



Mountain safety in snow surveys

G.Burelli¹, M. Curtaz¹, A. De Checchi³, **P.Dellavedova¹**, E.Motta¹, J.P.Fosson¹

¹ Fondazione Montagna Sicura, Villa Cameron, Località Villard de la Palud 1,
11013 Courmayeur (AO), Italy;

³ Safety engeneer of Fondazione Montagna sicura



The first aim of **Fondazione Montagna sicura** (www.fondazionemontagnasicura.org) is the mountain safety improvement. Fondazione **employs a pool of experts working on the western Italian Alps to collect data on snow cover and on glaciers in order to issue the avalanche Bulletin of the Valle d'Aosta Region**, to update the glaciers and avalanche cadasters, but also to disseminate a safe approach to mountain activities



An equipped descent during a training course

In **Italy health and safety at work** are regulated by the **Legislative Decree n.81 of April 9th 2008**, which introduced several rules. The employer must provide particular **rules to improve health and safety at work**. First of all he has to assess risks for health and safety at work (providing the **Risk Assessment Document**), to eliminate them and, if it's not possible, to reduce them; he also has to provide the health monitoring of his employees etc.... **Specific training** for hazards at work had been introduced by the Lgs 81/08.



The alpine guide shows some technical aspect of ski-mountaineering during a training course.

Last year Fondazione became the **referent institution for the mountain safety training courses of the Valle d'Aosta Region**

Fondazione provides training courses on:

- ✓ **safety and general risks at work,**
- ✓ **fire-prevention,**
- ✓ **first-aid,**
- ✓ **avalanche safety,**
- ✓ **ski-mountaineering,**
- ✓ **ARTVA,**
- ✓ **glacier hiking,**
- ✓ **off-road driving.**



Medical examinations for all the employees and **mountain medicine examinations** for the team that works at high altitude and also the **personal protective equipment (PPE)** for the field team are provided



Risk Assessment Document

ai sensi degli artt. n. 28 e 29 del dlgs n. 81/2008

updated on 2014, April 7th

Il dirigente: dr Jean Pierre Fosson

RLS e Preposto - Ufficio Neve e valanghe:

RLS e Preposto - Ufficio Ghiacciai e

Preposto - Ufficio Neve e valanghe:

Medico competente: dr.sa Marina Giulio

RSPP: ing. Alessandro De Checchi

N°	ACTIVITY	HAZARDS	HAZARDS REDUCTION
C9	Snowpack observations: information on the structure and stability of the snowpack to assess current and future avalanche conditions. Snow profiles, snowpack properties and snow stability tests. Tools: ski-touring equipment, ARTVA, gps, probe, shovel, pipe corer. Snowpack observation kit: thermometer, lens, plate, snow board tube, dynamometer, probe, lanyard, snow saw, camera	- Avalanche hazard; - accidental fall; - fall of tools from the top of the snow-pit - slip on steep slopes; - trauma, shock, impact, abrasion; - injuries caused by the use of tools; - hazards due to extreme weather conditions eg. frostbite; - fatigue/ difficulty and dehydration; - eye injuries and burns from UV exposure; - loads handling (movimentazione manuale dei carichi).	Training courses: Loads handling; ski-touring; Progressione su ghiacciaio; trekking; ARTVA use. PPE (Personal Protective equipment): Use of appropriate equipment depending on the site and on weather expected. Medical package, radio and/or mobile phone, whistle, sunglasses, sun cream; ARTVA, shovel and probe; Depending on the snowpack conditions: helmet, Avalung or ABS air-bag; on a glacier: glacier rope, piolet/ice axe, crampons, harness, daisy chain, carabiners, slings, belay device, ice screws. In case of avalanche danger 4 or 5: only heli surveys with a mountain guide.



The Avalanche Warning Service team during ski-mountaineering courses

Test on ARTVA and ski skills are also done to assess individual abilities and improvements thanks to the training sessions. **Periodic controls on the equipment** are carried on to ensure its perfect working. Moreover a protocol reporting **important guide lines for the snow surveys** will be issued for the beginning of winter 2014/15



Test on ARTVA skills

CONCLUSIONS

Much has been done in the last years to assess and improve safety at work. **The scientific progress, the improvement of the PPE, the continuous training and medical examinations will help Fondazione to improve safety and health in all its activities.** The next winter season will add new elements and data to improve furtherly the procedures during snow surveys, and will help to find other sites properly, in term of safety, for the observation of snowpack and the and study of slopes. **The Risk Assessment Document will continuously be updated** to assess a better management of all Fondazione's activities

ExtractS from the Risk Document Assessment (related to the C9 activity: Snowpack observation) which screens the different outdoor working activities, the related hazards, the preventive measures that have to be taken to reduce possible injuries