Table S1 Parameters used in the PyFLOWGO model

Parameter	Value	Units
Gravitational acceleration	1.62	m/s^2
Crystal_fraction	10.4	%
Density_dre	2970	kg/m^3
Emissivity	0.95	N/A
Basal temperature	93.15	℃
Thermal conductivity	1.929	W/m K
Max_channel_length	26000	m
Eruption temperature	1400	℃
Max_packing	64.1	%
Crust_temperature	773.15	℃