The participant report

5th International Conference on Alluvial Fans at the University of Canterbury

in Christchurch, New Zealand, 30 November – 4 December 2015

At the turn of November and December 2015, **Krzysztof Senderak PhD student in the Centre for Polar Studies at the University of Silesia** took part in the international conference on the alluvial fans and depositional environments, which are strictly connected with them. The conference was held by international team at the University of Canterbury in Christchurch, New Zealand. The meeting was supported and sponsored by the International Association of Sedimetologists (IAS).

Participation of a PhD student in conference has been financed from the funds of the Leading National Research Centre (KNOW) received by the Centre for Polar Studies for the period 2014-2018. The PhD student also was the recipient of one of the student travel grants, which were awarded by the International Association of Sedimentologists (IAS).

The Alluvial Fans Conference is held approximately every 4 years. The first meeting was in 1995 in Death Valley (USA). From the beginning, it gathers distinguished researchers, who are concentrated on the studies of the gravitational flow sediments. In the conference in Christchurch, there were the scientists from Australia, Canada, Chile, China, France, India, Italy, Netherlands, New Zealand, Poland, Switzerland, Turkey, UAE, UK and USA. A PhD student of Centre for Polar Studies was a lone participant from Poland and Central Europe.

A main part of conference lasted 5 days, including 3 days for the oral presentation and posters sessions as well as 2 days for exploration of amazing mountain areas of the Southern Alps extending along much of the length of New Zealand's South Island.

Conference session (30 Nov, 3-4 Dec)

In the science session at the University of Canterbury, there were presented a lot of the interesting and innovating studies. PhD student was impressed by the lectures i.a. Tjalling de Haas's oral-presentation "Autogenic avulsion, channelization and backfilling dynamics of experimental debris-flow fans" as well as Tim Davis's keynote lecture "Alluvial fans and debris-flow fans: Processes, hazards and land-use planning".

In the last conference day, Krzysztof Senderak presented an oral presentation "The sedimentological lesson from the geophysical surveys of the high and mid-latitudes talus slopes". A PhD student of the Centre for Polar Studies shown the preliminary results of geophysical surveys done in the High Tatra Mountains in July 2015 and in the Southern Spitsbergen in September 2015. The presentation concerned a research potential, which is contained in structure of the talus slopes. An attempt of interpretation of the presented results will be base to the paper concerning the talus slopes in the Southern Spitsbergen.

Fig. 1. PhD student of the Centre for Polar Studies presents his research.

Field trips (1-2 Dec)

The both field trips were planned in a breathtaking scenery. In the time 2 days, the participants of conference were exploring the areas about 100 km west of Christchurch. On the first day, the route trip ran through the Canterbury Plains, Rakaia River Valley and around the Lake Coleridge. The next day included the alluvial fans and fluvial systems along the SH73 freeway. The route trip ran along the Great Alpine Highway, which is one of the spectacular NZ's tourist attraction.

1 Dec

Fig. 2. The Rakaia River(left) and a river bottom (right).

Fig. 3.The outcrops are a old high-level fan surfaces adjusted to higher Rakaia River levels.

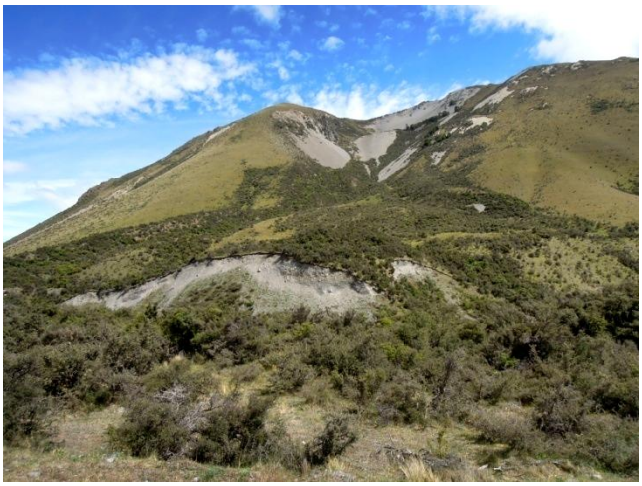

Fig. 4. A route around the Lake Coleridge (left); the wide talus slopes and a very large debris cone with the cross-section of sediments (right).

Fig. 5. The shore of Lake Coleridge occupying a LGM glacial trough (left); the participants of conference study a geological and geomorphological map of the Southern Alps (right).

Fig. 6. A group photo on the background of the large alluvial fan near the Lake Coleridge (by L. Clarke).

Fig. 7. The outcrop of the debris cone's sediments.

Fig. 8. Alluvial fan or debris cone?

Fig. 9. A very active alluvial fan near the Lake Coleridge.

2 Dec

Fig. 10. The Waimakariri River (left) and the outcrops of metamorphosed rocks near a river.

Fig. 11. The field lecture presented by Tim Davis about a contemporary landscape of the Southern Alps (left). A system of the active and inactive talus slopes (right).

Fig. 12. The limestone karst formation.

Fig. 13. The moraines of a last glaciations period.

Fig. 14. A riverbed incises the sediments of debris cone (left). A cross-section of debris cone (right).


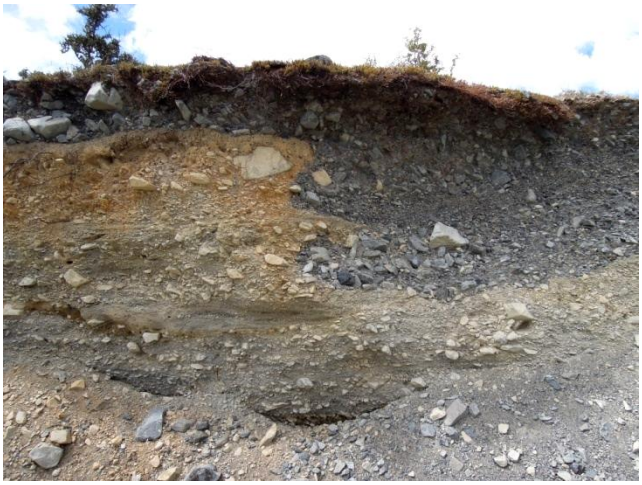

Fig. 15. The participants of conference study the outcrops of debris cone's sediments (left). The sediments of two separate debris flows (right).

Fig. 16. A record of two suddenly debris flows.


Fig. 17. The Waimakariri River (left). The talus slopes is covered the highest parts of the mountains (right).

Fig. 18. The view of the Waimakariri River from the Great Alpine Highway.

Fig. 19. A summary of the conference by Lucy Clark (UK).

Summary

The last keynote lecture was presented by Gary Weissmann (University of New Mexico, USA). The topic of lecture was “Fans in the context of sedimentary basins: Future directions of fan research”. The presentation focused on the structures in a depositional environment of alluvial fans (every kind), which aren’t well know. This lecture refers partly to the newest paper “Fluvial geomorphic elements in modern sedimentary basins and their potential preservation in the rock record: A review” (G. Weissmann et al. 2015; Geomorphology 250). For the PhD student of Centre for Polar Studies, this lecture was groundbreaking and inspiring. The scientific message can influence on many participants of a conference Alluvial Fans 2015. Maybe, the results will be visible during a next edition. The place for organization of 6th conference wasn't chosen yet.

Acknowledgments

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Krzysztof Senderak

Centre for Polar Studies

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