Exam gm1110 Geo Information for Crisis Management
Monday, 22nd June 2009, room CT 3.02
14.00-16:00 hours

You have five questions. Each question is good for the same amount of points (60 for the entire exam). Use about the same amount of time for every question. Give SHORT answers!!!

1. **Disaster management: introduction (12)**

a. Compare the vulnerability of Japan and Italy with respect to earthquakes. (You may want to use the 5 characteristics of vulnerability: exposure, resistance capacity, adaptive capacity, coping capacity and recovery capacity)
b. Give examples of at least 3 actors in risk management.
c. Which phases of the disaster management cycle are referred as to emergency response? Give 4 specific characteristics of emergency response.

2. **Organisational aspects of emergency response (12)**

a. There are 19 types of disaster defined in the Netherlands, but only few of them are natural disasters. Name 3 natural disasters, which are not of importance for Netherlands.
b. Explain what GRIP is?
c. Give 2 advantages and 2 disadvantages of GRIP.

3. **Geo-information for risk management and emergency response (12)**

a. Risk maps are the compulsory documents that have to be prepared with respect to the Seveso Directive. What kind of information should be presented there? What additional information is on the Dutch risk maps?
b. Give examples of geo-information (maps and 3D models) that can be used in emergency response.
c. Actual information about the development of a disaster can be collected by a large number of sensors. Which sensors are most appropriate for a large natural fire?

4. **Models and modelling (12)**

a. The information to be maintained during emergency response can be subdivided into exiting and *in situ* (operational) data. Give 5 examples of operational geo-information/data.
b. In which situations 3D model would be of interest?
d. There are many commercially available navigation systems (tom tom, garmin, mio) but they are not appropriate for navigation of rescue teams in emergency situations. Explain why?

5. **Access and visualisation (12)**

a. Explain 'netcetric working'. Why is it important for emergency management?
b. Discuss advantaged/disadvantaged of distributed versus centralised management of information.
c. In what type of disaster Building Information Models (BIM) could be useful: flood, fire, land slide or earthquake? Why?