

**Supporting Information for
“Physically consistent modeling of dike induced deformation and
seismicity: Application to the 2014 Bárðarbunga dike, Iceland”**

Elías R. Heimisson^{1*}, Paul Segall¹

¹Department of Geophysics, Stanford University, Stanford, California, USA

Contents

1. Figures S1 to S3

Additional Supporting Information (Files uploaded separately)

1. Captions for Movies S1

Introduction

This supplement contains three additional figures S1, S2 and S3 that help characterize the statistical properties and uncertainty from the MCMC sampling that is presented in the main manuscript. Furthermore, the supplement contains a caption for a movie file (.avi) which shows that dike model opening with time and both cumulative observed (gray) and model predicted earthquakes (blue).

*Now at: Seismological Laboratory, California Institute of Technology, Pasadena, California, USA

Corresponding author: Elías R. Heimisson, eliasrh@stanford.edu

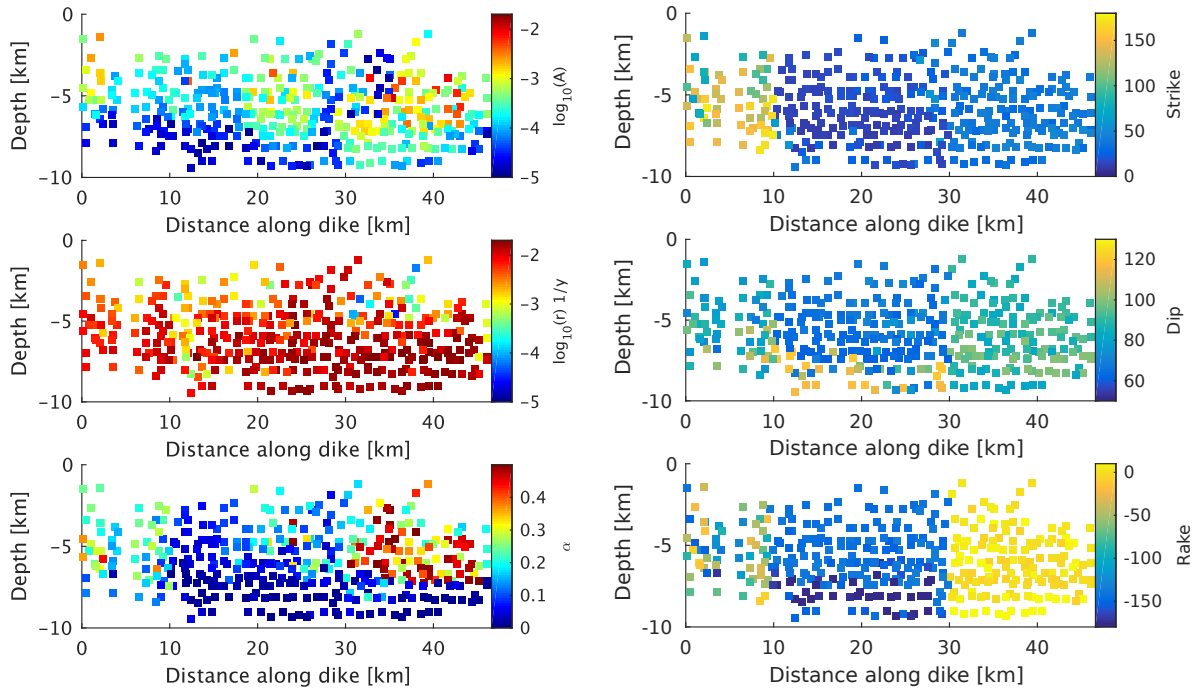


Figure S1. Median value from MCMC sampling of each parameter in each voxel. The median may not correspond to a highly probable set of model parameters due to the theory being strongly nonlinear and the distributions tend to be multimodal.

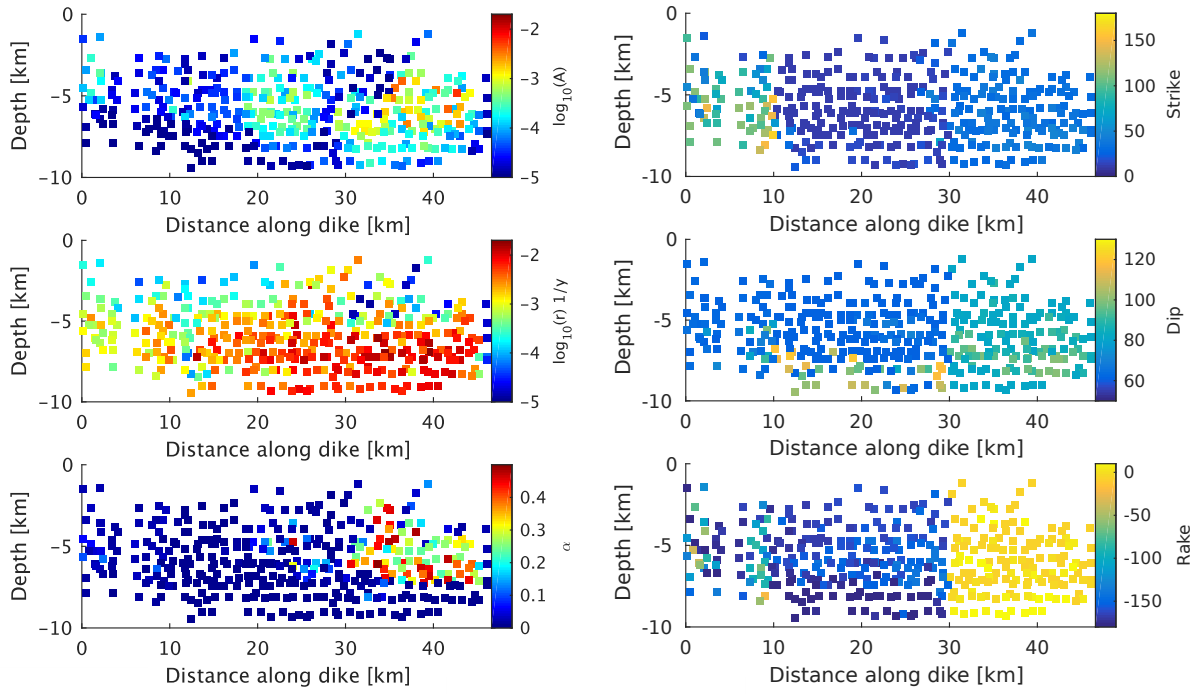


Figure S2. The 5th percentile values from the MCMC sampling of each parameter in each voxel. These values may be regarded as a lower bound of the probable range of model parameters.

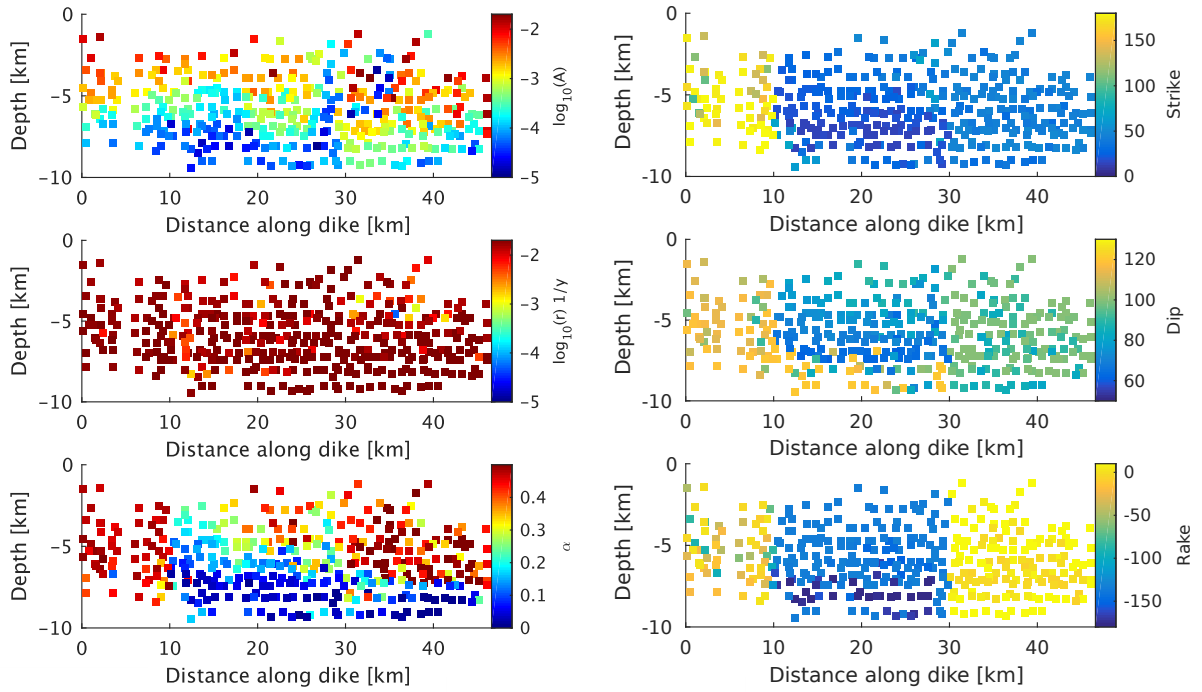


Figure S3. The 95th percentile values from the MCMC sampling of each parameter in each voxel. These values may be regarded as an upper bound of the probable range of model parameters.

Movie S1.

Dike opening at fixed time steps, top: observed cumulative number of events, bottom: model predicted cumulative number of events. Note that triangular structures that appear in the predicted cumulative number of events are artifacts of the voxel discretization.