

## Spatial Information for Risk Management

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### Content of Presentation


- Introduction
- Stages of Risk Management
- Geodata for Risk Management
- Good Practice: Simulation of Snow Avalanches
- Conclusions and Recommendations



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### Headlines of „disaster“

- Hundreds free, hundreds dead in Russia hostage crisis  
*4th September 2004*
- Hours apart, 2 tremors cause panic in Japan  
*6th September 2004*
- After bomb in Jakarta, a search for family and friends  
*9th September 2004*
- Floods kill more than 620 in Haiti, with death toll rising  
*21st September 2004*
- Florida weathers a 4<sup>th</sup> hurricane  
*27th September 2004*



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### Disaster – Definition


“The occurrence that causes damage, ecological disruption, loss of human life, deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community area” *World Health Organisation (WHO)*




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### Characterisation of Disasters



- Natural disasters with geophysical origin
  - Earthquakes, volcanoes, land slides, ...
- Natural disasters of climatic origin
  - Floods, droughts, hurricanes, fires, avalanches, ...
- Mad-made disasters
  - Wars, pollution of soil/air/water, deforestation, terrorism ...



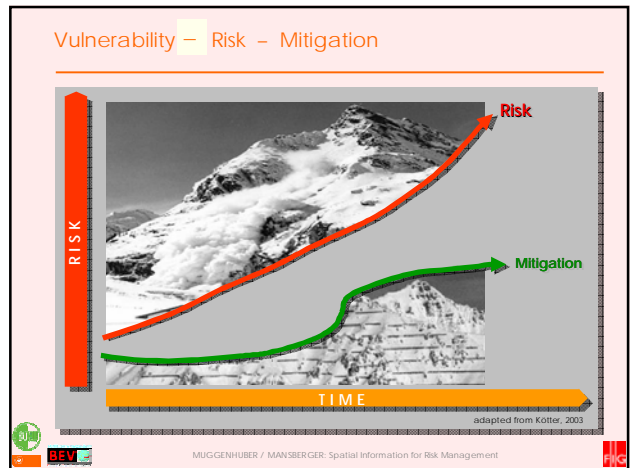
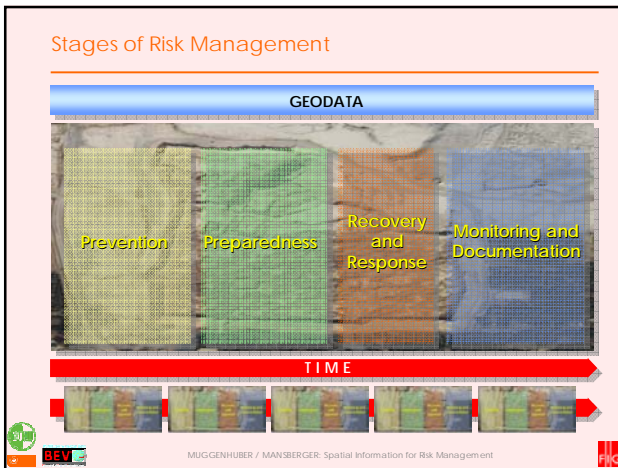
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### Disaster Prevention requires Risk Management

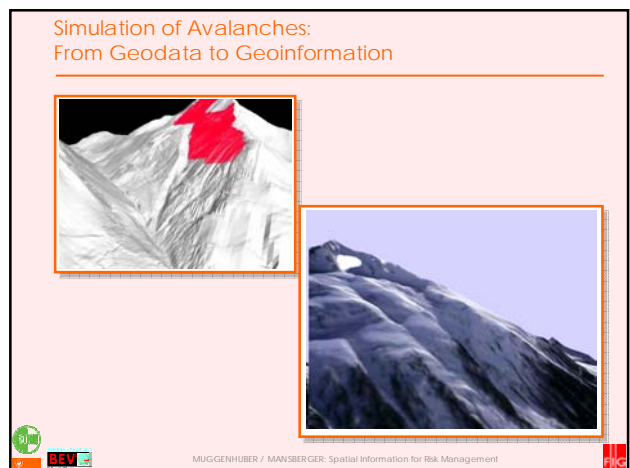
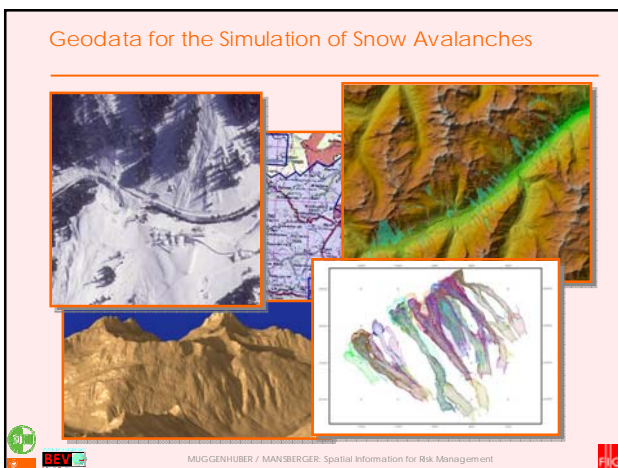
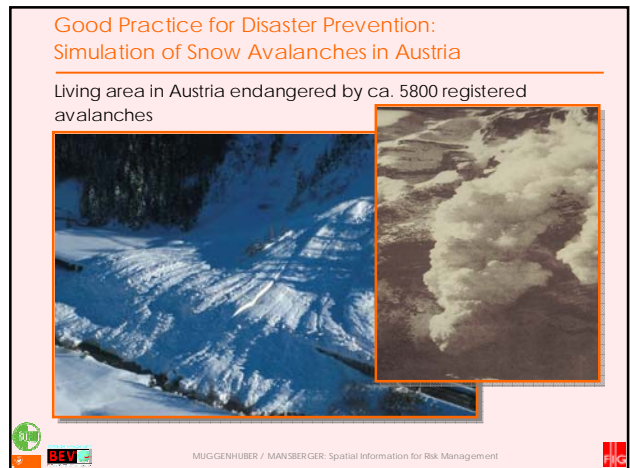
“We resolve therefore [...] to intensify cooperation to reduce the numbers and the effects of natural and man-made disasters [...]” *UN Millennium Declaration, IV/23, 2000*

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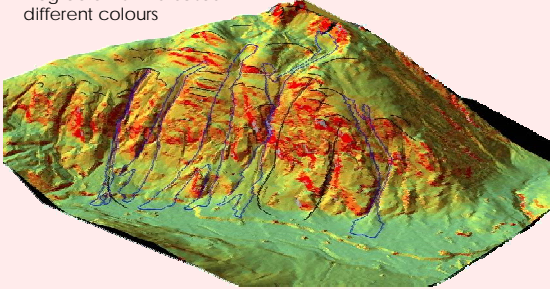


- ### Spatial Information
- ... brings increasing awareness about the vulnerability of society resulted by man-made factors (poverty, land consumption, water scarcity, etc.)
  - ... reduces the vulnerability of a society by
    - risk assessment (zoning of disaster prone areas, simulation)
    - mitigation of risks (land use planning, protection facilities etc.)
    - preparedness (warning systems, emergency plans)
  - ... enables the reconstruction of destroyed infrastructure
  - ... optimizes the coordination of rescue brigades in the case of emergency
  - ... was acquired during the recent decennium (topographical data, tectonic data, environmental data, climatic data, etc.)
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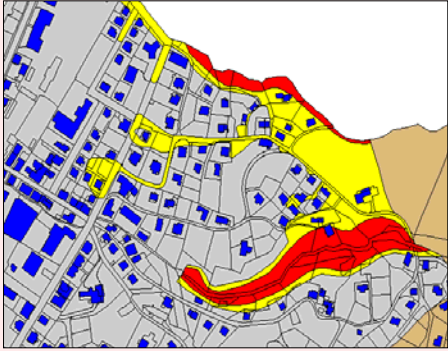
### 3D - Risk Map From Geodata to Geoinformation

- Outlines Areas with specific risk of natural disasters (only available in endangered regions)
- Degree of risk indicated in different colours



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### 2D - Vulnerability Map From Geodata to Geoinformation



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### Conclusions and Recommendations

- Vulnerability is the outcome of increasing risks and shortfalls in efficient mitigation mechanisms
- Risk management cannot avoid disasters, but reduce impacts
- Spatial data are highly demanded for RM and documentation
- Efficient RM requires interdisciplinary work and cooperation
- Deficit on research in the field of RM
- Implement institutions for risk management
- Assign responsibilities in coincidence with allocated resources
- Promote the competence of surveyors in the field of RM

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### What remains to be said . . . .

. . . Thank You for Your Attention

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