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Dear Selection Committee,

I am writing to express my interest in participating in the Summer School on Effective HPC for Climate and Weather.

Currently, I am a PhD student and Research Assistant at the University of Zagreb, Faculty of Science, Department of Geophysics and I am working on a project “Severe weather over the Alpine-Adriatic region in a changing climate”. The main goals of the project are a better understanding of severe weather events, evaluation of their representation in weather and climate models, and investigation of their response to climate change. My role within the project is to investigate the modeling of severe weather and capabilities of the WRF-HAILCAST model to simulate hail events, i.e. tuning the model and determining optimal setup for hail simulation. Since I am running WRF-HAILCAST simulations at multiple HPCs including ECMWF HPC, I am extremely interested in learning how to use HPC environment effectively, i.e. how to make changes in models code, efficiently run simulations, as well as store and post-process data. I am interested in applying machine learning in my analysis as well. My current knowledge of programming includes Python, Matlab and Fortran 95. I have experience working in a Linux/Unix environment as well.

Working on a project in a group of scientists from a similar field is something I am looking forward to. Regarding a project idea, I would like to propose to run a convection-permitting simulation, possibly with the WRF-HAILCAST model, and analyze the relationship of hail occurrence with other meteorological variables (CAPE, pressure tendency, thermodynamic indices, etc).

Furthermore, as the computational power and complexity of weather/climate models is increasing, the insights about methods and tools to make effective use of HPC environments are becoming more and more important. Since the experience of working in such environments at our Faculty is limited, I would appreciate the opportunity to participate in your summer school to learn as much as possible about the workflow in such environments. Likewise, I am excited to share gained knowledge among my colleagues and students at our Faculty.

If you have any additional questions or would like a description of my project idea in more detail, please do not hesitate to contact me. I am looking forward to hearing from you.

Sincerely,

Barbara Malecic