

Assessing the role of the Deccan Traps in the end-Cretaceous mass extinction

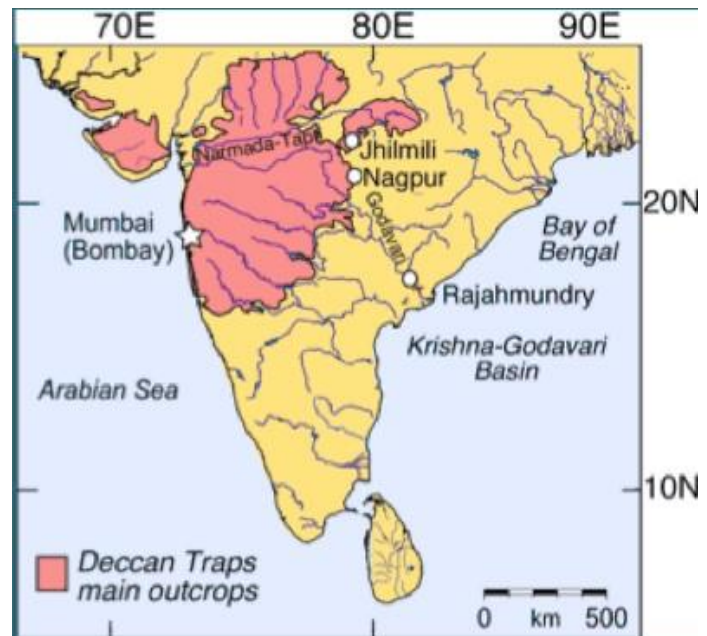
Blaine Schoene, Professor of Geology, Princeton University

Colorado Scientific Society 2022 Emmons Lecture

Thursday, October 6, Room 241 Berthoud Hall, CSM campus, 6 to 9 p.m.; lecture at 7 p.m.

ALL ARE WELCOME

The end-Cretaceous mass extinction is the only extinction event known to correlate with both volcanic activity from a large igneous province and a meteorite impact. Given the strong correlation between other mass extinction events and large igneous provinces, we have been carrying out high-precision U-Pb geochronology to establish the rates of eruptions across the extinction interval. Our work has shown that the vast majority of the Deccan Traps eruptions occurred within 1 Myr as series of large pulses that bracket the meteorite impact and mass extinction. While this work has substantiated and added details to the idea that volcanic pulses could have affected climate and contributed to the mass extinction, there remain large uncertainties in terms of magmatic and thermogenic volatile release, volumes of erupted lava, and the preserved geology of the province. Further quantifying these uncertainties should be a target of future work in order to understand how the Earth system responded to catastrophic volcanism, a meteorite impact and ecosystem collapse.



Blair Schoene is a Professor in the Department of Geosciences at Princeton University, where he is a geologist and geochronologist. His research investigates the rates and timing of geologic events throughout Earth history, from understanding volcanic and tectonic processes, to correlating mass extinction events with the possible causes and consequences. He got a B.S. in 1999 from The Colorado College, and a PhD from the Massachusetts Institute of Technology in 2006. Following a 3-year postdoc at the University of Geneva, Switzerland, he joined the faculty at Princeton, where he has been director of an isotope geochemistry and geochronology lab that focusses on high-precision U-Pb geochronology. His work on the Deccan Traps and the end-Cretaceous mass extinction began in 2013 and has resulted in numerous scientific publications, some of which have been featured in numerous media outlets, including the Washington Post and the New York Times.



Attend live or via Zoom;

Zoom link:

<https://us02web.zoom.us/j/82529991801?pwd=djYxa0J5R01ZNlVubVtWS0J6UWlSUT09>

Meeting ID: 825 2999 1801

Passcode: 069227

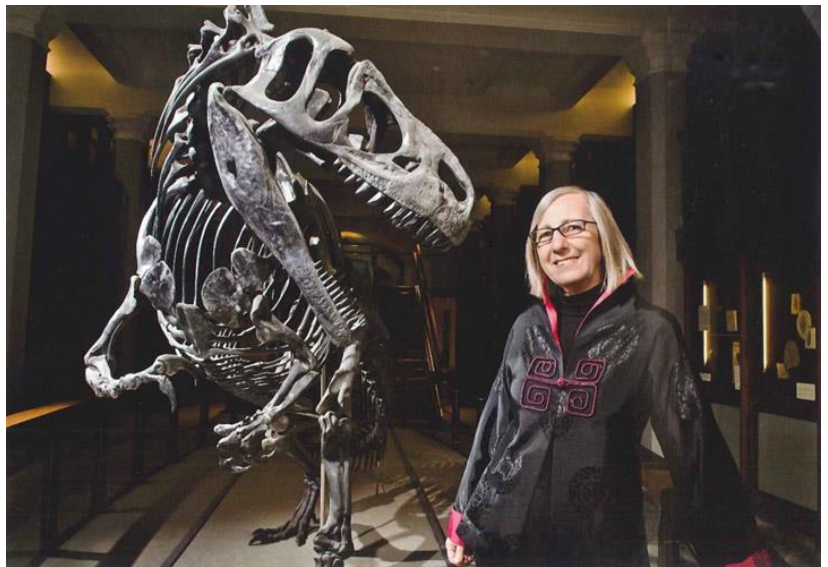
Prof. Gerta Keller had originally planned to give this presentation for us, but a health emergency for her has made this not possible. Her colleague and research team member at Princeton, Dr. Blair Schoene, will give the presentation instead.



Gerta Keller is Professor of Paleontology and Geology in the Geosciences Department of Princeton University since 1984. She was born in Schaan, Liechtenstein and grew up in Switzerland. She is a citizen of Switzerland, Liechtenstein and the United States of America. She received a B.S. degree from San Francisco State University in 1973 and a Ph.D. degree from Stanford University in 1978. Dr. Keller is currently Professor of Geosciences Emeritus at Princeton.

Keller's primary research interests focus on major catastrophes in Earth's history in the broadest sense, including the biotic effects of catastrophes, such as mass extinctions, meteorite impacts, major volcanic eruptions, rapid climate changes and ocean acidification. Her research integrates paleontology, stratigraphy, geochronology, sedimentology and geochemistry in reconstructing past environmental changes associated with or leading up to mass extinctions.

Keller is well known for her contributions to the Cretaceous-Tertiary mass extinction controversy. She has contributed in diverse areas, including a global quantitative analysis of the nature, rate and tempo of the mass extinction, stratigraphy and age control, climate and sea level changes, the distribution and age of diverse ejecta material related to impacts and Deccan volcanism. Her latest work on Deccan volcanism has concentrated on age dating of the main eruptions at and near the KT mass extinction in India and documenting the effects of this volcanism worldwide. Her work is largely the result of interdisciplinary collaborations with an international team of scientists and students.



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See our Colorado Scientific Society website, <https://coloscisoc.org/>, for additional information about the Emmons Lecture and other CSS events taking place soon, including two "No Moss" field trips on Sat. Oct. 8 and Sun. Nov. 6.