



Jet Propulsion Laboratory
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Re: Mohammad Afzal Shadab

I am writing this letter in support of Afzal's application. I have known Afzal for the past 1.5 years as his Ph.D. Committee member and his JPL Internship advisor.

Afzal is an excellent Ph.D. candidate with an outstanding track record. He is generally interested in solving fluid flow problems applied to Earth and Planetary Sciences. Afzal has a solid theoretical background and numerical/computational skillset. While at JPL, he worked on the meltwater infiltration problem in Greenland under my supervision; he developed and coded a high-fidelity 2D numerical simulator for meltwater percolation and validated the code against the analytical solutions. Afzal also used his model to interpret the field data. Afzal was enthusiastic about his research; he worked almost independently and required minimal supervision. Based on his final internship presentation at JPL and his candidacy exam, I can say that Afzal possesses excellent communication skills. In hindsight, no wonder he received the Outstanding Student Presentation Award at the 2021 AGU Fall Meeting.

Afzal has received several awards and fellowships, including the prestigious JPL Graduate Fellowship, Purdue Climate Scholarship, and MIT-Houston Energy Innovation Fellowship. He has actively participated in community efforts. For example, he is concurrently serving as an Executive Secretary for a NASA Review Panel, a DEI Lead and Executive Committee Member of the US Association of Polar Early Career Scientists (USAPECS), and a member of the AGU Hydrology Section Student Subcommittee. He has also been pro-bono mentoring students from across the globe to help them pursue higher education, especially in Earth and Planetary Sciences.

I hope that you will consider Afzal's application sincerely. Feel free to contact me if you have questions or need further information about Afzal and his research.

Sincerely,

Dr. Surendra Adhikari
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