



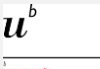
## NATURAL HAZARDS ASSESSMENT

- potential, limits and uncertainties of process models
- interactions of processes with protection structures and buildings

### chair, moderation

- Jan-Thomas Fischer
- Sven Fuchs
- Bernhard Gems
- Johannes Hübl
- Margreth Keiler
- Barbara Schneider-Muntau

Austrian Research Centre for Forests – Department of Natural Hazards  
BOKU VIENNA – Institute of Mountain Risk Engineering  
University of Innsbruck – Unit of Hydraulic Engineering  
BOKU VIENNA – Institute of Mountain Risk Engineering  
University of Bern – Institute of Geography, Geomorphology and Risk  
University of Innsbruck – Unit of Geotechnics and Tunneling



#### focus (a)

**snow and avalanches**  
uncertainties and model chains



#### focus (b)

**fluvial processes, debris flows**  
process and impact models



#### focus (c)

**slope movement**  
**related protection structures**





## NATURAL HAZARDS ASSESSMENT

- potential, limits and uncertainties of process models
- interactions of processes with protection structures and buildings

### discussion topics

1

process **models and tools** as essential information for natural hazards and risks assessment – **value, reliability, uncertainties**

2

**forcing of observation and measurement techniques** to enhance process understanding and quality of model results

3

**possibilities** and limitations in **early warning** and **protection systems**

4

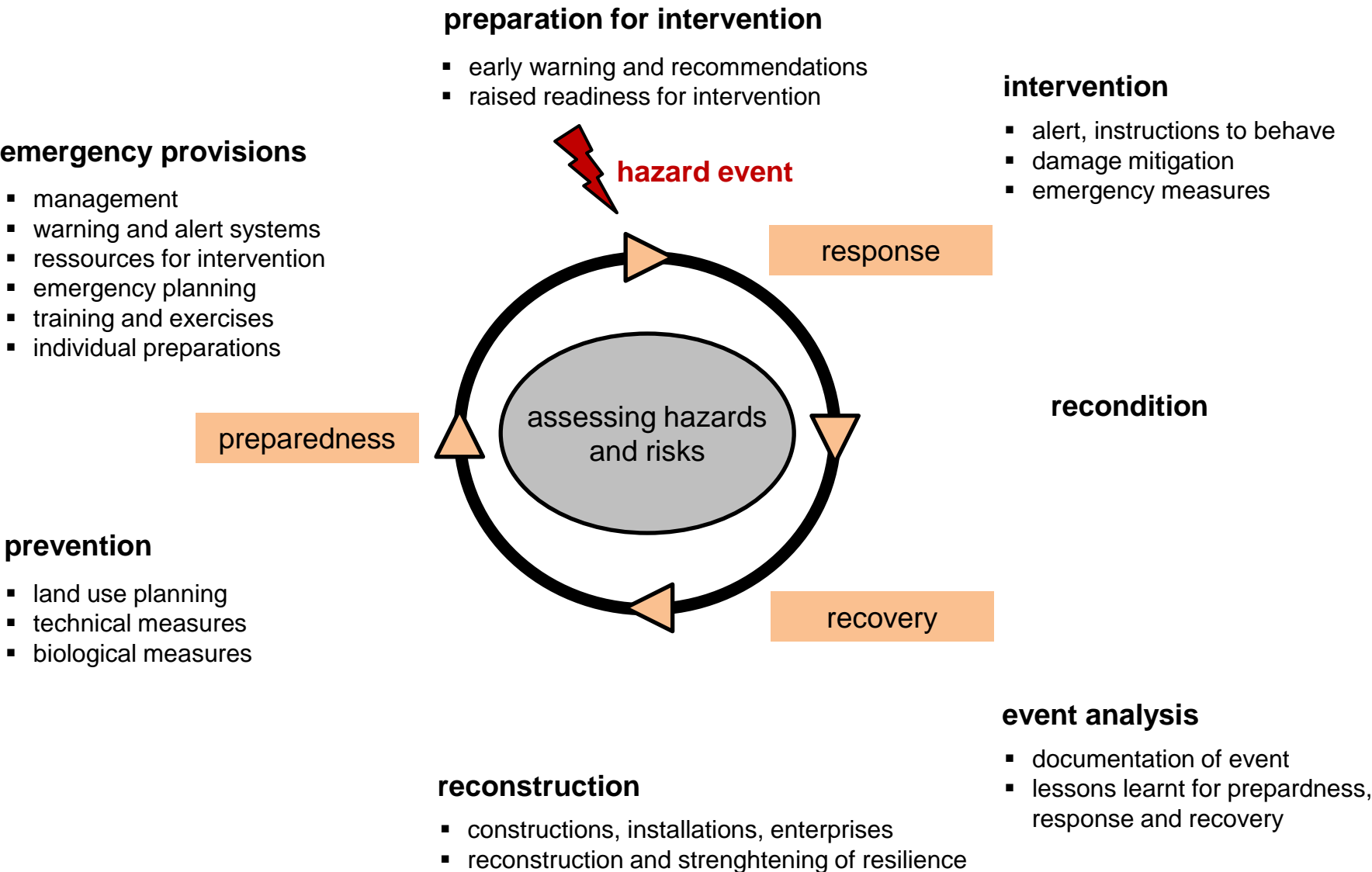
need for **adapted / new protection structures** to cope with **extreme events** and ecological, economic sustainability

5

strategies to understand **process-building-interaction** and to enhance approaches for **vulnerability analysis**

### workshop goals

- highlight (cross-disciplinary) research challenges
- workshop summary (basis for review / assessment paper, strategy report)
- (cross-disciplinary) exchange
- foster collaboration





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## schedule (10:15 – 12:15)

individual talks	group discussion	plenum – summary, outlook
<ul style="list-style-type: none"><li>▪ 10:15 – 10:25 <b>introduction</b> (Gems)</li><li>▪ 10:25 – 10:45 <b>focus (a)</b> <b>5 flash talks à 3 min</b> (moderation: Fischer)</li><li>▪ 10:45 – 11:15 <b>(b) 8 flash talks</b> (Keiler)</li><li>▪ 11:15 – 11:25 <b>(c) 2 flash talks</b> (Schneider-Muntau)</li></ul>	<ul style="list-style-type: none"><li>▪ 11:25 – 12.00 <b>group-discussion</b><ul style="list-style-type: none"><li>– current challenges in natural hazards assessment</li><li>– focus on (selected) research questions</li><li>– country-specific approaches</li></ul></li><li><b>group 1 – focus (a), focus (c)</b> (moderation: Fischer, Schneider-Muntau)</li><li><b>group 2 – focus (b)</b> (Fuchs, Keiler)</li></ul>	<ul style="list-style-type: none"><li>▪ 12:00 – 12.15 <b>plenum</b><ul style="list-style-type: none"><li>– visualization of discussion points</li><li>– emphasis on process-independent challenges, outlook</li></ul></li></ul> <p>(moderation: Hübl)</p>

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## flash talks

focus (a)

**snow and avalanches**

uncertainties and model chains



1



1



1



2



avalanche simulation

uncertainties

land use planning

glacial lake outburst

statistical framework

early warning

focus (b)

**fluvial processes, debris flows**

process and impact models



1



2



5



geomorphological connectivity

automatic detection systems

torrential flows

debris cover on glaciers

process-structure-interaction

check dams


sediment cascades

torrential protection systems


focus (c)

**slope movement**


related protection structures



1



1



case study

flexible shallow landslide barrier

thrust sheet geometries

numerical modelling



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**poster session (15:15 – 16:00, outdoor at SOWI-garden)**

### focus (a)

#### snow and avalanches

uncertainties and model chains

- NO  
flash talk  
(2)
  - **Identifying meteorological release factors of glide-snow avalanches with multivariate statistical analysis**  
Elisabeth Kindermann, Andreas Gobiet, Arno Studerregger, Ingrid Reiweger
  - **Can changes in avalanche risk be inferred from a diachronic analysis of land cover patterns? A case study in the upper Maurienne Massif, French Alps**  
Taline Zgheib, Nicolas Eckert, Anne Marie Granet, Samuel Morin, Florie Giacona
- flash talk  
(4)
  - **Explicit treatment of uncertainties in operational avalanche simulation scenarios**  
Michael Neuhauser, Felix Österle, Jan Thomas Fischer
  - **Dealing with uncertainties in avalanche modeling: a practitioner's perspective**  
Martin Proksch, Pascal Venetz, Damian Steffen, André Burkard
  - **Model-aided assessment and prediction of local avalanche hazards**  
Andreas Gobiet, Veronika Hatvan
  - **Early warning method of Glacial Lake Outburst Floods**  
Jingjing Liu



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**poster session (15:15 – 16:00, outdoor at SOWI-garden)**

focus (b)  
fluvial processes, debris flows  
process and impact models

- **Prediction of a watershed's temporal susceptibility to debris flows using multiple hydro-meteorological variables**  
Roland Kaitna, David Prenner, Markus Hrachowitz
- **Debris-flow channel evolution at the triggering and transport zone: learning from a very active case study in the Dolomites**  
Loris Torresani, Vincenzo D'Agostino
- **Improving the debris flow erosion model in r.avaflow: the case study of the rio Gere event of the 4th august 2017**  
Tommaso Baggio, Vincenzo D'Agostino, Martin Mergili
- **Analysis of erosion rates and geomorphological processes on Little Ice Age lateral moraines**  
Sarah Betz, Florian Haas, Tobias Heckmann, Michael Becht
- **Simple method to determine and optimize sediment rates passing through a series of check dams**  
Johannes Bramberger, Johannes Hübl
- **Obtaining an integrated comprehension of the functioning of sediment cascades by means of geomorphological connectivity**  
Anouschka Buter, Francesco Comiti, Tobias Heckmann, Andrea Andreoli, Michael Engel, Velio Coviello
- **Debris flow interaction with structures**  
Georg Nagl, Roland Kaitna, Johannes Hübl
- **How to manage a torrential protection system in a holistic way – a top-down approach**  
Quirin Stimm, Franz Grüsser, Karl Mayer, Wolfgang Rieger, Andreas Rimböck

NO  
flash talk  
(4)

flash talk  
(4)



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**poster session (15:15 – 16:00, outdoor at SOWI-garden)**

focus (c)  
slope movement  
related protection structures

NO  
flash talk – **Can we infer influence of meteorological conditions on rockfall activity using tree-ring data?**  
(1) Robin Mainieri, Jérôme Lopez-Saez, Christophe Corona, Franck Bourrier, Nicolas Eckert

flash talk – **Building a thrust belt using buckle folds – a numeric approach in the Northern Calcareous Alps**  
(1) Sinah Kilian, Hugo Ortner, Barbara Schneider-Muntau



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### audience feedback

#### (a) relevance of selected discussion topics

?

+

-

(other) important topics

(please mention as detailed as

possible)

#### (b) comments to selected flash talks (reference has to be made each)

?

+

-

further research suggestions

#### (c) workshop format

?

+

-

suggestions to adapt / improve

(d) any further feedback is very welcome 😊



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### List workshop moderators

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