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Dr. John Calder, Chair,
Gesner Award Committee
Atlantic Geoscience Society

9th January 2015

Dear John,

Nomination of Dr. Marcos Zentilli for the Gesner Medal

I am writing to nominate Dr. Marcos Zentilli for the Atlantic Geoscience Society Gesner Medal. Marcos Zentilli is Professor Emeritus in the Department of Earth Sciences at Dalhousie University. His research is broad, as an economic geologist who also specialized in rock dating and isotope geochemistry applied to mineral resources, both metals and petroleum in North and South America. He created the only apatite fission track laboratory in Canada that became a leading lab in the world, dedicated to the understanding of the thermal aspects of basins, including fault movements, effects of salt, circulation of hot fluids in the crust, and the genesis of mineral deposits.

Not long after I arrived in Nova Scotia I assisted Marcos Zentilli with a field course for our Honour's students in Chile, his homeland. It was fantastic. Marcos blended an intricate picture of active tectonics, sedimentation and metallogenesis that held the rapt attention of the students as we travelled the length of Chile. In those travels we learned there is a volcano named in tribute to Marcos' scientific achievements in Chile, Mount Zentilli. His enthusiasm transforms to his research and teaching. His love of geology began at a very early age. In high school he arranged passage on a tramp steamer for his classmates for a geologic trip to Peru. Marcos never lost this thirst for geologic knowledge, although his mode of travel is more up-scale these days. A graduate in Mining Geology (1963) from the University of Chile in Santiago, Marcos went on to graduate studies in the field of metallogenesis and the mineralogy of ore deposits in Germany at the University of Munich (1964-65). This was followed by his PhD studies (1974) at Queen's University in Kingston where he investigated metallogenesis and the role of tectonics on the formation and distribution of mineral deposits. During his doctoral studies he was on educational leave from the Geological Survey of Chile where he was resident geologist for the Atacama province for the Geological Survey of Chile, one of the richest economic geology areas of Chile. He initially came to Dalhousie University as a sabbatical replacement lecturer, and rose rapidly to professor. He developed the first fission track laboratory in Canada and considered one of the finest in the world. He is very active as Professor Emeritus, making significant contributions; for example, to the Play Fairway Analysis, an evaluation of the offshore hydrocarbon resources of the Scotian margin, supervising graduate and Honours student thesis research, and contributing to the new book on Canadian geology, "Four Billion Years and Counting".

The Gesner medal is a fitting award for Dr. Zentilli given the breadth of contributions both he and Gesner have made to Atlantic Geoscience. In fact some of Abram Gesner's most important contributions were to petroleum geology, as the discoverer of the process to make kerosene and identifying albertite, a variety of mineral asphalt. Many of Marcos' contributions to science are in petroleum systems and basin analysis including studies on the thermal evolution of the Maritimes and Scotian basins with Grist, R. Ryan, Li and Ravenhurst coupled with the early provenance studies along the margin with Reynolds and Beaumont and others.

His work with Graves on the understanding of the metallogenesis of the Meguma Terrane including distribution of gold deposits, and the influence of carbon and the metalliferous black shales of the Meguma Terrane produced a comprehensive review of the geology of gold in Nova Scotia. His development of new models with Ravenhurst and others on Pb-Zn and barite mineralization in Nova Scotia increased our understanding of the distribution of these deposits in Nova Scotia.

Marcos' skills as a field and mine geologist have remained with him and are demonstrated in his ability to record the fine detail and then integrate and transform these observations to the broader, regional tectonic picture. The concepts he developed in Atlantic Canada have been applied worldwide. His extensive interests and publications range from environmental geology, acid drainage to salt mobility. He has expanded knowledge of the thermal history and metallogenesis of passive and active margins, the development of basins and the interplay of sedimentation and tectonics through analysis of thermal history from the basins of Atlantic Canada to the Arctic, with data collected in the field on several expeditions to the Arctic Archipelago and Nunavut; and investigations of the eastern margin of the Canadian Shield and Appalachian Orogen, Western Newfoundland and the offshore basins of Atlantic Canada

In Environmental Geology he collaborated with Fox, Cameron and A. Ryan on acid rock drainage from the Meguma Group and granites of the Liscomb Complex. Other significant research was on the acid drainage at the Stanfield (Halifax) International airport with Graves, Pasava and MacInnis.

Marcos views students as a scientist's greatest legacy. Many of his letters of support reflect the incredible contribution he has made in the mentorship of students in their research and their careers. His enthusiastic support of graduate and undergraduate students is recounted. He developed their basic observational skills and trained them in the application of the latest scientific methods. He supervised/ co-supervised over 30 PhD and MSc theses and nearly 50 Honours thesis, many of which won national awards for the quality of their research. These students have gone on to successful technical and managerial roles in the energy and resource sectors, government and academia.

His service to Atlantic Canada is remarkable. He served as Chair of the Department of Earth Sciences at Dalhousie University and was a founding member of APGNS (Association of Professional Geoscientists of Nova Scotia). He was Chair of the Northeastern Section Geological Society of America meeting in Halifax in 2003. He participated in the development of the 2010 Natural Resources Strategy for the Province of Nova Scotia. Marcos has been a regular contributor to the AGS colloquiums and it is through these presentations at AGS that many of his students have had their first introduction to presentations of their research. He has taught short courses. He has served on many international boards, editorships and committees and some may not know Marcos is now Honorary Consul of Chile in Halifax

The Atlantic Geoscience Society recognizes scientists who have made important and unique contributions to increasing the knowledge and understanding of Atlantic Geoscience with its highest Honour, the Gesner Medal, named for Abraham Gesner (1797-1864), Atlantic Canada's first regional expert geoscientist. Marcos Zentilli exemplifies Gesner's broad scientific interests with his research in the field to the lab. His research and the development of fission track analysis paved the way for unravelling the complexities of metallogenesis and basin history. In recognition of his contributions to the geology of Atlantic Canada, the Canadian Arctic and South America, and in recognition of his role as an educator, I am honoured to nominate Dr. Marcos Zentilli, seconded by Dr. Scott Swinden, for the Gesner Medal.

Yours truly,



Grant Wach