Appendix 8. Short term Sensitivity Plots

Graph captions:
A) Comparison of modeled lava surface temperature after modifications to the following input parameters: density, emissivity, and latent heat. The noted input variable is changed to the stated amount, while keeping all other variables the same as the base case. The base case here uses the following input values:

- Flow thickness: 10 meters
- Density=2950 kg/m$^3$
- Initial temperature: 1400 K
- Emissivity=0.90
- Latent heat=350,000 J/kg
- Solidus=1333 K
- Ambient temperature=variable
- Lava thermal conductivity=varies between 1.1 and 1.8 W/(m K)
- Porosity=varies between 10% and 30%

B) Close-up of Graph A, to show the range of values.

C) Comparison of modeled lava surface temperatures after modifications to the following input parameters: initial temperature, solidus, air temperature, and porosity. The base case is the same as in Graph A.

D) Close-up of Graph C.

E) Comparison of modeled lava surface temperature after modifications to the convective heat transfer coefficient. No base case is shown for reference, though the previous base case (Graphs A-D) used an $h_c$ of about 90 W/m$^2$ K.

F) Comparison of modeled lava surface temperature after modifications to the thermal conductivity of lava. The base case here uses a thermal conductivity value that varies between 1.1 and 1.8 W/m K, according to temperature.