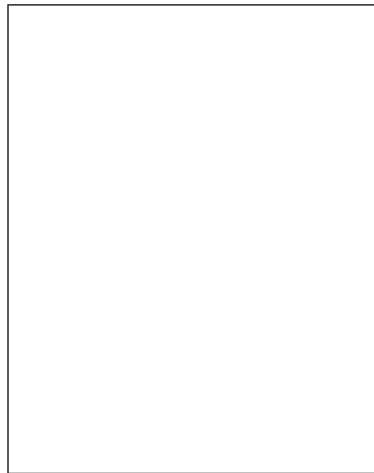


**FACULTY OF PURE
AND APPLIED SCIENCES
MONA**

Year ending July 31, 2002



Ronald E. Young, BSc, MSc *UWI*, PhD *St. And.* – Dean

DEAN'S OVERVIEW

INTRODUCTION

The success of the Faculty in the long term depends heavily upon two external factors – (1) increasing the number of available applicants with satisfactory CAPE/CXC passes in the sciences, and (2) increasing the demand for and perceived importance of science graduates in the workplace. Both issues require multifaceted solutions. As one approach to the latter, the Faculty, on the 25th October, 2001, launched the **Mona Institute of Applied Science (MIAS)**, an affiliated organization, dedicated to marketing the resources of the Faculty of Pure and Applied Sciences to the private and public sectors in Jamaica and managing the results of resulting partnerships, particularly in the areas of training, research and development, and analytical services. We simultaneously co-hosted with the MIAS a colloquium which brought together some 30 prominent members of the private and public business sectors, with Faculty representatives, in order to discuss ways and means of increasing collaboration between the two groups for mutual benefit. Guest speakers were Mr. G. Raymond Chang, Director of C.I. Funds Management Inc., Toronto, reputedly one of the wealthiest entrepreneurs in Canada (and a Jamaican emigrant) and Dr. Richard Bernal of the Regional Negotiation Machinery. The meeting was hailed as a success and has been followed up by meetings of members of the business sector with both MIAS and individual departments, to forge more specific alliances. As a direct follow-up also, Mr. Ray Chang visited the Faculty with Mr. Bill Collins, President of OCRI, Ottawa's leading economic development organization. OCRI (Ottawa Centre for Research & Innovation) brokers linkages between business, universities and public sector organizations, to generate growth in all economic sectors. It represents over one thousand one hundred (1,100) advanced technology firms from the Ottawa region of Canada with combined sales of Cdn\$14 billion. The OCRI brings together stakeholders in telecommunications, computer software and hardware, life sciences, defence, health technologies, professional services, microelectronics, photonics and tourism industries. Mr. Collins gave a public lecture entitled “*OCRI in Partnership with Developing Countries: Using Technology to Meet the*

Challenges of Globalisation.” We are currently pursuing further linkages with Mr. Bill Collins and the OCRI through the mediation of the Jamaican High Commissioner in Ottawa, Mr. Raymond Wolfe, particularly in the areas of IT and mariculture.

The Natural Products Institute (NPI) was strengthened by the addition of Dr. Rupika Delgoda (PhD Oxon) as Senior Scientist, and by the appointment of its Executive Board with Mr. Victor Rhone (Financial Analyst) as Chairman. The NPI is at present refurbishing its new quarters in the former Faculty of Agriculture Building, which it will share with the MIAS. The NPI continues to be very active both locally and internationally, with the demands upon it exceeding its capacity its respond to all comers. It published the proceedings of the UNDP-sponsored **Natural Products Institute International Symposium and Workshop** which it held in July 2000 with the assistance of the Business Development Office. This meeting led to the formation of the **International Society for the Development of Natural Products** which hosted a follow-up symposium **The Second International Symposium on Natural Products** at the National University of Singapore. Appropriately, the University of the West Indies was strongly represented, and one of our representatives (Rupika Delgoda) won the **Best Poster Award**. The opportunity was seized to visit and have discussions with other universities in the region, and as a consequence, one of our students will be undertaking Natural Products related studies in collaboration with colleagues at the University of Malaya.

OUTREACH/SYMPOSIA

The Faculty spear-headed the establishment of the **Long Mountain Advisory Committee**, comprising Faculty and government as well as private sector representatives and dedicated to promoting responsible and sustainable preservation and usage of the Long Mountain Range. The group organized a successful public Symposium on Long Mountain and Tour through Long Mountain in January, 2002. The symposium brought together information on the biology, geology, geography and history of the Long Mountain along with views of possible ways to optimally combine development and preservation of the area. The proceedings are still being prepared for publication.

The Faculty participated with the Bureau of Standards in the CARIMET (Caribbean Metrology Group) meeting in August and in the SIM (Inter-American Metrology System) meeting, and the associated CARIMET meeting, in December. The Bureau of Standards and the UWI are now in the process of signing a Memorandum of Understanding to govern a close

collaborative link between the two institutions, in part through the mediation of the MIAS.

The Faculty assisted in hosting, at the beginning of June, 2002, the **13th Annual General Meeting of the Caribbean Academy of Sciences**. Chaired by Professor Tara Dasgupta of the Chemistry Department, the meeting was generally held to be one of the best ever of the Academy. The CAS-TWAS Young Scientist of the Year Awardee was a graduate of the Faculty, from the Mona Campus Department of Microbiology, Dr. John Lindo.

The Chemistry Department hosted the **19th Biennial Mona Symposium on Natural Products and Medicinal Chemistry** in January, 2002.

A co-operative agreement was signed between the JCTU-UWI (Chemistry Department) to promote education concerning proper precautions in the handling of asbestos in the workplace.

The Faculty participated in the 13th Annual Conference of the Jamaican Society for Agricultural Sciences (JSAS) at Bodles, Old Harbour, on the theme “*Technology in Service of Agriculture.*” Of the 21 listed papers, 11 involved UWI based scientists.

The Department of Life Sciences hosted a three day workshop on “*Feed Microscopy*” by the American Soybean Association and a five day **Training Course for International Organic Inspectors** conducted by the Jamaica Organic Agricultural Movement (JOAM) on “*Basic Farming and Community Grower Group Inspection*”. The Physics Department, with sponsorship from the PCJ and in association with the JIEE, hosted a workshop on “*Alternate Energy & Conservation – Jamaica’s Energy Options*” targeted at students from High Schools and upper grades of primary and preparatory schools. Members of the Electronics Club from the Department, with partial support from the Faculty, entered the IEEE Robotics Competition in South Carolina, and managed to reach the third round in spite of their lack of familiarity with the competition.

PUBLICATIONS

Departments in the Faculty produced 66 refereed publications at a rate of 0.69 papers per full-time faculty member. This is certainly up from last year’s value of 0.45, but still leaves a lot to be desired. Only the Department of Geography & Geology exceeded the rate of one publication per full-time faculty member. Professor Ivan Goodbody (Department of Life Sciences) and Professor Elizabeth Thomas-Hope (Department of Geography and

Geology) co-authored a book on “*Natural Resource Management for Sustainable Development in the Caribbean*” (Canoe Press, 496 pp). Professor Wilma Bailey (Geography & Geology) co-authored “*A Study Guide for Tourism*” (Caribbean Examinations Council) with M. Clarke, and Professor Trevor Jackson edited the transactions of the 16th Caribbean Geological Conference, “*Caribbean Geology: Into the Third Millennium*” (UWI Press). Dr. Nikolai Dokuchaev (Mathematics & Computer Science) published a book entitled “*Dynamic Portfolio Strategies – Quantitative Methods and Empirical Rules for Incomplete Information*” (Kulwer Academic Publishers). The Department of Life Sciences with collaboration from the Chemistry Department secured a patent for the invention of “**Medicaments for the Treatment of *Strongyloides stercoralis* Infections,**” this being the first successful patent application undertaken solely by UWI (Mona) academic staff and students, working with the assistance of the Business Development Office.

Department	No. Acad. Staff	Refereed Publicatons	Non-Refereed Publications	Conference Presentations
Chemistry	26	24	–	16
Geography & Geology	12	16	11	33
Life Sciences	19	3	3	12
Math & Comp Science	23	10	4	6
Physics	14	5	–	10
CMS	2	8	–	9
TOTAL:	96	66	18	86

UNDERGRADUATE

Level of Degree	1999/2000		2000/2001		2001/2002	
	N	%	N	%	N	%
First	14	4.3	22	7.2	32	10.9
Upper Second	82	25.2	80	26.0	92	31.4
Lower Second	103	31.6	77	25.1	88	30.1
Pass	54	16.5	73	23.8	32	10.9
Fail	73	22.4	55	17.9	49	16.7

Total Sitting	326	100.0	307	100.0	293	100.0
Total Registered	1267		1204		1202	

The decline in undergraduate enrolment has leveled off. The number and percentage of students obtaining first class degrees are increasing steadily whilst the number (and percentage) failing has diminished.

Department	No. of Courses	Enrolment	Mean No./Course
Chemistry	24	1462	60.9
Geography/Geology	33	965	29.2
Life Sciences	38	1730	45.5
Math & Computer Science	60	2822	47.0
Physics	20	719	35.0
TOTAL:	175	7698	44.0

The mean number of students per course remains lowest in Geography/Geology, pulled down by very low numbers in Geology courses – a curious phenomenon since this programme is not offered on other campuses. The total number of undergraduate courses offered in the faculty has actually increased by 15 from last year. Departments have in fact been asked to streamline and make more efficient their undergraduate offerings, wherever possible, by eliminating or subsuming into other courses, those courses with small numbers of students or with redundant material. The aim is to reduce the teaching effort at this level, and to redirect it into research/supervisory effort or graduate level teaching. The introduction of the new course in *Diving Technology for Aquatic Scientists* (BL20L) by the Department of Life Sciences and the CMS, and the new *Field Course in Tropical Marine Invertebrate Biology* (CM20A) by the CMS, is, however, noteworthy.

GRADUATE

	REGISTERED				GRADUATING			
	1998/99	1999/00	2000/01	2001/02	1998/99	1999/00	2000/01	2001/02
MSc	50	86	96	86	3	24	21	21
MPhil	146	157	168	178	10	6	10	12
PhD	35	40	38	42	2	9	3	5
Total:	231	283	302	306	15	39	34	38

The number of graduate students continues to rise slowly, despite a slight fall in registration in the MSc courses. This is likely to be due to inability of students to afford the fees since many have withdrawn after registration, for this reason. Half the students registered in the MIS (MSc in Management Information Systems) Programme which the Department of Management Studies runs in collaboration with the Faculty, are counted as FPAS registrations, but these figures are not included here.

GRANTS

New grants reported from external sources totaled some J\$29.3 million and from internal sources, J\$3.3 million. In addition donations of equipment to the CMS, NPI and Physics Department, where a cost could be estimated, totaled some J\$1,824,000. This represents a significant contribution to the Campus' research effort.

Department	Internal (J\$ eqt)	No. Grants	External	No. Grants
Chemistry	\$1,086,720	3	\$1,824,000	1
Geography & Geology	\$582,960	2	\$8,500,000	1
Life Sciences	\$1,606,500	4	\$3,072,000	3
Math & Computer Science	–		\$185,280	1
Physics	–		\$11,184,000	2
Biochem/ Biotechnology	–	0	\$2,193,600	2
Centre Marine Sciences	–	0	\$2,392,000	4
TOTAL:	\$3,276,180	9	\$29,350,880	14

CONCLUSIONS

The Faculty has embarked upon a number of strategic activities which should lead to enhancement of the relationships between the Faculty and both Public and Private Sectors. Both graduate and undergraduate enrolment held steady, as did the mean number of students per course. Published output in refereed journals improved markedly, by 57%, but the per capita output of 0.69 papers is still below par. New grants brought in improved slightly and exceeding the dollar amount for last year. The involvement of the Faculty in numerous conferences and workshops with a wide variety of partners from the Public and Private sectors is a positive

sign, as is the cementing of the first patent based on work solely by academic staff and students of the Faculty.

DEPARTMENT OF CHEMISTRY

Professor Tara Dasgupta, BSc
Calc, MSc Bihar, DPhil Calc,
**C. Chem, FRIC – Head of
Department**

INTRODUCTION

The Department of Chemistry with a staff complement of fifty nine and thirty-seven graduate students continued to focus on its scholastic and outreach mandate by improving teaching techniques and widening its research programmes for both the graduate and undergraduate programmes for the academic year 2001/2002.

The Department commissioned its new **Nuclear Magnetic Resonance Spectroscopy (NMR) Laboratory** which houses a 500 MHz NMR spectrometer. This state of the art instrument is expected to greatly enhance the research quality and output in natural products, synthetic and materials chemistry and reaction mechanisms. Also, the new Liquid Nitrogen Plant was installed.

The **19th Mona Symposium** on Natural Products and Medicinal Chemistry was held January 7-11, 2002 and was attended by over one hundred participants, forty of whom came from the United States, Canada, the United Kingdom, Japan, Barbados, Trinidad and Tobago, Guyana and Cuba.

The **13th Annual General Meeting of the Caribbean Academy of Sciences** was held on June 1-4, 2002 with approximately one hundred and twenty representatives from the United Kingdom, the United States of America, the French, Spanish and English-speaking Caribbean countries. The highlight of this meeting was the presentation of the TWAS/CAS

Young Scientist Award to Dr. John Lindo, Senior Lecturer at the Microbiology Department, UWI.

The Department also hosted a Workshop jointly by **Science Research Council and the American Chemical Society** Workshop for Primary and All Age School on September 27, 2001. The objective of the workshop was to expose teachers to innovative, exciting and low cost science experiments.

As part of its outreach programme, the Department facilitated the visits of students from the Brown's Town High School, Kellits High School and children from the Rainbow Land Nursery School and Kindergarden who were entertained with chemistry experiments including the making of ice cream. In addition, workshops on Chromatography and NMR were conducted for students of Meadowbrook High, Quality Academics and Holy Childhood High who were preparing for CAPE examinations.

The Department again hosted two students from Barry University, Florida who conducted research under that university's Minority International Research Training Programme.

A contract with Tanaud International, B.V., for operation of the special research laboratory in the Department was renewed for a further three years following a successful implementation of the initial three year contract.

The Department paid its last respect to Dr. William Bartley on April 15, 2002. He was Senior Lecturer for many years and made such an invaluable contribution that the Inorganic Laboratory was named in his honour.

STUDENT ENROLMENT

LEVEL	1999/2000	2000/2001	2001/2002
Preliminary	188	135	148
Introductory	247	203	203
Advanced	864	896	751

STAFF MATTERS

Dr. Ishmael Hassan was appointed Senior Lecturer in Crystallography.

Dr. Michael Coley was appointed a Temporary Lecturer in Applied Chemistry to replace Dr. Anthony Greenaway who was on Research Fellowship leave.

Mr. Kelling Donald was appointed Teaching Assistant in Physical Chemistry.

Dr. Conrad Douglas was appointed Visiting Professor for one year to teach Applied Chemistry.

Ms. Carla-Sue Marriott was appointed Assistant Lecturer in Organic Chemistry.

Dr. Helen Jacobs was promoted to Professor.

Dr. Ishenkumba A. Kahwa, Professor of Supramolecular Chemistry presented his Inaugural Lecture entitle: "From Rwanyango Tanzania to Mona Jamaica: Chemistry beyond locations". He also received two honours:

1. Elevated to Fellow of the Caribbean Academy of Sciences
2. Distinguished Researcher, Faculty of Pure and Applied Sciences 2001, UWI, Mona

Dr. Jose Jackson-Melele resigned as Lecturer in Food Chemistry and migrated to Botswana but she was appointed Honourary Research Fellow for the next three years.

Dr. Anthony Greenaway was granted Research Study Leave for one year.

STUDENT MATTERS

Undergraduate Awards

A total of seven undergraduate students from the Department received awards ranging from \$5,000 to \$60,000 for their academic achievements in Chemistry.

Postgraduate

Six students completed their Doctor of Philosophy programmes.

CHEN, Avril

COLLINS, Dwight

MARRIOTT, Carla-Sue

REID, Howard

RODRIQUES, Romola

THOMPSON, Marlon

(with high Commendation)

RESEARCH GRANTS

Dr. Jose Jackson received grants of:

- i)

US\$16,000.00 from the New Initiative – Mona Research Fellowship Programme for the purchase and training on the TAXTP Plus Texturometer

- ii) US\$100,000 (5 year) from the USAID Bean/Cowpea Collaborative Research Support Programme for research on the nutritional and health benefits of beans.

Dr. Yvette Jackson received US\$8,444.00 from the Board for Graduate Studies for research with students.

Prof. I. A. Kahwa received US\$3,000 for his research with his students.

Dr. Paul Reese received US\$3,640.86 from the Board for Graduate Studies for his research with students.

RESEARCH IN PROGRESS

Bakir, M.

- Development of electro-and optical sensors based on poly-pyridyl like compounds.

Dasgupta, T. P.

- Inorganic Reaction Mechanisms.
- Nitric Oxide Releasing Compounds.
- Chemistry of Pesticide and Metabolites
- Drug Metabolism

Dixon, D.

- Cubane systems having main group/transition metals
- Redox reactions of oxoanions

Ellis, H.A.

- Hydrodynamic studies of Lithium carboxylates
- X-ray studies on metal carboxylates
- Adsorption studies of metal ions on polymer

Greenaway, A. M.

- Nutrient pollution in Jamaican coastal waters.
- Nitrogen and Phosphorus concentrations in ground and surface waters and their fluxes to the coastal zone.

- Nutrient release from contaminated estuarine sediment.
- Alumina extraction efficiencies in the Bayer process for the extraction of alumina from bauxites

Hassan, I.

- XRD, TEM, DTA and DSC studies of the satellite reflections in nepheline.
- Crystal structures of several zeolitic minerals are being studied using synchrotron radiation at high temperatures.

Jackson, J.

- Research on the quality and safety enhancement of the ackee fruit
- Characterization and antioxidant activity of the phenolic components in sorrel and nutmeg mace and their potential health benefits in the diet.
- Strengthening Food Safety in the Caribbean – The Role of Consumers
- The Nutritional and Health benefits of Bean Consumption
- Quality of commercially bottled coconut water in Jamaica.

Jackson, Y.

- Organic synthesis, focusing on the synthesis of biologically active heterocyclic compounds and their analogues.

Jacobs, H.

- Natural products from selected species of the endemic Jamaican flora.

Kahwa, I.

- Syntheses, structure and luminescence spectroscopy of rare earth nanoclusters, their interactions with quantum dots, potential applications in diagnostic and therapeutic biomedicine and catalysis.
- Asbestos usage and pollution in Jamaica/Caribbean: Public, occupational and environmental health impact and policy lessons.
- Science-technology-development policy.

Lancashire, R.J.

- Chemical applications of the Internet.
- The JCAMP-DX spectroscopic data format and distribution of scientific data via the WWW.

Maragh, P.

- Electron transfer reactions involving the dinuclear Fe (III) cation, $[\text{Fe}_2(\text{CN})_{10}]^{4-}$
- Electron transfer reactions of trinuclear iron and iron-chromium complexes with ascorbic acid
- Uptake of sulfur dioxide by macrocyclic chromium (III) complex

Minott, D.

- Characterization of the flavour components of Jamaica Blue Mountain coffee
- Investigation of ackee, its lipid profile, hypoglycin content and other metabolites
- Determination of the factors affecting the production of pigments in processed coconut water

Mulder, W.

- Ion permeability of organic layers adsorbed at electrode surfaces
- Oscillatory kinetics of reduction reactions at wired enzyme electrodes (horse radish peroxidase reaction)
- Fundamental theory of the electrical double layer
- Salt effects on solvatochromic frequency shifts and its use in determining ground-state and excited-state dipole moments.

Pinnock, W.R.

- Development and use of passive monitors for measuring criteria pollutants
- Utilization of red mud – as building material – as component of cement

Porter, R.

- Investigation, characterisation and identification of secondary metabolites from several folklore medicinal plants.
- Extraction and characterisation of constituents of essential oils from local aromatic plants.

Reese, P.

- **Medicinal Plants.** Plants, mainly from the family Labiatae, Scrophulariaceae and Capparaceae families, are being examined to isolate and characterise the major natural products.

- **Microbial transformations.** Natural products of agricultural and pharmaceutical interest are structurally modified by selected strains of fungi in an effort to produce a range of new analogues with enhanced bioactivity.

Sadler-McKnight, N.

- Election transfer reactions of transition metal complexes.

PAPER PRESENTED

Professor Tara Dasgupta

- “A New Generation of Vasodilators: S-Nitrosothiols and Mechanisms of Nitric Oxide Release”, the International Symposium and Workshop on Advances in Cardiovascular Research; March 2002, Trinidad.
- “Science and Development in the Caribbean in the 21st Century”. CARISCIENCE meeting, Barbados, October 2001.

Dr. H.A. Ellis assisted by his MPhil student, N.A. White.

- “A room temperature structure for a series of Lithium carboxylates” 13th Annual Meeting of the Caribbean Academy of Sciences, Kingston, Jamaica. June 2002.

Dr. A.M. Greenaway

- “The National Water Quality Monitoring and Strategy,” National Coated Conference, Kingston, Jamaica, July 22-23, 2002.

Dr. I. Hassan

- “Single – crystal XRD, TEM, and thermal studies of the satellite reflections in nepheline.” Caribbean Academy of Sciences 13th Annual Meeting, Kingston, Jamaica, June 2002.

Dr. H. Jacobs

- “Novel Natural Products from the Antillean Flora” 13th Annual Meeting and Conference of the Caribbean Academy of Sciences, Kingston, Jamaica, June 2002.

Dr. Y. Jackson assisted by Norman Townsend.

- “Synthetic Strategies towards pyridoacridine alkaloids and some novel analogues” The Mona Symposium, Kingston, Jamaica, January 2002.

Dr. Y Jackson assisted by her MPhil student Seon Hepburn

- “Synthesis of the First Thiophene Analogue of Kuanoniamine A”, Mona Symposium, Kingston, Jamaica, January 2002.

Professor I. Kahwa

- “Nanoscience: What’s in it for the Caribbean?” Caribbean Academy of Sciences, 13th Annual Meeting and Conference, Kingston, Jamaica, June 2002.
- “Science-Society-Industry”, Cariscience Annual General Meeting and Conference, Barbados, 2001.

Dr. R. Lancashire with Debbie-Ann Facey.

- “The future of Chemical Information: IT in Spectroscopic Data Handling” Caribbean Academy of Science meeting Kingston, Jamaica, June 2002.
- “Defining a JCAMP-DX protocol for EMR”. 35th RSC ESR conference at Kings College, Aberdeen, Scotland, April 2002
- Western Washington University, Bellingham, Washington, USA. “Interactive Web Page Development with CHIME and JAVA”, 17th Biennial Conference on Chemical Education, July 2002.

Dr. W. Pinnock

- “Use of Red Mud as Construction Material”, Caribbean Academy of Science 13th Annual Meeting, Kingston, Jamaica, June 2002.

PUBLICATIONS

- * “Effects of S-Nitroso-N-acetyl-penicillamine Administration on Glucose Tolerance and Plasma Levels of Insulin and Glucagon”. *Nitric Oxide: Biology and Chemistry*, **5**, 203 (2001) **Dasgupta**, (with D. McGrowder and D. Ragoobirsingh).
- * “Effects of S-nitroso-N-acetyl-penicillamine Administration on Glucose Tolerance and Plasma Levels on Insulin and Glucagon in the Dog”. *Nitric Oxide: Biology and Chemistry*, **5**, 402 (2001) **Dasgupta** (with D. McGrowder and D. Ragoobirsingh).
- * “Mechanisms of nitric oxide release from nitrovasodilators in aqueous solution: reaction of the nitroprusside ion ($[\text{Fe}(\text{CN})_5\text{NO}]^{2-}$)

- with L-ascorbic acid. *Journal of Inorganic Biochemistry*, 87, 165 (2001) **T.P. Dasgupta (with J. Smith)**.
- * “Decreased insulin binding to mononuclear leucocytes and erythrocytes from dogs after S-Nitroso-N-Acetylpenicillamine administration”. *BMC Biochemistry* 2002, 3:1 **T.P. Dasgupta** (with D. McGrowder and D. Ragoobirsingh).
 - * “Kinetics and Mechanism of the reduction of the molybdatopentaamminecobalt (III) ion by aqueous sulfite and aqueous potassium hexacyanoferrate(II)”. *Inorg. Chim. Acta.* 2002, 331, 279 **T.P. Dasgupta** (with A.A. Holder).
 - * “Mechanism of reduction of chromium (VI) ion by 2-mercaptosuccinic acid in aqueous solution” *Inorg. Chim. Acta.* 2002, 331, 178 **T.P. Dasgupta** (with D C Ramdon and D A Dixon)
 - * “Mechanism of Nitric Oxide Release. I Two-electron Reduction of Sodium Nitroprusside by L-cysteine in aqueous solution”. *Inorganic Reaction Mechanism*, 3, 181 (2002) **T.P. Dasgupta** (with J. Smith).
 - * “Enhancement of the Hyperglycemic Effect of S-nitrosoglutathione and S-nitroso-N-acetylpenicillamine by Vitamin C in an animal model”. *BMC Pharmacology* 18, 2 (2002) **T.P. Dasgupta** (with D. McGrowder and D. Ragoobirsingh).
 - * Mechanism of reduction of chromium (VI) by 2-mercaptosuccinic acid in aqueous solution, **D. Dixon** (with D.C. Ramdon and T.P. Dasgupta). *Inorganica Chimica Acta* 331, (2002) 178-187
 - * **A.M. Greenaway**, The Planetary Environment, a Chemical Perspective. *Sustainable Development and Environmental Management* editors I. Goodbody and E. Thomas Hope, UWI Press.
 - * Antao, S. M. and **Hassan, I.** (2002): Thermal analyses of sodalite, tugtupite, danalite, and helvite. *Canadian Mineralogist*, **40**, 163-172.
 - * **Y. A. Jackson**, Seon A. Hepburn and William F. Reynolds, Synthesis of a Thiophene Analogue of Kuanoniamine A. *J. Chem. Soc., Perkin Trans. 1*, 2002, 2237-9.
 - * G.I. Simpson and **Y.A. Jackson**, Comparison of the Chemical Composition of East Indian, Jamaican and other West Indian Essential oils of *Myristica fragrans* Houtt., *Journal of Essential Oil Research*, 2002, 14, 6-9.

- * **Y.A. Jackson** and Karla-Sue Marriott, Synthesis of 2,3-Dimethoxy-7methyl-7, 12-dihydro-6H-[1]-benzofuro-[2,3-c]-[1]-benzaz-epin-6, 12-dione, *Molecules*, 2002, 7, 353-362.
- * A new squalene-derived epoxy tri-THF diol from *Spathelia glabrescens*. W.W. Harding, D.S. Simpson, **H. Jacobs**, S. McLean and W.F. Reynolds. *Tetrahedron Letters* 2001, 42, 7379-7381.
- * Complete ¹H and ¹³C chemical shift assignments of two new glabretal triterpenoids from *Guarea jamaicensis*. W.W. Harding, **H. Jacobs**, S. McLean and W.F. Reynolds. *Magnetic Resonance in Chemistry* 2001, 39, 719-722..
- * Cycloartanes, protolimonoids, a pregnane and a new ergostane from *Trichilia reticulata*. W.W. Harding, **H. Jacobs**, P.A. Lewis, S. McLean and W.F. Reynolds. *Natural Product Letters* **2001**, 15, 253-260.
- * Identification and complete ¹H and ¹³C spectral assignments for the triterpene fern-9(11)-en-28-oic acid. W.F. Reynolds, S. McLean, S.J. Burke and **H. Jacobs**. *Magnetic Resonance in Chemistry* **2001**, 39, 757-758.
- * Defects and luminescence behaviour of cubic F23 [(NH₄(18-Crown-6))₄Mn₄][TlX₄][TlX₄]₂(X=Cl, Br) crystals. N.S. Fender, **I.A. Kahwa**, F.R. Fronczek. *Journal of Solid State Chemistry* **2002**, 163, 286.
- * Guidelines for the Representation of Pulse Sequences for Solution-State Nuclear Magnetic Resonance Spectrometry (IUPAC Recommendations 2001), *Pure and Applied Chemistry*, 73(11), 1749-1764, 2001. **R. J. Lancashire**, A.N. Davis, J. Lambert, P. Lampen with Conover, M. Frey, M. Grzonka, E. Williams and D. Meinhart.
- * A kinetic model for the reductive desorption of self-assembled thiol monolayers. **W.H. Mulder**, J.J. Calvente and R Andreu. *Langmuir*, 17 (2001), 3273-3280.
- * Biotransformation of Terpenes from *Stemodia maritime* by *Aspergillus niger* ATCC 9142. A.R.M. Chen and **P.B. Reese**, *Phytochemistry*, 2002, 59, 57-62.
- * Microbial Transformation of Cadina-4, 10(15)-dien-3-one, Aromadendr-1(10)-en-9-one and Methyl Ursolate by *Mucor plumbeus* ATCC 4740. D.O. Collins, P.L.D. Ruddock, J. Chiverton

- de Grasse, W.F. Reynolds and **P.B. Reese**, *Phytochemistry*, 2002, 59, 479-488.
- * Biotransformation of Cadina-4, 10(15)-dien-3-one and 3á-Hydroxycadina-4, 10(15)-diene by *Curvularia lunata* ATCC 12017. D.O. Collins, W.F. Reynolds and **P.B. Reese**, *Phytochemistry*, 2002, 59, 489-492.
 - * Aromadendrane Transformations by *Curvularia lunata* ATCC 12017. D.O. Collins, W.F. Reynolds and **P.B. Reese**, *Phytochemistry*, 2002, 60, 475-481.
 - * PATENT – Medicaments for the treatment of *Strongyloides stercoralis* infections, R.D. Robinson, W.M. Forbes and **P.B. Reese** (inventors), UWI (Assignee), 2002.

PUBLIC SERVICE

Professor Tara Dasgupta

- Faculty Committee for Graduate Studies and Research
- Member, UWI Bookshop Management Committee
- Director, Mona Institute of Applied Sciences
- Executive Member, Natural Product Institute
- Member, Agricultural Support Service Committee
- Chairman, Electronics Unit Advisory Committee

Dr. H. A. Ellis

- Board Member, Metropolitan Parks and Markets
- Jamaica Bureau of Standards’ “Quality Management Systems Committee” and its Subcommittee for Accreditation of Chemical Laboratories (Chairman).

Dr. A. M. Greenaway

- Member, National Ozone Commission

Dr. J. Jackson

- Professional Member, Institute of Food Technologists (IFT), USA
 - (i) Executive Member of the International Division

- (ii) Secretary/Treasurer of the Fruit and Vegetable Division
- Faculty Representative, WIGUT
- UWI Representative, Agro-Processors Resource Network (APRN), Jamaica

Dr. Y. Jackson

- Foreign Research Mentor for the Minority International Research Training Programme, Barry University, Florida
- Regional Editor – Molecules
- Member of Board of Governors, Hampton High School, St. Elizabeth
- Director of Music, St. Stephen's United Church, Kingston

Professor I. A. Kahwa

- Asbestos Task Force, National Environment and Planning Agency
- Board of Directors, International Centre for the Environmental and Nuclear Sciences (ICENS)
- Intellectual Property Rights Committee, UWI.
- Member, CHEMLAB Project Committee, Journal of Chemical Education, American Chemical Society
- Member, Board of Governors, Zenith Preparatory and Learning Centre
- Regional Editor: Molecules

Dr. R. Lancashire

- Sub-Dean, Faculty of Pure and Applied Sciences
- University Representative on the Board of the Jamaica Computer Society Education Foundation
- Executive Member of the Jamaica Society of Scientists and Technologists
- Leader of IUPAC Task Group on EMR data structures

Dr. P. Maragh

- National Industrial Safety Committee – Bureau of Standards
- Museums Advisory Board – Institute of Jamaica

Dr. D. Minott

- Jamaica Bureau of Standards- Coconut Water Technical Committee

- Agro-Processing Resource Network
- Scientific Research Council Board's Sub-Committee for the Food Technology Institute
- National Agricultural Health and Food Safety Coordinating Committee
- President – WIGUT (Jamaica)
- Director – Better Process Control School (certification for the food industry)
- Advisory Board – Guiding Light

Dr. N. Sadler-McKnight

- Member of the Natural Resources Conservation Authority.
- Member of the Technical and Finance Committee of the Scientific Research Council
- Council member of Jamaica Society for Scientists and Technologists (JSST).
- Executive Secretary of Alumni and Friends of the Department of Chemistry, UWI, Mona (CHEMSAF).

Dr. P. Reese

- External Examiner for the Bachelor of Pharmacy programme at the University of Technology, Hope
- Member, Equine Drug Testing Committee

Dr. W. Pinnock:

- Member of the National Radiation Safety Council, Ministry of Health, Jamaica.
- Member of the Steering Committee for Food Irradiation, National Commission of Science and Technology, Office of the Prime Minister (Jamaica).

VISITORS TO THE DEPARTMENT

Professor Peter W. Atkins, F.R.S. of Lincoln College, Oxford University.

Dr John Mann, Professor of Organic Chemistry of Queen's University, Belfast, Ireland.

Dr. Maurice Bennink of Michigan State University (MSU) and **Dr. Clare Hasler** of the University of Illinois were guest speakers at Special Lecture on Functional Foods for Health.

Dr. Rosa Rolle, Agro-Industries Officer at the Food and Agriculture Organization (FAO).

Dr. Fred Perry, Dean of Students, Warren Wilson College, USA and a group of students.



Mr. Sylvain Meguellatni, Sales Manager for South America and the Caribbean Bruker Biospin.

Mr. Charles Ross, Managing Director, Sterling Asset management Ltd.

Professor Jerome Nriagu, Editor of the Science of the Total Environment and Professor, Department of Environmental and Industrial Health at the University of Michigan.

DEPARTMENT OF GEOGRAPHY AND GEOLOGY

Professor Elizabeth Thomas-Hope, MA Aberdeen, MS Penn State,
DPhil Oxon – Head of Department

Professor **Edward Robinson** retired as Professor of Geology and was conferred the title of Professor Emeritus by the University.

Dr Jasminko Karanjac took up duties in April 2002 as Professor of Water Resources Management. The new Chair is endowed by grants from Alumina Partners of Jamaica (ALPART), JAMALCO, Kaiser Jamaica Bauxite Company, and the Jamaica Bauxite Institute.

Dr Benedict Arimah joined the Department as Senior Lecturer in Geography, **Dr Susan Mains** as Lecturer in Geography, and **Dr Faisal Butt** as Lecturer in Geology. Four members of the Department were recognized on the University's Research Day, October 18, 2001, for having made a significant impact on the wider society through their research.

One of two awards for Distinguished Researchers in the Faculty of Pure and Applied Sciences was won by **Professor Elizabeth Thomas-Hope**, Head of the Department, and **Dr Balfour Spence**, Lecturer in Geography, for their project on “Agrobiodiversity, Land Management and Environmental Change in the Caribbean.” **Mr Rafi Ahmad**, Lecturer in Geology, received a Certificate of Excellence for his publication (with Avijit Gupta, University of Leeds, UK) on “Urban Steeplands in the Tropics: An Environment of Accelerated Erosion.” The award for the research project in the Faculty of Pure and Applied Sciences which had attracted the most research funds went to Dr Ravidya Maharaj, former Research Fellow in Geology, and **Dr Simon Mitchell**, Senior Lecturer in Geology.

Professor Elizabeth Thomas-Hope continued as leader of the Jamaican research team engaged in the international collaborative project, People, Land Management and Environmental Change (PLEC). This project is coordinated by the United Nations University (Tokyo, Japan), with research teams working in Thailand, South China, Papua New Guinea, West and East Africa, Brazilian and Peruvian Amazonia, Mexico, and Jamaica. Professor Thomas-Hope has been appointed a scientific adviser to the international research teams. The Jamaican research team includes **Dr Balfour Spence**, Lecturer in Geography.

Dr Spence represented the University on the Caribbean Disaster Mitigation Project, funded by the Japan International Cooperation Agency and aimed at increasing the capacity of member countries of the Caribbean Disaster Emergency Response Agency (CDERA). He also represented the University in the Mainstreaming Adaptations to Climate Change Project.

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

Through **Mr. Rafi Ahmad** of the Unit for Disaster Studies, Jamaica became a member of the newly formed International Consortium on Landslides (ICL) at the First European Conference on Landslides, held in Prague, June 24-26, 2002.

The Marine Geology Unit, which was established in December 2000 with a grant from the Environmental Foundation of Jamaica to collect physical and geological data on Jamaica’s Exclusive Economic Zone (EEZ), continued to acquire data from local and overseas sources, and the structure of the database was finalized. The Director, **Professor Edward Robinson**, visited the UK Hydrographic Office to examine and acquire current and historical Admiralty surveys of the EEZ, and also presented a paper on south coast erosion problems in Jamaica at the Annual Research Conference of the Institute for Marine Affairs, Trinidad. Funding for the Unit from the EFJ ceased in December 2001, but work on finalizing the database continued

through the rest of the review period, and a seminar on the work of the Unit was given in March. Major activities of the Unit ceased in July.

RESEARCH IN PROGRESS

Mr Rafi Ahmad

- Neotectonics; landslide processes and hazards; structural and lithological controls on the evolution of landforms; mapping and assessment of natural hazards; preparation of hazard maps in Jamaica.

Dr Benedict Arimah

- Measuring and explaining the provision of infrastructure in African cities; human development and poverty alleviation in Africa.

Professor Wilma Bailey

- Extension of the work on health GIS software packages to rural St Andrew, Spanish Town and Montego Bay; an atlas of HIV/AIDS in the Caribbean; climate and dengue in the Caribbean.

Dr David Barker

- Alternatives to the traditional yam stick method of staking yams (with post-doctoral research fellow Dr Clinton Beckford).

Dr Faisal Butt

- Isostatic elevation changes in the Barents Sea and their influence on Northern Hemisphere climate; relief changes in the Barents Sea and the Mid-Pleistocene climate shift; the influence of climate and tectonic changes on high erosion rates during the Cenozoic – examples from the northern North Atlantic; modelling groundwater flow in the alluvial aquifer of the lower Yallahs basin, St Thomas.

Professor Trevor Jackson

- Pumice deposits of Dominica and St Lucia; volcanic petrology of pre-Soufrière rocks in St Vincent; geochemistry of the Miocene bentonites of Jamaica; mineralogy of the black sands of the south coast, Jamaica; mineralogy of the volcanoclastic turbidites of the Grand Bay Formation, Carriacou.

Dr Susan Mains

- Issues of race, transnationalism, gender and representation in the Caribbean; media representations of immigrants and community organizations at the US-Mexico border.

Dr David Miller

- Review of the karst geomorphology of the White Limestone Group, Jamaica; ridge karst geology and geomorphology in southern St Elizabeth; cone and tower karst morphometry and geology on the Manchester-St Elizabeth border, Jamaica; the geomorphological legacy of Quaternary environmental change, south central Jamaica; the palaeoenvironmental significance of solifluction deposits and cryoplanation terraces in southwest England.

Dr Simon Mitchell

- Sedimentology of Recent carbonate beach sediments in Jamaica; lithostratigraphy and sedimentology of the Yellow Limestone Group, Jamaica (with Dr R. Maharaj, Institute of Marine Affairs, Trinidad); lithostratigraphy and palaeogeography of the White Limestone Group, Jamaica; sedimentology and palaeontology of the Red Chalk (with Dr C.J. Underwood, Birkbeck University, UK); geology and stratigraphy of the Central Inlier, Jamaica; sustainable development of sand mining and sediment budgets in Jamaican rivers (SEBRA Project); palaeokarst in Jamaica (with Dr D.J. Miller, Department of Geography & Geology, UWI); origins of sea cows (with Dr D. Doming, Howard University, USA); Cretaceous and Eocene echinoderms (with Dr S.K. Donovan, Leiden, Netherlands); taxonomy and biostratigraphy of rudist bivalves; biostratigraphy and palaeoecology of Jamaican Cretaceous ostracodes; taxonomy and evolution of the coleoidea; palaeontology of sharks (with Dr C.J. Underwood, Birkbeck University, UK); geoarchaeology of Taino settlements in Jamaica (with Dr P. Allsworth-Jones, Department of History, UWI); geology and geochemistry of dolomite in the Caribbean; sedimentation in active strike-slip fault systems – a case example from southeastern Jamaica; strontium isotope stratigraphy of late Cretaceous rudists (with Dr T. Steuber, Ruhr-Universität, Germany).

Professor Edward Robinson

- Taxonomy and biostratigraphy of Mesozoic to Recent larger foraminifers (Protists) in the Western Hemisphere, especially the imperforate genera of carbonate platform areas, and the lepidocyclinid groups; the use of larger foraminifers in high-resolution sequence and biostratigraphy; investigation of the Eocene-Oligocene boundary in Jamaica; historical documentation of coastal changes in Jamaica.

Dr Thomas Stemann

- Coral biodiversity in Jamaica from the Late Eocene through the Miocene; palaeoecology of the Pleistocene reefs of Jamaica; the Palaeocene corals of Colombia; biostratigraphy of Jamaican Cretaceous corals (with Dr S. Mitchell).

Professor Elizabeth Thomas-Hope

- Agrobiodiversity and environmental management; Caribbean international migration; poverty and the urban environment; children’s perception of the environment; social and educational aspects of disaster planning.

PAPERS PRESENTED

- **R. Ahmad.** “Geology of the Long Mountain, Jamaica: natural and anthropogenic geomorphic agents and sustainability of physical environment.” Long Mountain Symposium, UWI, Mona, February 2, 2002.
- “Understanding natural hazards and disasters in Jamaica.” Seminar for Disaster Wardens, by the Insurance Company of the West Indies, February 11, 2002.
- **B. Arimah.** “Health consequences of deficiencies in urban infrastructure: a cross-city investigation.” Third IHDP/START International Human Dimensions Workshop on Urbanization and the Transition to Sustainability, Konigswinter, Germany, June 2-15, 2002.
- **W. Bailey.** Poster presentation, 10th Annual Research Conference, Faculty of Medical Sciences, UWI, Mona, November 1-2, 2001.
- **C. Beckford & D. Barker.** “Finding sustainable ways of staking yams and sourcing yam sticks in Jamaica: an environmental and economic imperative.” Fourth British-Caribbean Geography Seminar, San Ignacio, Belize, July 7-10, 2002.
- **B. Bandy, T.A. Jackson & P.W. Scott.** “Provenance determination using detrital iron-titanium oxides and clinopyroxenes.” Geological Society of America Annual Meeting, Boston, Massachusetts, USA, November 2001.

- **T. Jackson.** “Caribbean volcanoes: friend or foe?” Caribbean Academy of Sciences XIII Annual Meeting, Kingston, Jamaica, June 1-4, 2002.
- S.K. Donovan & **T.A. Jackson.** “Publishing and the future of the Caribbean geological conferences.” Sixteenth Caribbean Geological Conference, Barbados, June 16-21, 2002.
- **T.A. Jackson,** P.W. Scott & A.R. Butcher. “The petrology and industrial mineral potential of pumice from St Lucia and Dominica.” Sixteenth Caribbean Geological Conference, Barbados, June 16-21, 2002.
- **S. Mains.** “Teaching transnationalism: media, globalization, and critical geographies.” Southeastern Division of the Association of American Geographers (SEDAAG) Annual Meeting, Lexington, Kentucky, USA, November 2001.
- “Contested spaces: media, borders and representing immigrants.” UWI Department of Geography & Geology Brown Bag Seminar Series, Kingston, Jamaica, February 2002.
- “Borders, policing and emancipation.” Special Session on Spaces at the Intersections of Race and Sexuality, AAG Annual Meeting, Los Angeles, California, USA, March 2002.
- “Lights-camera-action: film as a methodological and pedagogical tool in cultural geography.” Special Panel Session on Cinematic Geographies III, AAG Annual Meeting, Los Angeles, California, USA, March 2002.
- “Documentary film and the end of empire.” Post-Imperial Britain Conference, London, UK, July 2002 (with M. Skinner).
- “Paradise lost? Film, mobility and Jamaican identities.” AHRB Centre for British Film and Television Trading Culture Conference, Sheffield, UK, July 2002.
- **S. F. Mitchell.** “Marine-terrestrial transition in a volcanoclastic braid-delta, Jamaica.” Sixteenth Caribbean Geological Conference, Barbados, June 2002.
- E. James & **S.F. Mitchell.** “Stratigraphy of the Eocene Chapelton Formation of Dump, central Jamaica.” Sixteenth Caribbean Geological Conference, Barbados, June 2002.

- S. James & **S.F. Mitchell**. “Modern and Pleistocene gravel beach systems in eastern Jamaica.” Sixteenth Caribbean Geological Conference, Barbados, June 2002.
- S. Khan & **S.F. Mitchell**. “Comparison of grain composition of two white sand beaches in Jamaica.” Sixteenth Caribbean Geological Conference, Barbados, June 2002.
- **E. Robinson**. “Analysis of long-term trends in coastal change as an aid in environmental decision making: an example from Jamaica.” Eighth Annual Research Symposium, Institute of Marine Affairs, Chaguaramas, Trinidad & Tobago, September 18-20, 2001.
- “The use of larger foraminifers in petroleum exploration.” Workshop, Exploration Division, Exxon-Mobil, Houston, Texas, October 1-5, 2001.
- “Larger foraminiferal biostratigraphy of the Cenozoic rocks of Jamaica: proposal for a zonal scheme.” Sixteenth Caribbean Geological Conference, Barbados, June 16-21, 2002.
- **T. Stemann**. “Reef crests of the Upper Pleistocene: size, abundance and distribution of the keystone coral *A. palmata*.” Sixteenth Caribbean Geological Conference, Barbados, June 16-21, 2002.
- **E. Thomas-Hope**. “Caribbean, African or Black diasporas, and the future.” Panel presentation at the International Conference on the Caribbean Diaspora, South Bank University, London, UK, August 30- September 1, 2001.
- “Migration networks and the transnationalization of social capital.” Sixth Annual Development Conference of the Eastern Caribbean Development Bank, Basseterre, St Kitts, October 8-9, 2001.
- “The implications of skilled migration from the Caribbean.” Seminar on the Brain Drain from the Caribbean and Africa, Center for International Affairs, Middlebury College, Vermont, USA, November 17, 2001.
- “Role of the environment in Caribbean economic development.” Seminar on Explaining the Income Gap in the Caribbean organized by the Social Science Research Council (USA) and the Caribbean Development Bank, Barbados, December 16-17, 2001.
- “The findings of the Jamaica PLEC research and future plans for Jamaica-PLEC.” People, Land Management and Environmental

Change Conference, Columbia University, New York, April 23-26, 2002.

- “Resource valuation techniques in promoting the sustainable use of coastal resources: the case of Ocho Rios, Jamaica.” Conference on Ten Years after Rio: Steps towards Sustainable Use and Development of Coastal and Marine Areas, University of Bremen, Germany, June 10-12, 2002.
- “Towards reduction in the vulnerability of Caribbean populations and settlements to natural hazards.” Conference on Vulnerability Reduction in Hemispheric Trade Corridors, University of South Florida, Tampa, June 12-14, 2002.
- “Race and migration in the Hispanic Caribbean: the reception of West Indians in Panama, Costa Rica and Cuba, 1840-1940.” Conference on the Socio-Economic and Cultural Impact of West Indian Migration to Costa Rica (1870-1940), the Latin America-Caribbean Centre, UWI, Mona, July 4-6, 2002.
- **E. Thomas-Hope & B. Spence.** “Agrobiodiversity in flood and landslide hazard mitigation: the Rio Grande Valley, Portland, Jamaica.” Poster session of the International Conference on Biodiversity organized by the United Nations University, Montreal, Canada, November 8-10, 2001.
- **E. Thomas-Hope & B. Spence.** “Biodiversity as an environmental management tool in agricultural landscapes: implications for agro-chemical usage.” Caribbean Academy of Sciences Conference, UWI, Mona, June 1-3, 2002.

PUBLICATIONS

Books

- * **T.A. Jackson** (ed.). *Caribbean Geology into the Third Millennium. Transactions of the Fifteenth Caribbean Geological Conference*, UWI Press, Kingston, Jamaica, 2002 (279 pp).
- * I. Goodbody & **E. Thomas-Hope** (eds.). *Natural Resource Management for Sustainable Development in the Caribbean*. UWI Press (Canoe), Kingston, Jamaica, 2002 (496 pp.).

Refereed Papers

- * K.J. Northmore, **R. Ahmad**, E. O'Connor, D. Greenbaum, A.J.W. McDonald, C.J. Jordan, A.P. Merchant & S.H. Marsh. Landslide Hazard Mapping: Jamaica Case Study. *National Environment Research Council, British Geological Survey Technical Report WC/00/10*, DFID Project No. R6839, 2000. 41pp.
- * **B.C. Arimah**. "Houses as assets and as homes: urban construction and devaluation in Ibadan." In G. Guyer, R. Denzer & A. Agbaje (eds.), *Money Struggles and City Life: Devaluation in Ibadan and Other Urban Centers of Southern Nigeria, 1986-96*. Heinemann, Portsmouth, New Hampshire, 2002, 39-61.
- * M. Clarke & **W. Bailey**. *A Study Guide for Tourism*. Caribbean Examinations Council, Barbados, 2001.
- * **W. Bailey**, C. Branche & A. Henry-Lee. "Gender, contest and conflict in the Caribbean: lessons from community-based research." *ISES*, UWI, Mona, 2002 (30 pp.).
- * **F.A. Butt**, A. Elverhoi, B.O. Hjelstuen, P. Dimakis & A. Solheim. "Modelling late Cenozoic isostatic elevation changes in Storfjorden, NW Barents Sea: an indication of varying erosional regimes." *Sedimentary Geology*, 143, 2001.
- * B. Bandy, **T.A. Jackson** & P.W. Scott. "Mineralogy of the sand-sized sediments in the Rio Minho drainage basin, Jamaica." In T.A. Jackson (ed.), *Caribbean Geology into the Third Millennium*. UWI Press, Kingston, Jamaica, 2002, 209-220.
- * S.K. Donovan, **T.A. Jackson** & **D.J. Miller**. "Fieldwork: a key component in teaching geology and geomorphology at the University of the West Indies, Jamaica." In T.A. Jackson (ed.), *Caribbean Geology into the Third Millennium*. UWI Press, Kingston, Jamaica, 2002, 269-279.
- * **T. A. Jackson** & P. W. Scott. "The Paleogene volcanic rocks of Cuba and Jamaica: similarities and differences." In T. A. Jackson (ed.), *Caribbean Geology in the Third Millennium*. UWI Press, Kingston, Jamaica, 2002, 107-118.
- * **S. Mains**. "Maintaining national identity at the border: scale, masculinity, and the policing of immigration in southern California." In A. Herod & M. Wright (eds.), *Geographies of Power: Placing Scale*. Blackwell, London, 2002, 192-214.

- * **S. F. Mitchell.** “Field guide to the geological evolution of the Central Inlier.” *Caribbean Journal of Earth Science*, 36, 2002, 27-38.
- * “The fauna of Jamaican Cretaceous reefs.” In T.A. Jackson (ed.), *Caribbean Geology into the Third Millennium*. UWI Press, Kingston, Jamaica, 2002, 131-138.
- * **S.F. Mitchell**, R.K. Pickerill & **T. Stemann.** “The Port Morant Formation (Upper Pleistocene, Jamaica): high resolution sedimentology and palaeoenvironmental analysis of a mixed carbonate-clastic lagoonal succession.” *Sedimentary Geology*, 144(3-4), 291-306.
- * R.F. Pickerill, S.K. Donovan, **S.F. Mitchell** & D.G. Keighley. “Late Cenozoic trace fossils from southeast coastal Jamaica.” In T.A. Jackson (ed.), *Caribbean Geology into the Third Millennium*. UWI Press, Kingston, Jamaica, 2002, 155-166.
- * P. Glynn, J.L. Mate & **T.A. Stemann.** “*Pavona chiriquiensis*, a new species of zooxanthellate scleractinian coral (Cnidaria: Anthozoa: Agariciidae) from the eastern tropical Pacific.” *Proceedings of the Biological Society of Washington*, 2001.
- * **E. Thomas-Hope.** “Managing nature as resource.” In I. Goodbody & E. Thomas-Hope (eds.), *Environmental Management for Sustainable Development in the Caribbean*. Canoe Press, Kingston, Jamaica, 2002, 1-12.
- * “The role of environmental management in Caribbean economic development.” *Integration and Trade*, 5, 2001, 83-104.
- * “El papel de medio ambiente en el desarrollo economico del Caribe.” *Integracion y Comercio*, 5, 2001, 87-110.
- * “Trends and patterns of migration to and from Caribbean countries.” *International Migration and Development in the Americas*, Commission for Latin America and the Caribbean, Santiago, Chile, 2001, 58-78.
- * “Transnational livelihoods and identities in return migration to the Caribbean: the case of skilled returnees to Jamaica.” In N. Sorensen and K.F. Olwig (eds.), *Work and Migration: Lives and Livelihoods in a Globalizing World*. Routledge, London and New York, 2002, 187-201.

- **E. Thomas-Hope & B. Spence.** “Promoting agrobiodiversity under difficulties: the Jamaica PLEC experience.” *People, Land Management and Environmental Change News and Views*, 19, 2002, 17-24.

Non-Refereed

- * **W. Bailey**, C. Branche & A. Henry-Lee. *Gender Relations, Conflict Management and Reproductive Health: the Follow-up.* Ford Foundation, Washington, D.C., 2002.
- * H. Semple & **W. Bailey.** *Health GIS: Software Packages with a Visual Basic Interface to Spatially Analyze and Display Disease Patterns in the KMA.* Ministry of Health, Jamaica, 2002.
- * **E. Thomas-Hope.** “Resource valuation techniques in promoting the sustainable use of coastal resources: the case of Ocho Rios, Jamaica.” *Proceedings of the Future Search Conference – Ten Years After Rio: Steps towards Sustainable Use and Development of Coastal and Marine Areas.* Carl Duisberg Gesellschaft Foundation for International Training and Development, Bremen, Germany, 2002.
- * “Skilled labour migration from developing countries: the Caribbean case.” International Labour Organization, Geneva, 2002. 32pp.

PUBLIC SERVICE

R. Ahmad

- Caribbean correspondent to the International Landslide Research Group;
- Member, National Damage Assessment, Recovery and Rehabilitation Subcommittee;
- President, Jamaica Association of Geomorphologists;
- Member, International Consortium on Landslides Board.

W. Bailey

- Chief Examiner, CAPE Geography;
- Convenor of the Geography Panel, CAPE.

D. Barker

- Editor, *Caribbean Geography*;
- Member of Council, Jamaica Geographical Society;

- Member of Editorial Board, *Ideaz* (interdisciplinary UWI journal for social sciences and humanities).

T. Jackson

- Member, Caribbean Community Ocean Sciences Network (CCOSNET);
- Member, IGCP Project 433, Caribbean Tectonics;
- Member, Jamaica IGCP National Committee;
- Member, Standing Committee, Caribbean Geological Conference;
- Member, Jamaica National Commission for UNESCO Science & Technology Advisory Committee.

S. Mains

- Board member, Geographic Perspectives on Women Specialty Group of the Association of American Geographers;
- Editor, Geographic Perspectives on Women Specialty Group of the AAG Newsletter; Book reviewer, *Gender, Place and Culture*;
- Participant/member, Women in Film and Television, Jamaica; External reviewer for SELA, USA;
- Reviewer for ESRC grant review board, UK.

D. Miller

- Book review editor, *Caribbean Geography*;
- Secretary, Jamaica Association of Geomorphologists.

S. Mitchell

- Chairman, Commission on Jamaican Lithostratigraphy;
- Member, Technical Working Group on Jamaican Beach Policy;
- Council member, Geological Society of Jamaica;
- Editor, *Caribbean Journal of Earth Science*;
- Editor, *Contributions to Geology* (UWI).

E. Robinson

- Member of Editorial Board, *Caribbean Marine Studies*;
- Vice President, Jamaica Association of Geomorphologists;
- Member, Jamaican IGCP National Committee;

- Member, Standing Committee for Caribbean Geological Conference Series;
- Courtesy Professor, Florida International University, Miami.

T. Stemann

- Council Member, Geological Society of Jamaica;
- Chairman, Field Trip Subcommittee, Geological Society of Jamaica.

E. Thomas-Hope

- Chairperson, Board of the Jamaica Sustainable Development Network;
- Director, Luis Fred Kennedy Environmental Foundation;
- Resource person for the training programme of the International Migration Policy Agency, Geneva;
- Scientific Adviser to the United Nations University's International Programme on People, Land Management and Environmental Change;
- Latin American and Caribbean Regional Representative, International Geographical Union Commission on Health and the Environment;
- Journal referee for *Third World Planning Review*; *Social and Economic Studies*; *The Journal of Developing Areas*; *Third World Planning Review*; *Journal of Tourism*; *Journal of Eastern Caribbean Studies*; *Progress in Development Studies*; and *National Identities*;
- Member of the Editorial Advisory Boards of *Third World Planning Review*; *The Caribbean Journal of Agriculture and Natural Resources*; *The International Journal of Disability Issues*; and *Progress in Development Studies*.

CATEGORIES OF STUDENTS

Undergraduates: Geography

Course	Regd	Sat	Passed	% Passed
GG10A Introduction to Human Geography	85	83	72	85
GG10B Introduction to Physical Geography	80	79	62	78
GG20C Geography of the Caribbean	46	45	39	85
GG21A Urban Geography	43	43	42	98
GG21B Geography & Development	40	40	35	88
GG22A Geosphere & Hydrosphere	54	53	47	87
GG22B Atmosphere & Biosphere	58	57	53	91

GG31C	Tropical Agricultural Systems & Development	30	30	28	93
GG31D	Global Structure & Political Order	13	13	12	92
GG32A	Geomorphologic Processes & Landforms	14	14	14	100
GG32D	Health & Society	29	28	28	97
GG33B	Urban & Regional Planning	34	33	33	97
GG33F	Introduction to Geographical Information Systems	28	27	27	96
GG33G	Disaster Management	31	30	29	94
GG33H	Environmental Resource Management	31	30	30	97
GG360	Research Paper	38	34	28	74

Undergraduates: Geology

Course	Regd	Sat	Passed	% Passed
GL10A Introduction to Earth Sciences I	40	40	34	85
GL10B Introduction to Earth Sciences II	41	41	35	85
GL21A Palaeontology	14	14	11	79
GL22A Sedimentology	20	20	20	100
GL23B Igneous Petrology	12	12	12	100
GL24B Metamorphic Petrology	15	15	15	100
GL25A Geological Mapping & Map Interpretation	15	15	15	100
GL30D Analysis & Management of Geohazards & Risks	12	11	11	92
GL311 Field Geology	21	21	20	95
GL32A Caribbean Geology	19	19	17	89
GL33A Engineering Geology & Hydrogeology	13	13	9	69
GL34A Advanced Sedimentology & Fossil Fuels	14	14	14	100
GL35A Advanced Palaeontology	9	9	8	89
GL38B Economic Geology	12	12	11	92
GL39B Plate Tectonics & Structural Analysis	11	11	9	82
GL39J Marine Geology	21	21	18	86
GL39K Quaternary Geology & Environmental Change	7	7	7	100
GL39L Environmental Geology & Management	14	14	14	100

Undergraduate Prizes Awarded

The Barry Floyd Prize for the best student in Level II Geography was awarded to Keisha Sylvester.

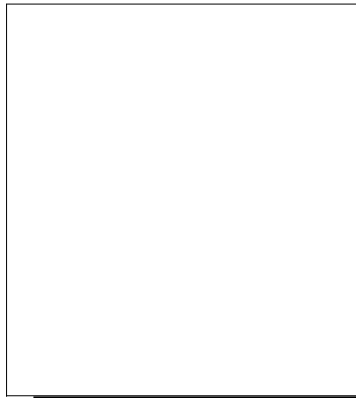
The Harry Kuarsingh Memorial Bursary (Geology) was awarded to Brianne Alleyne.

Postgraduates: Environmental Management

Fifteen candidates completed the MSc degree in Natural Resource Management – Integrated Urban and Rural Environmental Management.

Research Postgraduates

Judy Rocke was awarded the PhD degree in Geography for her dissertation entitled “Rural Development: An Appraisal of Development Options for Southeast Trinidad, W.I.” Her supervisor was **Dr David Barker**.



DISTINGUISHED VISITORS

Professor R. Abbott, Appalachia State University, USA.

H.E. I. Chopra, High Commissioner of India to Jamaica.

Professor C. Clarke, University of Oxford, UK.

Dr H.K. Gupta, Department of Ocean Development, Government of India.

Professor J. Momsen, University of California at Davis, USA.

R. Portell, Florida Museum of Natural History, USA.

Professor R. Potter, Bedford & Royal Holloway College, University of London, UK.

DEPARTMENT OF LIFE SCIENCES

Ralph D. Robinson BSc, PhD *Belfast* – Head of Department

WORK OF THE DEPARTMENT

Over the year the Department restructured its undergraduate program with the aim of offering a solid foundation of Biology up to Level II, whilst presenting a coherent set of more specialised courses in the final year culminating in degrees in Botany, Zoology, Environmental Biology and, a new offering, Experimental Biology.

Approval was also received for the following new courses: BL20P Biometry (replacing Statistics for Biologists), BL 30K Soil Biology and BT 37Q Plant Health (substituting for Phytopathology and Soil Microbiology), BL31E Biological Oceanography and BL31F Marine Benthic Communities (replacing Marine Ecology), BT38C Principles of Horticulture, and Z32G Pest Management (replacing Applied Ecological Entomology, and Management of Pests and Pesticides). Other courses e.g. BL20K Population Genetics and Evolution, and BT34A Crop Genetics were renamed BL20K Evolutionary Biology and BT34A Principles of Plant Breeding, respectively, more closely reflecting the syllabuses. Several courses with Zoology (Z) or Botany (BT) codes were re-listed with Biology (BL) codes again reflecting course content; this also allowed for the inclusion of the courses for credit in all 4 majors offered by the Department. Overall, net 16 credits were removed from the Part II offerings offering this year in anticipation of MSc taught offerings to come.

For the first time in the history of the Department, a taught MSc will be offered in September 2002. This program which is entitled “Biological; Approaches in Ecosystem Management” will be coordinated by **Dr Peter Vogel** and offered under the Natural Resource Management umbrella. It is designed to provide a biologist with the necessary tools to conduct specific tasks in a team of environmental managers *viz.* collection, analysis and presentation of ecosystem data, identification of thresholds of ecosystem use, biological interventions for conserving species and habitats, and interpretation of ecosystem characteristics to the public. Another syllabus, this time for a MSc in Plant Production and Protection, was submitted by **Dr Phyllis Coates-Beckford**. The proposal is currently under consideration by The University for offering in September 2003.

Several members of staff and graduate students benefited from multimedia workshops run by the INFOCOM Centre, and Staff Development workshops offered by the Instructional Development Unit.

Plant and vehicles

Forty Pentium-IV computers, 2 portable digital projectors, a digital still camera, a digital camcorder and a video microscopy attachment were gratefully received from the MITS - Educational Technology Fund.

This equipment was quickly put to good use in our teaching programs and seminars. During the course of the year, the Biology Lecture Theatre (BLT) was fitted with on-line access *via* the Internet.

Work has begun in the old pantry area in the Department to develop a freshwater ecology laboratory. The refurbishment, which is being paid for from central funds, will accommodate both dry and wet laboratories linked to the existing aquarium room. The facility will come under the supervision of **Dr Eric Hyslop**, our freshwater ecologist.

The Department has yet to benefit from refurbishment of sanitary facilities that began two years ago in the Faculty.

Unfortunately, Berõe a 20 feet hull #PR574 that was equipped with 2 Johnson outboard motors was stolen from Port Royal Marine Laboratory (PRML) last November. Also, a stand-by generator owned by the Department and located at PRML burnt out last December following heavy rains. These were, however, fully insured by the University and, hopefully will be replaced in due course. Although the arrangements under which the UWI Shrimp Project uses the Port Royal Marine Laboratory were clarified last year, landscaping of the site agreed with the Office of Finance over a year ago has still not begun.

Following some inclement weather, the ceiling on Botany Laboratory #4 had to be refurbished following shoddy workmanship conducted during the previous, IDB-funded, project.

Staff Matters

Dr Dunbar Steele, the first Head, Department of Life Sciences, and former Head of the Department of Zoology retired on September 30th 2001 following 34 years of service to The University. He is currently employed by University through the Dean's Office as a researcher to oversee a pilot project involving mariculture of red hybrid tilapia. This is a research theme he, and several of his graduate students, pioneered over the last 17 years. The project is expected to become a commercially viable proposition. Last year, **Dr Steele** also oversaw Summer School in the Faculty and developed a framework for both Summer Schools and MSc programs.

Dr P.V. Devi Prasad enjoyed sabbatical leave at the Citrus Research and Education Center, University of Florida, USA where he conducted research into somatic hybridisation to develop novel hybrids for use as Citrus Tristeza Virus-free root stock, and for ornamental plants. It is expected that **Mr Karl Aiken**, **Dr Sashi P.V. Potluri** and **Dr Dale Webber** will embark on sabbatical leave in the coming year. **Dr Mark Thomas** is expected to go on Special Leave for one year to read for an MSc degree,

related to his research, at The University of London. He will be replaced by **Mrs Alicia Lyn-Sue Chin**.

In June and July, **Prof. Brian Freeman** visited the British Museum library to further conduct research for his book and revise sections on aphid ecology. Whilst there, he attended several lectures at the Royal Entomological Society. In late July, he visited the University of Chang Mai in northern Thailand at the invitation of Dr Sumint Chreesombat. There, **Prof. Freeman** gave a talk on Entomology in Jamaica and was introduced to work on the ecology of rice caseworms.

The Department is fortunate to welcome **Dr Kurt McLaren** to the post of Lecturer in Forest Ecology; **Dr Dwight Robinson** as Lecturer in Pest Management and **Dr Byron Wilson** to a Lecturership in Conservation Biology. Already, these colleagues have begun to impact the development particularly of applied aspects of biology in the Department. **Dr Kurt McLaren** led a group of students over the summer in a public relations exercise that involved labeling of about 150 trees on the Mona campus. It is hoped that the exercise which is sponsored by the Principal will extend next summer to incorporate about a third of the suitable 800 or so trees on campus.

Vacancies in the teaching establishment were filled using temporary staff. **Mr. Fredrick Boyd** taught mainly in the Biology program and as a temporary replacement for **Dr PV Devi Prasad** who was on Sabbatical leave. **Miss Metz Peterkin** and **Mrs Celia Jackson** were re-appointed as Teaching Assistants to work with large first year classes, and **Mr Hugh Lounges** operated as Systems Manager in the Department. **Miss Amika Wright**, a Botany graduate of the department, was employed, temporarily, as a technician attached to the busy Botany Laboratory #2.

Awards

Congratulations are extended to **Dr Peter Vogel** on the award of a Special Silver Musgrave Medal in Science in recognition of his conservation work in Jamaica. This is the fourth Musgrave medal won by staff in this Department over the years: other medalists are **Professor Ivan Goodbody**, **Professor Ajai Mansingh** and **Dr Dale Webber**; **Dr George Proctor** who is currently an Honorary lecturer in the Department is a recipient of a Musgrave Gold Medal.

The University (Office of the Principal) awarded "Best Publication" for a paper entitled "Seroepidemiology of *Helicobacter pylori* infection in a Jamaican community" to the Department of Life Sciences in recognition of outstanding research in the Faculty of Pure and Applied Sciences. The paper was written by J.F. Lindo, **A.E. Lyn-Sue**, C.J. Palmer, M.G. Lee, **P. Vogel**

& **R.D. Robinson**, and appeared in *Tropical Medicine and International Health* 4(12): 862-866 (1999).

In July 2002 the Executive Board of the Association of Marine Laboratories of the Caribbean elected **Professor Emeritus Ivan Goodbody** to Honorary Lifetime Membership of the Association in recognition of his role in establishing and nurturing the Association in its formative years.

On June 6-7 in Barbados, the Alliance for Sustainable Development of Agriculture and the Rural Milieu accepted the decision of the panel of judges appointed by the Ministers, that the winner of the IICA (Inter-American Institute for Cooperation on Agriculture) Caribbean Agricultural Award for Young Agriculturist was **Dr Paula Tennant** of the Department of Life Sciences, in recognition of her “sterling contribution to Caribbean Agriculture.”

Congratulations are also extended to **Mrs M. Ellis-Tabanor**, Chief Laboratory Technologist on gaining an MPhil in Zoology in the area of Freshwater Ecology, under the supervision of **Dr Eric Hyslop**.

Workshops / Symposia

The Department hosted several training courses and workshops during the year. The Ministry of Agriculture (Forestry Division) hosted a *Dendrology Course* aimed at local foresters and National Park personnel. The Jamaica Organic Agricultural Movement, in association with the Caribbean Regional Human Resource Development Programme for Economic Competitiveness and the Department of Life Sciences, presented an International Organic Inspectors Association training course on *Basic Farming and Community Grower Group Inspection*. Additionally, The American Soybean Association staged a *Feed Microscopy Workshop* in the Department.

The Department participated very actively in a one-day symposium “The Future of Long Mountain” hosted by the Faculty, and designed to focus attention on Long Mountain from conservation and developmental view points.

RESEARCH

The Department actively supported research work conducted by academic staff, with several projects involving graduate students receiving international or local funding as well as support from The Board for Graduate Studies and Research and the Office of the Principal.

Unfortunately, the effort that goes into original investigations is not reflected in the publication output of the Department. It is the opinion of this

Head of this Department that the inordinate amount of time that is spent in the delivery of our undergraduate programs is often at the expense of research and publishing. The solution is not just to reduce the number of undergraduate courses offered each year (although we have managed to reduce our curriculum by 4 courses) but rather to present these courses using distance delivery-type modes. In this way quality, accessible courses could still be offered whilst providing time for colleagues to research and publish their findings.

The major research topics in the Department were of an applied nature, and worthy of special mention is a collaborative project between the Department of Life Sciences and The Department of Chemistry where *Letters Patent* were awarded to **Dr Wayne Forbes**, Professor Paul Reese and **Dr Ralph Robinson** for their invention “MEDICAMENTS FOR THE TREATMENT OF *STRONGYLOIDES STERCORALIS* INFECTIONS”. This is the first successful patent application that has been wholly undertaken and forwarded by academic staff and research students working at the Mona Campus of the University, in association with the Business Development Office.

The Department participated visibly in the Principal’s Research Day 2001 “Prospects for Jamaica’s Economic Growth – Public and Private Sector Perspectives” by way of a series of posters and multimedia displays in the Assembly Hall and in the Department itself. The Department highlighted its collaborative links with public and private sector agencies and in its mission to conserve the natural environment.

A one-day, in-house seminar allowed graduate students to make oral presentations of their work to the Department and, as usual, the Department contributed several posters and displays at meetings of several Community-based Conservation groups across the island.

Research Funding

Dr Jane Cohen received J\$16,000 from the Board for Graduate Studies and Research to study vegetation around the central inlier of Jamaica. A grant of US\$11,100 was received by **Dr Eric Hyslop** from Southern Trelawny Environmental Association to study freshwater systems and caves in terms of their freshwater fauna in the Cockpit Country. **Dr Dwight Robinson** and **Dr Ralph Robinson** were allotted J\$910,000 from the Jamaica Agricultural Development Foundation for research on arthropod pests of West Indian Sea-Island Cotton. **Dr Dwight Robinson** further received a grant of J\$840,000 from CIDA/JOAM for research into the nutrition and pest management of organically produced vegetables in

Jamaica. **Dr Jane Cohen** is also involved with this project. **Dr Byron Wilson** and **Dr Peter Vogel** accessed funds provided by The International Iguana Foundation totaling US\$26,500 for research into the fauna of dry limestone forests in Jamaica. **Dr Mona Webber** received a grant of J\$44,500.00 from the Board for Graduate Studies & Research for an investigation of zooplankton secondary production in Discovery Bay. **Dr Dale Webber**, with Dr. G. Simpson (Veterinary Services Division, Ministry of Agriculture, Jamaica) and **Dr. M. Webber** attracted US\$20,000 from UNESCO to study phytoplankton and the microbenthos associated with the conch industry of Pedro Banks. Additionally, The Board for Graduate Studies Award **Dr Dale Webber** US\$2,600 to purchase equipment for mathematical modeling of Kingston Harbour as a management tool.

RESEARCH IN PROGRESS

Mr Karl Aiken

- use of otoliths in aging selected species of commercial marine fishes
- assessment of wetland fisheries

Dr Jane Cohen

- tree-crop interactions in contour hedgerow agroforestry systems
- soil conservation in hillside yam farming
- propagation of trees for use in reforestation in Jamaica

Prof. Brian Freeman

- insect biodiversity of temperate woodlands
- the population dynamics of bark beetles
- bionomics of the lane snapper

Dr Eric Garraway

- ecology and conservation of Jamaican butterflies
- the ecology of the brown citrus aphid and citrus leaf miner
- conservation of Jamaican manatees
- taxonomy and biodiversity of Jamaican moths, aphids, carabid beetles, land snails and millipedes

Prof. Emeritus Ivan Goodbody and Mrs Charlotte Goodbody

- studies of Caribbean Ascidiacea

- provision of electronically formatted underwater photographs for use by researchers and students to identify specimens they may encounter in their work
- documentation and preservation of records of marine animals contained in the Department's collections

Dr Eric Hyslop

- effects of pollutants, land use and anthropogenic disturbances (e.g. bed disruption) on benthic macroinvertebrate fauna of Jamaican rivers
- application of the concept of longitudinal zonation of benthic macroinvertebrate fauna and the River Continuum Concept to Jamaican rivers
- effect of bedrock composition on benthic macroinvertebrate fauna of Jamaican rivers
- biology of Jamaican fishes
- biology and taxonomy of the Neritidae (Gastropoda: Prosobranchia) in Jamaica
- existence of estuaries and the temporal succession of benthic macroinvertebrates after a flood event
- definition of *Gambusia* species of Jamaican rivers using molecular and morphological techniques
- macro-invertebrate fauna of the freshwater systems and caves of the Cockpit Country
- biology of *Trichoptera* in Jamaican rivers

Dr Kurt McLaren

- reforestation of dry limestone forests

Dr Dwight Robinson

- transmission and management of the Pink Bollworm of West Indian Sea Island Cotton
- nutrition, weed and pest management practices for organic agriculture

Dr Ralph Robinson

- epidemiology of rat lung worm infections that may result in meningitis in humans

- interactions between seawater-cultured tilapia and parasitic flatworms
- epidemiology of canine *Dirofilaria* infections in Jamaica
- immuno-epidemiological studies of human *Toxocara canis* infections
- ecoparasitological studies of *Thiara granifera*
- studies of the enteric helminth fauna of *Herpestes auro punctatus*
- molecular characterisation of *Strongyloides stercoralis* from dogs and humans

Dr Dunbar Steele

- biological, environmental and economic feasibility of tilapia mariculture
- the biology of the invasive Indo-Pacific green mussel *Perna viridis* in Kingston Harbour
- settlement and growth of post-larvae of the spiny lobster *Panulirus argus* in Jamaica

Dr Paula Tennant

- development of transgenic papaya for the control of ring spot virus
- safety of genetically modified foods

Dr Mark Thomas

- investigations of embryonic exposure and levels of growth factor in oxidative stress
- the physiology of violence

Dr Kisan Vaidya

- genetic studies to produce photoperiod-insensitive and high yielding cultivars of sorrel
- genetic inheritance studies of mungbean and sorrel
- genetic studies in mothbean (*Vigna aconitifolia*)

Dr Peter Vogel

- ecology and conservation of Jamaica's terrestrial vertebrates and their habitats

- studies of bird composition along gradients of habitat disturbance
- impact of an exotic predator on Jamaica’s dry forest herpetofauna
- conservation of the Jamaican Iguana
- ontogeny of predation in anoline lizards
- management of columbid game birds
- assessment of Jamaica’s important bird areas

Dr Dale Webber

- oceanography and coastal water quality assessments
- environmental management planning
- impact and amelioration of sediment and agrochemical pollution
- assessment of phytoplankton and the microbenthos associated with the conch industry of Jamaica

Dr Mona Webber

- development of appropriate standards and techniques for the assessment of mangrove lagoons and related systems
- water quality monitoring in mangrove lagoons using plankton and traditional indices
- biodiversity in Mangrove Lagoons
- zooplankton secondary production in Discovery Bay
- effects of anthropogenic stress on mangrove forests, and deep and shallow reefs off Discovery Bay
- zooplankton and larvae at Pedro Banks

Dr Byron Wilson

- ecology and conservation of the Jamaican Iguana and other lizards
- effects of exotic predators on Jamaican dry forest fauna
- biological assessments of Jamaica’s last remaining natural habitats
- status and conservation implications of the introduced Indian mongoose.

PAPERS PRESENTED

- Chin M, **Tennant P**, Ahmad M & Gonsalves D. (2002). “Comparative coat protein Analysis of papaya ringspot virus (type p)

from four regions in Jamaica”. Caribbean Academy of Sciences 13th Annual Conference, Mona, Kingston, June 1-4, 2002.

- **Douglas L**, Sherry T. and **Vogel P** (2002). “Impact of human habitat degradation on resident and neotropical migratory birds occupying the tropical dry forest life zone of Southern Jamaica.” the international conference Tropical Forests: Past, Present, Future, Panama City, Panama, July 29th – August 2nd, 2002.
- **Douglas L** (2002). “The birds of Long Mountain” Symposium The Future of Long Mountain, Faculty of Pure and Applied Sciences, Mona February 2, 2002.
- **Garraway E** & **Rosenberg G** (2002). “The Invertebrates of Long Mountain” Symposium The Future of Long Mountain, Faculty of Pure and Applied Sciences, Mona, February 2, 2002.
- **Proctor G** & **Oberli A** (2002). “The vascular flora of Long Mountain.” Symposium The Future of Long Mountain, Faculty of Pure and Applied Sciences, Mona , February 2, 2002
- **Turner, S., Tennant, P.,** and **Ahmad, M.** (2002). “Evaluation of wild *Carica* spp. for resistance to papaya ringspot virus isolates from Jamaica.” Jamaica Society for Agricultural Sciences 13th Annual Conference, Bodles Agricultural Research Station, Old Harbour, June 18-19, 2002.
- **Vogel P** (2002). “Conservation of the Jamaican Iguana”, the Science Symposium 2002, Northern Caribbean University, Mandeville.
- **Vogel P** (2002). ‘Jamaica’s capacity for biodiversity conservation and sustainable use.’ The Workshop on National Biodiversity Systems: Building Inter-generational Capabilities for Conservation and Sustainable Use, Guyana, July 29-30, 2002.
- **Vogel P** & **Miller L** (2002). “The relevance of Long Mountain – why conserve?” Symposium The Future of Long Mountain, Faculty of Pure and Applied Sciences, Mona, February 2, 2002
- **Vogel P** & **Oberli A** (2002). “Future development of Long Mountain.” Symposium The Future of Long Mountain, Faculty of Pure and Applied Sciences, Mona, February 2, 2002
- **Waugh CA**, **Lindo JF**, **Cunningham-Myrie C**, **Ashley D**, **Sullivan JJ**, **Bishop HS**, **Holtz, T**, **Robinson, DG**, **Eberhard ML** & **Robinson RD** (2001). “Report of Enzootic *Angiostrongylus cantonensis* from

Jamaica.” The 10th Annual Research Conference Faculty of Medical Sciences, UWI, Mona. *West Indian Medical Journal* 50: 16.

- **Wilson BS & Vogel P** (2002). “The amphibians, reptiles and mammals of Long Mountain.” Symposium The Future of Long Mountain, Faculty of Pure and Applied Sciences, Mona, February 2, 2002.

PUBLICATIONS

Books / Book Chapters

- * **Goodbody, I.** & Thomas-Hope E. (eds). (2002) *Natural Resource Management for Sustainable Development in the Caribbean*. Canoe Press 496pp. ISBN - 976-8125-76-4.
- * **Goodbody, I.** & Smith D. (2002) Recreational Use of Natural Resources. In *Natural Resource Management for Sustainable Development in the Caribbean*. Edited by Ivan Goodbody and Elizabeth Thomas-Hope Canoe Press pp389-425.
- * Wade B.A. & **Webber DF** (2002). “Coastal Zone Management.” In *Natural Resource Management for Sustainable Development in the Caribbean*. Edited by Ivan Goodbody and Elizabeth Thomas-Hope. Canoe Press pp427-481.

Refereed

- * Lindo, JF, **Waugh CA, Hall J**, Cunningham-Myrie C, Ashley D, Eberhard M, Sullivan JJ, Bishop HS, Robinson DG, Holtz, T & **Robinson RD** (2002). Enzootic *Angiostrongylus cantonensis* in rats and snails, following an outbreak of human eosinophilic meningitis, Jamaica. *Emerging Infectious Diseases* 8(3): 324-326.
- * **Vaidya, KR** (2000) Agronomic performance of a chlorophyll deficient mutant in roselle (*Hibiscus sabdariffa* L.). *Jamaican Journal of Science and Technology* 11: 36-38.
- * **Vaidya, KR** (2000) “Conservation of ackee (*Blighia sapida*) seed: Emergence response following several seed storage regimes.” *Jamaican Journal of Science and Technology* 11: 39-41.

Non-refereed

- * **Vogel P.** (2002). "Age Distribution of Columbidae Game Birds in Jamaica." *Prepared for the National Environment and Planning Agency.*
- * **Vogel P, Wilson BS,** Robinson O & Hudson R. (2002). "Jamaican Iguana (*Cyclura collei*): Taxon Report." *Iguana Specialist Group Newsletter* 5: 3-4.
- * **Webber DF** (2002). "Assessment of the Phytoplankton & Microbenthos associated with the conch industry of the Pedro Banks." *Report to UNESCO under the Man & the Biosphere Project.* 59pp.

PUBLIC SERVICE

Mr Karl Aiken

- Member, Select Committee on Economy & Production, Gordon House, Kingston
- Member, Board of Directors, Jamaica Conservation & Development Trust
- Member, Board of Directors, Caribbean Coastal Area Management (CCAM) Foundation
- Member, Scientific Authority, Convention and International Trade in Endangered Species of Flora & Fauna (CITES), Jamaica

Dr Eric Garraway

- Member, Advisory Board of Natural History Division, Institute of Jamaica
- Member, Butterfly Conservation Board, NEPA.
- Member, Scientific Authority
- Caribbean Representative for Association of Tropical Lepidoptera

Dr Dwight Robinson

- Trainer, Independent Organic Inspectors Association
- Chair, Technical Committee, National Pink Mealybug Task Force, Ministry of Agriculture

- Chair, Technical Advisory Committee, Biological Control of Coffee Berry Borer, Caribbean Agriculture Research Development Institute.
- Technical Advisor, Efficacy of Biorationals against Coffee Berry Borer, Coffee Industry Board, Jamaica

Dr Ralph Robinson

- Fellow, Royal Society of Tropical Medicine and Hygiene, UK
- Member, Board of Directors, Jamaica Agricultural Development Foundation.

Dr Dunbar Steele

- Chairman, Academic Committee, The Caribbean Maritime Institute
- Member, Board of Directors, Caribbean Maritime Institute

Dr Dale Webber

- Member, Editorial Board of the Jamaica Institute of Environmental Professionals National Scientific Conference on the Environment
- Vice President, Mona Preparatory School Parent Teachers Association
- Member, Editorial Board of the Jamaican Journal of Science and Technology
- Chairman, CL Environmental Company Limited
- UWI Representative, Ministry of Education and Culture Overseas Examination Board.
- Member, Operations Sub-Committee, Overseas Examination Board
- Member, Science and Technology Advisory Committee of the National Commission for UNESCO

Dr Mona Webber

- Advisor, Institute for Excellence in Environmental Education
- Member, Steering Committee, Sea Turtle recovery Network, Hope Zoo
- Member, American Society of Limnology and Oceanography
- Associate, Harbor Branch Oceanographic Institute
- Member, Association of Marine Laboratories of the Caribbean

Dr Kisan Vaidya

- Member, Gene Bank Committee, Jamaica

Dr Peter Vogel

- Member of Board, Scientific Authority
- Chairman, Jamaican Iguana Research and Conservation Group
- Member of Alien Invasive Species Working Group
- Member of IUCN West Indian Iguana Specialist Group
- President, BirdLife Jamaica
- Member of Scientific Advisory Committee, Blue and John Crow Mountains National Park
- Member of Advisory Board, Natural History Division, Institute of Jamaica

CATEGORIES OF STUDENTS

Undergraduate

A breakdown of Bachelor of Science degrees:

First Class Honours	6
Upper Second Class Honours	22
Lower Second Class Honours	14
Pass	0

Performance in courses:

Course Code and Name	No. Reg	No. Sit	No. Pass	% Pass
BB10A Cells, Biomolecules and Genetics	196	192	178	91
BB10B Introductory Microbiology	184	178	129	70
BL05A Preliminary Biology I	123	111	109	87
BL05B Preliminary Biology II	137	126	97	71
BL10L Animal Diversity	127	123	109	86
BL10M Plant Diversity	114	111	106	93
BL20M Mycology	26	25	23	88
BL20N Ecology	70	68	66	94
BL20J General and Molecular Genetics	42	41	39	93
BL20K Population Genetics & Evolution	71	69	62	87
BL20L Diving Technology for Aquatic Scientists	7	7	6	87
BL38A Virology	31	30	30	98
BL39A Statistics for Biologists	31	30	29	97
BL39C Research Project	7	7	7	100
BL39D Caribbean Biodiversity	18	18	16	89
BL39E Conservation Biology	21	21	19	91
BL39F Environmental Assessment & Management	31	31	29	94
BT21A Biology of Lower Plant Groups	41	40	38	93
BT21B Seed Plants	25	25	25	100
BT22A Plant Physiology	49	49	44	90

BT31A	Phycology	21	21	21	100
BT31C	Biology of Coastal Plant Communities	12	12	12	100
BT32A	Crop Physiology	12	12	12	100
BT33A	Ecology, Agroforestry & Sustainable Development	13	9	9	69
BT34A	Crop Genetics	12	12	12	100
Z20C	Functional Organization of Animals	67	66	45	67
Z30G	General Parasitology	27	27	23	82
Z30H	Applied Parasitology	31	30	30	97
Z30J	Comparative Animal Physiology	24	24	24	100
30M	Immunology	30	30	29	97
Z30N	Developmental Biology	19	19	19	100
Z31C	Fish Biology	22	22	22	100
Z31E	Marine Ecology	21	21	21	100
Z31F	Fisheries & Aquaculture Technology	6	6	6	100
Z32C	Insect Biology & Systematics	11	11	11	100
Z32E	Applied Ecology Entomology	2	2	2	100
Z32F	Management of Pest & Pesticides	3	3	3	100
Z33C	Behavioural Ecology of Animals	10	10	10	100
Z33D	Freshwater Ecology	39	39	36	92

Prizes Awards

The following students were formally recognised for quality academic performance:

Preliminary Biology

Matthew Vincent Lee

Introductory Biology

Ainka Tameika Brown
Shaun Marie Wilson

Don Skelding Prize (Botany)

Jason Carnegie

Level II Zoology

Charmainne Nerissa Crooks

Vincent McKie (Zoology) Prize

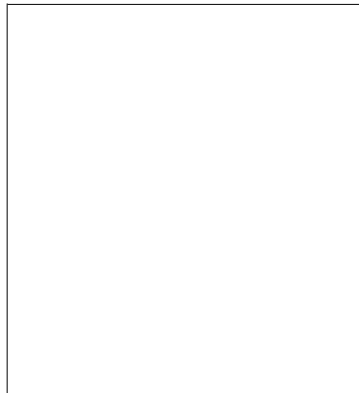
Shauna-Lee Christina Chai
Sherika Nicola Pearson

**Lloyd B. Coke Prize
(Plant Physiology)**

Shauna-Lee Christina Chai
Adrian Alexander Lyew-Ayee

Postgraduate

Registration:



MPhil program
54 full-time; 25 part-time

PhD program
6 full-time; 2 part-time

Award of Higher Degrees

MPhil Botany

Kerrine McDonald-Senior Supervised
by Dr Dale Webber and

Dr Mona Webber

MPhil Zoology

David Barrett.

Supervised by Dr Dunbar Steele

Nikki Bramwell

Supervised by Dr Mona Webber

Margelette Ellis-Tabanor

Supervised by Dr Eric Hyslop

Deborah Henry

Supervised by Dr Eric Garraway

Carla Thomas

Supervised by Prof. Ajai Mansingh

Dion Witter-Newell

Supervised by Prof. Ajai mansingh

DISTINGUISHED VISITORS

Dr Malcolm Bath, Applied Marine Technologies, Dominica.

Mr Michael Anthony Cuff, Radio Mona.

Dr Frank McDonald, Caribbean Agricultural Development Institute.

Dr Igor Muratov, Academy of Natural Sciences, Philadelphia, USA .

Mr Don Rose, Institute of Environmental Professionals, Jamaica.

Dr Gary Rosenberg, Director of Malacology, Academy of Natural Sciences, Philadelphia, USA.

Ms Barbara Scott, Planning Institute of Jamaica.

Mrs Mable Tenn & Mr Bill Saunders, Mona Institute of Applied Sciences.

Mrs Sylvia Thomas, Director General, National Commission for UNESCO.

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

John Lodenquai, BSc UWI, MA, PhD Columbia – Head of Department

WORK OF THE DEPARTMENT

The Department's academic staffing situation was improved somewhat in the early part of the year with the arrival of **Dr. Nikolai Dokuchaev** in November 2001 and **Professor Mervyn Curtis** in January 2002. Dr. Dokuchaev joined the Mathematics Section as lecturer in mathematics. His research interest is in the area of *financial mathematics*. Professor Curtis joined the Department as professor of computer science and has been involved with setting up a research group and a laboratory to carry out work in the field of *virtual reality* with the specific aim of improving the performance of the West Indies cricketers.

Professor H. Reichgelt spent his sabbatical in the U.S. while **Mr. Ashley Taylor** was granted extension of leave so that he could continue with his PhD programme at the University of Georgia.

Dr. A. Rodkina spent the second semester at the *Instituto Politecnico Nacional* in Mexico City on a research grant from the Mexican government. Useful links were established with Professor Valery Nosov and Professor Julio Gomez Mancilla. In June the Department was shocked by the sudden passing of **Dr. Karl Robinson**, lecturer in computer science. Dr. Robinson was an important and valued member of staff who served the Department for

over 20 years. His passing has left a deep void which will be difficult to fill.

Attempts continued to improve on the delivery of our courses. **Dr. Daniel Coore** made significant improvements to CS20A (Information Structures & Algorithms) and CS36Q (Compiler Design) by developing software for two new programming assignments for each course. For the first time the text of a mathematics course was published on the Department's website when Dr. Dokuchaev published the full text of his lectures in M32Q (Ordinary Differential Equations).

Meetings involving staff and students were held to discuss the high failure rate for CS11A and CS11B, the introductory courses in computer science. As a result of these meetings it was decided to implement several proposals in the following year in an attempt to address the problem.

During the period February 25 – 28, 2002, a Quality Assurance team visited the campus to conduct a review of the Computer Science Section. The team had fruitful discussions with members of staff and students.

GRANTS RECEIVED

Prof. Curtis received a grant of US\$3,860 from the West Indies Cricket Board.

STUDENT MATTERS

During the year the Department had thirteen MPhil and 2 PhD candidates.

At the Faculty Awards Ceremony, **Mr. Junior Thomas** was awarded the **Level I Merville Campbell Prize**, **Miss Raquel Simms** the **Level II Merville Campbell Prize** and **Mr. Sean Newman** the **Harold Chan Scholarship**.

In April, 2002, the Department co-sponsored four postgraduate students in Computer Science to attend the *IEEE Southeast Conference* in South Carolina where they took part in the robotics and T-shirt competitions.

RESEARCH IN PROGRESS

Dr. D. Coore

- Amorphous Computing: simulation techniques, parallel language design and algorithm design and implementation.
- Cardiac Surgeon Trainer: simple prototype built. Work on software in progress.

Prof. M. Curtis

- A cricket batting analysis/training system
- A physiological monitoring system for cricketers.
- Visualisation through obscuration noise using the n-tuple technique.
- A virtual reality cricket ground: a mixed reality environment.
- A virtual Jamaica.

Dr. R. McEachin

- Problems related to Schur multiplication.

Dr. E. Mugisa

- Work continues on a project to construct a repository of re-useable software assets, the MORESSA project.

Dr. A. Rodkina

- Vibration Protection in Industry
- Kiefer-Wolfowitz Stochastic Approximation Procedure

Dr. W.B. Zhang

- Work continues on number theory and several manuscripts are being prepared.

PAPERS PRESENTED

- Craven, M., Ramphal, P., **Coore, D.**, Silvera, B., Fletcher, M. and Newman, S. Design of an Electromechanical Pump System for Training in Beating Heart Cardiac Surgery, Proc. IEEE SoutheastCon 2002, Columbia, South Carolina, 5-7 April 2002, pp.192-196.
- **Curtis, K. M.** and Neil, G., A Hybrid Fractal/DCT Image Compression Method, IEEE 14th International Conference on Digital Signal Processing, July 2002.
- **McDaniel, S.**, The Effects of Smoking on Body Mass Index in Diverse Populations, 2001 Joint Statistical Meeting, Atlanta, USA.
- **Rodkina, A.**, On the Appearance of Film Ruptures in Plain Thick Layers of Moving Liquid, with Valery Nosov and Julio Gomez Mancilla. The International Congress IBEROMET VII. Cancun, Mexico, May 2002.
- On Application of Kharitonov's Theorem to Analyze the Stability of Journal Bearings, with Valery Nosov and Julio Gomez Mancilla. The

International Conference Functional Differential Equations and Applications. Israel, June 2002.

- **Zhang, W.B.**, Mean-value Theorems for Multiplicative Functions via Halasz' Method. International Gnedenko Conference, Kiev, Ukraine, June 3 – 7 2002.

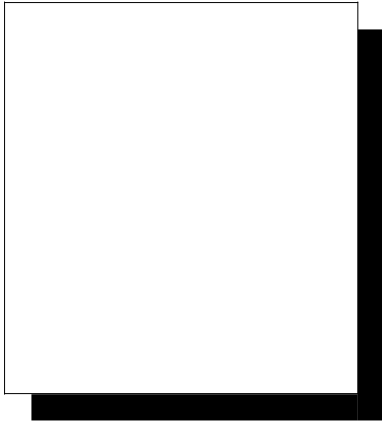
PUBLICATIONS

Refereed

- * **Dokuchaev, N.G.** and Savkin, A.V. A Bounded Risk Strategy for A Market with Non-observable Parameters. *Insurance: Mathematics and Economics*, 30 (2002), 243-254.
- * **Dokuchaev, N.G.** and Haussmann, U. Optimal Portfolio Selection and Compression in an Incomplete Market. *Quantitative Finance* 1 (2001), iss.3, 336-345.
- * **Dokuchaev, N.G.** and Zhou, X.Y. Optimal Investment Strategies with Bounded Risks, General Utilities, and Goal Achieving. *Journal of Mathematical Economics* 35 (2001), iss.2, 289-309.
- * **Dokuchaev, N.G.** Existence of a Combinations of Options Which Ensures a Positive Gain. *Review of Applied and Industrial Mathematics* 8 (2001), iss.1, 13-19. (Publisher: Theory of Probability and its Applications).
- * **Dokuchaev N.G.** *Dynamic Portfolio Strategies: Quantitative Methods and Empirical Rules for Incomplete Information*. Kluwer Academic Publishers, Boston, ISBN 0-7923-7648-X. January 2002, 232 pp.
- * Kelly, M., **Curtis, K.M.** and Craven, M.P. Fuzzy Sets and Cricket Batting, Recent Advances in Simulation, Computational Methods and Soft Computing, Electrical and Computer Engineering Series, Ed. N.E. Mastorakis, WSEAS Press (2002) pp.203-207.
- * **Rodkina, A.** and Mao, X. On Boundedness and Stability of Solutions of Nonlinear Difference Equation with Nonmartingale-Type Noise. *Journal of Difference Equation and Applications*. 7, (2001). Pp. 529 – 550.

* **Rodkina, A. and O. Lynch.** Exponential Stability of Modified Stochastic Approximation Procedure. *Applied Mathematics E-Notes*. 2, (2002) Pp.102 – 109.

* **Rodkina, A.** On Convergence of Discrete Stochastic Approximation Procedure. New Trends in Difference Equations. *Proceedings of the Fifth International Conference on Difference Equations*. Temuco, Chile. January 2 – 7 (2000). Taylor & Francis, London (2002). Pp. 251- 265.



* **Zhang,W.B.,** Analytic and Probabilistic Theory of Additive Arithmetic Semigroups, *Quaestiones Mathematicae, J. South African Math Soc.* 24, (2001), pp. 323 – 333.

* **Zhang,W.B.,** A Central Limit Theorem for the Number of Distinct Degrees of Prime Factors in Additive Arithmetic Semigroups, *Number Theory for*

the Millennium, Vol. III, (2001), pp. 437 – 451.

PUBLIC SERVICE

Dr. Karl Robinson served on one of the committees of the University Council of Jamaica.

Prof. Curtis is an executive committee member (secretary) of the Institute of Electrical & Electronics Engineers, Region 3, Jamaica Section and Technical Chair of the IEEE SouthEastCon 2003.

DEPARTMENT OF PHYSICS

Patrick Chin, BSc Lond-UCWI, PhD UWI – Head of Department

WORK OF THE DEPARTMENT

Teaching

Four-credit courses were introduced at Levels 2 and 3 to replace the old eight-credit courses and this significantly increased the course offerings in the undergraduate programme. This development resulted in an enthusiastic and positive response from the students.

The performance in the undergraduate courses continues to be satisfactory as only two courses had pass rates which fell as low as 50-60 %.

The first set of students completed the MSc in Digital Technology during Semester 1 and the development of this programme continues with improvement in computing facilities.

The revival of the programme in Materials Science began and new experiments were developed by Dr. A. Amarakoon.

The problem of inadequate academic staffing continued and temporary appointments had to be made in order to maintain continuity in some areas.

Research

The Climate Modelling Group Mona (CMGM) continued to be very active and participated in several international and local events.

Prof. A. Chen held discussions concerning his research projects at the International Research Institute (IRI) for Climate Prediction at Columbia University, New York.

Dr. M. Taylor attended a workshop and conference on the El Nino phenomenon at the International Centre for Theoretical Physics (ICTP), Trieste, Italy.

Dr. A. Amarakoon participated in the IACC workshop on Vulnerability and Adaptation held at ICTP, Trieste, Italy.

A research fellowship was granted to Professor Chen by the Mona Research Fellowship Committee and Dr. A. Owino from Nairobi, Kenya joined the group to work on inter-annual climate variability in the Caribbean.

Dr. L. Myers and Ms. S. Williams attended the SATIS-2001 conference which was held in Kingston, Jamaica and made a presentation on photovoltaics.

Grants Received

Ms. S. Williams also attended the World Renewable Congress which was held in Cologne, Germany to present her findings on photovoltaics.

Prof. A. Chen and Dr. M. Taylor received US\$15,000 from IRI to facilitate the establishment of CENNN – The Caribbean El Nino News Network. Prof. A. Chen received US\$218,000 for a 3-year project on The Threat of Dengue Fever – Assessment of Impacts and Adaptation to Climate Change in Human Health in the Caribbean. The project is funded by the AIACC initiative, implemented by the UNEP and co-executed by START and TWAS.

Dr. L. Ngalamou received hardware and software valued at US\$3000 from XILINX.

Dr. J. Skobla received a donation of a Risc Microcontroller Development System from ATMEL Inc., USA.

Dr. J. Skobla was granted free access to the Digicel GSM network to enable him to conduct tests on his GPS data acquisition system.

Other Activities

Members of the Electronics Club entered the Robotics competition conducted by the IEEE in South Carolina, USA in April 2002 and managed to reach the third round in conjunction with their counterparts from Utech.

The Department hosted a workshop sponsored by the PCJ in association with the JIEE on “Alternate Energy and Conservation – Jamaica’s Energy Options” in June 2002. Presenters were experts in the relevant areas of alternate energy and conservation and the participants were drawn from high schools and the upper grades of primary and preparatory schools.

CATEGORIES OF STUDENTS

Undergraduate

Course	No. Sat	No. passed	Pass rate/%
P04A Preliminary Physics A	55	45	82
P04B Preliminary Physics B	52	28	54
P14A Introductory Physics A	118	94	80
P14B Introductory Physics B	101	75	74
P23E Modern Physics 1	12	7	58
P23F Optics & Oscillation	14	12	86
P23H Electricity & Magnetism & Solid State Electronics	15	11	73
P24F Signals and Systems	45	35	78
P24G Electric Circuit Analysis	17	15	88
P24H Communications Systems	38	37	97
P24J Analog Electronics	36	32	89
P24K Digital Electronics	45	33	73
P24L Solid State Electronic Devices	14	12	86
P25F Materials Science I	6	6	100
P33B General Physics III	4	4	100
P33G Physics of Climate	10	7	70
P34A Electronics III	26	25	96
P34B Electronics IV	28	19	68

First Class Degrees with Majors in Electronics and/or Physics were awarded to

Ms. Jenelle Anderson

Mr. Leonardo Clarke

Mr. Rainaldo Crosbourne

Ms. Lisa Roach

Mr. Calmin Scarlett

Postgraduate

Mr. Mohan Baro completed his MPhil degree on “Shape Coded Modulation”. His supervisor was Dr. Janak Sodha.

Mr. Andre Coy completed his MPhil degree on “An Investigation of Isolated Thunderstorms over Jamaica caused by Daytime Heating “. His supervisor was Dr. Donald Walwyn.

Ms. Sheryl Williams completed her MPhil degree on “The Performance of Photovoltaic Modules under Jamaica’s Climatic Conditions”. Her supervisor was Dr. Leary Myers.

Prizes Awarded

The Departmental Prizes for academic performance in Level 2 courses were awarded to

Mr. Rainaldo Crosbourne and **Mr. Leonardo Clarke.**

The Departmental Prize for academic performance in Level 1 courses was awarded to

Ms. Roxann Stennett.

The Francis Bowen Bursary for Physics was awarded to **Mr. Rainaldo Crosbourne.**

The Michael Tharmanathan Memorial Bursary was awarded to **Ms. Lisa Roach.**

RESEARCH IN PROGRESS

Dr. A. Amarakoon

- Work is continuing on Enso effects on sugar cane yields in Jamaica.
- Digital maps have been produced to give wind speed and power capabilities for the island. The work is being expanded to give greater detail.

Prof. A. Chen and Mr. T. Hall

- The investigation of the downscaling of northern Caribbean seasonal rainfall.

Prof. A. Chen and Dr. S. Rawlins

- Climate and Epidemiology data is being studied to detect linkage between climate and dengue fever.

Prof. A. Chen and Ms. T. Stephenson

- The IAI project on Analyzing and Understanding Climate Variability in the Caribbean Islands

Dr. M. Taylor

- The inter-annual variability of Caribbean climate is being investigated with an emphasis on determining the primary forcing factors which drive/cause change.

Dr. M. Taylor and Ms. Gentlemen. Spence

- The effect of concurrent SST anomalies on Caribbean rainfall

Electronics

Dr. L. Ngalamou and Mr. L. Buchanan

- The development of software tools for the design of Programmable Logic Controllers.

Dr. L. Ngalamou and Mr. L. Clarke

- A framework for the design of Distributed Traffic Controllers.

Dr. L. Ngalamou and Mr. C. Donaldson

- The design of a Petri Nets-to-Fuzzy Sets conversion for Discrete Event Systems.

Dr. L. Ngalamou and Mr. D. Emanuel

- The analysis and synthesis of VHDL core libraries for a high-speed power line transceiver.

Dr. L. Ngalamou and Mr. R. Paharsingh

- Hardware compilation for image compression using optimized wavelet and coding algorithms

Dr. J. Skobla

- Improving the accuracy of the GPS system by using Jamaican map software and experimental data.

Dr. J. Skobla and Mr. A. Young

- The development of the microprocessor hardware and software for the GPS mobile data acquisition system.

Dr. D. Walwyn and Mr. M. Ebanks

- The propagation of microwave transmissions inside buildings.

Prof. J. Lodenquai

- The correlation between star-spot model areas and the period of binary systems.

PAPER PRESENTED

- **Tannecia S. Stephenson and A. Anthony Chen** “Analyzing and Understanding Climate Variability in the Caribbean Islands” 13th Symposium on Global Change Studies, American Meteorological Society, Orlando, Florida, USA, Feb 2002
- **A. Anthony Chen** “Is the Climate Right for Predicting and Mitigating an Outbreak of Dengue Fever?” Climate Variability and Change and their Health Effects in the Caribbean, Barbados, May 2002
- “The Bathtub Effect on Climate in the Caribbean – El Nino and La Nina” 13th Annual Meeting and Conference, Caribbean Academy of Science, Kingston, Jamaica , Jun 2002
- **T. Peterson and M. A. Taylor** “Recent Climate Change in the Caribbean” American Meteorological Society Conference, Orlando, USA, Jan 2002
- **J. Spence and M. A. Taylor** “Examining the Effect of Concurrent SST Anomalies on Caribbean Rainfall” American Meteorological Society Conference, Orlando, USA, Jan 2002
- **M. A. Taylor** “The Tropical Atlantic and Caribbean Rainfall” American Geophysical Union Fall Conference, San Francisco, USA, Dec 2001
- “The influence of the Tropical Atlantic versus the Tropical Pacific on Caribbean Rainfall” American Meteorological Society Conference, Orlando, USA, Jan 2002

- “Caribbean Climate Variability: Evidence of El Nino Influence and Longer Timescale Climate Change” Regional Conference on Climate Variability and Change and their Health Effects in the Caribbean, Bridgetown, Barbados, May 2002
- **Sheryl Williams and Leary Myers** “Amorphous Double-Junction Silicon Photovoltaic Module Suitability for Operation under Jamaican Climatic Conditions” World Renewable Energy Congress VII Cologne, Germany, Jun 2002
- “An Analysis of the Outdoor Performance of Polycrystalline Photovoltaic Modules under Tropical Climatic Conditions” *SATIS-2001 PCJ*, Kingston, Jamaica, Aug 2001

PUBLICATIONS

Refereed

- * **Chen, A. A. and M. A. Taylor** “Investigating the Link Between Early Season Caribbean Rainfall and the El Nino+1 Year” *International Journal of Climatology* 22, pp.87-106 (2002)
- * **Lucien Ngalamou and Ricardo Paharsingh** “Wavelet Cores Synthesis for Image Data Compression and Decompression” *Proc. IEEE International Conference on Systems, Man and Cybernetics 2001* (Oct 2001)
- * **Lucien Ngalamou and David Rose** “Fertility Information Appliance” *Proc. 15th IEEE International Conference on Computer-based Medical Systems* pp.335-338, Maribor, Slovenia (June 2002)
- * **Lucien Ngalamou and Harold Campbell** “Information Appliance for Diabetic Patients” *Proc. 15th IEEE International Conference on Computer-based Medical Systems* pp.3-6, Maribor, Slovenia (June 2002)
- * **Lucien Ngalamou and Christopher Donaldson** “Fuzzy Implementation of Discrete Event Controllers Design using Petri Nets-to-Fuzzy Sets Conversion Approach”. *Proceedings of the 2002 International Conference on Intelligent Engineering Systems IFEE*

Industrial Electronics Society, pp.193-198, Opatija, Croatia (May 2002).

PUBLIC SERVICE

Dr. A. Amarakoon

- Member, Project Steering Committee in Jamaica for the United Nations
- Framework Convention of Global Climate Change

Prof. A. Chen

- Member, Renewable Energy Committee, NCST
- Member, Drought Management Committee, ODPEM
- Country Representative, Inter-American Institute (IAI) for Global Climate Change Research

Dr. P. Chin

- Commissioner, Broadcasting Commission
- Vice-Chairman, Appliance Testing and Labelling Committee, Jamaica Bureau of Standards
- Moderator, Physics, CXC
- Member, Physics Panel, CAPE Examinations

Prof. J. Lodenquai

- External Examiner, Physics, Joint Board for Teacher Education
- External Examiner, Physics, Associate Degree in Natural Sciences, CASE

Dr. J. McTavish

- External Examiner, Physics, Joint Board for Teacher Education

Dr. L. Ngalamou

- Campus Advisor for University College and Apostolic Ministry (UCAM)
- Coordinator, Computer Technology Training Programme, MIAS

Dr. M. A. Taylor

- Member, Caribbean Climate Forum Steering Committee

Dr. D. Walwyn

- University of the West Indies representative on UTECH Council
- Jamaica’s representative on the Commonwealth Telecommunications Council