

Baptiste Dafflon receives the 2013 Paul Niggli Medal

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The Paul Niggli Medal is Switzerland's most prestigious award for young earth scientist who made outstanding contributions in the research fields of mineralogy, geochemistry, petrology, resource geology or solid-earth geophysics. The Paul Niggli Medal honours and supports young ambassadors of Swiss geoscience, who are either Swiss citizens or have obtained at least two of their academic degrees in the Swiss university system (BSc or MSc and usually their PhD)

The Board of the Paul Niggli Foundation decided in their annual meeting, on 18 June 2013, to award the 2013 Paul Niggli Medal to Dr. Baptiste Dafflon, presently working at the Lawrence Berkeley National Laboratory, for his original research contributions to the geophysical exploration of aquifers and permafrost environments. The corresponding award ceremony was held on 15 November 2013, during the 11th Swiss Geoscience Meeting in Lausanne.

*Christoph A. Heinrich for the Board
of the Paul Niggli Foundation.*

Citation

Baptiste grew up in Romont, Canton de Fribourg, and in 1999, at the tender age of 19, decided to venture out into the big, wide world to study geophysics at ETH Zurich. I do not remember noticing him as student, but he ended up doing his Master thesis together with my postdoc Jens Tronicke, now a professor in Potsdam, and myself. Baptiste

worked on a topic in the then emerging field of hydrogeophysics, more specifically on the geostatistical characterization of aquifers based on geophysical measurements. At the time, this field was in its infancy and putting a Master student on a corresponding topic was, in retrospective, either bold or naïve or both. Anyway, it all worked out fine, indeed so fine that the work got published and Baptiste developed a taste for research. But first he had to do his civil service, which he mostly spent restoring historic dry stone walls on Alpine pastures. This is incredibly hard work and I still remember his crushing handshake when I first visited him on one of his sites. In the meantime, we are now in 2005, I moved to Lausanne and Baptiste joined me as my first PhD student. We continued to work on quantitative integration of geophysical and hydrogeological data, had a lot of fun doing so, and things continued to go really well. Baptiste finished his PhD in less than 3.5 years with 6 papers, all accepted or already published at the time of his defense, was awarded the Prix de la Faculté des Géosciences et de l'Environnement of the University of Lausanne, and received a best paper award from the AGU. Baptiste was then awarded an SNF postdoc fellowship and moved to Boise State University in Boise, Idaho, which operates the world's premier hydrogeophysical test site. He spent a year and a half working productively on the development of novel hydrogeophysical methods for enhanced 3-D simulation and inversion of hydraulic properties, before winning a prestigious postdoctoral fellowship at Lawrence Berkeley National Laboratory (LBNL) in Berkeley, California. There, he is primarily working on monitoring and quantifying subsurface processes relevant to contaminant remediation, carbon cycling, and water resources. Initially, he worked on advanced complex electrical monitoring

methods for detecting and imaging CO₂ intrusions into shallow aquifers. Recently, Baptiste has started to focus on the development of monitoring strategies involving a variety of geophysical, point-scale, and remote sensing measurements, for the advanced characterization in both space and time of landscape, soil layer, and permafrost co-variability with the objective of estimating the related influences on ecosystem feedbacks to climate. To this end, Baptiste now spends a significant amount of time doing field work in northern Alaska, and it was during one of these measurements campaigns that the news of being awarded the Paul Niggli Medal reached him. Since then Baptiste has been promoted to a more stable position at LBNL, achieving what is widely considered the most critical step in a scientific career. Still, Baptiste's objective is to eventually find a similarly rewarding opportunity back in his native and beloved Switzerland. With this in mind, please join us in congratulating Baptiste in wishing him continuing joy and success with regard to his research and all the very best for his future career.

Klaus Holliger (University of Lausanne)

Response

I am very thankful to the Paul Niggli Foundation and its board for choosing me as the recipient of the 2013 Paul Niggli Medal. I am pleasantly surprised and very happy to have obtained this recognition, which further strengthens my already firm motivation to pursue an academic career. I shall do my best to be a good ambassador of this great recognition, as a researcher and as a Swiss scientist.

Although my research is not directly related to that of Paul Niggli, I have always been fascinated by his achievements and his scientific spirit that led to advances in several domains of the earth sciences. It is now widely recognized that inter-linking various research fields, as Paul Niggli pioneered it, is key not only to understand complex natural phenomena, but also, and in particular, to face today's scientific and political challenges in the earth sciences, and to make society more conscious of and more inspired by the inherent beauty and importance of earth system processes.

The almost 10 years I have spent in research so far were full of excitement and allowed me to participate in numerous fascinating research projects. The challenges of acquiring meaningful data, in field campaigns from the

Alps to the Arctic have always been a strong source of inspiration and motivation, while the processing, interpretation, and numerical modeling of these data then allowed for improvements in the basic understanding of the underlying processes. While I have found academic multi-tasking of learning, writing, presenting, and teaching to be very enjoyable, I consider the experience of communicating scientific results to a wider audience rewarding. Finally, I am happy to have moved to the USA, albeit temporarily for now, as it has helped me broaden my views and knowledge of diverse research areas and reinforced my curiosity and motivation through the contagious enthusiasm of my many scientific peers and colleagues.

In my view, numerous people own a part of this medal, although I will not cite them all. First, I want to thank all my colleagues and friends at ETH Zurich during my studies, at the University of Lausanne during my PhD thesis and later at Boise State University and at Lawrence Berkeley National Laboratory (LBNL). Their presence has always created a stimulating and constructive working atmosphere, not to mention the opportunities to enjoy inspiring outdoor activities together. Many have been a great source of support, motivation and joy. Further, I thank the Swiss Academy of Sciences and the American Geophysical Union (AGU) for promoting earth sciences. Also I acknowledge the Swiss National Science Foundation and US Department of Energy for their financial support.

I want to give special thanks to Klaus Holliger from University of Lausanne who inspired me to analyze and interpret geophysical and hydrological data in a synoptic manner and who gave me the tools to establish myself in this field. Thanks also to James Irving from the University of Lausanne and Warren Barrash from Boise State University for their support in extending my field of expertise and being so nice when my English was so poor that they had almost to learn French. I acknowledge Susan Hubbard from Lawrence Berkeley National Laboratory, for having me on her enthusiastic team and for her daily demonstration of the importance of developing multi-disciplinary research to answer today's pressing science questions.

And last but not least, I thank my wife Denise, my kids, my parents and my family for being such a big source of happiness. Thanks once again to the Paul Niggli Foundation for this great award.

Baptiste Dafflon (Lawrence Berkeley National Laboratory, USA)