Landslide risk analysis using qualitative and semi-quantitative methods

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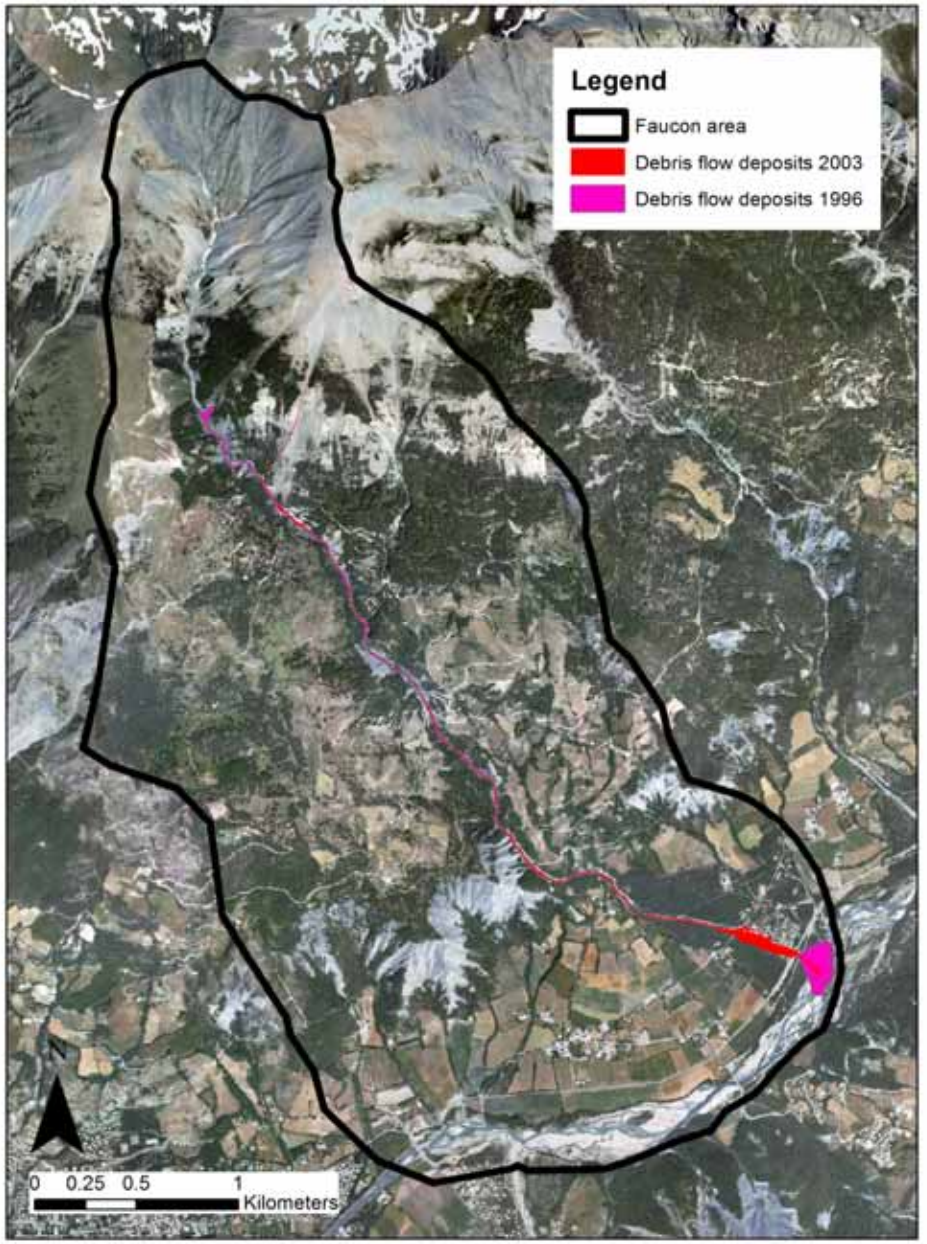
Overview

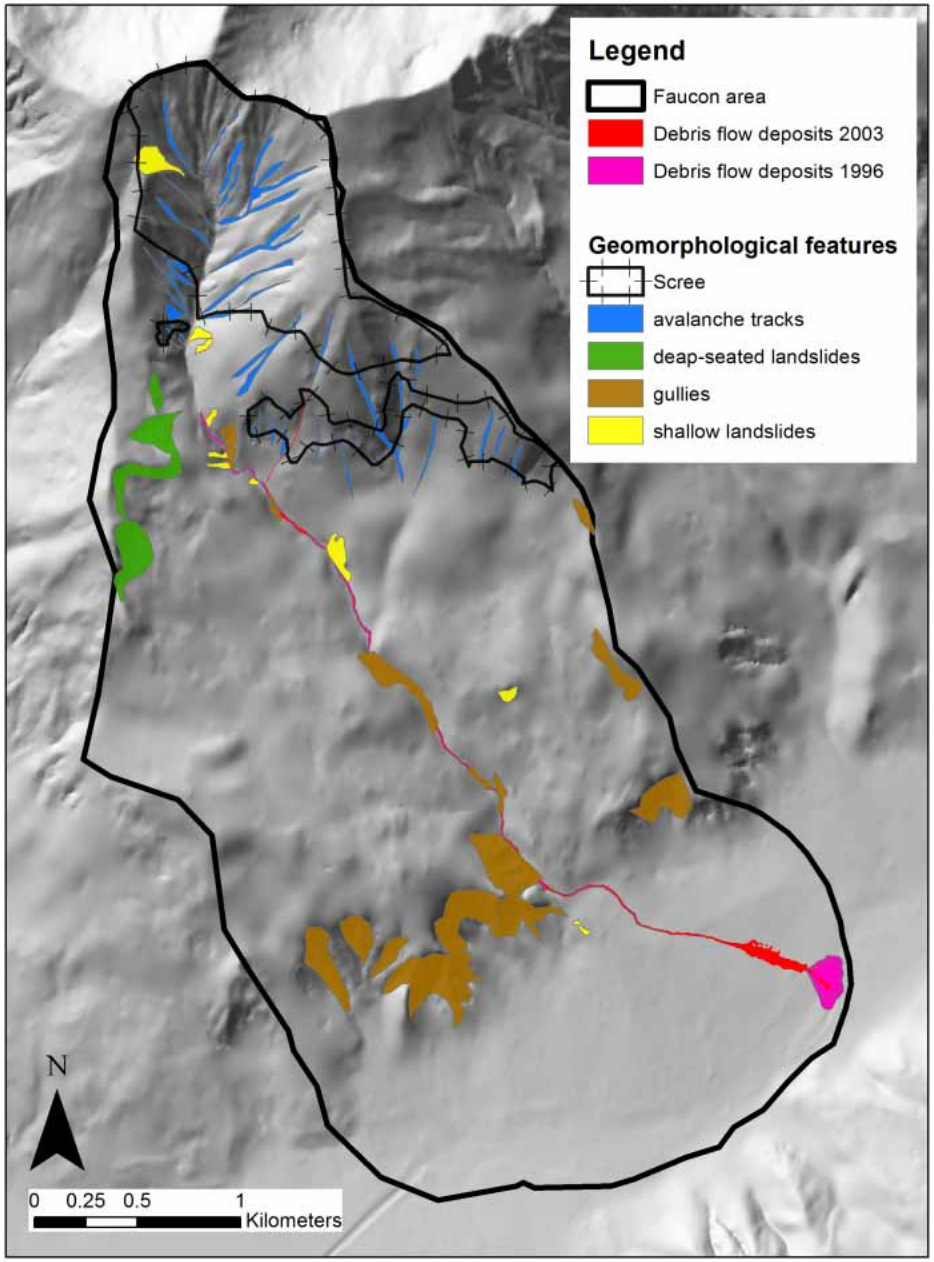
- Faucon torrent area
  - Ubaye tributary
  - 11 km^2
- Hit by a debris flow 1996 and 2003
- One main road which connects the valley



Geomorphology

Inventory generation and classification

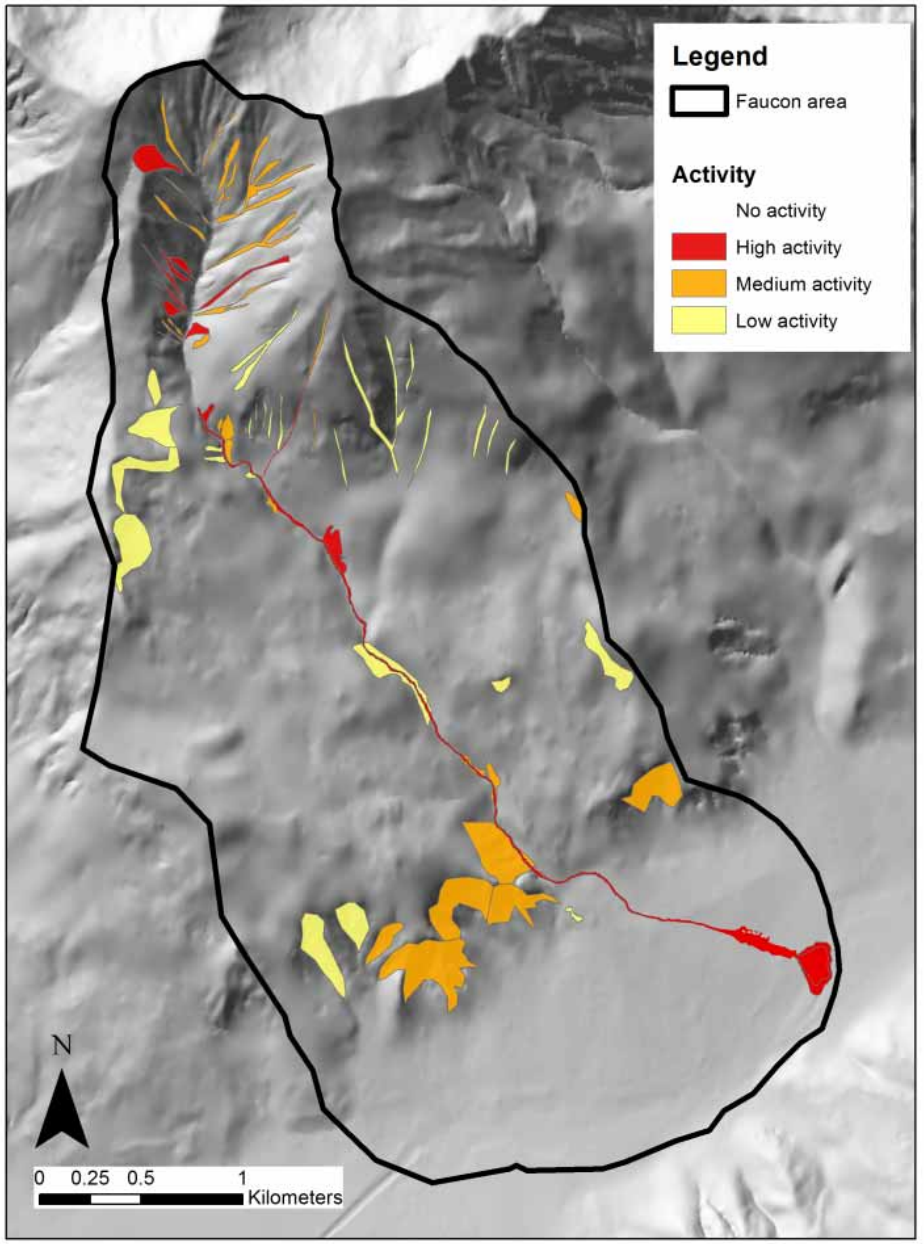
- Landslides (shallow and deep seated)
- Debris flows
- Gully erosion
- Scree slopes
- Avalanche tracks/rock slides



Activity classification

Different levels from low to high activity

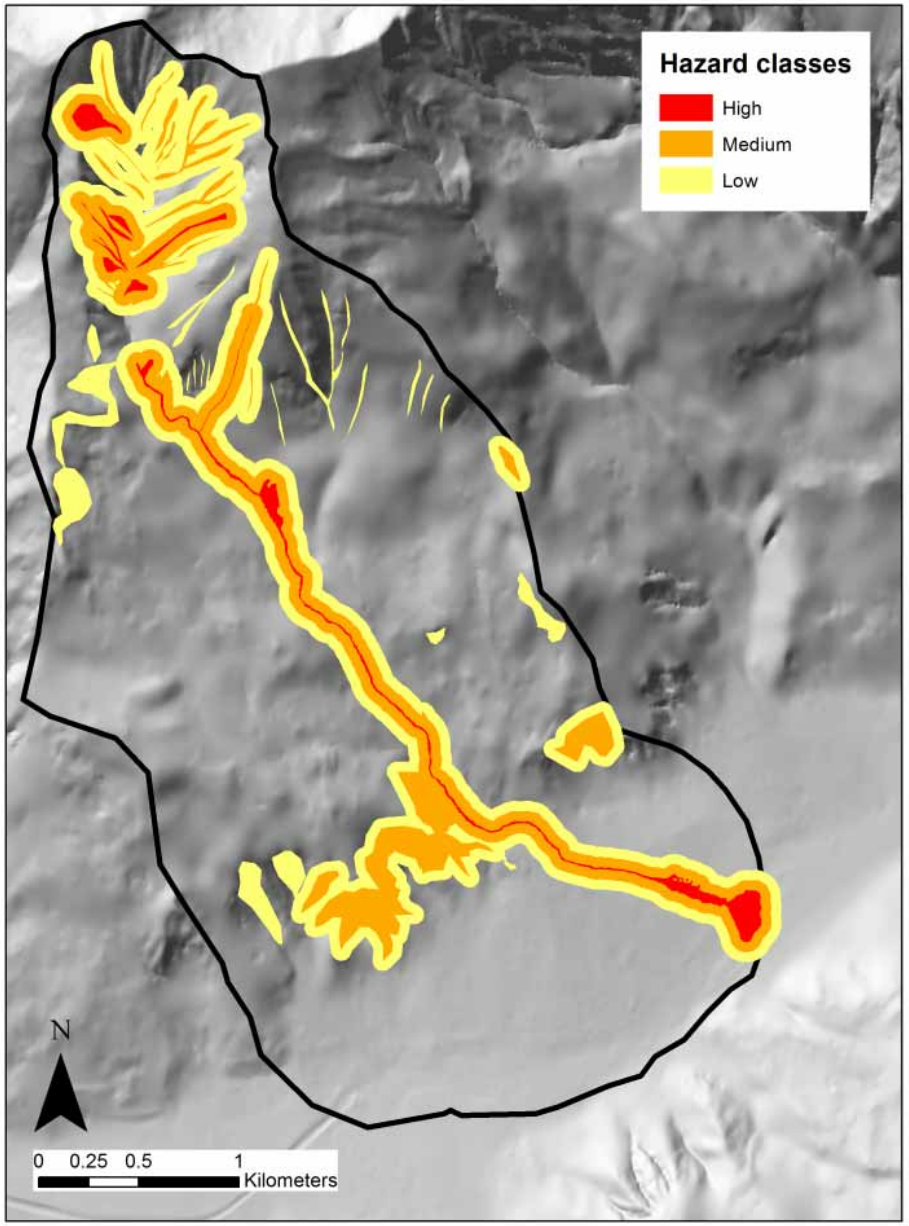
- Image interpretation of one orthophotograph
- Classification accoring to vegetation cover and topography



Hazard map

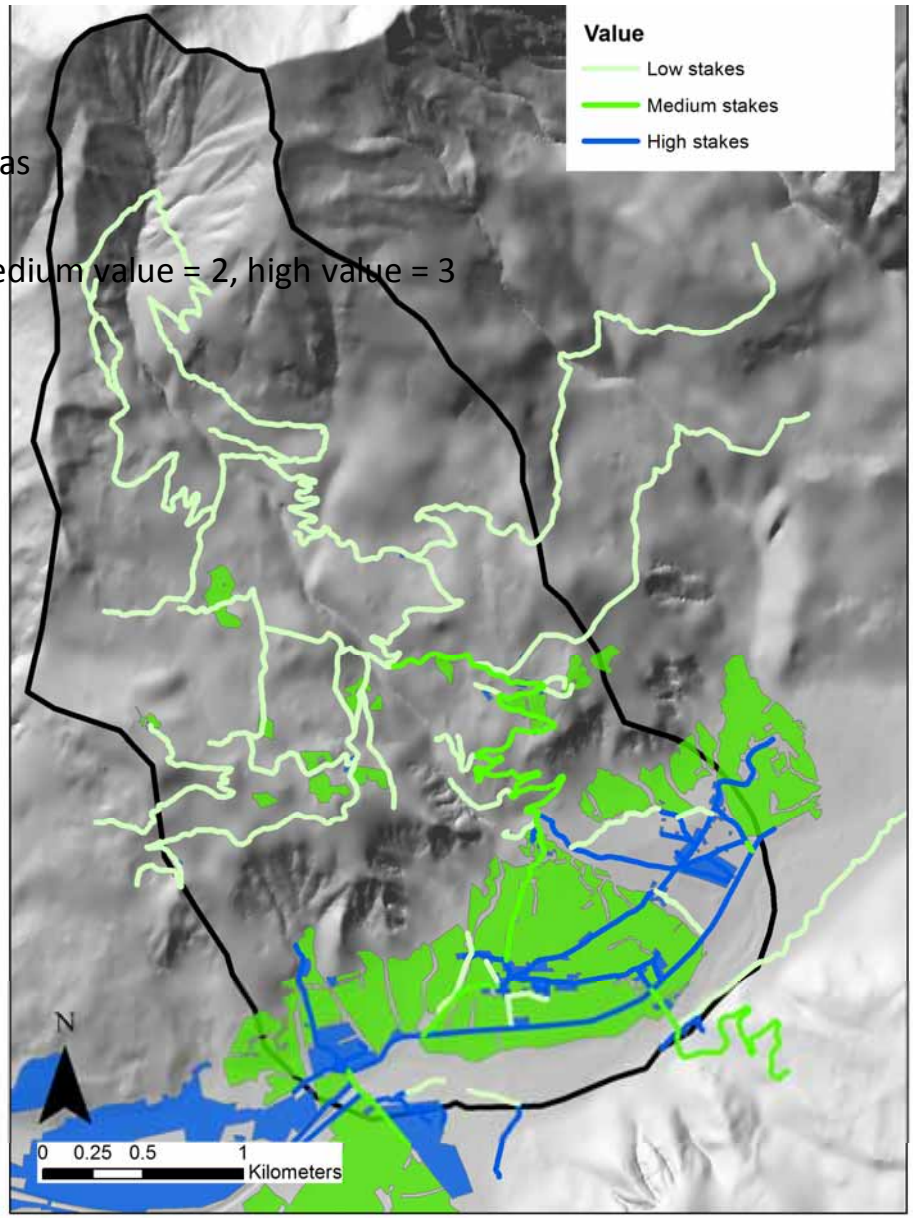
Hazard zones generated by buffering mapped inventory

- 50 m buffers around different activity levels with decreasing hazard level



Elements at risk

- **General classes:** buildings, roads, agricultural areas
- **Classification system ("value"):** low value = 1, medium value = 2, high value = 3
- **Buildings:**
  → **residential buildings = human lifes = value 3**
- **Roads:**
  → **Main roads and access roads: value 3**
  → **Secondary roads: value 2**
  → **Minor country roads: value 3**
- **Agricultural areas:**
  → **value 1**

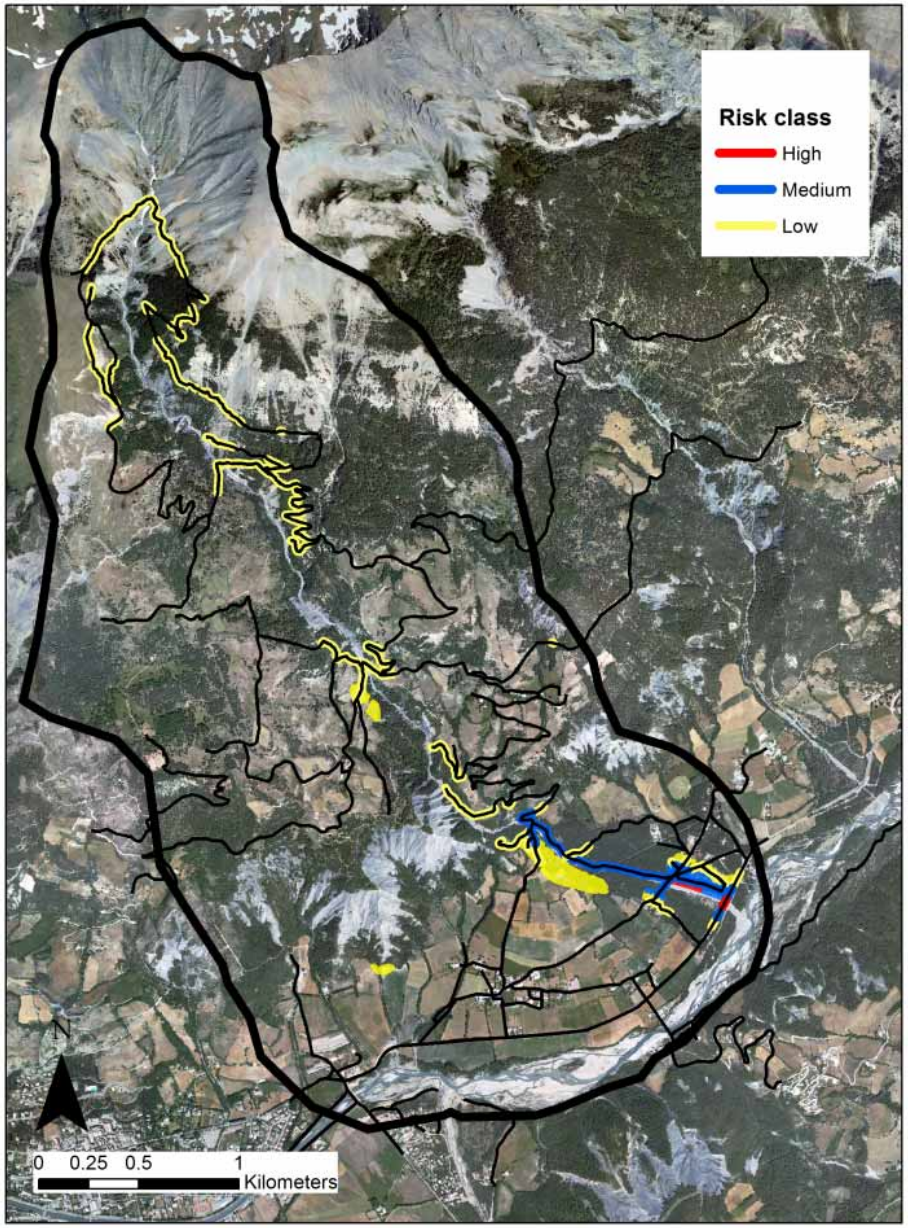


Semi-quantitative risk map

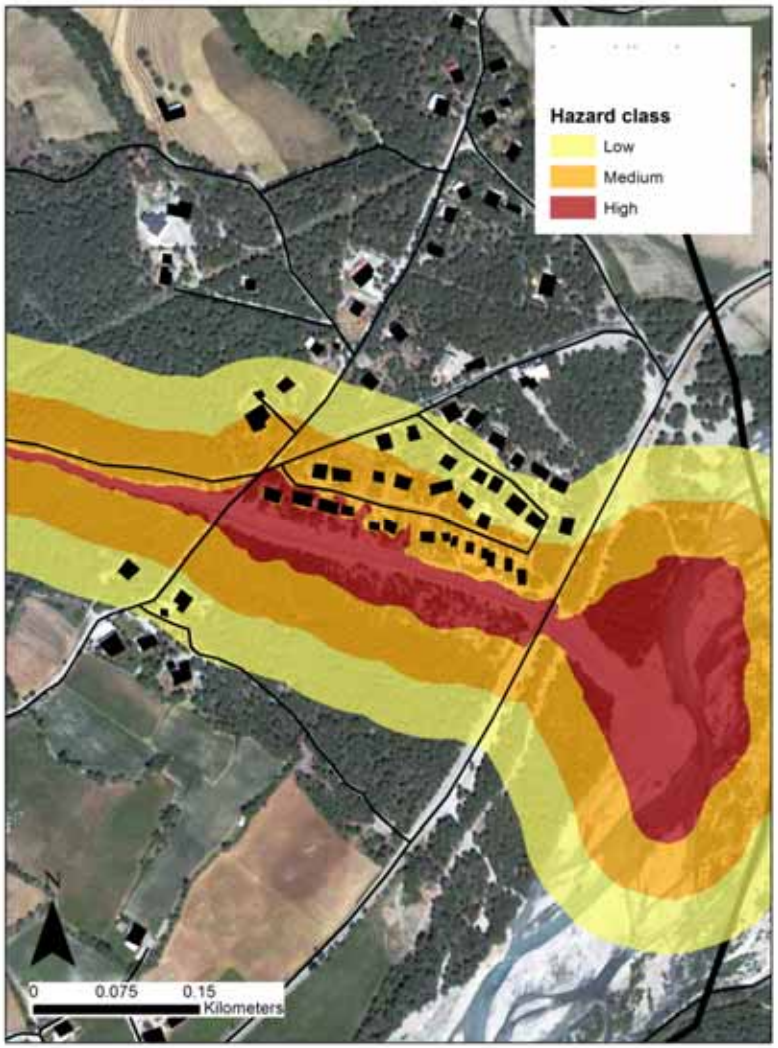
Intersecting hazard map and elements at risk

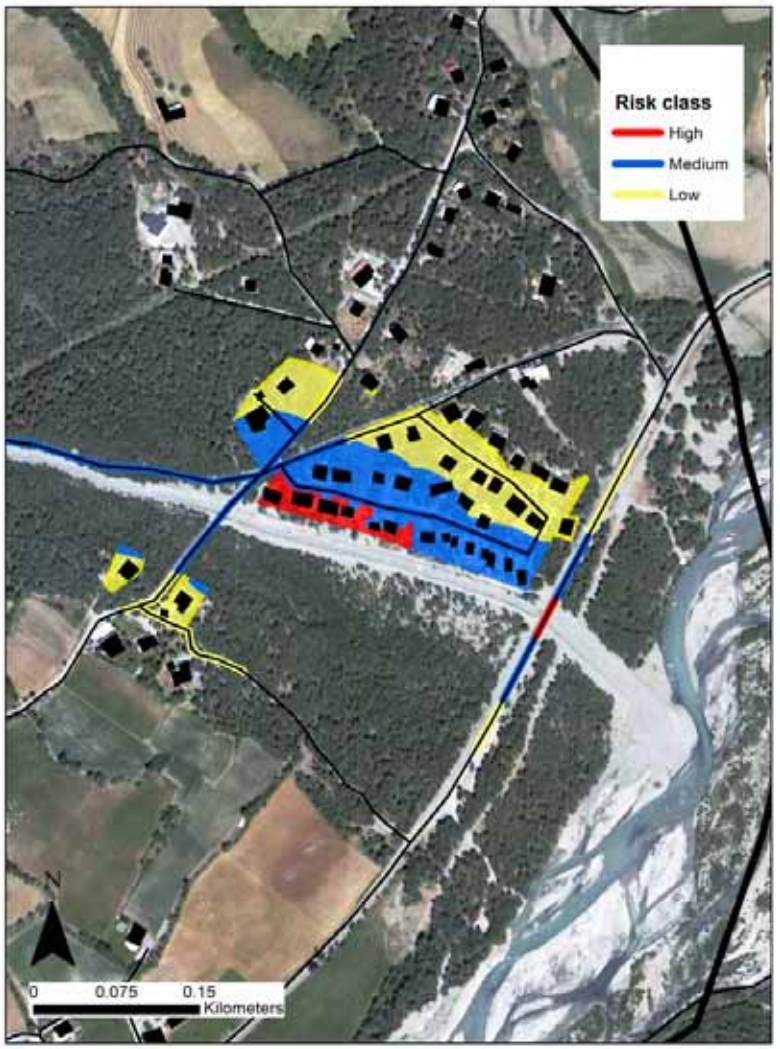
- Different risk classes
  *only for built areas!

SEMI-QUANTITATIVE MATRIX					
		STAKE			
		low	medium	high	
HAZARD	low	1	2	3	
	medium	2	4	6	
	high	3	6	9	



Comparison of hazard and risk map





Comparison of semi-quantitative and qualitative risk maps