

**世界測地系による海洋測地基準点座標値
GEOCENTRIC COORDINATES (WGS)
OF CONTROL POINTS
IN THE MARINE GEODETIC CONTROL NETWORK**

Summary – Geocentric coordinates based on MGC2000 of all the control points (mainland, first order and second order) in the marine geodetic control network were summarized.

Key words : marine geodetic controls - mainland control point - first order control points
- second order control points

海洋情報部では、領海等我が国の管轄海域の確定と、海洋における測位精度の向上を目的として、1980年から海洋測地網の整備を推進(Kubo,1988)し、日本周辺に設置した海洋測地基準点(水路部が構築した海洋測地網の基準点の総称)のうち、海洋測地網の骨幹を形成する一次基準点は、本土基準点(下里水路観測所)と結合され、主に離島に設置した二次基準点は、一次基準点と結合することによってその位置が求められてきた。その最新の成果は、海洋測地成果2000(MGC2000,epoch 1997.0)としてまとめられている(水路部観測報告衛星測地編第13号及び同第14号)。

先般、水路業務法が改正され、日本周辺海域の海図の測地系及び水路測量における経緯度の基準が平成14年4月1日以降世界測地系に変更されたことに伴い、海洋測地網の各基準点を世界測地系の位置でまとめたので、ここに報告する。

Table1. Geocentric coordinates at mainland control point in MGC2000:

Simosato Hydrographic Observatory

Site	Marker Specification	Specification Geodetic(WGS-84)	Geocentric
下里	標石 H0	= 33° 34 40.2785 = 135° 56 13.0386 楕円体高 = 97.536 m	x = -3822373.395 y = 3699359.882 z = 3507585.789

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Table2. Geocentric coordinates at first order control points in MGC2000

Site	Marker Specification	Geographic (WGS-84)	rectangular
南鳥島 Minamitori sima	標石 H0	= 24 ° 17 40.8461 = 153 ° 59 03.1965 楕円体高 = 35.278 m	x = -5227247.675 y = 2551281.259 z = 2608080.695
沖縄島 Okinawa sima	標石 H0	= 26 ° 07 54.7040 = 127 ° 42 56.9399 楕円体高 = 125.870 m	x = -3505311.316 y = 4532756.259 z = 2792240.382
対馬 Tusima	標石 H0	= 34 ° 11 47.3988 = 129 ° 17 37.0939 楕円体高 = 33.198 m	x = -3344472.555 y = 4087072.927 z = 3564514.454
隠岐諸島 Oki syoto	標石 H0	= 36 ° 10 48.3382 = 133 ° 19 09.7808 楕円体高 = 121.840 m	x = -3536200.090 y = 3749981.809 z = 3744411.980
十勝 Tokati	標石 H0	= 42 ° 19 04.1287 = 143 ° 19 42.4635 楕円体高 = 45.387 m	x = -3788459.561 y = 2820904.286 z = 4271802.927
硫黄島 Iwo sima	標石 H0	= 24 ° 46 18.3335 = 141 ° 18 20.2498 楕円体高 = 135.044 m	x = -4522774.999 y = 3622697.082 z = 2656196.105
稚内 Wakkanai	標石 H0	= 45 ° 23 09.5264 = 141 ° 43 47.8903 楕円体高 = 90.951 m	x = -3522919.010 y = 2779242.977 z = 4517642.842
八丈島 Hatizyo sima	標石 H0	= 33 ° 04 22.7710 = 139 ° 49 22.1357 楕円体高 = 263.392 m	x = -4087899.148 y = 3451753.248 z = 3460888.754
男鹿 Oga	標石 H0	= 40 ° 00 16.7548 = 139 ° 42 06.2919 楕円体高 = 68.682 m	x = -3731396.432 y = 3164258.620 z = 4078425.578
銚子 Tyosi	標石 H0	= 35 ° 42 17.8816 = 140 ° 51 12.4252 楕円体高 = 89.418 m	x = -4021332.395 y = 3273476.506 z = 3701710.662
美星 Bisei	標石 H0	= 34 ° 40 47.0957 = 133 ° 34 15.1901 楕円体高 = 548.746 m	x = -3619379.884 y = 3804592.527 z = 3609019.577
石垣島 Isigaki sima	標石 H0	= 24 ° 22 09.1610 = 124 ° 12 51.4835 楕円体高 = 100.117 m	x = -3268750.877 y = 4807239.403 z = 2615629.578
南大東島 Minamidaito	標石 H0	= 25 ° 49 45.1845 = 131 ° 13 47.4603 楕円体高 = 50.091 m	x = -3786182.793 y = 4320378.116 z = 2762065.910
枕崎 Makurazaki	標石 H0	= 31 ° 16 19.2025 = 130 ° 17 35.4855 楕円体高 = 62.023 m	x = -3528681.970 y = 4161881.600 z = 3291738.521
父島 Titi sima	標石 H0	= 27 ° 05 54.0399 = 142 ° 11 52.4770 楕円体高 = 52.317 m	x = -4489515.921 y = 3482687.787 z = 2887944.440

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Table3. Geocentric coordinates at second order control points in MGC2000
(off-lying islands)

Site	Marker Specification	Geographic (WGS-84)	rectangular
与那国島	標石 H0	= 24° 27 00.154 = 122° 56 04.189 橢円体高 = 80.618 m	x = -3158544.777 y = 4875927.241 z = 2623774.573
宮古島	標石 H0	= 24° 43 10.635 = 125° 28 06.766 橢円体高 = 49.382 m	x = -3363810.797 y = 4721369.161 z = 2650915.173
南小島	金属標 H1	= 25° 43 25.203 = 123° 32 56.759 橢円体高 = 159.020 m	x = -3177645.717 y = 4791971.671 z = 2751583.263
久場島	金属標 H1	= 25° 55 39.344 = 123° 40 48.963 橢円体高 = 63.166 m	x = -3183101.827 y = 4776422.641 z = 2771877.663
大正島	金属標 H1	= 25° 55 21.118 = 124° 33 35.764 橢円体高 = 108.487 m	x = -3256218.837 y = 4727226.721 z = 2771393.023
南硫黄島	金属標 H1	= 24° 14 37.978 = 141° 27 05.949 橢円体高 = 55.046 m	x = -4550905.724 y = 3626227.991 z = 2602959.669
沖の鳥島	金属標 H1	= 20° 25 22.832 = 136° 04 25.952 橢円体高 = 43.274 m	x = -4306786.924 y = 4148297.541 z = 2211658.189
西之島	金属標 H1	= 27° 14 49.175 = 140° 52 28.320 橢円体高 = 69.070 m	x = -4402061.174 y = 3580708.101 z = 2902605.579
久六島	金属標 H1	= 40° 32 02.945 = 139° 29 51.885 橢円体高 = 43.010 m	x = -3691193.734 y = 3152828.426 z = 4123270.804
北硫黄島	金属標 H1	= 25° 26 12.821 = 141° 17 34.615 橢円体高 = 49.739 m	x = -4497518.994 y = 3604101.021 z = 2722880.469
男女鳥島	金属標 H1	= 32° 14 36.963 = 128° 06 16.507 橢円体高 = 44.883 m	x = -3332169.033 y = 4248972.364 z = 3383332.890
男女女島	金属標 H1	= 31° 59 31.710 = 128° 21 00.964 橢円体高 = 139.005 m	x = -3359605.753 y = 4246333.954 z = 3359766.060
北大東島	天狗岩	= 25° 56 24.982 = 131° 19 20.320 橢円体高 = 72.323 m	x = -3789616.490 y = 4310243.729 z = 2773144.722
壱岐	戸屋	= 33° 46 13.620 = 129° 38 38.423 橢円体高 = 62.042 m	x = -3386271.383 y = 4086903.714 z = 3525343.840
硫黄鳥島	金属標 H2	= 27° 52 05.459 = 128° 13 59.566 橢円体高 = 101.726 m	x = -3492033.790 y = 4432294.199 z = 2963647.072
横当島	金属標 H2	= 28° 47 52.364 = 128° 59 04.336 橢円体高 = 53.345 m	x = -3519063.140 y = 4348079.769 z = 3054314.632
上ノ根島	金属標 H2	= 28° 50 07.608 = 129° 00 11.886 橢円体高 = 48.206 m	x = -3519220.950 y = 4345363.949 z = 3057960.302

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(off-lying islands) (continued)

Site	Marker Specification	Geographic (WGS-84)	rectangular
久米島	奥武島	= 26° 20 24.734 = 126° 49 31.442 橢円体高 = 45.698 m	x = -3428289.410 y = 4578455.989 z = 2812909.772
栗国島	栗国島	= 26° 34 48.934 = 127° 13 05.413 橢円体高 = 128.482 m	x = -3452471.150 y = 4545468.749 z = 2836757.732
波照間島	波照間	= 24° 03 49.545 = 123° 46 27.452 橢円体高 = 65.253 m	x = -3239434.317 y = 4843709.161 z = 2584760.113
鳩間島	鳩間	= 24° 28 15.027 = 123° 49 12.044 橢円体高 = 50.907 m	x = -3232976.827 y = 4825716.101 z = 2625859.203
仲ノ御神島	金属標 H1	= 24° 11 43.604 = 123° 33 41.927 橢円体高 = 55.887 m	x = -3218134.257 y = 4850722.861 z = 2598067.213
多良間島	遠見台	= 24° 40 18.853 = 124° 41 47.811 橢円体高 = 61.946 m	x = -3301161.137 y = 4768084.121 z = 2646118.223
黒島	黒島	= 24° 14 14.530 = 123° 59 40.722 橢円体高 = 38.897 m	x = -3253626.507 y = 4824672.301 z = 2602295.203
与論島	与論	= 27° 02 20.999 = 128° 23 51.530 橢円体高 = 50.714 m	x = -3531017.280 y = 4455410.909 z = 2882104.742
諏訪ノ瀬島	多角点 (17818)	= 29° 36 36.635 = 129° 42 03.038 橢円体高 = 157.124 m	x = -3545142.240 y = 4270016.519 z = 3132955.802
臥蛇島	金属標 H1	= 29° 54 41.985 = 129° 31 55.600 橢円体高 = 226.706 m	x = -3522031.190 y = 4267690.089 z = 3162002.582
沖ノ島	沖ノ島	= 34° 14 39.425 = 130° 06 20.753 橢円体高 = 274.451 m	x = -3400274.183 y = 4037130.914 z = 3569033.220
草垣上ノ島	南岩	= 30° 51 34.471 = 129° 27 59.685 橢円体高 = 106.904 m	x = -3483295.593 y = 4230600.854 z = 3252593.600
草垣島 S	金属標 H1	= 30° 49 52.636 = 129° 25 31.273 橢円体高 = 47.058 m	x = -3481239.243 y = 4234308.474 z = 3249870.340
小屋島	金属標 B	= 34° 13 52.659 = 130° 06 42.175 橢円体高 = 59.177 m	x = -3401101.143 y = 4037261.724 z = 3567720.770
魚釣島	金属標 F1	= 25° 44 32.983 = 123° 27 37.475 橢円体高 = 41.488 m	x = -3169666.547 y = 4796040.841 z = 2753411.233
魚釣島	金属標 F2	= 25° 44 58.102 = 123° 28 46.189 橢円体高 = 33.875 m	x = -3171075.097 y = 4794698.861 z = 2754104.183
南小島	金属標 F3	= 25° 43 20.630 = 123° 33 09.329 橢円体高 = 29.441 m	x = -3177906.977 y = 4791731.631 z = 2751400.233

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(off-lying islands) (continued)

Site	Marker Specification	Geographic (WGS-84)	rectangular
奥尻島	青苗 (旧点)	= 42° 03 25.311 = 139° 26 57.332 楕円体高 = 48.138 m	x = -3603719.364 y = 3083390.766 z = 4250341.514
松前大島	金属標 H1	= 41° 29 48.802 = 139° 20 51.094 楕円体高 = 98.521 m	x = -3629714.134 y = 3116812.126 z = 4203978.784
松前小島	小島	= 41° 21 27.754 = 139° 48 27.862 楕円体高 = 315.595 m	x = -3662569.194 y = 3094263.006 z = 4192531.984
久場島	金属標 F1	= 25° 55 38.276 = 123° 40 59.589 楕円体高 = 67.310 m	x = -3183357.927 y = 4776273.711 z = 2771849.913
久場島	金属標 F2	= 25° 55 24.485 = 123° 40 35.815 楕円体高 = 42.725 m	x = -3182898.007 y = 4776776.611 z = 2771457.473
舳倉島	金属標 H1	= 37° 51 04.679 = 136° 55 07.686 楕円体高 = 49.060 m	x = -3683055.983 y = 3444276.564 z = 3892454.790
津倉瀬	金属標 H1	= 31° 18 30.494 = 129° 44 24.595 楕円体高 = 54.495 m	x = -3487000.536 y = 4194126.579 z = 3295190.063
宇治島	金属標 H1	= 31° 12 09.812 = 129° 28 31.072 楕円体高 = 126.537 m	x = -3471481.316 y = 4214944.709 z = 3285204.603
見島	木ノ上	= 34° 46 25.659 = 131° 09 36.742 楕円体高 = 120.955 m	x = -3452005.116 y = 3948723.969 z = 3617350.973
礼文島	高山	= 45° 26 03.652 = 141° 03 10.717 楕円体高 = 195.782 m	x = -3486914.854 y = 2818313.686 z = 4521491.414
青ヶ島	青ヶ島	= 32° 27 30.402 = 139° 45 33.331 楕円体高 = 464.688m	x = -4112354.047 y = 3480224.060 z = 3403685.112
聳島	金属標 H1	= 27° 40 48.094 = 142° 07 56.907 楕円体高 = 92.950 m	x = -4462155.714 y = 3469633.481 z = 2945194.139
嫁島	嫁島	= 27° 29 52.622 = 142° 12 38.689 楕円体高 = 118.427 m	x = -4474293.854 y = 3469274.071 z = 2927323.529
伊豆鳥島	金属標 H1	= 30° 29 02.487 = 140° 17 22.216 楕円体高 = 131.124 m	x = -4232088.657 y = 3514857.470 z = 3216794.912
孀婦岩	(岩の概略 位置)	= 29° 47 38.5 = 140° 20 31.0 楕円体高 = 0 m	x = -4264783.8 y = 3535419.7 z = 3150581.0
天売島	天売島	= 44° 25 11.078 = 141° 17 48.463 楕円体高 = 213.709 m	x = -3561028.070 y = 2853248.474 z = 4441672.503
飛島	飛島	= 39° 11 02.119 = 139° 32 38.362 楕円体高 = 95.335 m	x = -3766876.832 y = 3212218.328 z = 4008224.775

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(off-lying islands) (continued)

Site	Marker Specification	Geographic (WGS-84)	rectangular
母島	静沢	= 26° 38 28.407 = 142° 09 19.293 橢円体高 = 232.605 m	x = -4505132.751 y = 3500164.582 z = 2842843.755
福江島	火岳	= 32° 39 37.412 = 128° 51 54.585 橢円体高 = 345.010 m	x = -3372872.998 y = 4185251.898 z = 3422497.382
甌島	城之峰	= 31° 38 26.619 = 129° 41 58.308 橢円体高 = 43.536 m	x = -3471732.572 y = 4181791.900 z = 3326604.221
種子島	上大久保	= 30° 40 52.522 = 130° 58 08.276 橢円体高 = 187.641 m	x = -3599695.409 y = 4145508.747 z = 3235648.141
薩摩硫黄島	金属標 H2	= 30° 46 24.778 = 130° 16 44.032 橢円体高 = 97.605 m	x = -3546077.094 y = 4184513.894 z = 3244397.904
薩摩黒島	黒島	= 30° 49 41.986 = 129° 56 14.977 橢円体高 = 652.446 m	x = -3519389.774 y = 4203550.065 z = 3249898.934
奄美大島	浦上	= 28° 23 16.863 = 129° 33 02.282 橢円体高 = 331.099 m	x = -3575849.263 y = 4330049.911 z = 3014561.754
喜界島	喜界島	= 28° 19 15.911 = 129° 58 47.616 橢円体高 = 230.872 m	x = -3610396.204 y = 4305770.389 z = 3007986.155
徳之島	塔原	= 27° 47 26.072 = 128° 53 32.508 橢円体高 = 111.691 m	x = -3545318.617 y = 4394960.033 z = 2956046.090
伊平屋島	ガンジガナ ー	= 27° 01 32.528 = 127° 57 44.997 橢円体高 = 127.973 m	x = -3497537.418 y = 4482688.257 z = 2880810.932
沖永良部島	玉城	= 27° 23 06.903 = 128° 38 04.943 橢円体高 = 125.419 m	x = -3538513.625 y = 4427116.735 z = 2916243.384
白瀬	金属標 H1	= 33° 10 58.755 = 128° 48 13.068 橢円体高 = 61.163 m	x = -3348487.261 y = 4164137.948 z = 3470994.766
須美寿島	(岩の概略 位置)	= 31° 26 18.8 = 140° 03 02.8 橢円体高 = 0 m	x = -4175583.5 y = 3497429.1 z = 3307476.1
ペヨネーヌ 列岩	金属鉾 H	= 31° 53 14.110 = 139° 55 02.549 橢円体高 = 45.742 m	x = -4147477.026 y = 3490350.951 z = 3349846.729

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佐渡島	大野亀	= 38° 19 15.542 = 138° 27 40.476 楕円体高 = 203.95 m	x = -3750452.399 y = 3322645.372 z = 3933584.920
佐渡島	宮ヶ原	= 37° 58 57.957 = 138° 14 03.525 楕円体高 = 58.07 m	x = -3754475.769 y = 3352845.063 z = 3903972.120
蘭難波島	金属鉄 H	= 33° 39 03.377 = 139° 17 56.143 楕円体高 = 43.960 m	x = -4029303.705 y = 3465879.039 z = 3514306.747

青字：修正情報にリンクしています。

(off-lying islands) (continued)

Site	Marker Specification	Geographic (WGS-84)	rectangular
銭洲	金属鉄 (高知大学)	= 33° 56 37.119 = 138° 49 03.294 楕円体高 = 45.976 m	x = -3986453.814 y = 3487716.294 z = 3541288.124
サンドン岩	金属標 H1	= 28° 45 30.869 = 129° 46 42.040 楕円体高 = 37.346 m	x = -3580296.956 y = 4300509.983 z = 3050488.761
口之島	多角点 (17173)	= 29° 59 36.209 = 129° 54 53.573 楕円体高 = 35.000 m	x = -3547454.055 y = 4240468.845 z = 3169756.773
宝島	宝島	= 29° 08 40.077 = 129° 12 28.988 楕円体高 = 323.170 m	x = -3524385.393 y = 4320083.714 z = 3088053.334
平瀬	金属標 H1	= 30° 02 32.258 = 130° 03 01.644 楕円体高 = 33.158 m	x = -3555731.998 y = 4229985.695 z = 3174449.734
小臥蛇島 (沖の瀬)	金属標 H1	= 29° 52 29.704 = 129° 37 06.042 楕円体高 = 33.830 m	x = -3529638.225 y = 4263819.345 z = 3158375.114
久場島	金属標 H1	= 26° 10 16.551 = 127° 14 00.069 楕円体高 = 33.955 m	x = -3465804.933 y = 4560514.424 z = 2796118.400

Table3 中の各三角点 及び多角点上の経緯度値及び楕円体高値は、国土地理院の三角点・多角点情報の値と観測手法及び位置決定に至る計算手法が異なるため厳密には一致しません。このため、海図補正に関わる水路測量以外の公共測量においては、国土地理院の三角点・多角点情報の値を使用して下さい。

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Table4. Geocentric coordinates at second order control points in MGC2000
(in land)

Site	Marker Specification	Geographic (WGS-84)	rectangular
三鷹	金属標 T1	= 35° 40 29.957 = 139° 32 15.287 楕円体高 = 106.187 m	x = -3946585.703 y = 3366228.404 z = 3699018.860
美星	金属標 H1	= 34° 40 47.794 = 133° 34 16.520 楕円体高 = 551.853 m	x = -3619397.733 y = 3804562.174 z = 3609039.040
白浜	旧測台	= 34° 42 57.974 = 138° 59 10.067 楕円体高 = 213.099 m	x = -3960337.053 y = 3444352.034 z = 3612144.550
倉敷	金属標 H1	= 34° 35 31.672 = 133° 46 11.414 楕円体高 = 47.524 m	x = -3636105.343 y = 3795693.504 z = 3600737.090
門司	金属標 H1	= 33° 56 38.768 = 130° 57 31.448 楕円体高 = 81.003 m	x = -3472127.093 y = 4000039.964 z = 3541349.830
網走	北能取山	= 44° 06 11.112 = 144° 09 00.130 楕円体高 = 101.647 m	x = -3718482.743 y = 2686786.784 z = 4416394.730
象潟	大汐越	= 39° 13 38.461 = 139° 54 48.974 楕円体高 = 44.092 m	x = -3785158.219 y = 3185863.509 z = 4011928.429
水沢	基台	= 39° 08 06.365 = 141° 08 00.460 楕円体高 = 112.093 m	x = -3857202.864 y = 3108652.816 z = 4004032.674
小樽	金属標	= 43° 11 58.961 = 141° 00 12.035 楕円体高 = 67.718 m	x = -3619217.724 y = 2930435.106 z = 4343748.164

Table4 中の各三角点 上の経緯度値及び楕円体高値は、国土地理院の三角点・多角点情報の値と観測手法及び位置決定に至る計算手法が異なるため厳密には一致しません。このため、海図補正に関わる水路測量以外の公共測量においては、国土地理院の三角点・多角点情報の値を使用して下さい。

**GEOCENTRIC COORDINATES (WGS)
OF CONTROL POINTS
IN THE MARINE GEODETIC CONTROL NETWORK**

Table5. Geocentric coordinates at second order control points in MGC2000
(added later for crustal movement observation)

Site	Marker Specification	Geographic (WGS-84)	rectangular
伊豆大島	固定観測点	= 34° 46 53.001 = 139° 22 57.631 橢円体高 = 155.418 m	x = -3980910.902 y = 3414141.853 z = 3618062.683
御坊	移動点 H	= 33° 52 54.381 = 135° 03 40.847 橢円体高 = 166.766 m	x = -3752185.200 y = 3744158.898 z = 3535660.024
南淡	移動点 H	= 34° 16 08.366 = 134° 45 09.316 橢円体高 = 70.704 m	x = -3714954.826 y = 3747177.704 z = 3571183.724
土庄	移動点 H	= 34° 29 10.877 = 134° 11 31.565 橢円体高 = 51.327 m	x = -3668619.907 y = 3773565.334 z = 3591073.436
神津島	移動点 H	= 34° 11 26.000 = 139° 07 25.319 橢円体高 = 139.560 m	x = -3993488.946 y = 3456378.329 z = 3564028.834
新島	移動点 H	= 34° 22 08.916 = 139° 15 31.246 橢円体高 = 74.250 m	x = -3993125.596 y = 3439643.271 z = 3580361.487
利島	移動点 H	= 34° 31 52.593 = 139° 16 34.148 橢円体高 = 71.597 m	x = -3986461.972 y = 3431786.106 z = 3595191.269
御蔵島	移動点 H	= 33° 53 50.724 = 139° 35 44.904 橢円体高 = 178.108 m	x = -4035719.003 y = 3435175.432 z = 3537107.456
三宅島	移動点 H	= 34° 05 37.153 = 139° 33 58.153 橢円体高 = 62.525 m	x = -4024604.126 y = 3429308.128 z = 3555089.198

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