Geo Model s.r.o.
Digitálny model územia

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The National Science Foundation
4201 Wilson Boulevard,
Arlington, Virginia 22230, USA

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Dear NSF representative,

we are very pleased to express our commitment to collaboration on the proposed project "**Computational dynamic landscape manipulation and optimization for OPEN source GIS**" with the researchers at the North Carolina State University. We are a team of GIS specialists with scientific background and we have been involved in open source GIS development and applications for almost 10 years.

Our previous collaboration with Dr. Mitasova and Markus Neteler from University of Hannover, Institute of Physical Geography & Landscape Ecology, Germany has been extremely useful and productive and resulted in significant contributions to open source GIS infrastructure as well as efficient solutions for environmental projects solved by our company. This infrastructure provided a substantial help in solution of the projects funded by the national (private and state) as well as European Union funds. The development of new computational, visualization and interactive tools will be highly valuable for our current efforts as well as for the planned projects.

We would like to note that our research projects were solved in close collaboration with experts at the Institute of Geography, Slovak Academy of Sciences (Dr. Marcel Šúri) and Slovak State Geological Survey (Peter Pauditš) as well as other private and state organizations. Some of the most important results related to the planned collaboration with the NCSU team could be summarized as follows:

- Creation of the national digital elevation model of Slovakia with pixel resolution of 50 m from topographic maps at scale 1:50 000 using the methods developed by Dr. Mitasova and Dr. Mitas. These data were successfully applied in hydrological regionalization of small basins in Slovakia, national assessment of soil erosion, regional Agenda 21, and other projects;
- Identification of the appropriate radioactive fuel disposal site and possible environmental risks in Slovakia. At present the experience from the project is being enhanced in 3D modeling of the effects of possible accidents on the oil transport pipelines and related infrastructure;
- Dynamic modeling of spatial redistribution of radionuclides influenced by overland flow by application of physically based models LISEM and ERDEP on a catchment close to the Nuclear Power Plant in Mochovce, Slovakia;
- The tools for 3D and 4D interpolation are being tested for computation and validation of the time series of the national digital datasets of rainfall data.

Our further collaboration with the team at NCSU will be focused on the development of new open source software tools for spatio-temporal modeling of landscape processes, identification and minimization of environmental risks, and proposals of future landscape scenarios. These tools will be extremely useful in identification and minimization of various environmental risks neglected during a previous political system in Slovakia for more than 40 years.

Our contribution to this collaboration will include software implementation in an Open Source environment (GRASS GIS), testing of proposed methods and tools in environmental projects, using data from Slovakia. We anticipate that the results of this collaboration will be published in scientific papers, will be distributed with the open source GIS software, will be used to train GIS and environment professionals at Comenius University in Bratislava and contribute to the solution of environmental problems in our country.

Sincerely yours,

Dr. Jaroslav Hofierka