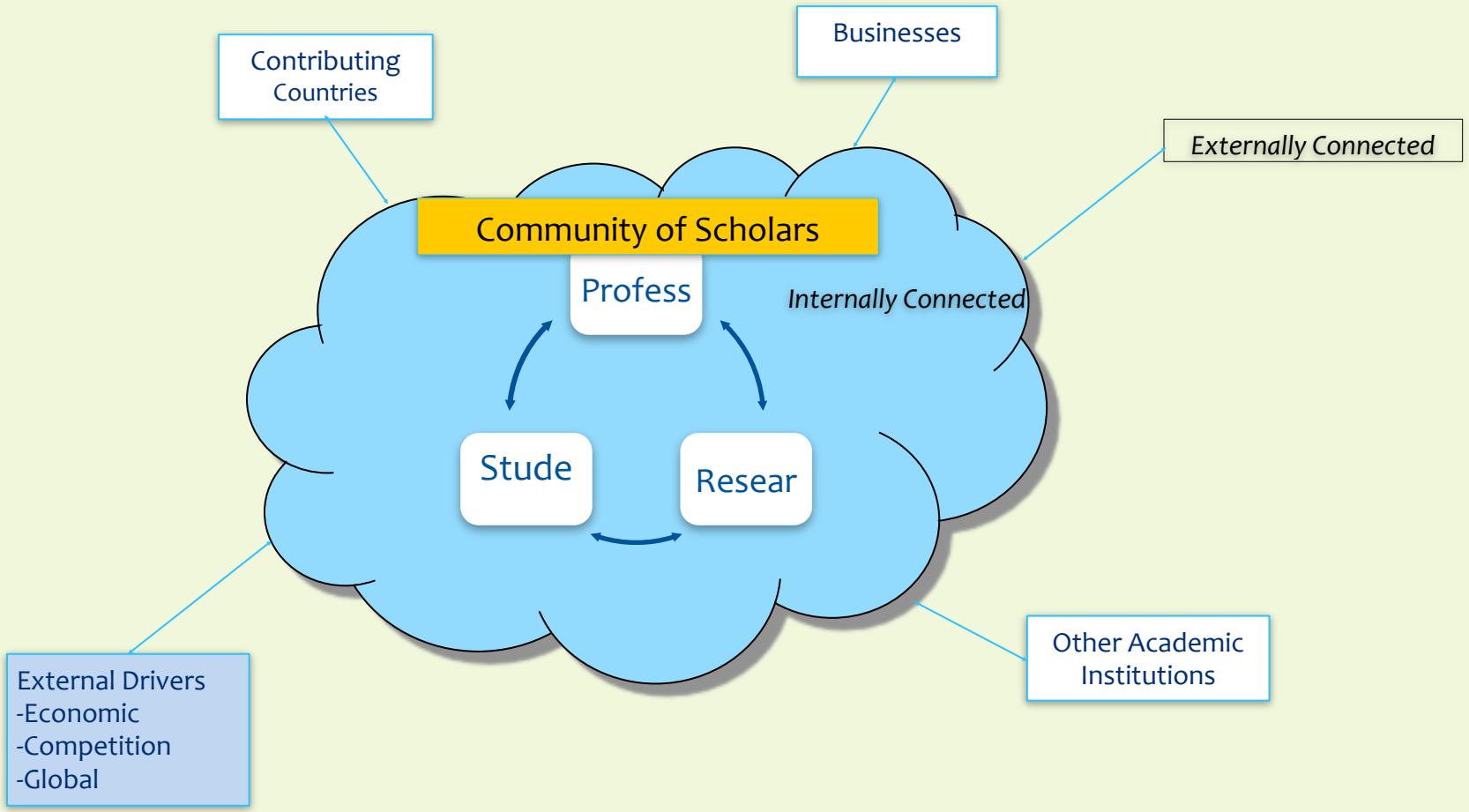
Department of Physics

* **RADIATION AND HEALTH**
  - **Health effects of radon in drinking water**
  - **Effect of cosmic radiation on human health**
  - **Mobile phone radiation and children health**

* **BIOMECHANICS AND SPORT PHYSICS**
  - **Optimising *sport* performance of UWI students**
  - ***Sport talent identification* and development**

UWI Vision - Single Virtual University Space

Consolidates Distributed ICT & Open and Distance Learning operations on one platform – a technological enabler that will connect UWI, each of its four campuses and the Region both internally and externally



Proposed Topology for C@ribNET (from CKLN)


North Atlantic Ocean
GÉANT
INTERNET 2
Gulf of Mexico
Caribbean Sea
North Pacific Ocean
RedCLARA

Thank You