



Reference Ellipsoids and Local Datums

Supported by JAVAD GNSS Receivers

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REFERENCE ELLIPSOIDS AND LOCAL DATUMS

Information on reference ellipsoids and local datums was borrowed from “Department of Defense. World Geodetic System 1984 - Its Definitions and Relationships with Local Geodetic Systems — TR8350.2.” Available at <ftp://164.214.2.65/pub/gg/tr8350.2/wgs84fin.pdf>.

Reference ellipsoids

Ellipsoid ID	Semi-major axis a (meters)	Reciprocal of flattening $1/f$	Description
AA	6377563.396	299.3249646	Airy 1830
AN	6378160.0	298.25	Australian National
BR	6377397.155	299.1528128	Bessel 1841 (Ethiopia Indonesia Japan and Korea)
BN	6377483.865	299.1528128	Bessel 1841 (Namibia)
CC	6378206.4	294.9786982	Clarke 1866
CD	6378249.145	293.465	Clarke 1880 (As accepted by DMA)
EB	6377298.556	300.8017	Everest (Brunei and E.Malaysia (Sabah and Sarawak))
EA	6377276.345	300.8017	Everest (India 1830)
EC	6377301.243	300.8017	Everest (India 1956)
EF	6377309.613	300.8017	Everest (Pakistan)
EE	6377304.063	300.8017	Everest (W.Malaysia and Singapore 1948)
ED	6377295.664	300.8017	Everest (W.Malaysia 1969)
RF	6378137.0	298.257222101	Geodetic Reference System 1980

Ellipsoid ID	Semi-major axis a (meters)	Reciprocal of flattening 1/f	Description
HE	6378200.0	298.3	Helmert 1906
HO	6378270.0	297.0	Hough 1960
ID	6378160.0	298.247	Indonesian 1974
IN	6378388.0	297.0	International 1924
KA	6378245.0	298.3	Krassovsky 1940
AM	6377340.189	299.3249646	Modified Airy
FA	6378155.0	298.3	Modified Fischer 1960
SA	6378160.0	298.25	South American 1969
WD	6378135.0	298.26	WGS 1972
WE	6378137.0	298.257223563	WGS 1984
PE	6378136.0	298.257839303	PE-90

List of DATUMs supported by JAVAD GNSS receivers

RELATIONSHIPS BETWEEN LOCAL DATUMS AND WGS84										
##	Geodetic DATUM	DATUM ID	Reference Ellipsoid	Translation Vector (meters)			Scale (ppm) and Rotation Vector (seconds of arc)			
				DX	DY	DZ	m	ϵ_x	ϵ_y	ϵ_z
0	WGS 1984	W84	WGS84	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	PZ 1990	P90	PZ-90	0.0	0.0	1.0	0.0	0.0	0.0	-0.2062648
2	WGS 1972	W72	WGS72	0.0	0.0	4.5	0.227	0.0	0.0	-0.554
3	ADINDAN	ADI-M (Ethiopia and Sudan)	Clarke 1880	-166	-15	204	Zeros			
4	ADINDAN	ADI-E (Burkina Faso)	Clarke 1880	-118	-14	218				
5	ADINDAN	ADI-F (Cameroon)	Clarke 1880	-134	-2	210				
6	ADINDAN	ADI-A (Ethiopia)	Clarke 1880	-165	-11	206				
7	ADINDAN	ADI-C (Mali)	Clarke 1880	-123	-20	220				
8	ADINDAN	ADI-D (Senegal)	Clarke 1880	-128	-18	224				
9	ADINDAN	ADI-B (Sudan)	Clarke 1880	-161	-14	205	Zeros			
10	AFGOOYE	AFG (Somalia)	Krassovsky 1940	-43	-163	45				
11	ARC 1950	ARF-M (Botswana, Lesotho, Malawi, Swaziland, Zaire, Zambia and Zimbabwe)	Clarke 1880	-143	-90	-294				
12	ARC 1950	ARF-A (Botswana)	Clarke 1880	-138	-105	-289				
13	ARC 1950	ARF-H (Burundi)	Clarke 1880	-153	-5	-292				
14	ARC 1950	ARF-B (Lesotho)	Clarke 1880	-125	-108	-295				
15	ARC 1950	ARF-C (Malawi)	Clarke 1880	-161	-73	-317				
16	ARC 1950	ARF-D (Swaziland)	Clarke 1880	-134	-105	-295				
17	ARC 1950	ARF-E (Zaire)	Clarke 1880	-169	-19	-278				
18	ARC 1950	ARF-F (Zambia)	Clarke 1880	-147	-74	-283				
19	ARC 1950	ARF-G (Zimbabwe)	Clarke 1880	-142	-96	-293				

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##	Geodetic DATUM	DATUM ID	Reference Ellipsoid	Translation Vector (meters)			Scale (ppm) and Rotation Vector (seconds of arc)			
				DX	DY	DZ	m	ϵ_x	ϵ_y	ϵ_z
20	ARC 1960	ARS-M (Kenya and Tanzania)	Clarke1880	-160	-6	-302	Zeros			
21	ARC 1960	ARS-A (Kenya)	Clarke1880	-157	-299	-299				
22	ARC 1960	ARS-B (Tanzania)	Clarke1880	-175	-23	-303				
23	AYABELLE LIGHTHOUSE	PHA (Djibouti)	Clarke1880	-79	-129	145				
24	BISSAU	BID (Guinea-Bissau)	International 1924	-173	253	27				
25	CAPE	CAP (South Africa)	Clarke1880	-136	-108	-292				
26	CARTHAGE	CGE (Tunisia)	Clarke1880	-263	6	431				
27	DABOLA	DAL (Guinea)	Clarke1880	-83	37	124				
28	EUROPEAN 1950	EUR_F (Egypt)	International 1924	-130	-117	-151				
29	EUROPEAN 1950	EUR_T (Tunisia)	International 1924	-112	-77	-145				
30	LEIGON	LEH (Ghana)	Clarke1880	-130	29	364				
31	LIBERIA 1964	LIB (Liberia)	Clarke1880	-90	40	88				
32	MASSAWA	MAS (Eritrea (Ethiopia))	Bessel1841	639	405	60				
33	MERCHICH	MER (Morocco)	Clarke1880	31	146	47				
34	MINNA	MIN-A (Cameroon)	Clarke1880	-81	-84	115				
35	MINNA	MIN-B (Nigeria)	Clarke1880	-92	-93	122				
36	M'PORALOKO	MPO (Gabon)	Clarke1880	-74	-130	42				
37	NORTH SAHARA 1959	NSD (Algeria)	Clarke1880	-186	-93	310		Zeros		
38	OLD EGYPTIAN 1907	OEG (Egypt)	Helmert 1906	-130	110	-13				
39	POINT 58	PTB (Burkina Faso and Niger)	Clarke1880	-106	-129	165				
40	POINTE NOIRE 1948	PTN (Congo)	Clarke1880	-148	51	291				
41	SCHWARZECK	SCK (Namibia)	Bessel1841NAM	616	97	251				
42	SIERRA LEONE 1960	SRL (Sierra Leone)	Clarke1880	-88	4	101				
43	VOIROL 1960	VOR (Algeria)	Clarke1880	-123	-206	219				
44	AIN EL ABD 1970	AIN-A (Bahrain Island)	International 1924	-150	-250	-1				
45	AIN EL ABD 1970	AIN-B (Saudi Arabia)	International 1924	-143	-236	7				
46	DJAKARTA (BATAVIA)	BAT (Sumatra (Indonesia))	Bessel1841	-377	681	-50				
47	EUROPEAN 1950	EUR-H (Iran)	International 1924	-117	-132	-164				
48	HONG KONG 1963	HKD (Hong Kong)	International 1924	-156	-271	-189				
49	HU-TZU-SHAN	HTN (Taiwan)	International 1924	-637	-549	-203				

RELATIONSHIPS BETWEEN LOCAL DATUMS AND WGS84										
##	Geodetic DATUM	DATUM ID	Reference Ellipsoid	Translation Vector (meters)			Scale (ppm) and Rotation Vector (seconds of arc)			
				DX	DY	DZ	m	ϵ_x	ϵ_y	ϵ_z
50	INDIAN	IND-B (Bangladesh)	Everest Ind1830	282	726	254	Zeros			
51	INDIAN	IND-I (India and Nepal)	Everest Ind1956	295	736	257				
52	INDIAN 1954	INF-A (Thailand)	Everest Ind1830	217	823	299				
53	INDIAN 1960	ING-A (Vietnam (near 16 degree N))	Everest Ind1830	198	881	317				
54	INDIAN 1960	ING-B (Con Sol Island (Vietnam))	Everest Ind1830	182	915	344				
55	INDIAN 1975	INH-A (Thailand)	Everest Ind1830	210	814	289				
56	INDONESIAN 1974	IDN (Indonesia)	Indonesian 1974	-24	-15	5				
57	KANDAWALA	KAN (Sri Lanka)	Everest Ind1830	-97	-787	86	Zeros			
58	KERTAU 1948	KEA (West Malaysia and Singapore)	Everest WMS1948	-11	851	5				
59	NAHRWAN	NAH-A (Masirah Island (Oman))	Clarke1880	-247	-148	369				
60	NAHRWAN	NAH-B (United Arab Emirates)	Clarke1880	249	-156	381				
61	NAHRWAN	NAH-C (Saudi Arabia)	Clarke1880	-243	-192	477				
62	OMAN	FAH (Oman)	Clarke1880	-346	-1	224				
63	QATAR NATIONAL	QAT (Qatar)	International1924	-128	-283	22	Zeros			
64	SOUTH ASIA	SOA (Singapore)	Modified Fisher	7	-10	-26				
65	TIMBALAI 1948	TIL (Brunei and East Malaysia (Sarawak and Sabah))	Everest BEM	-679	669	-48				
66	TOKYO	TOY-M (Japan, Okinawa and South Korea)	Bessel1841	-148	507 5	685				
67	TOKYO	TOY-A (Japan)	Bessel1841	-146	508	682				
68	TOKYO	TOY-B (South Korea)	Bessel1841	-147	506	687				
69	TOKYO	TOY-C (Okinawa)	Bessel1841	-146 508 682	-146 508 682	-146 508 682				
70	AUSTRALIAN GEODETIC 1966	AUA (Australia and Tasmania)	Australian	-133 -48 148	-133 -48 148	-133 -48 148				
71	AUSTRALIAN GEODETIC 1984	AUG (Australia and Tasmania)	Australian	-134	-48	149				
72	COORDINATE SYSTEM 1937 OF ESTONIA	EST (Estonia)	Bessel1841	374	150	588	Zeros			
73	EUROPEAN 1950	EUR-M (Mean Solution (Austria, Belgium, Denmark, Finland, France, FRG, Gibraltar, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden and Switzerland))	International 1924	-87	-98	-121				

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List of DATUMs supported by JAVAD GNSS receivers

RELATIONSHIPS BETWEEN LOCAL DATUMS AND WGS84										
##	Geodetic DATUM	DATUM ID	Reference Ellipsoid	Translation Vector (meters)			Scale (ppm) and Rotation Vector (seconds of arc)			
				DX	DY	DZ	m	ϵ_x	ϵ_y	ϵ_z
74	EUROPEAN 1950	EUR-A (Western Europe (Limited to Austria, Denmark, France, FRG, Netherlands, and Switzerland))	International 1924	-87	-96	-120	Zeros			
75	EUROPEAN 1950	EUR-E (Cyprus)	International 1924	-104	-101	-140				
76	EUROPEAN 1950	EUR-G (England, Channel Islands, Scotland and Shetland islands)	International 1924	-86	-96	-120				
77	EUROPEAN 1950	EUR-K (England, Ireland, Scotland and Shetland islands)	International 1924	-86	-96	-120				
78	EUROPEAN 1950	EUR-B (Greece)	International 1924	-84	-95	-130				
79	EUROPEAN 1950	EUR-I (Italy (Sardinia))	International 1924	-97	-103	-120				
80	EUROPEAN 1950	EUR-J (Italy (Sicily))	International 1924	-97	-88	-135				
81	EUROPEAN 1950	EUR-L (Malta)	International 1924	-107	-88	-149				
82	EUROPEAN 1950	EUR-C (Norway and Finland)	International 1924	-87	-95	-120	Zeros			
83	EUROPEAN 1950	EUR-D (Portugal and Spain)	International 1924	-84	-107	-120				
84	EUROPEAN 1979	EUS (Mean Solution (Austria, Finland, Netherlands, Norway, Spain, Sweden and Switzerland))	International 1924	-86	-98	-119				
85	HJORSEY 1955	HJO (Iceland)	International 1924	-73	46	-86				
86	IRELAND 1965	IRL (Ireland)	Modified AIRY	506	-122	611				
87	ORDNANCE SURVEY OF GREAT BRITAIN 1936	OGB-M (Mean solution (England, Isle of Man, Scotland, Shetland Islands and Wales))	AIRY 1830	375	-111	431				
88	ORDNANCE SURVEY OF GREAT BRITAIN 1936	OGB-A (England)	AIRY 1830	371	-112	434				

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##	Geodetic DATUM	DATUM ID	Reference Ellipsoid	Translation Vector (meters)			Scale (ppm) and Rotation Vector (seconds of arc)			
				DX	DY	DZ	m	ϵ_x	ϵ_y	ϵ_z
89	ORDNANCE SURVEY OF GREAT BRITAIN 1936	OGB-B (England, Isle of Man, and Wales)	AIRY1830	371	-111	434	Zeros			
90	ORDNANCE SURVEY OF GREAT BRITAIN 1936	OGB-C (Scotland and Shetland Islands)	AIRY1830	384	-111	425				
91	ORDNANCE SURVEY OF GREAT BRITAIN 1936	OGB-D (Wales)	AIRY1830	370	-108	434				
92	ROME 1940	MOD (Sardinia)	International 1924	-225	-65	9				
93	S-42 (PULKOVO 1942)	SPK-A (Hungary)	Krassovsky 1940	28	-121	-77				
94	S-42 (PULKOVO 1942)	SPK-B (Poland)	Krassovsky 1940	23 -	-124	-82				
95	S-42 (PULKOVO 1942)	SPK-C (Czechoslovakia)	Krassovsky 1940	26	-121	-78				
96	S-42 (PULKOVO 1942)	SPK-D (Latvia)	Krassovsky 1940	24	-124	-82				
97	S-42 (PULKOVO 1942)	SPK-E (Kazakhstan)	Krassovsky 1940	15	-130	-84				
98	S-42 (PULKOVO 1942)	SPK-F (Albania)	Krassovsky 1940	24	-130	-92				
99	S-42 (PULKOVO 1942)	SPK-G (Romania)	Krassovsky 1940	28	-121	-77				
100	S-42 (PULKOVO 1942)	SPK-0 (former Soviet Union (not standard designation))	Krassovsky 1940	26.3	-132.6	-76.3	-0.12	-0.22	-0.4	-0.9
101	S-JYSK	CCD (Czechoslovakia (prior to 1 Jan. 1993))	Bessel1841	589 76 480	589 76 480	589 76 480	Zeros			
102	CAPE CANAVERAL	CAC (Mean solution (Florida and Bahamas))	Clarke1866	-2	151	181				
103	NORTH AMERICAN 1927	NAS-C (Mean solution (CONUS))	Clarke1866	-8	160	176				

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List of DATUMs supported by JAVAD GNSS receivers

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				DX	DY	DZ	m	ϵ_x	ϵ_y	ϵ_z
104	NORTH AMERICAN 1927	NAS-B (Western united states: Arizona, Arkansas, California, Colorado, Idaho, Iowa, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington and Wyoming)	Clarke 1866	-8	159	175	Zeros			
105	NORTH AMERICAN 1927	NAS-A (Eastern united states: Alabama, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia and Wisconsin)	Clarke 1866	-9	161	179				
106	NORTH AMERICAN 1927	NAS-D (Alaska (excluding Aleutian Islands))	Clarke 1866	-5	135	172	Zeros			
107	NORTH AMERICAN 1927	NAS-V (Aleutian Islands (East of 180W))	Clarke 1866	-2	152	149				
108	NORTH AMERICAN 1927	NAS-W (Aleutian Islands (West of 180W))	Clarke 1866	2	204	105				
109	NORTH AMERICAN 1927	NAS-Q (Bahamas (excluding San Salvador Island))	Clarke 1866	-4	154	178				
110	NORTH AMERICAN 1927	NAS-R (San Salvador Island)	Clarke 1866	1	140	165				

RELATIONSHIPS BETWEEN LOCAL DATUMS AND WGS84										
##	Geodetic DATUM	DATUM ID	Reference Ellipsoid	Translation Vector (meters)			Scale (ppm) and Rotation Vector (seconds of arc)			
				DX	DY	DZ	m	ϵ_x	ϵ_y	ϵ_z
111	NORTH AMERICAN 1927	NAS-E (Canada: Mean solution (including Newfoundland))	Clarke 1866	-10	158	187	Zeros			
112	NORTH AMERICAN 1927	NAS-F (Canada: Alberta and British Columbia)	Clarke 1866	-7	162	188				
113	NORTH AMERICAN 1927	NAS-G (Eastern Canada: Newfoundland, New Brunswick, Nova Scotia and Quebec)	Clarke 1866	-22	160	190				
114	NORTH AMERICAN 1927	NAS-H (Canada: Manitoba and Ontario)	Clarke 1866	-9	157	184				
115	NORTH AMERICAN 1927	NAS-I (Canada: Northwest territories and Saskatchewan)	Clarke 1866	4	159	188				
116	NORTH AMERICAN 1927	NAS-J (Canada: Yukon)	Clarke 1866	-7	139	181				
117	NORTH AMERICAN 1927	NAS-O (Canal zone)	Clarke 1866	0	125	201				
118	NORTH AMERICAN 1927	NAS-P (Caribbean: Antigua Island, Barbados, Barbuda, Caicos Islands, Cuba, Dominican Republic, Grand Cayman, Jamaica and Turks Islands)	Clarke 1866	-3	142	183	Zeros			
119	NORTH AMERICAN 1927	NAS-N (Central America: Belize, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua)	Clarke 1866	0	125	194				
120	NORTH AMERICAN 1927	NAS-T (Cuba)	Clarke 1866	-9	152	178				
121	NORTH AMERICAN 1927	NAS-U (Greenland (Hayes Peninsula))	Clarke 1866	11	114	195				
122	NORTH AMERICAN 1927	NAS-L (Mexico)	Clarke 1866	-12	130	-190				
123	NORTH AMERICAN 1983	NAR-A (Alaska (excluding Aleutian Islands))	GRS1980	0	0	0				
124	NORTH AMERICAN 1983	NAR-E (Aleutian Islands)	GRS1980	-2	0	4				
125	NORTH AMERICAN 1983	NAR-B (Canada)	GRS1980	0	0	0				

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				DX	DY	DZ	m	ϵ_x	ϵ_y	ϵ_z
126	NORTH AMERICAN 1983	NAR-C (CONUS)	GRS1980	0	0	0	Zeros			
127	NORTH AMERICAN 1983	NAR-H (Hawaii)	GRS1980	1	1	-1				
128	NORTH AMERICAN 1983	NAR-D (Mexico and Central America)	GRS1980	0	0	0				
129	BOGOTA OBSERVATORY	BOO (Colombia)	International 1924	307	304	-318				
130	CAMPO INCHAUSPE 1969	CAI (Argentina)	International 1924	-148	136	90				
131	CHUA ASTRO	CHU (Paraguay)	International 1924	-134	229	-29				
132	CORREGO ALEGRE	COA (Brazil)	International 1924	-206	172	--6				
133	PROVISIONAL SOUTH AMERICAN 1956	PRP-M (Mean solution (Bolivia, Chile, Colombia, Ecuador, Guyana, Peru and Venezuela))	International 1924	-288	175	-376				
134	PROVISIONAL SOUTH AMERICAN 1956	PRP-A (Bolivia)	International 1924	-270	188	-388				
135	PROVISIONAL SOUTH AMERICAN 1956	PRP-B (Northern Chile (near 19 S))	International 1924	-270	183	-390		Zeros		
136	PROVISIONAL SOUTH AMERICAN 1956	PRP-C (Southern Chile (near 43 S))	International 1924	-305	243	-442				
137	PROVISIONAL SOUTH AMERICAN 1956	PRP-D (Colombia) -	International 1924	282	169	-371				
138	PROVISIONAL SOUTH AMERICAN 1956	PRP-E (Ecuador)	International 1924	-278	171	-367				
139	PROVISIONAL SOUTH AMERICAN 1956	PRP-F (Guyana)	International 1924	-298	159	-369				
140	PROVISIONAL SOUTH AMERICAN 1956	PRP-G (Peru)	International 1922	-279	175	-379				
141	PROVISIONAL SOUTH AMERICAN 1956	PRP-H (Venezuela)	International 1924	-295	173	-371				
142	PROVISIONAL SOUTH AMERICAN 1956	HIT (Southern Chile (near 53 S))	International 1924	16	196	93				

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				DX	DY	DZ	m	ϵ_x	ϵ_y	ϵ_z
143	SOUTH AMERICAN 1969	SAN-M (Mean solution (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Trinidad and Tobago, and Venezuela))	South American1969	-57	1	-41				
144	SOUTH AMERICAN 1969	SAN-A (Argentina)	South American1969	-62	-1	-37				
145	SOUTH AMERICAN 1969	SAN-B (Bolivia)	South American1969	-61	2	-48				
146	SOUTH AMERICAN 1969	SAN-C (Brazil)	South American1969	-60	-2	-41				
147	SOUTH AMERICAN 1969	SAN-D (Chile)	South American1969	-75	-1	-44				
148	SOUTH AMERICAN 1969	SAN-E (Colombia)	South American1969	-44	6	-36				
149	SOUTH AMERICAN 1969	SAN-F (Ecuador (excluding Galapagos Islands))	South American1969	-48	-3	-44				
150	SOUTH AMERICAN 1969	SAN-J (Baltra, Galapagos Islands)	South American1969	-47	26	-42				
151	SOUTH AMERICAN 1969	SAN-G (Guyana)	South American1969	-53	3	-47				
152	SOUTH AMERICAN 1969	SAN-H (Paraguay)	South American1969	-61	2	-61				
153	SOUTH AMERICAN 1969	SAN-I (Peru)	South American1969	-58	0	-58				
154	SOUTH AMERICAN 1969	SAN-K (Trinidad and Tobago)	South American1969	-45	-12	-45				
155	SOUTH AMERICAN 1969	SAN-L (Venezuela)	South American1969	-45	8	-45				
156	ZANDERIJ	ZAN (Suriname)	International 1924	-265	120	-265				
157	ANTIGUA ISLAND ASTRO 1943	AIA (Antigua, Leeward Islands)	Clarke1880	-270	13	62				
158	ASCENSION ISLAND 1958	ASC (Ascension Island)	International 1924	-205	107	53				
159	ASTRO DOS 71/4	SHB (St. Helena Island)	International 1924	-320	550	-494				
160	BERMUDA 1957	BER (Bermuda Islands)	Clarke1866	-73	213	296				
161	DECEPTION ISLAND	DID (Deception Island, Antarctica)	Clarke1880	260	12	-147				

Zeros

Zeros

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				DX	DY	DZ	m	ϵ_x	ϵ_y	ϵ_z
162	FORT THOMAS 1955	FOT (Nevis, St. Kitts, Leeward Islands)	Clarke 1880	-7	215	225	Zeros			
163	GRACIOSA BASE SW 1948	GRA (Faial, Graciosa, Pico, Sao Jorge and Terceira Islands (Azores))	International 1924	-104	167	-38				
164	ISTS 061 ASTRO 1968	ISG (South Georgia Islands)	International 1924	-794	119	-298				
165	L.C.5 ASTRO 1961	LCF (Cayman Brac Island)	Clarke 1866	42	124	147				
166	MONTERRAT ISLAND ASTRO 1958	ASM (Montserrat, Leeward Islands)	Clarke 1880	174	359	365				
167	NAPARIMA, BWI	NAP (Trinidad and Tobago)	International 1924	-10	375	165				
168	OBSERVATORIO METEOROLOGICO 1939	FLO (Corvo and Flores Islands (Azores))	International 1924	-425	-169	81	Zeros			
169	PICO DE LAS NIEVES	PLN (Canary Islands)	International 1924	-307	-92	127				
170	PORTO SANTO 1936	POS (Porto Santo and Madeira Islands)	International 1924	-499	-249	314				
171	PUERTO RICO	PUR (Puerto Rico and Virgin Islands)	Clarke 1866	11	72	-101				
172	QORNOQ	QUO (South Greenland)	International 1924	164	138	-189				
173	SAO BRAZ	SAO (Sao Miguel, Santa Maria Islands (Azores))	International 1924	-203	141	53				
174	SAPPER HILL 1943	SAP (East Falkland Island)	International 1924	-355	21	72				
175	SELVAGEM GRANDE 1938	SGM (Salvage Islands)	International 1924	-289	-124	60				
176	TRISTAN ASTRO 1968	TDC (Tristan da Cunha)	International 1924	-632	438	-609				
177	ANNA 1 ASTRO 1965	ANO (Cocos Islands)	Australian	-491	-22	435				
178	GAN 1970	GAA (Republic of Maldives)	International 1924	-133	-321	50				
179	ISTS 073 ASTRO 1969	IST (Diego Garcia) International 1924	International 1924	208	-435	-229				
180	KERGUELEN ISLAND 1949	KEG (Kerguelen Island)	International 1924	145	-187	103				
181	MAHE 1971	MIK (Mahe Island)	Clarke 1880	41	-220	-134				

RELATIONSHIPS BETWEEN LOCAL DATUMS AND WGS84											
##	Geodetic DATUM	DATUM ID	Reference Ellipsoid	Translation Vector (meters)			Scale (ppm) and Rotation Vector (seconds of arc)				
				DX	DY	DZ	m	ϵ_x	ϵ_y	ϵ_z	
182	REUNION	REU (Mascarene Islands)	International 1924	94	-948	-1262	Zeros				
183	AMERICAN SAMOA 1962	AMA (American Samoa Islands)	Clarke 1866	-115	118	426					
184	ASTRO BEACON "E" 1945	ATF (Iwo Jima)	International 1924	145	75	-272					
185	ASTRO TERN ISLAND (FRIG) 1961	TRN (Tern Island)	International 1924	114	-116	-333					
186	ASTRONOMICAL STATION 1952	ASQ (Marcus Island)	International 1924	124	-234	-25					
187	BELLEVUE (IGN)	IBE (Efate and Erromango Islands)	International 1924	-127	-769	472					
188	CANTO ASTRO 1966	CAO (Phoenix Islands)	International 1924	298	-304	-375					
189	CHATHAM ISLAND ASTRO 1971	CHI (Chatham Island (New Zealand))	International 1924	175	-38	113					
190	DOS 1968	GIZ (Gizo Island (New Georgia Islands))	International 1924	230	-199	-752					
191	EASTER ISLAND 1967	EAS (Easter Island)	International 1924	211	147	111					
192	GEODETIC DATUM 1949	GEO (New Zealand)	International 1924	84	-22	209					
193	GUAM 1963	GUA (Guam)	Clarke 1866	-100	-248	259					
194	GUX 1 ASTRO	DOB (Guadalcanal 1924 Island)	International 1924	252	-209	-751		Zeros			
195	JOHNSTON ISLAND 1961	JOH (Johnston Island)	International 1924	189	-79	-202					
196	KUSAIE ASTRO 1951	KUS (Caroline Islands, Fed. States of Micronesia)	International 1924	647	1777	-1124					
197	LUZON	LUZ-A (Philippines (Excluding Mindanao Island))	Clarke 1866	-133	-77	-51					
198	LUZON	LUZ-B (Mindanao Island)	Clarke 1866	-133	-79	-72					
199	MIDWAY ASTRO 1961	MID (Midway Islands)	International 1924	912	-58	1227					
200	OLD HAWAIIAN	OHA-M (Mean solution Hawaii)	Clarke 1866	61	-285	-181					
201	OLD HAWAIIAN	OHA-A (Hawaii)	Clarke 1866	89	-279	-183					
202	OLD HAWAIIAN	OHA-B (Kauai)	Clarke 1866	45	-290	-172					

Reference Ellipsoids and Local Datums

List of DATUMs supported by JAVAD GNSS receivers

RELATIONSHIPS BETWEEN LOCAL DATUMS AND WGS84										
##	Geodetic DATUM	DATUM ID	Reference Ellipsoid	Translation Vector (meters)			Scale (ppm) and Rotation Vector (seconds of arc)			
				DX	DY	DZ	m	ϵ_x	ϵ_y	ϵ_z
203	OLD HAWAIIAN	OHA-C (Maui)	Clarke1866	65	-290	-190	Zeros			
204	OLD HAWAIIAN	OHA-D (Oahu)	Clarke1866	58	-283	-182				
205	PITCAIRN ASTRO 1967	PIT (Pitcairn Island)	International 1924	185	165	42				
206	SANTO (DOS) 1965	SAE (Espirito Santo Island)	International 1924	170	42	84				
207	VITI LEVU 1916	MVS (Viti Levu Island (Fiji Islands))	Clarke1880	51	391	-36				
208	WAKE-ENIWETOK 1960	ENW (Marshall Islands)	Hough1960	102	52	-38				
209	WAKE ISLAND ASTRO 1952	WAK (Wake Atoll)	International 1924	276 -57 149	276 -57 149	276 -57 149				
210	BUKIT RIMPAH	BUR (Bangka and Belitung Islands (Indonesia))	Bessel1841	-384	664	-48				
211	CAMP AREA ASTRO	CAZ (Camp McMurdo Area, Antarctica)	International 1924	-104	-129	239				
212	EUROPEAN 1950	EUR-S (Iraq, Israel, Jordan, Kuwait, Lebanon, Saudi Arabia and Syria)	International 1924	-103	-106	-141				
213	GUNUNG SEGARA	GSE (Kalimantan (Indonesia))	Bessel1841	-403	684	41	Zeros			
214	HERAT NORTH	HEN (Afghanistan)	International 1924	-333	-222	114				
215	HERMANNNS-KOGEL	HER (Yugoslavia (Prior to 1990) Slovenia, Croatia, Bosnia and Herzegovina, Serbia)	Bessel1841	682	-203	480				
216	INDIAN	IND-P (Pakistan)	Everest PAK	283	682	231				
217	PULKOVO 1942	PUK (Russia)	Krassovsky 1940	28	-130	-95				
218	TANANARIVE OBSERVATORY 1925	TAN (Madagaskar)	International 1924	-189	-242	-91				
219	VOIROL 1874	VOI (Tunisia/Algeria)	Clarke1880	73	-247	227				
220	YACARE	YAC (Uruguay)	Clarke1866	-155	171	37				



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