

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

			Time																								
Date		Moon	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		28	40	47	45	32	10	-19	-48	-71	-85	-85	-73	-50	-23	4	24	35	36	28	17	7	1	1	9	
2-Jun	Th	New Moon	22	36	48	51	44	26	-2	-33	-62	-83	-92	-87	-69	-42	-13	13	31	38	35	26	14	5	1	4	
3-Jun	F		15	30	44	53	52	40	17	-14	-46	-73	-90	-94	-83	-61	-33	-4	20	34	38	32	21	10	2	1	
4-Jun	Sa		8	21	37	49	55	50	33	7	-26	-56	-80	-92	-90	-75	-51	-22	6	26	35	35	27	16	6	1	
5-Jun	Su		2	12	26	41	51	53	44	24	-5	-35	-62	-81	-89	-82	-64	-39	-11	13	29	35	32	22	11	2	
6-Jun	M		-2	3	14	28	41	48	47	35	14	-13	-40	-63	-78	-80	-71	-51	-27	-2	19	31	33	28	17	6	
7-Jun	Tu		-2	-4	2	13	25	36	41	38	26	7	-18	-41	-59	-69	-68	-56	-37	-14	8	25	32	31	24	13	
8-Jun	W		2	-7	-8	-3	7	18	27	31	28	18	2	-18	-36	-50	-56	-53	-41	-23	-3	17	29	33	30	20	
9-Jun	Th	First Quarter	8	-5	-13	-15	-12	-5	6	15	20	19	12	1	-13	-27	-37	-41	-37	-26	-10	9	25	34	35	29	
10-Jun	F		18	4	-11	-21	-26	-25	-19	-10	1	9	12	11	5	-5	-15	-23	-26	-22	-12	3	19	32	38	37	
11-Jun	Sa		29	15	-2	-19	-32	-40	-41	-35	-25	-12	-1	9	13	12	7	-2	-9	-12	-9	1	14	28	38	43	
12-Jun	Su		40	30	13	-8	-28	-45	-56	-58	-51	-39	-22	-5	10	18	21	18	11	4	-1	2	10	22	35	45	
13-Jun	M		48	44	31	11	-14	-39	-59	-71	-73	-65	-48	-27	-6	14	25	30	27	19	11	7	9	17	29	41	
14-Jun	Tu		51	54	48	32	8	-22	-50	-72	-84	-84	-73	-53	-27	-2	20	32	36	32	23	15	10	12	21	34	
15-Jun	W		47	57	59	50	31	3	-30	-60	-82	-93	-90	-75	-51	-23	5	26	38	40	33	23	14	10	13	23	
16-Jun	Th	Full Moon	38	53	62	62	51	28	-4	-38	-68	-88	-96	-90	-71	-44	-14	13	32	41	39	31	20	10	7	12	
17-Jun	F		25	42	57	65	63	47	21	-12	-45	-73	-90	-94	-83	-61	-33	-4	21	36	41	36	26	14	5	4	
18-Jun	Sa		12	27	44	59	65	59	41	13	-20	-51	-75	-87	-86	-71	-47	-19	9	29	39	39	31	19	7	-1	
19-Jun	Su		1	12	28	45	57	60	51	31	3	-27	-54	-73	-79	-72	-55	-30	-4	20	34	39	35	24	11	-1	
20-Jun	M		-6	-2	11	27	43	52	52	40	20	-7	-33	-54	-66	-67	-56	-36	-13	11	29	38	38	30	18	4	
21-Jun	Tu		-7	-9	-3	10	25	37	43	40	28	9	-14	-34	-49	-55	-51	-37	-18	4	23	35	39	35	24	11	
22-Jun	W		-3	-11	-12	-6	6	19	29	33	28	17	1	-17	-32	-41	-42	-34	-20	-2	17	31	39	38	31	19	
23-Jun	Th	Last Quarter	6	-7	-15	-16	-10	-1	10	19	21	18	9	-4	-16	-25	-29	-27	-18	-4	12	27	37	40	36	27	
24-Jun	F		15	1	-12	-19	-21	-17	-9	1	8	12	11	5	-3	-10	-15	-16	-12	-4	9	22	33	39	40	34	
25-Jun	Sa		24	11	-4	-17	-26	-29	-26	-19	-10	-1	6	8	7	4	-1	-3	-4	1	8	18	28	36	40	39	
26-Jun	Su		33	22	7	-10	-24	-35	-39	-37	-29	-18	-6	4	10	13	13	10	8	7	9	15	23	32	39	42	
27-Jun	M		40	32	20	3	-17	-34	-46	-50	-47	-37	-22	-7	7	17	21	22	19	15	13	14	19	26	35	41	
28-Jun	Tu		44	42	33	17	-5	-26	-46	-58	-62	-56	-42	-23	-4	14	25	30	29	25	19	16	16	21	29	38	
29-Jun	W		46	49	45	32	13	-13	-38	-59	-70	-71	-61	-42	-19	4	23	34	37	34	27	20	16	16	22	32	
30-Jun	Th		43	52	54	47	30	6	-24	-51	-71	-80	-77	-62	-39	-12	13	31	41	41	34	25	17	13	16	24	

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Hourly Astronomical Tide Level at Soma port, Fukushima 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-Jul	F	New Moon	37	50	58	58	47	26	-4	-35	-63	-81	-87	-79	-58	-31	-2	23	39	45	41	32	21	13	10	15
2-Jul	Sa		27	42	56	63	60	45	19	-14	-46	-72	-87	-88	-74	-50	-20	10	32	45	46	38	26	14	7	7
3-Jul	Su		15	30	46	60	65	58	39	11	-23	-54	-77	-87	-83	-64	-37	-6	22	40	47	44	32	18	6	-1
4-Jul	M		3	14	31	48	60	62	52	31	2	-31	-58	-77	-81	-71	-49	-21	9	33	46	47	39	24	9	-4
5-Jul	Tu		-7	-2	13	30	46	56	56	44	22	-7	-35	-57	-70	-68	-54	-31	-3	23	41	48	44	32	15	-2
6-Jul	W		-12	-14	-6	9	26	40	48	46	34	14	-11	-34	-50	-57	-51	-34	-11	15	36	48	48	39	24	6
7-Jul	Th		-11	-20	-20	-12	3	18	30	37	34	24	8	-11	-28	-38	-39	-30	-13	9	30	45	51	46	34	16
8-Jul	F	First Quarter	-3	-18	-27	-27	-20	-8	6	18	24	23	17	6	-7	-17	-22	-20	-10	7	25	41	51	52	44	29
9-Jul	Sa		11	-9	-24	-33	-35	-30	-20	-8	4	12	15	14	9	3	-4	-6	-2	8	22	36	48	54	51	42
10-Jul	Su		27	8	-12	-29	-40	-44	-41	-33	-21	-9	3	11	15	16	14	11	10	13	20	31	42	51	55	51
11-Jul	M		42	27	8	-14	-33	-47	-54	-53	-46	-33	-18	-3	11	20	24	24	22	20	21	26	34	44	52	56
12-Jul	Tu		53	44	29	8	-16	-38	-55	-64	-64	-55	-40	-21	-2	16	28	33	33	29	25	24	27	34	43	52
13-Jul	W		58	57	48	32	9	-19	-44	-63	-72	-72	-61	-42	-19	5	24	36	40	37	30	24	21	23	31	43
14-Jul	Th		54	62	61	52	33	7	-24	-51	-70	-79	-75	-60	-37	-11	15	33	43	44	37	27	18	15	18	29
15-Jul	F	Full Moon	43	57	66	65	53	31	1	-31	-58	-75	-81	-73	-54	-27	2	26	42	47	43	32	20	10	8	14
16-Jul	Sa		28	45	61	69	66	50	25	-7	-38	-63	-77	-77	-64	-41	-12	16	37	48	48	38	24	10	1	1
17-Jul	Su		11	29	48	63	69	62	43	16	-16	-45	-65	-73	-67	-49	-23	6	30	46	50	44	30	14	-1	-8
18-Jul	M		-4	11	30	49	62	64	54	33	5	-25	-49	-63	-64	-52	-30	-3	23	42	51	48	37	20	3	-10
19-Jul	Tu		-13	-5	12	31	48	58	56	43	21	-6	-30	-48	-55	-49	-32	-9	17	37	50	52	43	27	9	-8
20-Jul	W		-17	-16	-6	12	30	44	50	45	30	9	-13	-31	-42	-42	-31	-12	12	33	48	53	48	35	17	-1
21-Jul	Th		-15	-21	-17	-6	11	27	37	40	33	19	1	-16	-27	-31	-25	-11	9	28	44	53	52	42	26	9
22-Jul	F		-9	-20	-23	-18	-7	8	21	28	29	22	11	-3	-13	-18	-16	-8	8	24	40	50	53	47	35	19
23-Jul	Sa	Last Quarter	2	-13	-22	-25	-20	-11	2	12	19	19	15	8	1	-5	-6	-1	9	22	35	46	51	50	42	29
24-Jul	Su		13	-3	-16	-25	-28	-25	-17	-7	4	10	13	12	10	7	6	8	13	21	31	41	47	50	46	38
25-Jul	M		25	11	-5	-19	-29	-33	-32	-25	-15	-5	5	11	15	16	17	17	19	22	28	35	42	47	48	44
26-Jul	Tu		36	25	10	-7	-23	-35	-42	-41	-34	-23	-10	3	14	21	25	27	26	26	27	31	36	41	46	48
27-Jul	W		45	38	26	9	-11	-30	-44	-52	-52	-43	-28	-11	7	21	30	35	34	31	28	27	29	34	40	47
28-Jul	Th		51	50	43	28	8	-17	-39	-56	-64	-61	-49	-29	-7	14	30	40	42	38	32	26	23	25	32	41
29-Jul	F		51	57	56	47	29	3	-25	-50	-67	-73	-67	-49	-25	2	25	40	47	45	37	27	19	17	20	30
30-Jul	Sa		44	56	64	62	50	27	-4	-35	-61	-76	-78	-66	-43	-15	14	37	49	51	43	31	18	9	8	15
31-Jul	Su	New Moon	30	47	62	70	65	49	21	-13	-44	-68	-80	-77	-59	-31	1	28	47	54	50	37	20	6	-3	-1

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

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

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Hourly Astronomical Tide Level at Soma port, Fukushima 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		-77	-65	-42	-14	15	36	47	47	38	24	10	1	1	12	30	50	68	77	73	55	28	-5	-35	-59
2-Oct	Su		-72	-71	-58	-36	-12	12	28	36	35	29	20	12	8	13	25	42	58	70	73	64	44	18	-11	-36
3-Oct	M		-54	-63	-60	-48	-31	-11	7	20	26	26	23	19	15	16	22	33	46	58	64	63	52	34	13	-11
4-Oct	Tu	First Quarter	-30	-44	-50	-48	-40	-27	-12	2	13	19	22	22	21	20	21	26	34	43	50	53	51	42	28	12
5-Oct	W		-6	-21	-32	-39	-39	-34	-25	-14	-2	9	17	23	26	26	24	24	25	29	33	38	40	39	34	26
6-Oct	Th		16	3	-11	-22	-30	-33	-31	-25	-14	-2	11	21	28	31	30	26	21	18	17	19	24	28	31	32
7-Oct	F		29	22	12	-2	-15	-26	-31	-30	-24	-12	3	17	29	36	37	31	22	13	5	2	5	11	20	29
8-Oct	Sa		34	35	30	18	3	-13	-25	-31	-29	-20	-6	12	28	39	43	39	28	13	-2	-11	-14	-9	4	18
9-Oct	Su		31	40	42	35	22	4	-14	-26	-30	-26	-13	6	24	40	48	47	36	19	-2	-19	-28	-27	-17	1
10-Oct	M		21	37	47	47	38	21	1	-17	-27	-28	-19	-2	19	38	50	53	45	27	4	-20	-36	-42	-36	-19
11-Oct	Tu		5	28	45	53	50	36	17	-4	-19	-25	-21	-7	14	34	50	57	53	36	12	-16	-38	-51	-51	-38
12-Oct	W	Full Moon	-15	12	36	52	56	48	32	12	-7	-18	-19	-10	9	30	48	59	59	46	22	-7	-34	-54	-61	-54
13-Oct	Th		-34	-7	21	44	55	55	43	25	6	-9	-15	-10	5	25	45	59	63	54	33	5	-26	-51	-65	-65
14-Oct	F		-51	-26	3	30	48	55	49	35	18	3	-8	-8	4	21	40	56	64	60	43	17	-14	-42	-61	-69
15-Oct	Sa		-62	-43	-16	13	35	48	50	41	27	12	1	-3	3	17	35	52	62	63	51	29	1	-29	-52	-66
16-Oct	Su		-67	-54	-33	-6	19	37	45	42	33	20	9	3	5	15	30	46	58	62	56	39	15	-14	-39	-57
17-Oct	M		-64	-60	-45	-23	2	22	35	38	34	26	16	10	8	14	25	39	51	58	57	46	26	2	-23	-43
18-Oct	Tu		-56	-59	-51	-36	-16	5	21	30	32	28	22	16	13	15	22	33	43	51	54	48	35	16	-6	-26
19-Oct	W		-42	-51	-51	-43	-30	-13	4	17	25	27	25	22	19	18	21	27	35	42	46	45	38	26	10	-8
20-Oct	Th	Last Quarter	-24	-37	-44	-44	-38	-27	-13	2	14	22	26	26	25	23	22	23	26	30	34	36	35	30	21	10
21-Oct	F		-5	-18	-29	-37	-40	-36	-27	-15	-1	13	23	28	30	29	26	22	19	18	19	22	25	26	26	22
22-Oct	Sa		15	5	-9	-21	-32	-37	-36	-28	-15	2	17	28	34	35	31	24	15	8	3	3	7	13	21	26
23-Oct	Su		28	25	16	2	-15	-28	-35	-35	-26	-11	8	25	37	42	39	30	16	1	-12	-18	-17	-9	5	19
24-Oct	M		31	38	36	26	10	-9	-25	-33	-31	-20	-2	19	36	47	48	40	22	1	-20	-35	-41	-36	-21	-1
25-Oct	Tu		21	39	48	46	34	15	-6	-21	-28	-24	-9	12	34	50	56	51	35	9	-19	-43	-58	-61	-50	-29
26-Oct	W		-2	26	46	55	52	38	18	-3	-17	-20	-12	7	29	50	62	63	50	25	-8	-40	-65	-78	-76	-59
27-Oct	Th	New Moon	-32	1	30	51	59	54	38	19	1	-11	-10	3	24	46	64	71	65	44	12	-25	-59	-82	-91	-83
28-Oct	F		-61	-30	5	33	52	57	50	35	18	3	-3	3	18	40	60	74	75	61	34	-3	-40	-71	-91	-94
29-Oct	Sa		-82	-57	-25	8	34	49	52	44	30	16	6	5	14	32	52	69	78	72	53	22	-15	-49	-76	-91
30-Oct	Su		-90	-74	-49	-19	10	32	43	44	36	25	15	9	12	24	41	59	72	75	64	42	11	-23	-52	-74
31-Oct	M		-83	-79	-62	-39	-13	12	28	36	36	30	21	14	12	17	30	45	59	67	66	53	30	3	-26	-50

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Hourly Astronomical Tide Level at Soma port, Fukushima 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	-71	-64	-49	-29	-8	12	25	30	30	25	19	14	14	20	31	43	53	57	53	40	21	-2	-24
2-Nov	W		-42	-53	-56	-49	-37	-20	-3	12	22	27	27	24	19	15	15	19	26	34	41	43	39	29	14	-3
3-Nov	Th	First Quarter	-19	-32	-40	-42	-37	-27	-14	2	14	23	27	28	25	20	15	12	13	16	22	26	29	27	21	12
4-Nov	F		1	-11	-21	-28	-30	-27	-19	-8	6	18	26	31	31	27	20	12	5	2	3	7	12	17	19	18
5-Nov	Sa		14	8	-2	-12	-19	-22	-20	-13	-2	11	23	32	36	35	28	17	4	-7	-13	-13	-9	-1	9	17
6-Nov	Su		20	20	15	6	-5	-13	-17	-15	-8	5	19	31	39	41	36	25	9	-9	-22	-29	-28	-20	-7	8
7-Nov	M		19	27	28	22	12	1	-9	-13	-11	-2	13	27	39	46	44	35	17	-5	-25	-39	-44	-39	-26	-8
8-Nov	Tu		12	26	35	35	27	15	3	-8	-10	-5	7	22	37	48	51	44	27	4	-22	-43	-55	-56	-46	-26
9-Nov	W		-3	19	35	42	39	29	15	3	-6	-6	3	17	33	47	54	52	38	15	-14	-40	-60	-68	-63	-46
10-Nov	Th		-21	6	29	43	47	40	28	13	2	-4	1	12	28	44	56	58	48	27	-2	-32	-57	-73	-75	-63
11-Nov	F	Full Moon	-40	-12	17	37	48	47	38	24	11	2	1	9	23	40	54	61	56	40	13	-19	-49	-71	-81	-76
12-Nov	Sa		-58	-31	-1	26	43	49	44	33	19	8	3	6	18	34	50	60	61	50	27	-4	-35	-62	-79	-82
13-Nov	Su		-71	-48	-19	10	32	45	46	39	27	15	7	6	14	27	44	57	62	57	40	13	-19	-48	-70	-81
14-Nov	M		-78	-62	-37	-9	18	36	43	41	32	21	12	8	11	21	36	50	59	59	48	27	-2	-31	-56	-73
15-Nov	Tu		-78	-69	-51	-26	1	23	36	40	35	27	17	11	10	16	27	41	51	56	51	37	14	-13	-38	-59
16-Nov	W		-70	-70	-59	-40	-16	7	25	34	36	31	23	16	11	13	20	30	41	48	49	41	26	4	-20	-41
17-Nov	Th		-56	-63	-60	-48	-30	-9	11	26	33	33	28	21	15	12	14	20	28	35	39	38	30	17	-2	-21
18-Nov	F		-38	-49	-54	-50	-38	-22	-4	14	26	32	32	27	20	14	10	10	14	19	24	28	27	22	12	-2
19-Nov	Sa	Last Quarter	-16	-30	-39	-43	-39	-30	-15	3	18	29	34	33	27	19	11	4	1	1	4	10	15	18	17	12
20-Nov	Su		4	-7	-18	-27	-32	-30	-21	-8	9	23	33	37	35	27	16	3	-9	-16	-18	-15	-7	3	11	16
21-Nov	M		18	14	6	-6	-16	-21	-21	-13	1	16	31	40	42	37	26	9	-10	-26	-36	-39	-34	-22	-7	9
22-Nov	Tu		20	26	25	18	6	-6	-12	-12	-5	10	26	40	48	48	39	21	-3	-27	-46	-58	-60	-51	-34	-12
23-Nov	W		10	26	36	36	28	15	3	-5	-4	6	21	37	51	57	53	38	14	-16	-45	-67	-78	-77	-63	-40
24-Nov	Th		-13	14	34	44	43	34	20	8	2	5	15	32	49	61	64	56	35	4	-31	-62	-84	-93	-88	-69
25-Nov	F	New Moon	-41	-10	19	39	48	46	35	22	11	7	11	24	42	59	70	69	55	28	-7	-44	-75	-96	-101	-91
26-Nov	Sa		-68	-37	-4	24	42	49	45	34	21	11	9	17	32	51	67	74	69	50	20	-18	-54	-83	-100	-101
27-Nov	Su		-87	-61	-29	3	28	43	46	40	29	17	10	11	21	38	56	70	74	65	42	10	-27	-60	-85	-97
28-Nov	M		-94	-76	-50	-19	10	31	41	42	34	23	13	8	12	24	41	58	68	69	56	32	-1	-33	-62	-82
29-Nov	Tu		-88	-80	-62	-36	-8	16	32	38	36	28	17	9	6	12	24	40	54	61	58	44	20	-9	-37	-59
30-Nov	W		-73	-74	-64	-45	-21	3	22	33	36	31	22	12	5	4	10	22	35	46	50	45	30	10	-14	-36

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

			Time																								
Date		Moon	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		-53	-60	-58	-46	-28	-8	12	27	34	33	28	18	9	2	1	6	16	26	34	36	31	18	2	-16	
2-Dec	F	First Quarter	-32	-43	-46	-41	-29	-13	5	20	31	34	32	25	15	6	-2	-4	-1	6	14	20	22	18	10	-2	
3-Dec	Sa		-14	-24	-31	-31	-26	-15	-1	14	26	34	35	32	24	13	2	-8	-12	-11	-7	-1	7	10	10	6	
4-Dec	Su		-1	-8	-14	-18	-18	-13	-4	9	21	31	36	37	32	22	10	-4	-16	-23	-24	-21	-13	-5	3	7	
5-Dec	M		8	6	2	-4	-7	-8	-4	5	15	26	35	39	38	32	20	5	-13	-27	-36	-38	-33	-23	-11	1	
6-Dec	Tu		10	14	15	11	6	2	1	4	11	21	31	39	42	40	31	15	-5	-25	-42	-51	-51	-43	-29	-12	
7-Dec	W		5	17	23	24	19	13	7	5	8	15	26	36	44	46	40	27	7	-18	-40	-57	-64	-61	-48	-28	
8-Dec	Th		-7	13	26	32	30	24	16	9	7	11	20	31	42	49	48	39	20	-6	-33	-56	-71	-74	-66	-47	
9-Dec	F		-23	2	22	35	38	34	25	16	9	9	14	25	38	49	54	49	34	10	-20	-48	-71	-82	-80	-66	
10-Dec	Sa	Full Moon	-42	-15	12	31	41	41	33	23	13	8	10	19	32	46	55	57	47	26	-3	-35	-63	-82	-89	-81	
11-Dec	Su		-61	-33	-4	22	38	43	40	30	19	10	8	13	24	39	53	59	56	41	15	-17	-49	-75	-89	-90	
12-Dec	M		-76	-51	-21	8	30	42	43	36	24	13	7	8	16	30	46	57	60	52	32	3	-31	-60	-82	-91	
13-Dec	Tu		-85	-66	-39	-9	18	36	43	40	30	18	9	5	9	20	35	49	58	56	43	20	-11	-42	-68	-84	
14-Dec	W		-87	-75	-53	-25	4	26	39	41	35	24	12	4	3	10	22	37	49	54	49	33	8	-21	-49	-70	
15-Dec	Th		-80	-77	-62	-39	-12	14	32	40	38	29	17	6	-1	1	9	22	35	44	46	38	21	-3	-28	-50	
16-Dec	F		-66	-70	-63	-47	-23	2	23	36	40	34	24	11	1	-5	-3	5	16	27	34	35	27	12	-8	-29	
17-Dec	Sa		-46	-56	-56	-47	-30	-9	13	30	39	38	30	18	5	-6	-11	-10	-4	6	16	22	23	17	6	-9	
18-Dec	Su	Last Quarter	-24	-36	-42	-40	-30	-14	5	23	36	40	37	27	13	-2	-13	-20	-21	-17	-9	1	8	12	10	5	
19-Dec	M		-5	-14	-22	-26	-23	-14	-1	16	31	40	42	36	24	9	-8	-22	-32	-35	-33	-26	-16	-6	3	8	
20-Dec	Tu		8	5	-2	-8	-10	-8	-1	12	25	37	44	44	37	23	6	-15	-33	-46	-52	-51	-43	-30	-15	-2	
21-Dec	W		9	15	16	12	7	3	4	10	20	32	43	49	48	39	23	2	-23	-45	-61	-69	-68	-57	-40	-21	
22-Dec	Th		-2	15	24	26	23	17	12	11	16	25	37	48	54	53	42	23	-3	-32	-58	-76	-84	-81	-67	-46	
23-Dec	F		-21	4	22	33	35	30	22	15	14	18	28	41	53	60	58	45	22	-9	-41	-69	-89	-95	-89	-71	
24-Dec	Sa		-45	-17	11	30	39	39	31	22	14	13	18	30	45	59	66	62	46	19	-16	-50	-79	-97	-101	-90	
25-Dec	Su	New Moon	-68	-39	-8	19	36	42	38	29	17	10	9	17	32	49	63	69	62	42	12	-24	-58	-85	-100	-99	
26-Dec	M		-84	-58	-27	4	27	40	42	34	22	10	3	5	16	33	52	65	68	58	35	4	-32	-64	-87	-96	
27-Dec	Tu		-90	-71	-43	-13	15	34	41	38	27	13	1	-4	1	15	34	52	63	63	49	25	-8	-40	-67	-84	
28-Dec	W		-87	-75	-53	-25	3	26	38	40	32	19	4	-8	-10	-2	14	32	48	56	52	37	12	-17	-45	-65	
29-Dec	Th		-75	-72	-56	-33	-7	18	34	40	36	25	10	-5	-14	-14	-4	12	29	41	46	39	23	-1	-25	-46	
30-Dec	F		-59	-62	-53	-35	-13	11	29	39	39	31	18	2	-12	-18	-16	-7	8	22	31	32	25	10	-10	-28	
31-Dec	Sa		-42	-48	-46	-34	-16	6	24	37	41	37	26	11	-4	-16	-21	-19	-11	1	12	18	18	12	-1	-14	

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