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Making science visible – On the third issue of *Carinthia Nature Tech*

Susanne Aigner, Michael Jungmeier

We are pleased to present the third publication of the journal *Carinthia Nature Tech* with this issue. While the first release marked the achievement of launching this journal after a long process, the second release provided an opportunity to consolidate certain workflows, results, and presentations. Now, the current issue demonstrates that *Carinthia Nature Tech* has already evolved into a series. Many more issues are planned to showcase and communicate the potential of new technologies for capturing, monitoring, and conveying nature in general, and biodiversity in particular. In doing so, we know we are in distinguished company worldwide.

This summer for example, the Schmidt Ocean Institute (SOI), a non-profit foundation “established to advance oceanographic research, discovery, and knowledge, and catalyze sharing of information about the oceans,” reported reaching 4 million viewers through live broadcasts of dives conducted by the remotely operated vehicle SuBastian (<https://schmidtoccean.org>). SOI explored the Mar del Plata Canyon, one of Argentina’s largest deep sea trenches, which reaches a depth of 3,500 meters. Equipped with state-of-the-art technology, the dives likely led to the discovery of up to 40 species new to science. A global audience had the opportunity to follow the scientists’ work up close and in real time via “dive streams.”

Through this form of communication, SOI aims to explore new ways of conveying scientific knowledge. It allows a broad audience to experience the persistent efforts, enthusiasm, daily routines (in this case, aboard a research vessel), challenges, setbacks, and successes of scientists. This approach can also spark interest in nature and highlight the importance of its protection.

More generally, many new technologies offer expanded opportunities to communicate research activities and findings, as well as to make the research process itself more understandable and visible.

And on a more localized scale, the potential of new technologies becomes evident. For example, we fondly recall the large-format, iconic image of the Vellacher Au, which was displayed during the biodiversity exhibition at the Carinthian State Museum. This high-resolution aerial photograph by Ulf Scherling from the Carinthia University of Applied

Figure 1:

The river landscape of the Vellacher Au. The image illustrates the patterns of a dynamic river course, shaped by the interplay of erosion and deposition as well as succession and disturbances. The figure is composed of 2,300 photos taken with a DJI Phantom 4RTK drone and subsequently stitched together. The resolution is 3.3 cm per pixel, with an individual photo resolution of 4864 × 3648 pixels; the total area captured encompasses approximately 4.9 km × 0.7 km. (Photo: Ulf Scherling, October 10th, 2022; portion of the photo)

Abbildung 1:

Die Flusslandschaft der Vellacher Au. Das Bild zeigt die Muster eines dynamischen Flusslaufes, der durch das Wechselspiel von Abtragung und Anlandung sowie durch Sukzessionen und Störungen geprägt ist. Die Abbildung besteht aus 2300 Fotos, die mit einer DJI Phantom 4RTK Drohne aufgenommen und anschließend zusammengefügt wurden. Die Auflösung beträgt 3,3 cm/pixel, die Einzelfotoauflösung 4864 x 3648 Pixel; die insgesamt erfasste Fläche umfasst etwa 4,9 km x 0,7 km. (Foto: Ulf Scherling, 10. Oktober 2022, Ausschnitt des Bildes)



Fig. 1

Sciences was indeed the result of capturing the perfect time of day and year, but it also required significant technical effort and high-performance equipment. This made one of Carinthia's most beautiful river landscapes "accessible" to a broader audience. The image not only allows for ecological, geomorphological, and vegetation analyses, as well as studies of succession, but also showcases the beauty of the area and its outstanding riverine landscape (Figure 1).

Naturally, a journal—especially a young one—can only present exemplary studies and applications of technologies. The current issue features peer-reviewed studies on the implementation of UAV-mounted sensors applied to collect data in urban landscapes and natural areas. The interested reader will find a peer-reviewed contribution on the use of iNaturalist for citizen science observations. An innovative laboratory experiment is featured, comparing slime mold-inspired algorithms with the growth of the real organism, forecasting potential improvements to transportation systems. In the short notes section, the reader can learn about the establishment of a Miyawaki forest, recent developments at an outdoor laboratory for ecological research, and innovations in environmental DNA sampling. Three book reviews are provided, giving the reader a glimpse into the state-of-the-art of biodiversity monitoring technologies, active biodiversity research in Austria, and applied techniques to promote nature in engineering.

Let yourself be inspired by these contributions. We warmly invite you to submit your own articles or short notes to support the development of the journal while also increasing its reach and visibility. By contributing, you can help shape the future of this journal and share your work with a growing audience.

An important contribution to the further development of the journal will be made by an FWF-funded project, which will enable the implementation of a professional editorial management system. This system will provide a platform to streamline workflows, making the review process more efficient and user-friendly, improve analytics, and provide readers easy access to current and archived articles.

Finally, we would like to express our gratitude to the authors, the anonymous reviewers, the Editorial Office, the Editorial Board, and last but not least, the layout designer, who once again crafted this volume with expertise, dedication, and attention to detail.

ZUSAMMENFASSUNG

Wissenschaft erfahrbar machen – zur dritten Ausgabe des Carinthia Nature Tech

Die Herausgeber:innen freuen sich, dass mit der mittlerweile dritten Ausgabe der Carinthia Nature Tech der Charakter der Zeitschrift als fortlaufende Serie deutlich sichtbar wird. Ziel der Zeitschrift ist es, das Potenzial neuer Technologien zur Erfassung, zum Monitoring und zur Vermittlung von Biodiversität aufzuzeigen.

Ein anschauliches Beispiel für diese Möglichkeiten bieten die „Divestreams“ des Schmidt Ocean Institute (<https://schmidtocan.org>)

). Dabei ermöglichen ferngesteuerte Tauchroboter durch Live-Übertragungen faszinierende Einblicke in Lebensräume in mehreren tausend Metern Tiefe. Diese Übertragungen erreichen ein Millionenpublikum und vermitteln auf eindrucksvolle Weise sowohl die Forschungsanstrengungen als auch die erzielten Ergebnisse.

Auch in unserem unmittelbaren Umfeld gibt es Beispiele dafür, wie moderne Technologien neue Perspektiven auf Natur und Biodiversität eröffnen können. So sei etwa auf ein drohnenbasiertes Luftbild der Vellacher Au verwiesen, das auch großformatig im Kärnten:Museum ausgestellt war.

Die Herausgeber:innen hoffen, dass die Beiträge in diesem Band der Carinthia Nature Tech die geschätzte Leserschaft erreichen und inspirieren. Potenzielle Autorinnen und Autoren sind herzlich eingeladen, weitere Beiträge einzureichen und so zur Weiterentwicklung und Bekanntheit dieser jungen Zeitschrift beizutragen.

Ein herzlicher Dank gilt allen Autor:innen, Reviewer:innen, dem Editorial Office, dem Advisory Board sowie – einmal mehr – der Grafikerin für die liebevolle und präzise Gestaltung des Erscheinungsbildes der Zeitschrift.

ABOUT THE AUTHORS

Susanne Aigner

Board member of
Natural Science
Association for
Carinthia, Klagenfurt
am Wörthersee, Austria
E-mail: office@oekologiebuero-aigner.com

Michael Jungmeier

Chairholder of UNESCO
Chair on Sustainable
Management of
Conservation Areas,
Carinthia University
of Applied Sciences,
Villach, Austria
E-Mail: m.jungmeier@cuas.at



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