

Hourly Astronomical Tide Level at Ayukawa port, Miyagi Pref. in 2011 (unit: centimeter) Issued by JMA

Date	Moon	Time																								
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1-Jun	W		34	45	50	47	33	10	-17	-45	-66	-78	-76	-63	-40	-13	12	30	39	39	32	21	12	7	8	16
2-Jun	Th	New Moon	29	42	52	54	45	26	-1	-31	-58	-77	-84	-77	-58	-32	-4	20	36	42	38	29	18	10	7	12
3-Jun	F		22	37	50	57	54	40	17	-13	-44	-69	-83	-85	-73	-50	-22	6	27	39	42	35	25	15	8	8
4-Jun	Sa		16	29	43	54	58	51	33	6	-24	-53	-75	-85	-81	-65	-39	-11	14	32	40	39	31	20	11	7
5-Jun	Su		10	19	33	47	55	55	44	24	-4	-33	-59	-76	-81	-73	-53	-28	-1	21	35	39	35	26	16	8
6-Jun	M		6	11	21	35	46	52	49	36	15	-11	-38	-59	-71	-72	-61	-41	-16	8	26	36	37	31	21	11
7-Jun	Tu		4	3	9	20	32	41	45	40	27	8	-15	-37	-54	-62	-59	-47	-27	-5	16	31	37	35	27	16
8-Jun	W		6	0	-1	5	14	24	32	35	31	20	4	-15	-32	-44	-49	-44	-32	-13	6	23	34	37	33	23
9-Jun	Th	First Quarter	11	0	-7	-8	-4	3	13	20	24	23	15	4	-9	-22	-31	-33	-28	-17	-1	16	30	38	38	32
10-Jun	F		20	7	-6	-15	-19	-17	-11	-2	7	14	17	15	8	0	-10	-16	-18	-14	-3	11	26	37	42	40
11-Jun	Sa		31	17	1	-15	-27	-33	-33	-27	-16	-4	7	14	18	16	11	3	-3	-5	-1	8	21	34	43	46
12-Jun	Su		42	32	15	-5	-25	-40	-49	-50	-42	-29	-13	3	16	23	25	22	15	9	6	9	17	29	41	49
13-Jun	M		51	46	32	12	-12	-36	-54	-64	-64	-55	-38	-17	3	20	31	34	30	23	16	13	15	24	35	47
14-Jun	Tu		55	56	49	32	8	-20	-47	-67	-77	-75	-63	-42	-17	7	26	37	40	35	27	19	16	19	28	40
15-Jun	W		53	61	61	51	31	3	-28	-56	-76	-85	-80	-64	-40	-12	13	32	42	43	37	27	19	16	20	30
16-Jun	Th	Full Moon	44	58	66	64	50	27	-4	-36	-64	-82	-88	-80	-60	-33	-4	21	38	45	43	34	23	15	14	20
17-Jun	F		32	48	62	68	63	47	20	-12	-43	-69	-84	-85	-73	-50	-22	6	28	41	45	39	29	18	10	11
18-Jun	Sa		19	34	50	63	67	59	40	12	-19	-48	-70	-80	-76	-60	-36	-8	17	35	43	42	34	22	11	5
19-Jun	Su		8	19	35	51	61	62	51	30	3	-26	-51	-67	-71	-63	-44	-20	6	27	39	43	38	27	14	4
20-Jun	M		1	6	18	34	48	56	53	41	20	-5	-30	-49	-60	-58	-46	-26	-3	19	35	42	41	33	20	8
21-Jun	Tu		-1	-2	4	17	31	42	47	42	29	10	-11	-31	-44	-48	-43	-28	-9	12	29	40	43	38	27	14
22-Jun	W		2	-5	-5	2	13	25	34	36	31	19	3	-13	-27	-35	-34	-26	-11	7	24	37	43	42	34	22
23-Jun	Th	Last Quarter	9	-3	-9	-9	-3	7	16	24	25	21	12	0	-11	-19	-22	-19	-10	4	19	33	41	44	39	30
24-Jun	F		17	4	-7	-13	-14	-10	-2	7	14	16	15	9	2	-4	-9	-9	-5	4	16	28	38	43	43	37
25-Jun	Sa		26	13	0	-12	-20	-22	-19	-12	-3	6	11	13	12	9	5	3	3	7	14	24	34	41	44	42
26-Jun	Su		35	24	9	-6	-20	-29	-32	-29	-21	-10	1	10	15	18	17	15	13	12	15	21	29	37	43	45
27-Jun	M		43	35	21	5	-13	-29	-40	-43	-39	-28	-14	1	13	22	26	26	23	20	19	20	25	32	40	46
28-Jun	Tu		48	44	34	18	-2	-23	-41	-52	-54	-47	-33	-14	4	20	30	34	33	29	24	21	22	27	35	44
29-Jun	W		50	52	46	33	13	-11	-35	-54	-64	-63	-52	-33	-10	11	28	38	41	37	31	24	21	23	29	39
30-Jun	Th		49	56	56	48	30	6	-22	-47	-66	-73	-68	-52	-29	-3	20	37	45	44	38	29	22	19	23	31

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Date	Moon	Time																								
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1-Jul	F	New Moon	43	55	61	59	47	25	-3	-33	-59	-75	-79	-69	-48	-21	7	30	44	48	44	35	25	18	17	22
2-Jul	Sa		34	48	60	65	60	44	18	-13	-44	-68	-80	-79	-64	-39	-10	18	38	49	49	41	29	18	12	13
3-Jul	Su		22	37	52	64	67	58	38	10	-22	-52	-72	-80	-73	-54	-26	3	29	45	51	46	35	21	11	6
4-Jul	M		10	22	38	54	64	64	52	30	1	-29	-55	-71	-73	-61	-39	-10	17	38	50	50	41	27	12	2
5-Jul	Tu		0	7	21	37	52	60	57	44	22	-5	-32	-53	-63	-60	-44	-20	6	30	46	52	46	34	17	3
6-Jul	W		-6	-6	3	17	33	46	52	48	35	15	-9	-30	-45	-49	-42	-24	-1	22	41	51	51	41	25	8
7-Jul	Th		-6	-13	-12	-4	10	24	36	41	37	26	10	-8	-23	-32	-31	-21	-4	17	36	50	54	48	35	18
8-Jul	F	First Quarter	0	-13	-20	-19	-12	0	13	23	28	27	20	9	-2	-12	-16	-12	-1	14	32	46	55	54	45	30
9-Jul	Sa		12	-5	-19	-27	-28	-22	-12	0	10	17	20	18	13	7	2	1	5	15	28	42	53	57	54	43
10-Jul	Su		28	9	-9	-24	-34	-37	-34	-25	-13	-1	9	16	20	20	18	16	15	19	27	37	48	55	58	54
11-Jul	M		43	28	9	-11	-29	-42	-47	-45	-37	-24	-9	5	17	25	29	28	26	25	27	32	40	49	56	59
12-Jul	Tu		55	45	29	9	-14	-34	-50	-57	-56	-46	-31	-12	7	22	33	37	36	33	29	29	33	40	49	57
13-Jul	W		61	59	49	32	8	-17	-41	-58	-66	-63	-51	-32	-10	12	30	41	44	40	34	28	26	30	38	48
14-Jul	Th		59	65	63	52	32	6	-23	-48	-65	-72	-66	-51	-27	-2	21	39	47	47	40	30	23	20	25	35
15-Jul	F	Full Moon	49	62	68	66	53	30	1	-29	-54	-70	-73	-63	-43	-17	10	32	46	50	45	35	23	15	14	21
16-Jul	Sa		34	51	65	71	66	50	24	-7	-36	-59	-71	-69	-54	-30	-3	23	42	51	50	40	26	13	6	8
17-Jul	Su		18	35	53	66	70	62	42	15	-15	-42	-60	-66	-58	-39	-13	14	36	50	52	45	32	16	4	-1
18-Jul	M		4	18	37	54	65	66	54	32	5	-23	-45	-57	-56	-43	-20	6	30	47	54	50	38	21	6	-5
19-Jul	Tu		-6	3	19	38	53	61	57	43	21	-4	-27	-43	-48	-41	-23	0	24	43	53	54	44	29	11	-4
20-Jul	W		-11	-9	3	19	37	49	53	46	31	10	-10	-27	-36	-34	-22	-3	19	39	52	56	50	36	19	2
21-Jul	Th		-10	-14	-10	3	18	33	42	43	35	20	4	-12	-22	-24	-17	-3	16	34	49	56	54	43	28	10
22-Jul	F		-5	-14	-16	-10	1	14	26	33	32	25	13	1	-8	-12	-9	0	14	31	45	54	55	49	36	20
23-Jul	Sa	Last Quarter	4	-9	-17	-18	-13	-3	8	18	23	23	18	11	5	0	1	6	15	28	40	50	54	52	43	30
24-Jul	Su		15	0	-12	-19	-21	-17	-9	0	9	15	17	16	14	12	11	13	19	27	36	45	51	53	48	39
25-Jul	M		27	12	-2	-15	-23	-27	-25	-18	-8	2	10	16	19	21	21	22	24	28	34	40	47	51	51	47
26-Jul	Tu		38	26	11	-5	-19	-30	-35	-34	-27	-15	-3	9	19	26	30	31	31	31	32	36	41	46	50	51
27-Jul	W		48	40	27	10	-9	-27	-40	-46	-44	-35	-20	-3	13	26	35	38	38	35	33	32	35	39	45	51
28-Jul	Th		54	52	44	28	8	-15	-36	-51	-57	-53	-40	-20	1	21	35	44	45	41	36	31	29	31	37	46
29-Jul	F		55	60	58	47	28	3	-24	-47	-62	-66	-58	-40	-16	9	31	45	50	47	40	31	24	22	27	37
30-Jul	Sa		49	61	66	63	49	25	-4	-34	-57	-70	-70	-57	-34	-6	21	42	52	53	45	33	22	15	15	23
31-Jul	Su	New Moon	37	53	66	71	65	47	20	-12	-42	-64	-73	-68	-49	-21	9	34	51	57	51	38	23	10	4	7

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Date	Moon	Time																								
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1-Aug	M	19	38	56	70	73	64	43	13	-20	-48	-65	-69	-57	-34	-4	25	47	58	57	45	27	9	-4	-7	
2-Aug	Tu	0	17	38	57	70	70	58	35	6	-24	-48	-59	-57	-40	-14	16	41	57	61	52	35	14	-5	-16	
3-Aug	W	-16	-5	14	36	55	65	63	50	27	0	-25	-42	-46	-38	-18	9	35	55	63	59	44	23	0	-17	
4-Aug	Th	-25	-22	-9	11	32	48	56	52	39	20	-2	-20	-30	-28	-15	6	30	51	64	65	54	35	11	-11	
5-Aug	F	-26	-31	-26	-13	6	24	38	43	40	30	15	0	-11	-14	-8	7	27	47	62	67	62	47	26	3	
6-Aug	Sa	First Quarter	-17	-30	-34	-29	-17	-1	14	25	30	29	23	14	6	2	3	12	26	43	57	66	66	57	41	20
7-Aug	Su		-1	-19	-31	-35	-31	-23	-10	2	12	19	21	20	18	15	15	19	27	39	51	61	65	63	53	37
8-Aug	M		19	0	-17	-29	-35	-35	-30	-20	-9	2	11	18	22	24	25	27	30	36	44	52	59	61	59	51
9-Aug	Tu		38	22	4	-13	-28	-37	-40	-38	-29	-18	-4	9	20	28	33	34	34	35	37	42	48	54	57	57
10-Aug	W		52	42	27	9	-11	-29	-41	-47	-45	-36	-22	-4	13	27	37	41	40	36	33	32	35	41	48	55
11-Aug	Th		58	56	47	32	11	-12	-33	-47	-53	-50	-38	-19	2	21	37	45	46	40	33	26	23	26	34	45
12-Aug	F		56	62	61	52	34	9	-16	-38	-53	-57	-50	-33	-11	13	33	46	51	46	36	24	15	13	18	30
13-Aug	Sa		45	59	67	65	53	31	4	-23	-45	-56	-56	-44	-23	3	27	45	54	52	41	26	12	4	4	13
14-Aug	Su	Full Moon	30	48	63	70	65	49	24	-4	-30	-49	-55	-49	-31	-7	20	41	54	56	47	31	13	-1	-7	-2
15-Aug	M		12	32	52	67	70	61	41	15	-13	-36	-48	-48	-36	-14	12	37	53	59	53	38	18	0	-13	-14
16-Aug	Tu		-5	14	36	56	67	66	53	31	5	-20	-37	-42	-35	-17	7	31	51	60	58	45	26	4	-13	-21
17-Aug	W		-18	-3	18	40	56	63	58	42	20	-4	-22	-32	-30	-18	3	27	47	60	62	52	34	12	-8	-22
18-Aug	Th		-25	-17	0	21	41	53	55	47	30	10	-8	-20	-22	-14	2	23	44	58	63	57	42	21	0	-18
19-Aug	F		-27	-25	-14	4	23	39	47	46	36	21	5	-7	-12	-9	4	21	40	55	63	61	49	31	10	-9
20-Aug	Sa		-23	-28	-23	-11	6	22	34	38	35	26	15	4	-2	-1	7	20	36	51	60	62	54	40	21	2
21-Aug	Su		-14	-24	-26	-21	-9	4	17	26	29	27	20	13	9	8	12	21	34	46	56	60	57	47	31	14
22-Aug	M	Last Quarter	-2	-15	-23	-25	-20	-11	0	10	18	21	21	19	17	17	19	24	32	42	50	55	56	51	40	27
23-Aug	Tu		12	-2	-14	-22	-26	-23	-17	-8	2	11	17	21	23	24	26	29	33	38	44	49	52	51	46	38
24-Aug	W		27	13	-1	-14	-24	-30	-31	-25	-16	-5	7	17	25	30	33	35	36	37	39	42	45	48	48	46
25-Aug	Th		40	31	17	1	-15	-29	-38	-40	-35	-23	-8	7	22	33	39	41	40	37	34	34	36	40	45	49
26-Aug	F		50	47	37	21	1	-20	-37	-48	-50	-42	-27	-7	14	31	42	47	45	39	32	26	25	28	35	45
27-Aug	Sa		53	57	55	43	23	-2	-26	-46	-57	-56	-44	-23	1	24	42	51	51	43	32	20	13	13	19	32
28-Aug	Su		47	60	66	62	47	22	-6	-33	-53	-61	-56	-38	-13	15	38	53	56	49	35	18	5	-2	1	13
29-Aug	M	New Moon	31	51	66	72	66	47	19	-12	-38	-55	-59	-48	-25	4	31	52	60	57	42	21	1	-13	-17	-10
30-Aug	Tu		8	32	54	70	74	65	43	14	-16	-39	-51	-48	-32	-5	24	48	63	63	51	29	4	-17	-30	-30
31-Aug	W		-17	6	32	55	70	71	59	37	9	-17	-35	-40	-31	-10	18	44	63	69	61	41	14	-13	-33	-42

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Date	Moon	Time																								
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1-Sep	Th	-38	-21	4	31	53	64	63	50	29	6	-14	-25	-23	-9	14	39	61	72	69	54	28	0	-26	-44	
2-Sep	F	-49	-41	-21	3	28	46	55	52	40	23	5	-7	-11	-3	14	36	57	71	74	65	44	17	-11	-34	
3-Sep	Sa	-48	-49	-39	-21	1	22	36	42	40	31	19	8	3	5	16	33	51	67	74	71	57	34	8	-16	
4-Sep	Su	-35	-45	-45	-36	-20	-3	13	25	30	29	24	19	14	14	19	31	45	59	69	71	64	48	28	6	
5-Sep	M	First Quarter	-15	-31	-39	-39	-33	-21	-8	4	14	20	22	23	22	22	24	30	39	49	59	64	63	56	42	26
6-Sep	Tu		8	-9	-23	-31	-34	-32	-25	-15	-4	6	15	21	26	28	30	32	35	40	46	52	55	55	50	41
7-Sep	W		29	14	-1	-15	-26	-32	-33	-29	-20	-9	4	16	26	32	35	35	34	33	34	37	41	45	48	47
8-Sep	Th		43	35	22	6	-10	-24	-34	-37	-33	-23	-9	7	22	34	40	41	36	30	25	23	25	31	38	45
9-Sep	F		49	49	41	28	10	-10	-26	-37	-40	-34	-20	-2	17	33	43	46	42	32	21	13	10	13	23	35
10-Sep	Sa		47	54	55	46	30	9	-13	-31	-40	-40	-30	-12	9	30	45	51	48	37	22	7	-2	-3	5	20
11-Sep	Su		37	52	60	59	47	28	4	-19	-35	-41	-36	-20	1	24	43	54	54	44	27	7	-8	-15	-12	1
12-Sep	M	Full Moon	21	42	58	64	60	44	21	-3	-24	-36	-36	-25	-5	18	40	55	59	51	34	12	-9	-23	-26	-16
13-Sep	Tu		3	26	48	62	65	56	37	13	-10	-26	-32	-26	-10	13	36	54	62	57	42	19	-5	-24	-34	-31
14-Sep	W		-15	8	33	53	64	62	49	28	5	-14	-24	-23	-11	9	32	52	63	62	50	28	2	-21	-36	-40
15-Sep	Th		-30	-10	15	39	55	61	55	39	19	0	-13	-17	-10	7	28	48	62	65	56	37	12	-13	-33	-43
16-Sep	F		-40	-26	-3	22	42	54	55	45	29	12	-2	-9	-6	6	25	44	59	66	61	46	23	-3	-25	-40
17-Sep	Sa		-44	-36	-18	4	26	42	49	46	35	21	8	0	0	8	23	40	55	64	64	53	33	10	-14	-32
18-Sep	Su		-41	-40	-29	-12	9	26	38	41	36	27	17	9	7	11	22	36	50	60	63	57	42	22	0	-20
19-Sep	M		-33	-39	-35	-23	-7	9	23	31	33	29	22	16	14	16	22	33	45	55	59	57	48	32	13	-5
20-Sep	Tu	Last Quarter	-21	-31	-34	-30	-20	-7	6	17	24	26	25	22	21	21	25	32	40	48	53	54	50	40	26	10
21-Sep	W		-5	-18	-27	-30	-28	-21	-11	0	10	18	23	25	27	27	29	32	36	41	45	48	47	43	35	25
22-Sep	Th		12	-1	-13	-23	-30	-31	-26	-18	-6	6	16	25	30	33	34	34	34	34	36	37	40	41	40	36
23-Sep	F		29	19	6	-9	-22	-32	-36	-33	-24	-10	5	20	31	38	40	38	34	29	25	24	27	31	37	41
24-Sep	Sa		42	37	27	12	-6	-24	-36	-42	-38	-26	-9	11	28	40	46	44	36	26	16	10	10	15	24	36
25-Sep	Su		46	50	47	36	17	-6	-26	-41	-45	-38	-22	-1	22	40	50	51	42	27	11	-2	-8	-6	4	21
26-Sep	M		39	53	60	56	41	18	-7	-29	-42	-43	-32	-11	14	37	52	57	50	34	12	-9	-23	-28	-21	-3
27-Sep	Tu	New Moon	20	43	60	67	61	43	18	-8	-28	-38	-34	-18	6	32	52	63	60	44	20	-7	-30	-44	-44	-31
28-Sep	W		-7	21	47	65	70	61	41	16	-8	-24	-28	-19	1	26	50	66	68	57	33	3	-27	-50	-60	-54
29-Sep	Th		-36	-8	23	49	65	67	56	37	14	-6	-16	-14	0	22	47	66	74	69	49	19	-14	-44	-63	-68
30-Sep	F		-58	-35	-6	24	47	60	59	48	31	13	-1	-5	2	19	42	63	76	76	63	38	5	-27	-53	-68

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Hourly Astronomical Tide Level at Ayukawa port, Miyagi Pref. in 2011 (unit: centimeter) Issued by JMA

Date	Moon	Time																								
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1-Oct	Sa	-69	-55	-32	-4	23	42	51	49	39	26	13	6	7	18	36	56	72	78	72	54	26	-5	-34	-55	
2-Oct	Su	-65	-62	-48	-26	-2	19	34	40	39	32	23	16	14	19	31	48	63	73	74	63	43	17	-10	-34	
3-Oct	M	-50	-56	-52	-39	-22	-2	14	25	30	30	27	23	20	21	28	39	51	62	67	64	53	34	13	-9	
4-Oct	Tu	First Quarter	-28	-40	-45	-41	-32	-18	-4	9	18	24	26	26	25	24	26	32	39	48	54	56	53	43	29	13
5-Oct	W		-4	-18	-28	-33	-33	-27	-17	-6	5	15	22	27	29	29	28	28	30	33	38	42	44	42	37	28
6-Oct	Th		17	5	-8	-18	-25	-27	-25	-17	-7	5	17	26	32	34	33	29	24	22	22	24	28	32	35	35
7-Oct	F		31	24	13	0	-12	-21	-25	-24	-16	-4	9	23	33	39	39	33	24	15	9	7	10	17	25	33
8-Oct	Sa		37	37	31	19	5	-10	-21	-25	-22	-13	2	18	33	42	45	40	29	15	2	-6	-7	-2	10	24
9-Oct	Su		36	43	44	36	23	5	-11	-21	-24	-19	-5	12	30	44	50	48	36	19	0	-14	-22	-20	-9	8
10-Oct	M		27	42	50	49	39	22	3	-13	-21	-21	-11	6	25	42	53	54	45	26	4	-17	-31	-35	-27	-10
11-Oct	Tu		12	34	49	55	51	37	18	0	-14	-18	-13	1	20	40	54	59	52	35	11	-14	-34	-45	-43	-29
12-Oct	W	Full Moon	-6	20	42	55	58	49	33	14	-3	-12	-12	-2	16	36	53	61	59	45	21	-6	-32	-49	-54	-45
13-Oct	Th		-25	2	28	49	58	56	44	26	9	-4	-8	-2	12	31	50	62	63	53	32	4	-24	-46	-58	-56
14-Oct	F		-41	-16	12	36	52	57	50	37	20	6	-2	0	10	27	46	60	66	60	42	16	-13	-39	-56	-61
15-Oct	Sa		-53	-33	-6	20	41	52	52	43	29	15	6	3	10	24	41	56	65	64	51	28	1	-27	-48	-59
16-Oct	Su		-58	-45	-22	3	26	42	48	45	35	23	13	8	11	21	36	51	62	64	56	39	14	-12	-36	-52
17-Oct	M		-57	-51	-35	-13	9	28	39	42	37	29	20	14	14	20	31	45	56	61	58	46	26	3	-21	-39
18-Oct	Tu		-50	-51	-43	-27	-7	12	27	35	36	32	25	20	18	21	28	38	48	55	56	49	35	16	-4	-23
19-Oct	W		-38	-45	-44	-35	-21	-5	11	23	30	31	29	26	23	23	26	33	40	46	49	48	40	27	11	-6
20-Oct	Th	Last Quarter	-21	-33	-38	-38	-31	-19	-5	9	20	27	30	30	29	27	27	28	31	35	39	40	38	33	23	11
21-Oct	F		-2	-15	-25	-32	-33	-29	-20	-7	7	19	28	33	34	32	29	26	24	23	24	27	29	31	29	25
22-Oct	Sa		17	7	-6	-18	-27	-31	-28	-20	-7	8	22	33	38	38	34	27	18	12	8	9	13	19	26	31
23-Oct	Su		31	27	17	4	-11	-23	-29	-27	-18	-3	14	30	41	45	41	31	18	4	-7	-11	-9	-1	12	25
24-Oct	M		36	41	38	27	11	-6	-20	-26	-23	-12	6	25	41	50	50	40	23	3	-16	-29	-33	-26	-12	8
25-Oct	Tu		28	44	51	48	35	17	-2	-16	-21	-15	-1	19	39	53	58	52	34	9	-17	-39	-51	-52	-40	-18
26-Oct	W		8	33	51	58	54	39	20	1	-11	-13	-4	14	35	54	65	63	49	24	-8	-38	-60	-70	-66	-48
27-Oct	Th	New Moon	-20	10	37	56	61	55	40	21	4	-4	-2	11	31	52	68	73	64	42	10	-25	-55	-76	-82	-72
28-Oct	F		-49	-18	14	40	56	60	52	37	20	8	4	10	26	46	65	76	75	59	32	-3	-39	-67	-84	-85
29-Oct	Sa		-71	-45	-14	17	40	53	54	46	33	19	11	11	22	39	58	74	79	72	51	20	-15	-47	-72	-83
30-Oct	Su		-80	-63	-37	-8	19	38	47	47	39	28	19	15	19	31	48	64	75	76	64	41	10	-22	-50	-69
31-Oct	M		-76	-69	-52	-28	-3	19	34	40	39	33	25	19	18	24	36	51	64	70	67	53	30	3	-24	-46

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Hourly Astronomical Tide Level at Ayukawa port, Miyagi Pref. in 2011 (unit: centimeter) Issued by JMA

Date	Moon	Time																								
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1-Nov	Tu	-60	-63	-55	-39	-19	2	19	30	35	34	29	23	19	20	26	37	48	57	60	54	41	21	-1	-22	
2-Nov	W	-38	-48	-49	-41	-28	-11	5	19	28	32	31	28	23	20	20	24	32	40	45	46	41	31	16	0	
3-Nov	Th	First Quarter	-16	-28	-35	-35	-29	-18	-5	9	20	28	32	32	28	23	19	17	18	22	27	31	33	30	24	15
4-Nov	F		4	-7	-17	-23	-24	-20	-11	0	12	23	31	35	34	30	23	15	10	7	8	12	17	22	23	22
5-Nov	Sa		18	10	2	-7	-14	-16	-13	-6	5	18	29	36	39	37	30	19	7	-2	-7	-6	-1	7	15	22
6-Nov	Su		25	24	18	10	0	-8	-11	-8	0	12	24	36	43	44	38	26	11	-5	-17	-22	-20	-12	1	14
7-Nov	M		25	31	31	25	15	4	-4	-7	-3	6	19	33	44	49	46	35	18	-2	-21	-33	-37	-31	-17	1
8-Nov	Tu		18	32	39	38	30	18	6	-2	-3	2	14	29	42	51	53	44	27	5	-19	-38	-48	-48	-36	-17
9-Nov	W		6	26	40	46	42	32	19	7	0	1	10	24	39	52	57	53	38	15	-12	-37	-54	-60	-53	-35
10-Nov	Th		-11	14	35	47	50	43	30	17	7	3	8	19	35	50	59	59	48	27	-1	-29	-53	-66	-66	-53
11-Nov	F	Full Moon	-30	-2	24	43	52	50	40	27	15	7	8	16	30	46	58	63	57	39	13	-17	-45	-65	-72	-66
12-Nov	Sa		-47	-20	9	33	48	52	47	35	23	13	9	14	25	41	55	64	63	50	27	-3	-33	-57	-72	-73
13-Nov	Su		-60	-37	-9	18	39	49	49	41	30	19	12	13	21	34	50	61	65	57	39	13	-17	-45	-65	-73
14-Nov	M		-68	-51	-26	2	25	41	47	44	35	25	17	14	18	28	42	55	62	61	48	27	0	-28	-52	-66
15-Nov	Tu		-69	-59	-40	-15	10	30	41	44	39	30	22	16	16	23	34	47	56	59	53	37	15	-11	-35	-54
16-Nov	W		-63	-61	-49	-29	-6	15	31	39	40	35	27	20	17	19	26	37	46	52	52	43	27	6	-17	-37
17-Nov	Th		-51	-56	-52	-39	-20	0	19	32	38	37	32	25	20	18	20	26	34	41	44	42	33	19	1	-17
18-Nov	F		-33	-43	-46	-41	-29	-13	5	21	32	37	36	31	24	19	16	16	20	25	30	33	31	25	15	2
19-Nov	Sa	Last Quarter	-12	-25	-33	-36	-31	-21	-6	10	24	34	38	36	31	23	15	9	7	7	11	16	20	23	21	16
20-Nov	Su		8	-3	-13	-21	-25	-22	-13	1	16	29	38	41	38	30	19	7	-3	-9	-10	-6	1	10	17	22
21-Nov	M		22	17	9	-1	-10	-15	-13	-5	8	23	36	44	46	40	27	11	-6	-20	-29	-30	-25	-13	2	16
22-Nov	Tu		26	31	29	21	10	0	-6	-4	4	17	33	45	52	50	40	22	0	-23	-41	-50	-50	-40	-23	-2
23-Nov	W		18	33	40	39	31	19	8	2	4	13	28	43	55	60	54	39	14	-14	-41	-61	-70	-67	-52	-29
24-Nov	Th		-2	22	40	48	46	37	24	13	8	12	23	39	54	65	66	56	34	4	-29	-58	-78	-84	-77	-57
25-Nov	F	New Moon	-29	1	27	45	52	49	39	26	16	13	19	32	49	64	73	70	54	27	-7	-42	-71	-88	-91	-80
26-Nov	Sa		-56	-25	6	32	48	53	48	37	25	17	16	25	40	57	72	77	70	49	19	-17	-52	-78	-92	-91
27-Nov	Su		-75	-49	-17	12	35	48	50	44	33	22	16	18	29	45	63	74	76	65	41	9	-26	-57	-80	-89
28-Nov	M		-83	-65	-38	-8	18	37	46	46	38	27	18	14	19	32	48	63	72	70	56	31	0	-31	-58	-75
29-Nov	Tu		-79	-70	-50	-24	2	24	38	43	40	32	21	14	13	19	32	47	59	65	60	44	21	-7	-34	-55
30-Nov	W		-66	-65	-54	-34	-11	12	29	38	40	35	26	17	10	11	17	29	42	51	53	47	32	11	-12	-32

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Hourly Astronomical Tide Level at Ayukawa port, Miyagi Pref. in 2011 (unit: centimeter) Issued by JMA

Date	Moon	Time																								
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1-Dec	Th		-47	-53	-49	-36	-18	2	20	33	39	38	31	22	13	7	8	13	23	32	39	40	33	21	5	-12
2-Dec	F	First Quarter	-27	-36	-38	-33	-20	-4	13	27	36	39	36	29	19	10	4	3	6	13	20	25	26	22	13	2
3-Dec	Sa		-9	-19	-24	-24	-18	-7	7	21	32	39	40	35	27	16	6	-2	-5	-4	1	7	13	16	15	11
4-Dec	Su		5	-2	-8	-12	-11	-5	4	16	27	36	41	41	35	25	13	0	-10	-16	-17	-12	-5	3	9	13
5-Dec	M		13	11	7	2	-1	-1	4	12	22	32	40	44	42	34	22	7	-9	-22	-29	-30	-24	-14	-3	8
6-Dec	Tu		16	20	20	16	11	8	7	10	18	27	37	44	46	43	33	17	-2	-21	-36	-43	-42	-33	-19	-3
7-Dec	W		12	23	28	28	24	18	13	11	15	22	32	42	48	49	43	29	8	-14	-36	-50	-56	-51	-38	-19
8-Dec	Th		2	20	32	37	35	28	21	15	14	18	27	38	48	53	51	41	21	-3	-29	-51	-64	-65	-56	-37
9-Dec	F		-13	10	29	40	42	38	29	21	16	16	22	32	44	54	57	51	35	11	-17	-44	-65	-74	-70	-55
10-Dec	Sa	Full Moon	-31	-4	20	37	45	44	37	27	19	15	18	26	39	52	60	59	48	27	-2	-32	-58	-75	-79	-70
11-Dec	Su		-49	-22	6	29	43	48	43	34	23	16	15	20	32	46	58	63	58	41	16	-15	-45	-69	-81	-79
12-Dec	M		-64	-39	-10	17	37	47	47	39	29	19	14	15	24	38	52	62	63	53	32	3	-28	-56	-75	-82
13-Dec	Tu		-74	-54	-27	2	26	42	47	44	34	23	14	12	16	28	42	55	62	59	44	20	-9	-39	-63	-76
14-Dec	W		-77	-64	-42	-14	13	33	44	46	39	28	17	10	10	18	30	44	55	58	51	34	9	-19	-45	-64
15-Dec	Th		-72	-67	-51	-27	-1	22	38	45	42	33	22	12	7	9	17	29	41	49	49	40	23	0	-24	-45
16-Dec	F		-59	-62	-53	-36	-13	11	30	42	44	38	28	15	6	2	5	13	24	34	40	39	30	14	-5	-24
17-Dec	Sa		-40	-49	-48	-37	-20	1	21	36	44	42	34	22	9	0	-4	-2	5	14	22	28	27	21	9	-5
18-Dec	Su	Last Quarter	-19	-30	-34	-31	-21	-5	14	30	41	45	40	30	17	3	-7	-13	-13	-8	0	8	15	17	15	9
19-Dec	M		1	-9	-16	-18	-15	-5	9	24	37	45	46	39	27	12	-3	-16	-25	-27	-24	-16	-7	3	10	13
20-Dec	Tu		13	10	4	-1	-3	0	8	20	33	43	49	48	40	26	8	-11	-27	-39	-44	-41	-33	-20	-6	7
21-Dec	W		16	21	21	17	13	10	11	18	28	39	49	53	51	42	25	4	-19	-40	-55	-61	-58	-47	-30	-11
22-Dec	Th		8	22	30	31	28	22	18	18	23	33	44	54	58	56	44	24	-1	-28	-53	-69	-76	-71	-56	-34
23-Dec	F		-10	12	29	38	39	34	27	22	21	26	36	48	59	64	60	46	23	-7	-38	-64	-81	-86	-78	-59
24-Dec	Sa		-33	-6	19	36	44	43	36	27	21	20	26	38	52	64	69	63	46	19	-14	-47	-74	-89	-91	-79
25-Dec	Su	New Moon	-56	-27	2	27	42	47	42	33	22	16	17	25	40	56	68	72	63	42	12	-22	-55	-79	-91	-88
26-Dec	M		-72	-46	-16	13	34	45	46	38	26	15	10	13	24	41	58	69	70	59	35	4	-30	-60	-80	-87
27-Dec	Tu		-79	-59	-31	-2	23	40	46	42	31	18	7	4	10	24	42	58	67	65	50	25	-6	-37	-62	-76
28-Dec	W		-77	-64	-42	-14	12	33	44	44	36	23	9	0	-1	7	23	40	54	60	55	38	13	-15	-41	-60
29-Dec	Th		-67	-62	-45	-22	4	26	40	45	40	28	14	1	-6	-5	5	20	36	47	49	42	25	2	-21	-40
30-Dec	F		-52	-53	-43	-25	-3	19	36	44	43	35	21	6	-6	-11	-8	2	16	29	36	36	28	13	-5	-23
31-Dec	Sa		-36	-41	-36	-24	-6	14	31	43	46	41	29	15	1	-10	-14	-11	-2	9	19	24	23	16	4	-9

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