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HPC Summer School Selection Committee   March 5, 2020

To whom it may concern

I am writing to express my interest in attending the upcoming Summer School on Effective HPC for Climate and Weather. In this letter I hope to express the extent to which I will benefit from participating in the program and how I believe I can contribute to the success of the week. Finally, I briefly outline a potential group project that aligns with my area of academic interest and the objectives of the summer school.

My experience up to this point in my PhD project in Australia has been that it is rare to meet and work with other early-career meteorologists or climatologists, and this is especially true for the computationally-focused aspects of the field. As a result, I intend to draw great value from this unique setting by sparking new connections amongst like-minded researchers. Secondly, the opportunity to gain first-hand insights from academics from world renowned research institutions such as ECMWF and ESiWACE will undoubtedly have a direct impact on my ability and effectiveness as a researcher. Specifically, the Extreme-Scale Computation, Machine Learning and High-Performance Data Analytics and Visualisation sessions have the potential to immediately benefit my current research. For these reasons I hope that participating in the summer school will play a seminal role in my PhD project and research direction moving forward in my career.

The selection committee outlined a desire for applicants to show how they believe they will act as an amplifier of the knowledge they obtain throughout the summer school. In accordance, I have outlined a number of ways in which I aim to apply what I have learned from the school below:

- the publication of higher quality research outputs
- directly imparting computational theory and techniques to undergraduate students I currently co-supervise
- passing on learnt insights to the Australian research community through current research collaborations
- learn how to apply my research analysis to large historical data archives and make available for other researchers

Having experience with observational datasets, weather model outputs and a strong programming background, I believe I can confidently step into practical tasks outlined in the program and be a helpful and supportive member of my group. This ability to be an effective group member, and the potential to amplify learnt information, form the basis of why I believe I can make a strong contribution to the event.

Group Project Proposal:

Name: Developing remote sensing methods to verify numerical weather model predictions of thunderstorms.

Description: This project would attempt to investigate the accuracy of short-term (1-2 day) thunderstorm predictions based on common convective indices from global weather models. The validation process will be done for a specific region using a comparison with an observational dataset of either satellite or weather radar data.

Suitability: This project is relevant to a majority of the topics covered in the summer school (big data analytics, code development, post-processing and visualisation *etc.*) and closely related to the overarching themes of weather and climate. The project can also be completed in a varying range of complexities depending on time constraints.

Thank you for your consideration,

Jordan Brook