

The Working Group I on siting plans

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Inventory

The inventory of Digital Broadband Seismograph Stations (table I) is recognized as a valuable resource in developing network siting plans, but needs better *standardized* descriptors of station characteristics. For example, more definitive characteristics (other than VBB, BB, etc.) for instrumentation could be helpful. Also, a manufacturer/model identifier would be informative. R. North proposed the following list of seismometer type codes:

G – Guralp	K – Kinometrics	T – Teledyne
G1 = CMG3-T	S – Streckeisen	T1 = KS54000
G2 = CMG3-ESP	S1 = STS1-VBB	T2 = KS36000
G3 = CMG3-N	S2 = STS1-BB	T3 = HS36000i
Etc., as needed	S3 = STS2	T4 = BB-13

The operating agency would have to be asked for the seismometer type and sampling rate. Data rate could be added as, for example, CMG3-ESP @ 40 sps could be written as G2(40).

Measure of dynamic range (and resolution) has always been a poorly defined characteristic. G. Roullet noted that for some networks dual-gain (DG) actually meant gain ranging. R. Butler proposed a more precise definition as follows:

– the dynamic range in the Federation station list is a channel specification. The resolution of a fixed gain channel is expressed in bits: *i.e.*, 16-bit, 20-bit, 24-bit, etc. For systems with wide bandwidth, the nominal resolution at 1 Hz is given. For systems with two channels recording a sensor component at differing gain levels, the suffix DG (dual-gain) is included: *i.e.*, 16-bit,DG. For gain-ranged systems, the resolution in bits at a single gain is noted, followed by GR (gain ranged) and the nominal dynamic range in dB: *i.e.*, 12-bit, GR (96dB).

R. Butler also suggested that different sensor/recorder configurations at a station should have separately defined characteristics.

Federation Network

The so-called «Federation Network» is often difficult to define (and defend) to funding bodies (R. Kind). The original purpose of the network has become somewhat muddled or possibly has even changed with time. Perhaps the name ought not include the word «Network» at all. The

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name «cooperating Federation Stations» was suggested as being more descriptive of its present attributes. The matter remains unresolved.

Criteria for selection of federation stations were reviewed. Separation distances at global and regional scales may differ. Do we need more specific definition of the separation distance between stations? Is there some limit to the number of stations that we select? It was generally agreed that the problem of redundant (closely-spaced) stations can be resolved on the basis of noise/operating characteristics. Also, data availability/reliability are important factors from a data management viewpoint (T. Ahern).

In spite of these difficult questions, the Working Group nevertheless proceeded to select new Federation stations from regional plots of figs. 1 a-n, simply to fill obvious holes in the distribution. The new network configuration has 150 stations (fig. 2). The consequences for CD-ROM production needs to be examined.

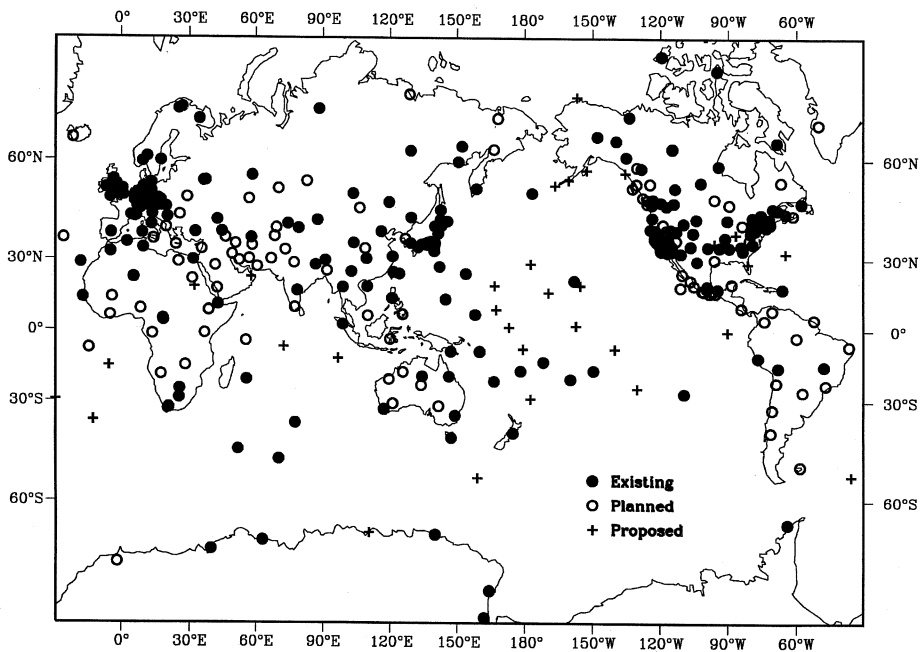
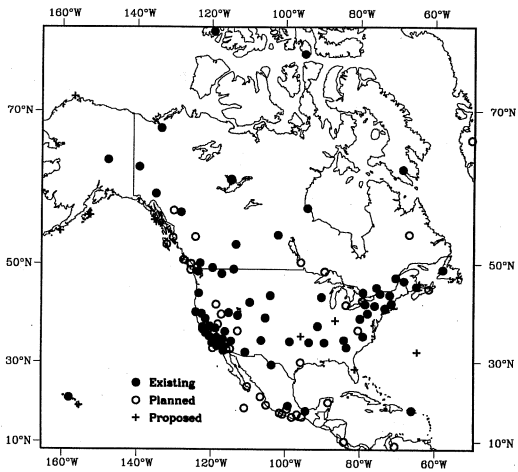
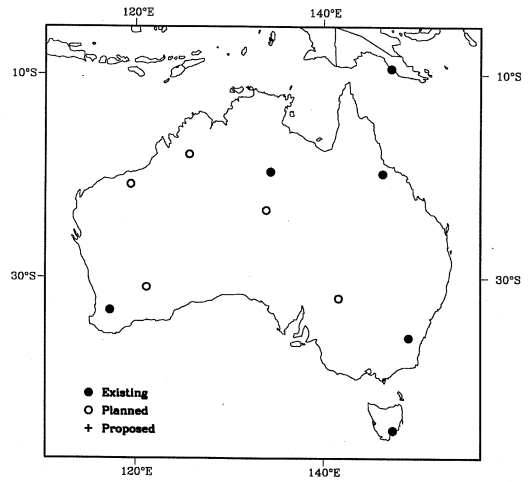


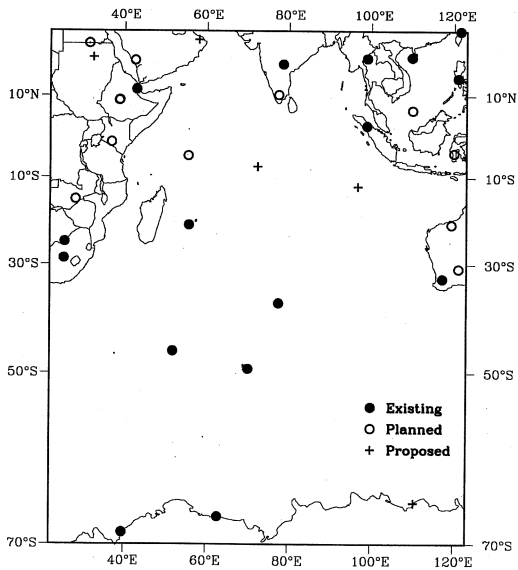
Fig. 1a. Global map of existing, planned and proposed digital broadband seismograph stations (June 1994).



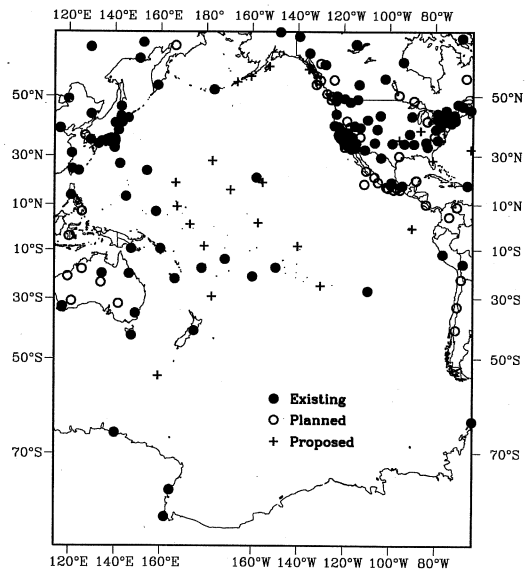
(b)



(c)



(d)



(e)

Fig. 1b-e. Regional maps of existing, planned and proposed digital broadband seismic stations (June 1994).

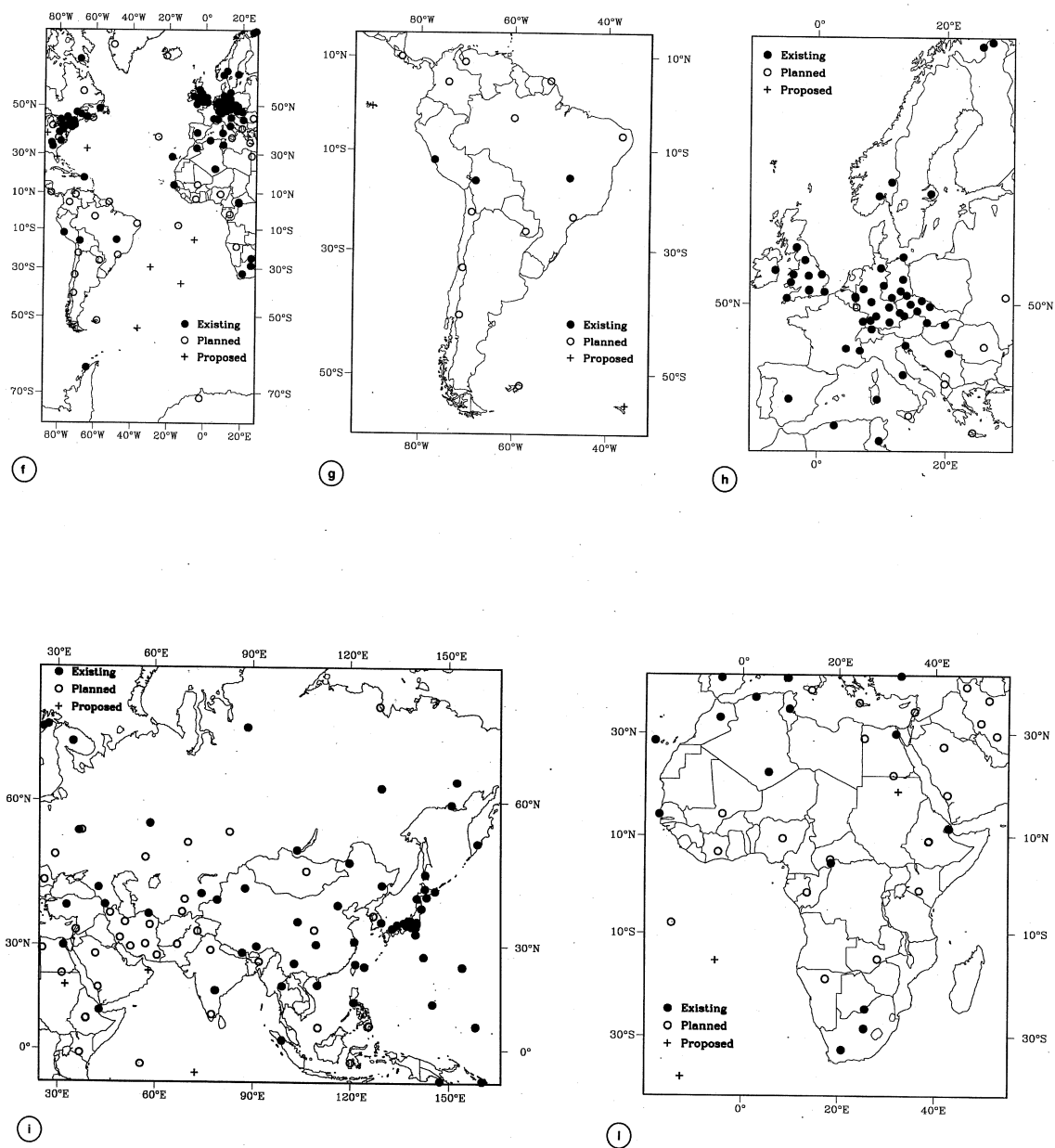


Fig. 1f-l. Regional maps of existing, planned and proposed digital broadband seismograph stations (June 1994).

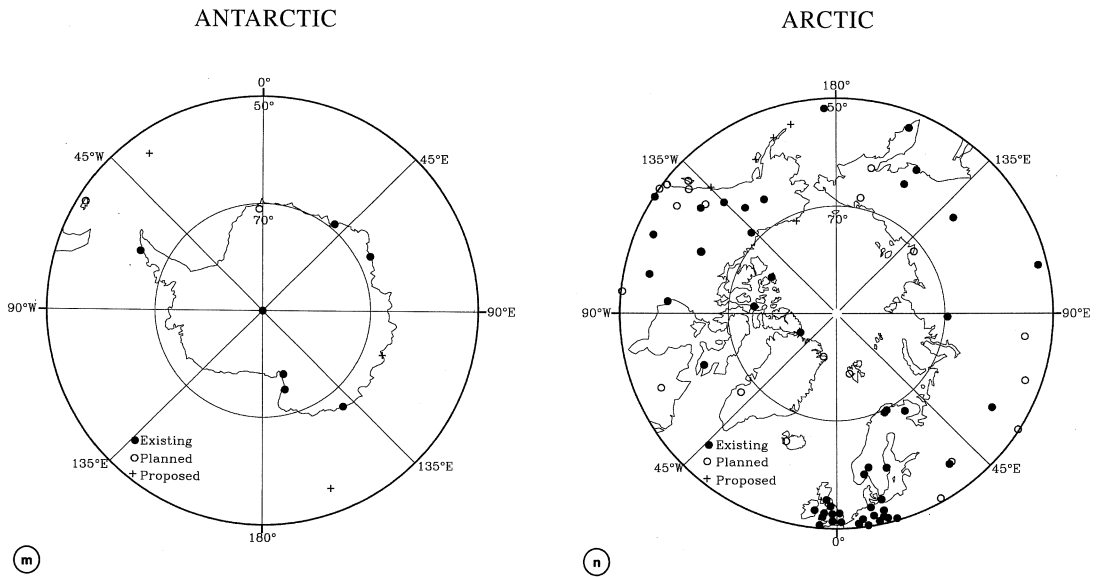


Fig. 1m,n. Regional maps of existing, planned and proposed digital broadband seismograph stations (June 1994).

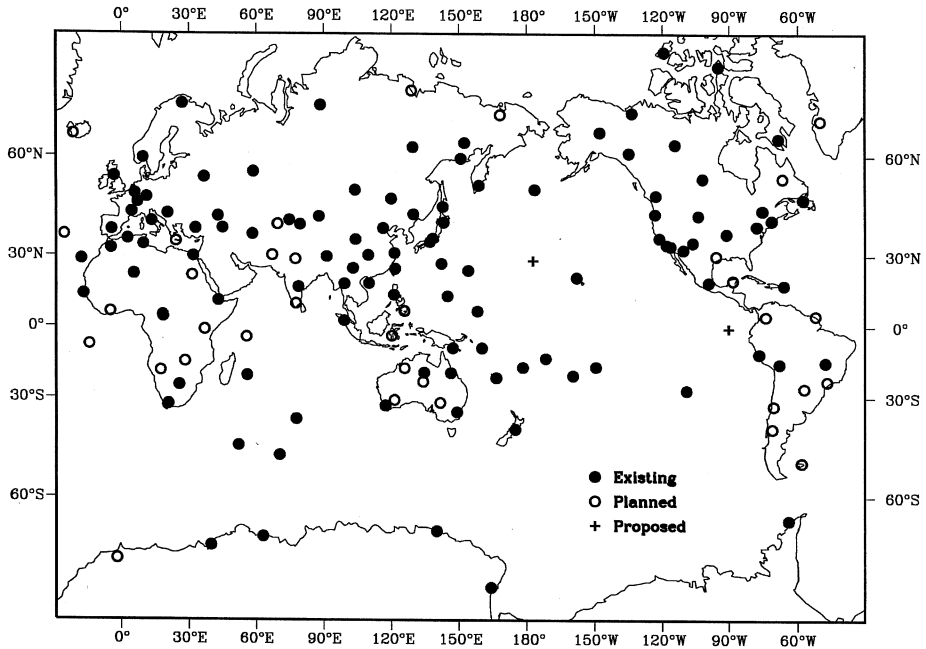


Fig. 2. Global map of existing, planned and proposed stations of the Federation Network (June 1994).

Table I. Inventory of Digital Broadband Seismograph Stations (June 1994).

Station	Location	Code	Lat.°N	Lon.°E	Program	Status	Characteristics	Open	Closed
<i>NORTH AMERICA</i>									
Edmonton	Alberta, Canada	EDM	53.22	-113.35	CNSN	Existing	BB, LP, 140db, RA		
Waterton Lake	Alberta, Canada	WALA	49.06	-113.92	CNSN	Existing	BB, LP, 140db, RA		
Bella Bella	B.C., Canada	BBB	58.18	-128.11	CNSN	Existing	BB, LP, 140db, RA		
Campbell River	B.C., Canada	CBB	50.03	-125.37	CNSN	Planned	BB, LP, 140db		
Dease Lake	B.C., Canada	DLB	58.42	-130.06	CNSN	Planned	BB, LP, 140db		
Fort St. James	B.C., Canada	FSJ	54.43	-124.25	CNSN	Planned	VBB, 140db		
Mount Ozzard	B.C., Canada	OZB	48.96	-125.49	CNSN	Planned	BB, LP, 140db		
Pacific Geoscience Centre	B.C., Canada	PGC	48.65	-123.45	CNSN	Existing	BB, LP, 140db, RA		
Pemberton	B.C., Canada	PMB*	50.13	-122.96	CNSN	Existing	BB, LP, 140db, RA		
Penticton	B.C., Canada	PNT	49.31	-119.61	CNSN	Existing	BB, LP, 140db, RA		
Port Hardy	B.C., Canada	PHC	50.70	-127.43	CNSN	Planned	BB, LP, 140db		
Prince Rupert	B.C., Canada	RUB	54.32	-130.28	CNSN	Planned	BB, LP, 140db		
Skidegate	B.C., Canada	SKB	53.24	-131.99	CNSN	Planned	BB, LP, 140db		
Churchill	Manitoba, Canada	FCC	58.76	-94.08	CNSN	Existing	BB, LP, 140db, RA		
Flin Flon	Manitoba, Canada	FFC*	54.72	-101.98	IRIS/IDA (GSN)	Existing	VBB, 24-bit, HF, RA	AUG93	
Pinawa	Manitoba, Canada	ULM	50.25	-95.87	CNSN	Planned	BB, LP, 140db		
Caledonia Mountain	New Brunswick, Canada	LMN	45.85	-64.80	CNSN	Existing	BB, LP, 140db, RA		
Deer Lake	Newfoundland, Canada	DLKN*	49.00	-57.80	CNSN	Existing	VBB, 140db, RA		
Alert	N.W.T., Canada	ALE*	82.48	-62.40	IRIS/IDA (GSN)	Existing	VBB, 144dB/DG	OCT82	
Inuvik	N.W.T., Canada	INK*	68.29	-133.50	CNSN	Existing	BB, LP, 140db, RA		
Iqaluit (Frobisher Bay)	N.W.T., Canada	FRB*	63.75	-68.55	CNSN	Existing	VBB, 140db, RA	APR92	
Mould Bay	N.W.T., Canada	MBC*	76.24	-119.36	CNSN	Existing	VBB, 140db, RA	AUG92	
Resolute	N.W.T., Canada	RES*	74.68	-94.90	CNSN	Existing	BB, LP, 140db, RA		
Yellowknife	N.W.T., Canada	RSNT	62.48	-114.59	RSTN	Closed	BB, ?		SEP89
Yellowknife	N.W.T., Canada	YKW1*	62.49	-114.51	CNSN	Existing	VBB, 140db	SEP89	
Yellowknife	N.W.T., Canada	YKW2	62.42	-114.60	CNSN	Existing	VBB, 140db	SEP89	
Yellowknife	N.W.T., Canada	YKW3	62.56	-114.61	CNSN	Existing	VBB, 140db, RA	SEP89	
Yellowknife	N.W.T., Canada	YKW4	62.49	-114.74	CNSN	Existing	VBB, 140db	SEP89	
Guysborough	Nova Scotia, Canada	GBN	45.41	-61.51	CNSN	Planned	VBB, 140db		
Halifax	Nova Scotia, Canada	HAL	44.64	-63.59	IDA	Existing	VLP, 72db, vertical only	APR76	
Effingham	Ontario, Canada	EFO	43.09	-79.31	CNSN	Planned	BB, LP, 140db		
Red Lake	Ontario, Canada	RSON	50.86	-93.70	RSTN	Closed	BB, ?		

Table I. (continued) Inventory of Digital Broadband Seismograph Stations (June 1994).

Station	Location	Code	Lat. ^o N	Lon. ^o E	Program	Status	Characteristics	Open	Close
Sadowa	Ontario, Canada	SADO	44.75	-79.14	CNSN	Existing	BB, LP, 140db, RA		
Thunder Bay	Ontario, Canada	TBO	48.65	-89.41	CNSN	Planned	BB, LP, 140db		
Glen Almond	Quebec, Canada	GAC*	45.70	-75.48	CNSN	Existing	VBB, 140db, RA	MAY92	
La Malbaie	Quebec, Canada	LMQ	47.54	-70.33	CNSN	Existing	BB, LP, 140db, RA		
Schefferville	Quebec, Canada	SCH*	54.82	-66.78	CNSN	Planned	BB, LP, 140db		
Dawson	Yukon, Canada	DAWY	64.07	-139.39	CNSN	Existing	BB, LP, 140db, RA		
Whitehorse	Yukon, Canada	WHY*	60.69	-134.88	CNSN	Existing	BB, LP, 140db, RA		
Heredia	Costa Rica	HDC2	10.03	-84.12	GEOSCOPE	Planned	VBB/126db, VLP/144db, DG, RA		
					GEOSCOPE	Closed	BB, VLP, 114db(GR), RA	SEP87	MAR8
?	Costa Rica	?	10.00	-84.10	IRIS/IDA (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Godhavn	Greenland	GDH	69.25	-53.53	GDSN (DWWSSN)	Existing	IP, LP, SP, 16-bit		
Nord	Greenland	NOR	81.60	-16.70	GEOFON/AWI	Planned	BB, 24-bit		
Sondre Stromfjord	Greenland	?*	67.05	-50.30	IRIS/ASL (GSN)	Planned	VBB, 24-bit, RA		
					GEOFON				
Bahia San Rafael	Baja California, Mexico	SRBM	?	?	MNSN	Planned	BB, 140db		
Ensenada	Baja California, Mexico	EBCM	?	?	MNSN	Planned	BB, 140db		
La Paz	Baja California, Mexico	LPBM	24.17	-110.21	MNSN/USNSN	Planned	BB, 140db		
Escarcega	Campeche, Mexico	ESCM	?	?	MNSN	Planned	BB, 140db		
San Cristobal	Chiapas, Mexico	SCX	?	?	MNSN	Planned	BB, 140db		
Tapachula	Chiapas, Mexico	TPX	?	?	MNSN	Planned	BB, 140db		
Tonala	Chiapas, Mexico	TONM	?	?	MNSN	Planned	BB, 140db		
Chihuahua	Chihuahua, Mexico	CHHM	?	?	MNSN	Planned	BB, 140db		
Torreon	Coahuila, Mexico	TCOM	?	?	MNSN	Planned	BB, 140db		
Colima	Colima, Mexico	COL	?	?	MNSN	Planned	BB, 140db		
Isla Socorro	Isla Socorro, Mexico	SRR	18.73	-110.95	MNSN/IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
UNAM	D.F., Mexico	UNM*	19.33	-99.18	GEOSCOPE	Existing	VBB/126db, VLP/144db, DG, RA	JUN90	
Guanajuato	Guanajuato, Mexico	UGO	?	?	MNSN	Planned	BB, 140db		
Acapulco	Guerrero, Mexico	ACX	?	?	MNSN	Planned	BB, 140db		
Iguala	Guerrero, Mexico	III	18.38	-99.47	MNSN	Planned	BB, 140db		
Tetitlan	Guerrero, Mexico	TET	17.16	-100.63	MNSN	Planned	BB, 140db		
Zihuatanejo	Guerrero, Mexico	ZIHM	17.51	-101.41	MNSN	Planned	BB, 140db		
Tehuatlan	Hidalgo, Mexico	TEHM	?	?	MNSN	Planned	BB, 140db		
Chamela	Jalisco, Mexico	CJM	19.50	-105.04	MNSN	Planned	BB, 140db		
Morelia	Michoacan, Mexico	MRX	?	?	MNSN	Planned	BB, 140db		
Islas Marias	Nayarit, Mexico	IMM	21.62	-106.58	MNSN	Planned	BB, 140db		
Monterrey	Nuevo Leon, Mexico	MNLM	?	?	MNSN	Planned	BB, 140db		
Benito Juarez	Oaxaca, Mexico	PBJ	16.44	-95.41	MNSN	Planned	BB, 140db		

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Station	Location	Code	Lat.°N	Lon.°E	Program	Status	Characteristics	Open	Closed
Palma Sola	Oaxaca, Mexico	PSM	?	?	MNSN	Planned	BB, 140db		
Pinotepa Nacional	Oaxaca, Mexico	PIO	16.39	-98.13	MNSN	Planned	BB, 140db		
Vista Hermosa	Oaxaca, Mexico	VHO	17.07	-96.73	MNSN	Planned	BB, 140db		
Puebla	Puebla, Mexico	PUEM	?	?	MNSN	Planned	BB, 140db		
S. Pedro Tequistengo	Puebla, Mexico	STPM	?	?	MNSN	Planned	BB, 140db		
Los Mochis	Sinaloa, Mexico	LMSM	?	?	MNSN	Planned	BB, 140db		
Mazatlan	Sinaloa, Mexico	MZX	?	?	MNSN	Planned	BB, 140db		
Guaymas	Sonora, Mexico	GUSM	?	?	MNSN	Planned	BB, 140db		
Cd. Victoria	Tamaulipas, Mexico	CVTM	?	?	MNSN	Planned	BB, 140db		
Tuzandepetl	Veracruz, Mexico	TUVM	18.03	-94.42	MNSN/USNSN	Existing	BB, 140db		
Tepich	Yucatan, Mexico	TEYM*	20.21	-88.34	MNSN/IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Zacatecas	Zacatecas, Mexico	ZACM	?	?	MNSN	Planned	BB, 140db		
San Juan	Puerto Rico	SIJ*	18.11	-66.15	IRIS/ASL (GSN) IDA	Existing Existing	VBB, 24-bit, RA VLP, 72db, vertical only	93,146 JUN82	
Adak Island	Alaska, U.S.A.	ADK*	51.88	-176.68	IRIS/ASL (GSN) USNSN	Existing Proposed	VBB, 24-bit, LG, RA	93,264	
Barrow	Alaska, U.S.A.	BRW	71.30	-156.75	USNSN	Proposed	BB, 140db		
College Magnetic Obs.	Alaska, U.S.A.	CMO	64.86	-147.84	IDA	Existing	VLP, 72db, vertical only		
College Outpost	Alaska, U.S.A.	COL*	64.90	-147.79	IRIS/ASL (GSN) IRIS/ASL (GSN) USNSN	Existing Planned Proposed	VBB, 24-bit, LG, RA HF	AUG77	
Dutch Harbor	Alaska, U.S.A.	DHA	53.90	-166.53	USNSN	Proposed	BB, 140db		
Kodiak Island	Alaska, U.S.A.	KDC	57.75	-152.49	IRIS/IDA (GSN)	Proposed	VBB, 24-bit, LG, RA		
Sand Point	Alaska, U.S.A.	SDN	55.34	-160.50	USNSN	Proposed	BB, 140db		
Sitka	Alaska, U.S.A.	SIT	57.06	-135.32	USNSN	Proposed	BB, 140db		
Tucson	Arizona, U.S.A.	TUC*	32.31	-110.78	UA/IRIS (GSN)/USNSN	Existing	VBB, 24-bit, RA	92,166	
Mount Ida	Arkansas, U.S.A.	MIAR	34.55	-93.58	USNSN	Existing	BB, 140db		
Arcata	California, U.S.A.	ARC	40.88	-124.08	BDSN	Existing	VBB, 24-bit, RA		
Barrett Dam	California, U.S.A.	BAR	32.68	-116.67	TERRAScope	Existing	VBB, 24-bit	92,275	
Berkeley	California, U.S.A.	BKS	37.88	-122.24	BDSN	Existing	VBB, 24-bit, RA		
Columbia	California, U.S.A.	CMB	38.04	-120.38	BDSN/IRIS (GSN)/ USNSN	Existing	VBB, 24-bit, LG, RA		
Domenigoni Valley Reservoir	California, U.S.A.	DGR	33.65	-117.01	TERRAScope	Existing	VBB, 24-bit	93,173	
Glamis	California, U.S.A.	GLA	33.05	-114.83	TERRAScope	Planned	VBB, 24-bit		
Goldstone	California, U.S.A.	GSC	35.30	-116.81	TERRAScope USNSN	Existing Proposed	VBB, 24-bit, RA	90,201	
Isabella	California, U.S.A.	ISA	35.66	-118.47	TERRAScope/USNSN	Existing	VBB, 24-bit, RA	91,038	
Mammoth Lakes	California, U.S.A.	MLA	37.63	-118.83	TERRAScope	Existing	VBB, 24-bit	93,127	
Mount Hamilton	California, U.S.A.	MHC	37.34	-121.64	BDSN	Existing	VBB, 24-bit, RA		

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Station	Location	Code	Lat.°N	Lon.°E	Program	Status	Characteristics	Open	Close
Needles	California, U.S.A.	NEE	34.82	-114.60	TERRAScope	Existing	VBB, 24-bit	93,106	
Oroville	California, U.S.A.	ORV	39.56	-121.50	BDSN	Existing	VBB, 24-bit, RA		
Parkfield	California, U.S.A.	PKD1	35.87	-120.42	BDSN	Existing Planned	VBB, 16-bit VBB, 24-bit, RA		
Pasadena	California, U.S.A.	PAS*	34.15	-118.17	TERRAScope/ IRIS (GSN)	Existing	VBB, 24-bit, LG, RA	88,094	
Pinon Flat	California, U.S.A.	PFO*	33.61	-116.46	IRIS/IDA (GSN) TERRAScope USNSN	Existing Existing Proposed	VBB, 144dB/DG, HF, RA VBB, 24-bit, LG, RA	FEB76 90,305	
Rancho Palos Verdes	California, U.S.A.	RPV	33.74	-118.40	TERRAScope	Existing	VBB, 24-bit	93,130	
San Andreas Geophys. Ob.	California, U.S.A.	SAO	36.76	-121.44	BDSN/USNSN	Existing	VBB, 24-bit, RA		
?	California, U.S.A.	SSN	33.24	-119.51	TERRAScope	Planned	VBB, 24-bit		
Santa Barbara	California, U.S.A.	SBC	34.44	-119.71	TERRAScope USNSN	Existing Proposed	VBB, 24-bit, RA	90,355	
Santa Cruz	California, U.S.A.	SCZ*	36.60	-121.40	GEOSCOPE GEOSCOPE GEOSCOPE	Existing Closed Closed	VBB/126db, VLP/144db, DG, RA BB, VLP, 114db(GR) VLP, 114db(GR)	SEP91 JUN87 JUN86	SEP91 JUN87
Seven Oaks Dam	California, U.S.A.	SVD	34.10	-117.10	TERRAScope/USGS	Existing	BB, 24-bit	91,142	
Stanford	California, U.S.A.	STAN	37.40	-122.17	BDSN/Stanford Univ.	Existing	BB, 24-bit, RA		
Superstition Mountain	California, U.S.A.	SUP	32.96	-115.82	TERRAScope/USGS	Planned	VBB, 24-bit		
Los Angeles	California, U.S.A.	USC	34.02	-118.29	TERRAScope	Existing	VBB, 24-bit	93,090	
Victorville	California, U.S.A.	VTV	34.57	-117.33	TERRAScope	Existing	VBB, 24-bit	93,106	
?	California, U.S.A.	VIS	36.38	-119.25	TERRAScope	Planned	VBB, 24-bit		
Whiskeytown	California, U.S.A.	WDC	40.58	-122.54	BDSN/USNSN	Existing	VBB, 24-bit, RA		
Golden	Colorado, U.S.A.	GOL	39.70	-105.37	USNSN	Existing	BB, 140db		
Lakeside	Connecticut, U.S.A.	L SCT	41.68	-73.22	USNSN	Existing	BB, 140db		
Disney Wilderness Reserve	Florida, U.S.A.	?	28.33	-81.21	IRIS/ASL (GSN)	Proposed	VBB, 24-bit, LG, RA		
Godfrey	Georgia, U.S.A.	GOGA	33.42	-83.47	USNSN	Existing	BB, 140db		
Bloomington	Indiana, U.S.A.	?	39.20	-86.50	USNSN	Proposed	BB, 140db		
Caribou	Maine, U.S.A.	CBM	46.93	-68.12	USNSN	Existing	BB, 140db		
Westford	Massachusetts, U.S.A.	WFM*	42.61	-71.49	GEOSCOPE GEOSCOPE GEOSCOPE GEOSCOPE	Existing Planned Closed Closed	BB, VLP, 114db(GR), RA VBB, 144db, RA VBB, 114db(GR) VLP, 72db	APR86 MAY85 MAY84	APR86 MAY85
Harvard	Massachusetts, U.S.A.	HRV*	42.51	-71.56	Harvard/IRIS (GSN)/ USNSN	Existing	VBB, 24-bit, RA	88,001	
Ann Arbor	Michigan, U.S.A.	AAMB	42.30	-83.66	USNSN	Planned	BB, 140db		
Oxford	Mississippi, U.S.A.	OXF	34.51	-89.41	USNSN	Existing	BB, 140db		
Cathedral Caves	Missouri, U.S.A.	CCM*	38.06	-91.24	SLU/IRIS (GSN)/ USNSN	Existing	VBB, 24-bit, HF, RA	89,254	

Table I. (continued) Inventory of Digital Broadband Seismograph Stations (June 1994).

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Battle Mountain	Nevada, U.S.A.	BMN	40.43	-117.22	USNSN	Planned	BB, 140db		
Elko	Nevada, U.S.A.	ELK	40.74	-115.24	LLNL/USNSN	Existing	BB, 140db		
Mina	Nevada, U.S.A.	MNV	38.43	-118.15	LLNL/USNSN	Planned	BB, 140db		
Shoshone Peak	Nevada, U.S.A.	SSP	36.92	-116.22	USNSN	Existing	BB, 140db		
Lisbon	New Hampshire, U.S.A.	LBNH	44.24	-71.93	USNSN	Existing	BB, 140db		
Albuquerque	New Mexico, U.S.A.	ANMO*	34.95	-106.46	IRIS/ASL (GSN)/ USNSN	Existing	VBB, 24-bit, HF, LG, RA	74,213	
Adirondack	New York, U.S.A.	RSNY	44.55	-74.53	USNSN RSTN	Existing Closed	BB, 140db BB, ?	86,295	
Binghamton	New York, U.S.A.	?	42.20	-75.98	USNSN	Existing	BB, 140db		
Yorkshire	New York, U.S.A.	?	42.47	-78.54	USNSN	Existing	BB, 140db		
Chapel Hill	North Carolina, U.S.A.	CEH	35.89	-79.09	USNSN	Existing	BB, 140db		
Murphy	North Carolina, U.S.A.	MYNC	35.07	-84.13	USNSN	Existing	BB, 140db		
Leonard	Oklahoma, U.S.A.	TUL	35.91	-95.79	USNSN	Proposed	BB, 140db		
Wichita Mountains	Oklahoma, U.S.A.	WMOK	34.70	-98.80	USNSN	Existing	BB, 140db		
Corvallis	Oregon, U.S.A.	COR*	44.59	-123.30	OSU/IRIS (GSN) OSU/IRIS (GSN) USNSN	Existing Planned Proposed	VBB, 24-bit, RA LG BB, 24-bit	89,302	
Fields	Oregon, U.S.A.	WVOR	42.40	-118.65	USNSN	Planned	VBB, 140db		
Standing Stone	Pennsylvania, U.S.A.	SSPA*	40.64	-77.89	PSU/IRIS (GSN)/ USNSN	Existing	VBB, 24-bit, RA		
State College	Pennsylvania, U.S.A.	SCP	40.80	-77.87	GDSN (DWWSSN)	Closed	IP, LP, SP, 16-bit	81,029	92,257
Black Hills	South Dakota, U.S.A.	RSSD*	44.12	-104.04	USNSN RSTN	Existing Closed	BB, 140db BB, ?	86,295	
Cumberland Plateau	Tennessee, U.S.A.	RSCP	35.60	-85.59	RSTN	Closed	BB, ?	86,295	
Hockley	Texas, U.S.A.	HKT*	29.95	-95.83	UTA/IRIS (GSN)/ USNSN	Planned	VBB, 24-bit, RA		
Lajitas	Texas, U.S.A.	LTX	29.33	-103.67	USNSN	Existing	BB, 140db		
Dugway	Utah, U.S.A.	DUG	40.20	-112.81	USNSN	Existing	BB, 140db		
Kanab	Utah, U.S.A.	KNB	37.02	-112.82	LLNL/USNSN	Planned	BB, 140db		
Blacksburg	Virginia, U.S.A.	BLA	37.21	-80.42	USNSN	Planned	BB, 140db		
Longmire	Washington, U.S.A.	LON	46.75	-121.81	GDSN (DWWSSN)	Existing	IP, LP, SP, 16-bit		
Newport	Washington, U.S.A.	NEW	48.26	-117.12	USNSN	Existing	BB, 140db		
Mont Chateau	West Virginia, U.S.A.	MCWV	39.60	-79.90	USNSN	Existing	BB, 140db		
Mineral Point	Wisconsin, U.S.A.	JFWS	43.85	-90.25	USNSN	Existing	BB, 140db		
Boulder	Wyoming, U.S.A.	BDW	42.78	-109.57	USNSN	Existing	BB, 140db		

Table I. (continued) Inventory of Digital Broadband Seismograph Stations (June 1994).

Station	Location	Code	Lat.°N	Lon.°E	Program	Status	Characteristics	Open	Closed
<i>SOUTH AMERICA</i>									
Paso Flores	Argentina	PLCA*	-41.15	-71.30	GTSN	Planned	VBB, 24-bit, RA		
La Paz	Bolivia	LPAZ*	-16.29	-68.13	GTSN	Existing	VBB, 24-bit, RA	93,189	
La Paz	Bolivia	ZOBO	-16.27	-68.12	GDSN (ASRO)	Closed	LP, SP, 126db	76,245	93,270
Brasília	Brazil	BDF	-15.66	-47.90	IDA	Existing	VLP, 72db, vertical only	APR77	
Brasília	Brazil	BDFB*	-15.64	-48.01	GTSN	Existing	VBB, 24-bit, RA	93,089	
Santa Lucia	Brazil	?	-6.91	-36.95	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, RA		
Pitinga	Brazil	PTGA	-3.06	-60.00	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Sao Paulo	Brazil	SPB*	-23.55	-47.25	GEOSCOPE	Planned	VBB/126db, VLP/144db, DG, RA		
Peldehue	Chile	PEL*	-33.14	-70.69	GEOSCOPE	Planned	VBB/126db, VLP/144db, DG, RA		
Limon Verde	Chile	?	-22.59	-68.93	IRIS/ASL (GSN)/ GEOFON	Planned	VBB, 24-bit, HF, LG, RA		
Bogota	Columbia	BOCO*	4.59	-74.04	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Cayenne	French Guyana	CAY*	4.95	-52.32	GEOSCOPE	Planned	VBB/126db, VLP/144db, DG, RA		
						Closed	BB, VLP, 140db(GR), RA	DEC85	SEP91
						Closed	VLP, 114db(GR)	JUL85	DEC85
Villa Florida (Caapucu)	Paraguay	CPUP*	-26.33	-57.33	GTSN	Planned	VBB, 24-bit, RA		
Nana	Peru	NNA*	-11.99	-76.84	IRIS/IDA (GSN)	Existing	VBB, 24-bit, HF	JUN75	
						Planned	LG, RA		
Santo Domingo	Venezuela	SDV	8.89	-70.63	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
<i>ATLANTIC OCEAN</i>									
Ascension	Ascension Island	ASCN*	-7.95	-14.38	IRIS/IDA (GSN)	Planned	VBB, 24-bit, HF, RA		
Cha de Marcela	Azores	AZRI*	37.75	-25.66	IRIS/IDA (GSN)	Planned	VBB, 24-bit, LG, RA		
Bermuda	Bermuda	BEC	32.38	-64.68	IRIS/ASL(GSN)	Proposed	VBB, 24-bit, HF, RA		
Taburiente	Canary Islands	TBT*	28.68	-17.91	IRIS/ASL (GSN)/ MEDNET	Existing	VBB, 24-bit, LG, RA		
						Planned	HF		
East Falkland Island	Falkland Islands	EFI*	-51.48	-58.41	IRIS/IDA (GSN)	Planned	VBB, 24-bit, HF, RA		
Borgarnes	Iceland	BORG*	64.50	-21.50	IRIS/IDA (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
St. Helena	St. Helena Island	?	-15.58	-5.43	IRIS/IDA (GSN)	Proposed	VBB, 24-bit, HF, RA		
South Georgia	South Georgia Island	?	-54.00	-36.00	IRIS/IDA (GSN)	Proposed	VBB, 24-bit, HF, LG		
Trindade	Trindade Island, Brazil	?	-29.50	-29.30	IRIS/ASL (GSN)	Proposed	VBB, 24-bit, HF		
Tristan da Cunha	Tristan da Cunha	?	-37.00	-12.50	IRIS (GSN)	Proposed	VBB, 24-bit, LG		

Table I. (continued) Inventory of Digital Broadband Seismograph Stations (June 1994).

Station	Location	Code	Lat.°N	Lon.°E	Program	Status	Characteristics	Open	Closed
<i>EUROPE</i>									
Tirana	Albania	TIR	41.35	19.87	MEDNET	Planned	VBB, 24-bit		
Membach	Belgium	MEM	50.61	6.01	Belgium	Existing	VBB, 16-bit		
Dobruska-Polom	Czech Republic	DPC	50.36	16.28	GI/CAS Praha	Existing	VBB, 24-bit, RA	92,219	
Moravsky Beroun	Czech Republic	MORC	49.78	17.55	GEOFON	Existing	BB, 140db, RA	NOV93	
Pruhonice	Czech Republic	PRU	49.99	14.54	GI/CAS Praha	Existing	BB, SP, 120db		
Vranov	Czechoslovakia	VRAC	49.31	15.59	Univ. of Brno	Existing	BB, SP, 120db		
Kevo	Finland	KEV*	69.76	27.01	IRIS/ASL (GSN)	Existing	VBB, 24-bit, RA		
					IRIS/ASL (GSN)	Planned	HF		
Echery	France	ECH*	48.22	7.16	GEOSCOPE	Existing	VBB/126db, VLP/144db, DG, RA	NOV90	
St. Sauveur Badole	France	SSB*	45.28	4.54	GEOSCOPE	Existing	VBB, 144db, RA	FEB90	
					GEOSCOPE	Closed	VBB/126db, VLP/144db, DG, RA	DEC88	FEB90
					GEOSCOPE	Closed	BB, VLP, 114db(GR), RA	JAN85	APR87
					GEOSCOPE	Closed	VLP, 92db	APR82	JAN85
					IDA	Closed	VLP, 72db, Z only	SEP81	APR82
St. Sauveur Badole	France	SSB/SBB	45.28	4.54	GEOSCOPE	Closed	VBB/126db, VLP/144db, DG, RA	DEC86	SEP89
Bergieshuebel	Germany	BRG	50.87	13.95	GRSN	Existing	VBB, 140db, RA		
Berlin FU	Germany	BRNL	52.43	13.36	GRSN	Existing	VBB, 140db, RA		
Bochum	Germany	BUG	51.49	7.21	GRSN	Existing	VBB, 140db, RA		
Clausthal	Germany	CLZ	51.84	10.37	GRSN	Existing	VBB, 140db, RA		
Collmburg	Germany	CLL	51.31	13.00	GRSN	Existing	VBB, 140db, RA		
Fuerstenfeldbruck (Muenchen)	Germany	FUR	48.16	11.28	GRSN	Existing	VBB, 140db, RA		
GERESS Array Site C2	Germany	GEC2	48.82	13.57	Bochum Univ.	Existing	VBB, SP, 144db, RA		
Graefenberg Array	Germany	GRFO*	49.69	11.22	BGR/IRIS/ASL (GSN)	Existing	VBB, 24-bit, RA	DEC93	
Hamburg	Germany	HAM	53.47	9.92	GRSN	Existing	VBB, 140db, RA		
Moxa	Germany	MOX	50.65	11.62	GRSN	Existing	VBB, 140db, RA		
Liddow, Ruegen Island	Germany	LID	54.5	13.4	GRSN	Existing	VBB, 140db, RA		
Schiltach	Germany	BFO	48.33	8.33	GRSN	Existing	VBB, 140db, RA		
Stuttgart	Germany	STU	48.77	9.20	Univ. of Stuttgart	Existing	VBB, 140db, RA		
Taunusobservatorium (Frankfurt)	Germany	TNS	50.22	8.45	GRSN	Existing	VBB, 140db, RA		
Wetzell (Bavarian Forest)	Germany	WET	49.14	12.88	GRSN	Existing	VBB, 140db, RA		
Vamos	Crete, Greece	VAM*	35.41	24.20	MEDNET	Planned	VBB, 24-bit		
Piszkes	Hungary	PSZ	47.92	19.89	GI Budapest	Existing	VBB, 140db, RA		
Dublin	Ireland	DSB	53.26	-6.47	GEOFON	Existing	BB, 140db, RA	DEC93	
L'Aquila	Italy	AQU*	42.35	13.40	MEDNET	Existing	VBB, 24-bit	JUL91	

Table I. (continued) Inventory of Digital Broadband Seismograph Stations (June 1994).

Station	Location	Code	Lat.°N	Lon.°E	Program	Status	Characteristics	Open	Closed
Bardonecchia	Italy	BNI	45.05	6.68	MEDNET	Existing	VBB, 24-bit	MAY88	
Enna	Sicily, Italy	?	37.5	14.3	MEDNET	Planned	VBB, 24-bit		
Trieste	Italy	TTE	45.66	13.79	UT/MEDNET	Existing	VBB, 24-bit	JAN91	
Villasalto	Suergiu, Italy	VSL	39.50	9.38	MEDNET	Existing	VBB, 24-bit	JUL89	
Walferdange	Luxembourg	WLF	49.66	6.15	GEOFON	Planned	BB, 140db, RA		
Heijmans Groeve	The Netherlands	HGN*	50.76	5.93	KNMI	Existing	VBB, 16-bit, GR	NOV93	
ARCESS Array Site A0	Norway	ARAO	69.53	25.51	NORSAR	Existing	VBB, 132db, RA	NOV93	
Ny-Alesund	Spitsbergen, Norway	?	78.55	12.00	IRIS/ASL (GSN)/GEOFON/AWI	Planned	VBB, 24-bit, HF, RA		
Kongsberg	Norway	KONO*	59.65	9.60	IRIS/ASL (GSN) IRIS/ASL (GSN)	Existing Planned	VBB, 24-bit, RA HF	78,244	
NORESS Array Site A0	Norway	NRA0	60.74	11.54	Norway	Existing	BB, LP, SP, HF, ?db		
Montelarguse	Romania	MLR	45.5	25.9	GEOFON	Planned	BB, 140db, RA		
Zelezna Studnicka	Slovak Republic	ZST	48.13	17.11	GI/SAS Bratislava	Existing	BB, SP, 120db		
San Pablo	Spain	PAB*	39.55	-4.35	IRIS/ASL (GSN) IRIS/ASL (GSN)	Existing Planned	VBB, 24-bit, LG, RA HF	92,294	
Toledo	Spain	TOL*	39.88	-4.05	IRIS/ASL (GSN)	Closed	VBB, 24-bit	87,278	92,134
Uppsala	Sweden	UPS	59.86	17.63	Sweden	Existing	BB, 16-bit		
Zurich	Switzerland	ZUR	47.41	8.51	ETH Zurich	Existing Planned	VBB, 24-bit, vertical only, RA VBB, 24-bit, RA		
Barham	England, U.K.	BHM	51.21	1.17	Blacknest	Existing	BB, 85db, vertical only		
Blacknest	England, U.K.	BKN	51.36	-1.19	Blacknest	Existing	BB, 85db, vertical only		
Bucklebury West	England, U.K.	BUW	51.41	-1.22	Blacknest	Existing	BB, 85db, vertical only		
Charnwood Forest	England, U.K.	CFW	52.74	-1.31	Blacknest	Existing	BB, 85db, vertical only		
Headley	England, U.K.	HEA	51.36	-1.26	Blacknest	Existing	BB, 85db, vertical only		
Middlesmoor	England, U.K.	MMY	54.18	-1.87	Blacknest	Existing	BB, 85db, vertical only		
Saint Breward	England, U.K.	SBD	50.57	-4.69	Blacknest	Existing	BB, 85db, vertical only		
South Creake	England, U.K.	SCK	52.88	0.75	Blacknest	Existing	BB, 85db, vertical only		
Wolverton	England, U.K.	WOL	51.31	-1.22	Blacknest	Existing	BB, 85db, vertical only		
Wolverton North	England, U.K.	WON	51.33	-1.20	Blacknest	Existing	BB, 85db, vertical only		
Eskdalemuir	Scotland, U.K.	ESK*	55.32	-3.21	IRIS/IDA (GSN)	Existing	VBB, 24-bit, RA	SEP78	
Eskdalemuir	Scotland, U.K.	EKB	55.34	-3.18	Blacknest	Existing	BB, 85db, vertical only		
Kiev	Ukraine	?	50.69	29.21	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Lampeter	Wales, U.K.	LPW	52.11	-4.07	Blacknest	Existing	BB, 85db, vertical only		
Llanuwchllyn	Wales, U.K.	LLW	52.85	-3.67	Blacknest	Existing	BB, 85db, vertical only		
Beograd	Yugoslavia	BGY*	44.80	20.52	MEDNET	Existing	VBB, 24-bit	MAR91	

Table I. (continued) Inventory of Digital Broadband Seismograph Stations (June 1994).

Station	Location	Code	Lat.°N	Lon.°E	Program	Status	Characteristics	Open	Closed
AFRICA									
Medea	Algeria	MEB*	36.30	2.73	MEDNET	Existing	VBB, 24-bit	MAY92	
Tamanrasset	Algeria	TAM*	22.79	5.53	GEOSCOPE	Existing	VBB/126db, VLP/144db, DG, RA	MAR90	
					GEOSCOPE	Closed	VLP, 114db(GR)	DEC84	MAR90
					GEOSCOPE	Closed	VLP, 72db	NOV83	DEC84
Tsumeb	Namibia	?*	-19.13	17.42	IRIS/ASL (GSN)	Planned	VBB, 24-bit		
Lobatse	Botswana	LBTB*	-25.01	25.60	GTSN	Existing	VBB, 24-bit, RA	93,030	
Bogoin	Central African Republic	BGCA*	5.17	18.40	GTSN	Planned	VBB, 24-bit, RA		
Bangui	Central African Republic	BNG*	4.44	18.55	GEOSCOPE	Existing	BB, VLP, 132db(GR)	SEP88	
					GEOSCOPE	Planned	VBB, 144db, RA		
					GEOSCOPE	Closed	VLP, 132db, RA	DEC87	SEP88
Arta Tunnel	Djibouti	ATD*	11.53	42.85	GEOSCOPE	Existing	VBB, 144db, RA	JUL93	
Arta Grotte	Djibouti	AGD*	11.53	42.82	GEOSCOPE	Closed	BB, VLP, 114db(GR), RA	AUG87	DEC90
					GEOSCOPE	Closed	VLP, 114db(GR)	MAR85	AUG87
Abu Simbel	Egypt	?*	22.19	31.38	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Kottamya	Egypt	KEG*	29.93	31.83	MEDNET	Existing	VBB, 24-bit	DEC90	
Siwa	Egypt	?	29.11	25.31	IRIS/ASL (GSN)/ MEDNET	Planned	VBB, 24-bit, HF, LG, RA		
Addis Ababa	Ethiopia	AAE	9.03	38.77	IRIS/ASL (GSN)	Planned	VBB, 24-bit		
Furi	Ethiopia	FURI	8.90	38.68	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Bambay	Gabon	BAMB	-1.66	13.61	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, RA		
Dimbokro	Ivory Coast	DBIC*	6.67	-4.86	GTSN	Planned	VBB, 24-bit, RA		
Kilimambogo	Kenya	KMBO*	-1.27	36.80	IRIS/ASL (GSN)/ GEOFON	Planned	VBB, 24-bit, HF, RA		
Midelt	Morocco	MDT*	32.82	-4.61	MEDNET	Existing	VBB, 24-bit	NOV89	
Kowa	Mali	KOWA	14.50	-4.02	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, RA		
Tsumeb	Namibia	?*	-19.13	17.42	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, RA		
Jos	Nigeria	?	9.50	8.50	IRIS/IDA (GSN)	Planned	VBB, 24-bit, HF, RA		
M'Bour	Senegal	MBO*	14.39	-16.96	GEOSCOPE	Existing	BB, VLP, 132db(GR)	NOV87	
					GEOSCOPE	Planned	VBB, 144db, RA		
					GEOSCOPE	Closed	VLP, 72db	SEP85	NOV87
Silverton	South Africa	SLR	-25.74	28.28	GDSN (DWWSSN)	Closed	IP, LP, SP, 16-bit	81,297	93,020
Sutherland	South Africa	SUR*	-32.38	20.81	IRIS/IDA (GSN)	Existing	VBB, 144dB/DG	DEC75	
					IRIS/IDA (GSN)	Planned	VBB, 24-bit, HF, RA		
Boshof	South Africa	BOSA	-28.61	25.42	GTSN	Existing	VBB, 24-bit, RA	93,057	
Gafsa	Tunisia	GFA*	34.34	9.73	MEDNET	Existing	VBB, 24-bit		
?	Uganda	?	19.00	32.35	IRIS/IDA (GSN)	Proposed	VBB, 24-bit, HF, RA		
Lusaka	Zambia	LSZ*	-15.28	28.19	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		

Table I. (continued) Inventory of Digital Broadband Seismograph Stations (June 1994).

Station	Location	Code	Lat.°N	Lon.°E	Program	Status	Characteristics	Open	Closed
<i>INDIAN OCEAN</i>									
Amsterdam	Amsterdam Islands	AMS*	-37.80	77.57	GEOSCOPE	Existing	BB, VLP, 132db(GR)	JAN94	
Diego Garcia	Chagos Archipelago	?	-7.30	72.40	IRIS/IDA (GSN)	Proposed	VBB, 24-bit, HF, LG		
West or Home Island	South Keeling Islands	?	-12.20	96.80	IRIS/IDA (GSN)	Proposed	VBB, 24-bit, HF, LG		
Port Alfred	Crozet Islands	CRZF*	-46.43	51.86	GEOSCOPE	Existing	VBB/126db, VLP/144db, DG	DEC93	
					GEOSCOPE	Closed	BB, VLP, 132db(GR)	JAN88	DEC93
					GEOSCOPE	Closed	VLP, 114db(GR)	MAR86	JAN88
Port-aux-Francais	Kerguelen Island	PAF*	-49.35	70.21	GEOSCOPE	Existing	VBB/126db, VLP/144db, DG	JAN93	
					GEOSCOPE	Closed	BB, VLP, 132db(GR)	JAN88	JAN93
					GEOSCOPE	Closed	VLP, 114db(GR)	JAN83	JAN88
Riviere de L'Est	La Reunion Island	RER*	-21.16	55.75	GEOSCOPE	Existing	VBB/126db, VLP/144db, DG, RA	JUL90	
					GEOSCOPE	Closed	BB, VLP, 114dd(GR), RA	FEB86	JUL90
Plaine des Cafres	La Reunion Island	PCR	-21.20	55.58	GEOSCOPE	Closed	VLP, 72db	JUL82	FEB86
					IDA	Closed	VLP, 72db, Z only	AUG93	FEB90
Mahe	Seychelles Islands	MSEY*	-4.61	55.49	IRIS/IDA (GSN)	Planned	VBB, 24-bit, RA		
Mahe	Seychelles Islands	SEY	-4.62	55.49	IDA	Closed	VLP, 72db, vertical only	FEB80	JAN83
<i>ASIA</i>									
Garni	Armenia	GNI*	40.05	44.72	IRIS/ASL (GSN)	Existing	VBB, 24-bit, HF	91,191	
Baijiatuan (Beijing)	China	BJI*	40.04	116.18	CDSN	Existing	VBB, 24-bit	86,204	
Baijiatuan (Beijing)	China	BJT	40.04	116.18	IDA	Existing	VLP, 72db, vertical only	OCT82	
Enshi	China	ENH*	30.27	109.49	CDSN	Existing	BB, VLP, LP, SP, 120db	86,274	
Hailar	China	HIA*	49.27	119.74	CDSN	Existing	BB, VLP, LP, SP, 120db	87,070	
Kunming	China	KMI*	25.12	102.74	CDSN	Existing	BB, VLP, LP, SP, 120db	86,274	
Kunming	China	KMI	25.15	102.75	IDA	Existing	VLP, 72db, vertical only	OCT80	
Lanzhou	China	LZH*	36.09	103.84	CDSN	Existing	BB, VLP, LP, SP, 120db	86,274	
Mudanjiang	China	MDJ*	44.62	129.59	CDSN	Existing	BB, VLP, LP, SP, 120db	86,274	
Qiongzong	China	QIZ*	19.03	109.84	CDSN	Existing	BB, VLP, LP, SP, 120db	86,274	
Sheshan (Shanghai)	China	SSE*	31.10	121.19	CDSN	Existing	BB, VLP, LP, SP, 120db	86,274	
Urumqi (Wulumuqi)	China	WMQ*	43.82	87.70	CDSN	Existing	BB, VLP, LP, SP, 120db	86,274	
Lhasa (Tibet)	China	LSA*	29.70	91.15	CDSN	Existing	BB, VLP, LP, SP, 120db	91,333	
Wushi	China	WUS*	41.20	79.22	GEOSCOPE	Existing	VBB/126db, VLP/144db, DG	OCT88	
Xian	China	XAN	34.04	108.92	IRIS/ASL (GSN)	Existing	BB, 24-bit	92, 321	
					IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Hyderabad	India	HYB*	17.42	78.55	GEOSCOPE	Existing	VBB/126db, VLP/144db, DG, RA	JAN89	
Kodaikanal	India	KOD*	10.23	77.47	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
New Delhi	India	NDI*	28.68	77.22	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		

Table I. (continued) Inventory of Digital Broadband Seismograph Stations (June 1994).

Station	Location	Code	Lat. ^o N	Lon. ^o E	Program	Status	Characteristics	Open	Closed
Shillong	India	SHIO	25.57	91.88	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Sulawesi	Indonesia	?*	-4.00	120.00	IRIS/IDA (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Parapat	Indonesia	PSI*	2.70	98.92	Pre-POSEIDON	Existing	BB, 22-bit	MAR93	
Yogyakarta	Indonesia	?	6.5	110.0	GEOFON	Planned	BB, 140db, RA		
Iran-Shahr	Iran	IRS	27.20	60.68	INSN	Planned	VBB, 140db		
Kashmar	Iran	KSH	35.23	58.47	INSN	Planned	VBB, 140db		
Kerman	Iran	KRM	30.28	57.07	INSN	Planned	VBB, 140db		
Masjed-E-Solayman	Iran	MSN	31.93	49.30	INSN	Planned	VBB, 140db		
Shiraz	Iran	SHZ	29.61	52.55	INSN	Planned	VBB, 140db		
Tabriz	Iran	TAB	38.07	46.28	INSN	Planned	VBB, 140db		
Tehran	Karaj, Iran	THR	35.88	50.90	INSN	Planned	VBB, 140db		
Aibetsu	Japan	AIB	43.91	142.65	Pre-POSEIDON	Existing	VBB, 16-bit		
Chiba Univ	Japan	CHU	35.63	140.11	Pre-POSEIDON	Existing	BB, 24-bit, RA		
Erimo	Japan	ERM*	42.02	143.16	IRIS/IDA (GSN) IRIS/IDA (GSN)	Existing Planned	VBB, 144dB/DG LG, RA	AUG80	
Hachiojima	Japan	HCH	33.12	139.80	Pre-POSEIDON	Existing	BB, 22-bit, RA		
Hakone	Japan	HKY	35.23	139.12	Pre-POSEIDON	Existing	BB, 24-bit, RA		
Hokuriku	Japan	HKJ	35.94	136.21	Pre-POSEIDON	Existing	VBB, 24-bit		
Inumaya	Japan	INU*	35.35	137.03	GEOSCOPE	Existing	VBB/126db, VLP/144db, DG, RA	MAR87	
Ishigaki	Ryukyu Islands, Japan	ISG	24.3	124.2	Pre-POSEIDON	Existing	VBB, 22-bit, RA	DEC93	
Kaminokuni	Japan	KKJ	41.78	140.18	Pre-POSEIDON Pre-POSEIDON	Existing Existing	VBB, 16-bit, RA VBB, 22-bit, RA		NOV92
Kamitakara	Japan	KTJ	36.28	137.33	Pre-POSEIDON	Existing	VBB, 24-bit		
Kitakami	Japan	KGJ	39.39	141.57	Pre-POSEIDON	Existing	VBB, 84db		
Matsushiro	Japan	MAJO*	36.54	138.21	IRIS/ASL (GSN) IRIS/ASL (GSN)	Existing Planned	VBB, 24-bit, RA HF	77,166	
Nago	Ryukyu Islands, Japan	NAGO	26.0	128.1	Pre-POSEIDON	Closed	VBB, 22-bit, RA		JAN93
Nakaizu	Japan	JIZ	34.91	139.00	Pre-POSEIDON	Existing	VBB, 24-bit, RA		
Nemuro	Japan	NMR	43.37	145.73	Pre-POSEIDON	Existing	VBB, 16-bit, RA		
Shimizu	Japan	SMZ	34.99	138.52	Pre-POSEIDON	Existing	VBB, 24-bit, RA	93	
Shiraki	Japan	SHK	34.53	132.68	Pre-POSEIDON	Existing	VBB, 22-bit, RA		
Sugeno	Japan	SGN	35.51	138.95	Pre-POSEIDON	Existing	VBB, 24-bit, RA		
Takao	Japan	TKO	35.66	139.29	Pre-POSEIDON	Existing	BB, 24-bit, RA		
Tateyama	Japan	TYM	34.97	139.85	Pre-POSEIDON	Existing	VBB, 24-bit, RA		
Tokyo	Japan	TOK	35.69	139.76	Pre-POSEIDON	Existing	VBB, 24-bit, RA	DEC93	
Tottori	Japan	TTT	35.51	134.24	Pre-POSEIDON	Existing	VBB, 24-bit		
Tsukuba	Japan	TSK	36.21	140.11	Pre-POSEIDON	Existing	VBB, 22-bit, RA	SEP89	
Yokohama City Univ	Japan	YCU	35.33	139.62	Pre-POSEIDON	Existing	BB, 24-bit, RA		

Table I. (continued) Inventory of Digital Broadband Seismograph Stations (June 1994).

Station	Location	Code	Lat.°N	Lon.°E	Program	Status	Characteristics	Open	Closed
Borovoye	Kazakhstan	BRVK	53.06	70.28	IRIS/IDA (GSN) GEOSCOPE	Planned Planned	VBB, 144dB/DG, HF, LG, RA VBB, 144db		
?	Kazakhstan	?	50.20	57.10	IRIS/IDA (GSN)	Planned	VBB, 144dB/DG, HF, LG, RA		
Ala-Archa	Kyrgyzstan	AAK*	42.64	74.49	IRIS/IDA (GSN) IRIS/IDA (GSN)	Existing Planned	VBB, 144dB/DG, HF RA	OCT90	
Pohang	Korea	PHN	36.03	129.36	Pre-POSEIDON	Existing	VBB, 22-bit		
Bhannes	Lebanon	BHL	33.90	35.65	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Near Davao	Philippines	DAV?*	7.09	125.57	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Ulaanbaatar	Mongolia	?	47.54	106.52	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Everest	Nepal	EVN	27.96	86.82	Italy	Existing	BB, 120db		
Muscat	Oman	?	23.00	58.00	IRIS/IDA (GSN)	Proposed	VBB, 24-bit, HF, LG		
Nilore	Pakistan	NIL	33.65	73.25	IRIS/IDA (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Quetta	Pakistan	QUE*	30.19	66.95	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Tagaytay	Philippines	TGY*	14.10	120.94	Pre-POSEIDON	Existing	BB, 106db	FEB92	
?	Philippines	?*	7.0	125.6	IRIS/ASL (GSN)	Planned	VBB, 24-bit		
Arti	Russia	ARU*	56.43	58.56	IRIS/IDA (GSN)	Existing	VBB, 144dB/DG, HF, RA	SEP88	
Bilibino	Russia	?*	68.02	168.15	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG		
Kamenskoey	Russia	KMS	62.3	166.4	Pre-POSEIDON	Planned	VBB, 22-bit		
Kislovodsk	Russia	KIV*	43.96	42.69	IRIS/IDA (GSN) IRIS/IDA (GSN)	Existing Planned	VBB, 144dB/DG, RA HF, LG	SEP88	
Lovozero	Russia	LVZ	67.90	34.65	IRIS/IDA (GSN)	Existing	VBB, 144dB/DG, HF	DEC92	
Magadan	Russia	MA2*	59.58	150.78	IRIS/ASL (GSN)	Existing	VBB, 24-bit, HF	SEP93	
Michnevo	Russia	?	55.20	37.50	GEOFON	Planned	BB, 24-bit, RA		
Norilsk	Russia	NRIL*	69.50	88.44	IRIS/IDA (GSN)	Existing	VBB, 144dB/DG, HF	DEC92	
Novosibirsk	Russia	NVS*	54.84	83.24	IRIS/IDA (GSN)	Closed	VBB, 144dB/DG, HF	JUL92	FEB94
Near Novosibirsk	Russia	?	55.00	83.00	IRIS/IDA (GSN)	Planned	VBB, 24-bit, HF, LG		
Obninsk	Russia	OBN*	55.11	36.57	IRIS/IDA (GSN)	Existing	VBB, 144dB/DG, RA	SEP88	
Petropavlovsk-Kamchatskiy	Russia	PET*	53.02	158.65	IRIS/ASL (GSN)	Existing	VBB, 24-bit, HF, LG	93,248	
Seymchan	Russia	SEY*	62.93	152.37	GEOSCOPE	Existing	VBB/126db, VLP/144db, DG	SEP90	
Talaya	Russia	TLY*	51.68	103.64	IRIS/IDA (GSN)	Existing	VBB, 144dB/DG, HF	JUL92	
Tiksi	Russia	TIK*	71.63	128.87	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG		
Yakutsk	Russia	YAK*	62.01	129.43	IRIS/ASL (GSN)	Existing	VBB, 24-bit, HF	93,243	
Yuzhno-Sakhalinsk	Russia	YSS*	46.95	142.75	IRIS/ASL (GSN)/ POSEIDON	Existing	VBB, 24-bit, HF	93,153	
Ab'ha	Saudi Arabia	?	18.30	42.50	IRIS/IDA (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Ha'il	Saudi Arabia	?	27.60	41.70	IRIS/IDA (GSN)	Planned	VBB, 24-bit, HF, LG, RA		

Table I. (continued) Inventory of Digital Broadband Seismograph Stations (June 1994).

Station	Location	Code	Lat.°N	Lon.°E	Program	Status	Characteristics	Open	Closed
?	South Korea	?	37.57	126.97	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Garm	Tadjikistan	GAR	39.00	70.32	IRIS/IDA (GSN)	Closed	VBB, 144dB/DG	SEP88	MAY9
Semigandzh	Tadjikistan	?	38.38	68.51	IRIS/IDA (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Taipei	Taiwan	TATO*	24.98	121.49	IRIS/ASL (GSN)	Existing	VBB, 24-bit, LG, RA	76,134	
Chiang Mai	Thailand	CHTO*	18.79	98.98	IRIS/ASL (GSN) IRIS/ASL (GSN)	Existing Planned	VBB, 24-bit, LG, RA HF	77,182	
Ankara	Turkey	ANTO*	39.87	32.79	IRIS/ASL (GSN)	Existing	VBB, 24-bit, LG, RA	78,244	
Alibek	Turkmenistan	ABKT*	37.93	58.12	IRIS/IDA (GSN) IRIS/IDA (GSN)	Existing Planned	VBB, 144dB/DG, HF RA	APR93	
Tashkent	Uzbekistan	?*	41.30	69.30	GEOFON	Planned	BB, 140db, RA		
AUSTRALIA									
Canberra (ANU)	ACT	CAN*	-35.32	149.00	GEOSCOPE	Existing	VBB/126db, VLP/144db, DG, RA	NOV87	
Canberra (ANU)	ACT	CAN	-35.32	149.00	IDA	Closed	VLP, 72db, vertical only	JAN75	APR78
Stephens Creek	New South Wales	STKA*	-31.88	141.59	AGSO	Planned	BB, 16-bit		
Alice Springs	Northern Territory	ASPA*	-23.66	133.90	AGSO	Planned	BB, 24-bit		
Warramunga Array	Northern Territory	WRA	-19.94	134.34	ANU	Existing	BB, 96db		
Tennant Creek	Northern Territory	WRAB*	-19.93	134.36	IRIS/IDA (GSN)	Existing	VBB, 24-bit, HF, RA		
Charters Towers	Queensland	CTA	-20.09	146.26	AGSO	Existing	BB, 96db		
Charters Towers	Queensland	CTAO*	-20.09	146.25	IRIS/ASL (GSN) IRIS/ASL (GSN)	Existing Planned	VBB, 24-bit, LG, RA HF		
Tennyson Woods Obs. (Adelaide)	South Australia	TWOA	-35.03	138.58	IDA	Existing	VLP, 72db, vertical only	APR78	
Hobart	Tasmania	TAU	-42.91	147.32	IRIS/IDA (GSN) GDSN (DWWSSN)	Existing Closed	VBB, 24-bit, RA IP, LP, SP, 16-bit	JAN94 81,161	JAN94
Coolgardie	Western Australia	COOL*	-30.88	121.14	AGSO	Planned	BB, 16-bit		
Fitzroy Crossing	Western Australia	?*	-18.15	125.65	AGSO	Planned	BB, 16-bit		
Marble Bar	Western Australia	?	-21.16	119.45	IRIS/ASL (GSN)	Planned	VBB, 24-bit, HF, LG, RA		
Narrogin	Western Australia	NWAO*	-32.93	117.23	IRIS/ASL (GSN)	Existing	VBB, 24-bit, RA	76,092	
PACIFIC OCEAN									
Chichijima	Bonin Islands	OGS*	27.05	142.20	Pre-POSEIDON	Existing	VBB, 22-bit, RA	JUN92	
Chichijima	Bonin Islands	CBI	27.09	142.19	Pre-POSEIDON	Closed	VBB, 22-bit, RA		JUN93
Rarotonga	Cook Islands	RAR*	-21.21	-159.77	IRIS/ASL (GSN) IDA	Existing Existing	VBB, 24-bit, RA VLP, 72db, vertical only	92,070 OCT76	

Table I. (continued) Inventory of Digital Broadband Seismograph Stations (June 1994).

Station	Location	Code	Lat.°N	Lon.°E	Program	Status	Characteristics	Open	Closed
Rapa Nui	Easter Island, Chile	RPN*	-27.16	-109.43	IRIS/IDA (GSN) IRIS/IDA (GSN)	Existing Planned	VBB, 144dB/DG LG, RA	JUN87	
Easter Island	Easter Island, Chile	EIC	-27.16	-109.43	IDA	Closed	VLP, 72db, vertical only	DEC78	JUL80
Santa Cruz	Galapagos Is., Ecuador	?*	-0.66	-90.23	IRIS/ASL (GSN)	Proposed	VBB, 24-bit, HF, LG, RA		
Monasavu	Viti Levu, Fiji	MSVF*	-17.75	178.05	IRIS/IDA (GSN)	Existing	VBB, 24-bit, LG, RA	MAY94	
Pitcairn	Pitcairn Island	?	-25.04	-130.06	IRIS/ASL (GSN)	Proposed	VBB, 24-bit, HF		
Hawaii Island	Hawaii, U.S.A.	?	19.42	-155.29	IRIS/ASL (GSN)	Proposed	VBB, 24-bit, HF, LG, RA		
Kipapa	Hawaii, U.S.A.	KIP*	21.42	-158.02	IRIS/ASL (GSN) GEOSCOPE GEOSCOPE USNSN	Existing Existing Closed Planned	VBB, 24-bit, RA VBB/126db, VLP/144db, DG, RA BB, VLP, 114db(GR), RA	88,214 MAY88 APR86	MAY88
Johnston Atoll	Johnston Atoll	?	16.45	-169.42	IRIS/ASL (GSN)	Proposed	VBB, 24-bit, HF, RA		
Raoul Island	Kermadec Islands		-29.15	-177.52	IRIS/ASL (GSN)	Proposed	VBB, 24-bit, HF, LG		
Kiritimati	Kiribati	?	2.00	-157.30	IRIS/ASL (GSN)	Proposed	VBB, 24-bit, HF, RA		
Tarawa	Kiribati	?	1.30	173.00	IRIS/ASL (GSN)	Proposed	VBB, 24-bit, HF, LG, RA		
Macquarie Island	Macquarie Island	MCQ	-54.50	158.96	IRIS/ASL (GSN)	Proposed	VBB, 24-bit, HF, LG, RA		
Minamitorishima	Marcus Island	MCSJ*	24.29	153.98	Pre-POSEIDON	Existing	BB, 16-bit		
Guam	Marianas Islands	GUMO*	13.59	144.87	IRIS/ASL (GSN)	Existing	VBB, 24-bit, LG, RA	75,182	
Guam Observatory	Marianas Islands	GUA	13.54	144.91	IDA	Existing	VLP, 72db, vertical only	JUN79	
Nukuhiva	Marquesas Islands	?	-8.36	-140.00	IRIS/IDA (GSN)	Proposed	VBB, 24-bit, HF		
Kwajalein Atoll	Marshall Islands	?	9.15	167.30	IRIS/IDA (GSN)	Proposed	VBB, 24-bit, HF, LG, RA		
Ponpei	Micronesia	PATS*	7.0	158.0	Pre-POSEIDON	Existing	VBB, 22-bit		
Midway	Midway Islands	MDY*	28.21	-177.33	IRIS/ASL (GSN)	Proposed	VBB, 24-bit, HF, LG, RA		
Noumea	New Caledonia	NOC	-22.28	166.43	GEOSCOPE	Closed	VLP, 114db(GR)	DEC85	OCT87
Port Laguerre	New Caledonia	NOU*	-22.10	166.30	GEOSCOPE GEOSCOPE GEOSCOPE	Existing Closed Closed	VBB/126db, VLP/144db, DG, RA BB, VLP, 132db(GR) VLP, 132db(GR)	NOV92 MAY89 MAR88	NOV92 MAY89
South Karori	New Zealand	SNZO*	-41.31	174.70	IRIS/ASL (GSN)	Existing	VBB, 24-bit, RA	76,075	
Port Moresby	Papua New Guinea	PMG*	-9.41	147.15	IRIS/ASL (GSN)/ GEOFON/POSEIDON IRIS/ASL (GSN)	Existing Planned	VBB, 24-bit, LG, RA HF	93,253	
Afiamalu	Samoa Islands	AFI*	-13.91	-171.78	IRIS/ASL (GSN)	Existing	VBB, 24-bit, LG, RA	87,115	
Honiara	Solomon Islands	HNR*	-9.43	159.95	IRIS/ASL (GSN)	Existing	VBB, 24-bit, LG, RA		
Papeete	Tahiti, French	PPT*	-17.57	-149.58	GEOSCOPE GEOSCOPE GEOSCOPE	Existing Closed Closed	VBB, 144db, RA BB, VLP, 114db(GR), RA VLP, 114db(GR)	OCT91 NOV86 MAY86	OCT91 NOV86
Funafuti	Tuvalu	?	-8.30	179.12	IRIS/ASL (GSN)	Proposed	VBB, 24-bit, HF, LG, RA		
Wake	Wake Island	WKE	19.32	166.63	IRIS/ASL (GSN)	Proposed	VBB, 24-bit, HF, LG, RA		

Table I. (continued) Inventory of Digital Broadband Seismograph Stations (June 1994).

Station	Location	Code	Lat. ^o N	Lon. ^o E	Program	Status	Characteristics	Open	Closed
ANTARCTICA									
Casey		CSY	-66.30	110.53	IRIS/ASL (GSN)	Proposed	VBB, 24-bit, HF, RA		
Dumont d'Urville	Terre Adelie	DRV*	-66.66	140.01	GEOSCOPE	Existing	VBB/126db, VLP/144db, DG	JAN91	
					GEOSCOPE	Closed	BB, VLP, 132db(GR)	FEB88	JAN91
					GEOSCOPE	Closed	VLP, 114db(GR)	FEB86	FEB88
Mawson		MAW*	-67.60	62.87	AGSO	Existing	BB, 16-bit		
Palmer Station	Palmer Peninsula	PMSA*	-64.77	-64.07	IRIS/ASL (GSN)	Existing	VBB, 24-bit		
Sanae		?*	-71.00	-2.00	GEOFON/AWI	Planned	BB, 24-bit		
Syowa Station		SYO*	-69.01	39.59	Pre-POSEIDON	Existing	VBB, 24-bit	APR90	
South Pole		SPA*	-90.00	115.00	IRIS/ASL (GSN)	Existing	VBB, 24-bit, RA	91,322	
					UCLA/IRIS	Existing	VLP, 72db, vertical only	DEC77	
Terranova Bay		TNV*	-74.70	164.12	MEDNET-PNRA	Existing	VBB, 24-bit	JAN89	
Vanda (Dry Valleys)		VNDA	-77.51	161.85	GTSN	Existing	VBB, 24-bit, RA	DEC93	

TEMPORARY BROADBAND STATIONS

None

NETWORK PROGRAM ACRONYMS AND INFORMATION:

AGSO	Australian Geological Survey Organisation
ASL	Albuquerque Seismological Laboratory
ANU	Australian National University
ASRO	Abbreviated Seismic Research Observatories
AWI	Alfred Wegner Institute for Polar Research
BDSN	Berkeley Digital Seismograph Network
	All stations (except ORV) have continuous telemetry
	All stations (except PKD1) have 24-bit strong motion channels
BGR	Bundesanstalt fur Geowissenschaften und Rohstoffe
CAS	Czech Academy of Sciences
CDSN	China Digital Seismograph Network
CNSN	Canadian National Seismic Network
DWSSN	Digital World-Wide Standardized Seismograph Network
GI	Geophysical Institute
GRSN	German Regional Seismic Network
GDSN	Global Digital Seismograph Network
GEOFON	GEOFOrschungsNetz (Geo Research Network)
GEOSCOPE	GEOSCOPE Program
GSN	Global Seismographic Network
GTSN	Global Telemetered Seismograph Network
IDA	International Deployment of Accelerometers
ING	Istituto Nazionale di Geofisica
INSN	Iran National Seismic Network
IRIS	Incorporated Research Institutions for Seismology
LLNL	Lawrence Livermore National Laboratories

MEDNET	MEDiterranean NETwork
MIDAS	MIDDLE American Seismograph Network
MNSN	Mexican National Seismological Network
NARS	Network of Autonomously Registrating Stations
OSU	Oregon State University
POSEIDON	Project POSEIDON
PSU	Penn State University
RSTN	Regional Seismic Test Network
SAS	Slovak Academy of Sciences
SRO	Seismic Research Observatories
STS	Wielandt and Streckiesen
TERRAscope	Caltech Digital Seismograph Network
UA	University of Arizona
UCLA	University of California, Los Angeles
USNSN	United States National Seismograph Network
UTA	University of Texas, Austin

STATUS DEFINITIONS:

Existing	Station installed and producing data
Planned	Funding secured and station installation scheduled
Proposed	Funding not secured or being sought for station installation (possibly at alternative site)
Closed	Station closed

INSTRUMENT ACRONYMS:

VBB	Very Broadband, 5 Hz-360 s @ 20 sps (5 Hz-250s for GTSN)
BB	Broadband, 5 Hz-20s @ 20 sps (1HZ-360 s @ 5 sps for GEOSCOPE)
VLP	Very Long Period (150-3600 s @ 0.1 sps for GEOSCOPE in BB/VLP configuration)
VLP	Very Long Period (20-360 s @ 0.1 sps for GEOSCOPE in VBB configuration)
LH	Long Period (3-360 s @ 1 sps for GEOSCOPE)
LP	Long Period (20-3600 s @ 1 sps for GEOSCOPE)
IP	Intermediate Period, 1-15 s
MP	Mid-Period, 1-30 s
SP	Short Period
HF	High Frequency
DG	Dual-Gain
GR	Gain-Ranged
RA	Remotely Accessible

IRIS GSN DEFINITIONS:

VBB	Very Broadband (Steckeisen STS-1, Teledyne KS54000, or Teledyne KS36000i) @ 20 sps, 1 sps, 0.1 sps and 0.01 sps continuous
BB	Broadband (Streckeisen STS-2) @ 20 sps, 1 sps, 0.1 sps and 0.01 sps continuous
VLP	Very Long Period (LaCoste-Romberg Gravimeter) @ 0.1 sps continuous
HF	High Frequency (Teledyne GS-13, Streckeisen STS-2, or Guralp CMG-3) @ 100 sps triggered; 40 sps continuous planned for 94/95
LG	Low-Gain accelerometer (Kinometrics FBA-23) @ 100 sps triggered, 1 sps continuous
24-bit	Data acquisition system with 24-bit digitizer
144dB/DG	Data acquisition system with 16-bit digitizer with both high and low gain channels for 144dB dynamic range

FEDERATION NETWORK STATION (*):

A subset of more than one hundred stations chosen on the basis of hardware standards (VBB or BB and VLP, three-component, dynamic range greater than 100db), noise characteristics, geographical location, and status (installed or installation imminent).