	EVL1			*EVL2*			*EVL3*		
	Linear	***Quad.***	***Cubic***	***Linear***	***Quad.***	***Cubic***	***Linear***	***Quad.***	***Cubic***
EVL=0.1	12.5/10 =1.250	9.7/10 =0.970	8.3/10 =0.830	12.5/14 =0.893	9.7/14 =0.693	8.3/14 =0.593	12.5/20 =0.625	9.7/20 =0.485	8.3/20 =0.415
EVL=0.2	12.5/20 =0.625	9.7/20 =0.485	8.3/20 =0.415	12.5/28 =0.446	9.7/28 =0.346	8.3/28 =0.296	12.5/40 =0.313	9.7/40 =0.243	8.3/40 =0.208
EVL=0.4	12.5/40 =0.313	9.7/40 =0.243	8.3/40 =0.208	12.5/56 =0.223	9.7/56 =0.173	8.3/56 =0.148	12.5/80 =0.208	9.7/80 =0.162	8.3/80 =0.138
EVL=0.6	12.5/60 =0.208	9.7/60 =0.162	8.3/60 =0.138	12.5/84 =0.149	9.7/84 =0.115	8.3/84 =0.099	12.5/120 =0.104	9.7/120 =0.081	8.3/120 =0.069

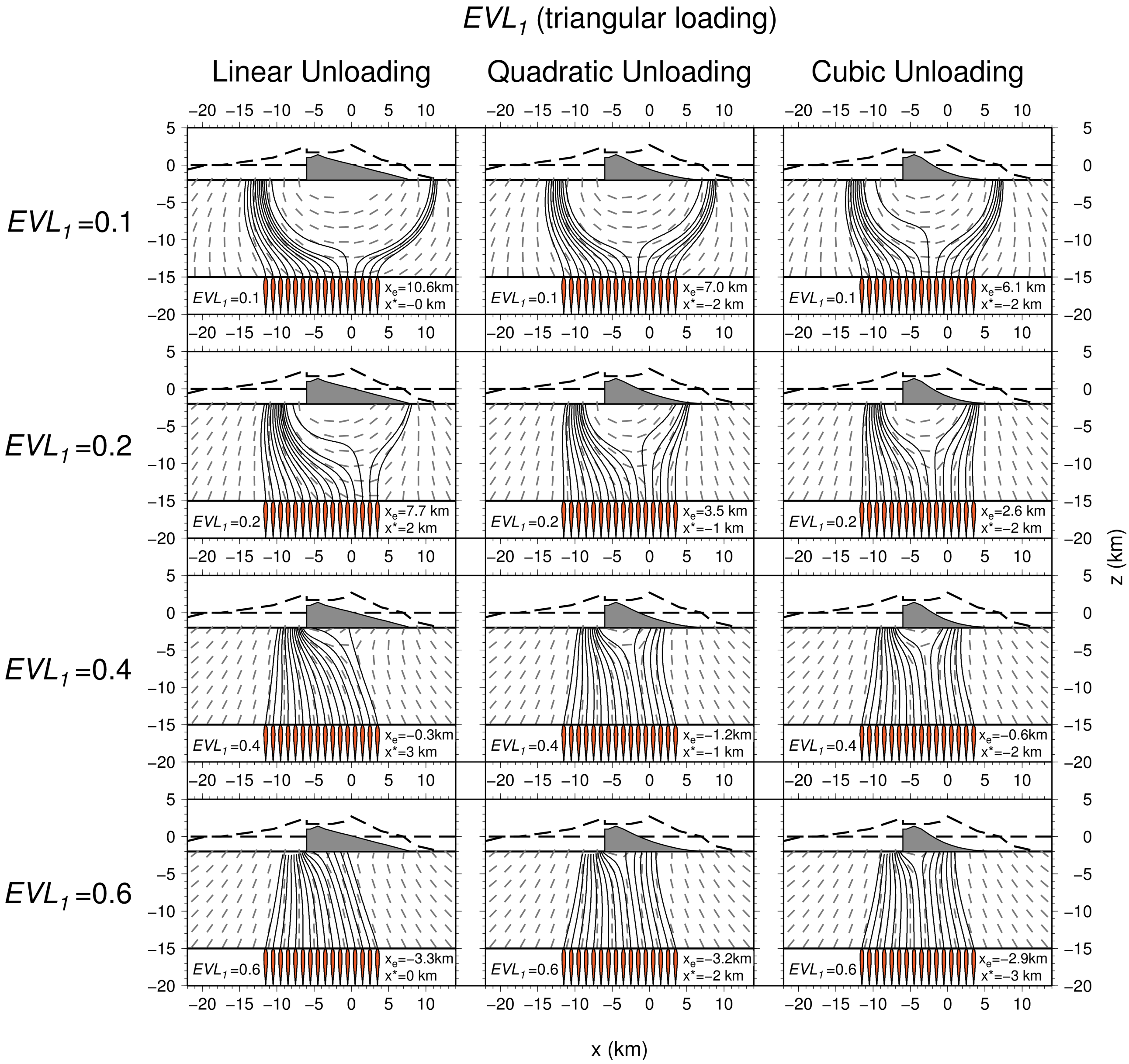
Supplementary Table 1: Unloading/loading ratios used in each of the simulations shown in Fig. 5c. The numerators are the cross sectional areas (km^2) of the different collapse profiles (linear, quadratic, and cubic). The denominators are the cross sectional areas (km^2) of the effective volcanic loading (i.e. elastic loading scaled by EVL magnitude, first column). The corresponding unloading and loading forces (in plane strain condition) are obtained by multiplying the areas by the gravity acceleration and rock density.

	Unloading profile 1	***Unloading profile 2***	***Unloading profile 3***
EVL_1 = 0.5	12.5/50 ≈ 25%	9.7/50 ≈ 20%	8.3/50 ≈ 16%
EVL_2 = 0.6	12.5/84 ≈ 15%	9.7/84 ≈ 12%	8.3/84 ≈ 10%
EVL_3 = 0.6	12.5/120 ≈ 10%	9.7/120 ≈ 8%	8.3/120 ≈ 7%

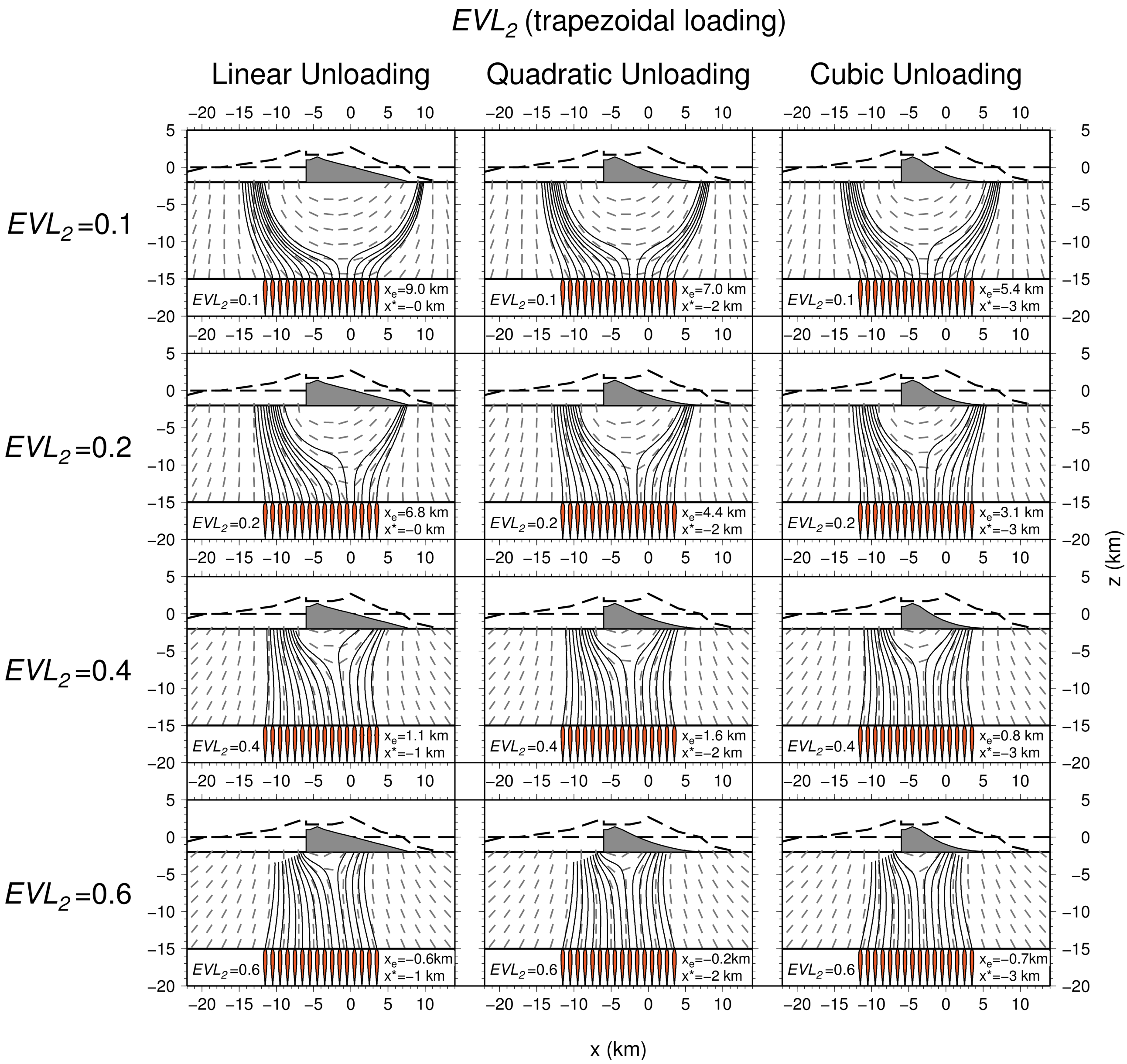
Supplementary Table 2: Critical unloading/loading ratios for dyke deflection. As for Supplementary Table 1, the numerators are the cross sectional areas (km^2) of the different collapse profiles (1 – linear, 2 – quadratic, and 3 – cubic decay). The denominators are the cross sectional areas (km^2) of the effective volcanic loading (i.e. elastic loading scaled by EVL magnitude). The corresponding unloading and loading forces (in plane strain condition) are obtained by multiplying the areas by the gravity acceleration and rock density.

Density difference ($\Delta\rho$). kg/m^3	*Rock fracture toughness (K_r).* MPa x m$^{1/2}$	*Magma bulk modulus (K).* GPa	*Rock shear modulus (G).* GPa	*Minimum dyke volume to reach the east (E) or west (W) flank of the volcano.* km^3
300	100	50	20	2.5 x 10^{-3} (E)
400	100	50	20	0.9 x 10^{-3} (E)
300	**185**	50	20	5.5 x 10^{-3} (E)
300	100	**10**	20	4.0 x 10^{-3} (E)
300	100	50	**30**	2.1 x 10^{-3} (E)
300	100	50	20	34.3 x 10^{-3} (**W**)

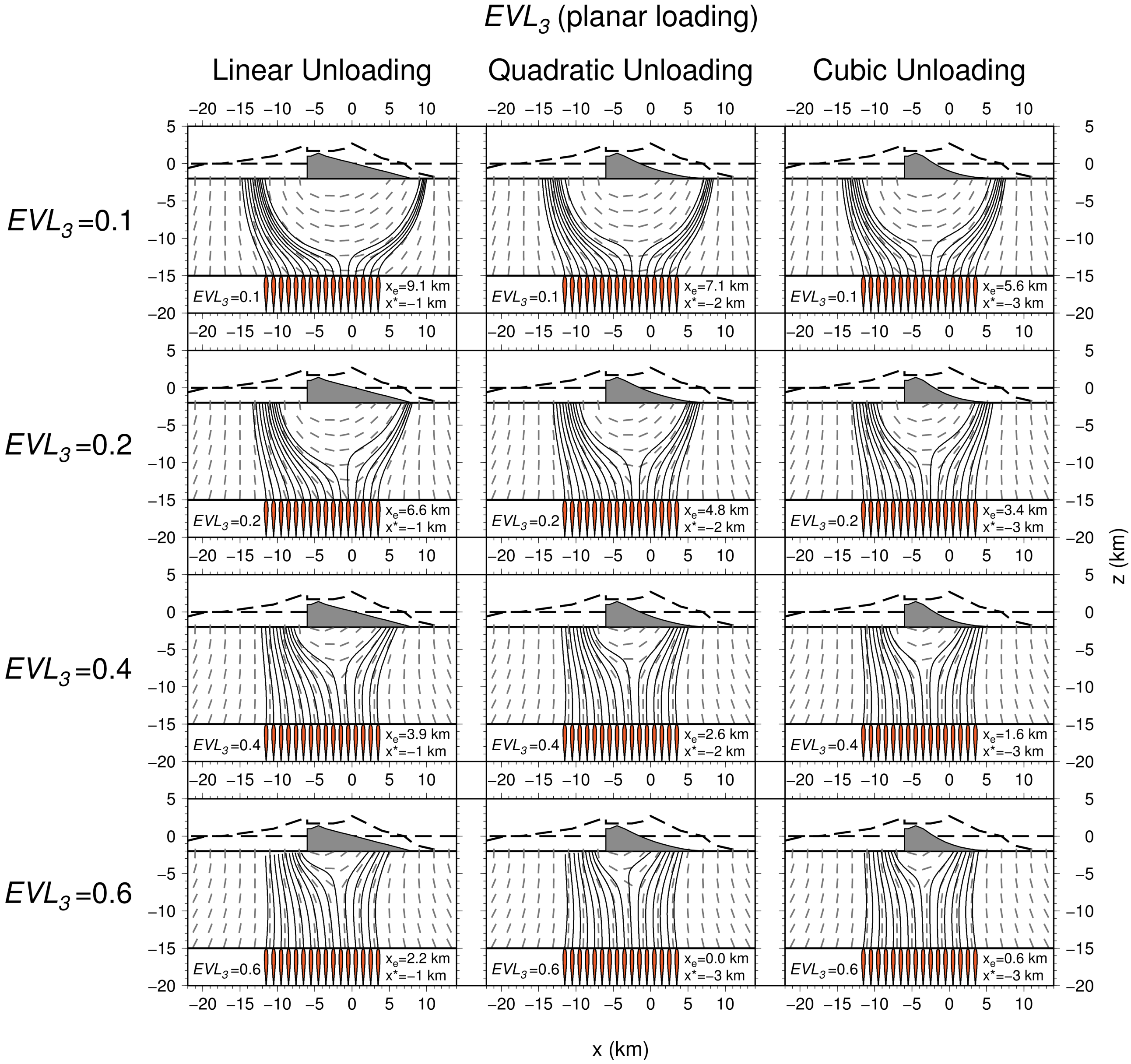
Supplementary Table 3: Minimum volume for a dyke to reach the surface of our model as function of magma and rock parameters.



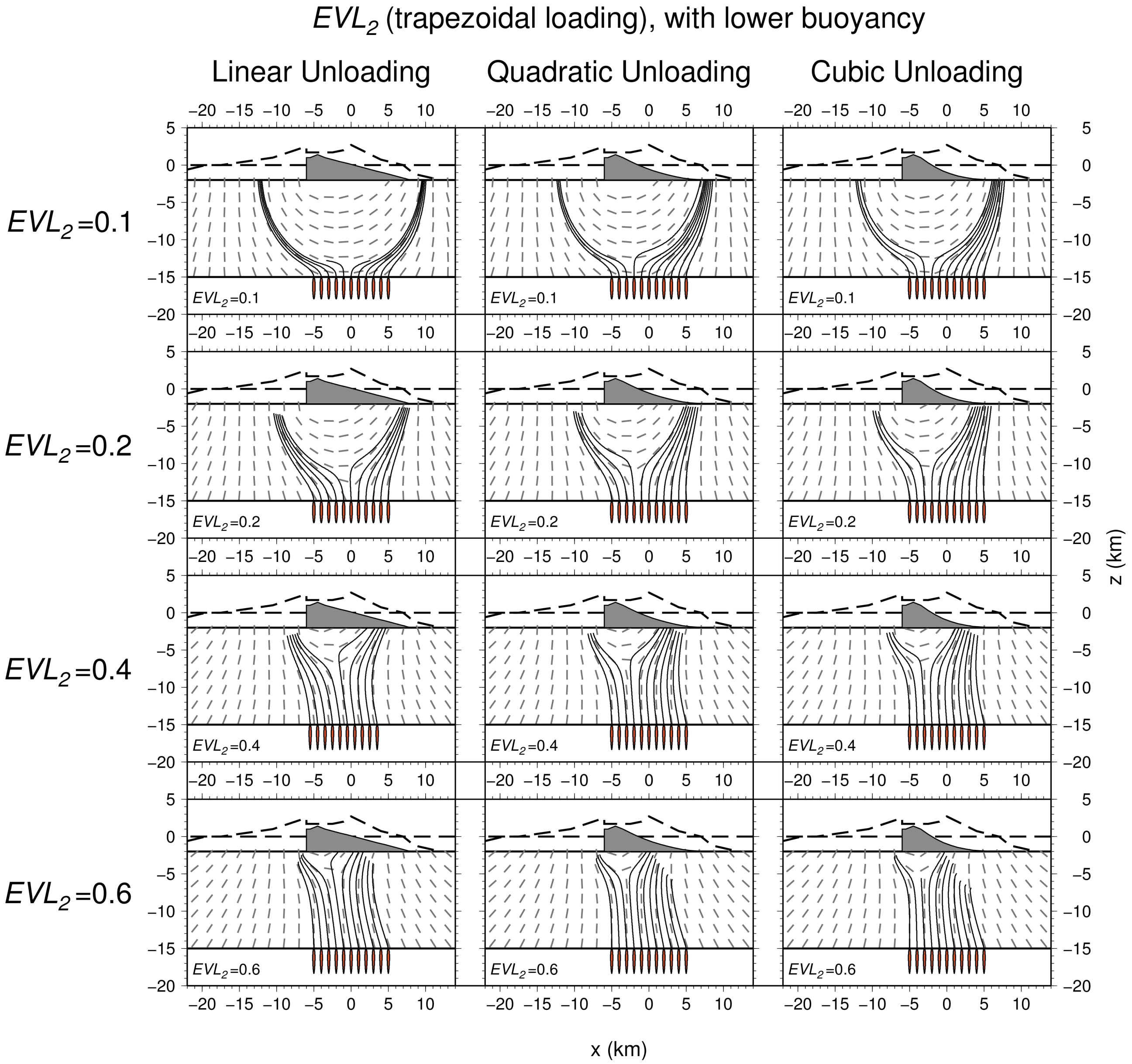
Supplementary Figure 1: Model results for EVL_1 as function of EVL magnitudes and unloading profiles.



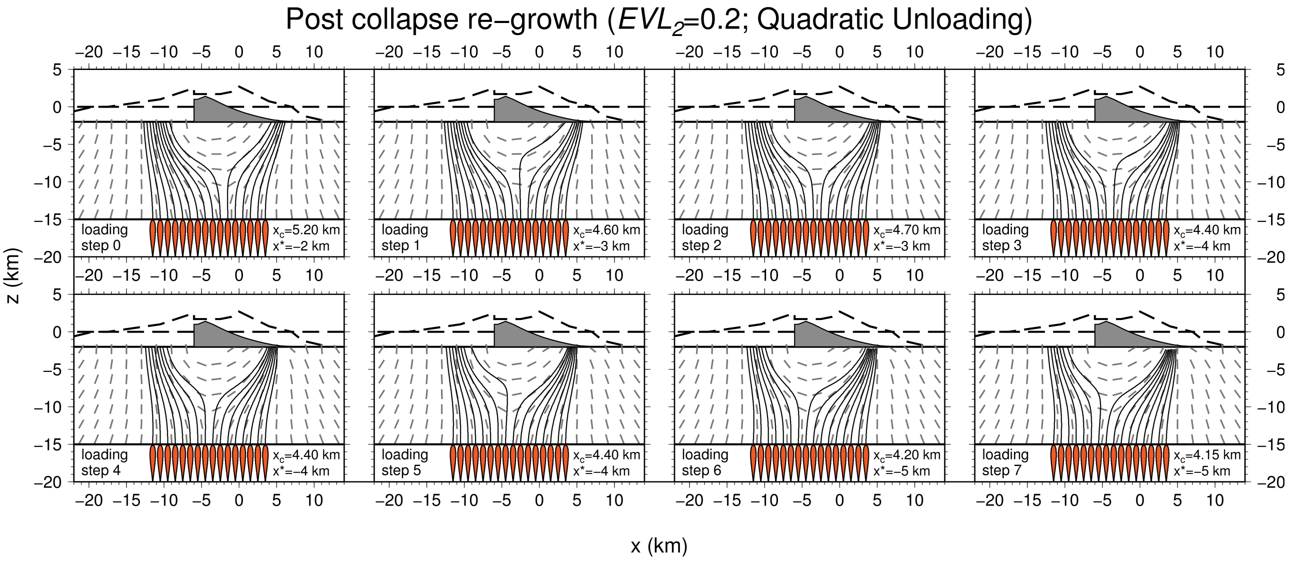
Supplementary Figure 2: Model results for EVL_2 as function of EVL magnitudes and unloading profiles.



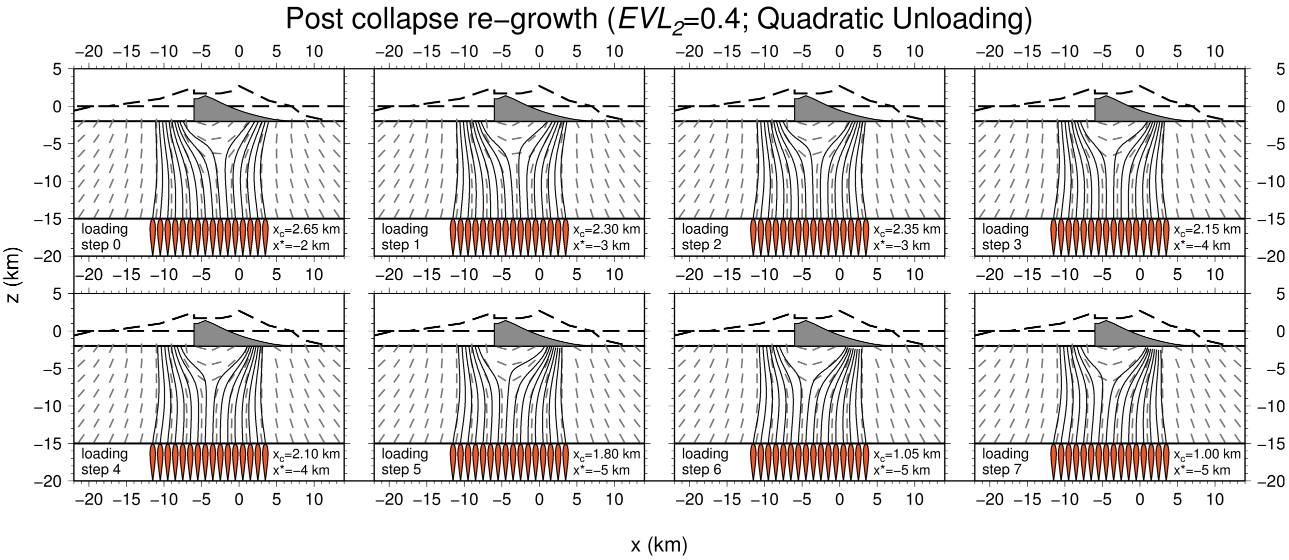
Supplementary Figure 3: Model results for EVL_3 as function of EVL magnitudes and unloading profiles.



Supplementary Figure 4: Model results for EVL_2 as function of EVL magnitudes and unloading profiles, with lower buoyancy.



Supplementary Figure 5: Model results for the re-growth scenario with EVL_2 =0.2 and quadratic unloading profile.



Supplementary Figure 6: Model results for the re-growth scenario with EVL_2 =0.4 and quadratic unloading profile.