

## Hourly Astronomical Tide Level at Sendai Shinko, 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	30	42	49	46	33	9	-19	-48	-70	-83	-82	-68	-45	-17	9	28	38	37	29	18	8	2	3	11	
2-Jun	Th	New Moon	25	39	50	53	45	26	-2	-33	-62	-82	-90	-83	-64	-37	-7	18	34	40	36	26	15	6	2	6
3-Jun	F		18	33	47	55	54	40	16	-15	-46	-73	-89	-91	-79	-56	-26	2	25	38	40	33	22	11	4	3
4-Jun	Sa		11	24	40	52	57	50	32	5	-26	-56	-79	-90	-87	-71	-45	-15	11	30	38	37	29	17	7	2
5-Jun	Su		5	15	29	44	53	54	44	23	-5	-35	-62	-80	-86	-78	-59	-33	-5	18	33	37	33	23	12	3
6-Jun	M		1	6	17	31	44	50	48	35	14	-12	-40	-62	-76	-77	-66	-46	-20	4	23	34	35	29	18	7
7-Jun	Tu		0	-1	5	16	28	38	43	39	27	7	-16	-39	-57	-66	-64	-52	-32	-9	13	28	35	33	25	13
8-Jun	W		2	-5	-5	0	10	20	29	33	30	19	3	-16	-34	-48	-53	-49	-36	-18	2	20	32	35	31	21
9-Jun	Th	First Quarter	9	-3	-11	-12	-9	-1	9	17	22	21	14	3	-11	-24	-34	-37	-33	-21	-5	13	28	36	36	30
10-Jun	F		18	4	-10	-19	-23	-22	-15	-6	4	12	15	13	8	-2	-12	-19	-22	-18	-8	7	22	34	40	38
11-Jun	Sa		30	16	-1	-18	-30	-37	-38	-32	-21	-8	4	12	16	15	10	1	-5	-8	-5	4	17	30	40	44
12-Jun	Su		41	31	14	-7	-27	-44	-53	-54	-47	-33	-17	0	13	22	24	20	13	6	3	5	13	25	38	47
13-Jun	M		49	45	32	11	-14	-38	-57	-68	-69	-60	-43	-21	0	18	29	33	29	21	13	10	11	19	31	44
14-Jun	Tu		53	55	48	32	7	-22	-49	-70	-81	-80	-67	-46	-21	4	24	36	39	34	25	17	12	15	23	36
15-Jun	W		50	59	60	50	30	2	-30	-59	-80	-89	-85	-69	-45	-16	10	30	41	42	35	25	16	12	15	26
16-Jun	Th	Full Moon	41	55	64	63	50	26	-5	-38	-67	-86	-93	-85	-65	-37	-8	18	36	44	42	33	21	12	9	15
17-Jun	F		28	44	59	66	63	47	20	-12	-45	-72	-88	-90	-78	-55	-26	3	26	40	44	38	27	15	7	6
18-Jun	Sa		14	30	47	60	65	59	40	12	-20	-51	-74	-85	-81	-65	-40	-12	14	33	42	41	32	20	8	1
19-Jun	Su		3	14	31	47	59	61	51	30	2	-27	-53	-71	-76	-68	-48	-23	3	25	38	42	37	25	12	1
20-Jun	M		-4	1	14	30	45	53	52	40	19	-6	-32	-53	-64	-63	-50	-30	-6	16	33	41	40	31	18	5
21-Jun	Tu		-5	-7	0	13	27	39	45	41	28	9	-13	-33	-48	-53	-47	-32	-12	9	27	39	42	36	25	11
22-Jun	W		-1	-9	-9	-2	9	21	31	34	30	18	1	-16	-30	-38	-38	-29	-14	4	22	35	42	40	32	19
23-Jun	Th	Last Quarter	6	-6	-12	-13	-7	3	13	21	23	19	10	-2	-14	-23	-26	-23	-13	1	16	30	40	42	38	28
24-Jun	F		15	2	-10	-17	-18	-14	-6	3	11	14	12	7	-1	-8	-12	-13	-9	0	12	25	36	41	41	35
25-Jun	Sa		25	11	-3	-15	-23	-26	-23	-15	-6	2	8	10	9	5	2	-1	-1	3	10	20	31	38	42	41
26-Jun	Su		34	22	8	-8	-22	-32	-36	-33	-25	-14	-3	7	13	15	14	12	9	9	11	17	25	34	40	43
27-Jun	M		41	33	20	3	-16	-32	-44	-48	-44	-33	-18	-3	10	19	23	23	20	17	14	15	20	28	37	43
28-Jun	Tu		46	43	33	17	-4	-26	-45	-57	-59	-52	-38	-19	1	17	28	32	30	26	20	17	17	23	31	40
29-Jun	W		48	50	46	32	12	-13	-38	-58	-69	-69	-57	-38	-15	8	26	36	39	34	27	21	17	18	24	35
30-Jun	Th		45	53	55	47	30	4	-24	-51	-70	-79	-74	-58	-34	-7	18	35	43	42	35	26	18	15	17	27

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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	39	52	60	59	47	24	-5	-36	-63	-80	-85	-75	-53	-25	4	28	42	47	42	32	21	14	12	17
2-Jul	Sa		30	45	58	64	60	44	17	-15	-47	-72	-86	-85	-70	-44	-14	15	36	47	47	39	26	15	8	8
3-Jul	Su		17	33	49	62	66	58	38	9	-24	-55	-77	-86	-79	-59	-31	0	26	44	49	45	33	18	7	1
4-Jul	M		5	17	34	51	62	63	52	30	1	-31	-58	-75	-78	-67	-44	-15	14	36	48	49	39	24	9	-2
5-Jul	Tu		-5	2	16	34	49	58	57	44	22	-6	-34	-56	-67	-65	-49	-25	3	28	44	50	45	32	15	-1
6-Jul	W		-10	-11	-2	12	29	43	50	47	35	14	-10	-32	-48	-53	-46	-29	-5	19	39	50	50	40	24	6
7-Jul	Th		-10	-18	-17	-8	6	21	33	39	36	26	9	-9	-26	-35	-35	-25	-8	13	33	48	53	47	34	16
8-Jul	F	First Quarter	-2	-17	-25	-24	-16	-4	9	21	26	26	19	8	-4	-14	-19	-16	-5	10	28	44	53	53	44	29
9-Jul	Sa		11	-8	-23	-31	-32	-26	-16	-4	7	15	17	16	11	5	-1	-2	2	11	25	39	50	55	52	42
10-Jul	Su		26	8	-12	-28	-38	-41	-38	-29	-17	-4	6	13	18	18	16	13	12	16	23	33	45	53	56	52
11-Jul	M		42	26	7	-14	-32	-45	-51	-50	-41	-28	-13	2	14	23	27	26	24	22	23	29	37	46	53	56
12-Jul	Tu		54	44	28	7	-16	-37	-53	-61	-60	-51	-35	-16	3	19	31	36	35	30	26	25	29	36	45	54
13-Jul	W		58	57	48	31	7	-19	-44	-62	-70	-68	-56	-37	-14	9	28	39	42	39	32	25	22	25	33	44
14-Jul	Th		55	62	61	51	32	5	-24	-51	-69	-76	-71	-55	-32	-6	19	37	46	45	38	28	19	16	20	31
15-Jul	F	Full Moon	45	58	66	65	52	29	0	-31	-57	-74	-78	-68	-48	-21	7	30	45	49	44	33	20	11	9	16
16-Jul	Sa		30	47	62	69	65	49	23	-8	-39	-63	-75	-74	-59	-35	-6	21	40	50	49	39	24	10	2	3
17-Jul	Su		13	31	49	64	69	61	42	14	-17	-45	-64	-71	-63	-44	-17	11	34	49	52	44	30	13	0	-6
18-Jul	M		-1	13	33	51	63	65	54	32	4	-25	-48	-61	-61	-47	-24	3	27	45	53	49	37	19	2	-9
19-Jul	Tu		-11	-2	14	34	50	59	56	42	20	-6	-30	-47	-52	-45	-27	-3	21	41	52	53	43	27	9	-7
20-Jul	W		-16	-14	-2	15	33	46	51	45	30	9	-13	-30	-40	-38	-26	-6	16	37	50	55	49	35	17	-1
21-Jul	Th		-14	-19	-14	-2	14	29	39	41	33	19	1	-15	-26	-28	-21	-7	13	32	47	55	53	42	26	8
22-Jul	F		-8	-18	-21	-15	-3	11	23	30	30	23	11	-2	-12	-16	-14	-4	11	28	42	52	54	48	35	18
23-Jul	Sa	Last Quarter	1	-12	-21	-22	-17	-7	4	14	20	20	16	8	1	-4	-4	2	11	24	37	48	52	50	42	28
24-Jul	Su		13	-3	-15	-23	-25	-22	-14	-4	5	12	14	13	10	8	7	9	14	23	33	42	49	50	47	38
25-Jul	M		25	10	-5	-18	-27	-32	-30	-22	-13	-2	6	13	16	17	18	18	20	23	29	36	43	47	48	45
26-Jul	Tu		37	24	9	-7	-23	-34	-41	-39	-32	-20	-7	6	16	23	26	27	27	27	28	31	36	42	46	48
27-Jul	W		46	38	25	8	-12	-30	-45	-52	-50	-40	-25	-8	9	23	32	36	35	32	29	28	30	35	41	48
28-Jul	Th		51	50	42	27	5	-18	-40	-56	-63	-59	-46	-26	-3	18	33	41	42	38	32	26	24	26	33	42
29-Jul	F		52	57	56	46	27	1	-27	-52	-68	-72	-64	-46	-20	6	28	43	48	45	37	27	19	17	21	32
30-Jul	Sa		45	58	64	62	48	24	-6	-37	-62	-76	-77	-63	-39	-10	18	40	51	51	43	30	18	10	9	17
31-Jul	Su	New Moon	32	49	64	70	65	47	19	-14	-46	-69	-79	-74	-55	-26	5	32	50	56	50	36	19	5	-1	1

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

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

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## Hourly Astronomical Tide Level at Sendai Shinko, 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	-75	-62	-38	-9	18	38	48	47	37	23	10	1	3	14	32	53	69	77	72	53	25	-7	-37	-60	
2-Oct	Su	-71	-69	-54	-32	-8	15	30	37	36	29	20	12	9	15	27	44	60	71	72	62	42	16	-12	-37	
3-Oct	M	-55	-62	-58	-45	-27	-8	9	21	27	27	24	19	16	17	24	35	48	59	65	62	51	32	10	-12	
4-Oct	Tu	First Quarter	-32	-45	-50	-47	-37	-24	-9	4	14	20	23	23	22	21	22	28	35	44	51	53	50	40	26	10
5-Oct	W		-7	-22	-33	-38	-38	-32	-23	-11	1	11	18	24	26	26	25	24	26	29	33	38	40	39	33	25
6-Oct	Th		14	1	-12	-23	-30	-32	-30	-22	-12	1	12	22	29	32	30	26	21	18	17	19	24	28	31	31
7-Oct	F		28	21	10	-3	-16	-26	-30	-29	-22	-9	5	19	30	36	37	31	22	12	5	2	5	12	21	29
8-Oct	Sa		34	34	28	17	1	-14	-25	-30	-28	-18	-3	14	29	40	43	39	27	12	-2	-11	-13	-7	5	19
9-Oct	Su		32	40	41	34	20	2	-15	-26	-30	-24	-11	7	26	41	48	46	35	17	-3	-19	-27	-26	-14	3
10-Oct	M		22	38	47	47	36	19	-1	-17	-27	-27	-17	1	21	39	51	53	44	25	2	-20	-36	-41	-33	-16
11-Oct	Tu		7	30	46	53	49	35	15	-4	-19	-24	-19	-4	16	36	52	58	52	34	10	-17	-38	-50	-49	-35
12-Oct	W	Full Moon	-12	15	38	53	56	47	30	10	-7	-18	-18	-8	11	32	50	60	58	44	20	-9	-35	-54	-60	-52
13-Oct	Th		-31	-3	24	46	56	54	41	23	5	-9	-14	-8	7	27	47	60	63	52	31	2	-27	-51	-64	-63
14-Oct	F		-48	-22	6	32	50	55	48	34	17	2	-7	-6	5	23	42	58	64	59	41	15	-15	-42	-61	-68
15-Oct	Sa		-60	-39	-12	15	37	49	50	40	26	11	1	-2	4	19	37	53	63	63	50	27	-2	-30	-53	-66
16-Oct	Su		-65	-52	-29	-3	22	39	45	42	32	19	8	3	5	16	31	47	59	62	55	37	12	-15	-40	-57
17-Oct	M		-64	-58	-42	-19	4	24	36	39	34	25	15	9	8	15	26	40	53	59	56	44	25	0	-24	-44
18-Oct	Tu		-56	-58	-50	-33	-13	7	22	31	32	28	21	15	13	15	23	33	44	52	53	47	33	14	-7	-28
19-Oct	W		-43	-51	-50	-42	-27	-10	6	19	26	28	25	21	18	18	21	28	35	42	46	44	37	24	8	-9
20-Oct	Th	Last Quarter	-25	-38	-44	-44	-37	-25	-11	4	15	23	27	27	24	22	22	23	26	30	34	36	35	29	20	9
21-Oct	F		-5	-19	-30	-37	-39	-35	-26	-12	2	15	24	29	31	29	25	21	19	18	19	22	25	26	26	22
22-Oct	Sa		15	4	-9	-22	-32	-36	-35	-26	-13	3	18	29	35	36	31	23	14	7	3	3	7	14	22	27
23-Oct	Su		29	25	15	1	-15	-28	-35	-34	-24	-9	9	26	38	43	39	29	14	0	-12	-17	-16	-7	7	21
24-Oct	M		33	39	37	26	9	-10	-25	-32	-30	-18	0	20	37	48	49	39	21	-1	-21	-34	-39	-33	-18	3
25-Oct	Tu		24	41	49	47	34	14	-6	-21	-27	-22	-7	14	35	51	57	51	33	7	-20	-43	-57	-59	-47	-25
26-Oct	W		2	29	48	57	53	38	17	-3	-16	-19	-10	8	31	51	63	63	49	23	-10	-41	-65	-76	-73	-55
27-Oct	Th	New Moon	-27	5	33	53	60	54	38	18	1	-9	-8	5	26	48	65	72	64	42	9	-27	-59	-81	-88	-79
28-Oct	F		-56	-25	8	36	54	58	50	35	17	4	-1	5	21	42	62	75	75	59	31	-5	-41	-71	-89	-92
29-Oct	Sa		-78	-52	-20	12	37	50	52	44	30	16	7	7	17	34	55	71	78	71	51	20	-16	-50	-76	-89
30-Oct	Su		-87	-70	-44	-14	14	34	44	44	37	26	15	10	14	26	44	61	73	74	63	40	9	-24	-53	-74
31-Oct	M		-82	-76	-58	-34	-8	15	30	37	36	30	22	15	13	19	32	47	61	68	65	51	29	1	-27	-51

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## Hourly Astronomical Tide Level at Sendai Shinko, 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	-66	-69	-61	-45	-25	-3	15	26	31	31	26	20	15	15	22	32	44	53	57	52	39	19	-3	-25	
2-Nov	W	-43	-53	-54	-47	-33	-16	1	15	24	28	28	24	20	16	16	20	27	35	41	43	39	28	13	-3	
3-Nov	Th	First Quarter	-19	-32	-40	-40	-34	-24	-10	4	16	24	28	28	25	20	15	13	14	17	22	27	29	27	21	11
4-Nov	F	0	-11	-21	-28	-29	-25	-16	-5	8	19	28	31	31	27	20	12	5	3	4	8	13	18	20	18	
5-Nov	Sa	14	7	-2	-12	-19	-21	-18	-11	1	13	25	33	36	35	28	16	4	-6	-11	-11	-6	2	11	18	
6-Nov	Su	21	20	15	6	-4	-13	-16	-13	-5	7	20	32	40	41	36	24	8	-8	-21	-27	-26	-17	-4	10	
7-Nov	M	21	27	28	22	11	0	-9	-12	-9	1	15	29	41	46	44	34	16	-5	-24	-38	-42	-36	-23	-4	
8-Nov	Tu	14	28	36	35	27	14	2	-7	-9	-3	9	24	39	49	51	43	26	3	-22	-42	-54	-54	-42	-22	
9-Nov	W	1	22	37	43	39	28	14	2	-5	-5	4	19	35	49	55	52	37	14	-14	-40	-59	-66	-60	-42	
10-Nov	Th	-17	9	31	45	47	40	27	13	2	-3	2	14	30	46	57	58	47	26	-3	-32	-57	-72	-73	-60	
11-Nov	F	Full Moon	-36	-8	20	40	49	47	37	23	10	2	1	10	25	42	56	62	56	38	11	-20	-49	-70	-79	-73
12-Nov	Sa	-54	-26	3	29	45	50	44	32	19	8	3	7	19	36	52	62	61	49	25	-5	-36	-62	-78	-80	
13-Nov	Su	-68	-44	-15	13	35	46	46	38	26	14	7	7	15	29	45	58	63	56	38	11	-20	-49	-70	-80	
14-Nov	M	-76	-58	-32	-4	21	38	44	41	32	21	12	8	12	23	38	52	60	59	47	25	-3	-32	-57	-73	
15-Nov	Tu	-76	-67	-47	-21	5	25	38	41	36	26	17	11	11	17	29	42	53	57	51	36	13	-14	-39	-59	
16-Nov	W	-70	-68	-56	-36	-12	11	27	36	37	31	23	15	12	14	21	32	42	49	49	41	25	4	-20	-41	
17-Nov	Th	-56	-62	-58	-45	-26	-5	14	28	34	34	28	21	15	12	15	21	29	36	40	39	30	16	-1	-21	
18-Nov	F	-37	-49	-52	-48	-36	-19	0	17	28	33	32	27	20	14	10	11	15	20	25	29	28	22	12	-1	
19-Nov	Sa	Last Quarter	-15	-29	-38	-41	-37	-27	-12	5	20	30	35	33	27	19	10	4	1	2	6	11	16	19	18	14
20-Nov	Su	5	-6	-17	-26	-30	-28	-19	-5	11	25	34	38	35	27	15	3	-8	-14	-16	-12	-4	5	13	18	
21-Nov	M	19	15	6	-5	-14	-20	-19	-11	2	18	32	41	43	38	25	8	-10	-25	-34	-36	-31	-18	-3	11	
22-Nov	Tu	23	28	27	18	7	-4	-11	-10	-2	12	28	41	49	49	39	21	-3	-27	-45	-56	-57	-47	-29	-8	
23-Nov	W	13	29	38	37	28	15	4	-3	-2	7	22	39	52	57	53	38	13	-17	-45	-66	-76	-73	-58	-35	
24-Nov	Th	-8	17	37	46	44	34	21	9	3	6	17	34	50	62	65	55	33	2	-31	-62	-82	-90	-83	-64	
25-Nov	F	New Moon	-35	-5	23	42	50	47	36	22	12	8	13	27	44	61	70	69	54	26	-9	-45	-75	-94	-98	-86
26-Nov	Sa	-62	-31	1	28	45	50	45	34	21	12	11	19	35	53	68	75	69	49	18	-19	-55	-83	-98	-97	
27-Nov	Su	-82	-55	-23	7	31	45	47	41	30	18	11	13	24	41	58	71	74	64	40	8	-28	-61	-85	-95	
28-Nov	M	-90	-71	-44	-14	14	34	43	43	35	24	14	9	14	26	43	59	69	68	55	30	-1	-34	-62	-81	
29-Nov	Tu	-86	-76	-56	-30	-3	20	35	40	37	29	18	9	7	14	27	42	56	62	58	43	19	-9	-37	-59	
30-Nov	W	-72	-72	-60	-40	-16	7	25	35	37	32	23	13	6	5	12	24	37	47	51	45	30	9	-14	-36	

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## Hourly Astronomical Tide Level at Sendai Shinko, 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		-52	-59	-55	-42	-23	-3	16	29	36	35	28	19	9	2	2	8	18	28	35	37	31	19	2	-16
2-Dec	F	First Quarter	-31	-42	-44	-38	-25	-9	8	23	33	36	33	25	15	6	-1	-2	1	8	16	22	23	19	10	-1
3-Dec	Sa		-13	-23	-29	-29	-23	-12	2	17	29	36	36	32	24	13	2	-6	-10	-9	-4	2	9	12	11	7
4-Dec	Su		0	-7	-13	-17	-16	-11	-1	11	23	33	38	37	32	22	10	-3	-14	-20	-21	-17	-10	-2	5	9
5-Dec	M		9	7	2	-3	-6	-6	-2	7	17	28	36	40	39	32	20	4	-12	-26	-34	-35	-29	-19	-7	3
6-Dec	Tu		11	15	15	12	7	2	1	5	12	22	33	40	43	40	30	15	-5	-24	-40	-48	-48	-39	-24	-8
7-Dec	W		7	19	24	24	19	13	7	5	9	17	27	38	45	47	41	27	6	-17	-39	-55	-62	-57	-44	-24
8-Dec	Th		-3	15	28	33	31	24	16	9	8	12	21	33	44	50	49	39	19	-6	-32	-55	-69	-72	-62	-43
9-Dec	F		-19	5	25	36	38	34	25	16	10	9	16	27	40	50	55	50	34	9	-20	-48	-70	-80	-77	-62
10-Dec	Sa	Full Moon	-38	-10	15	34	42	41	33	23	14	9	11	20	34	47	57	57	47	25	-4	-35	-63	-81	-87	-77
11-Dec	Su		-56	-28	1	25	40	44	39	29	19	10	8	14	26	41	54	61	56	40	14	-18	-49	-74	-88	-87
12-Dec	M		-72	-46	-16	12	33	44	43	35	24	14	7	9	18	32	48	59	61	51	30	1	-31	-61	-81	-89
13-Dec	Tu		-82	-62	-34	-4	22	38	44	40	30	18	9	5	10	22	37	51	59	57	43	19	-11	-42	-68	-83
14-Dec	W		-84	-72	-49	-20	8	29	41	42	35	23	12	4	4	11	24	39	51	55	49	32	8	-21	-49	-69
15-Dec	Th		-78	-74	-58	-34	-7	18	35	42	39	29	17	6	0	2	11	24	37	46	47	39	22	-2	-27	-50
16-Dec	F		-64	-68	-60	-42	-19	6	26	38	41	35	24	11	0	-4	-1	7	19	30	36	36	28	13	-7	-27
17-Dec	Sa		-45	-54	-54	-44	-26	-5	16	32	40	39	31	18	5	-5	-10	-8	-1	9	18	24	25	19	7	-7
18-Dec	Su	Last Quarter	-22	-34	-40	-37	-27	-11	8	25	37	41	37	27	13	-1	-12	-18	-18	-14	-6	4	11	14	12	7
19-Dec	M		-2	-12	-20	-23	-20	-11	3	19	33	41	42	36	25	9	-7	-21	-30	-33	-30	-22	-11	-1	6	10
20-Dec	Tu		10	7	1	-5	-8	-6	2	14	27	39	45	44	37	23	5	-15	-32	-44	-49	-47	-38	-25	-11	2
21-Dec	W		12	18	18	14	8	5	6	12	22	34	44	49	48	39	23	1	-23	-44	-59	-66	-64	-53	-35	-16
22-Dec	Th		3	18	27	28	24	18	13	13	17	27	39	49	55	53	42	23	-4	-32	-57	-74	-81	-77	-62	-41
23-Dec	F		-16	7	25	35	36	31	23	17	15	20	30	43	55	61	58	44	21	-10	-41	-68	-86	-92	-85	-66
24-Dec	Sa		-40	-11	14	32	41	40	32	23	15	14	20	32	47	60	66	61	44	17	-17	-50	-78	-95	-97	-85
25-Dec	Su	New Moon	-62	-33	-3	22	38	44	39	29	18	11	11	19	34	51	64	69	61	41	11	-25	-58	-84	-97	-95
26-Dec	M		-79	-53	-22	8	30	42	43	35	23	11	4	7	18	35	53	66	68	57	34	2	-33	-64	-86	-93
27-Dec	Tu		-86	-66	-38	-7	19	36	43	39	28	14	2	-2	3	17	36	53	64	63	49	24	-8	-40	-66	-82
28-Dec	W		-84	-71	-48	-20	8	29	41	41	33	19	4	-6	-8	1	16	35	50	57	53	37	12	-17	-44	-65
29-Dec	Th		-73	-68	-51	-27	-1	22	37	42	37	25	10	-4	-13	-11	-1	15	31	43	47	40	23	0	-24	-45
30-Dec	F		-58	-59	-49	-30	-8	15	32	41	41	31	17	2	-11	-17	-14	-3	11	24	33	34	26	10	-9	-27
31-Dec	Sa		-41	-47	-43	-30	-11	9	27	39	43	37	26	11	-4	-15	-19	-16	-8	4	14	21	20	13	1	-13

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