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SWISS JOURNAL OF GEOSCIENCES

The *Swiss Journal of Geosciences* is an international fully open access peer-reviewed journal which publishes original research and review articles, with a particular focus on the evolution of the Tethys realm and the Alpine/Himalayan orogen.

The *Swiss Journal of Geosciences* regularly publishes special issues, such as the "Alpine Workshop Special Issues", the last one having been completed in 2021 (see below). Please do not hesitate to get in touch if you have a proposal for an upcoming special issue that fits the scope of the *Swiss Journal of Geosciences*.

Swiss Journal of Geosciences: *"Special Issue: 14th Emile Argand Alpine Workshop, Bramois 2019, Switzerland"*

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Edited by: Paola Manzotti, Othmar Müntener, Stefan Schmid, and Daniel Marty

This special issue includes papers presented at the 14th Emile Argand Workshop on Alpine Geological Studies, which was sponsored by the European Geosciences Union and supported by the University of Lausanne (Switzerland): this is a biannual meeting focused on Alpine geology held, in 2019, in Sion (Switzerland). The workshop was organised by Paola Manzotti (Stockholm University, Sweden) and Othmar Müntener (University of Lausanne) and benefited from the invaluable help of many junior and senior researchers from the University of Lausanne. Attending the meeting were 110 scientists from 11 countries. The plenary session took place 4–6 September 2019. Several field excursions—in the core of the Alps—preceded and followed the plenary session, receiving the enthusiastic participation of many researchers and stimulating fruitful discussions.

This *Swiss Journal of Geosciences* special issue comprises 17 articles, with several contributions from junior researchers across multiple disciplines (tectonics and structural geology, petrology and geochemistry, sedimentology and basin analysis, geophysics and geomorphology), all relevant to the history and present dynamics of the Alpine belt. The various contributions are highlighted below.

Ediacaran–Cambrian Arc Magmatism

The basement units of the Alps are one of the best examples of recycling a polyphase continental crust. The reconstruction of the early evolution of the continental basement is challenging because the isotopic data of accessory minerals (e.g., zircon) is the only accurate memory of these episodes. New geochronological data from the Eastern Austroalpine Alps reveal two stages of continental arc-like magmatism in the continental crust of the Adriatic Plate: during the Cambrian (500–530 Ma) and the Ediacaran (550–570 Ma) (Neubauer et al. 2020). These data are tentatively linked to Ediacaran (550–570 Ma) continental arc-type magmatism and potential oceanic lithosphere of Proto-Tethyan affinity, which is also preserved in the Austroalpine domain. A nearly uniform 2.1–2.5 Ga signature of detrital zircons in metasediments from the same domain suggests Paleo-Proterozoic continental crust as a source and shows affinity to northern Gondwana, especially West Africa and Amazonia. The zircon Hf isotopic compositions of metagranites in the Eastern Alps also indicates recycling of older continental crust (Yuan et al. 2020).

Permian Crustal Differentiation

Partial melting in both the asthenosphere and the lower crust and the ascent of mafic and silicic magmas emplaced at different crustal levels are among the main processes leading to crustal differentiation in Southern Europe during the Permian. Widespread magmatic activity accompanied by high-temperature metamorphism affected the Alpine realm during the Permian and is preserved in both the Adriatic and European domains. The Permian age of these crust-forming processes and their geochemical signatures have been constrained in the Austroalpine Domain (Pohorje Mountains, Slovenia: Chang et al. 2020; Grobgneis Complex: Yuan et al. 2020); in the Sesia-Dent Blanche Nappes (Vho et al. 2020); in the Briançonnais Domain (Ballèvre et al. 2020); as well as in Corsica, Sardinia, and Calabria (Di Rosa et al. 2020; Molli et al. 2020). In a few cases, Triassic ages for allanite from Sesia (Vho et al. 2020) and Corsica (Di Rosa et al. 2020) have been interpreted as potential records of further metasomatic/magmatic episodes during late Triassic extension.

Inherited Pre-Alpine Structures

The Permian crustal differentiation was associated with an extensional/transcurrent regime responsible for the development of large-scale (i.e., hundreds of km long) faults (e.g., Santa Lucia Fault in Corsica and East Tuscan Fault in Central Italy) (Molli et al. 2020). During the Jurassic Period, normal faulting is recorded in the brittle upper crust, especially along the internal margin of the Briançonnais Domain. Faulting is associated with the erosion of uplifted blocks, leading to syn-tectonic erosion that provided abundant material for the nearby sedimentary basins (Pantet et al. 2020).

Age and Architecture of the Alpine Ophiolites

Alpine ophiolites of the Piemonte–Liguria Ocean result from the mid-Jurassic breakup of the thinned continental crust and represent ancient analogues to present day (ultra-)slow-spreading environments, such as the Southwest Indian ridge. In the Western Alps, Piemonte–Liguria ophiolites are made of dismembered slivers dominated by variably serpentinised mantle rocks with minor basaltic dykes and small gabbro intrusions (Decrausaz et al. 2021). New field, geochemical, and isotopic data constrain the evolution of the Aiguilles Rouges Ophiolite in the Swiss Alps (Decrausaz et al. 2021). This area is an exceptional exposure that shows an inherited seafloor sequence and the remnants of a large Upper Jurassic (~155 Ma) gabbro body potentially exhumed by a Jurassic detachment fault. As observed in present-day (ultra-)slow-spreading seafloor, the Aiguilles Rouges Ophiolite preserves a segmented lithosphere showing punctuated magmatism and carbonated ultramafic seafloor covered by basalts and Jurassic tectono-sedimentary deposits. Oceanic hydrothermal alteration affected the exhumed mantle and produced a pervasive serpentinization and rodingitisation of mafic dykes, as observed in several oceanic units in the Alps (e.g., the Zermatt Zone) (Kempf et al. 2020).

From Oceanic Subduction to Crustal Thickening

During the convergence of Eurasia and Adria, the fate of the Jurassic extensional faults was two-fold: some were reactivated as thrusts by Alpine tectonics (Aiguilles Rouges d'Arolla Ophiolite) (Decrausaz et al. 2021) whereas others were passively deformed without inversion and reactivation (Mont Fort Nappe, Briançonnais Domain, Pantet et al. 2020; eastern Aar Massif, Nibourel et al. 2021). The identification of faults that preserve their Jurassic rifting history is an important step in our understanding of the geometry of the Briançonnais palaeomargin.

Subduction and high-pressure metamorphism of some ophiolitic units was associated with dehydration reactions and fluid release. Indeed, in the Zermatt–Saas Ophiolite, serpentine + brucite formed during Jurassic oceanic serpentinization and reacted to produce metamorphic olivine at eclogite facies conditions (Kempf et al. 2020). Fluids released by this reaction (estimated at between 3.4 and 7.2 wt% H_2O) escaped in a network of veins and shear zones.

More external continental domains of the Western Alps were buried at shallower depth (External Briançonnais, Ballèvre et al. 2020; Aar Massif, Nibourel et al. 2021). Lawsonite-bearing veins in the Guil andesites in the Queyras testify to a lower grade metamorphism (0.4 GPa, 350 °C) associated with a brittle deformation in the External Briançonnais (Ballèvre et al. 2020).

In the external domain of the Alps in the eastern Aar Massif, collisional deformation started with the activation of NNW-directed thrusts at ~ 26 Ma (Nibourel et al. 2021). Subsequent peak- to post-metamorphic deformation was dominated by steep, NNW-vergent reverse faults (~22–14 Ma) and was associated with large vertical displacements. Some 13 km shortening and 9 km exhumation occurred between 14 Ma and present.

Exhumation of the Nappe Stack

Exhumation of the Alpine nappe stack was accommodated by erosion, material transport, and sediment deposition in the flysch sequences, which has now been analyzed in detail in one of the Préalpes nappes, (Ragusa et al. 2021) and by displacement along kilometre-scale Alpine faults in, for example, the Susa Shear Zone (Ghignone et al. 2020) and the Rocca Canavese Thrust Sheets (Roda et al. 2021).

Cenozoic tectonic activity during the unroofing of the Western Alps was active for more than 20 million years and was linked to top-NNW, top-WNW and top-SW thrusting associated with strike-slip faulting. Its timing is constrained by new geochronological data (~ 36 Ma, ~ 32–30 Ma, and ~ 25–23 Ma) on hydrothermal monazite in fissures formed during greenschist to amphibolite facies retrograde metamorphism in the high-pressure units of the internal Western Alps (Ricchi et al. 2020).

Daniel Marty, Chief Editor Swiss Journal of Geosciences

Daniel Marty completed a master's degree in Earth sciences at the University of Basel (Switzerland) in 2001 and his PhD in palaeontology/sedimentology at the University of Fribourg (Switzerland) in 2008 focusing on Upper Jurassic dinosaur footprints excavated on Swiss federal Highway A16 and neo-ichnological experiments with human footprints on recent tidal flats.

From 2000 to 2017, he worked as a research palaeontologist at the "Paleontology A16" (Office de la culture, Canton Jura, Switzerland), a unique palaeontological service founded in 2000 that was in charge of the excavation, documentation, and safeguarding of paleontological heritage along the future course of Highway A16. Daniel was responsible for the excavation, documentation, and scientific research of dinosaur track sites that were uncovered prior to the construction of the highway. He is still involved in research projects related to these and other dinosaur footprint discoveries in collaboration with researchers from Europe and elsewhere.

Since 2014, Daniel Marty has taught palaeontology courses at the University of Basel. In 2014, he became Chief Editor of the *Swiss Journal of Palaeontology* and in 2018 also of the *Swiss Journal of Geosciences*. Both journals are published as fully open access by SpringerOpen.

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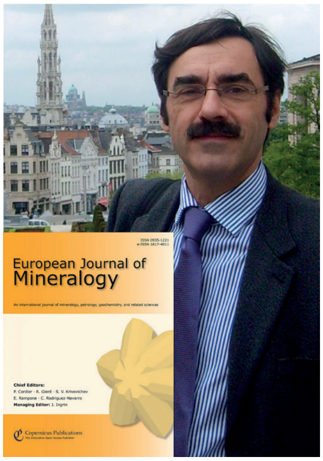
EDITORIAL

About the Overplayed Role of Citation Indicators



The last 20 years has seen the relationship between scientists and scientific publications change dramatically. In this editorial, I will address the expanding and overplayed role of the citation indicators on the publication system. I do not speak of journal impact factors, because they deserve an editorial of their own, but I will focus on the impact of an individual paper's citation index and the challenge that this presents to editors.

Authors have all been affected by the change in value of publications, far from the genuine and simple goal of sharing scientific knowledge. We are now much more conditioned by citation indexes than we have ever been. When I ask myself, as an author, which paper(s) I feel proudest of and which are the most important for me, several of them do not match those that are most cited. I presume that this situation is also the case for other authors and their papers. Often, authors assessing their own papers do not focus only on their potential impact in the field. They assess also the quality and completeness of the scientific approach developed. Authors take into account how the work evolved from the intuition of the hypotheses to the final demonstration of their validity.

Citation indicators basically and simply assess the visibility of a paper, which is far from being a perfect evaluation of the paper's influence or impact in the field. Notwithstanding, today more than ever, we all look at our paper citations as a form of quality indicator of our work. In addition, our careers are partly evaluated and fundamentally influenced by these citation indicators. Consequently, we allow citation indicators to influence the way authors write papers and the way reviewers evaluate them. As authors, we have (consciously or unconsciously) the tendency to over-cite our previous papers when we write a new one. As reviewers, we may have the tendency to be more favorable toward a paper that cites our articles, or even recommend authors to cite our articles. But is this unethical or a conflict of interest?

Conflict of interest is defined by the potential benefit evaluators can get from their evaluation. The strong role played today by citation indicators in career development has significantly increased the benefit we can expect from citations. As both authors and reviewers, it is our personal responsibility to assess where ethics or a conflict of interest stands when assessing and/or recommending citations. For journals, it is impossible to avoid using reviewers cited in the manuscripts if we want to get reviews from the closest experts in the field. To address this issue at the *European Journal of Mineralogy* (*EJM*), we have recently put, in our recommendation to referees, more emphasis on the relevance of the citations than their comprehensiveness. We are now asking reviewers to assess explicitly "relevance and up-to-date of the references". Editors also play an essential role in monitoring and regulating potential over-citation by an author and bias from a reviewer. Editors play a fundamental role in safeguarding fairness in the evaluation of manuscripts. Ultimately, editors are the gatekeepers of the ethical standard of a journal.

J. Ingrin
Managing editor of *EJM*