Speeding Up 3D Atmospheric Simulations

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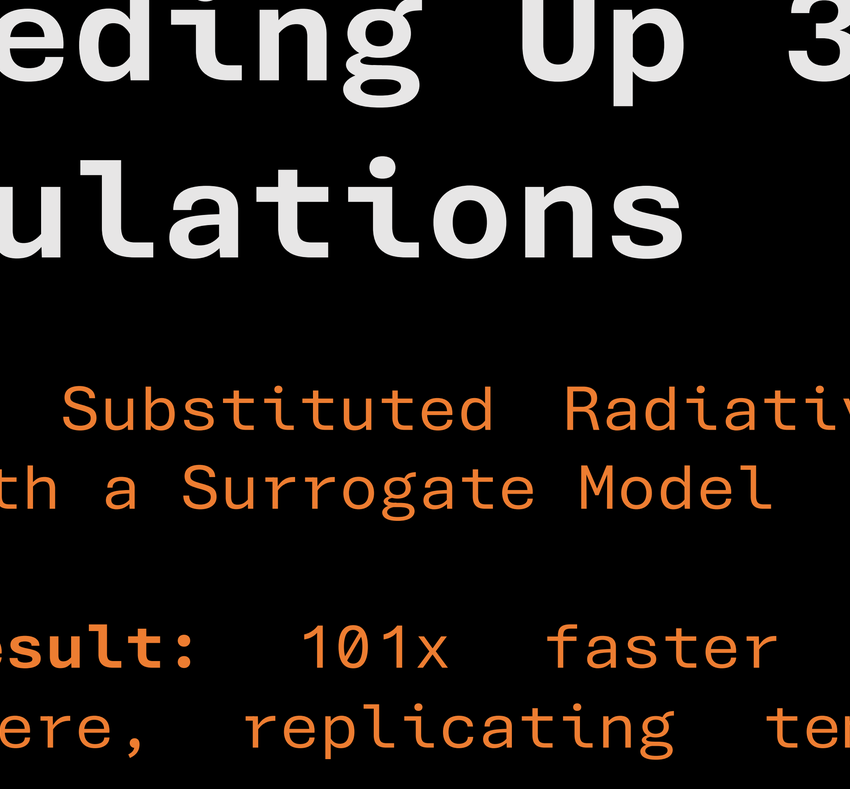
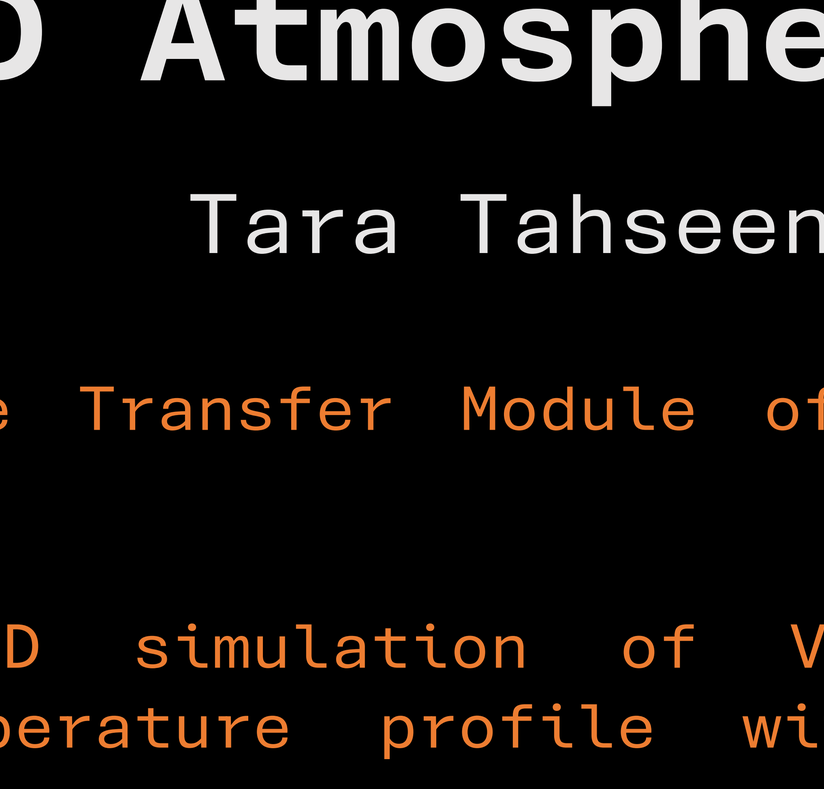
Method: Substituted Radiative Transfer Module of OASIS GCM[1] with a Surrogate Model

Key Result: 101x faster 3D simulation of Venusian atmosphere, replicating temperature profile with <4% error





Plot Credit: "Enhancing 3D Planetary Atmosphere Simulations with a Surrogate Radiative Transfer Model", Tahseen et al, *in prep*

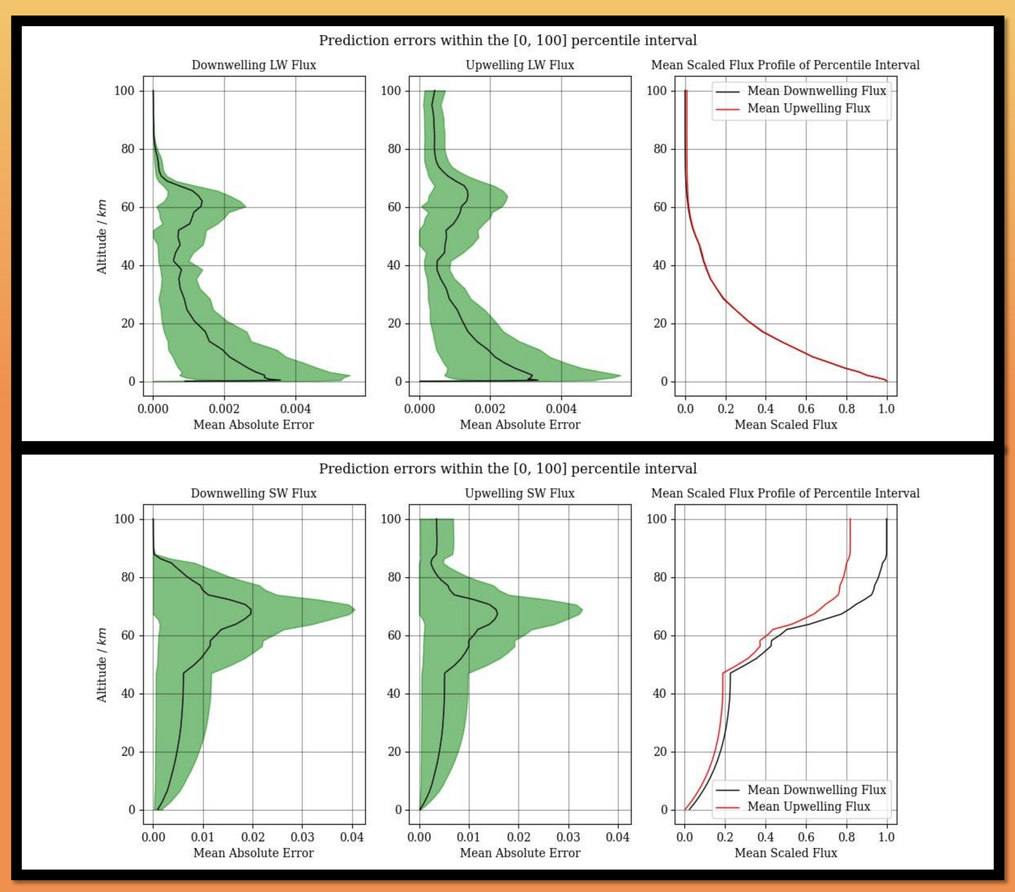
[1] *OASIS GCM: Mendonca J. & Buchhave L. (2020)*

Machine-Learned Surrogate Modelling

What is our surrogate model?

- **2 surrogate models**, to replace **long-wave** and **short-wave** radiative transfer computations separately
- **Architecture** to be detailed in "*Enhancing 3D Planetary Atmosphere Simulations with a Surrogate Radiative Transfer Model*", Tahseen et al, *in prep*

Flux Profile Surrogate Accuracies



Interested in this work? E-mail me at tara.tahseen.22@ucl.ac.uk