**CRESAT**
**University of Haute Alsace (UHA) – Mulhouse – France**

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# Geo-historical approach of the avalanche risk in a medium-high mountain.

# The case of the Vosges (Alsace, France)

V Encontro Nacional e I Congresso Internacional de Riscos
Coimbra, 29 de Maio 2009

**Hohneck, no dated. *Pierre-Marie Davi***

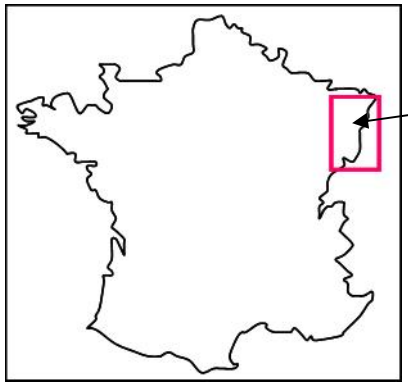
# Plan

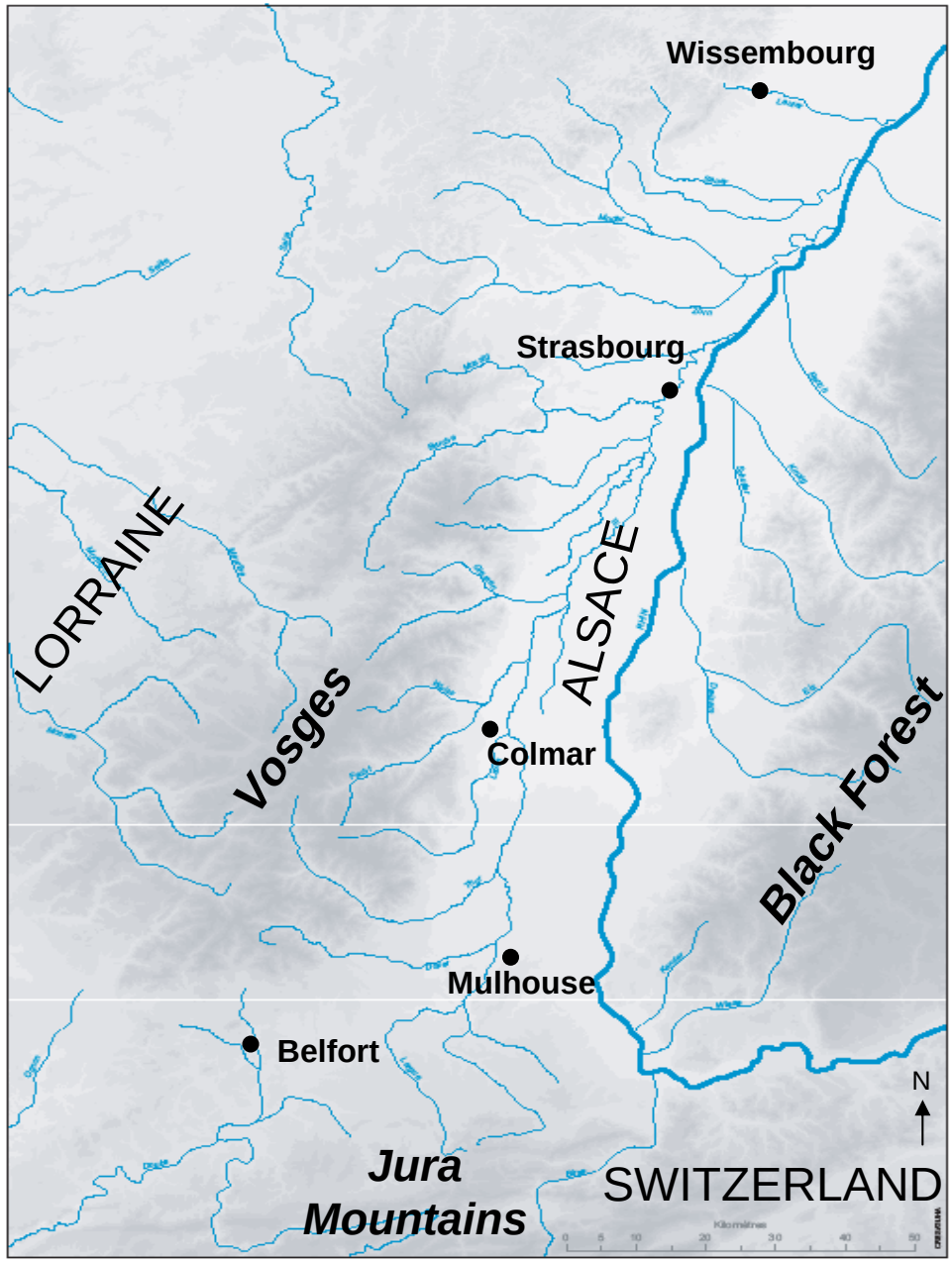
1. Context
2. Factors of underassessment of the avalanche risk
3. Results
4. Applications
5. Conclusion

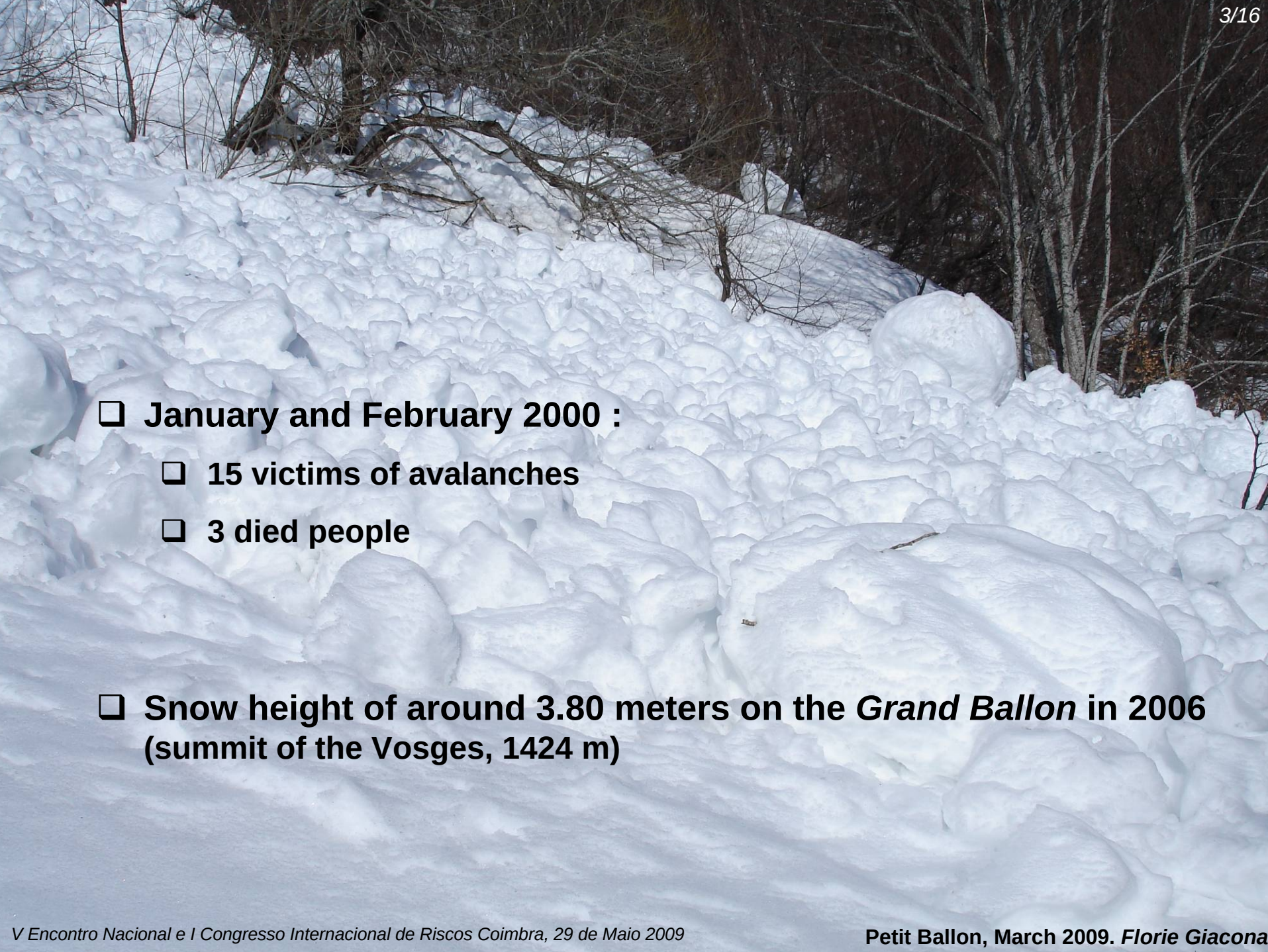


**Wormspel, 2004. *Alain Niquet***

# The Vosges range





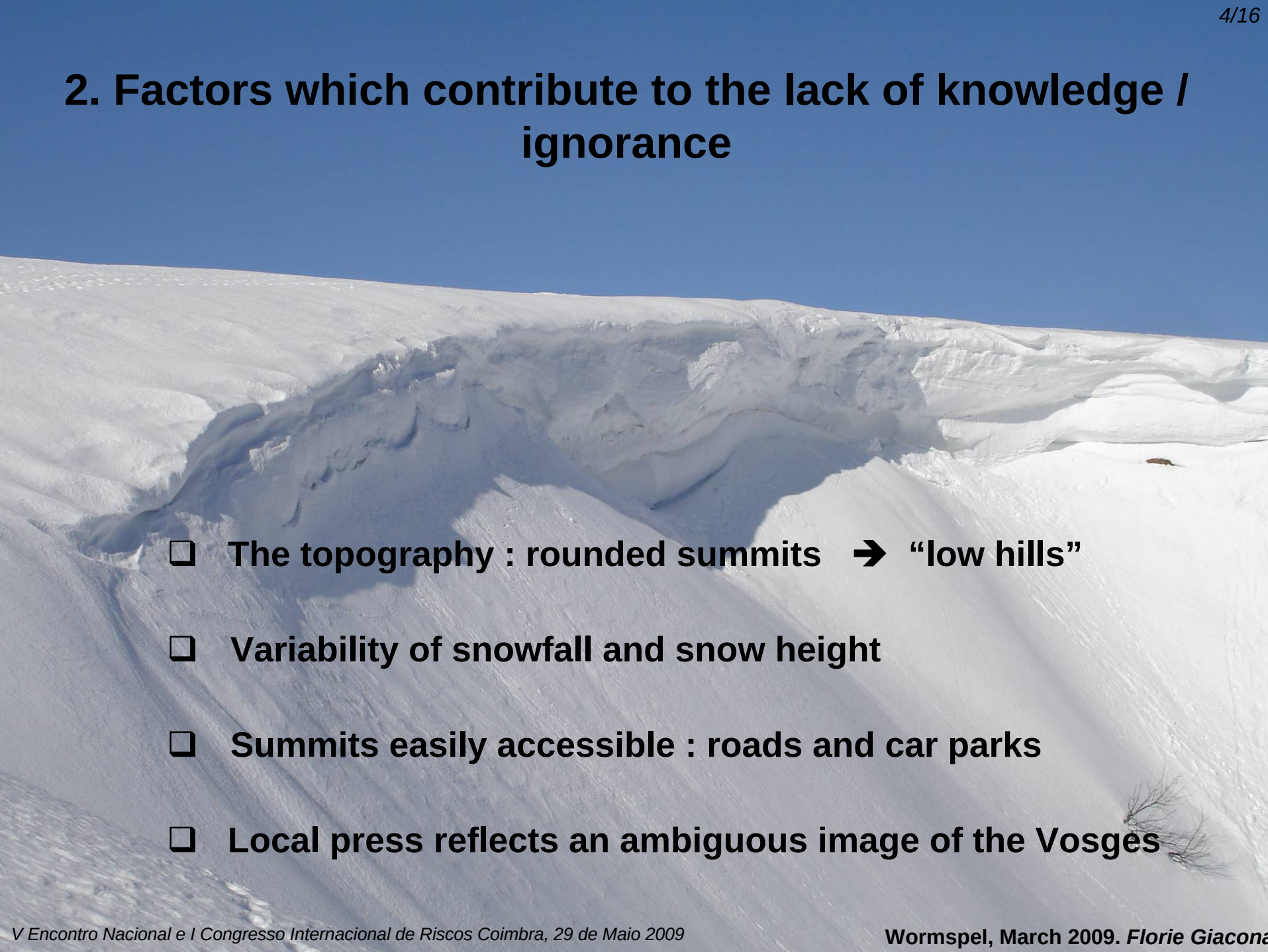
- **January and February 2000 :**
  - **15 victims of avalanches**
  - **3 died people**

- **Snow height of around 3.80 meters on the *Grand Ballon* in 2006 (summit of the Vosges, 1424 m)**



**Petit Ballon, March 2009. *Florie Giacona***

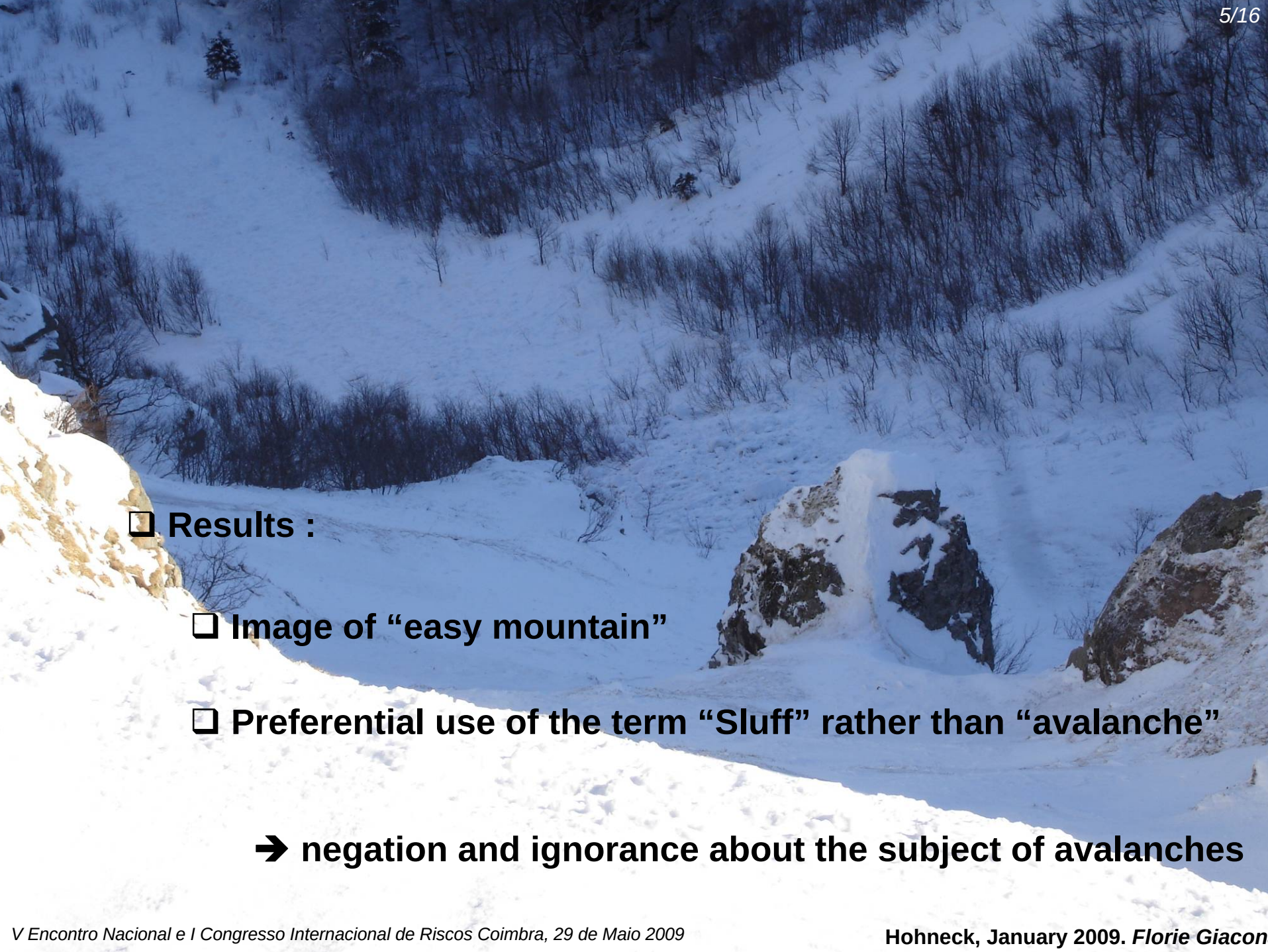
# 2. Factors which contribute to the lack of knowledge / ignorance



- **The topography : rounded summits ➔ “low hills”**
- **Variability of snowfall and snow height**
- **Summits easily accessible : roads and car parks**
- **Local press reflects an ambiguous image of the Vosges**



**Wormspel, March 2009. *Florie Giacona***



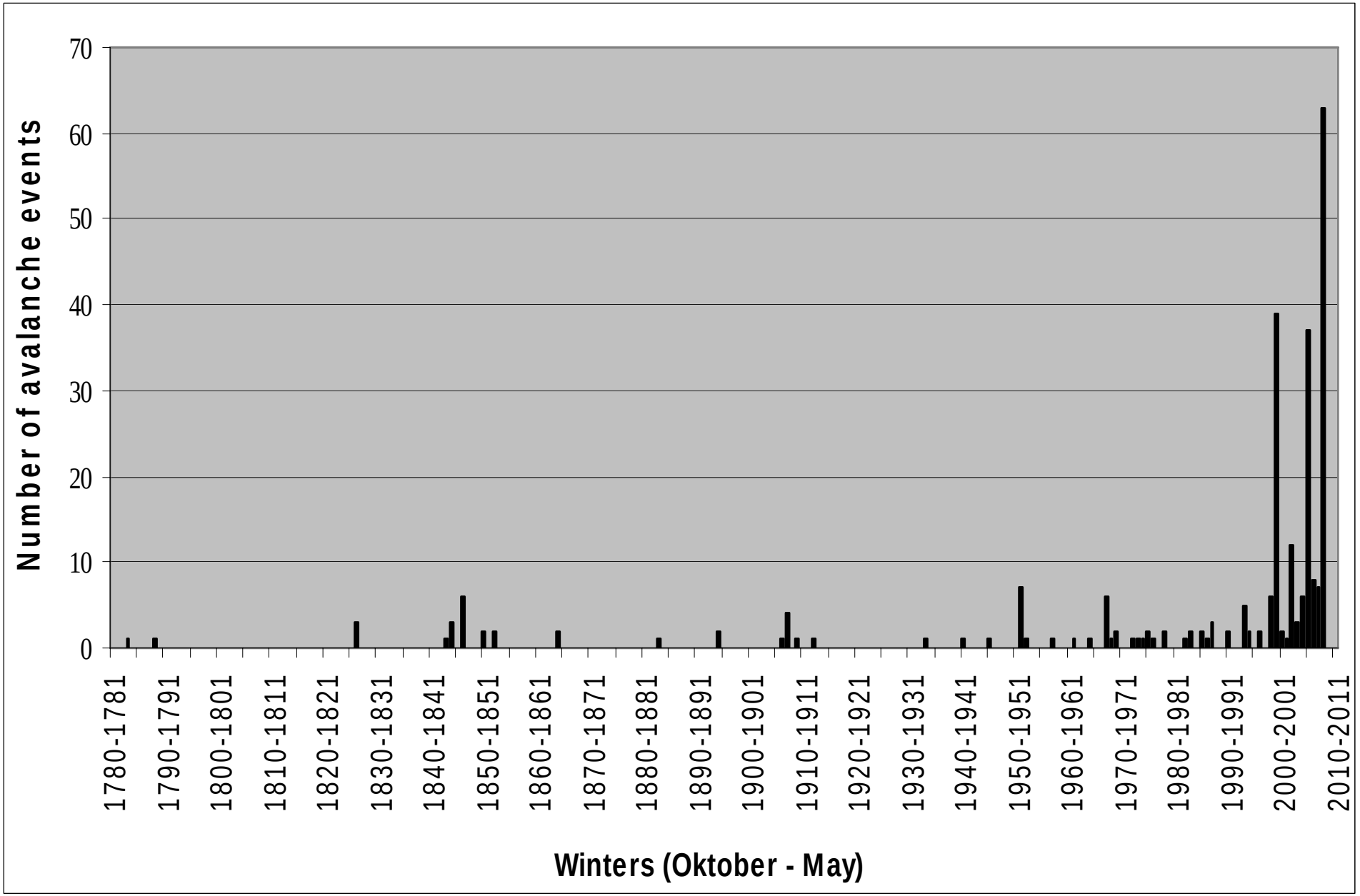
- **Results :**
  - **Image of “easy mountain”**
  - **Preferential use of the term “Sluff” rather than “avalanche”**

➔ **negation and ignorance about the subject of avalanches**



**Hohneck, January 2009. *Florie Giacon***

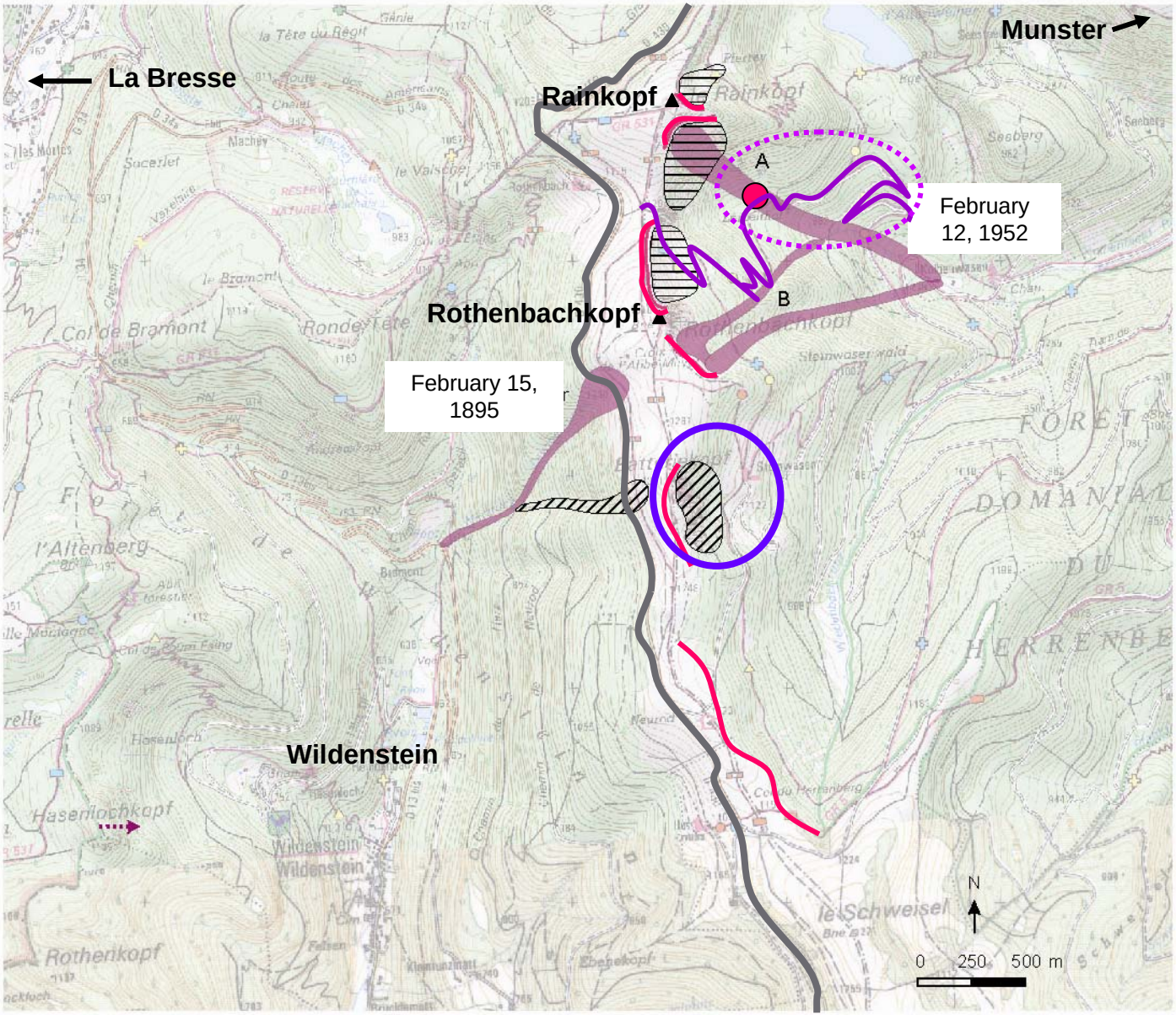
# 3. Chronology



**Sediments of an avalanche (stones, trees,…) in a valley (Wildenstein). February 1895.**
***Michel Cueny***

**Cirque Ammelthal, March 2009. *Florie Giacona***

# Localization of the avalanche paths in the sector of the Rainkopf-Rothenbachkopf

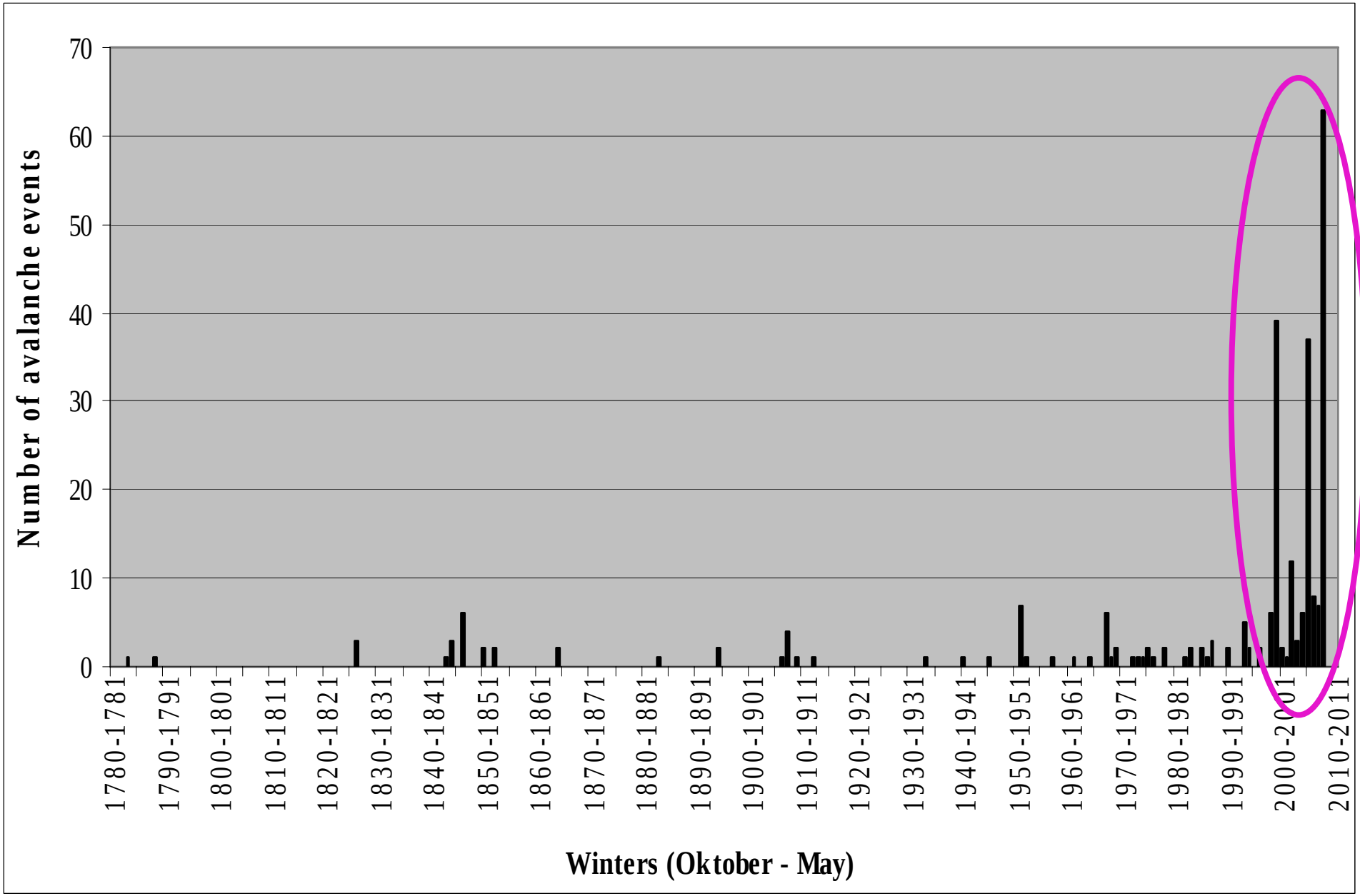



## Legend

- Probable path of avalanche events
- Area of avalanches
- Cornices formation
- Probable path of avalanche : strait channel / passage
- Area where probable avalanches take place (incomplete information)
- Crests road
- Area where a farm was destructed in the 19th century
- Path probable followed in winter in the past (trade between valleys)
- Area where two persons died in the middle of the 19th century

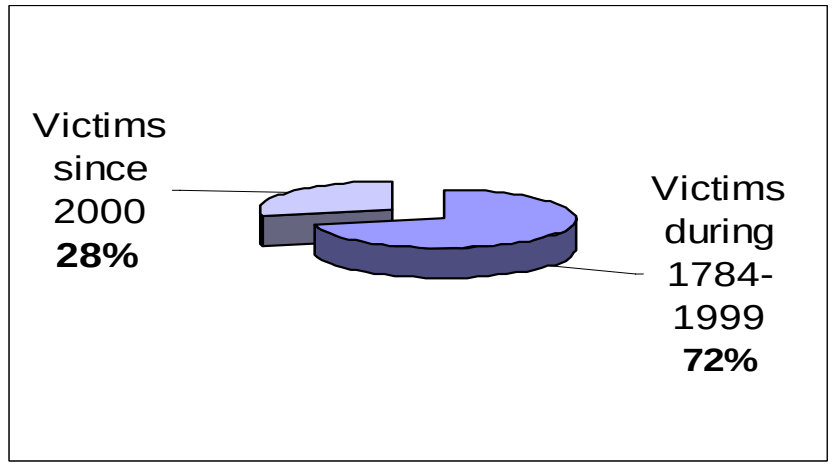
Authors : F. Giacona, J.-P. Droux, 2008
Sources : departmental archives of the upper Rhine, municipal archives, various literature, press, oral contributions

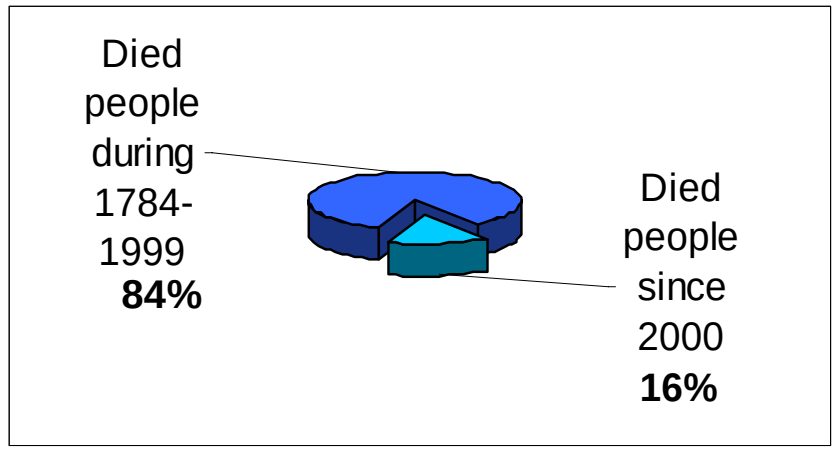
# Chronology


Number of avalanche events
70
60
50
40
30
20
10
0
1780-1781
1790-1791
1800-1801
1810-1811
1820-1821
1830-1831
1840-1841
1850-1851
1860-1861
1870-1871
1880-1881
1890-1891
1900-1901
1910-1911
1920-1921
1930-1931
1940-1941
1950-1951
1960-1961
1970-1971
1980-1991
1990-1991
2000-2001
2010-2011
Winters (Oktober - May)

# Type of damage to persons (temporal distribution)

| Type of damage to persons / personal injury | 1784 - 1999 | 2000 - 2009 | Un-known date | *Total* |
|---|---|---|---|---|
| **Victims** | 71 | **28** | 6 | ***105*** |
| Without damage | 12 | 7 | - | *19* |
| Injured | 17 | 8 | - | *25* |
| **Died** | 27 | **5** | - | ***32*** |
| No information | 15 | 8 | 6 | *29* |



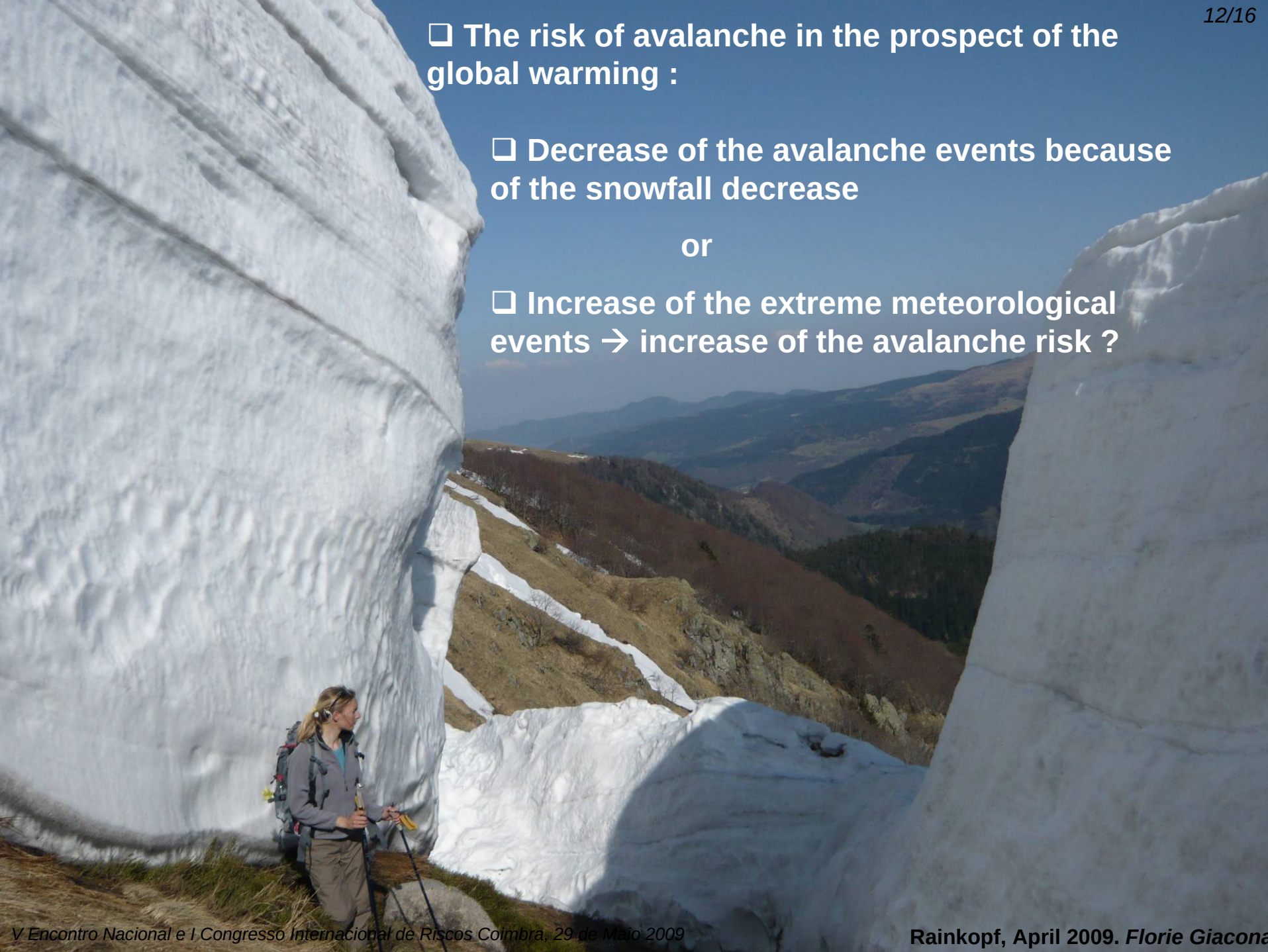



# 4. Applications

**Reflections about :**

- **A specific cartography for medium-high mountain and its practices**
- **A specific typology of avalanche for medium-high mountain**
- **A specific scale for avalanche intensity for medium-high mountain**

➔ **the sluffs kill** **(presence of trees in the avalanche paths because of the increase of the reafforestation)**

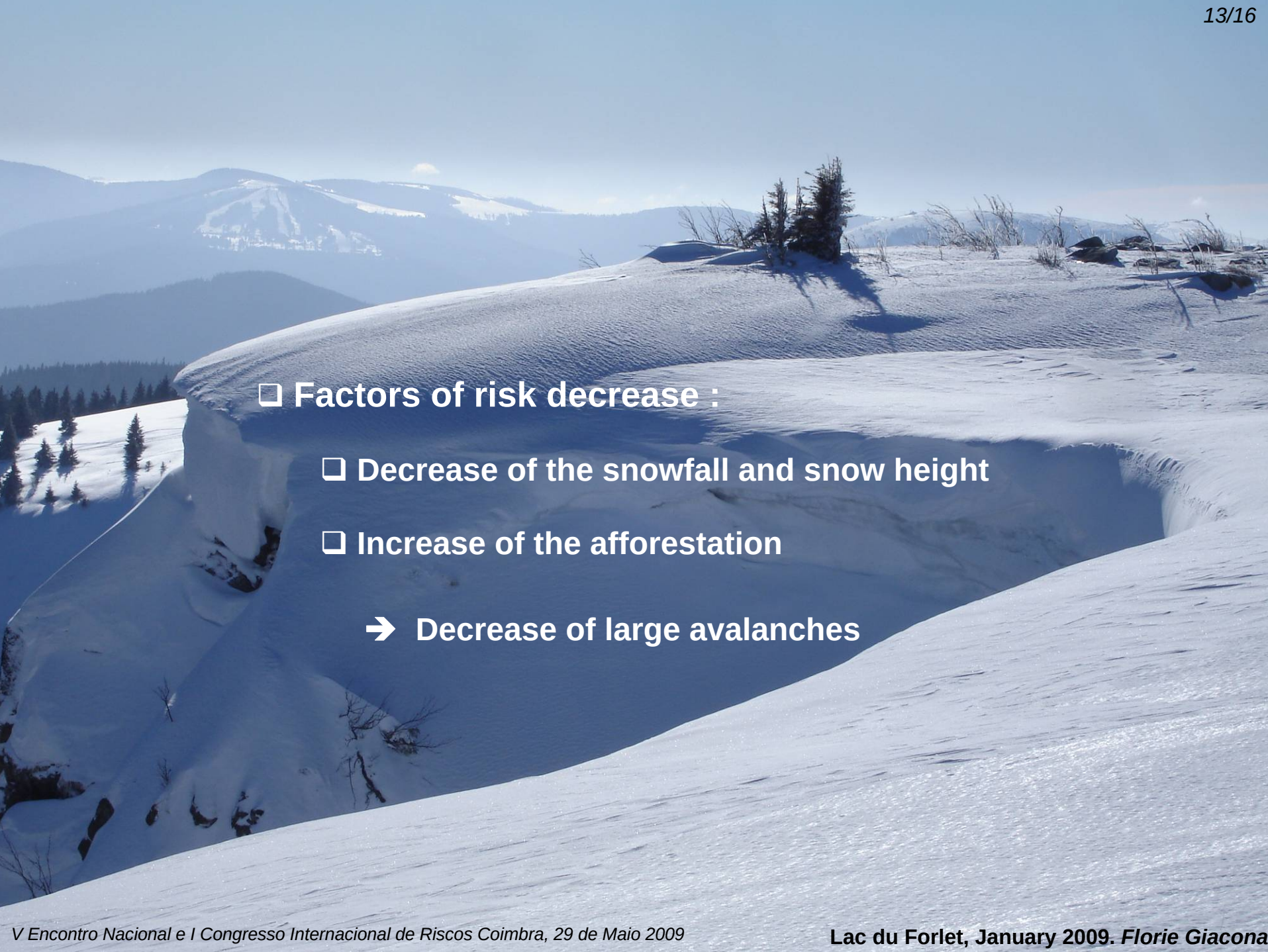


- **The risk of avalanche in the prospect of the global warming :**
  - **Decrease of the avalanche events because of the snowfall decrease**

    **or**
  - **Increase of the extreme meteorological events → increase of the avalanche risk ?**



**Rainkopf, April 2009. *Florie Giacona***



- **Factors of risk decrease :**
  - **Decrease of the snowfall and snow height**
  - **Increase of the afforestation**
    - ➔ **Decrease of large avalanches**



**Lac du Forlet, January 2009. *Florie Giacona***

- **Factors of risk aggravation :**
  - **Increase of the recreationists**
  - **Variability of the avalanche occurrences because of the variability of snowfall**
  - **Easy accessibility of the summits**
  - **Decrease of the knowledge of the Vosges range, lack of memories and representation of “low hills”**
  - **Increase of the afforestation**



**Cornice, Wormspel, December 2008. *Florie Giacona***

➔ current increasing of the avalanche risk

Petit Ballon, December 2008. Background : the Black Forest. http://vosgesfreeride.zeblog.com/c-petit-ballon/page/6

# Thanks for your attention

Skiers, end of the 1920s. ***René Blintz***