GH01 Coursework Assessment 2009

A reconnaissance volcanic hazard assessment and hazard mitigation proposal

A key task (and skill) for volcanologists and other hazard scientists is that of condensing large amounts of information down into a form that can be rapidly and easily assimilated by hazard managers and others, but still retains a level of accuracy and scientific rigour. Information needs to be organized and presented with this end in mind – hence **the length limits in this assignment will be rigorously enforced**. When working on it, make sure that you leave yourself enough time to edit your draft text down to the limits indicated below.

Use the Smithsonian Global Volcanism Project website as your primary source; you should familiarize yourself with this site as soon as possible; especially the volcano catalogue, volcano eruptive histories menus and other features.

1. Select a smallish developing country or region in the geographical catalogue with 10 or more active volcanoes (for example, Guatemala, Vanuatu, Sumatra, Northern Lesser Antilles; note that you may choose to consider an entire country, part of a country, or a group of small island nations). Write a concise review of the information on these volcanoes in the catalogue and elsewhere; extra credit will be given for using the references in the volcano literature for the country or region (see data sources in the GVP entry for the country or region for a starting point) – make sure that you cite these sources as appropriate. **This review should consist of no more than 4 pages of principal text with up to 4 additional pages of relevant maps, diagrams and illustrations (with captions and citations of sources) and also a reference list.**

Think carefully how to organize the review, as its structure will depend on the nature and distribution of the volcanism in the country or region you have chosen. For example, it could be by sub-region, level of activity with most active first, type of volcanic hazard or volcano structure – the choice is up to you but you should briefly explain your rationale in the introduction to the review.

[30% of total marks]

2. On the basis of the information you have collected to produce the review of volcanism in the country or region of your choice, **produce two tables**:

a) data relevant to a hazard assessment of all the volcanoes in your selected country or region (eruption frequency, VEI, eruption style, types of hazard, extents of hazard etc.). The structure of the table should relate to the way you have structured the review.

b) summary information on vulnerable populations and values at risk at and around each volcano from general data sources (Atlases, web country profiles etc.). Consider both the population in the area itself and concentrations of economic value, infrastructure and lifelines important to the rest of the country or region.

[30% of total marks]

3. Using these tables and other information, select the three volcanoes that you consider present the greatest volcanic risk in your chosen country or region and explain why they present such high

levels of risk in a short discussion of each volcano (**no more than ½ page for each, plus relevant maps, diagrams and illustrations**).

Bear in mind that you should consider both hazard and vulnerabilities in your analysis of risk – and don't forget to include consideration of indirect vulnerabilities, for example exposure to volcanic hazards of key lifelines that are critical for the wider region or the country as a whole.

[20% of total marks]

4. Assuming for the purposes of this exercise that none of the three volcanoes you selected in (3) has existing monitoring systems or hazard mitigation plans, discuss the priorities for setting up monitoring and hazard mitigation plans at these volcanoes (again, **no more than ½ page for each, plus relevant maps, diagrams and illustrations**), explaining how the nature of the hazards and risks at each volcano affect your choice of priorities.

Include education priorities in your discussion for each volcano – is there a need for immediate ESWAVE type education of the population at risk, or would an intensive programme of awareness education at the start of a volcanic crisis at the volcano be more appropriate? Consider also how social and historical factors might affect both the design and implementation of the mitigation plan – for example, what sensitivities regarding land ownership, the structure of the local society and economy and the politics of the country or region might affect both the plan and which organizations or groups could be most usefully involved in it.

[20% of total marks]

Submit your answers as Word documents or Adobe Acrobat .pdf files by 5 pm on 27th November to Lucy Stanbrough

MSc Students: via the course area in Moodle – instructions on the online submission process are on the following pages.

NHFI Students: via email to Lucy using the below email address, or UCL dropbox (**http://www.ucl.ac.uk/dropbox**) if the files are over 10Mb

If you have any problems or questions about the submission process, please contact Lucy on l.stanbrough@ucl.ac.uk

Deadline issues should be sent to module leader Bill Mcguire w.mcguire@ucl.ac.uk

Seismic Hazard II: measuring earthquakes
Seismic Hazard III: palaeo-seismology
Seismic Hazard IV: earthquake hazards
Tsunami hazard and risk
Seismic Risk I - A Chandler
Seismic Risk II - A Chandler
13/10/08: Earthquake monitoring and prediction - DIRECTED READING SESSION
Dr Gerald Roberts: Slip-rates, normal fault geometries and seismic hazards, Italy
Seismic Risk III - A Chandler
Simon Day - Volcanoes
Simon Day - Volcanic hazard mitigation
Simon Day - Landslides
Prof. Robert Chaplow - Dam and Reservoir Issues
Prof. Robert Chaplow - Radioactive Waste for Insurers
Tim Atkinson - Hydrological Hazards (presentation)
Tim Atkinson - Hydrological Hazards (handout)

5

Assignments

Assignment 1 - Seismic risk
Simon Day - Volcanic Hazard Coursework Assessment
Simon Day - Volcanic Hazard Coursework

6

Speaker contact information

Dr Gerald Roberts
Website: http://www.bbk.ac.uk/es/staff/Gerald_Roberts
Room: Pearson 2nd floor

7

8

9

10

Using the Smithsonian Global Volcanism Project website as your primary source (so familiarize yourself with this site, especially the volcano catalogue, volcano eruptive histories menus and other features):

1. Select a smallish developing country or region in the geographical catalogue with 10 or more active volcanoes (e.g. Guatemala, Vanuatu, Sumatra) and review the information in the catalogue; extra credit will be given for using the references in the volcano literature for the country or region (see data sources in the GVP entry for the country or region for a starting point).
2. On the basis of this, produce two tables:

    a) data relevant to a hazard assessment of all the volcanoes in your selected country or region (eruption frequency, VEI, eruption style, types of hazard, extents of hazard etc.)

    b) summary information on vulnerable populations and values at risk at and around each volcano from general data sources (Atlases, web country profiles etc.)

3. Using these tables and other information, select the three volcanoes that you consider present the greatest volcanic risk in your chosen country or region and explain why in a short discussion of each volcano (less than ½ page for each)

4. Assuming that none of the three volcanoes you selected in (3) has existing monitoring systems or hazard mitigation plans, discuss the priorities for setting up hazard mitigation plans at these volcanoes (again, less than ½ page for each), explaining how the nature of the hazards affects your choice of priorities. Include education priorities in your discussion – is there a need for immediate ESWAVE type education of the population at risk, or would an intensive programme of awareness education at the start of a volcanic crisis at the volcano be more appropriate?

Available from: Monday, 10 November 2008, 06:40 PM
Due date: Friday, 21 November 2008, 07:00 PM

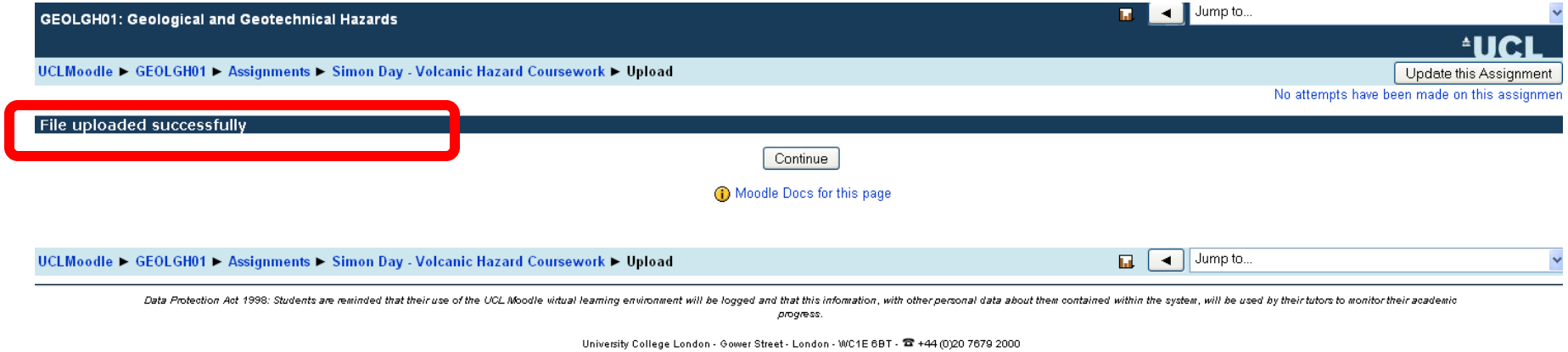
Upload a file (Max size: 20MB)

Browse...

Upload this file

Moodle Docs for this page

Make sure you see the confirmation message!



Multiple uploads are possible if you make a mistake or there is a problem