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Supporting Information for

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**Magma chamber formation by dike accretion and crustal melting: 2D thermal model
with emphasis on zircon record**

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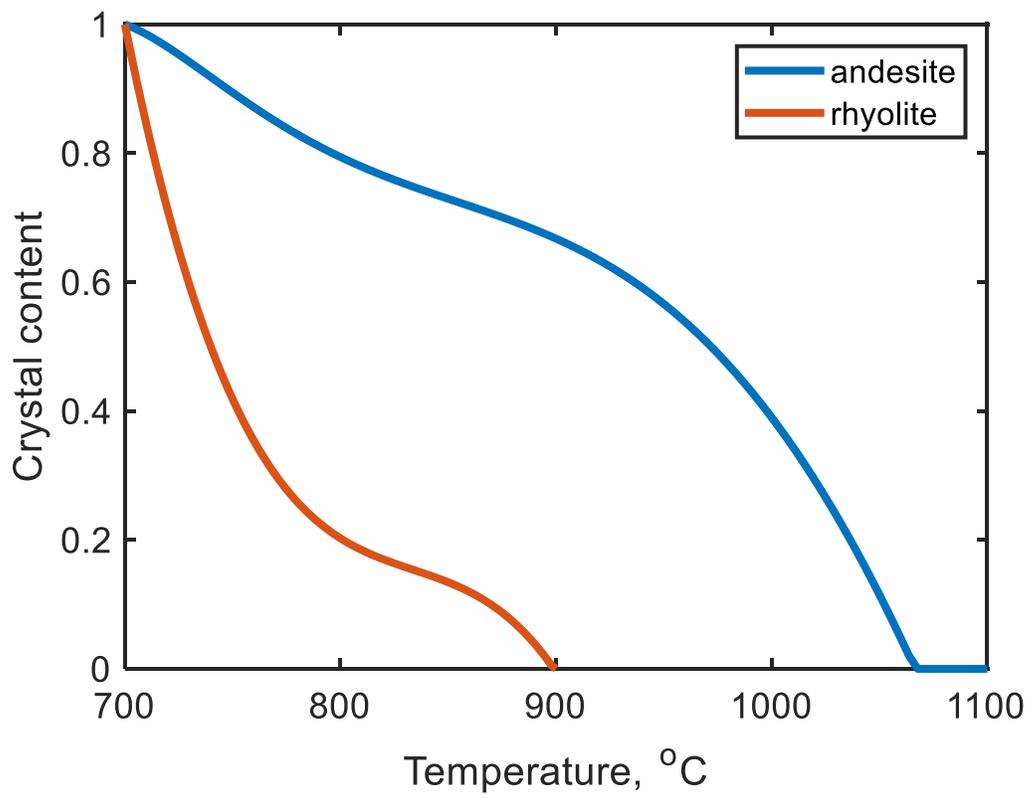
Introduction

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Supporting information provides phase diagrams for andesitic and rhyolitic magmas that were used in the simulation and additional figures for andesitic magma injection into the granitic crust. All discussion and references to figures are provided in the main text.

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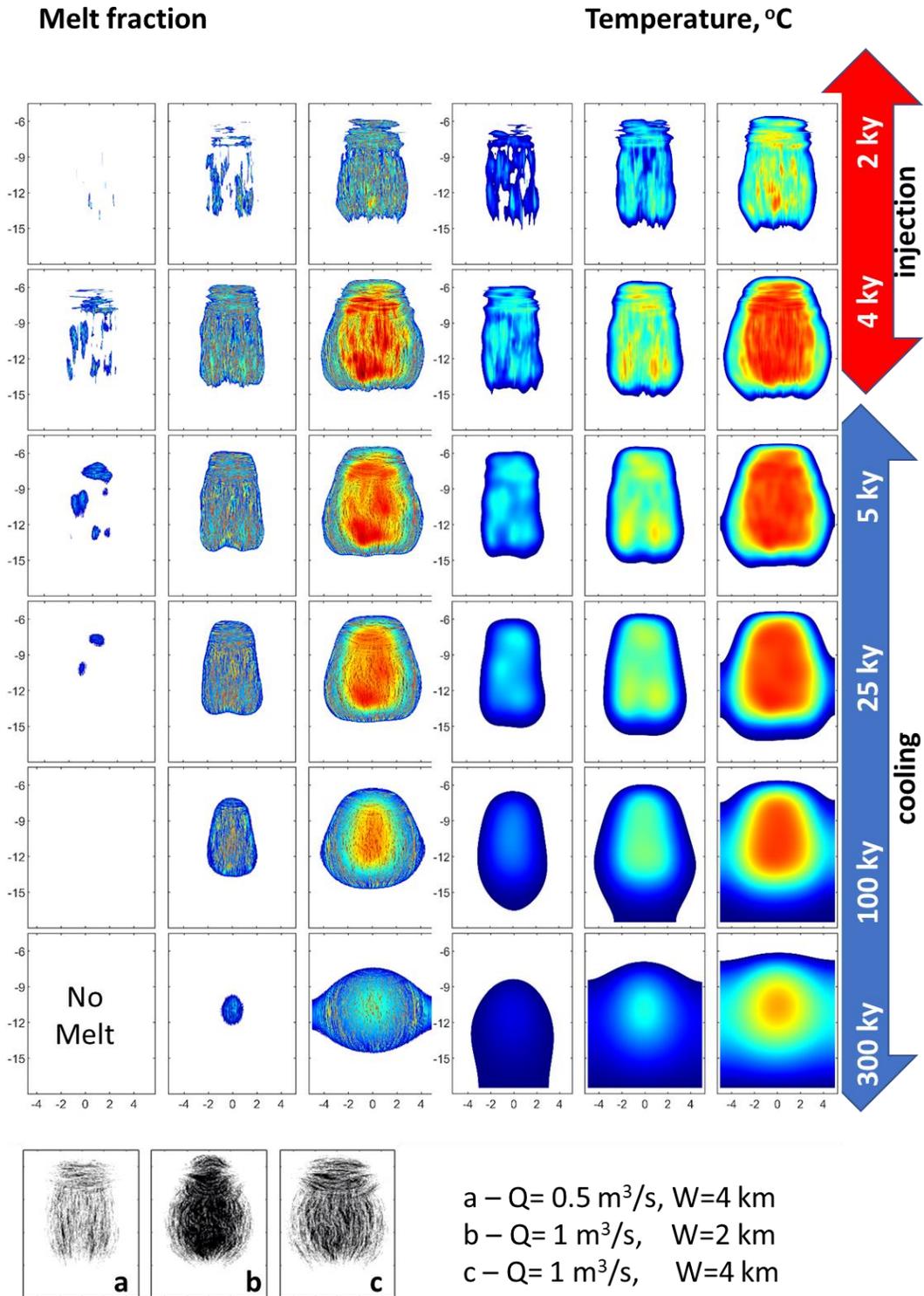
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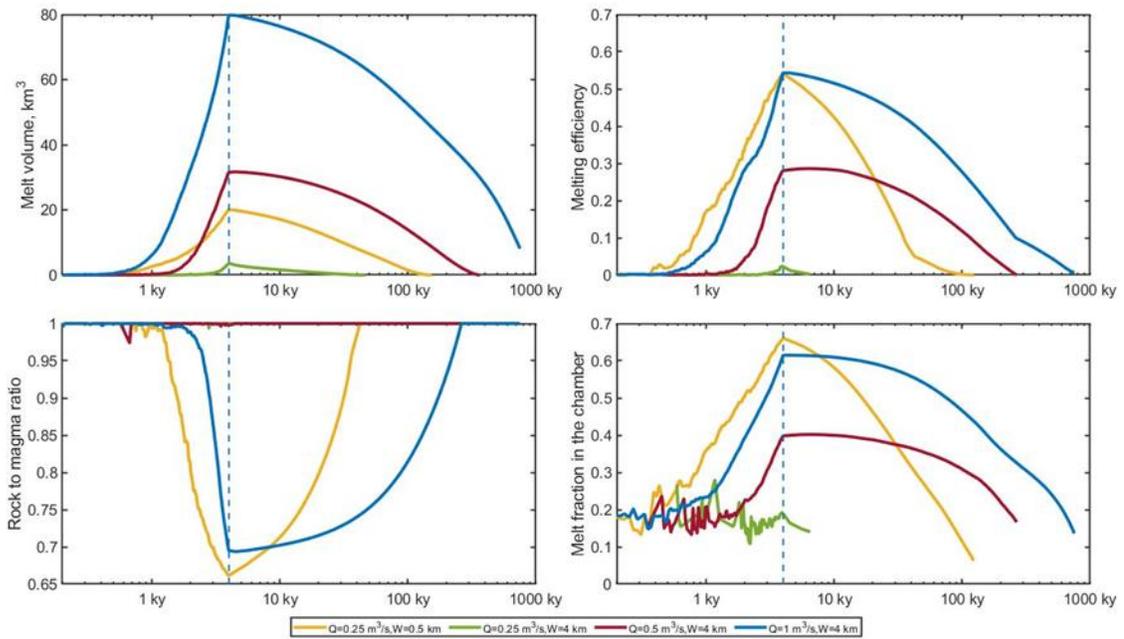
19 **Figure S1.** Phase diagrams used in the simulations.

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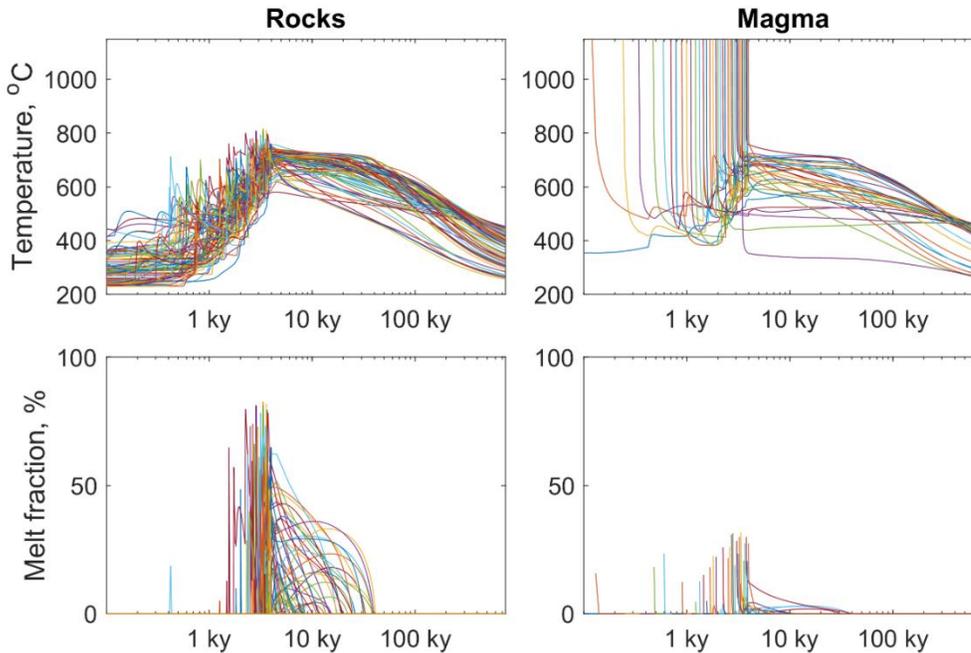
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22 **Figure S2.** Met fraction and temperature distribution for andesitic magma injection in granitic
 23 crust.



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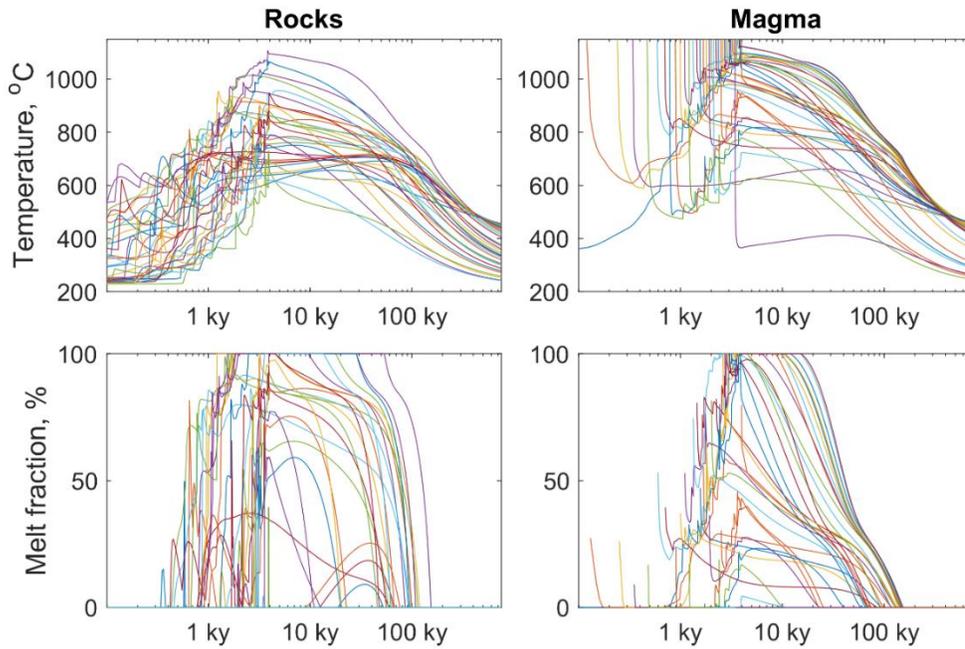
25 **Figure S3.** Melt volume (A), melting efficiency defined as the volume of eruptible melt divided
 26 by the amount of injected magma (B), rock to magma ratio in eruptible magma (C) and
 27 averaged melt fraction in the magma chamber.



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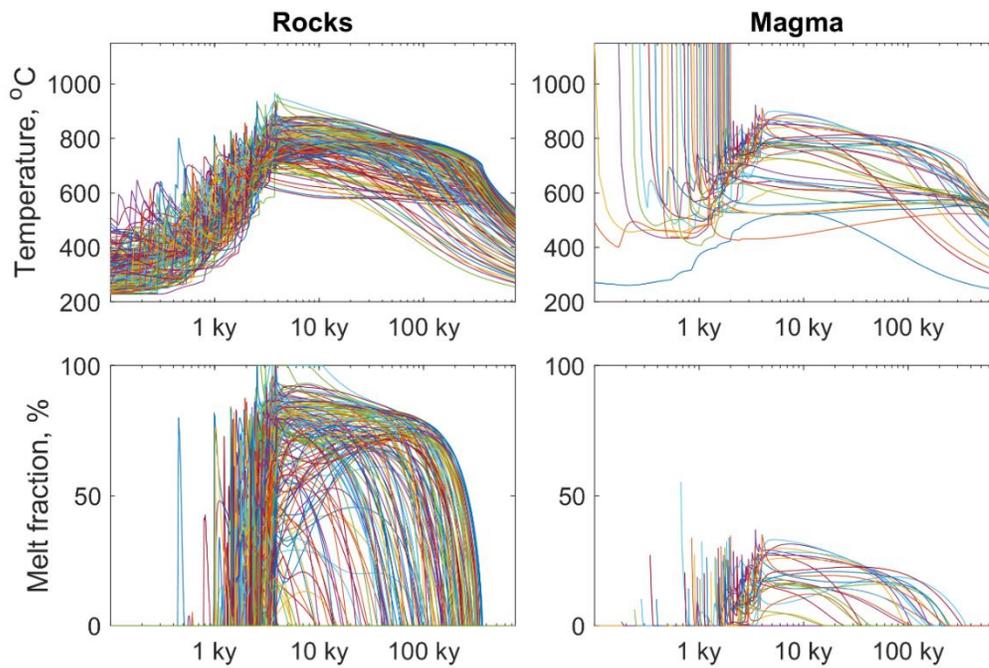
29 **Figure S4a.** Temperature histories of rock and andesitic magma particles for $Q=0.25 \text{ m}^3/\text{s}$,
 30 $W=4 \text{ km}$.

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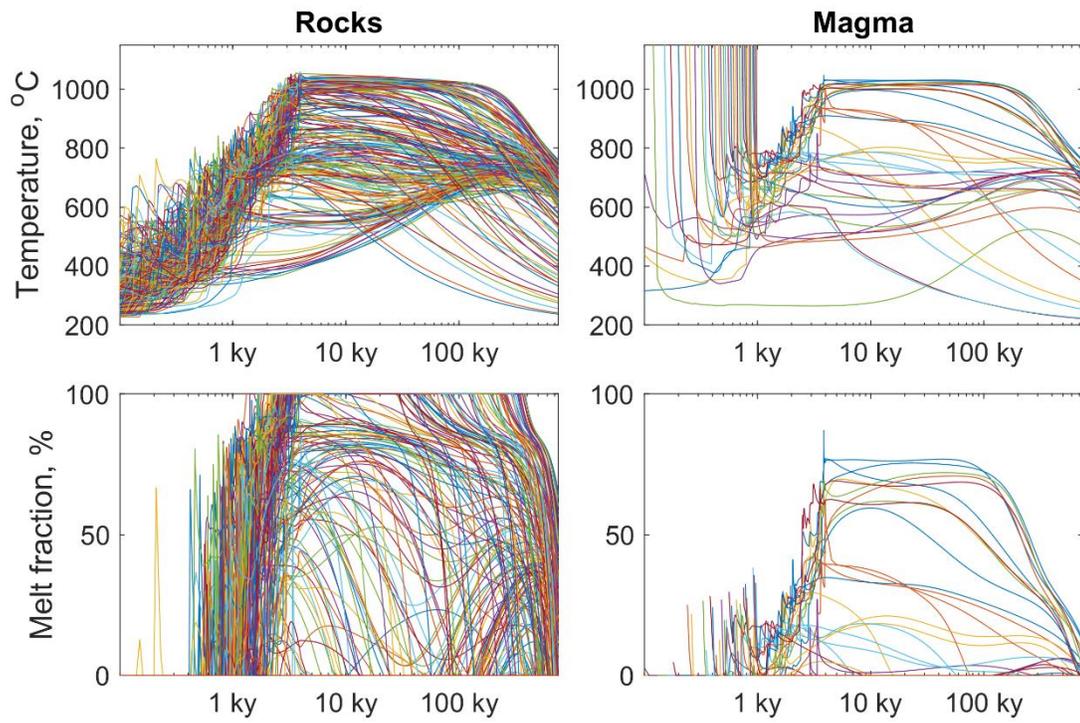
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33 **Figure S4b.** Temperature histories of rock and magma andesitic particles for $Q=0.25 \text{ m}^3/\text{s}$,
 34 $W=0.5 \text{ km}$.



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36 **Figure S4c.** Temperature histories of rock and andesitic magma particles for $Q=0.5 \text{ m}^3/\text{s}$, $W=4$
 37 km .



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40 **Figure S4d.** Temperature histories of rock and andesitic magma particles for $Q=1 \text{ m}^3/\text{s}$, $W=4$
 41 km.

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