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Title of article Neogene Paleostress Changes in the Basin and Range: A Case Study at Hoover Dam, Nevada-Arizona

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see GSA Bulletin v. 96, p. 347 - 361

Contents 6 pages

Tables 1, 2, 3, and fig. 1 with caption

ARCHIVED DATA PERTAINING TO THE FOLLOWING REPORT:

Angelier, J., Colletta, B., and Anderson, R. E., 1985, Neogene paleostress changes in the Basin and Range: A case study at Hoover Dam, Nevada-Arizona: Geological Society of America Bulletin, v. 96, no. 2, p. ________.

The data consist of one figure (caption on separate page) and three tables.

FIGURE 1.--Automatic separation of two classes of paleostress with different directions of extension, for sites A + B (AB) and C + D (CD), ABs and CDs, predominantly strike-slip faults. ABn and CDn, predominantly dip-slip normal faults. Preliminary separation between strike-slip and dip-slip fault movements has been made by comparing lateral and transverse components of motion (as for column a of Figure 10 of subject report). Note that fault populations are split in two main classes that correspond to NE-SW and WNW-ESE directions of extensions. Details in Table 3 of data archive. Other explanations as for Figure 10 of subject report.

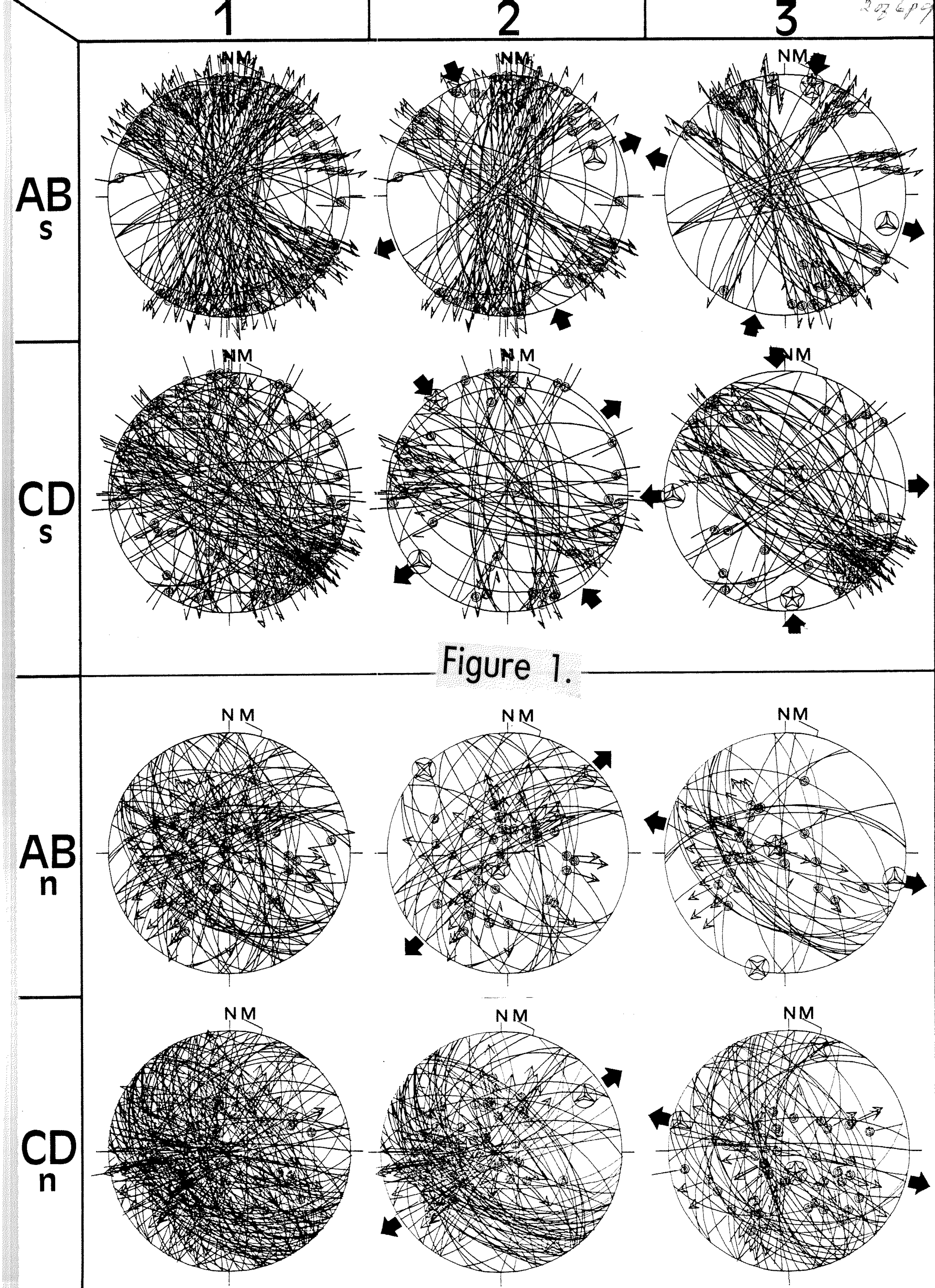

Figure 1.

TABLE 1. RESULTS OF AUTOMATIC SEPARATIONS OF PREDOMINANTLY STRIKE-SLIP TYPE (i.e., steeply plunging σ_2 axis), AND PREDOMINANTLY NORMAL TYPE (i.e., steeply plunging σ_1 axis) OF PALEOSTRESS, FOR SUBSETS A, B, C, AND D

Site	Size of class	Type of extension (σ_3)	σ_1-axis		σ_2-axis		σ_3-axis	
			trend (°)	plunge (°)	trend (°)	plunge (°)	trend (°)	plunge (°)
A	42 (48)	strike-slip	350	01	255	79	080	11
	20 (26)	normal	065	88	325	00	235	02
B	81 (125)	strike-slip	167	01	260	78	077	12
	52 (101)	normal	258	74	153	04	061	15
C	66 (85)	strike-slip	154	04	032	83	245	06
	60 (85)	normal	238	78	015	09	106	08
D	36 (46)	strike-slip	158	12	022	74	250	11
	80 (107)	normal	303	68	146	21	053	08

Site	$\frac{\sigma_2-\sigma_3}{\sigma_1-\sigma_3} = \Phi$	Average angle, Δ (°)	Unclassified data	Ambiguous data
A	0.1 0.1	12 13	8 (12)	1
B	0.1 0.0	11 12	11 (23)	1
C	0.1 0.0	14 16	14 (18)	4
D	0.1 0.1	10 13	14 (14)	3

Note: Unclassified data refer to faults with angles between slickenside lineations and theoretical shear stress greater than 45° for both solutions. Ambiguous data refer to faults that have similar angles between slickenside lineations and shear stress for both solutions (within a range of 10°). Φ is the stress ratio. Weighted values are in parentheses. Average angle is that between actual striae and theoretical shear stress on fault plane.

TABLE 2. RESULTS OF AUTOMATIC SEPARATIONS OF TWO TYPES OF PALEOSTRESS WITH DIFFERENT DIRECTIONS OF EXTENTION, FOR ENTIRE DATA SETS OF SITES A, B, C, AND D

Site	Size of class	Type of extension (σ_3)	σ_1-axis trend (°)	σ_1-axis plunge (°)	σ_2-axis trend (°)	σ_2-axis plunge (°)	σ_3-axis trend (°)	σ_3-axis plunge (°)
A	31 (33) 27 (36)	NE-SW WNW-ESE	177 015	62 38	310 218	20 50	047 114	19 12
B	66 (116) 56 (101)	NE-SW WNW-ESE	317 360	52 68	138 207	38 20	047 114	00 10
C	66 (92) 53 (68)	NE-SW WNW-ESE	059 186	82 56	325 015	01 33	235 282	08 04
D	71 (98) 38 (47)	NE-SW WNW-ENE	295 184	71 42	144 022	17 47	051 283	09 09

Site	$\frac{\sigma_2-\sigma_3}{\sigma_1-\sigma_3} = \Phi$	Average angle, Δ (°)	Unclassified data	Ambiguous data
A	1.0 0.8	16 12	12 (17)	5
B	0.9 1.0	21 13	22 (32)	10
C	0.8 0.7	17 14	21 (28)	12
D	0.3 0.7	14 12	21 (22)	10

Note: Unclassified data refer to faults with angles between slickenside lineations and theoretical shear stress greater than 45° for both solutions. Ambiguous data refer to faults that have similar angles between slickenside lineations and shear stress for both solutions (within a range of 10°). Φ is the stress ratio. Weighted values are in parentheses. Average angle is that between actual striae and theoretical shear stress on fault plane.

5-86 pgs

TABLE 3. RESULTS OF AUTOMATIC SEPARATIONS OF TWO TYPES OF PALEOSTRESS WITH DIFFERENT DIRECTIONS OF EXTENSION, FOR PREDOMINANTLY STRIKE-SLIP AND PREDOMINANTLY DIP-SLIP FAULT DATA SETS OF SITES A + B AND C + D

STRIKE-SLIP FAULT

Site	Size of class	Type of extension (σ_3)	σ_1-axis trend (°)	σ_1-axis plunge (°)	σ_2-axis trend (°)	σ_2-axis plunge (°)	σ_3-axis trend (°)	σ_3-axis plunge (°)
A + B	81 (113)	NE-SW	337	00	246	67	067	23
	53 (79)	E-W	014	07	257	75	106	13
C + D	51 (57)	NE-SW	322	05	082	81	232	08
	63 (87)	E-W	176	12	031	76	268	08

Site	$\frac{\sigma_2-\sigma_3}{\sigma_1-\sigma_3} = \Phi$	Average angle, Δ (°)	Unclassified data	Ambiguous data
A + B	0.1	9	1 (1)	34
	0.3	10		
C + D	0.4	14	8 (8)	18
	0.4	11		

[Table 3.--continued on following page]

[TABLE 3.--Continued]

DIP-SLIP (NORMAL) FAULT

Site	Size of class	Type of extension (σ_3)	σ_1-axis trend (°)	σ_1-axis plunge (°)	σ_2-axis trend (°)	σ_2-axis plunge (°)	σ_3-axis trend (°)	σ_3-axis plunge (°)
A + B	40 (75)	NE-SW	213	78	315	02	045	12
	32 (59)	E-W	301	82	194	02	103	07
C + D	83 (124)	NE-SW	276	67	150	14	056	18
	59 (72)	E-W	164	74	016	13	284	08

Site	$\frac{\sigma_2-\sigma_3}{\sigma_1-\sigma_3} = \Phi$	Average angle, Δ (°)	Unclassified data	Ambiguous data
A + B	0.2 0.2	11 9	7 (8)	22
C + D	0.1 0.1	11 15	6 (7)	31

Note: Preliminary distinction between strike-slip and dip-slip (normal) fault movement has been made by comparing lateral and transverse components of motion (see Fig. 8 of Angelier and others, 1984). Unclassified data refer to faults with angles between slickenside lineations and theoretical shear stress greater than 45° for both solutions. Ambiguous data refer to faults that have similar angles between slickenside lineations and shear stress for both solutions (within a range of 10°). Φ is the stress ratio. Weighted values are in parentheses. Average angle is that between actual striae and theoretical shear stress on fault plane.