

DEPARTMENT OF GEOGRAPHY AND GEOLOGY

Professor David Barker, BSc *Wales*, PhD *Bristol*, Dip Urb & Reg Studies *Birmingham* – Head of Department

WORK OF THE DEPARTMENT

The Department continued to mount a full programme of undergraduate teaching in Geography and Geology despite another year in which there was a shortage of qualified and experienced lecturers. Difficult challenges were imposed by an operational budget which was unchanged for the third consecutive year. The budget severely limited opportunities to improve physical plant and infrastructure, and to acquire new equipment and replace aging equipment. A particular challenge was to maintain a full programme of undergraduate field classes, given the rising costs of transport.



In Geography, **Dr David Miller** was on sabbatical for Semester 1. **Dr Susan Mains** was on leave at the beginning of the Semester 1, and left UWI at the end of Semester 1. **Dr Kevon Rhiney** was appointed on a three-year contract in geography, subject to a probationary first year, while **Robert Kinlocke** was re-appointed on a temporary one-year appointment as a full-time Assistant Lecturer. **Donovan Campbell** was re-appointed for a second year as a Teaching Assistant. In Geology, an overseas candidate selected for a lectureship declined the offer after protracted issues over his contract, so **Professor Trevor Jackson** was brought from Trinidad to cover some of this teaching. **Mr Rafi Ahmad** was re-appointed on another one-year post-retirement contract.

The Department began a complete overhaul of its undergraduate curricula as part of the Faculty's transition to new 3-credit course degrees. The Department's new 3-credit courses will be introduced on a phased basis over three years, and new first year Geography and Geology courses will

start in September 2011. One goal is facilitate new cross-faculty degrees, to allow students to combine Geography with cognate subjects like Economics, Sociology and History.

The research output was outstanding even by the high standards achieved in the past. In total, 33 papers were presented at international, regional and local conferences and workshops by staff and postgraduates, and there were 23 peer-reviewed publications out of a total of 27 publications including edited volumes. **Professor D. Barker** and **Donovan Campbell** received the Principal's Research Day Award for the best Faculty publication for an article which appeared in a Special Issue of the *Annals of the Association of American Geographers* on Climate Change. **Donovan Campbell** was one of three international postgraduate students to receive an award for their doctoral research at Third International Conference on Climate Change: Impacts and Responses, in Rio de Janeiro, Brazil in July, and his research was also featured on the NASA on-line publication 'Sensing Our Planet: NASA Earth Science Research Features'.

Members of the department were once again prominent in conference activities. The Department, in conjunction with the Geological Society of Jamaica, hosted the Ninth International Congress on Rudist Bivalves at Mona campus in June 2011. **Professor Simon Mitchell** was conference convenor and Chair. The meeting involved 40 presentations with delegates representing countries including: Croatia, France, Germany, Jamaica, Japan, Italy, Mexico, Puerto Rico, Spain, UK, USA, and UAE. The meeting included a pre-conference field trip to the Benbow area in St. Catherine, and a three-day trip to central and western Jamaica. Delegates had the opportunity to examine the rudist collections in the University of the West Indies Geological Museum. The meeting was supported from grants and assistance from Graduate Studies and Research, the Lawrence Chubb Fund (DOGG), Sagres Energy, Petroleum Corporation of Jamaica, and the Mines and Geology Division, GOJ.

Geography staff and postgraduates were again well represented at the Annual Meeting of the Association of American Geographers held in Seattle in April 2011, with some 8 papers presented at the conference. **Professor David Barker, Dr David Miller, Dr Kevon Rhiney and Dr**

Susan Mains were involved in organizing panel sessions at the meeting. Geology staff attended the 19th Caribbean Geology Conference which was held in Guadeloupe and 5 papers were presented.

Several staff obtained external funding to attend overseas and local conferences and workshops: **Professor Simon Mitchell** 4th Cuban Conference on Earth Sciences in Havana Cuba (April); **Rafi Ahmad** Global Earthquake Model (GEM) Workshop, Trinidad (May); **Professor David Barker** Responding to Climate Change in the Caribbean, Institute for the Study of the Americas, London (June); **T. Stemann** Creative writing workshop on coral reef education in the Caribbean, The Bahamas; **S. James-Williamson** Regional Workshop for the Caribbean on Education for Sustainable Development, Trinidad & Tobago, organized by Cropper Foundation, April; **K. Rhiney**, expert workshop at Mona Visitor's Lodge, on Impact of Climate Change on Tourism, Agriculture, National Economic Growth and Development in Jamaica, OXFAM/ International Institute of Environment & Development/ CARIBSAVE (January) and workshop Livelihoods and Disaster Risk Reduction Caribbean Workshop, at SuperClubs Breezes Resort, Trelawny, organized by OXFAM, (January); and **Dr Mike Burn**, XVIII International Quaternary Association Congress in Bern, Switzerland, (July).

The Jamaican Geographical Society (JGS) and the Geological Society of Jamaica (GSOJ) continue to be the major arms for the Department's outreach activities. Lecturers and postgraduates are actively involved on the organizing committees and as executive officers of these societies. Outreach activities include guest lectures, field trips and film shows. The GSOJ was closely involved in the organization of the International Rudist conference in June, while the JGS hosted a well-attended panel discussion on 'Progress of the Downtown Redevelopment Project' in March.

As a result of the torrential flood rains experienced during September and October, the Geology Museum and a teaching classroom were flooded on three separate occasions. The first occasion was the worst and resulted in considerable water damage to the museum furniture and materials stored there. The Museum experienced similar flood damage several years ago, and the resulting remedial work to improve the drains proved to be totally ineffective.

Kevon Rhiney successfully completed his PhD in Geography and **Ian Brown** was awarded an MPhil in Geology.

The Department continued to administer the Earthquake Unit, the Unit for Disaster Studies, and the Marine Geology Unit

INCOME GENERATION

Dr Kevon Rhiney obtained funding of US\$18,000 from OXFAM GB for the JAMAI project on promoting market access for small farmers in Jamaica, and US\$9,000 from the International Center for Tropical Agriculture (CIAT) in Colombia for a project on Adaptation to Climate Change among small farming communities across Jamaica. The latter led to further funding for a two-week training workshop in Crop Suitability Modeling in July for a group that included Dr Kevon Rhiney, Donovan Campbell and geography postgraduates.

Professor Simon Mitchell received grants totaling US\$5,000 from the Petroleum Corporation of Jamaica, Sargress Energy and CaribX for graduate research and travel on a variety of small-scale consultancies.

Dr Mike Burn (Geography) received a UWI New Initiative Grant for J\$1.5 million for a project titled 'A 6000-year record of hurricane activity in Jamaica and impacts on coastal ecosystems and human settlement'. The grant is to be spent on installing a new fume cupboard for a new Paleoecology laboratory to facilitate the pollen, charcoal and ostracod analysis and for storing cores taken from coastal sediments and coring equipment.

Dr Sherene James-Williamson, Geology Museum Curator, received a grant of J\$36,000 from ICWI for an educational discovery centre for early childhood, based in the geology Museum.

The Marine Geology Unit received a grant of J\$2.8million to support preparation of a catalogue and database of historical aerial photographs of the Jamaican coastline. The Unit also received a grant of J\$198,925 from the Environmental Foundation of Jamaica and J\$95,000 from the UWI Disaster Risk Reduction Centre (DRRC) to assist preparation of a book on hurricane impacts on the Jamaican coastline.

PAPERS PRESENTED

- **D. Barker & D. Campbell** 'Local responses to climate change in Jamaican Agriculture: Farmers' perspectives in different agro-ecological zones', 'Responding to Climate Change in the Caribbean', Institute for the Study of the Americas, Senate House, University of London, UK, June 13-14, 2011.
- A. Bain, **M. Burn**, L. Kennedy, S. Metcalfe, A. Faucher, A. LeBlanc, & A. Berland 'Environmental Archaeology, palaeoecology and climate change: a multidisciplinary perspective from Antigua and Barbuda'. 24th Congress of the International Association for Caribbean Archaeology. Martinique, July 25-30, 2011.
- A. Bain, **M. Burn**, L. Kennedy, A. LeBlanc, & A. Faucher, 'Recent research in Environmental Archaeology and paleoecology in Antigua and Barbuda'. Society for American Archaeology 76th Annual Meeting, Sacramento, California. Abstract 202. March 30 – April 3, 2011.
- **M. Burn**, F. Mayle & T. Killeen 'Differentiation of pollen spectra from Amazonian rainforest communities and implications for lowland palaeoecology in tropical South America', Eos Transactions of the American Geophysical Union, Foz do Iguassu, Brazil, 2010.
- **A. Mandal**. 'Flooding and Modelling of rainfall-induced river flooding of Port Maria, St Mary, Jamaica'. 8th International Conference on Disasters, Havana, Cuba, June 14-18, 2010.
- **A. Mandal**. & **A. Maharaj** 'Modelling high intensity rainfall-driven river flooding of Port Maria, Jamaica', 5th Caribbean Conference on Comprehensive Disaster Management (CDM), Rose Hall, Montego Bay, December 5-11.
- A. Maharaj & **A. Mandal** 'Analysing High-Intensity, Rainfall-Driven, River Flooding in Port Maria, St. Mary, Jamaica. How Has Climate Change Exacerbated the Situation?', American

Water Resources Association Spring Speciality Conference, Baltimore, April 18-20, 2011.

- **S. James-Williamson** ‘The University of the West Indies Geology Museum: a university-wide teaching resource’, Annual Symposium of the Archaeological Society, UWI, Mona, May 6, 2010.
- **S. James-Williamson** ‘Tectono-stratigraphic development of Southeastern Jamaica’, 19th Caribbean Geology Conference Held in Guadeloupe F.W.I., March 21-26, 2011.
- **S. James-Williamson** ‘The changing role of the UWI Geology Museum: from repository to an interactive learning environment’, 19th Caribbean Geology Conference Held in Guadeloupe, March 21-26, 2011.
- **S. James-Williamson** ‘Learning beyond the Classroom’, World Academy of Sciences Regional Office for Latin America & Caribbean, 8th Young Scientists Regional Conference, Brazilian Academy of Sciences, Rio de Janeiro, Brazil, Nov. 29 – Dec. 2010
- **S. Khan & E. Robinson** ‘Beach erosion and sea-level rise at Long Bay, Negril, western Jamaica’, World Resources Institute seminar, Mona Visitors’ Lodge, UWI, June 9, 2011.
- **S.F. Mitchell** ‘Lithostratigraphy of the White Limestone Group of Jamaica’, 19th Caribbean Geological Conference, Guadeloupe, March 21-26, 2011.
- **T. Stemann & S. Punnette** ‘Ecology and zonation of coral build-ups in the Late Miocene August Town Formation, Jamaica’, 19th Caribbean Geology Conference Held in Guadeloupe, March 21-26, 2011.

Papers presented at the XVIII INQUA Congress, Bern, Switzerland, July 20-27, 2011.

- **M. Burn, A. Bain, L. Kennedy, A. LeBlanc, A. Faucher, & S. Perdikaris** ‘A Late-Holocene record of Human Ecodynamics from Barbuda, Lesser Antilles’.

- S. Palmer & **M. Burn** ‘A Late-Holocene record of marine washover events from a coastal lagoon in Jamaica, West Indies’.
- B. Whitney, F. Mayle, S. Punyasena, K. Fitzpatrick, **M. Burn**, R. Guillen, E. Chavez, D. Mann, R. Pennington & S. Metcalfe ‘A 45,000-yr palaeoclimate record from the heart of tropical South America’.

Paper presented at Annual Conference of Association of American Geographers, Seattle, April 12-16, 2011.

- **D. Campbell & D. Barker** ‘Jamaican agro-ecological zones and climate change: a comparison of farmers’ perceptions of changing weather and climate and their capacity to respond to global change’.
- L. Kennedy, **M. Burn**, A. Bain, A. LeBlanc, A. Faucher, & S. Perdikaris, ‘Long-term Human Ecodynamics of Barbuda/Antigua from Sedimentary and Archaeological Records’.
- **R. Kinlocke** ‘Fortified enclaves, fear and attachment to place in a fragmented city’.
- **D. Miller** ‘Tropical Storms and Hurricane Impacts on a Caribbean beach: Manatee Bay, St Catherine, Jamaica.’
- **K. Rhiney & R. Kinlocke** ‘Urban livelihood responses to new trade regulations for the Jamaica scrap metal industry’.

Papers presented at the Ninth International Congress on Rudist Bivalves, June 18-25, 2011, Kingston, Jamaica.

- **S.F. Mitchell** ‘Interpreting *Texicaprina* and its relationship with other Albian ‘Caprinuloidids’.
- **S.F. Mitchell**, P. Skelton, H. Santos & M. Martínez-Colón ‘Exceptionally preserved hippuritid rudists from Puerto Rico – a new analysis of the New World hippuritids’.
- **S.A. James-Williamson & S.F. Mitchell** ‘Provenance, use and interpretation of the Rudist Collections at the University of the West Indies Geology Museum (UWIGM)’.

- **S. F. Mitchell** ‘American rudist zones for the Turonian to Maastrichtian time interval’.
- G.C. Gunter & **S. F. Mitchell** ‘The biostratigraphy of the Maldon Inlier, parish of St. James, north-western Jamaica’.
- J. Fisher & **S.F. Mitchell** ‘Foraminiferal biostratigraphy and palaeoenvironmental analysis of some late Cretaceous basalinal successions of Jamaica’.
- D. Hennhöfer, S. Götz, & **S.F. Mitchell** ‘Quantitative Palaeobiology, Reproduction and Seasonality in *Biradiolites mooretownensis*’.
- **T.A. Stemann**, G.C. Gunter, & **S.F. Mitchell** ‘Contrasting patterns in rudists and corals from the uppermost Maastrichtian of Jamaica’.

PUBLICATIONS

Book and Edited Volumes

- * **E. Robinson, & S.A. Khan** Impacts on Jamaica’s Coastline from Recent Hurricanes, *Contributions to Geology*, **S.F. Mitchell** (ed) UWI Mona, #5, 2011, 142p.
- * **S.F. Mitchell** (ed) *Caribbean Journal of Earth Sciences*, Vol. 51 (for 2006)
- * **S.F. Mitchell** (ed) The 9th International Congress on Rudist Bivalves, 18th-25th June, 2011, Kingston, Abstracts, Articles and Field Guide, *Contributions to Geology*, #6, 2011.

Peer-reviewed articles

- * C. Beckford, **D. Campbell.** & **D. Barker** ‘Sustainable Food Production Systems and Food Security: Economic and Environmental Imperatives in Yam Cultivation in Trelawny, Jamaica’, *Sustainability*, 2011, 3, pp541-561, doi:10.3390/su3030541: www.mdpi.com/journal/sustainability.

- * D.W. Gamble, **D. Campbell**, T.L. Allen, **D. Barker**, S. Scott Curtis, D.F.M. McGregor, & J. Popke 'Climate Change, Drought, and Jamaican Agriculture: Local Knowledge and the Climate Record', *Annals, Association of American Geographers*, 2010, 100(4), pp880-893.
- * **D. Campbell**, **D. Barker**, & D.F.M. McGregor 'Dealing with drought: Small farmers and environmental hazards in southern St. Elizabeth, Jamaica', 2010, *Applied Geography*, 30, pp1-16.
- * C. Beckford, **D. Campbell**, & **D. Barker** 'Sustainable food production systems and food security: economic and environmental imperatives in Yam cultivation in Trelawny, Jamaica', *Sustainability*, 2011, 3, pp541-561.
- * **M. Burn**, F. Mayle & T. Killeen 'Pollen-based differentiation of Amazonian rainforest communities and implications for lowland palaeoecology in tropical South America.' *Palaeogeography, Palaeoclimatology, Palaeoecology*, 2010, 295, pp1-18.
- * B. Whitney, F. Mayle, S. Punyasena, K. Fitzpatrick, **M. Burn**, R. Guillen, E. Chavez, D. Mann, R. Pennington, & S. Metcalfe 'A 45 kyr palaeoclimate record from the lowland interior of tropical South America'. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 2011, 307(1-4), pp177-192. Elsevier, Amsterdam. doi:10.1016/j.palaeo.2011.05.012
- * **S. A. Khan**, **E. Robinson**, D-A.C. Rowe & R. Coutou 'Size and mass of shoreline boulders moved and emplaced by recent hurricanes, Jamaica', *Zeitschrift für Geomorphologie*, 2010, 54, suppl.3, pp281-299.
- * **A. Mandal**, & A.Haiduk 'Hydrochemical Characteristics of Groundwater in the Kingston Basin, Kingston, Jamaica', *Environmental Earth Sciences*, 2011, 63(2), pp415-424.
- * **A. Mandal**, & M.Voutchkov 'Heavy Metals in Soils Around the Cement Factory in Rockfort, Kingston, Jamaica', *International Journal of Geosciences*, 2011, 2, pp48-54.

- * **A. Mandal**, E. Alleyne, C. Nawal & A. Haiduk (2010) ‘Assessment of the Groundwater Quality of the Kingston Basin, Kingston, Jamaica’, *Advances in Geosciences*, 23, pp295-304.
- * **S. F. Mitchell**, ‘Revision of three large species of *Barrettia* from Jamaica’, *Caribbean Journal of Earth Science*, 2010, 41, pp1-16.
- * I. Brown, & **S.F. Mitchell** ‘Lithostratigraphy of the Cretaceous succession in the Benbow Inlier, Jamaica’, 2010, *Caribbean Journal of Earth Science*, 41, pp25-37.
- * A.R. Hastie, A.C. Kerr, **S.F. Mitchell**, J.A. Pearce, I. McDonald, I. Millar, D. Barfod, & D.F. Mark, ‘Geochemistry and petrogenesis of rhyodacite lavas in eastern Jamaica: a new adakite subgroup analogous to early Archaean continental crust?’, *Chemical Geology*, 2010, 276, pp344-359.
- * **S.F. Mitchell**, ‘Revision of the antillocaprinid rudist bivalve *Antillosarcolites* Chubb with a description of a new genus: implications for evolution of Antillocaprinidae’, *Geobios*, 2010, (doi:10.1016/j.geobios.2010.03.004)
- * **S.F. Mitchell**, ‘Morphology, taxonomy and lifestyle of the Maastrichtian rudist bivalve *Thyrastylon*’. In: Jurassic-Cretaceous Rudists and Carbonate Platforms – Part A, *Turkish Journal of Earth Science*, 19, pp635-642.
- * A.R. Hastie, R. Ramsook, **S. F. Mitchell**, A.C. Kerr, I. Millar, & D.F. Mark ‘Geochemistry of compositionally-distinct late Cretaceous back-arc basin lavas from Jamaica: implications for the tectonomagmatic evolution of the Caribbean plate’, *Journal of Geology*, 2010, 118, pp655-676.
- * A.R. Hastie, **S. F. Mitchell**, A.C. Kerr, M.J. Minifie & I.L. Millard 2011. Geochemistry of rare high-Nb basalt lavas: Are they derived from a mantle wedge metasomatised by slab melts? *Geochimica et Cosmochimica Acta* 2011, (doi:10.1016/j.gca.2011.06.018).
- * **S.F. Mitchell**, & **S. James-Williamson** ‘Rudist bivalves in Jamaica: from Barrett and Sawkins to Chubb, **S.F. Mitchell** (ed)

The 9th International Congress on Rudist Bivalves, June 18-25, 2011, Kingston, Abstracts, Articles and Field Guide, Contributions to Geology, #6, pp1-5.

- * **S.F. Mitchell.** & R.Green, Field Trip 1: Lower Cretaceous rudists of the Benbow Inlier, central-north Jamaica **S.F. Mitchell** (ed) The 9th International Congress on Rudist Bivalves, June 18-25, 2011, Kingston, Abstracts, Articles and Field Guide, Contributions to Geology, #6, pp29-36.
- * **S.F. Mitchell, G. Gunter, & J. Fisher,** Field Trip 2: Campanian and Maastrichtian rudists of Central and western Jamaica, **S.F. Mitchell** (ed) The 9th International Congress on Rudist Bivalves, June 18-25, 2011, Kingston, Abstracts, Articles and Field Guide, Contributions to Geology, #6, pp37-50.
- * **K. Rhiney,** ‘Agri-tourism Linkages in Jamaica: Case Study of the Negril All-inclusive Hotel Sub-sector’. In R. Torres & J. Momsen (eds.) Tourism and Agriculture: New Geographies of Consumption, Production and Rural Restructuring, London and New York: Routledge, 2011, pp117-138.
- * R. Cruse, R. & **K. Rhiney** ‘Reggae identité et paysage urbain dans un bidonville de Kingston-ouest’, *L’Espace Politique*. 2011 <http://espacepolitique.revues.org/index1997.html>
- * **K. Rhiney,** ‘Text and Textuality’, in Wharf, B. (ed.) Encyclopedia of Human Geography. London: SAGE, 2010, pp482-484.
- * J.S.H. Collins, S.K. Donovan, **T. A. Stemmann** & D.J. Blissett ‘Crustaceans of the upper Miocene August Town Formation of southeastern Jamaica’, *Scripta Geologica Special Issue*, 2010, 7, pp177-183.

Non-refereed publications

- * **D. Barker** ‘The hazards of dry land farming in St Elizabeth’, *CaribXplorer*, 2011, 1(3), pp22-26

- * **D. Barker** ‘Plastic yam sticks: staking a future in food security’, *CaribXplorer*, 2010, 1(2), pp34-36.
- * **K. Rhiney** ‘Agri-tourism linkages in Jamaica: prospects and challenges’, *CaribXplorer*, 2011, 1(3), pp18-22.

POSTGRADUATE CONFERENCE PAPERS

(excluding those presented with supervisors and other staff members)

- * **Carlos Michel** ‘Local people- Global Goods: stakeholder relations and the impact on World Heritage in Saint Lucia’, Annual Conference of Association of American Geographers, Seattle, April 11-17, 2011.
- * **Joyelle Clarke** ‘**Sugar, Land and Livelihood in St Kitts: redefining women’s worth**’ Annual Conference of Association of American Geographers, Seattle, April 11-17, 2011.
- * **Soyini Ashby** ‘The “Tropical Man”: Tropes of tropicality in Discourses of Self-Definition in the Greater Caribbean’ Annual Conference of Association of American Geographers, Seattle, April 11-17, 2011.

PUBLIC SERVICE

R. Ahmad

- Technical sub-committee, Water Resources Authority

D. Barker

- Editor, *Caribbean Geography*.
- Convenor, CAPE Geography.
- Editorial Committee *CaribXplorer Magazine*.
- Editorial Board *Caribbean Quarterly*
- Council member, *Jamaican Geographical Society*

S. James-Williamson

- Council member, Jamaica Institute of Environmental Professionals.
- Vice-Chair and Treasurer, National Environmental Education Committee; Chairperson since April 2010.
- Member, Steering Committee, NEEC/PANOS Caribbean Climate Change Project.
- Council member, Geological Society of Jamaica; Vice President since March 2010.
- Member, Publications Committee, Natural History Museum of Jamaica, Institute of Jamaica.
- Member, Steering Committee, International Conference on Rudists 2011.

A. Mandal

- Member, Technical sub-committee, Water Resources Authority

S. Mitchell

- Permanent member, Standing Committee for the Caribbean Geological Conference.
- Member, Scientific Committee, International Rudist Congress.
- Chairman, Commission on Jamaican Lithostratigraphy.
- Council member, Geological Society of Jamaica.
- Editor, *Caribbean Journal of Earth Science*.
- Chairman, Ninth International Congress on Rudist Bivalves, Kingston, Jamaica, 2011.

E. Robinson

- Member, Jamaican National Council on Ocean and Coastal Zone Management.
- Fellow, Third World Academy of Science.
- Member, Coastal Education and Research Foundation.
- Member of the Board, International Centre for Environmental and Nuclear Science.
- Member, Geological Society of Jamaica.
- Member, Jamaica Institute of Environmental Professionals.

- Member of the Board, Centre for Marine Sciences.
- Member, Graduate Faculty, Florida International University, U.S.A.

K. Rhiney

- President, Jamaica Geographical Society.
- Technical advisor to the Steering Committee for the National Food and Nutrition Security Policy.
- Member of the UWI at Denbigh Strategic Committee
- Research Fellow for Centre for Leadership and Governance
- Co-author for the National Youth Mainstreaming Strategy and Manual with the IDB/GOJ
- Co-editor for the Caribbean Online Atlas
<http://atlas-caraibe.meabilis.fr/>

T. Stemann

- Council Member Geological Society of Jamaica

CATEGORIES OF STUDENTS

Undergraduate Students: Geography

Year I:	95
Year II:	56
Year III:	26

Undergraduate Students: Geology

Year I:	72
Year II:	39
Year III:	34

Postgraduates:

MPhil Geography:	5
MPhil Geology:	7
PhD Geography:	8
PhD Geology:	1