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OPERATION OF HYDROLOGIC DATA-COLLECTION STATIONS BY THE U.S. GEOLOGICAL SURVEY IN 1997

U.S. Department of the Interior
U.S. Geological Survey
Open-File Report 97-832

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Compiled by Melvin Lew

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Reston, Virginia
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U.S. DEPARTMENT OF THE INTERIOR

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ABSTRACT

The U.S. Geological Survey operates hydrologic data-collection stations nationwide to serve the needs of all levels of government, the private sector, and the general public for water-resources information. During fiscal year 1997, surface-water discharge was determined at 9,317 stations; stage data on streams, reservoirs, and lakes were recorded at 2,043 stations; and various surface-water quality characteristics were determined at 2,299 stations. In addition, ground-water levels were measured at 27,324 sites, and the quality of ground water was determined at 5,534 sites. Data on sediment were collected daily at 142 stations and on a periodic basis at 576 stations. Information on precipitation quantity was collected at 1,480 stations, and the quality of precipitation was analyzed at 50 stations. Data-collection platforms for satellite telemetry of hydrologic information were used at 4,467 U.S. Geological Survey stations. Funding for the hydrologic stations was derived, either solely or in combination, from three major sources--the U.S. Geological Survey's Federal Program appropriation, the Federal-State Cooperative Program, and reimbursements from other Federal agencies.

The number of hydrologic stations operated by the U.S. Geological Survey has varied from year to year since fiscal year 1983. Comparing fiscal year 1983 with fiscal year 1997, the number of stations has declined in most categories. The number of continuous-record surface-water discharge stations was lower by 193. The total number of surface-water discharge stations, both continuous and partial record, was lower by 1,759. The number of surface-water quality stations was lower by 1,527. Ground-water level stations were lower by 6,315, and ground-water quality stations were down by 2,114.

INTRODUCTION

The U.S. Geological Survey operates hydrologic data-collection stations throughout the United States, Puerto Rico, and several Trust Territories. These hydrologic data-collection stations are used to monitor the quantity and quality of the water in the Nation's streams, lakes, and reservoirs; changes in ground-water levels; and the quality of ground water.

The purpose of this report is to describe the number, distribution, and source of funding of hydrologic data-collection stations operated during fiscal year (FY) 1997. Similar reports have been prepared previously for fiscal years 1983, 1985,

1987, 1989, 1991, 1993 and 1995 (Condes de la Torre, 1983, 1985, 1987, 1989, 1991, 1993 and Lew, M., and Dodds, B., 1995). A summary is provided in table 1 of the number of hydrologic stations operated from FY 1983 to FY 1997. The sources of funding support for the stations are the U.S. Geological Survey's Federal Program appropriation, the Federal-State Cooperative Program (Gilbert and Mann, 1993), and reimbursements from other Federal agencies, or a combination of these (table 2).

In 1983, the U.S. Geological Survey established a standard system for counting hydrologic stations so that the type of stations being counted and compared would be consistent from year to year. In 1985, the items to be counted were increased to include stations that are operated to collect daily and periodic sediment sampling data, and information on the number of data-collection platforms (hydrologic data-collection stations equipped with satellite radio transmitters). For this reason, the information presented in this report begins in either 1983 or 1985.

For the purpose of this report, "project" refers to a hydrologic investigation conducted by the U.S. Geological Survey, and a "scheduled, long-term operation" station is one at which measurements are made or samples are taken on a fixed-time interval over an indefinite period. Also, "continuous" and "continuous record" is used interchangeably.

HYDROLOGIC DATA-COLLECTION STATIONS

Surface-Water Data

The U.S. Geological Survey determined surface-water discharge (flow) at 9,317 stations in FY 1997 (table 2). At 6,959 of these stations, continuous-discharge records were computed. That is, records were kept such that the flow can be determined for any moment during any day and on a daily basis. These records are needed for forecasting flow extremes, water-management decisions, assessing current water availability, managing water quality, and meeting legal requirements. At 2,358 other streamflow stations, partial records were collected. For example, at a station where the sole interest is in peak flows, data are collected and recorded only at stages greater than some pre-determined level. The design of bridges, dams, water and waste-water treatment facilities are often based on information about flow extremes. The number of stations in each State where continuous surface-water discharge data were collected ranged from 14 in Delaware to 691 in California (table 3). The Federal-State Cooperative Program funded operation of the largest number of continuous surface water discharge stations; it provided sole support for 4,080 stations, and in combination with other sources, provided support for (77, + 375, + 43) 495 more (table 2). The Federal-State Cooperative Program also funded the largest number of partial-record discharge stations; it provided sole support of 1,913, and in combination with other sources, funded 33 more stations (table 2).

TABLE 1 -- Types and number of hydrologic data-collection stations operated by the U.S. Geological Survey from fiscal year 1983 to fiscal year 1997.

Type of station	Number of Stations by Fiscal Year														
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
SURFACE WATER															
Discharge															
Continuous Record	7,152	7,002	7,019	7,079	7,000	7,110	7,239	7,363	7,346	7,293	7,272	7,291	7,185	7,000	6,959
Partial Record	3,924	3,823	4,057	3,661	3,624	3,669	3,426	3,489	3,127	2,999	2,915	2,814	2,454	2,477	2,358
Stage Only - Streams															
Continuous Record	419	405	447	540	448	523	562	527	586	610	547	601	610	578	769
Partial Record	471	427	507	468	229	251	307	365	410	347	460	390	398	474	347
Stage Only - Lakes & Reservoirs															
Continuous Record	846	839	782	698	779	715	848	830	808	819	797	771	733	734	702
Partial Record	400	388	405	410	350	312	345	341	322	398	312	286	296	247	225
Quality															
*Continuous Record	748	820	743	731	599	615	661	717	653	663	709	699	738	673	638
Scheduled, Long-term Operation	2,906	2,672	2,446	2,243	2,185	2,176	2,341	2,270	2,322	2,338	2,114	2,018	1,669	1,571	1,488
Short-term or Project Stations	920	969	977	909	716	1,017	1,309	1,026	943	1,368	1,110	1,080	1,310	706	811
GROUND WATER															
Water Levels															
*Continuous Record	1,982	2,217	2,284	2,459	2,373	2,426	2,404	2,508	2,376	2,102	2,204	2,250	2,271	2,368	2,301
Scheduled, Long-term Operation	24,047	23,662	25,023	23,986	22,634	24,094	25,284	24,792	24,750	25,302	26,124	26,303	26,057	26,762	22,931
Short-term or Project Stations	9,592	9,865	11,994	10,496	9,954	10,028	9,398	11,092	8,636	5,798	6,352	5,728	4,954	5,413	4,393
Quality															
Scheduled, Long-term Operation	3,071	3,012	4,334	4,940	3,900	3,625	4,472	4,593	4,416	4,436	2,659	2,756	2,299	3,237	2,343
Short-term or Project Stations	4,577	2,659	4,929	4,816	5,220	4,511	4,351	4,831	4,199	3,305	3,798	4,100	3,981	2,573	3,191
SEDIMENT															
Daily Sampling			212	206	174	171	172	177	168	157	161	140	148	153	142
Periodic Sampling			1,027	954	878	960	1,019	922	865	998	988	932	1,032	566	576
PRECIPITATION															
Quantity	800	741	921	956	909	1,036	1,235	1,313	1,484	1,488	1,432	1,620	1,354	1,602	1,480
Quality	121	84	108	82	78	69	72	61	65	102	48	42	47	45	50
SATELLITE TELEMETRY															
Operated by USGS			1,001	1,242	1,720	1,855	2,116	2,385	2,492	2,737	2,963	3,128	3,404	3,712	3,965
Operated by Other Agencies			519	547	572	620	626	577	718	757	597	587	516	478	502

* The stations at which a continuous record is maintained in this type are also counted as either (a) scheduled long-term operation stations, or (b) short-term project stations; therefore, the sum of (a) and (b) represents the total stations of this type.

TABLE 2 -- Types and number of hydrologic data-collection stations operated by the U.S. Geological Survey during the 1997 fiscal year and the sources of funding support.

Type of station	Number of Stations by Source of Funding							Total Stations
	Single Program Support			Combined Support				
	Federal Program (Federal)	Federal-State Cooperative Program (COOP)	Reimbursement from other Federal Agencies (OFA)	Federal, COOP	Federal, OFA	COOP, OFA	Federal, COOP, OFA	
SURFACE WATER								
Discharge								
Continuous Record	460	4,080	1,812	77	112	375	43	6,959
Partial Record	59	1,913	347	26	6	7	0	2,358
Stage Only - Streams								
Continuous Record	11	302	424	3	12	13	4	769
Partial Record	3	309	34	0	1	0	0	347
Stage Only - Lakes & Reservoirs								
Continuous Record	7	318	362	3	4	8	0	702
Partial Record	6	147	72	0	0	0	0	225
Quality								
*Continuous Record	103	388	179	3	10	0	0	638
Scheduled, Long-term Operation	155	1093	189	43	8	0	0	1,488
Short-term or Project Stations	112	576	101	22	0	0	0	811
GROUND WATER								
Water Levels								
*Continuous Record	98	1,839	355	9	0	0	0	2,301
Scheduled, Long-term Operation	3,816	18,278	828	9	0	0	0	22,931
Short-term or Project Stations	400	2,615	1,224	154	0	0	0	4,393
Quality								
Scheduled, Long-term Operation	379	1,628	336	0	0	0	0	2,343
Short-term or Project Stations	938	1,712	541	0	0	0	0	3,191
SEDIMENT								
Daily Sampling	11	75	54	1	0	1	0	142
Periodic Sampling	206	246	124	0	0	0	0	576
PRECIPITATION								
Quantity	71	709	666	10	5	19	0	1,480
Quality	40	9	1	0	0	0	0	50

* The stations at which a continuous record is maintained in this type are also counted as either (a) scheduled long-term operation stations, or (b) short-term project stations; therefore, the sum of (a) and (b) represents the total stations of this type.

Table 3. -- Number of continuous surface-water discharge stations, by state and year, from fiscal year 1983 to fiscal year 1997

STATE	NUMBER OF STATIONS FISCAL YEAR 1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Alabama	88	86	79	75	75	80	93	103	98	95	101	99	103	103	114
Alaska	103	101	104	100	83	76	79	86	78	106	87	78	74	63	63
Arizona	169	199	194	204	182	187	189	191	202	199	197	198	200	209	217
Arkansas	49	48	45	46	40	48	53	54	58	56	58	57	49	42	70
California	690	639	641	631	605	619	757	766	768	780	763	741	719	733	691
Colorado	357	331	342	331	283	281	267	269	250	268	286	323	291	295	293
Connecticut	47	47	46	48	46	51	50	48	47	48	51	50	46	49	57
Delaware	12	12	12	12	13	13	13	13	14	15	17	18	18	14	14
Florida	284	287	282	299	339	342	295	355	342	341	330	331	314	319	334
Georgia	98	99	107	86	108	108	109	109	109	109	105	111	112	118	110
Hawaii	126	129	134	113	107	112	112	105	117	117	120	118	118	98	88
Idaho	149	157	201	214	212	215	224	218	212	214	214	153	224	220	194
Illinois	145	139	140	160	135	142	136	146	155	149	153	152	156	160	149
Indiana	175	171	177	181	175	177	178	177	181	170	178	169	173	173	173
Iowa	110	108	113	116	116	117	117	117	119	116	114	119	119	112	118
Kansas	142	144	138	140	140	140	141	136	133	134	145	151	157	152	154
Kentucky	123	114	106	106	108	108	115	114	116	115	99	100	94	83	82
Louisiana	75	68	80	71	61	63	62	63	62	62	62	59	57	58	69
Maine	51	49	47	44	44	47	49	49	48	45	44	45	43	43	41
Maryland	85	89	91	104	104	104	84	80	76	74	75	75	75	75	73
Massachusetts	82	81	78	76	79	77	84	79	64	59	68	74	82	76	86
Michigan	136	128	128	129	129	140	140	141	144	140	145	140	154	146	145
Minnesota	93	85	89	97	98	93	91	86	85	88	88	88	85	72	72
Mississippi	72	68	67	74	79	78	79	76	77	79	80	82	54	94	98
Missouri	110	108	104	105	105	105	113	120	118	104	111	108	114	108	137
Montana	188	184	189	164	206	202	211	209	210	211	183	198	201	190	184
Nebraska	142	145	145	144	144	141	144	141	143	142	121	121	85	87	82
Nevada	90	90	94	90	96	111	134	167	142	154	160	177	171	150	149
New Hampshire	37	38	36	36	36	38	38	38	36	30	32	33	35	37	37
New Jersey	101	101	95	97	108	101	95	96	91	91	101	103	93	96	85
New Mexico	158	147	147	160	176	172	172	168	131	133	137	150	151	133	127
New York	182	185	172	167	186	184	194	203	209	205	212	224	214	210	205
North Carolina	151	154	154	167	173	205	192	186	175	170	170	177	183	182	171
North Dakota	81	75	74	103	100	101	98	104	104	107	105	102	100	98	93
Ohio	200	130	109	127	122	133	136	132	164	126	121	121	116	121	124
Oklahoma	136	123	123	122	113	123	120	127	149	156	164	150	157	134	147
Oregon	278	278	277	280	268	246	244	237	236	184	191	189	178	187	181
Pennsylvania	236	235	251	249	243	250	236	241	235	230	223	222	225	229	205
Puerto Rico	43	58	58	56	49	60	61	66	78	92	94	82	83	80	80
Rhode Island	15	15	15	15	16	16	16	16	16	16	19	19	19	19	19
South Carolina	84	107	104	102	118	114	119	132	130	129	131	136	135	137	114
South Dakota	107	113	109	105	102	132	137	132	127	131	132	130	121	126	126
Tennessee	90	105	99	89	97	86	92	83	108	118	119	119	114	73	58
Texas	400	399	397	384	365	361	368	369	341	336	328	337	319	288	292
Utah	214	201	194	193	157	176	165	157	157	179	184	188	176	172	158
Vermont	32	31	31	31	30	33	33	33	39	32	33	33	35	36	35
Virginia	95	100	85	86	82	84	80	85	84	83	85	83	90	97	94
Washington	185	182	215	239	240	199	191	197	203	204	203	223	207	232	270
West Virginia	85	73	64	79	77	72	73	73	77	74	72	62	59	56	64
Wisconsin	98	97	100	95	93	109	112	117	121	121	117	133	144	127	139
Wyoming	153	149	137	137	135	138	148	153	167	156	144	140	143	88	78
Total	7,152	7,002	7,019	7,079	7,000	7,110	7,239	7,363	7,346	7,293	7,272	7,291	7,185	7,000	6959

The U.S. Geological Survey's hydrologic data-collection surface water stations used to monitor and document changes and trends in water availability and quality has undergone reductions in recent years. The number of continuous-record surface-water discharge stations varied from 7,152 stations in FY 1983 to the present low of 6,959 stations (table 1). In FY 1990, U.S. Geological Survey had the highest number of stations at 7,363. Station reductions were not distributed uniformly across the country and were generally those that were funded primarily from direct USGS Federal Program. The changes in the number of stations, since 1983, reflect decreases in some States and increases in others (table 3).

Over the past year, the number of partial record surface-water discharge stations decreased by 119, to 2,358 stations in FY 1997.

The U.S. Geological Survey collected stage-only data at 1,116 stream stations. The number of stage-only, continuous and partial, data stations on streams ranged from none in several States to 126 in Washington (table 4). The reimbursement from other Federal agencies supported the largest number of continuous stage-only stream stations--424, while the Federal-State Cooperative Program supported the most partial-record stage-only stations--309 (table 2). The number of continuous-record stations collecting stage-only data on streams increased from 419 in 1983 to a high of 769 in 1997 (table 1), whereas the number of partial-record stations decreased by 124.

The U.S. Geological Survey also collected stage data at 927 stations on lakes and reservoirs. Continuous records of stage were collected at 702 lake and reservoir stations, ranging from 143 in California to none in several States (table 4). Reimbursements from the Federal-State Cooperative Program and other Federal agencies supported 97 percent of the continuous-record stations and partial-record stage stations on lakes and reservoirs (table 2). The number of stage stations on lakes and reservoirs decreased from 1,246 in FY 1983 to 927 in FY 1997 (table 1).

Water-quality characteristics were measured at 2,299 stations across the Nation (table 1). The types of chemical constituents and physical properties measured vary from site to site. Field and laboratory determinations could include: support variables such as temperature, specific conductance, pH, alkalinity, turbidity and dissolved oxygen; major dissolved cations and anions; dissolved and suspended trace elements; nutrients; and pesticides. A continuous record was maintained at 638 of these sites, mainly for water temperature and conductance, but other properties, such as dissolved oxygen concentrations and pH, were also recorded continuously at some sites. The surface-water quality stations at which a continuous record is maintained are also included in the count of (a) scheduled long-term operation stations, or (b) short-term project stations; therefore, the sum of (a) and (b) represents the total stations of this type.

Table 4.--Number of stations, by state, at which surface-water data were collected in fiscal year 1997

State	Type of Station							
	Discharge		Stage only-Sreams		Stage only-Lakes & Reservoirs		Quality	
	Contin-uous	Partial	Contin-uous	Partial	Contin-uous	Partial	Long-term	Short-term
Alabama	114	25	40	0	1	0	34	16
Alaska	63	66	0	4	1	1	0	0
Arizona	217	22	2	0	0	0	29	7
Arkansas	70	36	15	0	1	0	23	22
California	691	124	13	6	132	11	25	46
Colorado	293	14	0	22	13	13	126	5
Connecticut	57	34	5	2	0	12	33	2
Delaware	14	0	6	0	0	0	0	10
Florida	334	61	79	6	29	72	95	0
Georgia	110	114	23	1	1	18	48	114
Hawaii	88	112	0	0	1	0	1	14
Idaho	194	10	2	0	19	9	57	8
Illinois	149	14	15	0	4	0	2	6
Indiana	173	0	5	2	81	2	0	0
Iowa	118	92	4	0	6	0	2	0
Kansas	154	33	7	1	19	0	3	38
Kentucky	82	0	47	17	2	0	28	2
Louisiana	69	45	67	50	10	0	11	10
Maine	41	0	0	0	0	0	1	0
Maryland	73	67	1	0	5	0	12	4
Massachusetts	86	22	1	0	2	1	1	30
Michigan	145	37	1	0	9	19	21	26
Minnesota	72	86	10	0	10	0	2	45
Mississippi	98	58	4	0	0	0	34	9
Missouri	137	2	27	38	17	0	56	31
Montana	184	109	5	0	7	11	26	44
Nebraska	82	44	4	0	2	5	13	23
Nevada	149	102	0	0	10	3	1	61
New Hampshire	37	14	0	0	9	0	0	0
New Jersey	85	85	46	34	9	0	87	51
New Mexico	127	64	0	31	10	0	41	2
New York	205	178	13	0	19	7	21	10
North Carolina	171	68	43	0	10	0	19	0
North Dakota	93	8	20	0	12	0	123	11
Ohio	124	66	15	0	3	0	0	17
Oklahoma	147	0	6	0	16	0	31	16
Oregon	181	8	7	0	22	8	2	0
Pennsylvania	205	79	22	0	20	0	53	33
Puerto Rico	80	1	1	0	16	0	73	0
Rhode Island	19	21	0	0	0	0	7	0
South Carolina	114	13	30	64	11	0	29	3
South Dakota	126	23	7	0	13	0	28	3
Tennessee	58	97	15	10	1	0	6	4
Texas	292	61	24	45	64	0	156	30
Utah	158	0	0	0	11	0	9	5
Vermont	35	2	0	0	2	0	0	0
Virginia	94	48	10	0	5	8	7	12
Washington	270	8	122	4	54	0	0	1
West Virginia	64	48	5	0	0	0	4	2
Wisconsin	139	99	0	0	12	25	62	38
Wyoming	78	38	0	10	1	0	46	0
Totals	6959	2358	769	347	702	225	1488	811

There were 811 stations in FY 1997 that were sampled as short-term or project stations. Water quality data were collected at 1,488 stream sites as part of a scheduled, long-term operation. The collection of surface-water quality data received its largest funding support from the Federal-State Cooperative Program for all types of stations (table 2). The number of stations at which surface-water quality data were collected has been in declined since FY 1992. The number of stations in FY 1992 was 3,706, and in FY 1997 the number of stations had dropped to 2,299 (table1).

Ground-Water Data

Ground water is one of the most widely available of the Nation's natural resources. It is estimated that 79 billion gallons per day of ground water are withdrawn in the United States for public supply domestic, commercial, irrigation, livestock, industrial, mining, and thermo-electric uses (Solley and others, 1993). Water-level fluctuations are indicators of the stresses (both natural and man-induced) placed on aquifers, their ability to yield water, and the quantity of water in storage beneath the earth's surface. Ground-water investigations are carried out by more than 150 USGS field offices and provides water managers and policymakers with technical information to understand long-term ground-water resource issues. The U.S. Geological Survey collected information on ground-water levels at 27,324 sites in 1997 and water levels were recorded continuously at 2,301 sites (table 1). The stations at which a continuous record of ground-water levels is maintained are also included in the count of (a) scheduled, long-term operation stations, or (b) short-term project stations; therefore, the sum of (a) and (b) represents the total stations of this type. Ground-water levels were measured at 22,931 stations as part of a scheduled, long-term operation to assess long-term trends. When special area studies were conducted, water levels were at times measured at short-term or project stations to supplement the information available in the area from the long-term stations. In FY 1997, water-level data were collected at 4,393 stations for these investigations. The Federal-State Cooperative Program provided total funding support for 76 percent of the long and short-term or project stations (table 2).

In FY 1997, samples of ground water from 5,534 stations were analyzed to provide information on the changes in water quality. Samples were collected at 2,343 stations as part of a scheduled long-term operation. Of these, the Federal-State Cooperative Program provided the total funding support at 1,628 stations. Ground-water quality data were also collected at 3,191 stations to provide information needed for short-term, generally site-specific, studies (table 2).

From FY 1983 to FY 1997, the number of scheduled, long-term operation ground-water level stations have varied from a low of 22,634 in FY 1987 to a high of 26,762 in FY 1996 (table 1). Across the country, the number of stations at

which ground water data were collected in FY 1997 has varied from state to state (table 5).

Sediment Data

Data are needed to evaluate the effects of sediment deposition on reservoir storage; the influence of infrequent large storms on erosion and transport of sediment; and the effects of urban and rural non-point contributions of sediment and the associated transport and fate of nutrients, toxic metals, and organic substances. Burkham (1985) states: "The U.S. Geological Survey (USGS) and other Federal, State, and local agencies obtain records of suspended-sediment discharge at many sites throughout the United States. The use of these records has greatly increased in recent years. Uses involve the evaluation of sediment transport to the oceans, geomorphological studies of denudation and rates of erosion, assessment of soil erosion and soil loss, reservoir sedimentation, general environment impact assessment, water treatment problems of sediment-associated nutrients and pollutants, and evaluation of the precise impacts of humans."

To help address the problems and issues of sediment in rivers, the U.S. Geological Survey collected daily sediment data at 142 stations and periodic data at 576 other stations distributed nationwide in FY 1997 (table 6). From FY 1985 to FY 1997, the number of stations where sediment data was collected has varied from year to year (table 1).

Precipitation Data

The U.S. Geological Survey collects precipitation data only as part of ongoing investigations of specific hydrologic systems. Precipitation data were collected at 1,480 sites nationwide (table 6). At 50 of these sites, the chemical quality of precipitation was determined. In FY 1997, the Federal-State Cooperative Program and reimbursements from other Federal Agencies were the largest sources of funding support for the collection of precipitation quantity and quality data (table 2). The number of sites at which precipitation data were collected has varied from year to year-from 800 in FY 1983 to 1,480 in FY 1997 (table 1).

SATELLITE TELEMETRY OF HYDROLOGIC DATA

Satellite telemetry is playing an increasing role in the collection of hydrologic data in real time. A satellite data-collection system consists of a data-collection platform (which, in general, is a small battery-operated radio transmitter), an Earth-orbiting satellite, and an Earth receive and data-processing station. The demand for a cost-effective means of collecting hydrologic data in real time for hazard-warning systems and water management has increased rapidly (Paulson and Shope, 1984). In 1995 the U.S. Geological Survey began to provide real

Table 5.-- Number of stations, by state, at which ground-water data were collected in fiscal year 1997

State	Type of Station			
	Water Levels		Quality	
	Long-term	Short-term	Long-term	Short-term
Alabama	19	0	0	0
Alaska	60	50	0	0
Arizona	39	700	87	81
Arkansas	402	32	5	42
California	941	227	219	51
Colorado	670	154	165	150
Connecticut	72	0	0	2
Delaware	55	35	0	40
Florida	1649	0	192	19
Georgia	2221	10	118	0
Hawaii	68	0	92	0
Idaho	690	315	409	146
Illinois	13	0	13	60
Indiana	0	0	0	0
Iowa	228	0	0	90
Kansas	0	15	0	26
Kentucky	171	35	0	30
Louisiana	386	0	194	0
Maine	3	13	0	0
Maryland	779	2	4	152
Massachusetts	168	6	0	25
Michigan	22	125	0	91
Minnesota	2	115	0	80
Mississippi	43	0	25	10
Missouri	0	16	23	144
Montana	12	331	0	166
Nebraska	3611	200	39	133
Nevada	0	824	0	106
New Hampshire	25	0	0	0
New Jersey	220	291	22	257
New Mexico	7005	0	0	25
New York	805	120	9	49
North Carolina	28	29	0	0
North Dakota	107	18	40	13
Ohio	14	7	0	248
Oklahoma	4	0	0	0
Oregon	0	165	0	0
Pennsylvania	30	60	0	93
Puerto Rico	85	0	0	6
Rhode Island	36	26	0	0
South Carolina	56	0	1	0
South Dakota	0	29	0	12
Tennessee	20	15	15	14
Texas	776	0	195	0
Utah	1092	36	243	74
Vermont	0	0	0	0
Virginia	66	58	0	20
Washington	20	158	0	493
West Virginia	2	0	0	26
Wisconsin	149	6	233	0
Wyoming	67	170	0	217
Total	22931	4393	2343	3191

Table 6.--Num. of stations, by state, at which sediment and precipitation data were collected in FY 1997

State	Type of Station			
	Sediment		Precipitation	
	Daily Sampling	Periodic Sampling	Quantity	Quality
Alabama	0	11	19	1
Alaska	0	3	0	3
Arizona	2	6	43	0
Arkansas	4	12	67	1
California	5	22	8	0
Colorado	5	52	56	1
Connecticut	0	0	2	0
Delaware	0	0	0	0
Florida	0	3	78	1
Georgia	0	3	12	3
Hawaii	7	0	54	0
Idaho	0	52	3	0
Illinois	15	8	46	0
Indiana	0	1	36	1
Iowa	15	2	6	2
Kansas	0	13	4	2
Kentucky	0	5	35	1
Louisiana	0	14	46	0
Maine	0	0	15	0
Maryland	0	13	1	0
Massachusetts	0	5	1	0
Michigan	0	4	0	0
Minnesota	2	3	8	1
Mississippi	10	9	2	2
Missouri	8	8	62	0
Montana	5	22	26	2
Nebraska	0	1	10	1
Nevada	0	35	32	4
New Hampshire	0	0	2	0
New Jersey	0	78	2	2
New Mexico	8	6	67	0
New York	2	7	20	4
North Carolina	0	17	59	0
North Dakota	0	12	17	2
Ohio	7	4	7	0
Oklahoma	0	36	96	2
Oregon	0	3	2	2
Pennsylvania	0	21	90	0
Puerto Rico	32	0	107	0
Rhode Island	0	0	0	0
South Carolina	0	1	24	1
South Dakota	4	16	45	1
Tennessee	0	20	45	1
Texas	0	12	111	1
Utah	0	4	0	1
Vermont	0	0	0	0
Virginia	4	5	27	0
Washington	1	4	55	0
West Virginia	2	0	1	1
Wisconsin	3	9	24	6
Wyoming	1	14	7	0
Total	142	576	1480	50

time discharge data to government agencies and the general public through the World-Wide Web. Near real time hydrologic data from more than half of the data-collection platforms that are operated by the USGS currently are available and can be accessed through the World-Wide Web; this facilitates near-instant dissemination and use of these data. In FY 1997, data-collection platforms were located in 4,467 U.S. Geological Survey hydrologic data-collection stations (table 1) and were transmitting data on one, or a combination, of the following variables: stream stage or discharge, reservoir stage, water quality, and precipitation. Of the 4,467 data-collection platforms in use in FY 1997, 3,965 stations were operated by the U.S. Geological Survey and 502 stations were operated by other cooperating agencies. The numbers of platforms in operation have increased steadily (table1) and are located nationwide (table7).

Table 7.--Num. of stations, by state, at which data collection platforms were operated in FY 1997

State	Data Collection Platforms	
	Operated by USGS	Operated by Other Agencies
Alabama	3	0
Alaska	24	5
Arizona	112	13
Arkansas	90	3
California	103	0
Colorado	230	57
Connecticut	15	14
Delaware	0	0
Florida	246	1
Georgia	4	0
Hawaii	0	0
Idaho	45	58
Illinois	31	34
Indiana	74	21
Iowa	118	52
Kansas	170	0
Kentucky	96	0
Louisiana	78	0
Maine	56	0
Maryland	17	3
Massachusetts	15	18
Michigan	0	0
Minnesota	50	3
Mississippi	75	9
Missouri	130	0
Montana	95	7
Nebraska	50	0
Nevada	37	2
New Hampshire	27	0
New Jersey	59	0
New Mexico	80	6
New York	65	14
North Carolina	85	0
North Dakota	39	0
Ohio	30	78
Oklahoma	149	0
Oregon	38	25
Pennsylvania	250	49
Puerto Rico	111	0
Rhode Island	0	0
South Carolina	197	0
South Dakota	36	0
Tennessee	56	0
Texas	366	0
Utah	63	8
Vermont	8	0
Virginia	39	0
Washington	173	0
West Virginia	77	0
Wisconsin	0	14
Wyoming	53	8
Total	3965	502

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