DATA REPOSITORY ITEM 2002062

Sources of Data on Altitude of the sub-Ogallala Surface (Figs. 2 and 4)

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Table DR1. Flexural Modeling Results (See Figure 3)

Loading of sub-Ogallala surface = Mean net erosion (-) or deposition (+) in cell with respect to the sub-Ogallala surface
D = Flexural Rigidity
NR = Value not reported -- due to inaccuracy in flexure calculated for cells near ends of transects.

Eastern Transect - 103°08' W

Cell location (km north of Colorado/New Mexico boundary)	Loading of sub-Ogallala surface (m)	Computed flexural uplift $D = 10^{22}$ N m (m)	Computed flexural uplift $D = 10^{23}$ N m (m)	Computed flexural uplift $D = 10^{24}$ N m (m)	Computed flexural uplift $D = 10^{25}$ N m (m)
-200	-123	NR	NR	NR	NR
-150	-9	NR	NR	NR	NR
-100	+32	-26	-13	19	NR
-50	+32	-21	-7	40	62
0	-60	34	47	78	77
50	-109	114	135	121	89
100	-384	272	220	153	97
150	-330	258	217	152	95
200	-163	126	132	120	85
250	+12	5	40	74	70
300	0	-11	-4	35	53
350	+21	-6	-11	9	36
400	-36	9	-6	-5	22
450	+60	-23	-7	-12	10
500	-40	13	-2	-13	NR
550	+15	NR	NR	NR	NR
600	+53	NR	NR	NR	NR

Middle Transect - 103°50' W

Cell location (km north of Colorado/New Mexico Boundary)	Loading of sub-Ogallala surface (m)	Computed flexural uplift $D = 10^{22}$ N m (m)	Computed flexural uplift $D = 10^{23}$ N m (m)	Computed flexural uplift $D = 10^{24}$ N m (m)	Computed flexural uplift $D = 10^{25}$ N m (m)
-200	-118	NR	NR	NR	NR
-150	-91	NR	NR	NR	NR
-100	-33	9	9	67	NR
-50	+90	-42	28	121	155
0	-180	133	164	204	191
50	-490	386	354	292	222
100	-728	554	466	343	240
150	-622	472	416	336	241
200	-269	220	261	281	226
250	-75	77	144	214	200
300	-182	134	124	157	169
350	-244	178	123	110	135
400	-122	91	76	66	101
450	+54	-22	14	28	NR
500	+9	NR	NR	NR	NR
550	-165	NR	NR	NR	NR

Western Transect - 104°30' W

Cell location (km north of Colorado/New Mexico Boundary)	Loading of sub-Ogallala surface (m)	Computed flexural uplift $D = 10^{22}$ N m (m)	Computed flexural uplift $D = 10^{23}$ Nm (m)	Computed flexural uplift $D = 10^{24}$ N m (m)	Computed flexural uplift $D = 10^{25}$ N m (m)
-100	-117	NR	NR	NR	NR
-50	-359	NR	NR	NR	NR
0	-324	298	353	374	NR
50	-717	539	535	476	359
100	-921	735	662	529	381
150	-1011	742	623	507	378
200	-484	389	410	418	353
250	-87	102	210	310	313
300	-200	146	154	224	267
350	-321	233	160	164	220
400	-209	154	125	118	174
450	+6	17	71	84	NR
500	-47	NR	NR	NR	NR
550	-241	NR	NR	NR	NR

Table DR 2. Sensitivity Test Results

Flexural rigidity (N m)	Model results* Fifth order fit, model densities (%)	Effect of fit† Linear fit, model densities (%)	Effect of density assumptions§ Fifth order fit, high density contrast (%)	Fifth order fit, low density contrast (%)
1×10^{22}	66-86	64-92	55-72	77-102
1×10^{23}	60-73	56-76	50-61	71-86
1×10^{24}	46-52	39-54	38-44	54-62
1×10^{25}	22-26	19-27	19-22	26-31

Note: Values are percent of the north-south tilt of the sub-Ogallala surface that can be explained isostatically with different model assumptions. Cells indicate the range of results for the three transects.

* Model results test was run using a fifth order polynomial fit to approximate the sub-Ogallala surface. Crustal sediment and mantle aesthenosphere densities are assumed to be 2500 kg/m^3 and 3300 kg/m^3, respectively. These are the input parameters used to generate results shown in Figure 3 and Table 1.

† Effect of fit test is an end-member test examining the effect of projection across eroded portions of the sub-Ogallala surface. In this test a linear projection is used where the surface has been eroded across major river valleys. Crustal sediment and mantle aesthenosphere densities are assumed to be 2500 kg/m^3 and 3300 kg/m^3, respectively.

§ Effect of density assumptions tests were run using a fifth order polynomial fit to approximate the sub-Ogallala surface. High density contrast test was run with crustal sediment density of 2200 kg/m^3 and mantle aesthenosphere density of 3500 kg/m^3. Low density contrast test was run with crustal sediment density of 2800 kg/m^3 and mantle aesthenosphere density of 3100 kg/m^3.