

# LYDIA DICAPRIO

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## EDUCATION

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### UNIVERSITY OF SYDNEY, AUSTRALIA

**Ph.D., Geophysics**

April 2009

*Australian Postgraduate Award*

### UNIVERSITY OF SYDNEY, AUSTRALIA

**B.S. with Honours, Geophysics (1<sup>st</sup> Class)**

2004

*Deans List of Academic merit and Elliston Medal (Weighted Average Mark 87%)*

## SCHOLARSHIPS AND AWARDS

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| 2008         | <ul style="list-style-type: none"><li>• The Edgeworth David Travelling Scholarship</li><li>• Postgraduate Research Support Scheme Scholarship</li></ul>  |
| 2007         | <ul style="list-style-type: none"><li>• Caltech Womens' Center travelling grant</li></ul>  |
| 2006         | <ul style="list-style-type: none"><li>• Postgraduate Research Support Scheme Scholarship</li></ul>   |
| 2005         | <ul style="list-style-type: none"><li>• Australian Postgraduate Award</li><li>• The Deas Thompson Geology Scholarship</li><li>• The Edgeworth David Travelling Scholarship</li></ul>   |
| 2004         | <ul style="list-style-type: none"><li>• Australian Society of Exploration Geophysics Grant</li><li>• Fugro Geophysics Scholarship</li><li>• Hydrographic Society Education Award</li><li>• Leo A Cotton Prize in Exploration Geophysics</li><li>• Marine Geophysics Achievement Award</li><li>• The Marine Sciences Prize</li><li>• Petroleum Exploration Society of Australia Study Grant</li></ul> |
| 2002<br>2004 | - <ul style="list-style-type: none"><li>• Earth Resources Foundation Geology Scholarship (3 consecutive years awarded)</li></ul>   |

## SUMMARY OF TECHNICAL QUALIFICATIONS & HIGH-END PROFICIENCIES

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| <ul style="list-style-type: none"><li>• <i>Computer skills:</i> Unix/Linux, Windows, Python, Matlab, LaTeX, GMT, Awk, Geoframe,</li><li>• <i>Language:</i> Proficient in conversational French.</li></ul> | <ul style="list-style-type: none"><li>• <i>Technical knowledge &amp; methods:</i> Geodynamic modeling, tectonic subsidence and basin modeling, magnetic, gravity and reflection seismic interpretation, regional plate tectonic rotation and reconstruction.</li></ul> |
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## RESEARCH EXPERIENCE

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### CALIFORNIA INSTITUTE OF TECHNOLOGY

**Visiting Graduate Researcher, Seismological Laboratory**

2005-2007

*Thesis:* The Dynamic History of the Australian Region since the Mesozoic

*Advisors:* R. Dietmar Müller and Michael Gurnis

- Studied the formation of the Norfolk Basin with new reflection seismic data and synthesized with gravity, magnetic, bathymetry and dredge data.
- Developed a method to quantify the anomalous history of inundation and exposure of the Australian continent since the Late Cretaceous in order to estimate the dynamic contribution to topography.
- Developed a geologically accurate closed plate polygon reconstruction of all plates in the Australian Region throughout the Mesozoic, including a reconstruction of the position of all spreading ridges, subduction zones and fracture zones

- Collaborated with geoscientists and computer scientists in the development of GPlates software in order to fully integrate the workflow between geodynamic models and plate tectonic reconstructions

#### **R/V SOUTHERN SURVEYOR**

**Cruise Research Scientist**, *Sydney to Noumea, New Caledonia*

May 2004

*Project*: Research cruise support and dredge recorder

*Advisor*: Neville Exon, Geoscience Australia

- Identified the constituents of several dredge hauls on the abyssal plain and limestone capped sea mounts on the Kenn Plateau to identifying the underlying crustal material
- Removed errors from swath bathymetric data so that it could be used for scientific study

#### **UNIVERSITY OF SYDNEY**

**Research Assistant**, *Institute of Marine Sciences*

Summer 2003

*Project*: Interpretation of magnetic anomalies from the Southern Ocean

*Advisor*: Dietmar Müller

- Interpreted the age of marine magnetic anomalies in the Southern Ocean near the South East Indian Ridge to constrain the break up history of the Southern Ocean for more detailed plate tectonic reconstructions

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### **PROFESSIONAL EXPERIENCE**

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#### **EXXONMOBIL EXPLORATION COMPANY**

**Geoscience Intern**

Jan –Jun 2007

*Project*: Extension of the European stage name stratigraphic nomenclature through Angolan blocks using new biostratigraphy. Construction of a model of typical near and far offset AVO responses observed in Angolan blocks.

#### **AUSTRALIAN WORLDWIDE EXPLORATION COMPANY**

**Geoscience Intern**

Nov 2004

- Created basin volume maps for presentation to venture partners from reflection seismic interpretation

#### **ENVIRONMENTAL PROTECTION AUTHORITY**

**Auditor Intern**, Regulation and Audit Department, EPA, Australia

Nov 2003

- Audited a sheet glass factory for environmental compliance of manufacturing operations

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### **PUBLICATIONS**

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**DiCaprio, L.**, Müller, R. D., and Gurnis, M. (In review), A dynamic process for drowning carbonate reefs on the Northeastern Australian Margin: Submitted to *Geology*

**DiCaprio, L.**, Gurnis, M. and Müller, D., (2009), Long-wavelength tilting of the Australian continent since the Late Cretaceous: *Earth and Planetary Science Letters*, v. 278, p. 175-185, doi:10.1016/j.epsl.2008.11.030.

**DiCaprio, L.**, Müller, D., Gurnis, M. and Goncharov, A., (2009), Linking active margin dynamics to overriding plate deformation: Synthesizing geophysical images with geological data from the Norfolk Basin.: *Geochemistry Geophysics Geosystems*, v. 10, Q01004, doi:10.1029/2008GC002222.

N. F. Exon, P. J. Hill, Y. Lafoy, G. Burch, A. Post, C. Heine P. Quilty, R. Howe, and **L.J. Taylor** (2005): The geology of the Kenn Plateau off northeast Australia: results of the Southern Surveyor Cruise SS5/2004 (Geoscience Australia Cruise 270). Record 2005/4, Geoscience Australia, Canberra, Australia.

**L. J. Taylor** (2004) Surface expressions of mantle driven topography north and east of Australia: A synthesis of observations from wells and seismic data with tomography and geodynamic models, Honors Thesis

## PRESENTATIONS

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**L.DiCaprio**, M. Gurnis, R.D. Müller. Linking Geological Observations to Forward Models of Dynamic Topography in the South West Pacific since the Mesozoic Tectonics Observatory Meeting November 4 2008 (poster)

**L. DiCaprio**, M. Gurnis, R.D. Muller Forward models of dynamic topography in the South West Pacific since the Mesozoic, IGC meeting 2008 (poster)

**L.DiCaprio**, R.D. Müller, M. Gurnis, Linking active margin dynamics to overriding plate deformation: Synthesizing geophysical images with geological data from the Norfolk Basin Geoscience Australia July 2008 (talk)

**L. DiCaprio**, M. Gurnis, R.D. Muller Forward Models of Dynamic Topography in the South West Pacific Since the Mesozoic., AOGS meeting Korea 2008 (talk)

**L. DiCaprio**, M. Gurnis, R.D. Muller The Crustal Structure of the Norfolk Basin, South West Pacific, AOGS meeting Korea 2008 (poster)

**L. DiCaprio**, M. Gurnis, R.D. Muller Cenozoic Tilting of the Australian Continent due to Dynamic Topography., Fall AGU meeting 2007 (poster)

**L. DiCaprio**, The Dynamic History of the Australian Continent, invited talk at ExxonMobil Upstream Research Laboratory, Houston, Texas, 2007 (talk)

**L.DiCaprio**, The extension of the stratigraphic initiative, internship presentation at ExxonMobil Exploration Company, Angola-Congo group. 2007 (talk)

M. Gurnis, M. Turner, L. Baker, S. Spasojevic, V. Manea R. D. Müller, and **L. DiCaprio**, Evolution and Dynamics of the Western Pacific and Izu-Bonin-Mariana subduction., Margins IBM workshop, 2007

**L.J. Taylor**, R.D. Muller., A South West Pacific Example of Volcanic Rift Margin Facies in a Backarc Basin Setting From Norfolk Basin Seismic Reflection Profiles., Fall AGU meeting 2004 (poster)

## LEADERSHIP EXPERIENCE

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### SCHOOL ON WHEELS

Tutor 2008

- Linked Larry Tatum Kempo “Kid’s at Risk program” with School on Wheels students.

### ROCSOC

Vice President, *University of Sydney* 2004

- Organized BBQ to introduce students to industry people

### ASEG-PESA 17<sup>TH</sup> GEOPHYSICAL CONFERENCE AND EXHIBITION

High School Student Day Organization Committee Member 2004

- Worked with industry members and other student representatives to coordinate and plan for the conference student day

### UNIVERSITY OF SYDNEY

- Administrator, *Institute of Marine Sciences* 2003
- Coordinated the Earth and Ocean Informatics and Technology (EON-ITnet) networking workshop
  - Organized the network social evening on board the James Craig, Sydney Harbor
  - Held BBQ to welcome new students

**ROCSOC**

- Treasurer, *University of Sydney* 2003
- Made industry contacts and secured funding for club activities

**AMERICAN FIELD SCHOLAR, FRANCE**

- Assistant to the Village English Teacher 1998
- Taught English to children (ages 8-12 yrs) in remote country town

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**SPECIAL INTERESTS & ACTIVITIES**

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*Sports:* Running, motorcycling, mountain biking, snowboarding, hiking, snorkeling, soccer, softball, basketball, tennis, horse riding

*Community Service:* School on wheels tutoring, (2008). Middle School Science Fair Judge, Woodlands, Houston (2007)