

Development of avalanche search and rescue courses in Japan based on the best practice in avalanche rescue by mountainsafety.info

Tomoaki Fujimura^{*1,2}, Ken-Ichi Sakakibara^{*2,3,4}

^{*1} Canadian Alps, Canada

^{*2} MountainSafety.info, Switzerland

^{*3} Health Sciences University of Hokkaido, Japan

^{*4} Snow Damage Research Team, the Hokkaido branch, the Japanese Society of Snow and Ice, Japan

ABSTRACT: An avalanche search and rescue course according to “The best practice avalanche rescue” developed by Manuel Genswein was first held in Japan, in 2015/2016 season in Sapporo. For realizing this course, Manuel Genswein, and the first author were invited as instructors. Following this first course realized, 2016/2017 and 2017/2018 seasons, two open courses including level 1 to 3 rescue methods had been run in Hokkaido, and four courses were held in the main island of Japan. Three seasons have passed after the first course started, at present, more than ten Japanese instructors have been well trained and several courses of companion rescue for novice people have been instructed by the Japanese instructors by using methods currently provided by mountainsafety.info. In Japan, importance of international standards for avalanche search and rescue has grown and our attempt is indispensable for raising awareness and survival rate in practical situation of avalanche accidents. In this presentation, we report details about progress, management system of our courses.

KEYWORDS: avalanche rescue, avalanche education, companion rescue, international standardization of avalanche rescue

1 Introduction

Avalanche rescue has been independently developed in various organizations, and has provided practical rescue services for avalanche accidents in the mountains. However, there are not insignificant differences in procedures, techniques, methods, strategies, and systems between different organizations, not only internationally but also domestically. Such differences sometimes cause rescuers to misunderstand the best-practical methods and to apply insufficient rescue techniques and strategies to the accident sites. To solve these problems, the basics of avalanche rescue methods, strategies, systems, and terminology are desirably shared by different organizations in different countries, accepting regional variation connecting to regional characteristics. As one of such efforts, ICAR have organized “best-practice in avalanche rescue” working group, and made a pivotal role to make an international consistency for avalanche rescue. Under these circumstances, on 2007, MountainSafety.info was established as a project of associative members IFMGA, ICAR, SLF/WSL in collaboration with UIAA.

In Japan, the avalanche rescue education for novice people was started in early 1970's by clubs of Hokkaido University based on methods learned from Switzerland (Nitta 1986). These methods have spread to other parts of Japan through mountain clubs and academic societies. Several Japanese books describing avalanche rescue methods were published in 1990's (Avalanche Safety Seminar in Hokkaido, 1996, 2002), and thereafter, many different institutes and mountain clubs have organized various avalanche rescue courses. Some professional rescuers from the public or official rescue services, such as the police and fire departments have also learned and practiced up-to-date rescue techniques.

After poster-presentation by Manuel Genswein at ICMC 2014, the authors started a project to teach structured course divided into several levels according to “best-practice in avalanche rescue” methods by Manuel Genswein. On 2015/2016 season, we have organized the first course in Hokkaido, Japan. Since then, the courses have been held every season, and more than 100 participants completed the course.

In this paper, we report overview of our courses held in the past three seasons in Japan and perspective for avalanche rescue education in Japan.

Corresponding author address: Ken-Ichi Sakakibara, Department of Communication Disorders, Health Science University of Hokkaido, 1757, Kanazawa, Tobetsu-cho, Ishikari-gun, Hokkaido, 061-0293, Japan; email:kis@hoku-iryo-u.ac.jp

2 Record of the courses

2015/2016

The first course according to "the best-practice in avalanche rescue" methods by Manuel Genswein was held as two day course on Dec 18 and 19, 2015, at Paradise Hüt in Sapporo, Japan, with a main instructor (Manuel Genswein) and an assistant instructor (Tomoaki Fujimura). The course of 2015/2016 was organized by a volunteer organizing committee which was organized for this course. Thirteen participants participated in the course: two professional mountain guides, seven avalanche educators, one snow scientist, two workers in public agencies related to snow (nature center, self-defense force), one recreationalist.

The course curriculum was prepared by combining lecture and field training both of which were assigned in equal time slot. The course included: Level 1 basic avalanche rescue, Level 2 intermediate avalanche rescue, a part of Level 3 advanced avalanche rescue (hard wall cut and advanced digging, microbox), and deep burial (demonstration only).

After the course, several institutes of avalanche education in Hokkaido, whose members completed the course, renewed their rescue methods according to the best-practical rescue method and consequently, the methods of the course were quickly shared by many professionals recreationalists in Hokkaido.

A new textbook of avalanche in Japanese edited by the Snow damage research team of the Hokkaido, the Japanese Society of Snow and Ice was published on February 2015, and its chapter about avalanche rescue was written by the second author according to the "best practice in avalanche rescue" methods (Snow damage research team, 2015).

2016/2017

Since 2016/2017, the organizer of the courses have been changed from volunteer group to the Snow Damage Research Team of the Hokkaido branch of the Japanese Society of Snow and Ice. The course consisted of a half day "training trainers" course and a three day normal course and held on Dec. 12–15, 2016, at Paradise Hüt in Sapporo, Japan. eighteen participants: eleven professional mountain guides (including two IFMGA guides), two avalanche educator, one worker in public agencies (self-defense force), one professional rescuer (Air rescue team of the Hokkaido fire department), one medical doctor, one snow scientist, one recreationalist. Three instructors (MG, TF, K.-I. Sakakibara) and four assistant instructors who had already finished the course

in the previous year engaged. Eighteen participants were divided into three groups, and the course curriculum contained Level 1, 2, 2.5, part of Level 3. All lectures were done by three instructors.

The curriculum of the course 2016/2017 is shown in Table. 1. Due to extension of the course duration from two days to three days 2015/2016, we were able to teach advanced content.

Table 1: The course curriculum 2016/2017

<p>Training Trainers: Lecture (16:30–18:30, 19:30–21:00), Field (13:00–16:30)</p> <p>Lecture:</p> <ul style="list-style-type: none"> • triage criteria, accident scenario <p>Field training:</p> <ul style="list-style-type: none"> • microbox, microsearch strips • revisions of techniques
<p>1st day: Lecture (8:30–11:30, 16:30–19:30), Field (11:30–16:30)</p> <p>Lecture:</p> <ul style="list-style-type: none"> • motality and its reduction • technology of the avalanche transceiver • Level 1 search • mental map • alternative search • shoveling <p>Field training:</p> <ul style="list-style-type: none"> • Level 1: airport approach • revisions of techniques
<p>2nd day: Lecture (16:30–19:00), Field (8:30–16:30)</p> <p>Lecture:</p> <ul style="list-style-type: none"> • probing • deep burials <p>Field training:</p> <ul style="list-style-type: none"> • Level 2: shoveling, multiple burials
<p>3rd day: Lecture (14:00-16:00), Field (8:30–14:00)</p> <p>Lecture:</p> <ul style="list-style-type: none"> • Triage criteria • Reviewing <p>Field training:</p> <ul style="list-style-type: none"> • Level 2.5 + Level 3

After the course, at a meeting organized by professional backcountry guides in Hokkaido, participants in the course 2015/2016 or 2016/2017, and instructors (TF and KIS) taught guides to share their skills and knowledges. More than thirty professional mountain guides (more than 30 % of all professional guides in Hokkaido) could study and share the best-

practical avalanche rescue techniques.

Japan worker's alpine association, one of the biggest alpine clubs in Japan, held a course for beginner members with the instructors (MG and TF) and assistants who finished our course.

2017/2018

The regular course was scheduled to Dec 11–14, 2018, at Akaigawa, Hokkaido. Advanced to the regular course, we held two basic courses in different levels (basic-1 and basic-2). We basically requested participants of the regular course to attend one of these two basic courses or an alternative course of the same level. The basic-1 course (most for very novice recreationalists) was held on Oct 29, 2017 at Ban.K ski resort, Sapporo. The basic-2 course (most for very potential participants in the regular course) was held on Oct 31, 2017 at Donkoro Outdoor School, Minami Furano, Hokkaido.

In the basic-1 course, seven instructors taught part of the Level 1 search skills (airport approach and static microsearch strips) to twenty-six participants: four avalanche educators, three workers in an alpine shop, two professional snowboarders, two workers in public agencies (fire department and outdoor center), one mountain photographer, one ski guide, and twenty-four recreationalists. In the basic-2 course, four instructors taught the Level 1 and Level 2 search skills to fourteen participants: eight mountain guides, four avalanche educators, one ski patrol, and one worker in public agencies (fire department). These two basic courses were held during the no-snow season, however, the basic concept of mental map and basic procedure of the airport approach were very comprehensive even for novice.

In the regular course, three instructors (MG, TF, and KIS) and seven assistants (JMGA professional mountain guides) were engaged. All lectures were done by three instructors. In the course, we had twenty-eight participants: twenty-four professional mountain guides, and four worker in public agencies (one from self-defense force and three from fire department). Most of the participants were already trained by instructors who had completed our course in the past and understood the basic concept of the best-practical avalanche rescue, and, hence, they were able to learn advanced content compared to our courses in the last two seasons. On the third day of the course, four different scenarios including a triage decision (Genswein, 2013) or deep burials were used in the field training, and participants were taught integrated practical skills including decision making.

In addition to two basic courses and regular course in Hokkaido, one course in the main island of Japan was held on March 20–22, 2018 at the National Center for Mountaineering Education, Mt. Tateyama. Three instructors (MG, TF, and Daisuke Sasaki, IFMGA guide and completed the course in 2016/2017) were engaged. We had eighteen participants: nine professional mountain guides, three workers in a public agency (mountain police), two workers in an outdoor product company, two teachers of high-school, one avalanche dog handler, and one ski patrol.

3 Discussions

International standardization in avalanche rescue is crucial to developing and disseminating best-practical technique, method, strategies, and system in avalanche rescue. In order to reduce mortality of avalanche accidents, the international standard method has to be largely shared by people and practically used in avalanche accidents, and tested in real situation.

In the last three seasons, four regular courses: three in Hokkaido and one in the main island, and two basic courses in Hokkaido were held in Japan. These courses over the last three seasons have had successful results and more than ten Japanese instructors have been educated for the best-practice in avalanche rescue currently developed by Mountainsafety.info. In Hokkaido, thirty-five professional mountain guides already learned the best-practical avalanche rescue method, and the method is now turned to be standard in avalanche rescue in Hokkaido. Moreover, two non-profit organization for avalanche education (Hokkaido institute for avalanche research and education and Avalanche safety seminar in Hokkaido) have adopted "the best-practice in tavalanche rescue" method in their regular syllabus of their training course for beginner recreationalists. In Hokkaido, we can conclude that the method by MountainSafety.info have had positive feedback in avalanche rescue and will spread widely to professional guides and rescuers, and amateur recreationalists. We consider three seasons necessary to obtain such positive feedback for dissemination activity.

On the other hand, for public agencies, although self-defense force and air rescue team of the fire department learned these method and begun to include them in their training, further spread is expected.

For further dissemination activities, we consider the following actions are important:

- to write Japanese textbook specialized in avalanche rescue;
- to establish system to update instructor's skill;
- to appeal to public agencies;
- to share setting of training.

In order to realize these actions, it may be indispensable to collaborate with and join an international activity for development of avalanche rescue skill.

4 Conclusion

In this presentation, we have documented records and progress of the courses for the best practice in avalanche rescue in the last three seasons in Japan. The courses have strongly contributed to improve avalanche rescue techniques in Japan. To achieve further successful outcome for the dissemination activities, international cooperation is essential, and we hope that more Japanese instructors will join the international activity. In addition, it is important that we make more efforts to promote the international standard for various private institutions and public agencies.

Acknowledgement

We would like to thank all colleagues worked together in our training-course. Especially, we would like to thank Manuel Genswein for his leadership and passion to teach best-practical avalanche rescue methods, and also thank Mikio Abe, Jun-ichi Ishida, and Takayuki Matsuura for their help to organize our training courses. This work was partially supported by JSPS KAKENHI Grant Number 18K02929.

References

Nitta, R., 1986: *Nadare-no-sekai-kara*, in Japanese, Kokon Shoin Publ., Tokyo.

Avalanche Safety Seminar in Hokkaido, 1996: *Saishin Nadare-gaku*, in Japanese, Yamatokeikokusha, Tokyo.

Avalanche Safety Seminar in Hokkaido, 2002: *Ketteiban Nadare-gaku*, in Japanese, Yamatokeikokusha, Tokyo.

Snow damage research team, 2015: *Sangaku-Nadare-Taizen*, in Japanese, Yamatokeikokusha, Tokyo.

Genswein, M., 2013: Survival chance optimized procedures in rescue and how to minimize injuries during evacuation, *Proc. ICMC 2013*: 1408–1416.

MountainSafety.info: <http://www.mountainsafety.info/>