



GEOS373

Volcanic Geology Fieldwork

S3 External 2014

Earth and Planetary Sciences

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General Information

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Lecturer

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Credit points

3

Prerequisites

Permission of Executive Dean of Faculty and GEOS206 and GEOS226

Corequisites

Co-badged status

Unit description

Modern magmatic environments of the Pacific rim are the key to reconstruction of the circum-Pacific. Fieldwork and literature research form the foundation for description and interpretation of the modern magmatic environments of New Zealand, and assessment of their relevance to reconstruction of Paleozoic and Mesozoic volcanic-plutonic terrains in eastern Australia.

Fieldwork is conducted in New Zealand.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

1. understanding of the tools and methods that are used in the geosciences; 2. competence in applying geoscientific principles to understanding the world around you;
3. capacity to employ appropriate geoscientific tools to solve problems and to interpret the results;
4. understanding scientific methodology;
5. competence in accessing, using and synthesising appropriate information;
6. application of knowledge to solving problems and evaluating ideas and information;
7. public speaking skills;
8. team work skills; and
9. capacity to present ideas clearly with supporting evidence.

Assessment Tasks

Name	Weighting	Due
<u>Assessment 1</u>	40%	02/02/2015
<u>Individual topic</u>	15%	02/02/15
<u>Daily assessment</u>	35%	22/02/15
<u>Tutors Marks - Field notebooks</u>	10%	22/02/15

Assessment 1

Due: **02/02/2015**

Weighting: **40%**

1. In 1000 words or less and using ample maps and diagrams, outline the history of volcanism in the North Island of New Zealand since the early Tertiary.
2. In 1000 words (maximum) plus maps and diagrams, outline the geography, sub-surface structure, volcanic history, the present distribution of volcanoes and the tectonic context of the Taupo Volcanic Zone (TVZ).

On successful completion you will be able to:

- 1. understanding of the tools and methods that are used in the geosciences; 2. competence in applying geoscientific principles to understanding the world around you;
- 3. capacity to employ appropriate geoscientific tools to solve problems and to interpret the results;
- 4. understanding scientific methodology;
- 5. competence in accessing, using and synthesising appropriate information;
- 6. application of knowledge to solving problems and evaluating ideas and information;
- 7. public speaking skills;
- 8. team work skills; and
- 9. capacity to present ideas clearly with supporting evidence.

Individual topic

Due: **02/02/15**

Weighting: **15%**

Everyone is given one particular aspect of volcanic geology to research and to explain to the rest of the group either at an appropriate stop on the trip or during the evening. **You must produce a one-page, single-sided handout for the class that gives the key points and diagrams of your topic.** A copy of this handout should be included with the rest of the written assignment.

On successful completion you will be able to:

- 1. understanding of the tools and methods that are used in the geosciences; 2. competence in applying geoscientific principles to understanding the world around you; 3. capacity to employ appropriate geoscientific tools to solve problems and to interpret the results; 4. understanding scientific methodology; 5. competence in accessing, using and synthesising appropriate information; 6. application of knowledge to solving problems and evaluating ideas and information; 7. public speaking skills; 8. team work skills; and 9. capacity to present ideas clearly with supporting evidence.

Daily assessment

Due: **22/02/15**

Weighting: **35%**

Daily assignment (at least one per day) that will focus on that days stops - examples: 1 page discussions, geological sketches and logs.

On successful completion you will be able to:

- 1. understanding of the tools and methods that are used in the geosciences; 2. competence in applying geoscientific principles to understanding the world around you; 3. capacity to employ appropriate geoscientific tools to solve problems and to interpret the results; 4. understanding scientific methodology; 5. competence in accessing, using and synthesising appropriate information; 6. application of knowledge to solving problems and evaluating ideas and information; 7. public speaking skills; 8. team work skills; and 9. capacity to present ideas clearly with supporting evidence.

Tutors Marks - Field notebooks

Due: **22/02/15**

Weighting: **10%**

Field notebook and/or tutors mark for performance (interest, positive involvement and contribution to the day and evening work while in New Zealand)

On successful completion you will be able to:

- 1. understanding of the tools and methods that are used in the geosciences; 2. competence in applying geoscientific principles to understanding the world around you; 3. capacity to employ appropriate geoscientific tools to solve problems and to interpret the results; 4. understanding scientific methodology; 5. competence in accessing, using and synthesising appropriate information; 6. application of knowledge to solving problems and evaluating ideas and information; 7. public speaking skills; 8. team work skills; and 9. capacity to present ideas clearly with supporting evidence.

Delivery and Resources

Suggested Reading:

There are also a large number of papers on the geology of New Zealand and the TVZ. Do not feel you have to restrict yourself to books on this list.

Cas, R.A.F. and Wright, J.V., 1987. Volcanic Successions modern and ancient: a geological approach to processes, products, and successions. Allen and Unwin.

Emeleus, C.H. and Gyopari, M.C., 1992. British Tertiary Volcanic Province. Chapman and Hall.

Fisher, R.V. and Schmincke, H.-U., 1984. Pyroclastic Rocks. Springer-Verlag.

Freundt, A. and Rosi, M. (editors), 1998. From magma to tephra: modelling physical processes of explosive volcanic eruptions. Elsevier.

McPhie, J., Doyle, M. and Allen, R., 1993. Volcanic Textures: a guide to the interpretation of textures in volcanic rocks. CODES, Univ. of Tasmania.

Schmincke, H.-U., 2004. Volcanism. Springer.

Referencing:

All submitted work must include clear and correct referencing. The extent and quality of your referencing will be included within the communication portion of the marks awarded to each report.

Quotations should be used only if the point being made is vital to your argument and if you could not express it better yourself. If you paraphrase, you must acknowledge your authority as you would when quoting directly -- after the paraphrased section or quotation, i.e. (Turner et al. 2014). Make sure you document this reference in your list of References. Remember, **plagiarism is cheating!**

All references must be clearly documented at the end of your report. For a book, the information

expected is: Author(s), year of publication, title, edition (if not 1st), publisher, place of publication.

e.g. Dadd, K.A. and Flood, R.H., 2010. The Enjoyment of Fieldwork. Highly Respected Publishers, Sydney. (10th edition)

For a journal article, give: author(s), year of publication, title, name of journal, volume number, page numbers.

e.g. Flood, R.H., Turner, S., Rushmer, T. and Dadd, K.A., 2009. Mapping on a shoestring. Journal of Geological Teaching, 182, 223-235.

For a web document give: author/editor or compiler, year of the most recent version, title, version number (if applicable), description of document (if applicable), name and place of the sponsor of the source, viewed Day Month Year, <URL either full location details or just the main site details>.

For more details on referencing of material from the www see:

< http://www.usq.edu.au/library/help/ehelp/ref_guides/harvardonline.htm >

Submission of Assignment:

All assignments must be submitted to the appropriate submission box for GEOS373 in the reception area of the Science Centre (Room 101), which is on the ground floor at the western end of building E7A. The Centre opens from 8.30am to 5.30pm on Monday to Friday.

All reports are to be submitted by **9.00 am** on the **2nd of February 2015** and must include a completed and signed coversheet stapled to the front cover. The Assignment Cover Sheet can be downloaded from the unit iLearn site.

Students must keep a photocopy/electronic version of their reports.

Academic Honesty – see ilearn site/university regulations

Desired Standards

Grade	Standard Required
High Distinction	Demonstrates an extensive knowledge and understanding of the concepts of the course.
Distinction	Demonstrates a thorough knowledge and understanding of the concepts of the course.
Credit	Demonstrates a sound knowledge and understanding of the concepts of the course.
Pass	Demonstrates a basic knowledge and understanding of the concepts of the course.
Conceded Pass	Demonstrates a limited knowledge and understanding of the concepts of the course.

Fail	Demonstrates a poor knowledge and understanding of the concepts of the course.
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Unit Schedule

ITINERARY

(Note: this can and will vary if the weather or other factors demand).

From the time of arrival in Auckland (either at the airport or the accommodation) until the time of departure at Auckland the whole party will stay together.

We will all meet at the airport between **3 and 3:30 pm**. The buses will leave at **4 pm**. AirNZ and Qantas both do flights from Sydney to Auckland that arrive at around **3 pm** NZ time.

Date	Itinerary	Staying at
14/ 02/15	Arrive in Auckland –Meet at outside costumes between	Takapuna Beach Holiday Park, 22 The Promenade, Takapuna Auckland 0622. Ph. +64-9489-7909
15/ 02/15	Rangitoto Island –Auckland volcanic field	
16/ 02/15	Auckland volcanic field. Travel to Ruapehu.	Skotel Alpine Hotel Whakapapa Village, SH 48
17/ 02/15	Tongariro/ Ngauruhoe (Tongariro crossing)	PO Box 30, Ngauruhoe Place. Mt Ruapehu Ph. +64 7 892 3719
18/ 02/15	Ruapehu/Ohakune	
19/ 02/15	Pukeonake and Lahars	
20/ 02/15	Rhyolitic volcanism – drive to Rotorua	Rotorua Thermal Holiday Park, 463 Old Taupo Road, Rotorua. Ph +64 7 3463140
21/ 02/15	Drive back to Auckland along the Waikato river	Takapuna Beach Holiday Park

22/ 02/15	West coast – Auckland region. Return to Auckland airport at 4 pm NZ time
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Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit <http://informatics.mq.edu.au/help/>.

When using the University's IT, you must adhere to the [Acceptable Use Policy](#). The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Assessment tasks

- Individual topic
- Daily assessment
- Tutors Marks - Field notebooks

Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Learning outcome

1. understanding of the tools and methods that are used in the geosciences;
2. competence in applying geoscientific principles to understanding the world around you;
3. capacity to employ appropriate geoscientific tools to solve problems and to interpret

the results; 4. understanding scientific methodology; 5. competence in accessing, using and synthesising appropriate information; 6. application of knowledge to solving problems and evaluating ideas and information; 7. public speaking skills; 8. team work skills; and 9. capacity to present ideas clearly with supporting evidence.

Assessment tasks

- Assessment 1
- Individual topic
- Daily assessment
- Tutors Marks - Field notebooks

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcome

- 1. understanding of the tools and methods that are used in the geosciences; 2. competence in applying geoscientific principles to understanding the world around you; 3. capacity to employ appropriate geoscientific tools to solve problems and to interpret the results; 4. understanding scientific methodology; 5. competence in accessing, using and synthesising appropriate information; 6. application of knowledge to solving problems and evaluating ideas and information; 7. public speaking skills; 8. team work skills; and 9. capacity to present ideas clearly with supporting evidence.

Assessment tasks

- Assessment 1
- Individual topic
- Daily assessment
- Tutors Marks - Field notebooks

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to

critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcome

- 1. understanding of the tools and methods that are used in the geosciences; 2. competence in applying geoscientific principles to understanding the world around you; 3. capacity to employ appropriate geoscientific tools to solve problems and to interpret the results; 4. understanding scientific methodology; 5. competence in accessing, using and synthesising appropriate information; 6. application of knowledge to solving problems and evaluating ideas and information; 7. public speaking skills; 8. team work skills; and 9. capacity to present ideas clearly with supporting evidence.

Assessment tasks

- Assessment 1
- Individual topic
- Daily assessment
- Tutors Marks - Field notebooks

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcome

- 1. understanding of the tools and methods that are used in the geosciences; 2. competence in applying geoscientific principles to understanding the world around you; 3. capacity to employ appropriate geoscientific tools to solve problems and to interpret the results; 4. understanding scientific methodology; 5. competence in accessing, using and synthesising appropriate information; 6. application of knowledge to solving problems and evaluating ideas and information; 7. public speaking skills; 8. team work skills; and 9. capacity to present ideas clearly with supporting evidence.

Assessment tasks

- Assessment 1

- Individual topic
- Daily assessment
- Tutors Marks - Field notebooks

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcome

- 1. understanding of the tools and methods that are used in the geosciences; 2. competence in applying geoscientific principles to understanding the world around you; 3. capacity to employ appropriate geoscientific tools to solve problems and to interpret the results; 4. understanding scientific methodology; 5. competence in accessing, using and synthesising appropriate information; 6. application of knowledge to solving problems and evaluating ideas and information; 7. public speaking skills; 8. team work skills; and 9. capacity to present ideas clearly with supporting evidence.

Assessment tasks

- Assessment 1
- Individual topic
- Daily assessment
- Tutors Marks - Field notebooks

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcome

- 1. understanding of the tools and methods that are used in the geosciences; 2. competence in applying geoscientific principles to understanding the world around you; 3. capacity to employ appropriate geoscientific tools to solve problems and to interpret the results; 4. understanding scientific methodology; 5. competence in accessing, using and synthesising appropriate information; 6. application of knowledge to solving

problems and evaluating ideas and information; 7. public speaking skills; 8. team work skills; and 9. capacity to present ideas clearly with supporting evidence.

Assessment tasks

- Assessment 1
- Individual topic
- Daily assessment

Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Assessment tasks

- Assessment 1
- Individual topic
- Daily assessment
- Tutors Marks - Field notebooks

Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Assessment tasks

- Individual topic
- Daily assessment