

Opportunities for PhD Studies at James Cook University (JCU) Australia

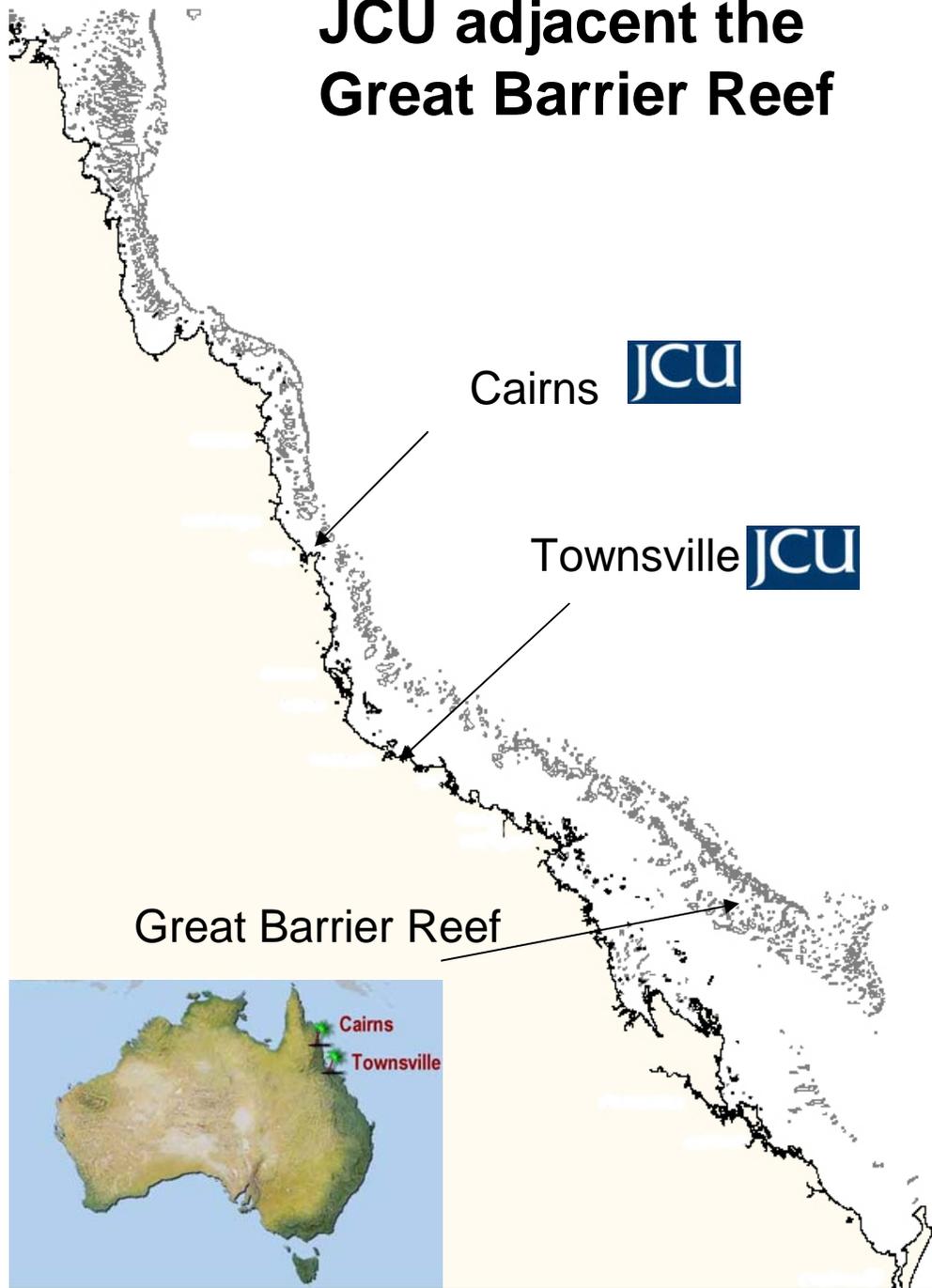
Helene Marsh
Dean Graduate Research Studies

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- Top 300 research champions of the world: Swiss Centre for Studies in Science and Technology
- Top 500 universities in world: 2006 Shanghai Jiao Tong University Academic Ranking of World Universities.
- Australia's pre-eminent tropical research university
- In the Northern Economic Triangle of Australia, the area of substantial growth in mining, processing, agriculture, infrastructure development, and exports (to China!).
- 14,000 students
- International students from 105 countries
- 30% of PhD students from outside Australia

JCU adjacent the Great Barrier Reef



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Port of Townsville– JCU near mountains



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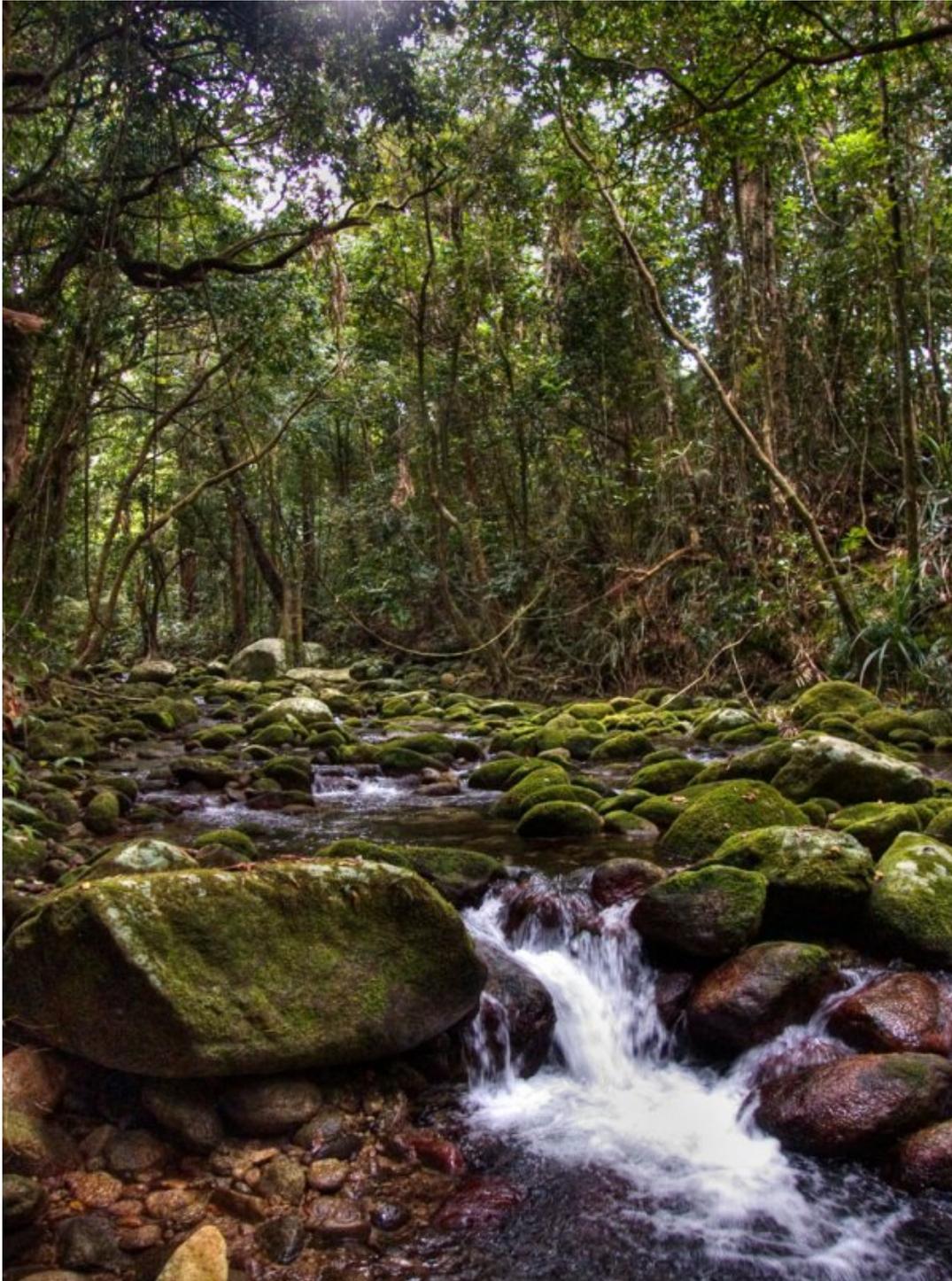
Hinchinbrook World Heritage area near Townsville



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Ribbon Reefs off Cairns





Westgid Creek
Near Cairns



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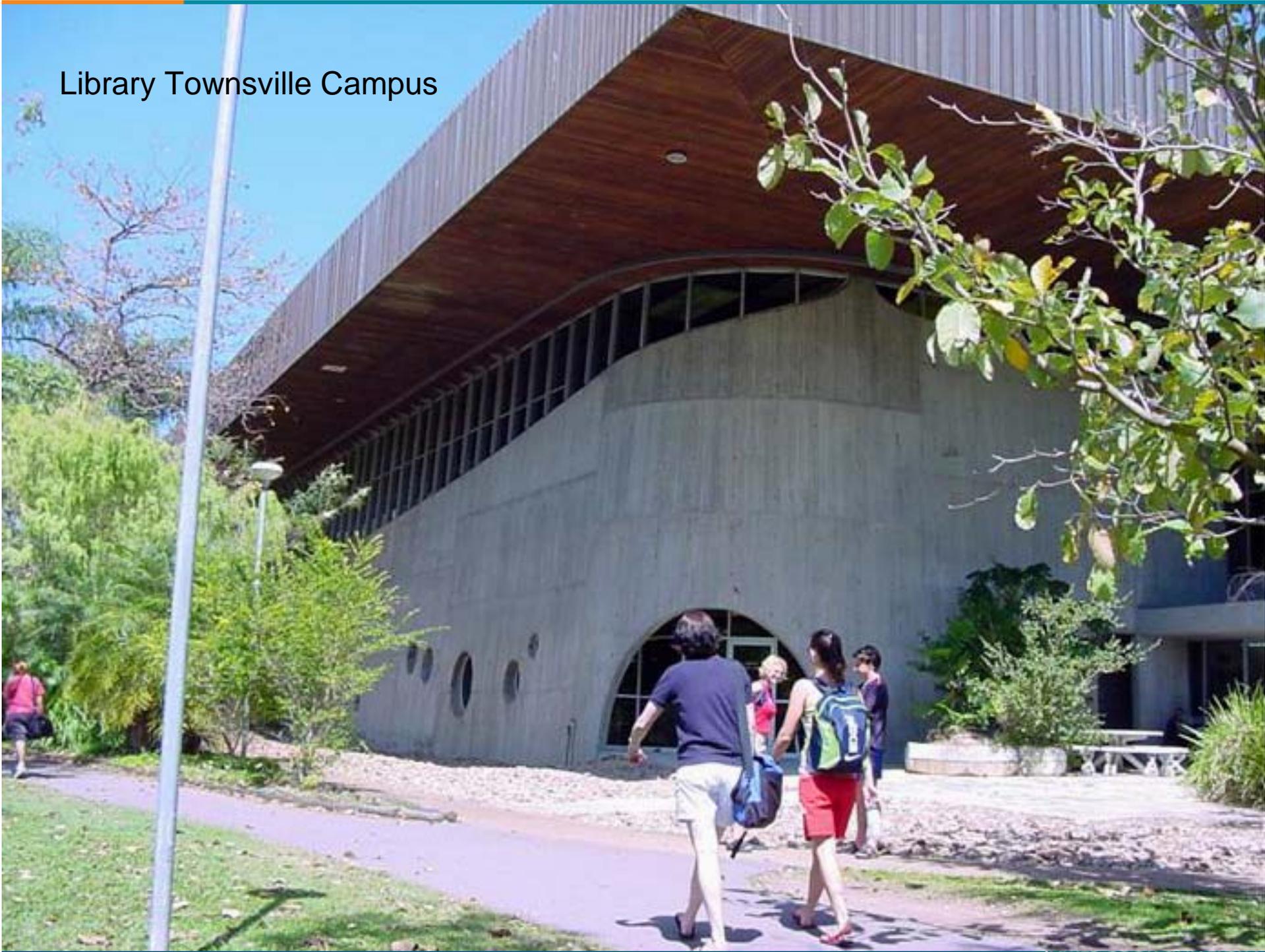
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Townsville Campus of JCU



Library Townsville Campus



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Campus of trees – JCU Townsville



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Staying cool on campus



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Cairns Campus

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Examples of research infrastructure at JCU

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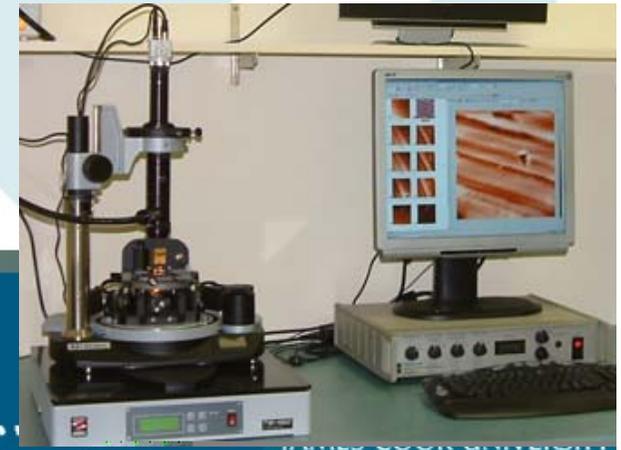
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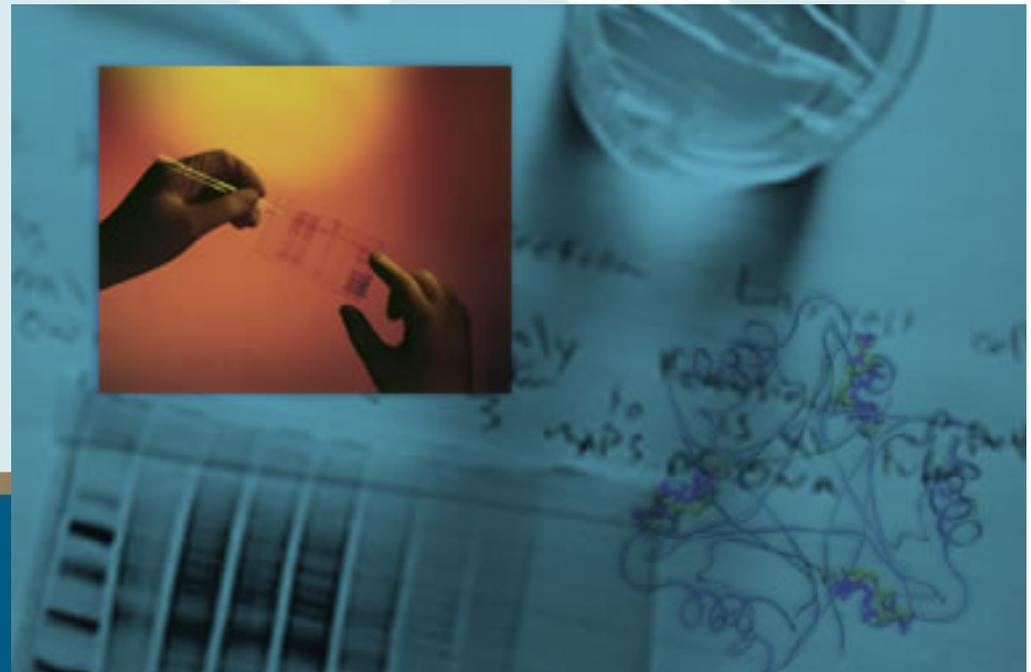
- **X-Ray Diffraction (XRD)**
 - **Siemens D5000 X-ray Diffractometer**
 - **Bruker-AXS Smart 1000 CCD Single Crystal Diffraction**
- **X-Ray Fluorescence (XRF)**
 - **Bruker-AXS S4 Pioneer X-ray Fluorescence Spectrometer**



- **Electron Microscope Facility**
 - EOL JSM-5410LV Scanning Electron Microscope
 - JEOL JXA-8200 Superprobe
 - JEOL 840A Electron Microprobe
- **Laser scanning Confocal Microscopy**
- **Atomic Force Microscopy**



- **Major interest in genomics and bioinformatics**
- **Numerous major labs in science and medicine**
- **Genetic Analysis**
 - Sequencing
 - Genotyping



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Orpheus Island research station in the Palm Island Group



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Accommodation for 48 at Orpheus Island

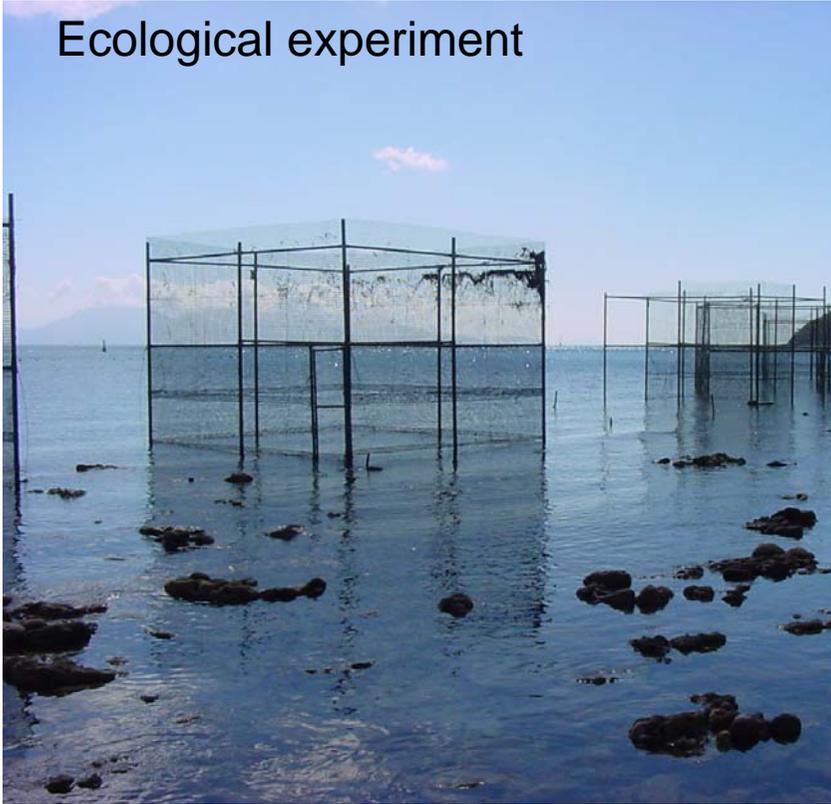


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Orpheus Island and 9 m *R.V. Challenger*



Ecological experiment



Boats used for research

Clam Aquaculture,
Orpheus Island





Orpheus Island

Dive bay



Lecture theatre for 50



Discussion group area

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Aquarium Facility on campus in Townsville



Experimental tanks



Algal scrubbers



Sand filters

RV Kirby



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Shared facilities with Australian Institute of Marine Science



**Controlled Environment
Facility and Aquashed
AIMS@JCU**

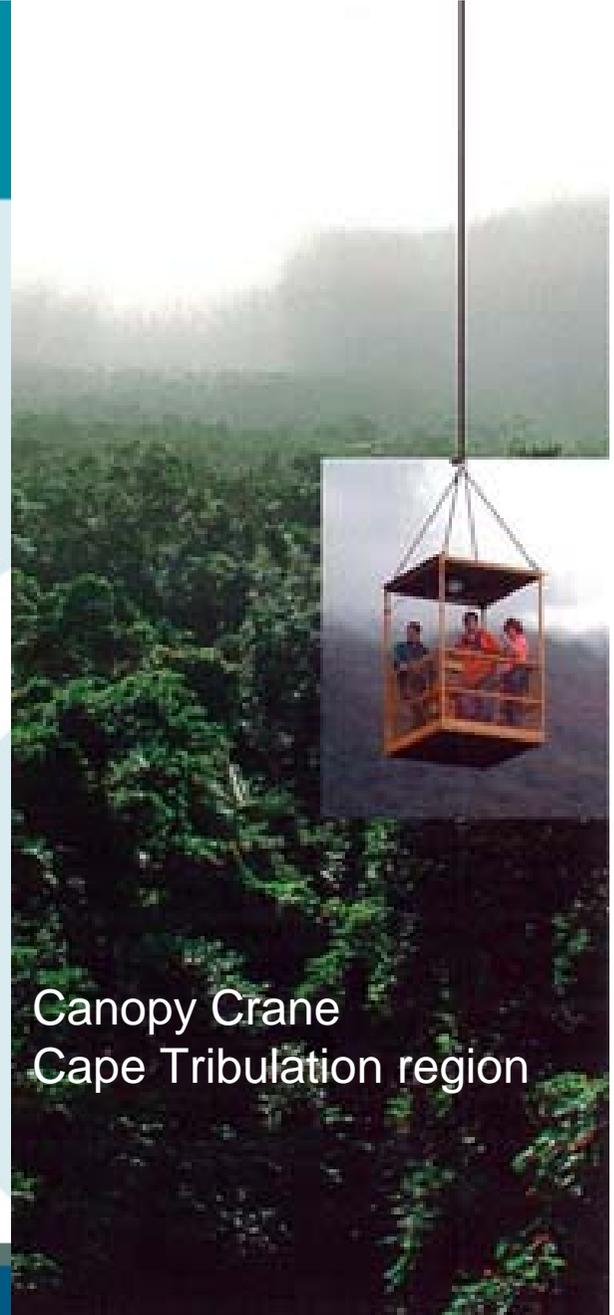
**A bus takes PhD students
between JCU and AIMS**



Shade houses & Agriculture research facilities



Controlled Environment Centre



Canopy Crane
Cape Tribulation region

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Fletcherview
Research
Station

Paluma Research
Station



Students in the
field at Paluma

Accommodation

- On Campus – Townsville
- There are about 1800 beds on campus.
- PhD students often share houses in the surrounding districts

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Rotary International House



University Halls



PhD at JCU

- Minimum of 3 years
- Structured program tailored for individual students
- Thesis externally examined by international experts

JCU Research Training Mission:
Internationally competitive graduates who
their employment goals in industry,
academia and research institutions

PhD sandwich program

- Research partnership between JCU and international university
- Terms of PhD candidature negotiated between the two institutions: course structure, supervision, thesis format, examination etc
- Candidate spends time at both universities
- Degree awarded jointly by both institutions
- Candidate eligible for some Australian and Chinese scholarships

- Confirmation of candidature first six months
 - Proposal
 - Proposal seminar
 - Significant writing
- Annual report
- Pre-completion seminar (6 months before thesis submission)

Research skills program

- Writing groups
 - Literature review
 - Publishing
 - Grant proposal writing
- Powerpoint
- Statistics courses and support
- Information retrieval
- Project management
- Endnote
- Research ethics
- Coursework if required



Students develop plan with **supervisory team**

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- Program of weekly support for International Research Students to assist with Confirmation of Candidature Process
 - Proposal writing
 - Seminars
 - Literature reviews
- Offered each semester

Scholarships with stipend and tuition fees

- International Postgraduate Research Scholarships (IPRS)
- Endeavour Postgraduate Awards
- Australian Leadership Awards
- AUSAID scholarships

<http://www.jcu.edu.au/office/grs/scholarships/index.html>

- China Scholarship Council Awards (CSC)
 - Partnership Agreement Awards
 - 985 Awards (BIT eligible university)
- James Cook University Postgraduate Research Scholarships (JCUPRS)

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Meet some Chinese PhD students at JCU



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Zengqiang Qian from Zhejiang Province

- Discipline: Genetics (Zoology)
- PhD Title: Evolution of Social Structure in the Ant Genus *Myrmecia*
- Australian Leadership Award
- Supervisor: Professor Ross Crozier
- BSc & MSc: Northwest University (Xi'an, Shaanxi Province)



Yadan Mao from Wuhan

- Discipline: Engineering
- PhD title: Pollutant transport in the nearshore waters of lakes and reservoirs
- CSC scholarship
- Supervisors: Dr Chengwang Lei and Professor John Patterson
- BSc @ MSc China University of Geosciences, Wuhan



Jing Li from Shaanxi Province

- Discipline: Tourism
- PhD title: The role of the form shops in tourist shopping decisions and experience at cultural world heritage sites
- CSC scholarship
- Supervisor: Professor Philip Pearce
- Masters from Dalarna University Sweden.



Huibin Zui from Qingdao City

- Discipline: Biochemistry
- PhD title: Genome-wide screening and analysis of *Acropora millepora* immune related genes by EST microarrays
- Supervisor: Professor David Miller
- CSC scholarship
- MSc: Ocean University of China



JCU areas of research strength

- Disaster Studies: global climate change*
- Earth Sciences
 - Marine Geology*
- Education
- Engineering* (Chemical, Civil and Environmental, Electrical and Computing, Mechanical)
- Environmental Science and Management*
- Marine Science*, particularly Marine Biology* (JCU is first in the world for coral reef studies)
- Molecular Sciences*
- Social Sciences *
- Tourism
- Tropical Biology and Conservation*
- Tropical Freshwater Research*
- Tropical Health and Medicine*

***985 Scholarship
Favorably-sponsored area**

Aquaculture

- Mud crabs
- Crustaceans
- Bivalves including pearls
- Marine biotechnology
- Chemical signals in biological interactions
- Marine biofouling
- Larval settlement cues
- Sustainable and integrated aquaculture systems



Fish and Fisheries

Reef and Inshore fish

- Biology and life history
- Effects of fishing
- Movement patterns
- Stock structure
- Effects of removal of sharks

Socio-economics

- Socio-economic impact of rezoning
- Economic impact of charter fishing
- Socio-economic impact of vessels relocating home ports



Marine Protected Areas

- Effects of no take MPAs on fish
- Effectiveness of no take areas for conserving marine wildlife
- Connectivity between networks of MPAs
- Optimising design of MPAs



Coral Reef Studies

- Australian Research Council Centre of Excellence
- World's most highly cited reef scientists including Director Professor Terry Hughes

Program 1: Evolutionary and environmental change

Program 2: Understanding and managing coral reef biodiversity

Program 3: Marine reserves and reef connectivity

Program 4: Genetic, molecular and physiological processes

Program 5: Resilience of linked social-ecological systems



Marine Wildlife

- Genetics
- Life history
- Satellite tracking
- Climate change
- Distribution and abundance
- Spatial ecology
- Risk assessment



Disaster Studies

- Disaster Integrated Landuse Planning
- Understanding Communities & Fire
- Natural Hazard Mitigation
- Cyclones & Floods
- Community Vulnerability & Resilience
- Women & Disasters
- Tourism & Disasters
- Natural Hazard Education



More information

<http://www.jcu.edu.au/office/grs/interchina.html>

Questions?