

Laudation for Olena Babak, Vistelius Award 2011

The Andrei Borisovich Vistelius Research Award is given to a young scientist for promising contributions in research in the application of mathematics in the earth sciences. The recipient should be 35 years or less at the end of the calendar year for which she has been selected for the award. Let me introduce Dr. Olena Babak as this year's worthy recipient of the Vistelius award. Olena has indeed made many promising contributions of mathematics to the geosciences and is a young 29 years old. She is extremely qualified and the IAMG Awards Committee has chosen well.



There are few awards for those involved in interdisciplinary research in mathematical geosciences. The coveted Vistelius award is granted every two years and Olena is only the twenty-third recipient. The standards for the Vistelius Award are high; it takes more than academic credentials, citizenship, hard work, research contributions and an impact on practical applications to merit the Vistelius award. Olena has these and more.

Regarding academic credentials, Olena has a B.Sc. in Mathematics in 2003 and an M.Sc. in Statistics in 2004 from Ivan Franko National University of Lviv, Ukraine. She has a B.Sc. in Mathematics in 2003 and an M.Sc. in industrial engineering in 2005 from the University of Iceland. Finally, she earned a Ph.D. in geostatistics from the University of Alberta in 2008. She received top grades and many awards during her studies – including an IAMG student grant.

Regarding citizenship, Olena is not selfish with her time. She is pleased to answer questions and help colleagues achieve their potential. The last time I met Olena was six weeks ago when she travelled to the University from a different city to contribute to a program that encourages young women to pursue careers in science, engineering and technology. It turns out she has been involved in this program since she was a student and continues her involvement. She has been involved in many forms of student enrichment from her undergraduate days. Olena is not a one dimensional person focused on her own research.

Regarding hard work, Olena demonstrates an industriousness and dedication to her profession that is impressive and humbling. She manages a demanding career, a young family and continues to take classes. She has two final exams next month for university classes that will contribute to her becoming registered as a professional engineer and geoscientist in Alberta. Moreover, while completing her Ph.D. in Edmonton she taught undergraduate classes in statistics at the University and at an affiliated college. She is not intimidated by the effort required to achieve her goals.

Regarding research contributions, Olena has undertaken a variety of research projects and started publishing in peer-reviewed journals as an undergraduate student. This is certainly the most

important aspect of Olena related to the Vistelius award. She has published widely in many journals including IAMG's prestigious journals. Olena's contributions to research are varied, but are mostly aimed at solving difficult geostatistical problems. She brings a depth and breadth of mathematical sophistication to real problems and develops solutions with mathematical rigor and practicality. She has modified the well known kriging equations at a fundamental level, has solved challenges of variance bias in cokriging, has developed multivariate tests and has worked on improved geological modeling of categorical and continuous variables.

Regarding an impact on practical applications, the developments of Olena have been integrated in the best practices of many companies – not just her current employer. Improved geological models have resulted from her research results and improved decisions have been made. The influence of her research will continue to grow as her prolific research results are disseminated.

It takes more than academic credentials, citizenship, hard work, research contributions and an impact on practical applications to merit the Vistelius award. Olena has what it takes. It takes a passion for mathematics and the geosciences. It takes sparks of creativity that can bring together disparate concepts and techniques to solve practical geological modeling problems with flair and skill. It takes dedication and commitment to see the research results through to publication and application. It takes the strength of youth to believe that everything is possible. Congratulations to Olena Babak for the Vistelius Award in 2011.

Clayton V. Deutsch, September 2011