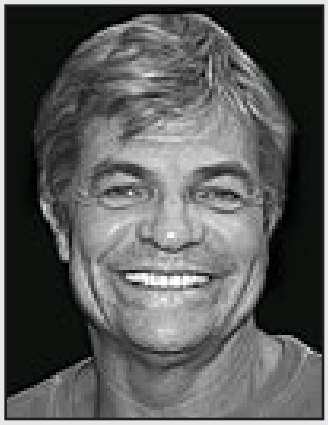
# DISTINGUISHED GEOLOGIC CAREER AWARD (MGPV DIVISION)

**Presented to**
**Jason B. Saleeby**



Jason B. Saleeby
*California Institute of Technology*

### *Citation By George G. Gehrels*

We are very pleased to announce that Dr. Jason B. Saleeby is the recipient of the 2012 Distinguished Geologic Career Award from the Mineralogy, Geochemistry, Petrology, & Volcanology Division of GSA.

This award is the perfect recognition of Dr. Saleeby's contributions because of the dual emphasis on geologic observations in the field and application of cutting edge analytical techniques in geochemistry, petrology, and related fields. And this is exactly what Jason is known for – the integration of field observations, from thin section to continent scale, with information from geophysics, petrology, geochronology, and thermochronology.

Dr. Saleeby is also remarkable for his ability to integrate information from both continental and marine settings. Perhaps you have been able to share this experience with Jason on a field trip in Owens Valley, when you learn that the topography across the eastern escarpment of the Sierra Nevada is very similar to the bathymetry across the Clipperton Fracture zone on the Pacific Ocean floor. And rather than granite boulders in alluvial fans, you camp among giant basaltic olistoliths and serpentinite mélange in submarine debris flows!

Also impressive are Dr. Saleeby's abilities to integrate information from

- surficial processes (for example linking the modern uplift and erosion of the Sierra Nevada with ongoing subsidence in the San Joaquin valley),
- upper crustal processes of deformation and melt emplacement (for example reconstructing the accretionary history of Sierran terranes),
- lower crustal processes of high-grade metamorphism and melt generation (for example Jason's work in the granulites and migmatites in the southern Sierra), and
- processes in the mantle such as eclogitization, delamination, and shallow subduction, which have revolutionized our understanding of Laramide-style tectonics around the world.

Indeed, few Earth Scientists have been able to glean as much information from rocks and structures in the field, and then apply a broad range of quantitative techniques to provide constraints on their ages and origins.

We would be remiss to not also recognize Dr. Saleeby's contributions to training students. Jason has mentored a continuous stream of graduate students since the late 1970's, first at Berkeley and then at Caltech, and many of these former students and post-docs are now in academic positions, conducting similar types of interdisciplinary research. Given that many of us have passed along this style of analysis to our graduate students, who in turn have trained their graduate students to be creative and imaginative researchers, just imagine the impact that Jason has on the tectonics research community!

In summary, we are pleased and honored to have Dr. Saleeby recognized as the recipient of the 2012 Distinguished Geologic Career Award from the Mineralogy, Geochemistry, Petrology, & Volcanology Division of GSA.

### *Response by Jason B. Saleeby*

It is a great honor to receive the 2012 GSA Division of Mineralogy, Geochemistry, Petrology and Volcanology Distinguished Geologic Career Award. For this recognition, I am most grateful. Having dedicated much of my career to the integration of traditional geoscience sub-disciplines, gives this award special meaning for me. Field-based geological research is unique in the scientific endeavor, by virtue of the direct connections that can be made between tactile human experience and advanced scientific instrumentation and analysis. From the perspective of a child-like inquisitiveness of our natural environment, a life full of multi-disciplinary field-based research gives one the sense that our planet is the ultimate amusement park! New discoveries, and making new connections between observations and data sets fuels the psyche with youthful energy that drives one to hunger for more new findings and connections. It seems to be a chronic condition for me. One of my favorite sayings is from an early Bob Dylan song: "He not busy being born, is busy dying." Our science has changed dramatically over my career, but the basics of sound field observations still stand as the ultimate infrastructure of our greatest pursuits.

Technical advances through the course of my career have proceeded at seemingly head-spinning rates. As a geology undergraduate student in 1970 at Cal State, Northridge, the life changing advance that impacted me the most was the delivery and installation of our first Xerox machine. This was a huge step forward for a budding geology undergrad, wanting personal copies of published maps, diagrams and key papers. In graduate school at U.C. Santa Barbara, 1972 was the big year for the installation of a digital control and data acquisition system on George Tilton's thermal ionization mass spectrometer. This greatly impacted my Ph.D. thesis research. In the late 1980's heavy metal isotopic geochemistry was launched into the modern era by the emergence of high-precision multiple Faraday collector housings, and high sensitivity signal multipliers. As Y2K rolled through we found ourselves moving into the era of interrogating large populations of individual zircon grains for their ages, or even age zonation patterns, by the newly emerging isoprobe instruments. We may be approaching the point where our data acquisition is out running our ability to synthesize and interpret the data that we produce!

Being at the right place at the right time has been equivalent to a series of bifurcation points in my professional and personal evolution. When I arrived at U.C. Santa Barbara in 1972 George Tilton was just finishing the production of his lunar geochemistry laboratory, wherein he was open to having a small number of investigators work on terrestrial rocks. Thank you George! Jim Mattinson had just arrived as a junior faculty member following his post-doc at Carnegie Institute where he helped engineer new zircon dissolution and column extraction techniques. I was fortunate to be the first graduate student to apply those techniques in George's lab. Having recently attended the

first GSA Penrose Conference on ophiolites, Cliff Hopson was just initiating his in-depth study of the Coast Range ophiolite, and I was fortunate to assist him in a number of his earlier field excursions and zircon geochronology sampling campaigns. Those experiences with Cliff are as valuable for me today as they were forty years ago! John Crowell had just been funded to initiate his basement and basin studies of the then newly recognized San Andreas transform system. His field trips and seminars primed me for the complexities of the southern California basement, which I still wrestle with. And, Dan Karig was in the midst ofhis seminal work and early papers on back arc basins and accretionary prisms. Dan's office was somewhat of a hangout spot for me and some fellow grad students, by virtue of all the excitement and new ideas that were packed into that space. I could not ask for more in terms of an exciting and intellectually ripe environment in which to pursue graduate studies.

As an Assistant Professor at U.C. Berkeley I was exposed to looking at rocks and geochemical systems in an entirely new way by Ian Carmichael and Hal Helgeson. John Verhoogan encouraged and nurtured my interest in integrating geophysics with structural geology and petrology. Howell Williams stimulated my interest in the Great Valley subsurface, which has steadily grown over the decades since. While at Berkeley Jerry van Andel and Bob Ballard were at Stanford, and we had a series of meetings and discussions about Alvin dives into large transform fracture zones, as a result of my first series of papers published on the Kings-Kaweah ophiolite belt. As these discussions began to move towards the serious planning stages Lee Silver visited Berkeley to give a seminar, and out of our discussions began a series of communications with Lee and Barclay Kamb that rapidly transplanted me into the Caltech environment. At that point I recognized that I was at a critical bifurcation point, opting for a clean room and mass spectrometer over research off of an oceanographic vessel. My residence at Berkeley also gave me easy access to the U.S.G.S. in Menlo Park, facilitating important interactions with Clark Blake, Bob Coleman, Ron Kistler and Jim Moore. My short stay at Berkeley was a major intellectual growing up experience that prepared me for the Caltech environment.

Back to the importance of timing. When I arrived at Caltech Jerry Wasserburg's group had just launched the broad application of Neodymium isotopes to terrestrial problems in petrogenesis and geochronology. Jerry was most gracious in sharing techniques, and also running various strategic Nd-Sr samples for me, prior to the development of those techniques in my laboratory. Lee Silver was in his most active phases of multi-system isotopic mapping of the southern California region basement. This returned me to a number of first order questions that I was exposed to in seminars and field trips with John Crowell, and helped lead me to the long term "wrestling match" referred to above. A whole new way of viewing global tectonics emerged for me as I witnessed Don Anderson develop his eclogite mantle engine model. Now I am the old guy on the block at Caltech, surrounded by brilliant youngsters! I have much to be thankful for.

Like many of my GSA talks over the years, now that the introduction is done there is not much time left for the content, or in this case not much space left if this document is not to go too long for GSA editorial preferences. The essence of my professional experience lies in the mystery and grandiosity of planet Earth and its geological evolution. We are all fortunate to be in profession for which the pursuit of this great story is our primary charge. Added to this, many of us are asked to share our expertise and experiences with undergraduate and graduate students, and post- doctoral fellows. Sharing unselfishly with these young evolving minds is the best way to pay back the dept that we owe society for offering us such extraordinary professions. If asked to name my greatest student, I would have to name ten. This is about as good as it gets! So I close with a brief story concerning student interactions, and thoughts I have concerning the mission of the GSA MGPV Division. I sometimes relate to students the strong parallels between deep time geologic analysis and forensic scientific investigations. With recent technical advances and proliferations in instrumentation and data manipulation systems we have witnessed an attrition in basic field geology programs across the U.S. In regard to this trend I have begun to ask my students while sharing this view: given the best forensic lab that money could establish, how good are the results going to be for a given investigation if the crime scene investigators don't know what all to look for, or how to connect the dots of various leads as they arise? Should we concern ourselves with direct parallels in geologic analysis? The value placed in field-based multidisciplinary studies by the GSA MGPV Division is, in my opinion, a guiding light for the geoscience community in keeping our goals on track with the pursuit of geologic reality. Thank you MGPV Division for this, and for this very special award!