

## Virtual meeting of the Commission on Mountain Cartography

The Commission on Mountain Cartography has become known for our interesting and intensive workshops that take place every second year in different and diverse mountain regions around the world. Since our first gathering at Silvretta in the Austrian Alps in 1998, we have held workshops in the mountains of North America, Europe and New Zealand. For 2020, our 12th workshop was planned for April in the Colorado Rockies, USA, but due to the COVID-19 crisis we have had to reschedule it for spring 2022. By that date, four years will have elapsed since our previous workshop in Croatia, on the Dalmatian island of Hvar.

To fill this gap, we held a virtual ICA-CMC meeting on 21 November 2020. Due to the worldwide distribution of commission members, from Moscow to Melbourne, we carefully selected a meeting time so that no one would have to participate in the middle of the night. Initially planned as a business meeting in order to inform commission members about recent ICA developments, we expanded the meeting to include a mini virtual workshop to partially make up for the cancelled in-person workshop earlier in the year. There were 36 participants from 15 countries and four continents.

The meeting started with commission chair, Dušan Petrovič, and a new ICA liaison person, Terje Midtbø, informing the participants about the recent ICA Executive Committee and Commission Chairs Meeting. Topics included rescheduling the Florence conference from July to December 2021, preparation of the revised Body of knowledge, the new book showcasing the UN Sustainable Goal posters, and the status of publications. Next, Tom Patterson discussed tentative plans to reschedule postponed CMC workshop in Colorado to the spring of 2022. The business part of the meeting concluded with Timofey Samsonov discussing Snow Valley, Kamchatka, Russia, as a possible venue for the 2024 workshop.

A highlight of the meeting were eight short presentations by commission members focusing on interesting projects that they have worked on since we last met. Timofey Samsonov explained an algorithm for the conflation of DEMs and streams—the results are very promising and the method should be soon available for use in QGIS. Jenny Jansen discussed an empiric evaluation of panoramas versus planimetric ski area maps for navigating a ski area in Austria. Alexander Klaus presented two Nepalese maps made for the Association for Comparative High Mountain Research: Annapurna Himal at 1:100.000-scale and Dhaulagiri at 1:50.000. Klemen Kozmus Trajkovski discussed how to conduct a UAV survey for areas with steep slopes and the results of data modelling. Mark Stock informed us about different technologies for 3D printing and showed several 3D terrain models with different shapes, colours, and resolutions, which were very impressive. Alex Tait returned us to Himalayas, explaining his role and the results of a National Geographic Mapping Everest project. The final models and images resulting from this project exhibited extreme resolution and precision. Bernhard Jenny discussed a new technique for stylizing digital shaded relief with neural networks. The results of his method reveal a striking resemblance to manually produced Swiss shaded relief. Finally, Patrick Kennelly and Tom Patterson introduced standard elevation models that cartographers and software developers can use for the comparative evaluation of their products. All presentations triggered interesting debate and gave us ideas for further work and research. After almost three hours our virtual gathering concluded with a lot of positive comments from all participants. During a break in the presentations, we took a screen capture of the participants for our customary joint picture.

Unfortunately, our traditional outdoor recreation day couldn't take place in a virtual environment, but at least we had a chance to say hello to everyone. And until we can gather again in person, we'll keep on mapping high places.

ICA Commission on Mountain cartography,  
Dušan Petrovič and Tom Patterson