Supplementary Materials for: Time-series InSAR measurement using ICOPS and estimation of along-track surface deformation using MAI during the 2021 eruption of Fagradalsfjall Volcano, Iceland

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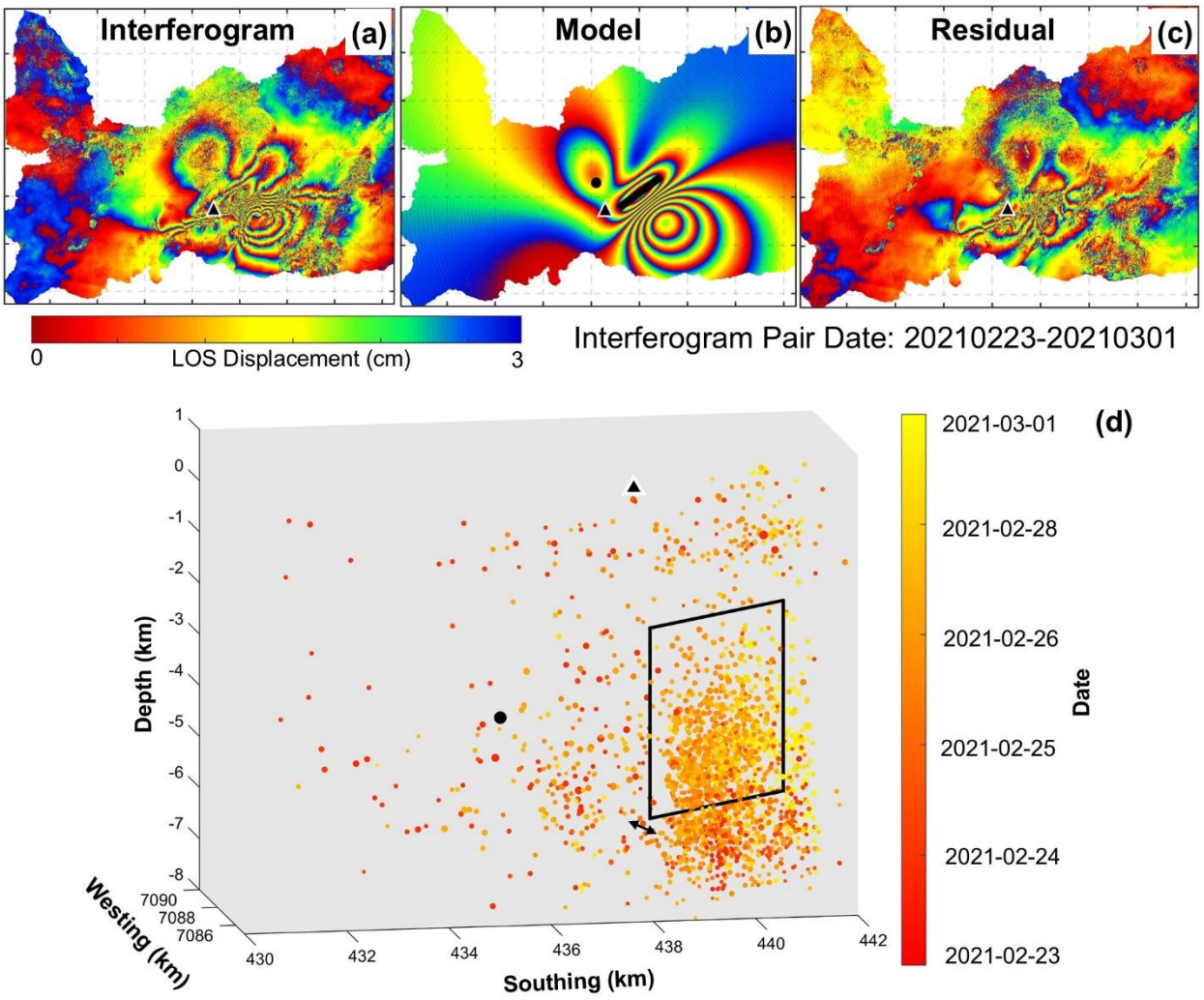

Figure S1: Earthquake activity and model geometry. Optimum model assumptions based on dike and point source in interferogram pair date 20210223-20210301. (a) Observed interferogram, (b) modeled interferogram, (c) residual interferogram. (d) Model geometry visualization based on the vertical dike with uniform opening and point source. The positive displacement shown by a fringe pattern from red toward the blue color indicates the displacement toward the satellite, and the negative displacement shown by the fringe pattern from blue toward the red color shows the displacement away from the satellite. The interferogram map, model map, residual map, and 3D visualization of the dike and point source geometry, along with the earthquake distribution, were generated using MATLAB R2024a (https://www.mathworks.com/).

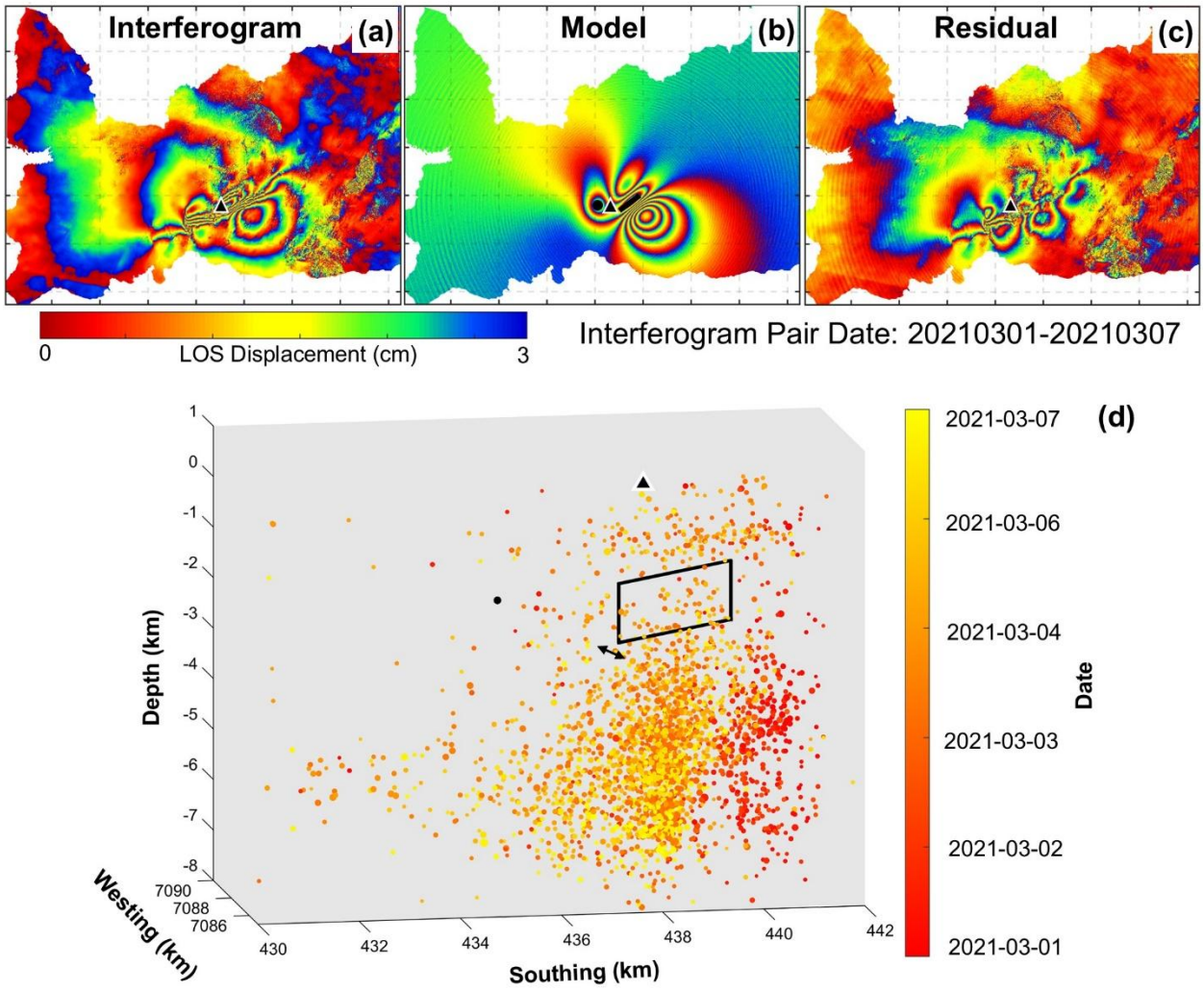

Figure S2: Earthquake activity and model geometry. Optimum model assumptions based on dike and point source in interferogram pair date 20210301-20210307. (a) Observed interferogram, (b) modeled interferogram, (c) residual interferogram. (d) Model geometry visualization based on the vertical dike with uniform opening and point source. The positive displacement shown by a fringe pattern from red toward the blue color indicates the displacement toward the satellite, and the negative displacement shown by the fringe pattern from blue toward the red color shows the displacement away from the satellite. The interferogram map, model map, residual map, and 3D visualization of the dike and point source geometry, along with the earthquake distribution, were generated using MATLAB R2024a (https://www.mathworks.com/).

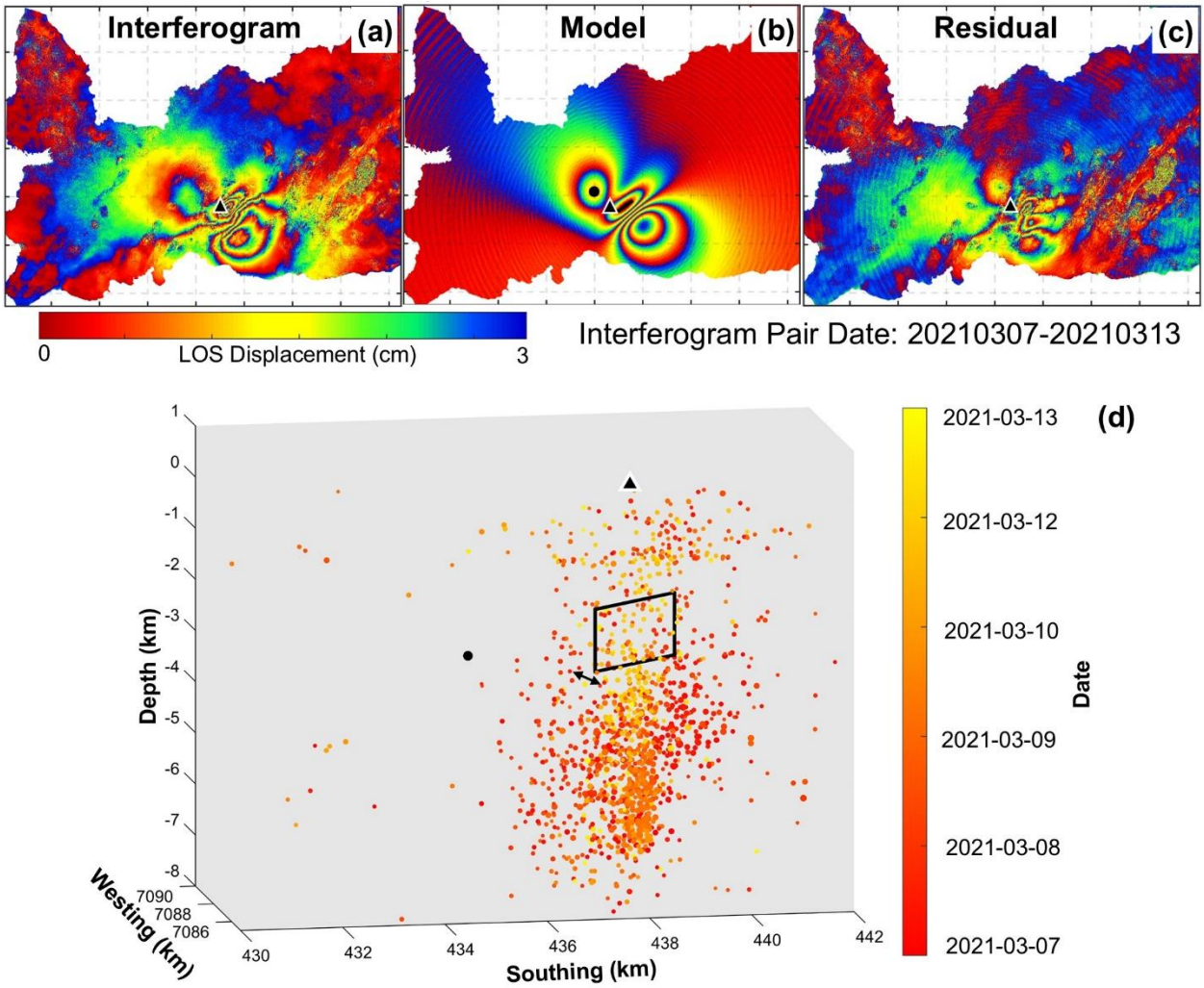

Figure S3: Earthquake activity and model geometry. Optimum model assumptions based on dike and point source in interferogram pair date 20210307-20210313. (a) Observed interferogram, (b) modeled interferogram, (c) residual interferogram. (d) Model geometry visualization based on the vertical dike with uniform opening and point source. The positive displacement shown by a fringe pattern from red toward the blue color indicates the displacement toward the satellite, and the negative displacement shown by the fringe pattern from blue toward the red color shows the displacement away from the satellite. The interferogram map, model map, residual map, and 3D visualization of the dike and point source geometry, along with the earthquake distribution, were generated using MATLAB R2024a (https://www.mathworks.com/).

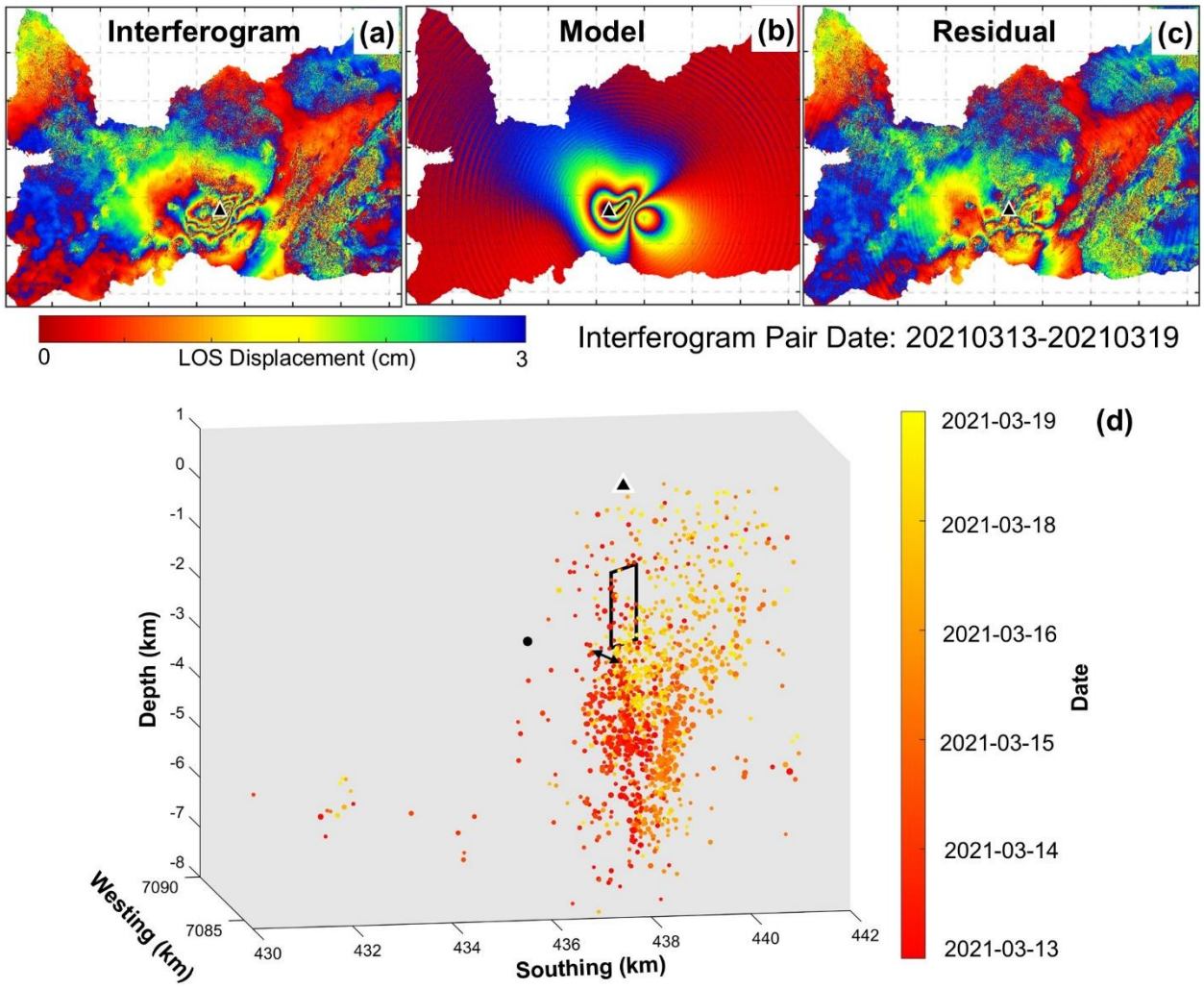

Figure S4: Earthquake activity and model geometry. Optimum model assumptions based on dike and point source in interferogram pair date 20210313-20210319. (a) Observed interferogram, (b) modeled interferogram, (c) residual interferogram. (d) Model geometry visualization based on the vertical dike with uniform opening and point source. The positive displacement shown by a fringe pattern from red toward the blue color indicates the displacement toward the satellite, and the negative displacement shown by the fringe pattern from blue toward the red color shows the displacement away from the satellite. The interferogram map, model map, residual map, and 3D visualization of the dike and point source geometry, along with the earthquake distribution, were generated using MATLAB R2024a (https://www.mathworks.com/).

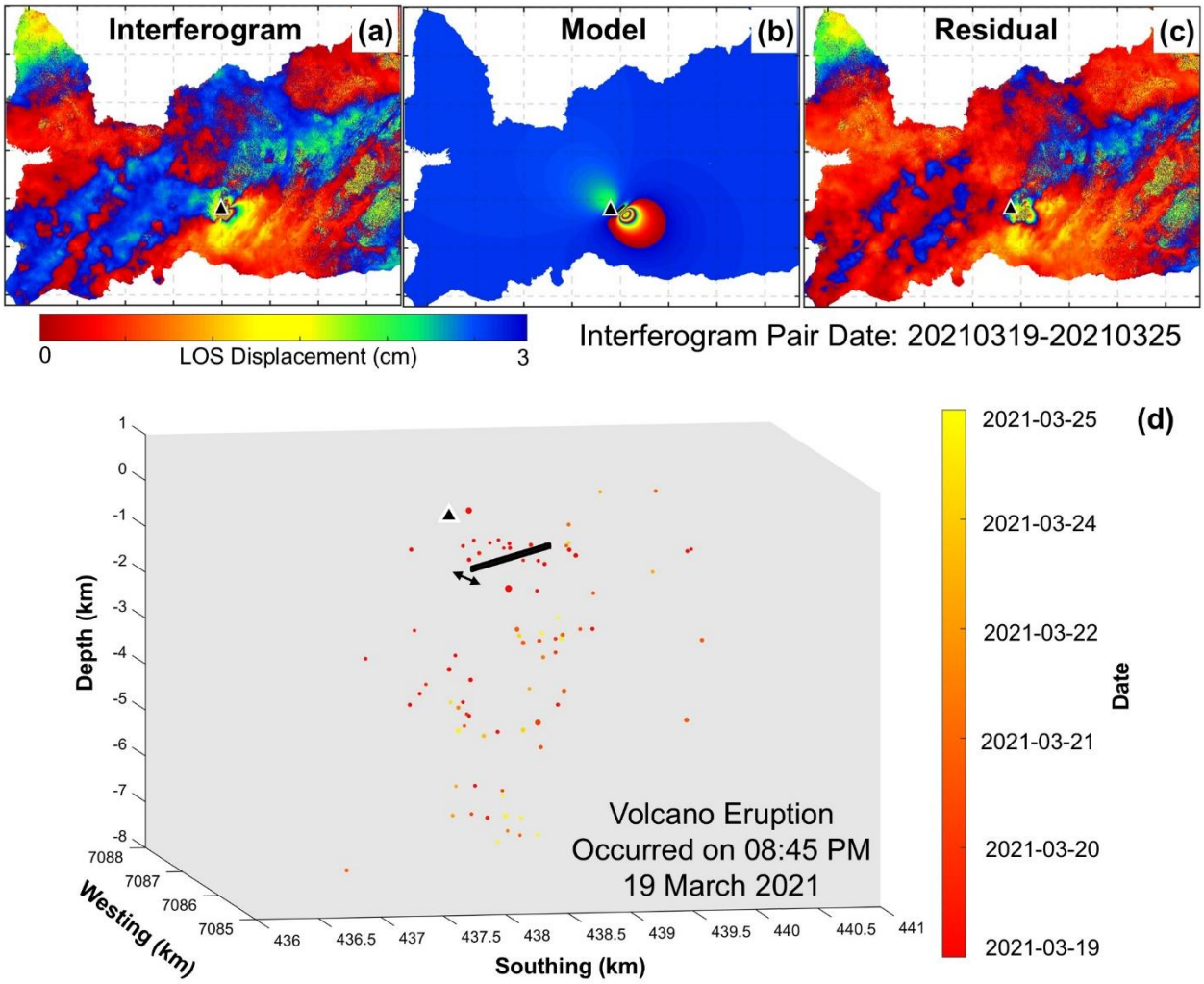

Figure S5: Earthquake activity and model geometry. Optimum model assumptions based on dike source in interferogram pair date 20210319-20210325. (a) Observed interferogram, (b) modeled interferogram, (c) residual interferogram. (d) Model geometry visualization based on the vertical dike with uniform opening and point source. In this period, the Fagradalsfjall Volcano began to erupt. The positive displacement shown by a fringe pattern from red toward the blue color indicates the displacement toward the satellite, and the negative displacement shown by the fringe pattern from blue toward the red color shows the displacement away from the satellite. The interferogram map, model map, residual map, and 3D visualization of the dike and point source geometry, along with the earthquake distribution, were generated using MATLAB R2024a (https://www.mathworks.com/).