WATER-LEVEL DATA FOR THE ALBUQUERQUE BASIN, NEW MEXICO, PERIOD OF RECORD THROUGH SEPTEMBER 30, 1995

By Dale R. Rankin

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CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
foot	0.3048	meter
mile	1.609	kilometer
acre	4,047	square meter

Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929--a geodetic datum derived from a general adjustment of the first-order level nets of the United States and Canada, formerly called Sea Level Datum of 1929.

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ABSTRACT

The Albuquerque Basin, located in central New Mexico, is about 100 miles long and 25 to 40 miles wide. The basin is defined as the extent of Cenozoic deposits that encompass the structural Rio Grande Rift within the basin. Drinking-water supplies throughout the Albuquerque Basin are currently (1996) obtained solely from ground-water resources. The population of the basin grew from 419,000 in 1980 to 563,600 in 1990, a 34-percent increase, and resulted in increases in water demand and ground-water pumpage. Between April 1982 and September 1983, a network of wells was established to monitor changes in ground-water levels throughout the Albuquerque Basin. Water-level data were collected at 74 wells and piezometers for the period of record through September 30, 1995, in the Albuquerque Basin. Water-level data are currently (1996) collected annually at sites 11 and 39; semiannually at sites 1-10; quarterly at sites 12, 13, 26, 36-38, 40, 43, 49-51, 64-67, 69, and 71-74; and monthly at sites 14-25, 33-35, 41, 52-63, and 68.

INTRODUCTION

The Albuquerque Basin is located in central New Mexico and is about 100 miles long and 25 to 40 miles wide. The basin is defined as the extent of Cenozoic deposits that encompass the structural Rio Grande Rift within the basin (Thorn and others, 1993). The study area extends from Bernalillo south to San Acacia and from Tijeras Canyon west to near the intersection of Interstate 40 and the Bernalillo/Cibola County line (fig. 1). Parts of Sandoval, Bernalillo, Valencia, and Socorro Counties are located within the study area. The only perennial stream is the southward-flowing Rio Grande, which approximately bisects the basin.

The Albuquerque metropolitan area includes a population of 502,100 (U.S. Department of Commerce, 1991). Although the majority of people are concentrated within the Albuquerque city limits, the basinwide population grew from 419,000 in 1980 to 563,600 in 1990 (U.S. Bureau of the Census, 1980, 1991), an increase of 34 percent. The demand for ground water has likewise increased because drinking-water supplies throughout the Albuquerque Basin are currently (1996) obtained solely from ground-water resources (Kues, 1987).

This report provides water-level and other data for 74 selected wells and piezometers in the Albuquerque Basin, central New Mexico (Wilkins, 1986; Anderholm and Bullard, 1987; and Kues, 1987) from the period of record through September 30, 1995. The general location of these wells is shown in figure 1.

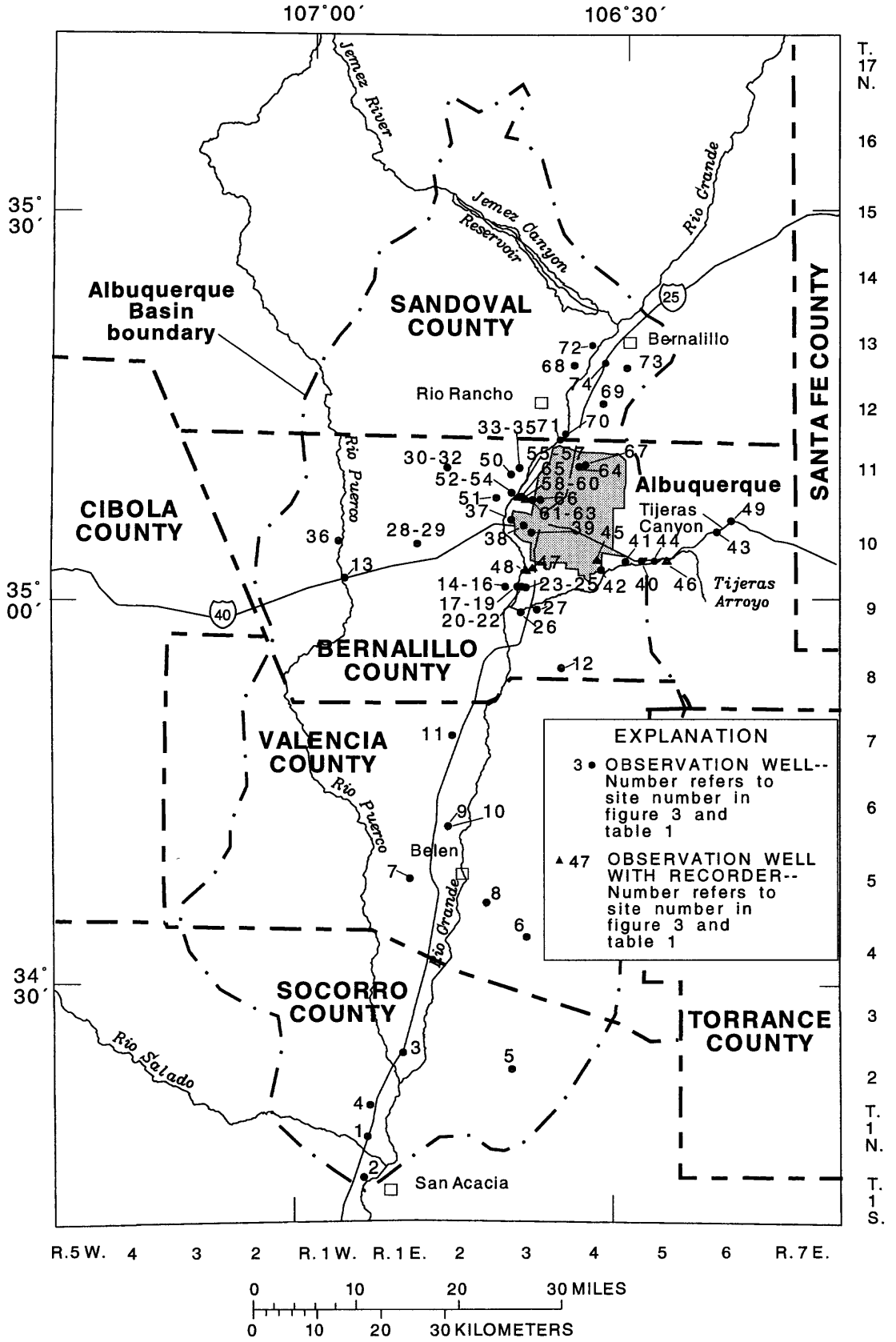


Figure 1.--Location of study area, and observation wells and piezometers.

Well-Numbering System

The system of numbering wells in New Mexico is based on the common subdivision of public lands into sections (fig. 2). The well number, in addition to designating the well, locates its position to the nearest 10-acre tract in the land network. This number is divided into four segments. The first segment denotes the township north of the New Mexico base line, the second denotes the range east of the New Mexico principal meridian, and the third denotes the section. The fourth segment of the number, which consists of three digits, denotes the 160-, 40-, and 10-acre tracts, respectively, in which the well is situated. For this purpose, the section is divided into four quarters, numbered 1, 2, 3, and 4, in the normal reading order, for the northwest, northeast, southwest, and southeast quarters. The first digit of the fourth segment gives the quarter section, which is a tract of 160 acres. Similarly, the quarter section is divided into four 40-acre tracts numbered in the same manner, and the second digit denotes the 40-acre tract. Finally, the 40-acre tract is divided into four 10-acre tracts, and the third digit denotes the 10-acre tract. For example, well 09N.03E.19.243 is in the SW 1/4 of the SE 1/4 of the NE 1/4 of section 19, T. 09 N., R. 03 E. (fig. 2). Letters A, B, C, and so on are added to the last segment of the well number to designate the second, third, fourth, and succeeding wells in the same 10-acre tract.

Methods

Water-level data were collected by U.S. Geological Survey personnel. Currently (1996), water levels at sites 11 and 39 are measured annually; at sites 1-10, semiannually; at sites 12, 13, 26, 36-38, 40, 43, 49-51, 64-67, 69, and 71-74, quarterly; and at sites 14-25, 33-35, 41, 52-63, and 68, monthly. Electric and steel tapes are used to collect data from sites measured annually, semiannually, quarterly, and monthly; when using tapes, consecutive measurements within 0.02 foot need to be obtained to be considered reliable. Water levels at sites 45, 46, and 48 are monitored hourly with Fischer-Porter analog-to-digital recorders. Sites 27-32, 42, 44, 47, and 70 were dropped from the network in 1994 because of duplication of effort (sites 27 and 42), budget considerations (sites 28-32, 44, and 70), or because the well was destroyed (site 47).

WATER-LEVEL AND OTHER DATA

Well and piezometer data are listed in table 1. The data in table 1 include site number and identifier, local identifier, owner, other identifier, total depth, and screened interval of the wells and piezometers in the network. Hydrographs of water-level data for the period of record through September 30, 1995, are shown in figure 3. The name shown on each hydrograph in figure 3 refers to the "other identifier" column in table 1. For wells for which "other identifier" is not available, the well name refers to the well owner. The data presented in the hydrographs include depth to water, in feet below land surface, and hydraulic head, in feet above sea level. Hydraulic head is the altitude of the water level. Recorded data are incomplete for some wells or piezometers because of recorder malfunction or temporary removal of the recorder when water-quality samples were obtained. The total depth of wells and piezometers range from 8 to 1,800 feet below land surface. Sites 1-4, 6-10, 13, 26, 50, 51, 64, 67, 68, and 74 are domestic wells; sites 5, 14-25, 27-35, 37-49, 52-63, 65, 66, and 70-73 are observation wells or piezometers; sites 2 and 11 are irrigation wells; and sites 12, 36, and 69 are stock wells.

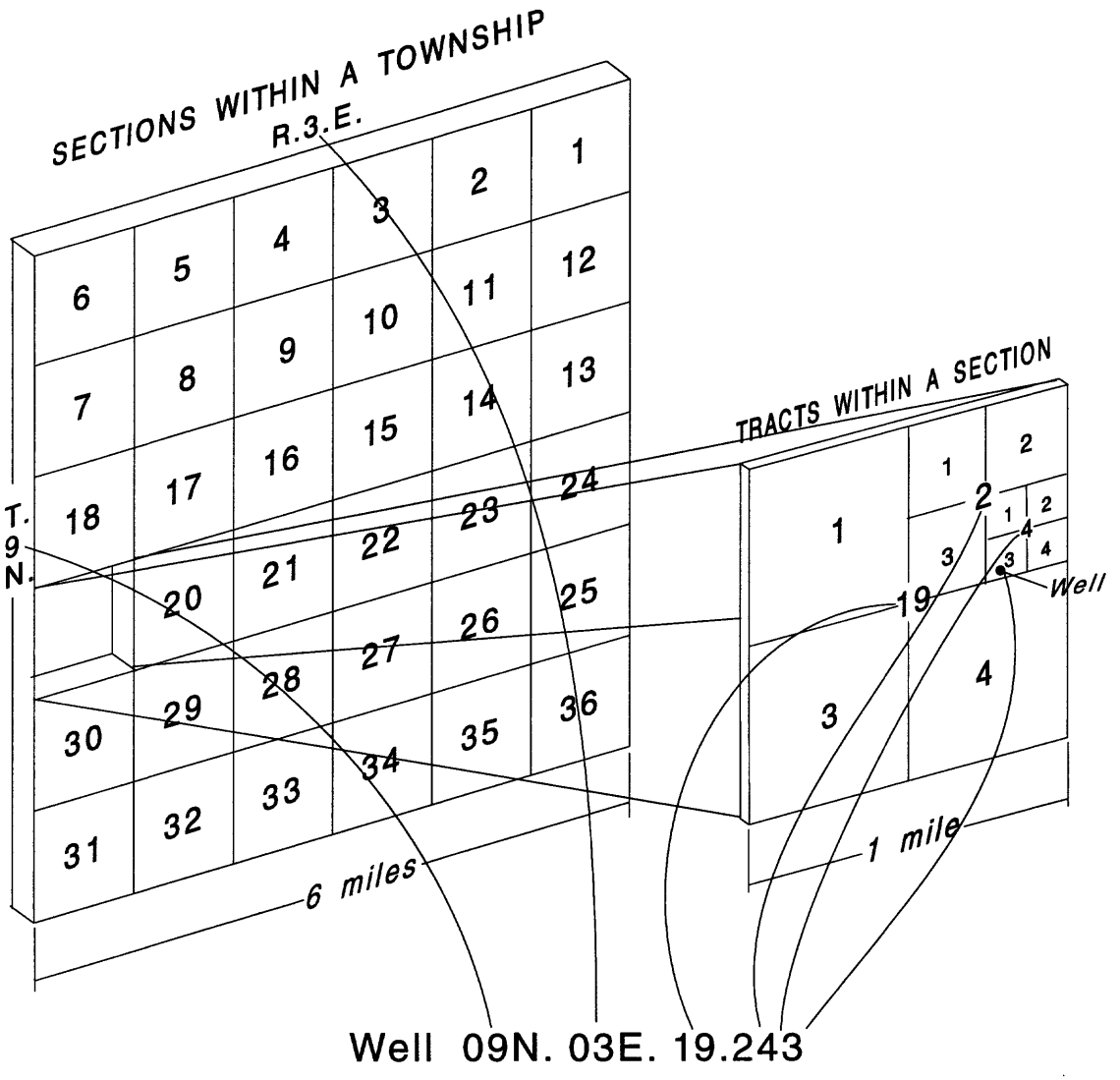


Figure 2.--Well-numbering system in New Mexico.

Table 1.--Well and piezometer data for the Albuquerque Basin, New Mexico

[--, no data]

Site number (figs. 1 and 3)	Site identifier	Local identifier	Owner	Other identifier	Total depth (feet below land surface)	Screened interval (feet)
1	341839106531601	01N.01W.13.244	NM Highway Dept.	Rest Area Windmill	212	173-212
2	341528106533301	01S.01W.01.213	Herkenhoff	--	38	--
3	342513106500301	02N.01E.04.444	Salas	--	107	99-106
4	342107106530401	02N.01E.31.313	Sevilleta National Wildlife Refuge	Sevilleta Refuge Headquarters	223	210-220
5	342406106394501	02N.03E.18.232	Sevilleta National Wildlife Refuge	Black Butte	346	--
6	343428106383301	04N.02E.17.244	McLaughlin	--	355	335-355
7	343853106494101	05N.01E.22.141	City of Belen	Belen Airport	620	453-483
8	343706106422301	05N.01E.35.143	Faust	--	375	353-373
9	344258106460901	06N.02E.30.412A	Estes	Estes 1	135	125-130
10	344258106460902	06N.02E.30.412B	Estes	Estes 5	300	265-270
11	345000106455501	07N.02E.18.422	Webb	Grasslands	407	150-230
12	345524106353901	08N.03E.14.231	Isleta Pueblo	ECW 3	440	--
13	350204106562301	09N.01W.04.424	Collier	Rio Puerco Trading Post	150	--
14	350137106410501	--	City of Albuquerque	Rio Bravo Piezometer Nest 1	148.5	138.5-143.5
15	350137106410502	--	City of Albuquerque	Rio Bravo Piezometer Nest 1	103.8	93.8-98.8

Table 1.--Well and piezometer data for the Albuquerque Basin, New Mexico--Continued

Site number (figs. 1 and 3)	Site identifier	Local identifier	Owner	Other identifier	Total depth (feet below land surface)	Screened interval (feet)
16	350137106410503	--	City of Albuquerque	Rio Bravo Piezometer Nest 1	38.4	28.4-33.4
17	350138106395501	09N.03E.07.131A	City of Albuquerque	Rio Bravo Piezometer Nest 2	153.5	143.5-148.5
18	350138106395502	09N.03E.07.131B	City of Albuquerque	Rio Bravo Piezometer Nest 2	91.1	81.1-86.1
19	350138106395503	09N.03E.07.131C	City of Albuquerque	Rio Bravo Piezometer Nest 2	48.6	38.6-43.6
20	350138106393201	09N.03E.07.241A	City of Albuquerque	Rio Bravo Piezometer Nest 3	148	138-143
21	350138106393202	09N.03E.07.241B	City of Albuquerque	Rio Bravo Piezometer Nest 3	101	91-96
22	350138106393203	09N.03E.07.241C	City of Albuquerque	Rio Bravo Piezometer Nest 3	49.3	39.3-44.3
23	350135106390601	09N.03E.08.144A	City of Albuquerque	Rio Bravo Piezometer Nest 4	149.4	139.4-144.4
24	350135106390602	09N.03E.08.144B	City of Albuquerque	Rio Bravo Piezometer Nest 4	124.2	114.2-119.2
25	350135106390603	09N.03E.08.144C	City of Albuquerque	Rio Bravo Piezometer Nest 4	49.3	39.3-44.3
26	345940106393401	09N.03E.19.243	Guzman, Sal	Chava	125	113-123
27	345953106380201	09N.03E.21.123	City of Albuquerque	South Broadway Landfill 4	--	--
28	350449106493102	10N.01E.22.322B	City of Albuquerque	West Mesa 1A	1,049	None
29	350449106493103	10N.01E.22.322C	City of Albuquerque	West Mesa 1A	1,175	None
30	351046106464702	11N.02E.18.313B	City of Albuquerque	West Mesa 2	1,250	800-830 925-955

Table 1.--Well and piezometer data for the Albuquerque Basin, New Mexico--Continued

Site number (figs. 1 and 3)	Site identifier	Local identifier	Owner	Other identifier	Total depth (feet below land surface)	Screened interval (feet)
31	351046106464703	11N.02E.18.313C	City of Albuquerque	West Mesa 2	1,410	1,275-1,345 1,390-1,410
32	351046106464704	11N.02E.18.313D	City of Albuquerque	West Mesa 2	1,800	1,525-1,545 1,630-1,695 1,735-1,795
33	351051106395302	11N.03E.18.411B	City of Albuquerque	West Mesa 3	660	350-390 490-590
34	351051106395303	11N.03E.18.411C	City of Albuquerque	West Mesa 3	760	710-760
35	351051106395304	11N.03E.18.411D	City of Albuquerque	West Mesa 3	980	870-980
36	350454106570401	10N.01W.21.134	Cañoncito Pueblo	C1	117	--
37	350646106403601	10N.02E.12.241	City of Albuquerque	City 4	150	140-150
38	350620106392401	10N.03E.07.434	BIA	--	35	--
39	350548106383901	10N.03E.17.232	City of Albuquerque	City 1	149	138-148
40	350343106280901	10N.04E.25.324	NM Highway Dept.	Granite Hill	--	--
41	350339106294001	10N.04E.26.331	City of Albuquerque	Four Hills	--	--
42	350259106315801	10N.04E.32.422	City of Albuquerque	Eubank	--	--
43	350602106210401	10N.05E.12.434	NM Highway Dept.	Home Oil	54	--
					8	--
44	350352106270501	10N.05E.25.422	NM Highway Dept.	Sink Hole	--	--
45	350346106322301	10N.04E.29.413	KAFB	KAFB 5	1,004	504-1,004
46	350359106254701	10N.05E.29.114	NM Highway Dept.	Dead Man's Curve	--	--
47	350304106383401	10N.03E.32.412	City of Albuquerque	San Jose 3	503	360-503
48	350256106390801	10N.03E.32.314	City of Albuquerque	San Jose 9	765	188-764
49	350655106194501	10N.06E.05.332	NM Highway Dept.	Junction	--	--
50	351019106404001	11N.02E.24.223	Nelson	--	274	258-273

Table 1.--Well and piezometer data for the Albuquerque Basin, New Mexico--Continued

Site number (figs. 1 and 3)	Site identifier	Local identifier	Owner	Other identifier	Total depth (feet below land surface)	Screened interval (feet)
51	350829106420401	11N.02E.35.142	Ovenwest Corp.	La Luz del Sol	250	230-245
52	350854106403701	11N.02E.25.341A	City of Albuquerque	Montaño Piezometer Nest 1	152	142-147
53	350854106403702	11N.02E.25.341B	City of Albuquerque	Montaño Piezometer Nest 1	93	83-88
54	350854106403703	11N.02E.25.341C	City of Albuquerque	Montaño Piezometer Nest 1	48	38-43
55	350836106395601	--	City of Albuquerque	Montaño Piezometer Nest 2	147	137-142
56	350836106395602	--	City of Albuquerque	Montaño Piezometer Nest 2	99	89-94
57	350836106395603	--	City of Albuquerque	Montaño Piezometer Nest 2	39	29-34
58	350827106391301	--	City of Albuquerque	Montaño Piezometer Nest3	149	139-144
59	350827106391302	--	City of Albuquerque	Montaño Piezometer Nest 3	99	89-94
60	350827106391303	--	City of Albuquerque	Montaño Piezometer Nest 3	49	39-44
61	350821106383701	--	City of Albuquerque	Montaño Piezometer Nest 4	131	121-126
62	350821106383702	--	City of Albuquerque	Montaño Piezometer Nest 4	93	83-88
63	350821106383703	--	City of Albuquerque	Montaño Piezometer Nest 4	50	40-45
64	351100106341201	11N.03E.13.242	Shoemaker	--	460	380-400
65	350837106393801	11N.03E.31.214	City of Albuquerque	City 3	152	142-152

Table 1.--Well and piezometer data for the Albuquerque Basin, New Mexico--Concluded

Site number (figs. 1 and 3)	Site identifier	Local identifier	Owner	Other identifier	Total depth (feet below land surface)	Screened interval (feet)
66	350824106375301	11N.03E.33.143	City of Albuquerque	City 2	150	140-150
67	351108106333601	11N.04E.18.124		Spanish Assembly of God	575	--
68	351852106344901	13N.03E.36.132A	San Miguel	--	206	--
69	351556106315901	12N.04E.17.424	Sandia Pueblo	Sandia Pueblo 2	--	--
70	351322106353201	12N.03E.35.414	Sandia Pueblo	North Bosque	--	--
71	351304106355201	11N.03E.02.2122	Sandia Pueblo	South Bosque	--	--
72	352029106330601	13N.04E.19.421	Santa Ana Pueblo	Santa Ana 1	108	--
73	352032106330601	13N.04E.19.243	Santa Ana Pueblo	Santa Ana 2	200	180-200
74	351843106294501	13N.04E.34.422	Deaver	Tierra Mirage	703	693-703

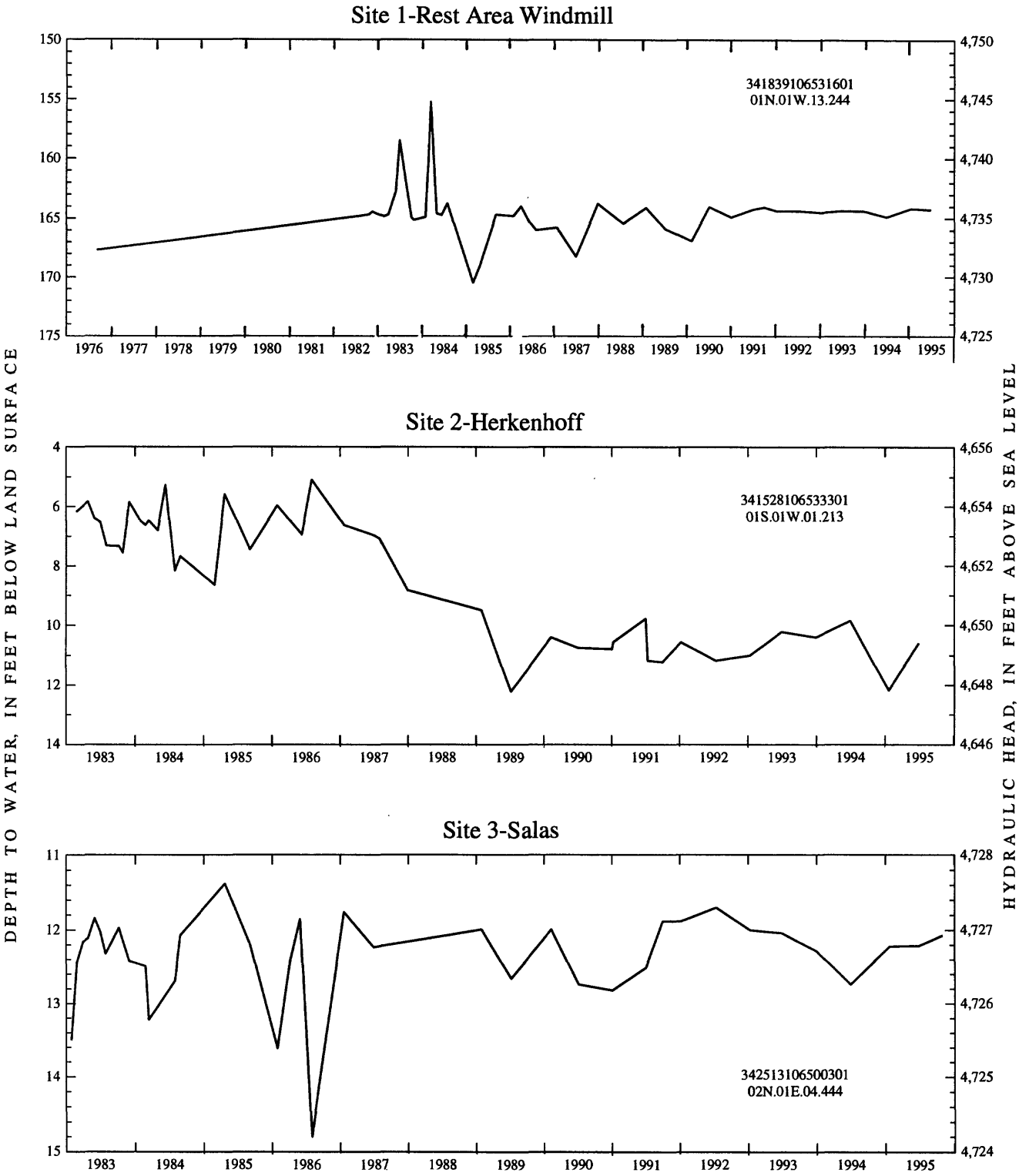
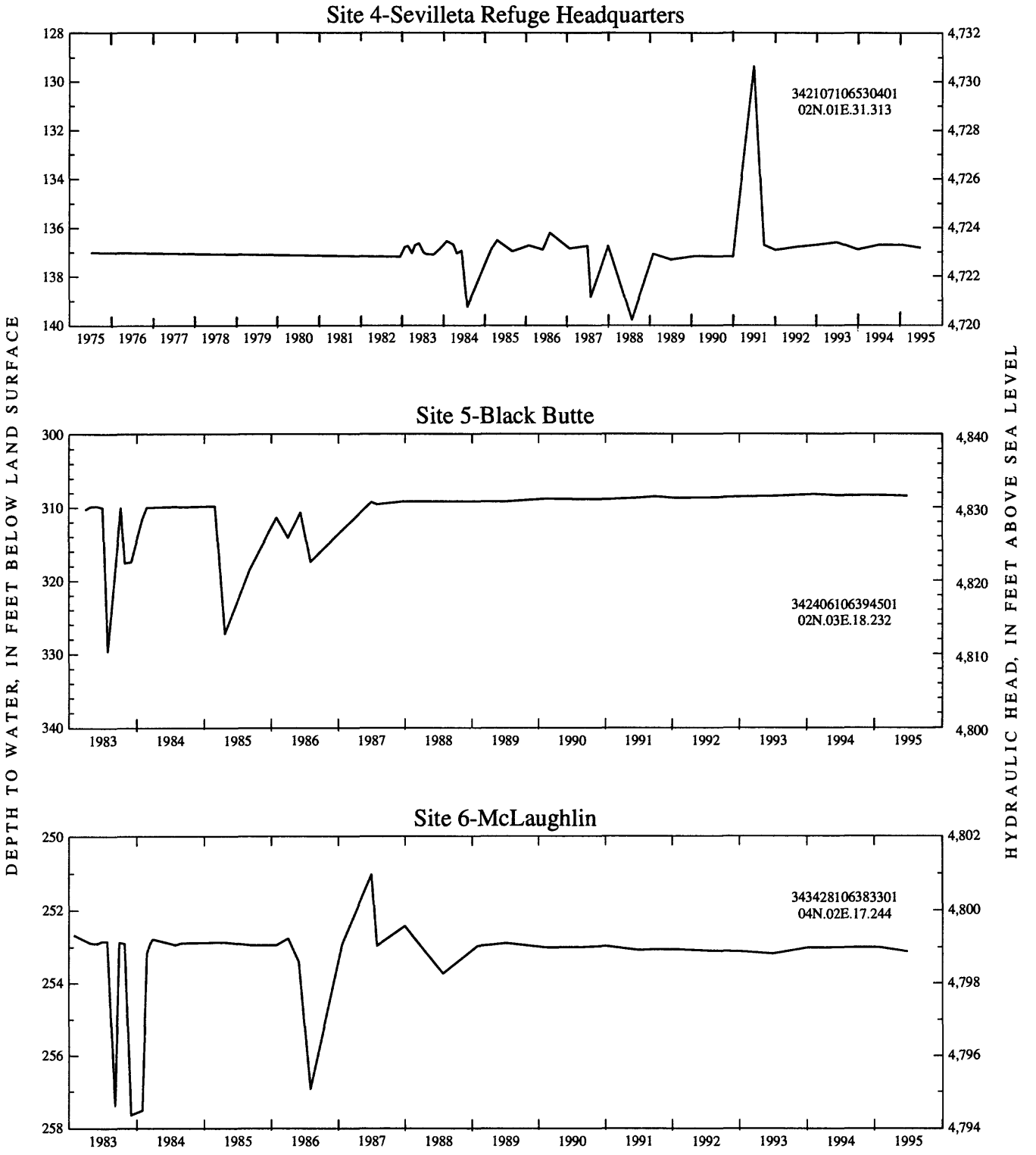


Figure 3.--Water-level data for selected wells and piezometers in the Albuquerque Basin.



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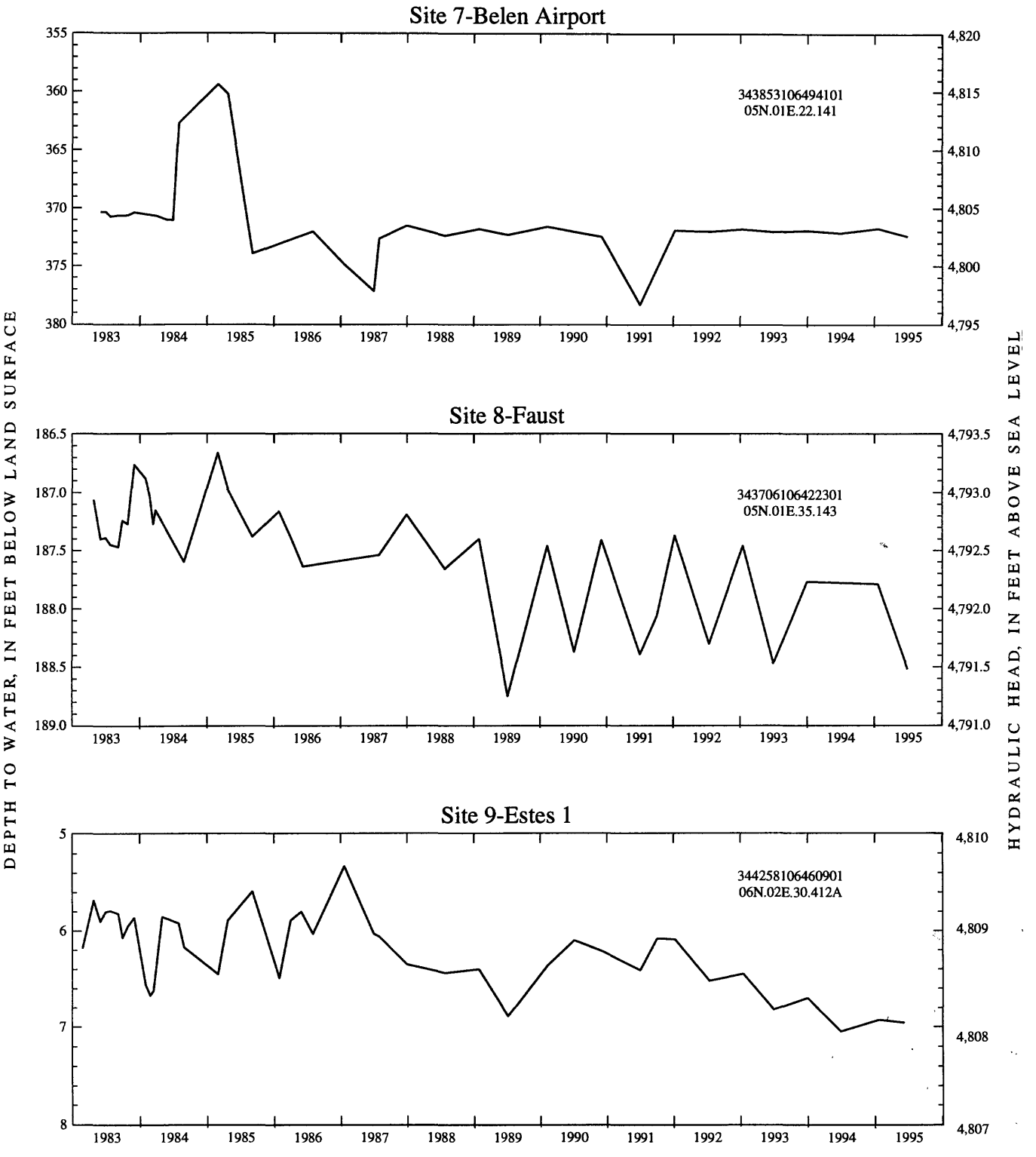

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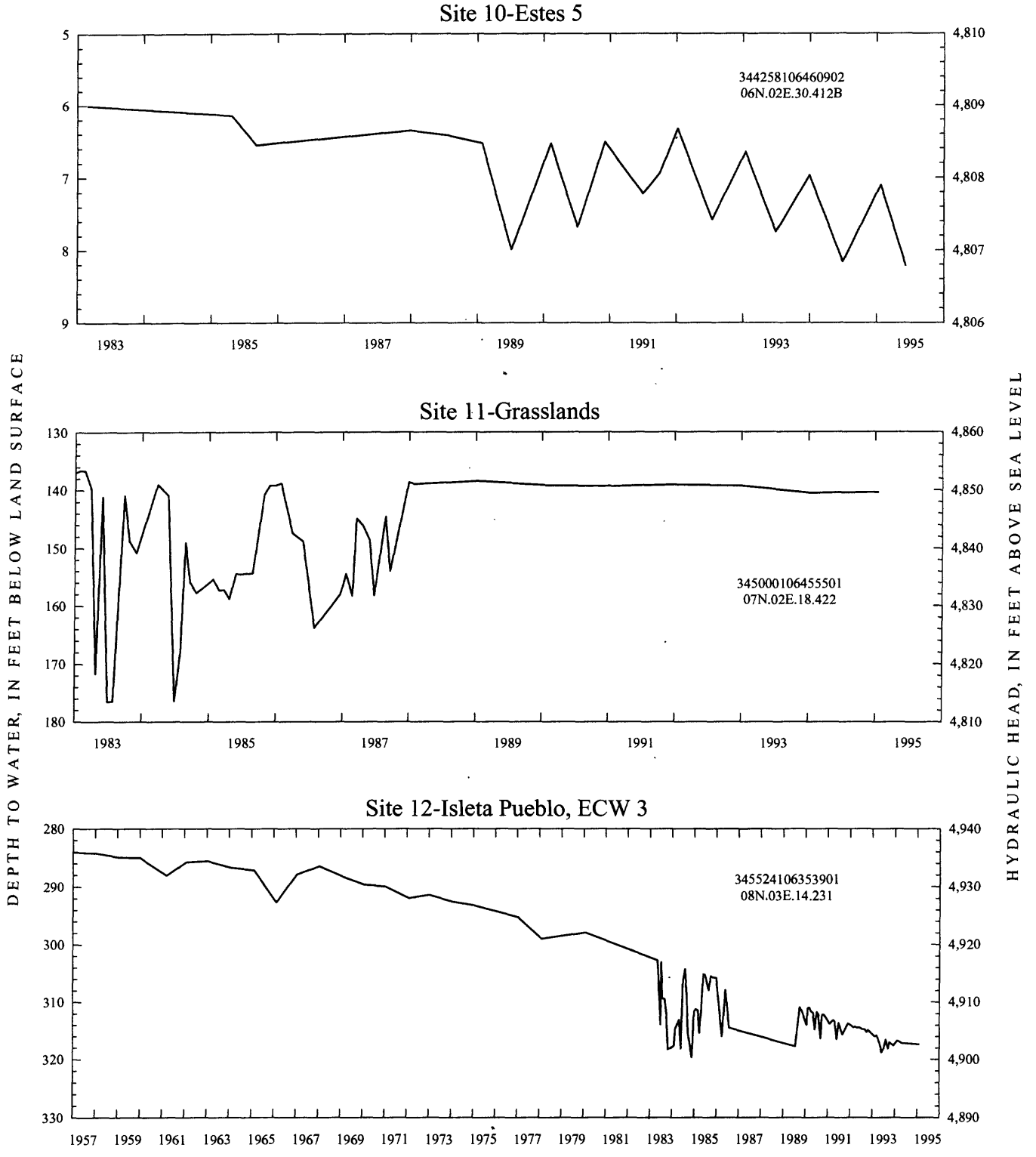

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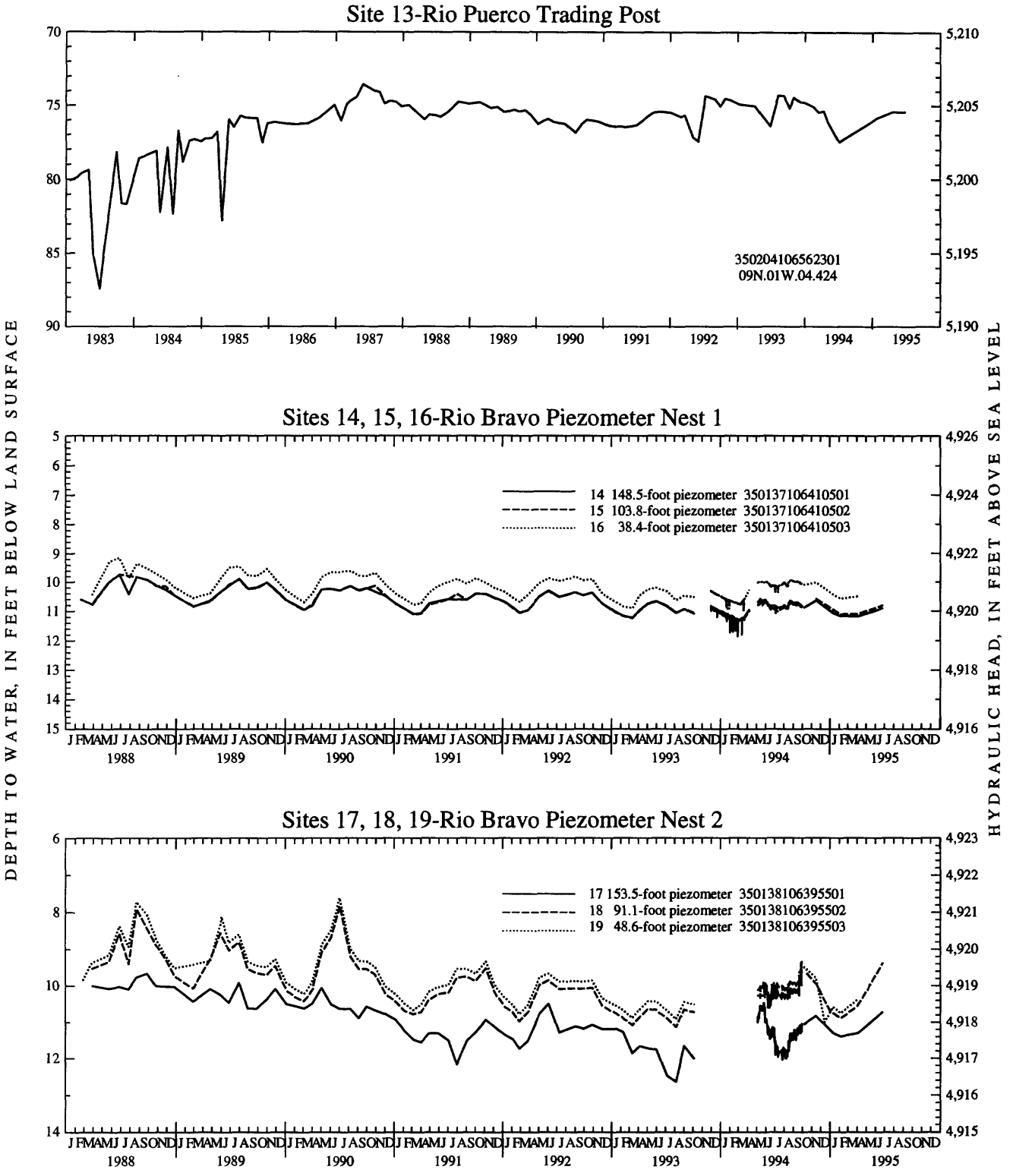

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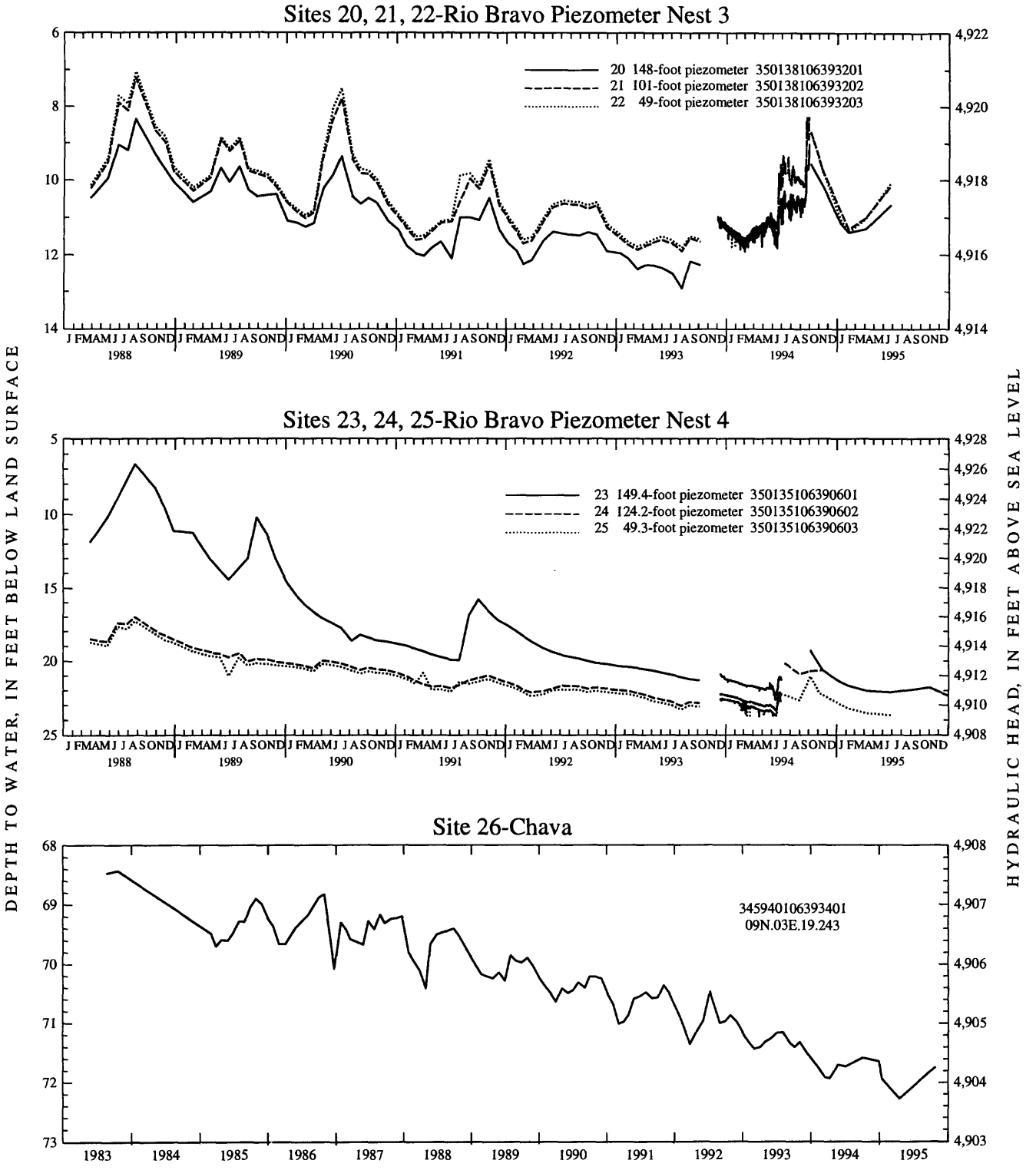

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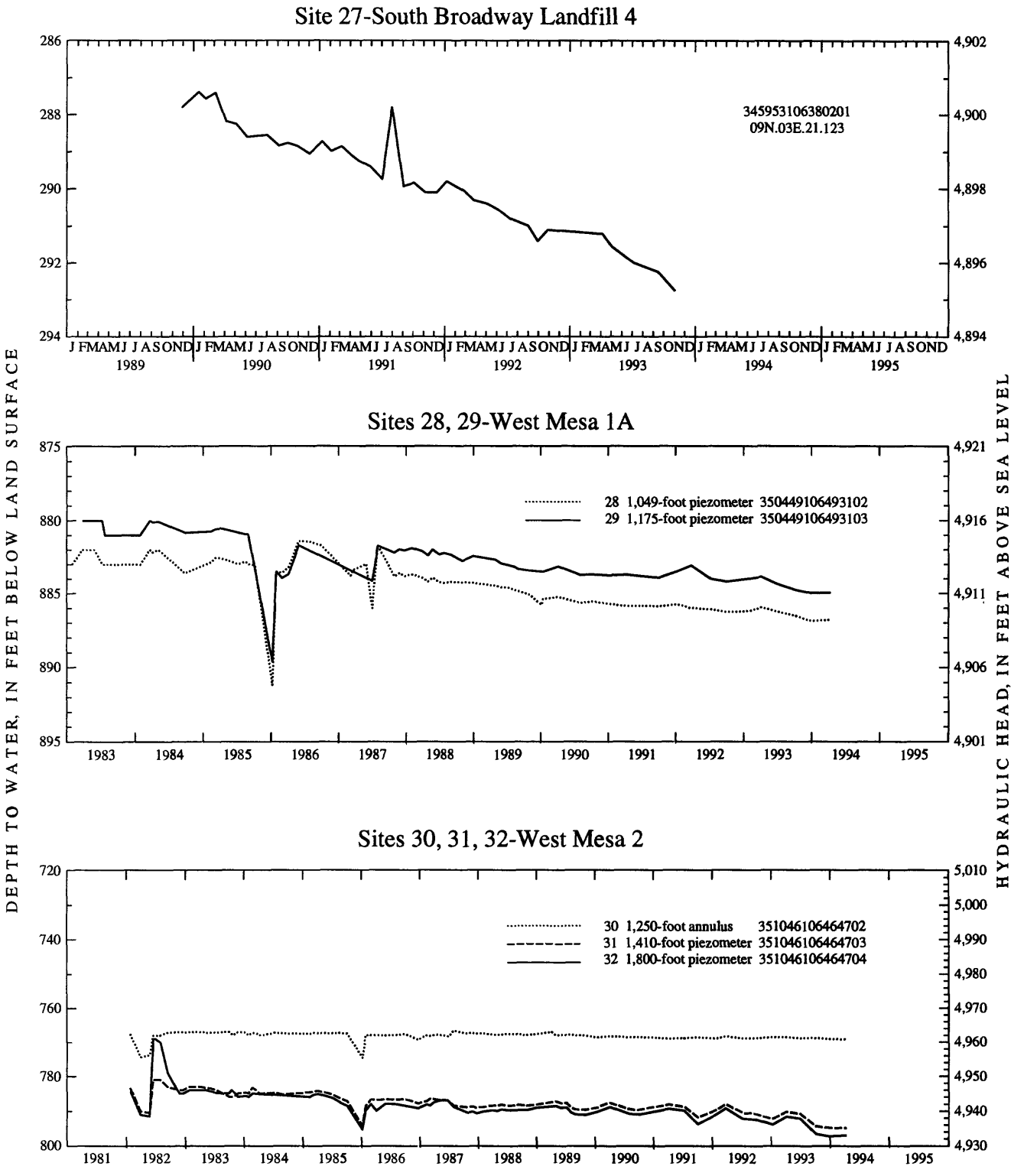

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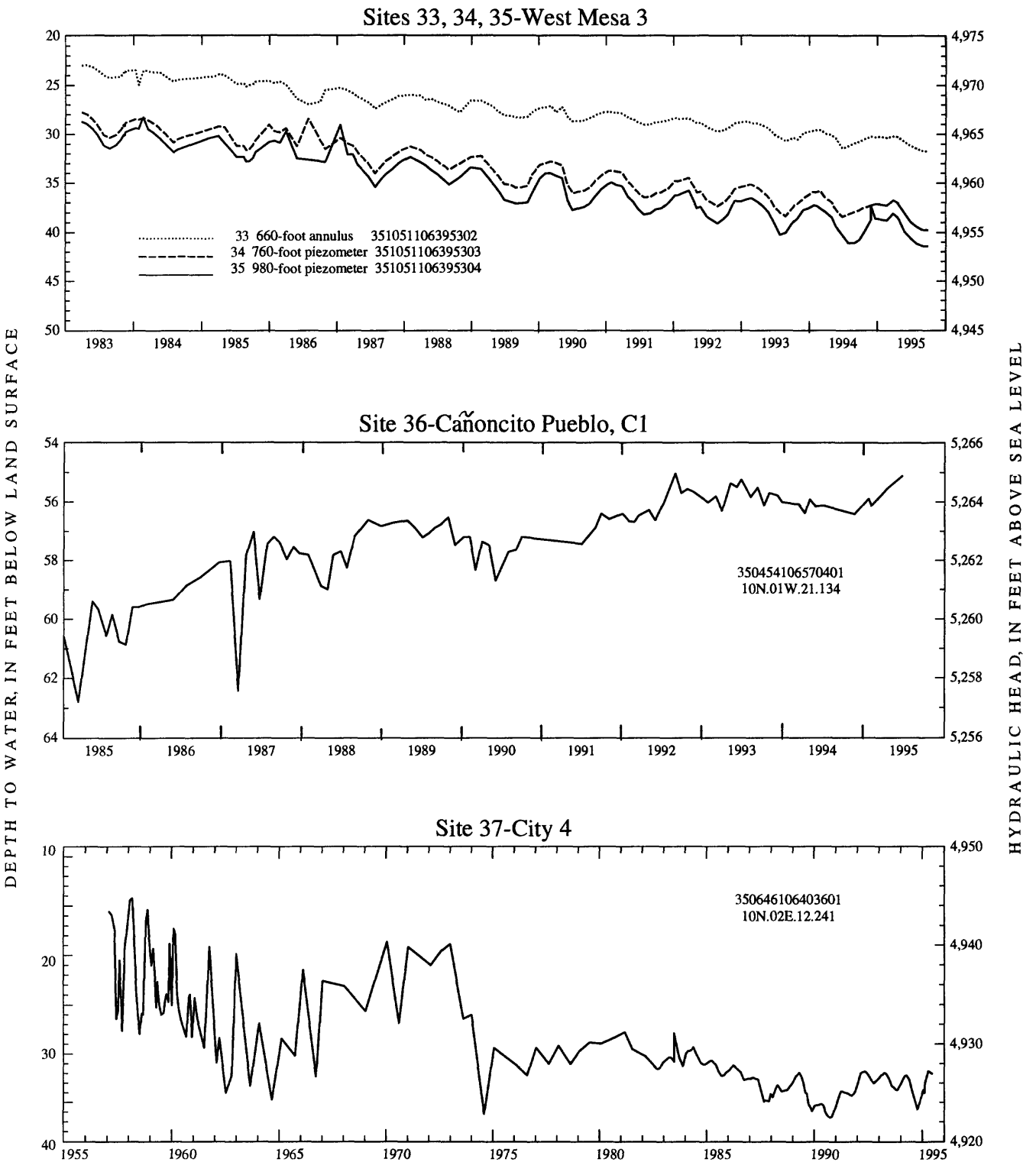

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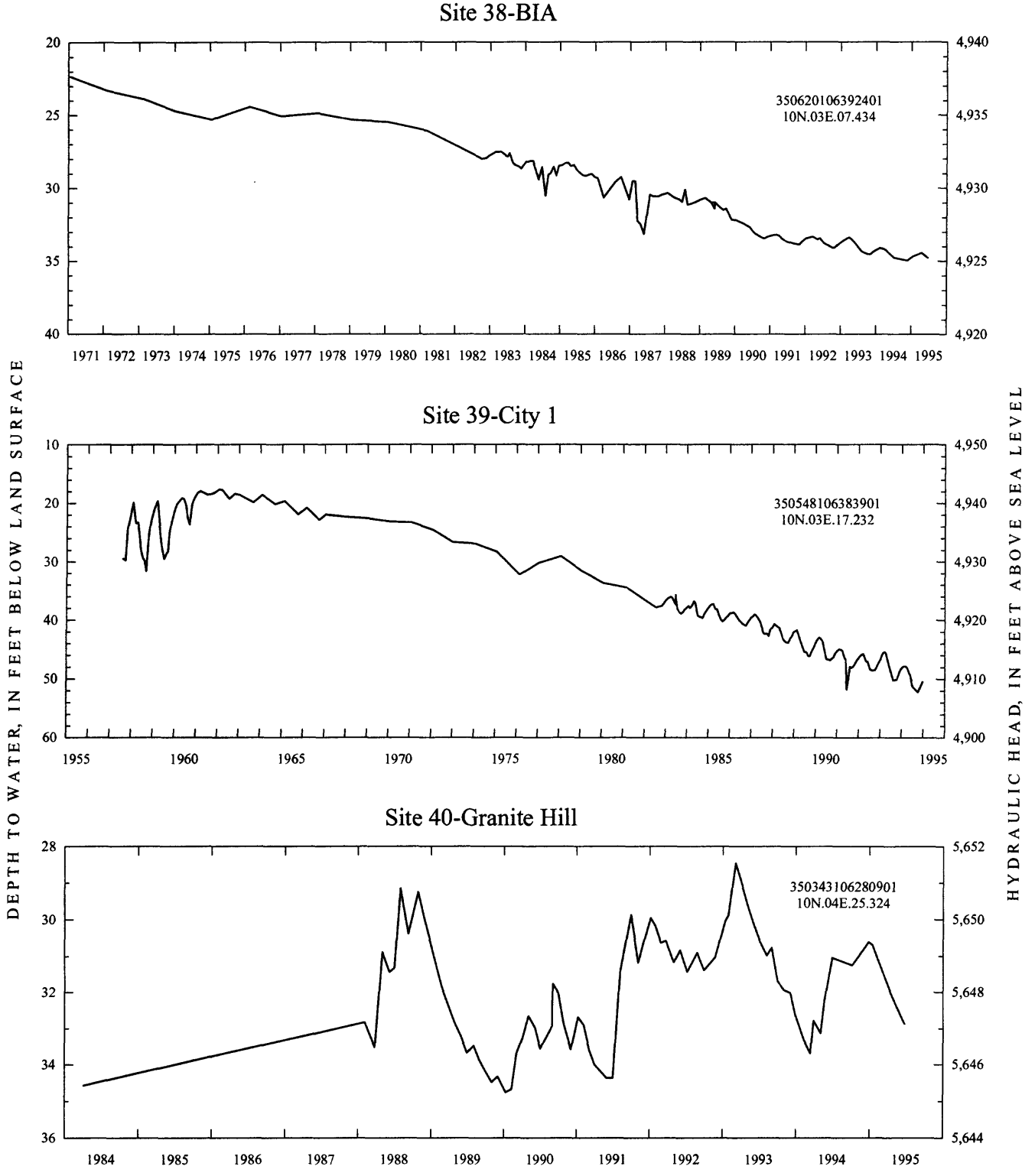

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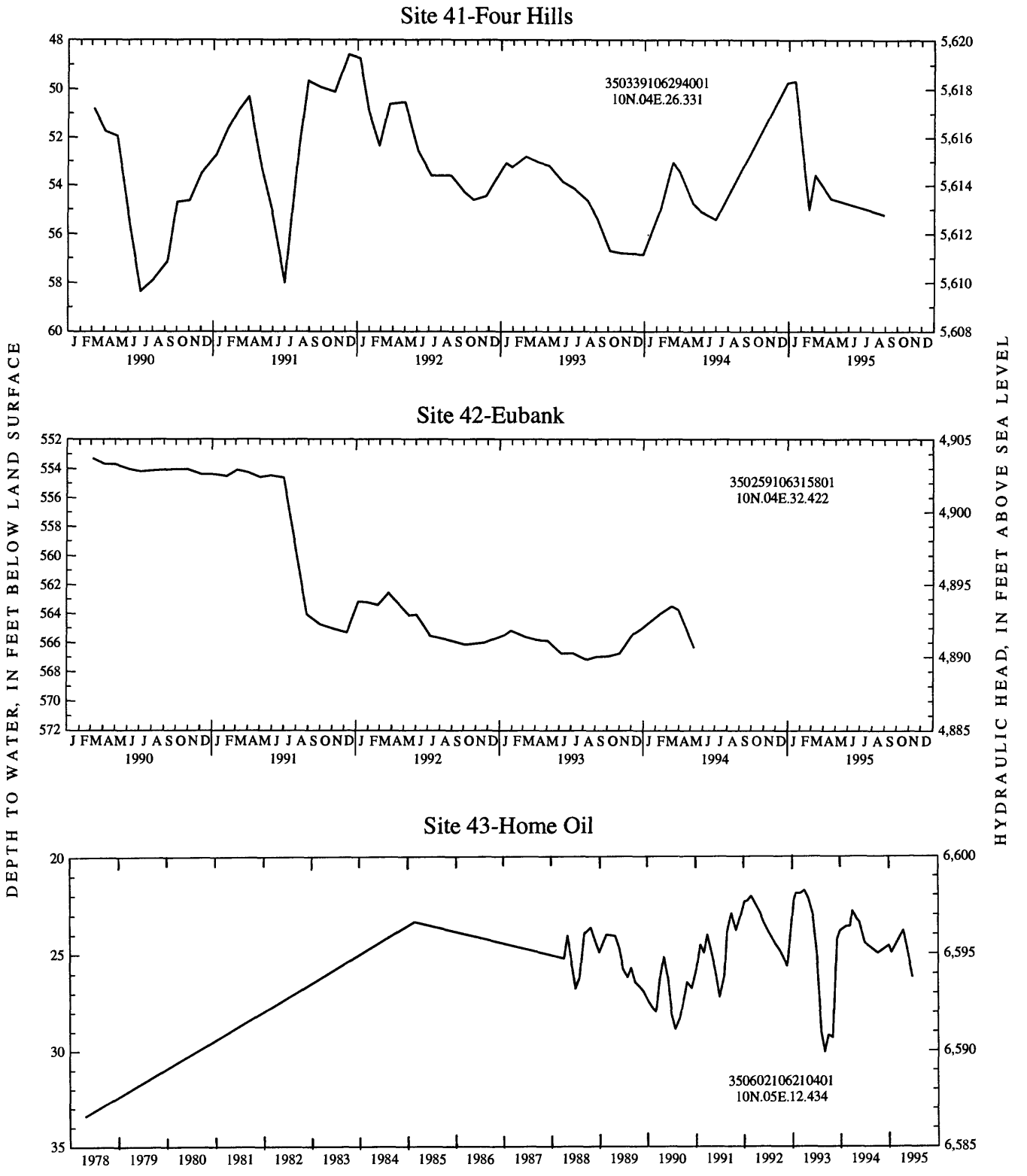

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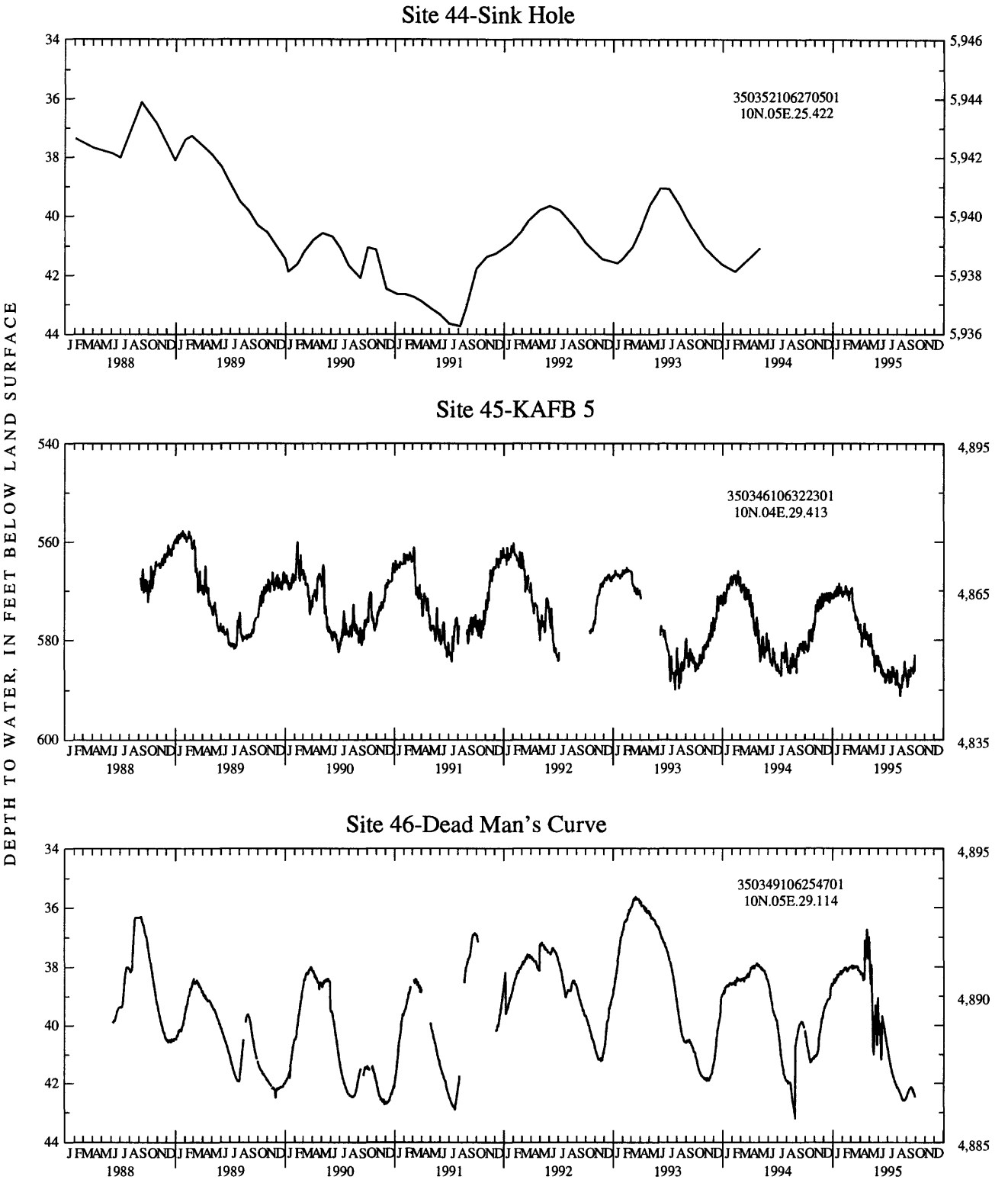

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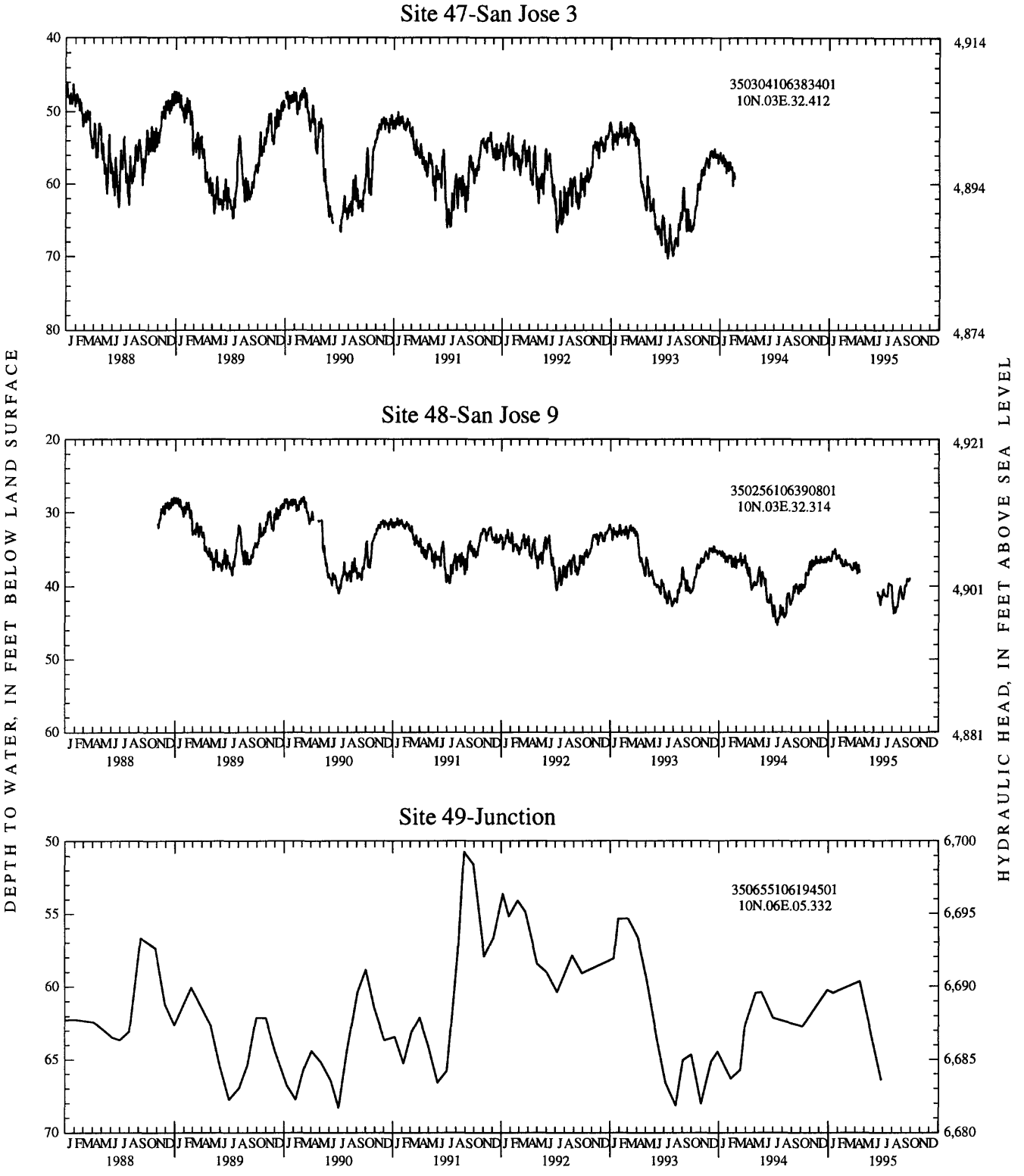

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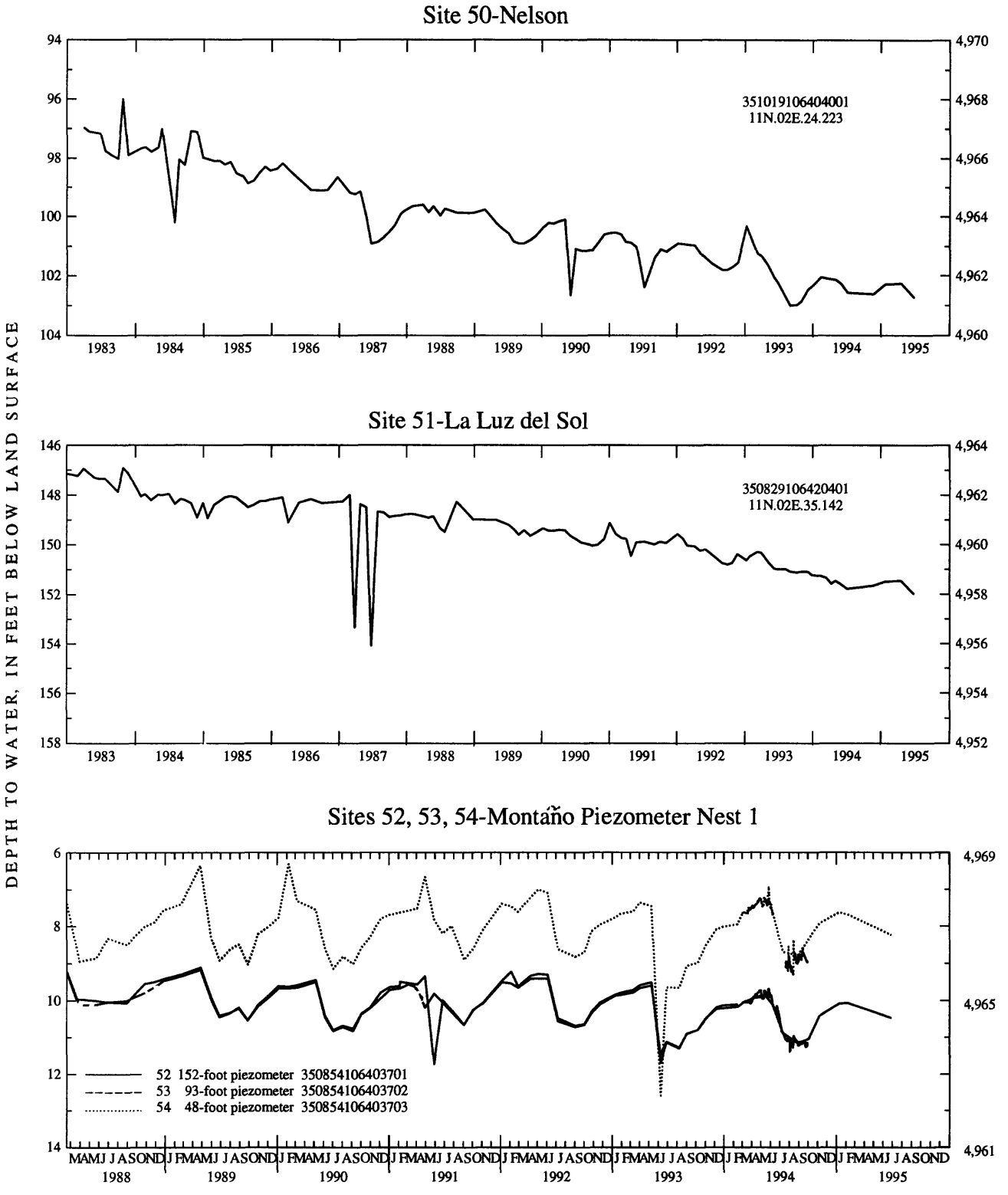

Figure 3.--Water-level data for selected wells and piezometers in the Albuquerque Basin--Continued.

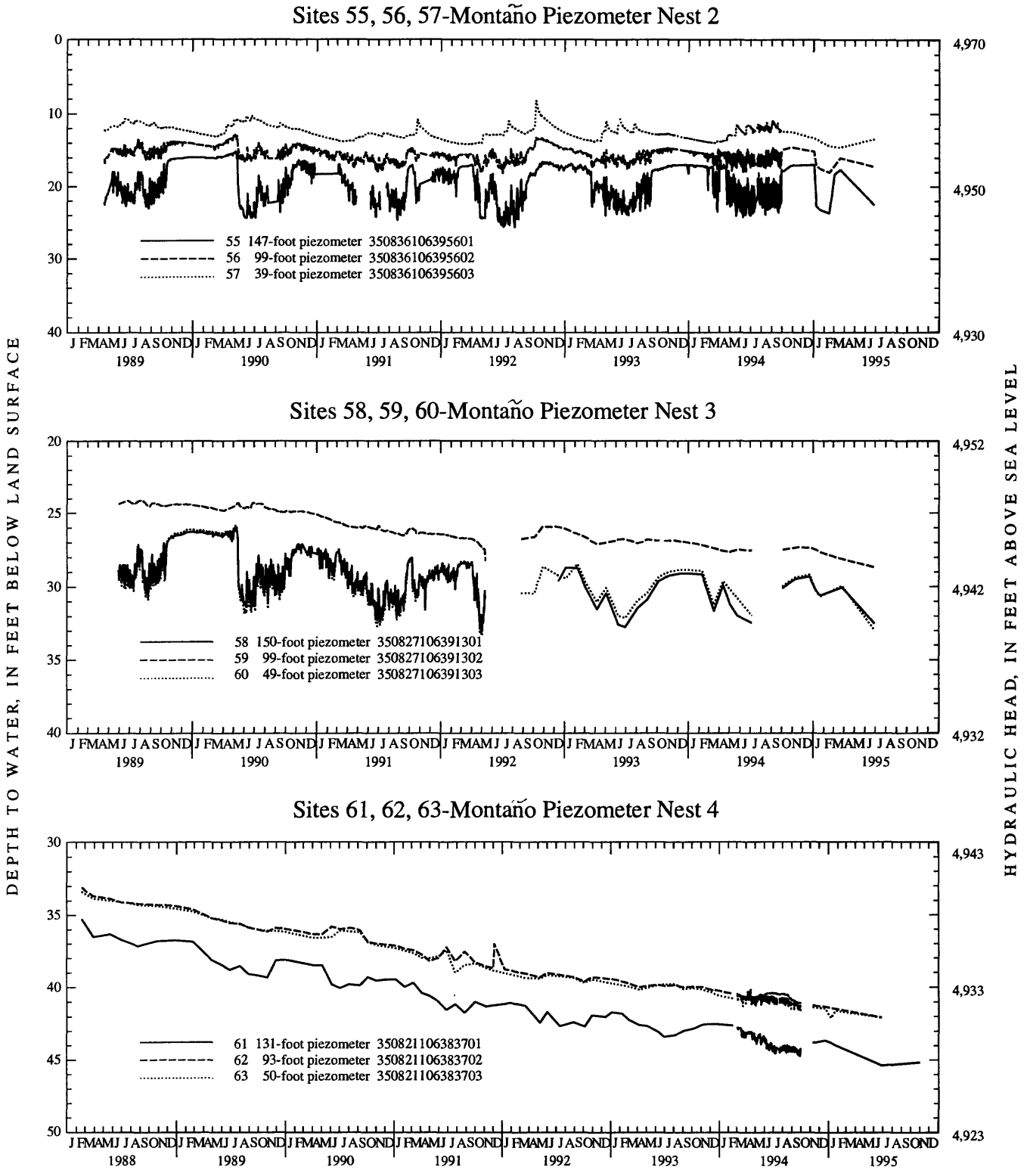

Figure 3.--Water-level data for selected wells and piezometers in the Albuquerque Basin--Continued.

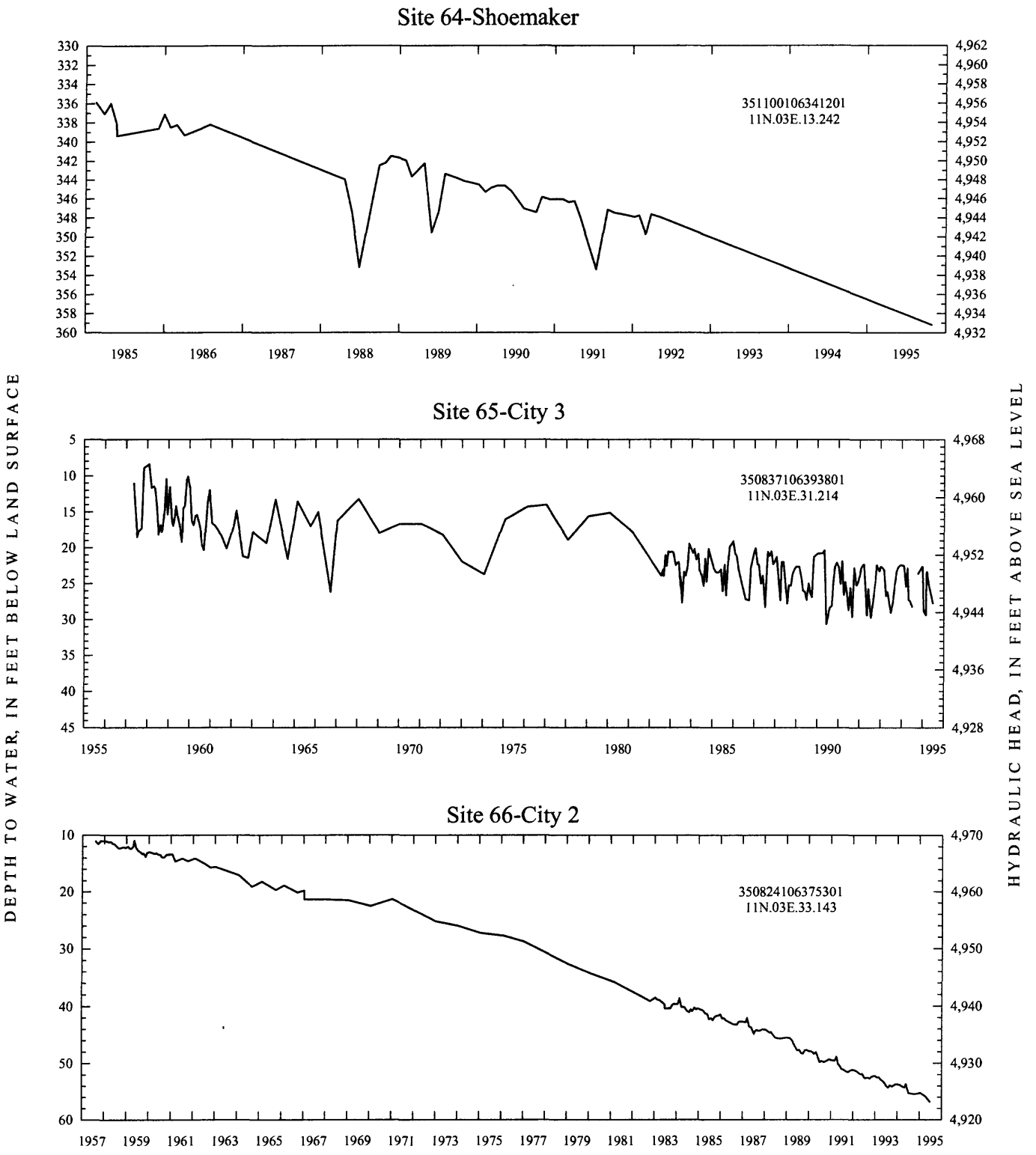

Figure 3.--Water-level data for selected wells and piezometers in the Albuquerque Basin--Continued.

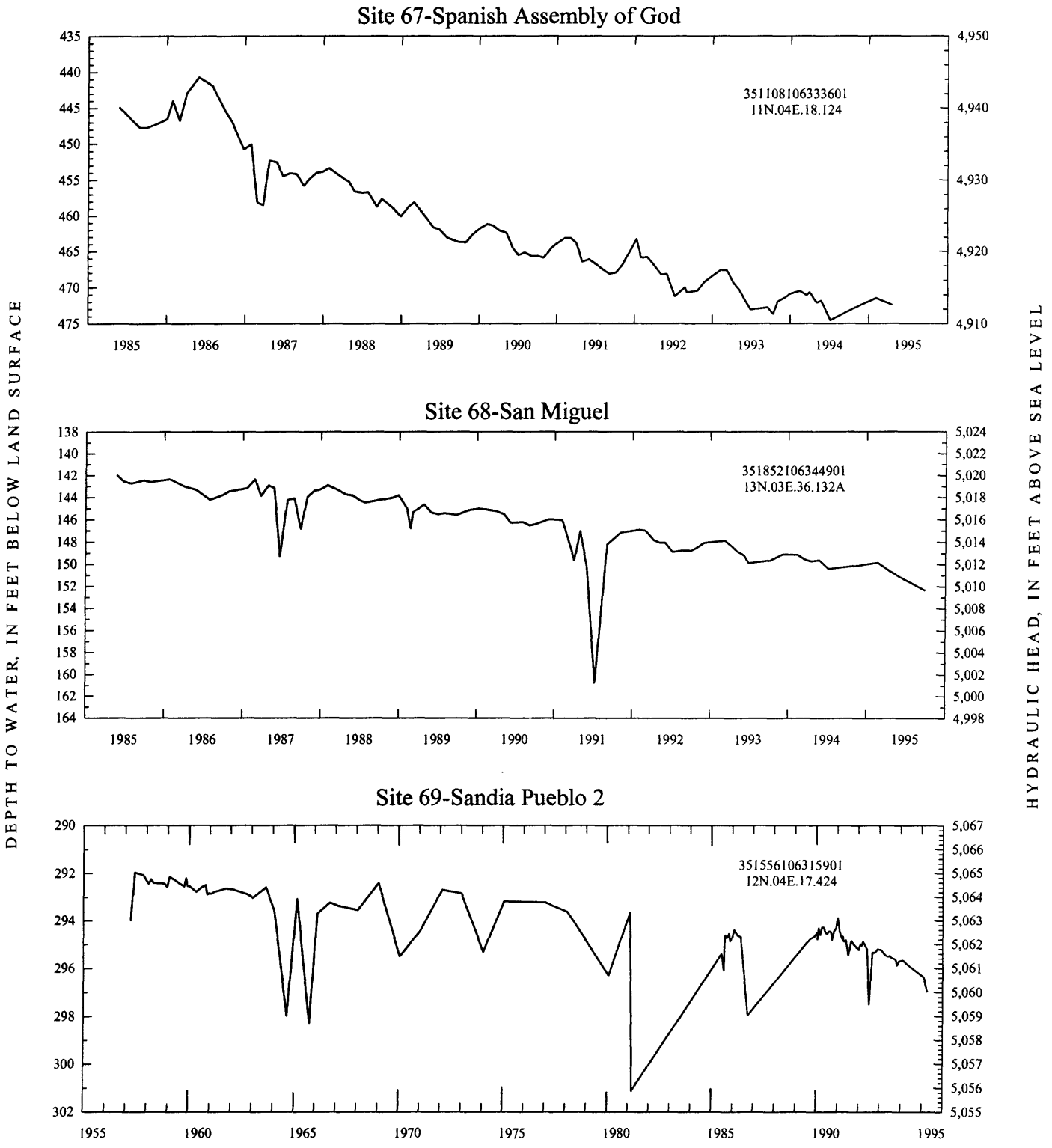

Figure 3.--Water-level data for selected wells and piezometers in the Albuquerque Basin--Continued.

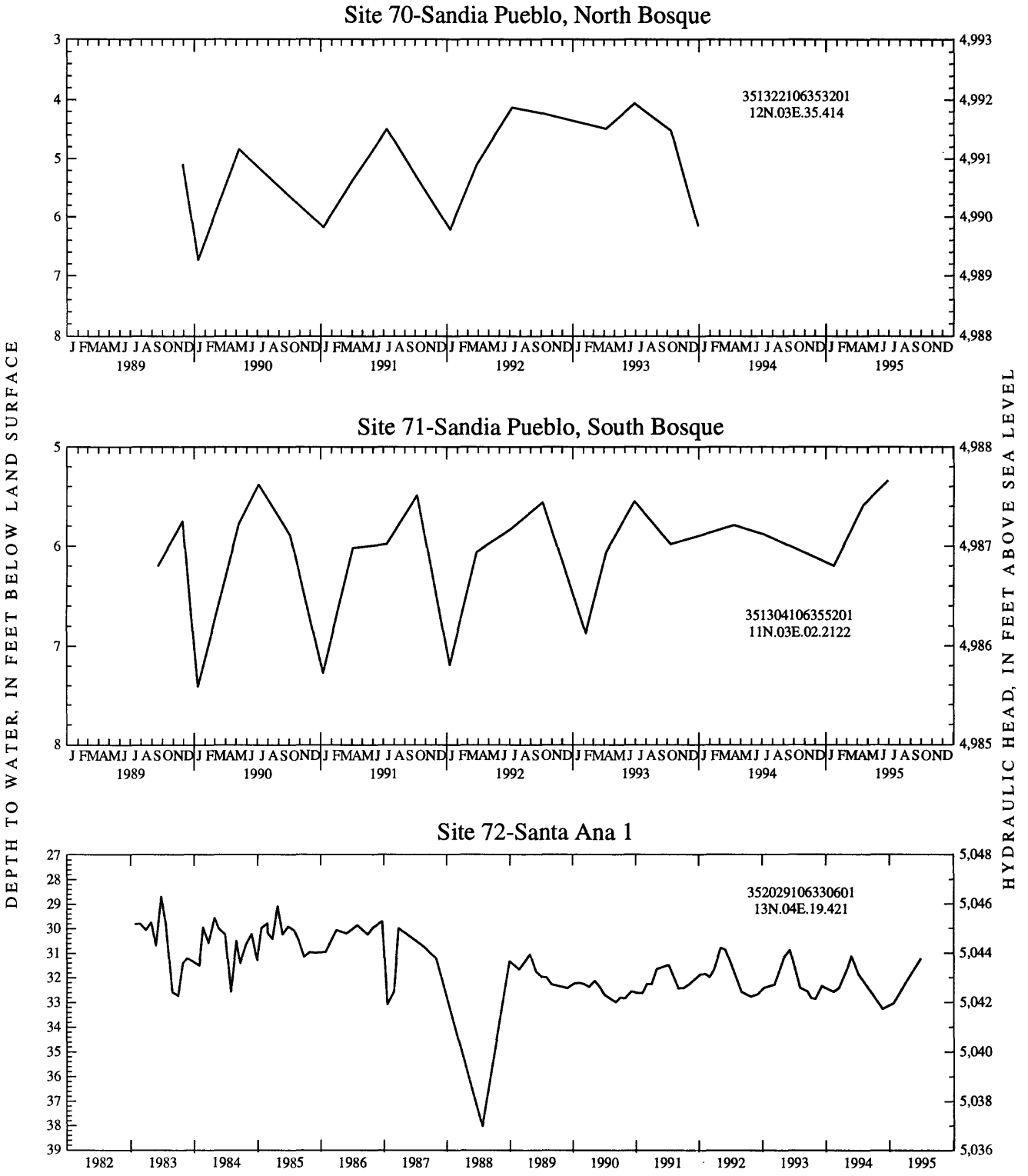

Figure 3.--Water-level data for selected wells and piezometers in the Albuquerque Basin--Continued.

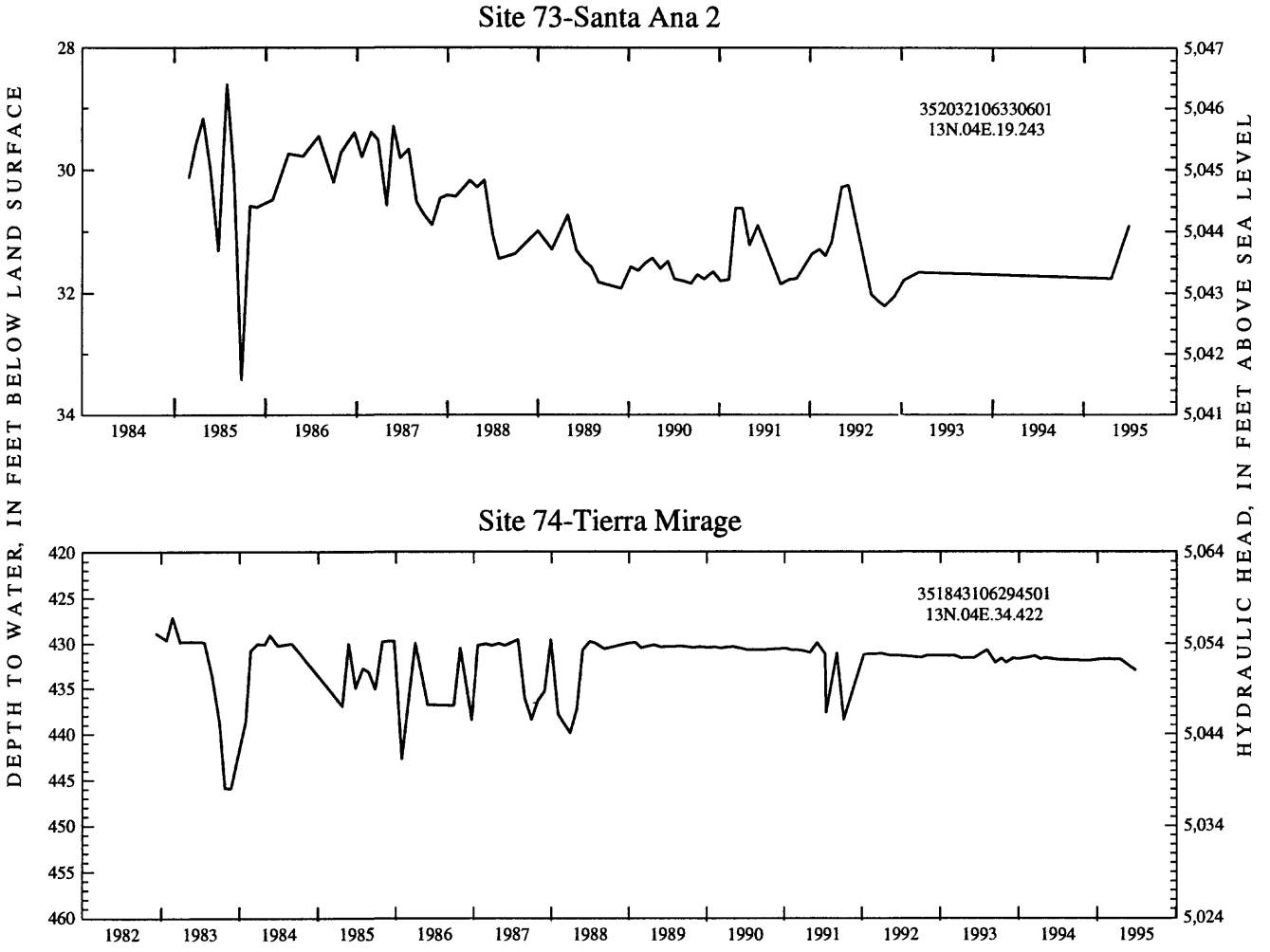

Figure 3.--Water-level data for selected wells and piezometers in the Albuquerque Basin--Concluded.

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