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Characterization of winter season 09/10 and its consequences with particular emphasis on peculiar avalanche accidents within the Slovak mountain area



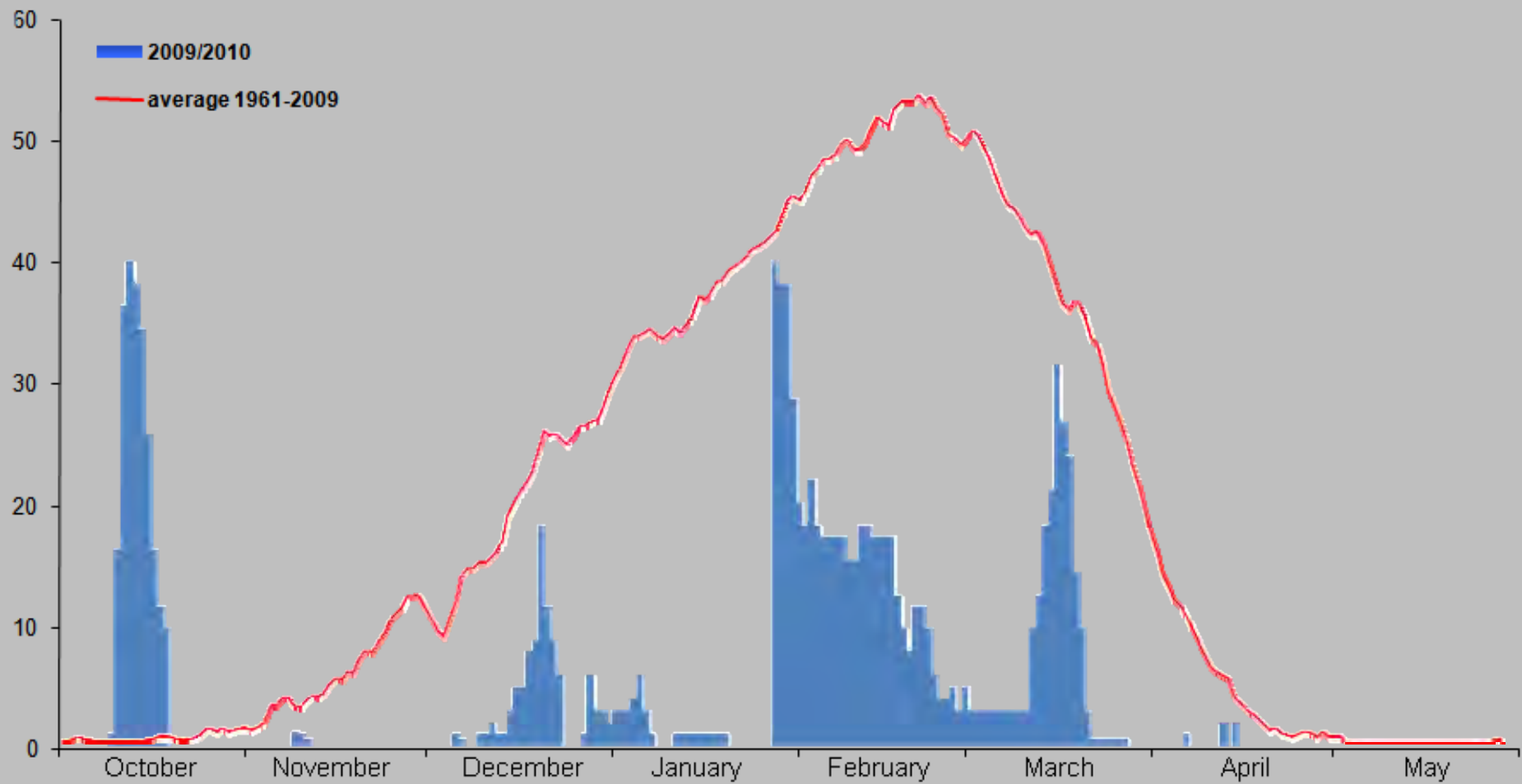


Aims

- Highlight the conditions leading to avalanche accidents
- Focus on decision failures
- Describe applied rescue strategies
- Draw attention to peculiar cases
- Find relationship between human decision errors and factors contributing to fatalities



Snow height [cm], PODBANSKÉ 972 m a.s.l.





Snow height [cm]

CHOPOK
2005 m a.s.l.

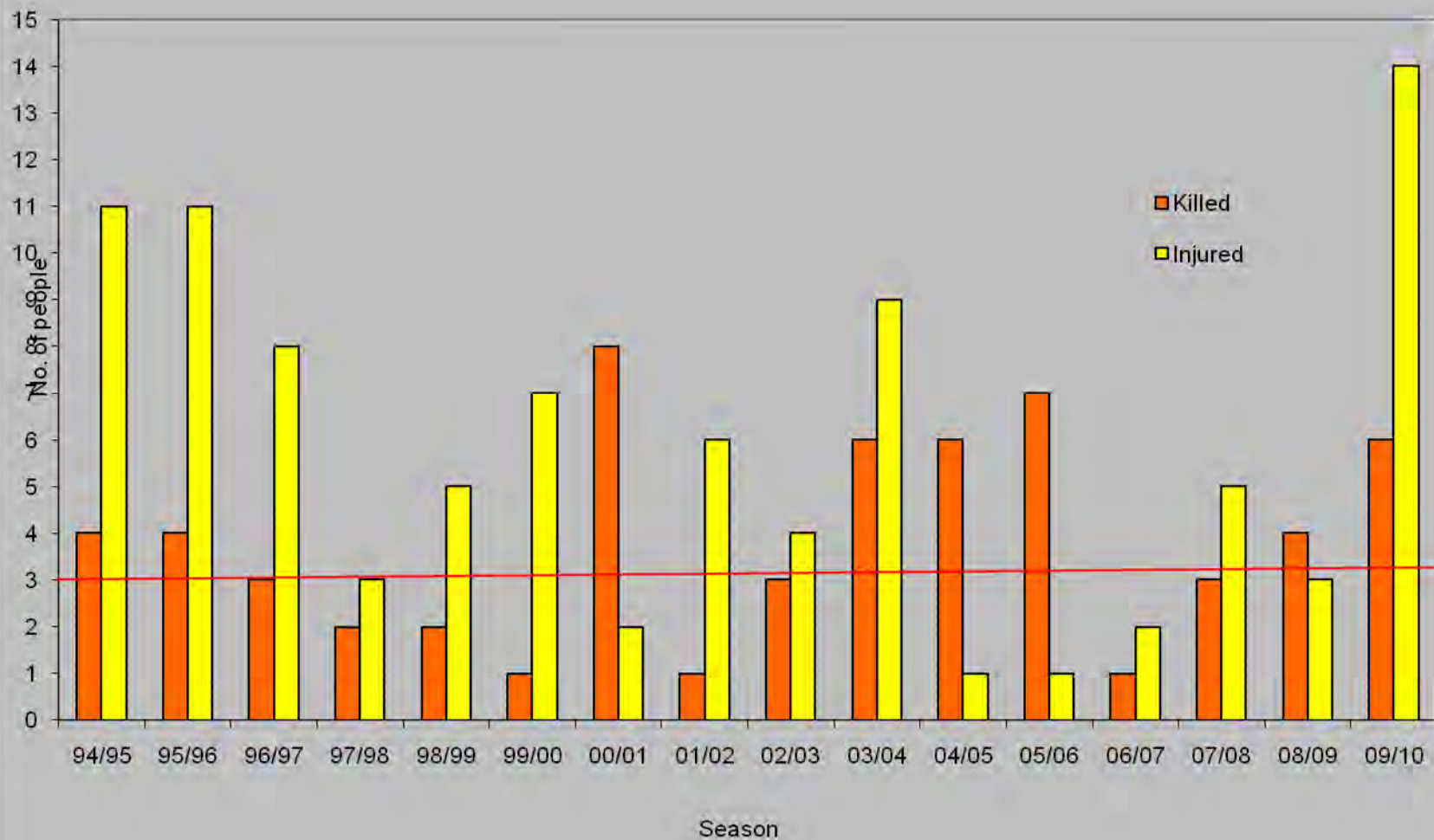


ŠTRBSKÉ PLESO
1354 m a.s.l.



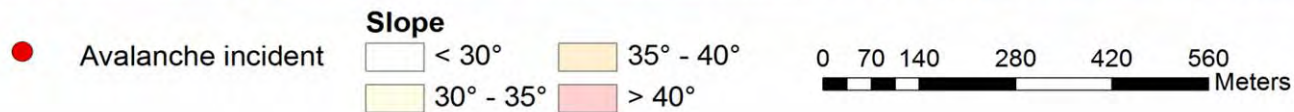
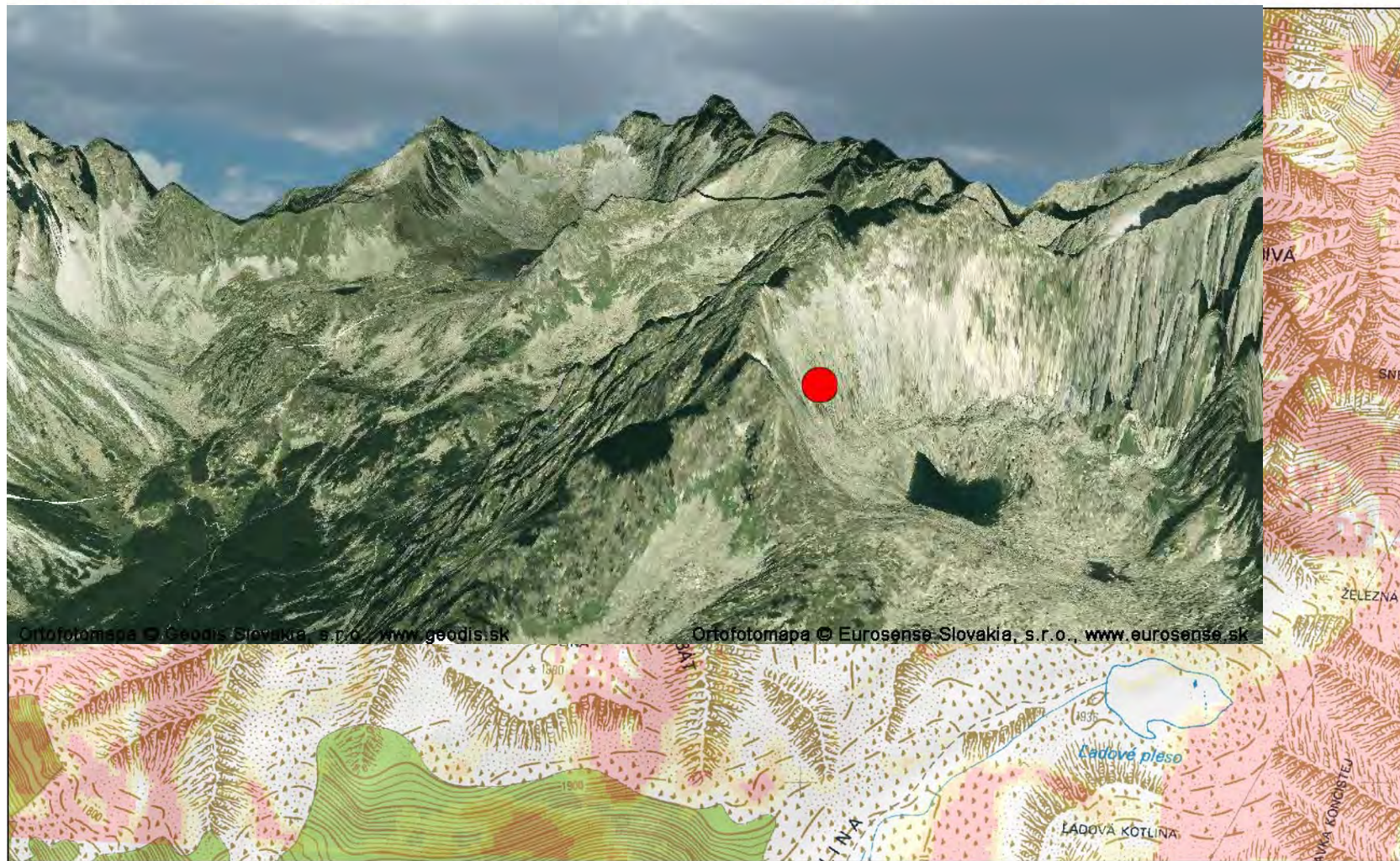


Number of people killed and injured by an avalanche
(1995 - 2010)





Avalanche incident - Dračia valley 2. 1. 2010, High Tatras

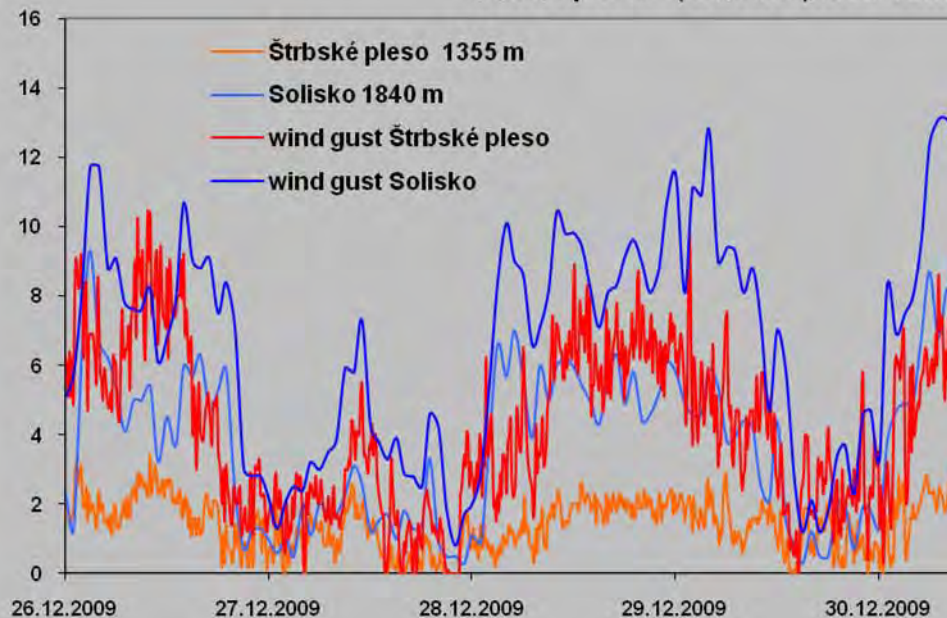




Avalanche Danger Vysoké Tatry



Wind speed (Štrbské pleso 10m)



Snow profile

02.01.2010/17:00

Location: VT - Dracia dolinka

Elevation: 2250 m

Date/Time:

Observer: Palo Kuna

Aspect: Východná

Precipitation: sneženie

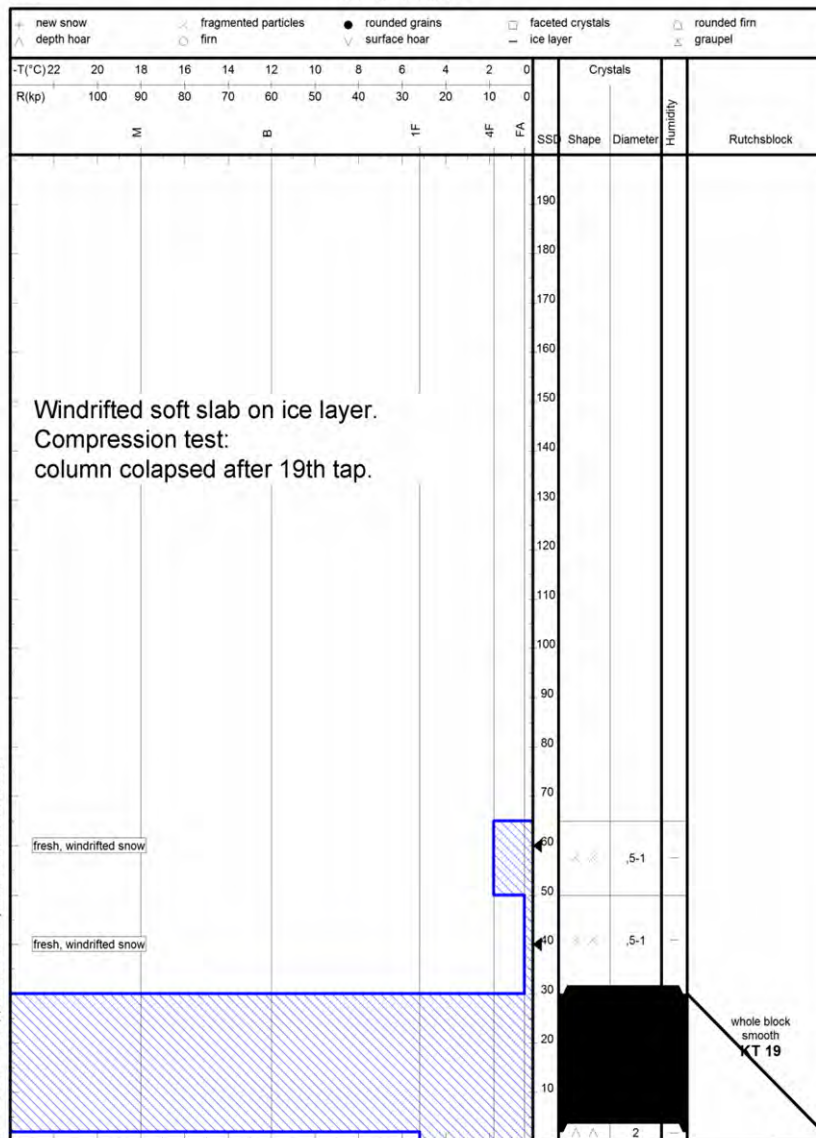
Slide layer position: 30 cm Slope: 45 °

Wind: 4 m/s; direction: 180 °

Temperature: -12,0 °C

Notes:

Cloud amount: Zamračené

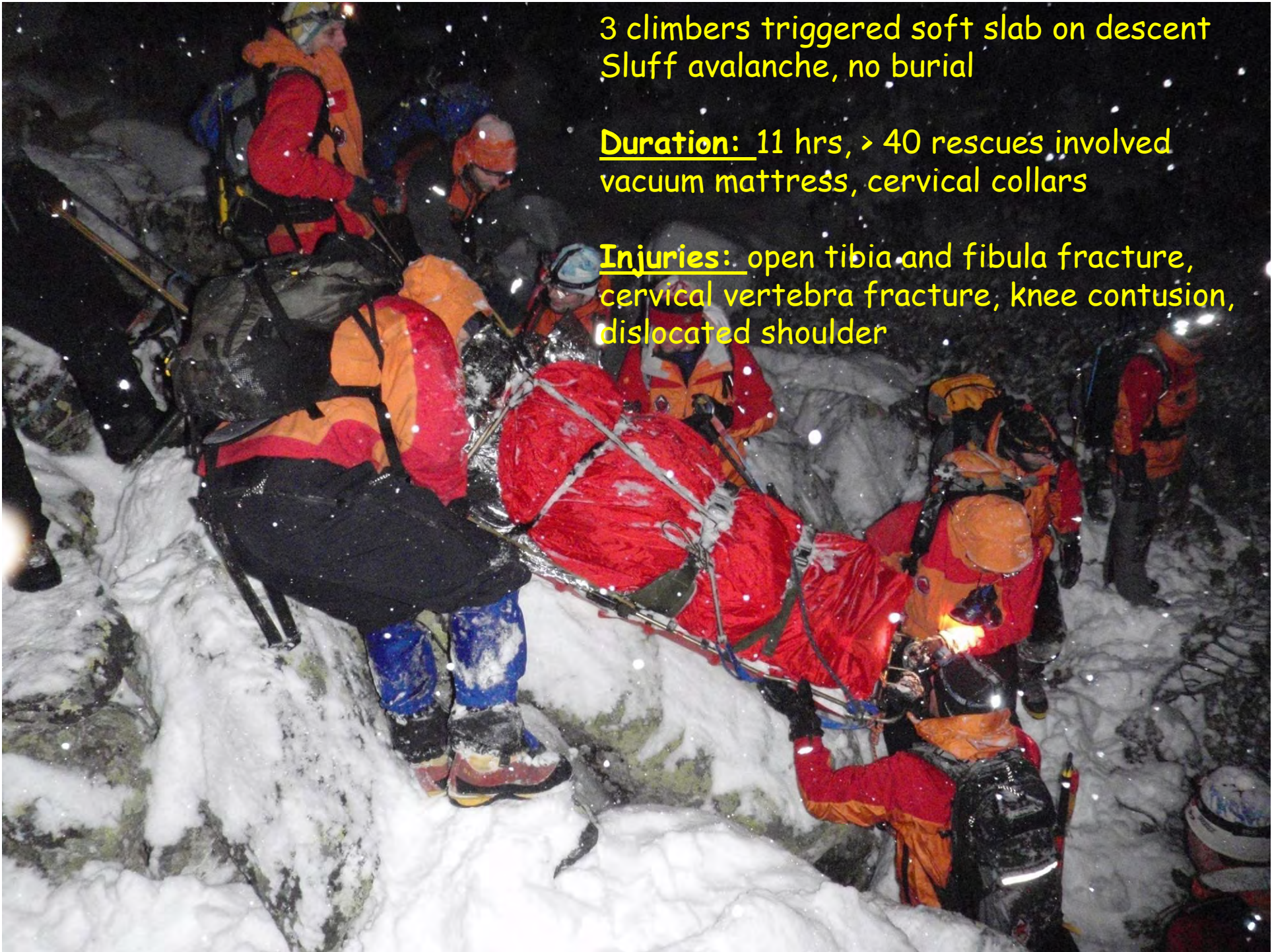


SPP Version 2.1.1.37 (c) Sommer Mess-Systemtechnik, A-6842 Koblach

3 climbers triggered soft slab on descent
Sluff avalanche, no burial

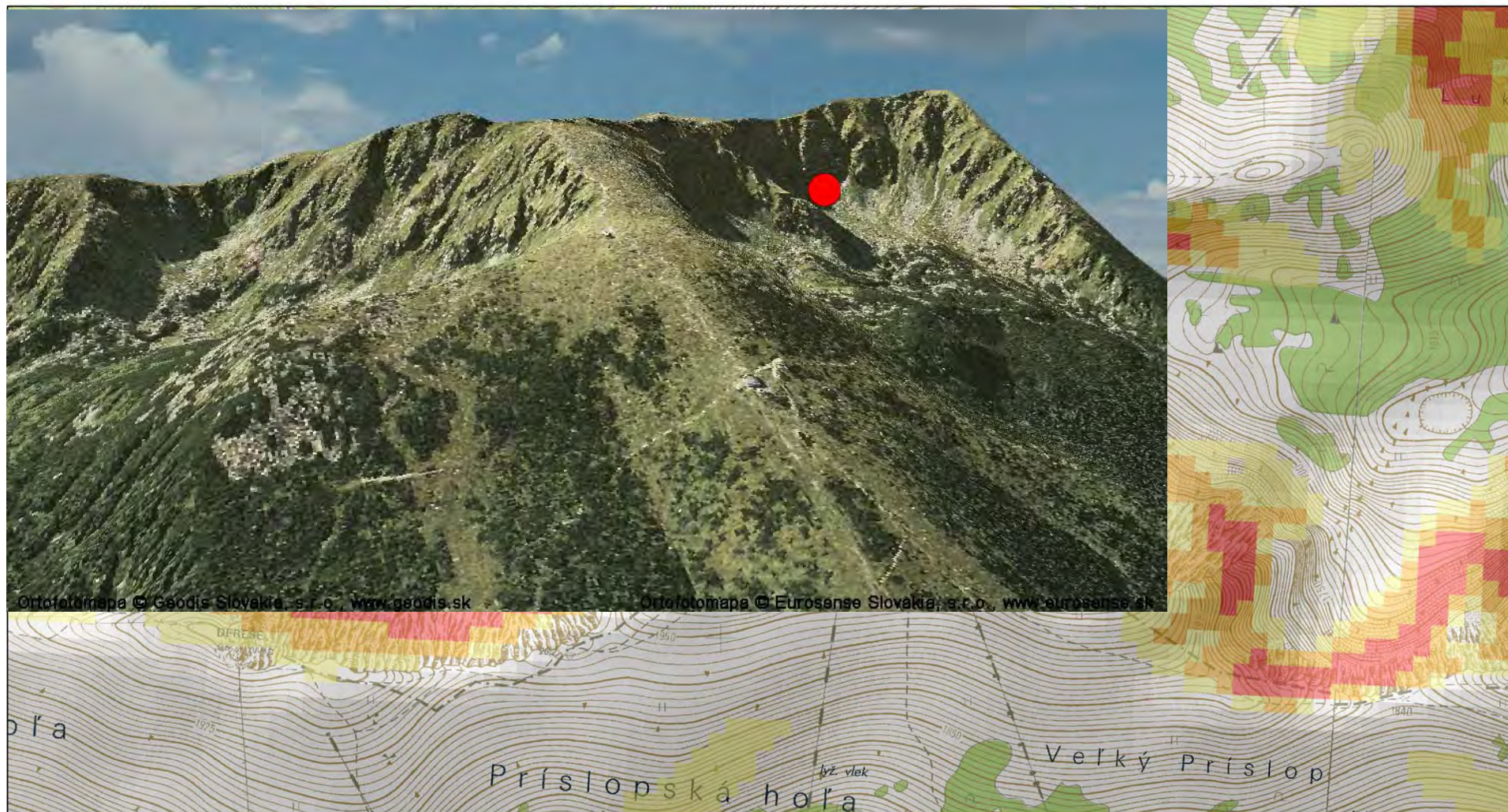
Duration: 11 hrs, > 40 rescues involved
vacuum mattress, cervical collars

Injuries: open tibia and fibula fracture,
cervical vertebra fracture, knee contusion,
dislocated shoulder



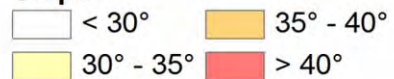


Avalanche incident - Dereše 6. 2. 2010, Jasná, Low Tatras



● Avalanche incident

Slope

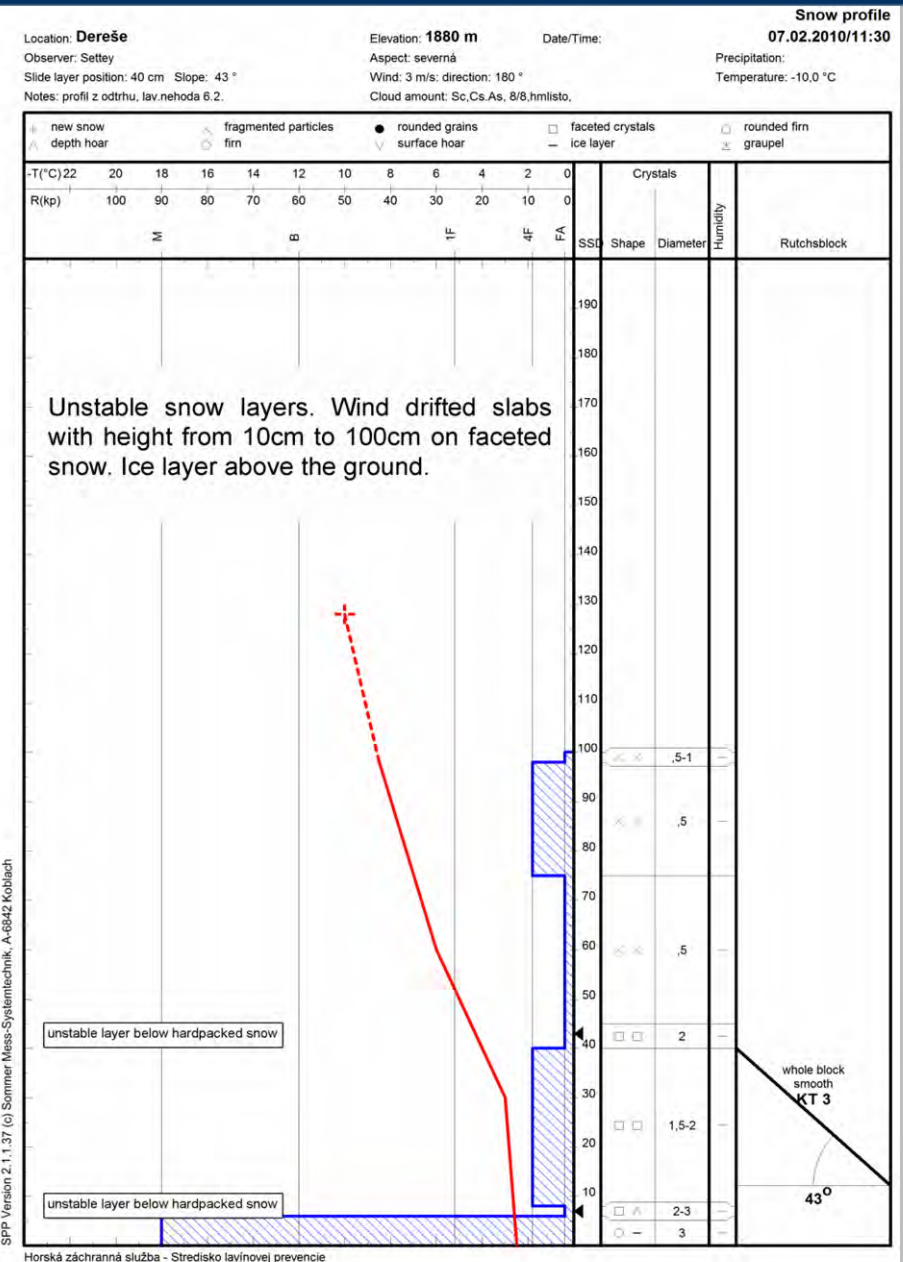
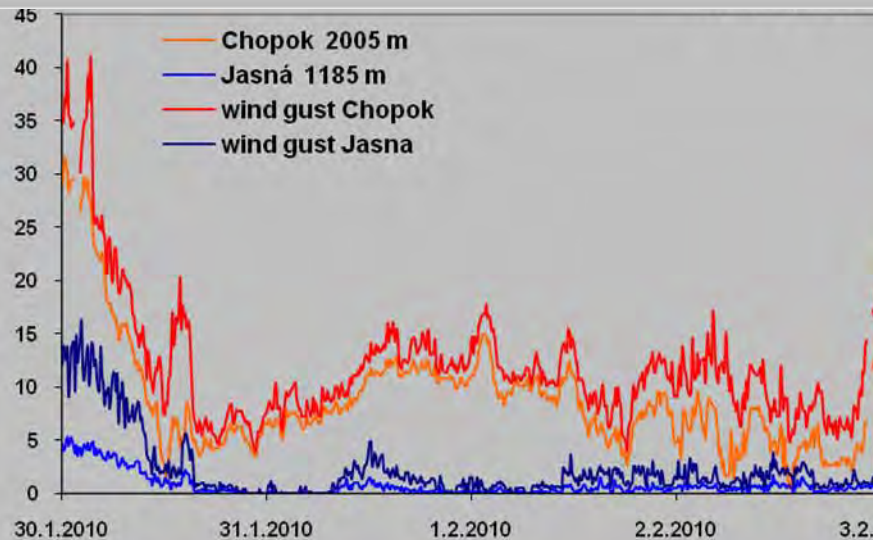
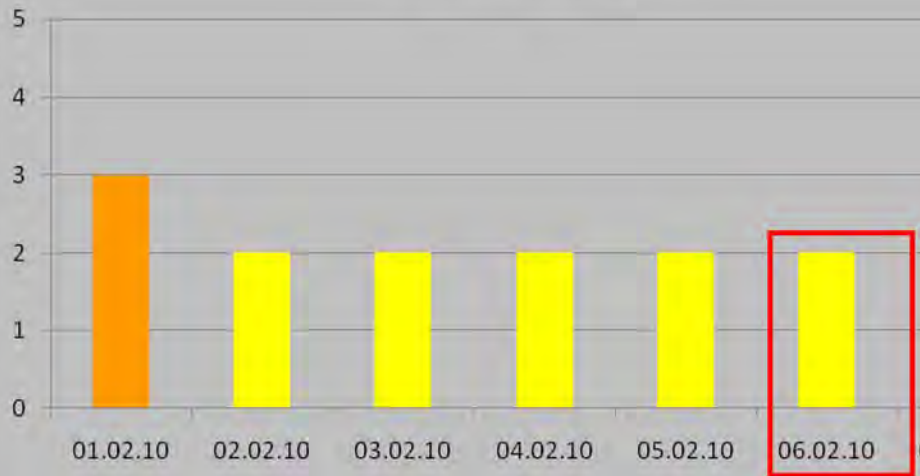


0 50 100 200 300 400
Meters





Level of Avalanche Danger Nízke Tatry





16:00 avalanche triggered
16:13 helicopter take off
16:37 heli landed
16:45 patient on board
17:11 hospital care

3 skiers triggered slab

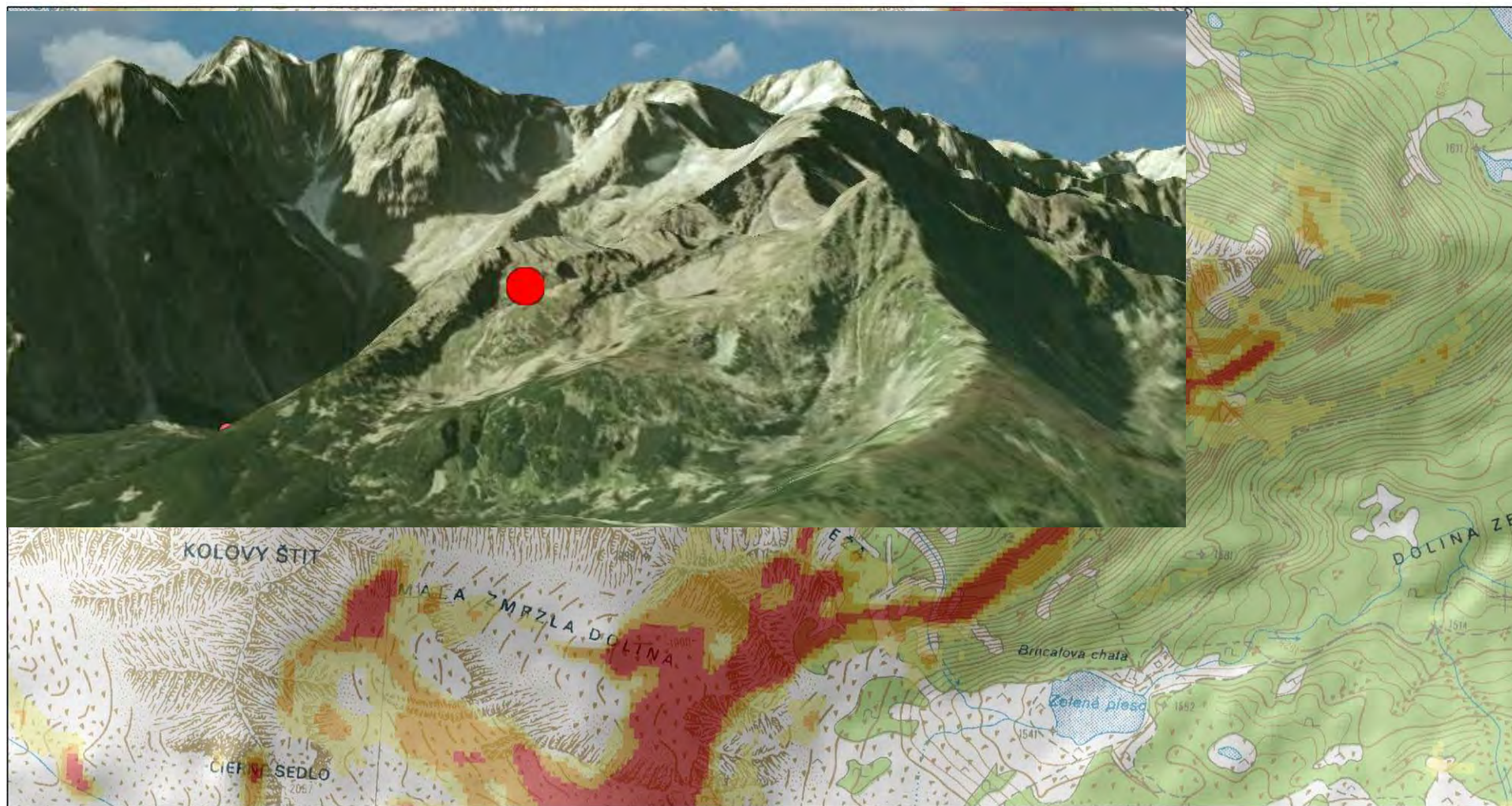
Small avalanche, 2 caught, 1 complete burial (30 min), 1 partial burial

Rescue: 1 avalanche dog, 10 rescues, helicopter transport, NACA: E5

Injuries: unconsciousness, moderate hypothermia 33°C

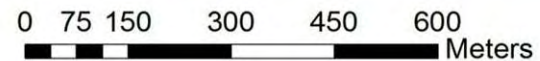


Avalanche incident - Červená valley 1. 3. 2010, High Tatras



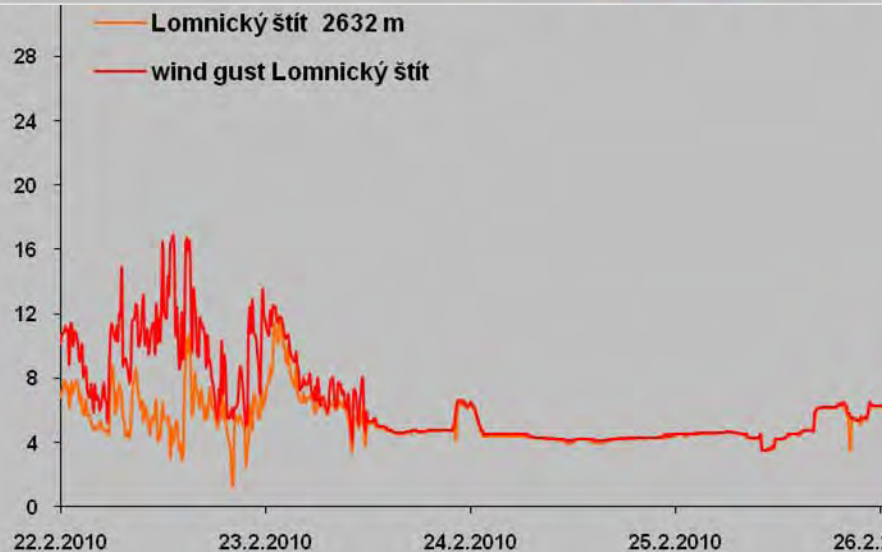
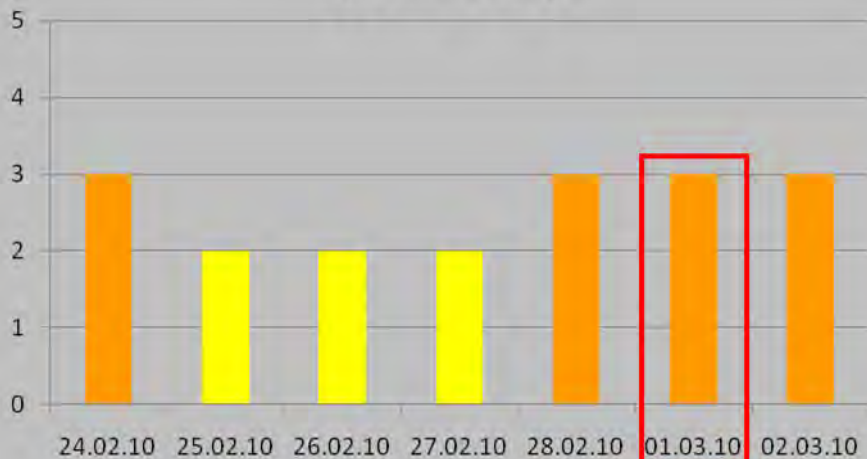
● Avalanche incident

Slope





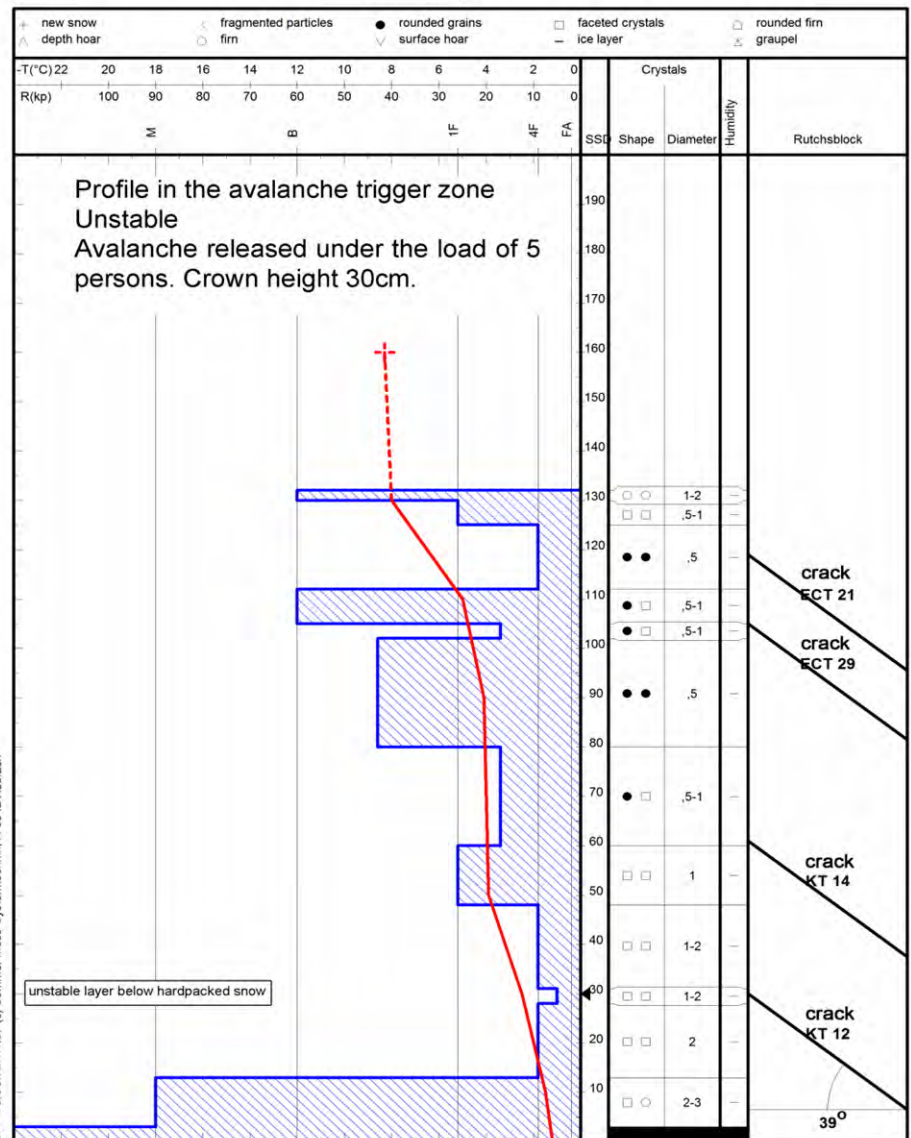
Avalanche Danger Vysoké Tatry



Snow profile

02.03.2010/10:15

Location: VT - Červená dol. - Pod Jastrabím s. Elevation: 1900 m Date/Time:
 Observer: Kyzek, Švanda Aspect: SV Precipitation:
 Slide layer position: — cm Slope: 39 ° Wind: 8 m/s; direction: 290 ° Temperature: -8,3 °C
 Notes: Cloud amount: 1/8



SPP Version 2.1.1.37 (c) Sommer Mess-Systemtechnik, A-6842 Koblach



5 mountaineers triggered a slab
Medium avalanche,
5 caught, 2 complete
burial (10 min), 3 above
the ground

Rescue:

5 rescues, 1 helicopter,
strong wind
NACA: E4,

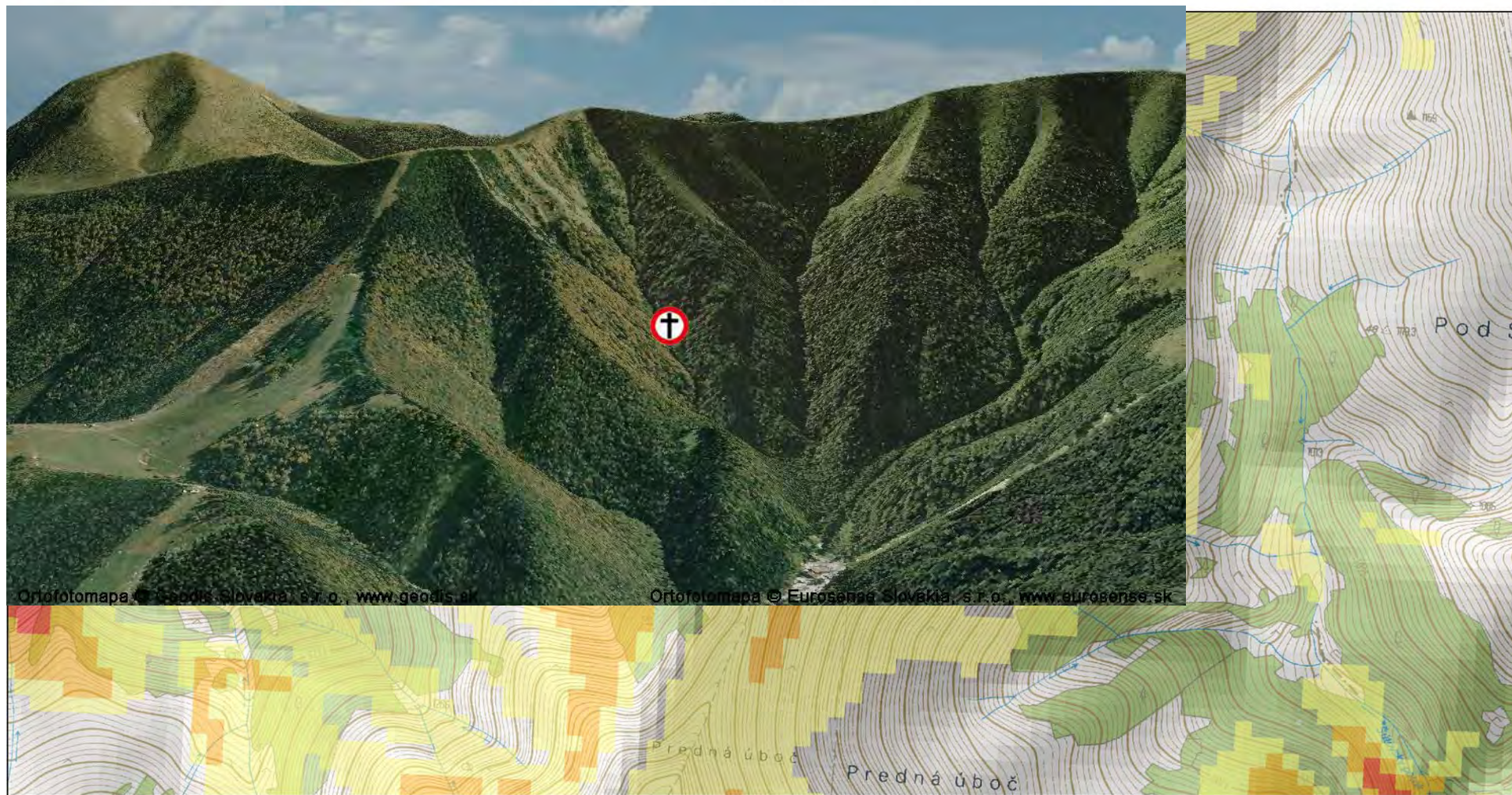
Injuries: unconsciousness,
mild hypothermia, femur
and rib fracture



10:33 helicopter take off
11:05 hoovering
12:05 patient on board
12:17 hospital care

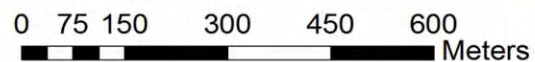
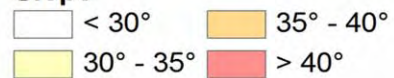


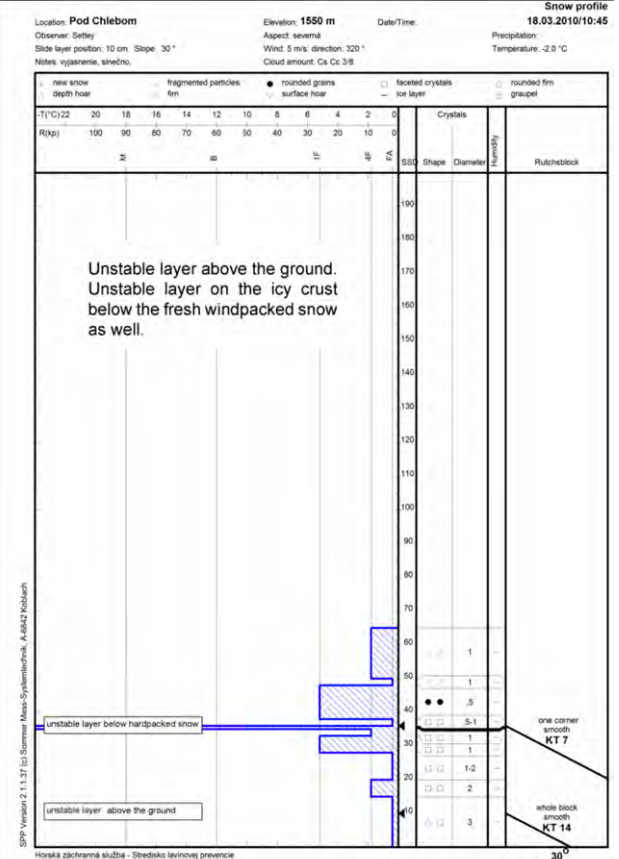
Avalanche incident - Poludňový grúň 17. 3. 2010, Low Fatra



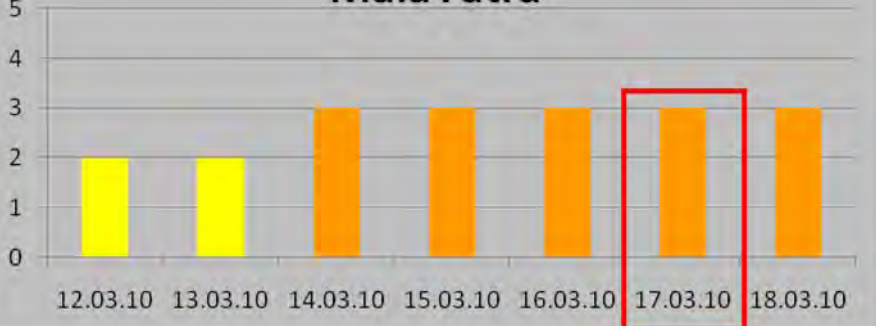
● Avalanche incident

Slope





Avalanche Danger Malá Fatra





2 snowboarders triggered a slab

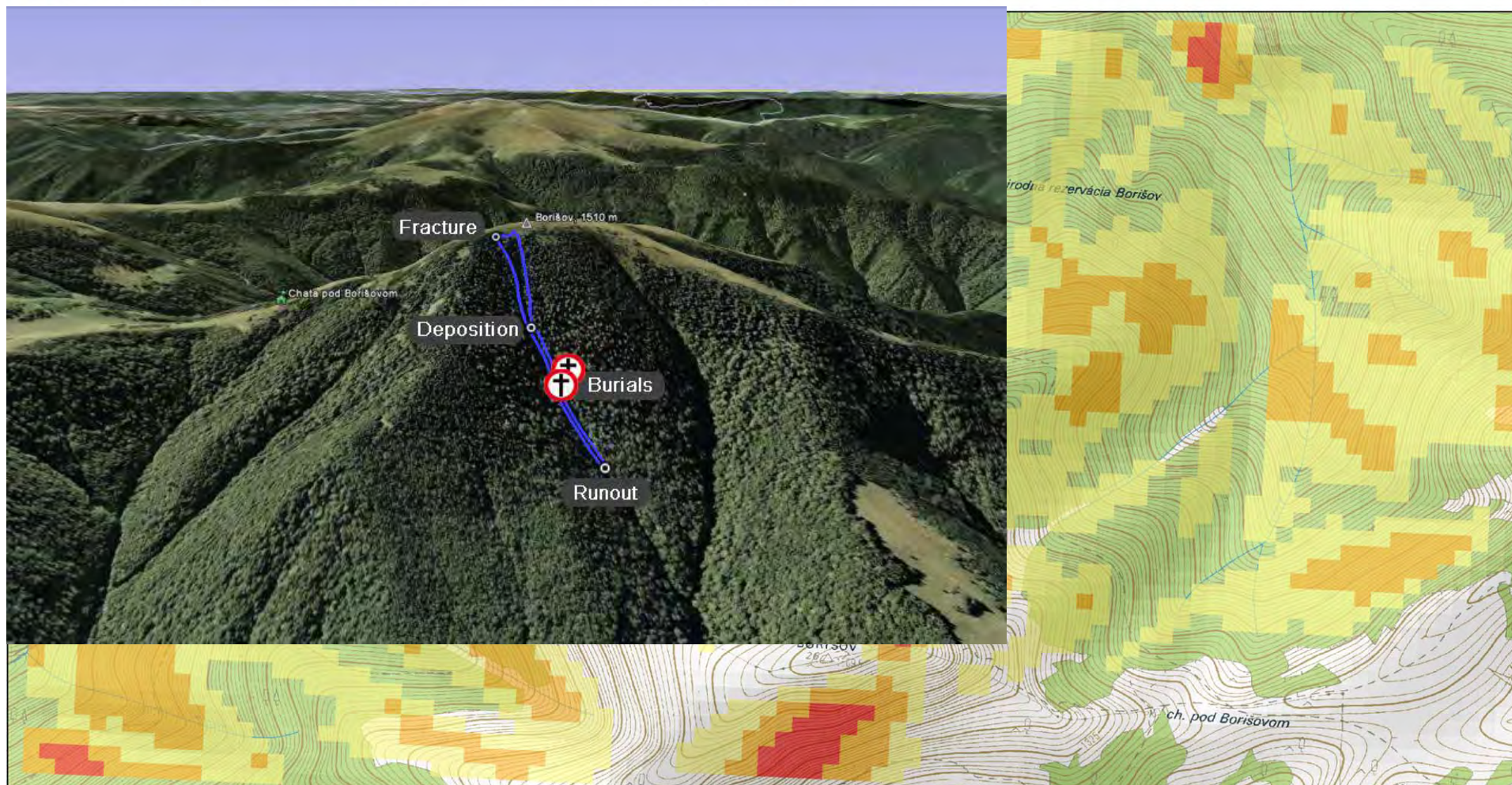
Sluff, 2 caught, 1 complete burial - deceased, 1 partial

Rescue: 6 rescues, helicopter, NACA: E4, E7 burial time > 40min, no air pocket

Injuries: mild hypothermia
suffocation

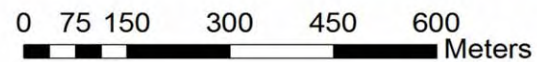


Avalanche incident - Borišov 22. 3. 2010, High Fatra



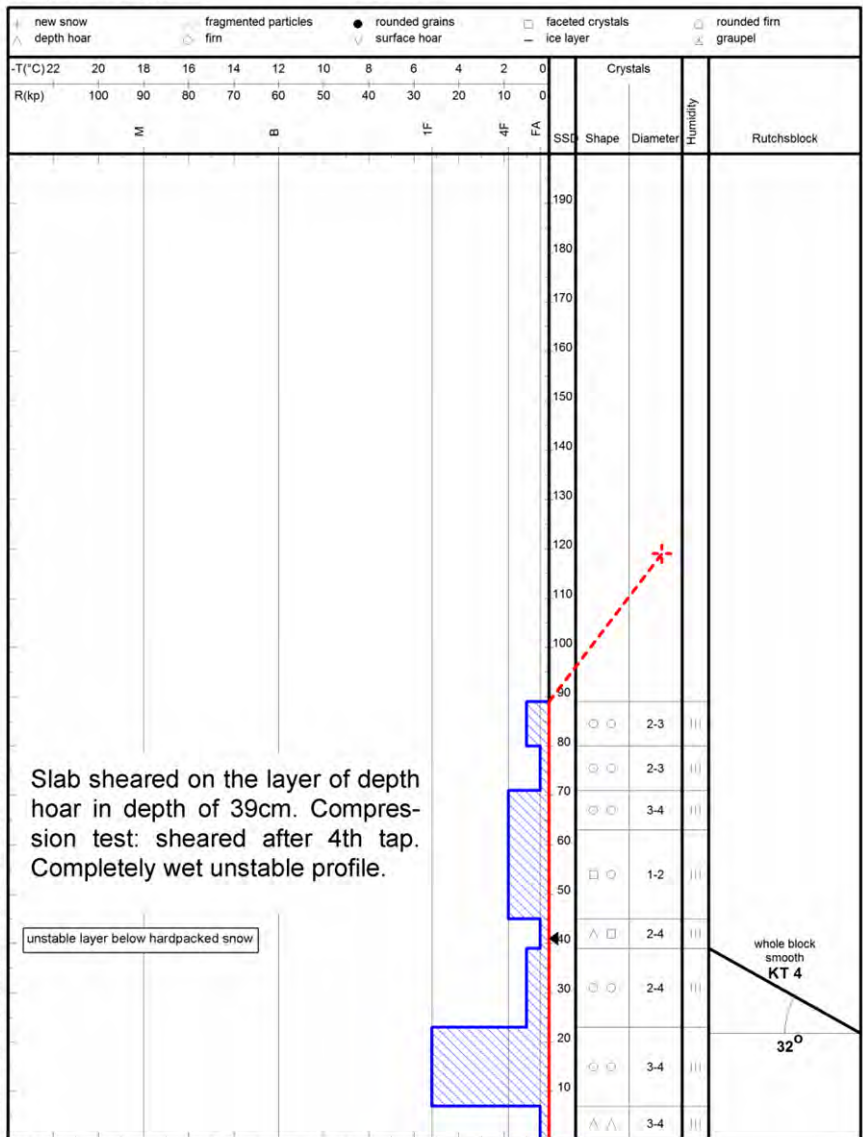
● Avalanche incident

Slope



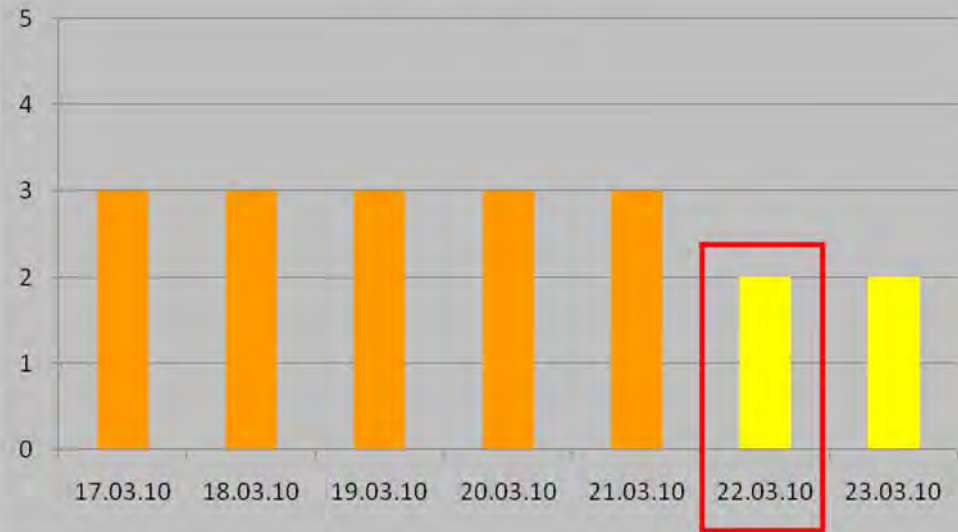


Snow profile
 Location: **Borišov sever** Elevation: **1480 m** Date/Time: **23.03.2010/10:30**
 Observer: J. Peťo, F. Kyzek Aspect: **sever** Precipitation: **bez**
 Slide layer position: --- cm Slope: **32°** Wind: **5 m/s; direction: 270°** Temperature: **5.0 °C**
 Notes: **profil v odtrhu lavíny-nešťastie** Cloud amount: **4/8**



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Avalanche Danger Veľká Fatra





3 telemarkers triggered a wet medium sized avalanche
3 caught, 2 complete burial - deceased, 1 above the ground
NACA: E7, burial time > 1hr, no air pocket

Low batteries in avalanche beacon!

Rescue: 14 rescues, 4 dogs, 2 helicopters



Summary

Caught (Total - 23 people)

Season 2009/2010



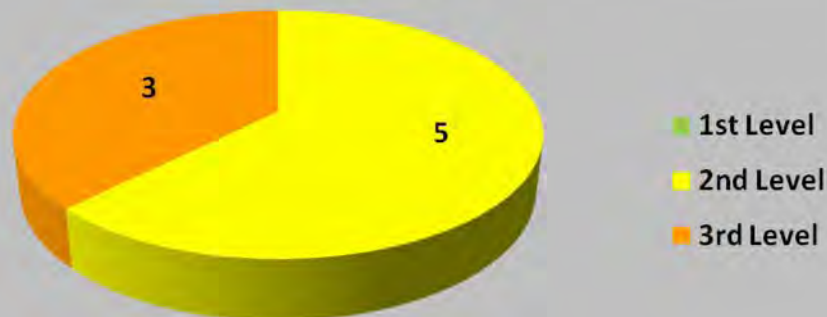
Caught (Total - 23 people)

Season 2009/2010



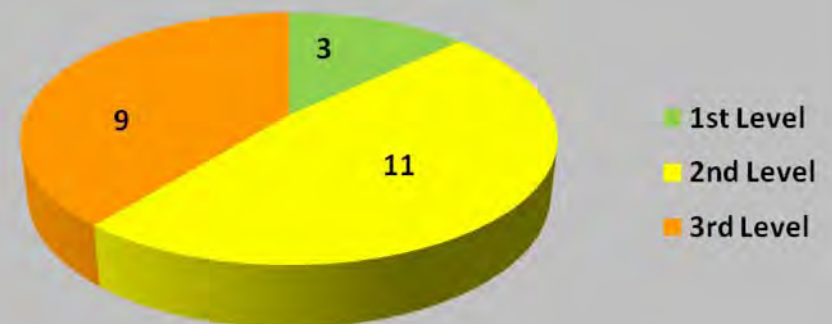
Burials by Level of Avalanche Danger (Total - 8 people)

Season 2009/2010



Caught by Level of Avalanche Danger (Total - 23 people)

Season 2009/2010





Conclusion

Education

www.hzs.sk
wap.hzs.sk



TIESŇOVÉ VOLANIE
EMERGENCY CALL **18 300**



Acknowledgments



Mountain Rescue Service/Centre for Avalanche Prevention



Faculty of Science, Charles University in Prague



Air Transport Europe Ltd.



Anna Pasek Foundation