NIWA high-water alert calendar

Lyttelton

Date of forecast:

October 2020

Introduction

The high-water red-alert calendar forecasts days when the tide + mean sea-level anomaly will be unusually high. If these very high waters combine with large waves or storm surges there is an increased chance of flooding or coastal erosion. The predicted high-waters include the height of (i) tide + (ii) mean sea level (MSL), and (iii) mean sea-level anomaly (MSLA). STORM SURGE IS NOT INCLUDED in the forecasts.

Tides are driven by the Sun and Moon's gravity and can be predicted many years in advance. The MSL is the long-term sea-level average. MSLA results from climate variability such as seasonal heating and cooling and the El Niño Southern Oscillation (ENSO) – MSLA is predicted 6 months in advance.

These calendars are updated monthly and the first six months include MSLA forecasts built using a statistical model incorporating forecasts from a dynamical coupled ocean-atmosphere model (the NCEP CFSv2 http://cfs.ncep.noaa.gov/ and the state of the El Niño Southern Oscillation https://en.wikipedia.org/wiki/El_Ni%C3%B1o%E2%80%93Southern_Oscillation at the time the forecast was made.

For each location, there are two types of calendar provided: (i) a calendar showing the alert days for the next 12 months, and (ii) a calendar for each month (e.g. Jan, Feb, …) with details of high and low tides for each day and a plot of forecast sea-level with time. The red shading ("red-alert") shows the highest 1% of all high-waters, the orange shading shows the highest 5%, and yellow shading the highest 10%.

High-water alerts are provided for Marsden Point, Auckland, Moturiki, Wellington, Lyttelton and Dunedin, relative to their local vertical datums. Other sites will be made available in future.

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1 Lyttelton

1.1 Lyttelton high-water alerts for the 12 months October 2020 – September 2021

Lyttelton high-water alert days

Highest 10% | Highest 5% | Highest 1%

October 2020						
Su	Mo	Tu	We	Th	Fr	Sa
				01	02	03
04	05	06	07	08	09	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

November 2020						
Su	Mo	Tu	We	Th	Fr	Sa
01	02	03	04	05	06	07
08	09	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

December 2020						
Su	Mo	Tu	We	Th	Fr	Sa
		01	02	03	04	05
06	07	08	09	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

January 2021						
Su	Mo	Tu	We	Th	Fr	Sa
					01	02
03	04	05	06	07	08	09
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

February 2021						
Su	Mo	Tu	We	Th	Fr	Sa
	01	02	03	04	05	06
07	08	09	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						

March 2021						
Su	Mo	Tu	We	Th	Fr	Sa
	01	02	03	04	05	06
07	08	09	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

April 2021						
Su	Mo	Tu	We	Th	Fr	Sa
				01	02	03
04	05	06	07	08	09	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

May 2021						
Su	Mo	Tu	We	Th	Fr	Sa
						01
02	03	04	05	06	07	08
09	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

June 2021						
Su	Mo	Tu	We	Th	Fr	Sa
		01	02	03	04	05
06	07	08	09	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

July 2021						
Su	Mo	Tu	We	Th	Fr	Sa
				01	02	03
04	05	06	07	08	09	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

August 2021						
Su	Mo	Tu	We	Th	Fr	Sa
01	02	03	04	05	06	07
08	09	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

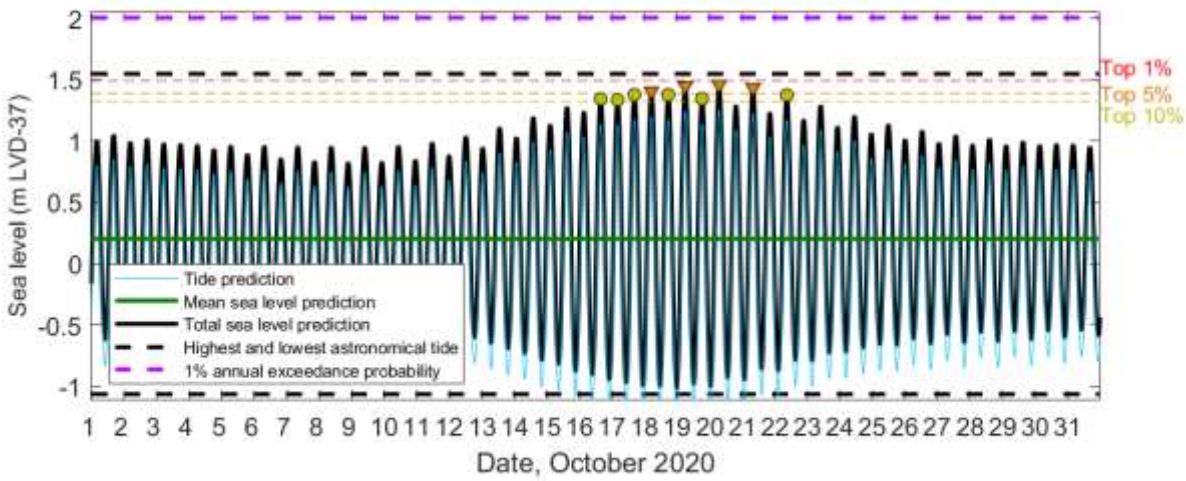
September 2021						
Su	Mo	Tu	We	Th	Fr	Sa
			01	02	03	04
05	06	07	08	09	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

1.2 Lyttelton high-water alert calendar for October 2020

Lyttelton, October 2020: predicted tide + mean sea level

Thu 01 Oct		Fri 02 Oct		Sat 03 Oct	
03:55	0.78	04:40	0.77	05:20	0.76
10:10	-0.85	10:55	-0.84	11:35	-0.82
16:20	0.83	17:00	0.79	17:40	0.75
22:35	-0.88	23:15	-0.86	23:55	-0.83

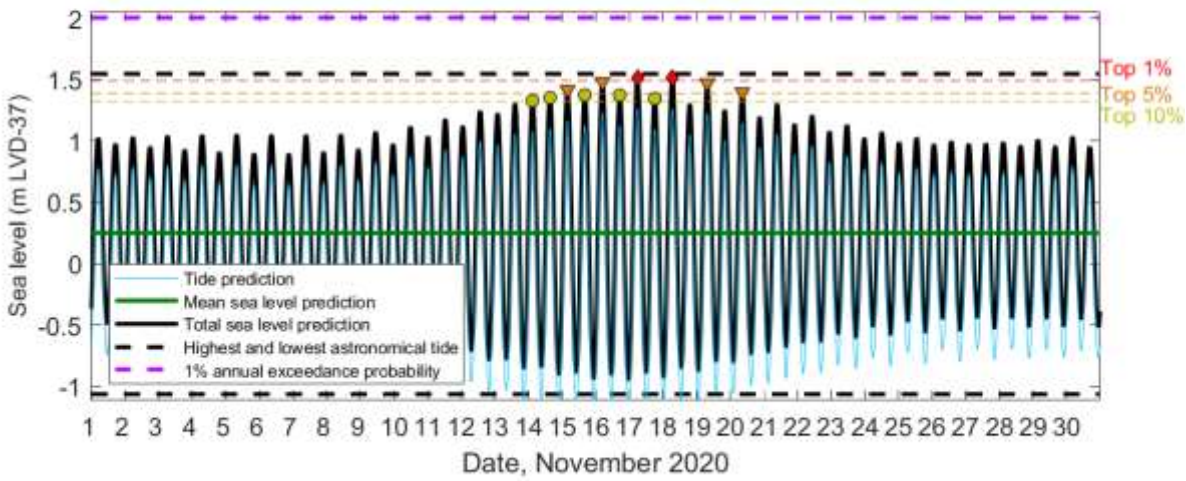
Sun 04 Oct		Mon 05 Oct		Tue 06 Oct		Wed 07 Oct		Thu 08 Oct		Fri 09 Oct		Sat 10 Oct	
06:05	0.75	00:30	-0.8	01:10	-0.77	01:50	-0.74	02:35	-0.72	03:20	-0.71	04:10	-0.72
12:10	-0.79	06:45	0.74	07:30	0.74	08:10	0.73	08:55	0.73	09:40	0.73	10:25	0.74
18:20	0.71	12:50	-0.75	13:30	-0.72	14:15	-0.69	15:05	-0.67	15:55	-0.67	16:45	-0.7
		19:05	0.67	19:50	0.64	20:35	0.61	21:20	0.6	22:10	0.61	22:55	0.63
Sun 11 Oct		**Mon 12 Oct**		**Tue 13 Oct**		**Wed 14 Oct**		**Thu 15 Oct**		**Fri 16 Oct**		**Sat 17 Oct**	
05:00	-0.75	05:50	-0.81	00:40	0.72	01:30	0.81	02:25	0.91	03:15	1.02	04:10	1.11
11:20	0.76	12:10	0.81	06:40	-0.88	07:35	-0.96	08:30	-1.05	09:30	-1.14	10:25	-1.2
17:40	-0.76	18:30	-0.83	13:00	0.89	13:55	0.97	14:45	1.05	15:40	1.12	16:35	1.15
23:45	0.66			19:20	-0.93	20:10	-1.02	21:05	-1.11	21:55	-1.18	22:50	-1.23
Sun 18 Oct		**Mon 19 Oct**		**Tue 20 Oct**		**Wed 21 Oct**		**Thu 22 Oct**		**Fri 23 Oct**		**Sat 24 Oct**	
05:05	1.18	06:05	1.22	00:40	-1.23	01:35	-1.18	02:35	-1.11	03:35	-1.02	04:30	-0.95
11:20	-1.23	12:20	-1.21	07:00	1.23	08:00	1.21	08:55	1.15	09:50	1.07	10:50	0.98
17:30	1.15	18:25	1.12	13:15	-1.16	14:15	-1.09	15:15	-1.02	16:15	-0.96	17:15	-0.92
23:45	-1.25			19:25	1.07	20:25	1.01	21:25	0.95	22:20	0.89	23:15	0.84
Sun 25 Oct		**Mon 26 Oct**		**Tue 27 Oct**		**Wed 28 Oct**		**Thu 29 Oct**		**Fri 30 Oct**		**Sat 31 Oct**	
05:30	-0.89	00:10	0.79	01:05	0.76	02:00	0.75	02:45	0.74	03:30	0.75	04:10	0.75
11:50	0.91	06:25	-0.85	07:20	-0.81	08:10	-0.79	09:00	-0.78	09:45	-0.78	10:25	-0.78
18:10	-0.9	12:45	0.86	13:35	0.82	14:25	0.8	15:05	0.77	15:50	0.75	16:30	0.73
		19:05	-0.89	19:55	-0.88	20:40	-0.87	21:20	-0.85	22:00	-0.84	22:40	-0.82



1.3 Lyttelton high-water alert calendar for November 2020

Lyttelton, November 2020: predicted tide + mean sea level

Sun 01 Nov		Mon 02 Nov		Tue 03 Nov		Wed 04 Nov		Thu 05 Nov		Fri 06 Nov		Sat 07 Nov	
04:50	0.8	05:35	0.81	00:00	-0.74	00:40	-0.73	01:20	-0.72	02:05	-0.71	02:55	-0.71
11:05	-0.72	11:45	-0.71	06:15	0.82	07:00	0.83	07:40	0.83	08:25	0.83	09:10	0.83
17:10	0.76	17:50	0.73	12:25	-0.69	13:05	-0.68	13:50	-0.67	14:40	-0.67	15:30	-0.69
23:20	-0.76			18:35	0.71	19:20	0.69	20:05	0.68	20:55	0.67	21:40	0.69
Sun 08 Nov		**Mon 09 Nov**		**Tue 10 Nov**		**Wed 11 Nov**		**Thu 12 Nov**		**Fri 13 Nov**		**Sat 14 Nov**	
03:45	-0.73	04:35	-0.76	05:25	-0.81	00:10	0.82	01:05	0.9	01:55	1	02:50	1.1
10:00	0.83	10:50	0.85	11:40	0.9	06:15	-0.87	07:10	-0.94	08:10	-1.01	09:10	-1.07
16:20	-0.73	17:10	-0.78	18:00	-0.85	12:35	0.96	13:25	1.02	14:20	1.08	15:20	1.13
22:30	0.71	23:20	0.75			18:50	-0.94	19:45	-1.02	20:35	-1.08	21:30	-1.14
Sun 15 Nov		**Mon 16 Nov**		**Tue 17 Nov**		**Wed 18 Nov**		**Thu 19 Nov**		**Fri 20 Nov**		**Sat 21 Nov**	
03:50	1.19	04:45	1.26	05:45	1.29	00:20	-1.16	01:15	-1.11	02:10	-1.03	03:10	-0.95
10:05	-1.12	11:05	-1.14	12:00	-1.12	06:40	1.29	07:40	1.25	08:35	1.17	09:30	1.08
16:15	1.15	17:10	1.15	18:10	1.12	13:00	-1.08	13:55	-1.03	14:55	-0.97	15:50	-0.91
22:30	-1.17	23:25	-1.18			19:05	1.08	20:05	1.03	21:00	0.97	21:55	0.92
Sun 22 Nov		**Mon 23 Nov**		**Tue 24 Nov**		**Wed 25 Nov**		**Thu 26 Nov**		**Fri 27 Nov**		**Sat 28 Nov**	
04:05	-0.87	05:00	-0.8	05:50	-0.74	00:35	0.77	01:25	0.75	02:10	0.75	02:55	0.77
10:25	0.99	11:20	0.91	12:10	0.85	06:45	-0.7	07:40	-0.68	08:30	-0.67	09:15	-0.67
16:45	-0.87	17:40	-0.83	18:30	-0.81	13:00	0.8	13:50	0.77	14:35	0.76	15:15	0.74
22:50	0.85	23:40	0.8			19:20	-0.79	20:00	-0.77	20:45	-0.76	21:25	-0.75
Sun 29 Nov		**Mon 30 Nov**											
03:40	0.79	04:20	0.81										
09:55	-0.68	10:35	-0.68										
16:00	0.74	16:40	0.73										
22:05	-0.74	22:45	-0.74										



1.4 Lyttelton high-water alert calendar for December 2020

Lyttelton, December 2020: predicted tide + mean sea level

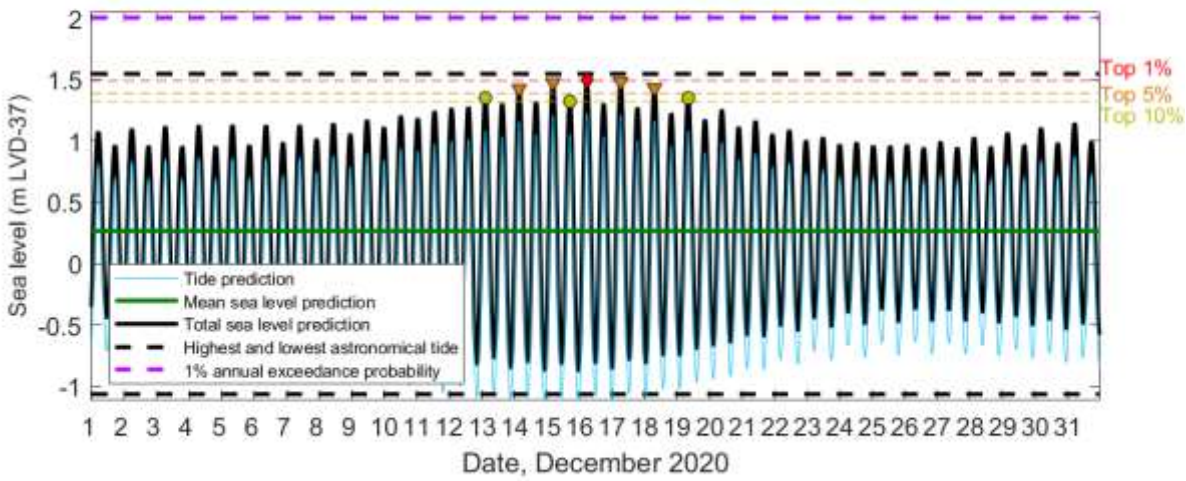
Tue 01 Dec		Wed 02 Dec		Thu 03 Dec		Fri 04 Dec		Sat 05 Dec	
05:00	0.85	05:45	0.88	00:10	-0.74	00:55	-0.75	01:40	-0.76
11:15	-0.67	12:00	-0.68	06:30	0.9	07:15	0.91	07:55	0.91
17:20	0.74	18:05	0.74	12:45	-0.69	13:30	-0.71	14:15	-0.73
23:30	-0.73			18:50	0.73	19:40	0.73	20:30	0.74

Sun 06 Dec		Mon 07 Dec		Tue 08 Dec		Wed 09 Dec		Thu 10 Dec		Fri 11 Dec		Sat 12 Dec	
02:25	-0.78	03:15	-0.79	04:05	-0.82	05:00	-0.85	05:55	-0.88	00:40	0.96	01:35	1.04
08:45	0.91	09:35	0.91	10:25	0.92	11:20	0.95	12:10	0.98	06:50	-0.92	07:50	-0.96
15:05	-0.76	15:55	-0.8	16:45	-0.84	17:35	-0.89	18:30	-0.95	13:05	1.02	14:00	1.05
21:15	0.77	22:05	0.79	22:55	0.84	23:45	0.89			19:20	-1.01	20:15	-1.05

Sun 13 Dec		Mon 14 Dec		Tue 15 Dec		Wed 16 Dec		Thu 17 Dec		Fri 18 Dec		Sat 19 Dec	
02:35	1.13	03:30	1.2	04:30	1.25	05:25	1.27	00:00	-1.09	00:55	-1.05	01:50	-0.98
08:55	-1	09:50	-1.03	10:50	-1.05	11:45	-1.04	06:20	1.26	07:15	1.21	08:10	1.13
15:00	1.08	15:55	1.1	16:55	1.1	17:50	1.08	12:40	-1.02	13:35	-0.98	14:30	-0.93
21:10	-1.08	22:10	-1.1	23:05	-1.11			18:45	1.05	19:40	1	20:35	0.95

Sun 20 Dec		Mon 21 Dec		Tue 22 Dec		Wed 23 Dec		Thu 24 Dec		Fri 25 Dec		Sat 26 Dec	
02:40	-0.9	03:35	-0.81	04:25	-0.74	05:15	-0.67	06:05	-0.63	00:45	0.74	01:35	0.75
09:00	1.03	09:50	0.94	10:45	0.87	11:35	0.81	12:20	0.76	07:00	-0.6	07:50	-0.6
15:20	-0.87	16:10	-0.82	17:05	-0.78	17:50	-0.74	18:40	-0.72	13:10	0.74	13:55	0.72
21:25	0.89	22:15	0.83	23:05	0.78	23:55	0.75			19:20	-0.7	20:05	-0.69

Sun 27 Dec		Mon 28 Dec		Tue 29 Dec		Wed 30 Dec		Thu 31 Dec	
02:20	0.77	03:05	0.81	03:45	0.84	04:30	0.88	05:15	0.92
08:40	-0.61	09:20	-0.63	10:05	-0.65	10:45	-0.68	11:30	-0.72
14:40	0.72	15:25	0.73	16:10	0.75	16:50	0.76	17:35	0.78
20:45	-0.7	21:30	-0.71	22:15	-0.73	23:00	-0.76	23:45	-0.8

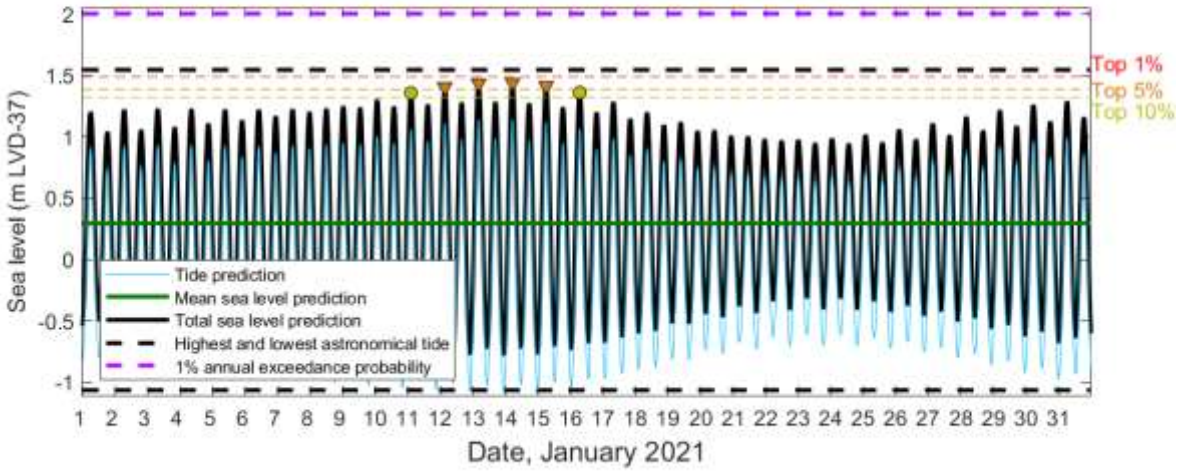


1.5 Lyttelton high-water alert calendar for January 2021

Lyttelton, January 2021: predicted tide + mean sea level

Fri 01 Jan		Sat 02 Jan	
06:00	0.98	00:30	-0.81
12:20	-0.73	06:45	1
18:25	0.82	13:05	-0.77
		19:15	0.84

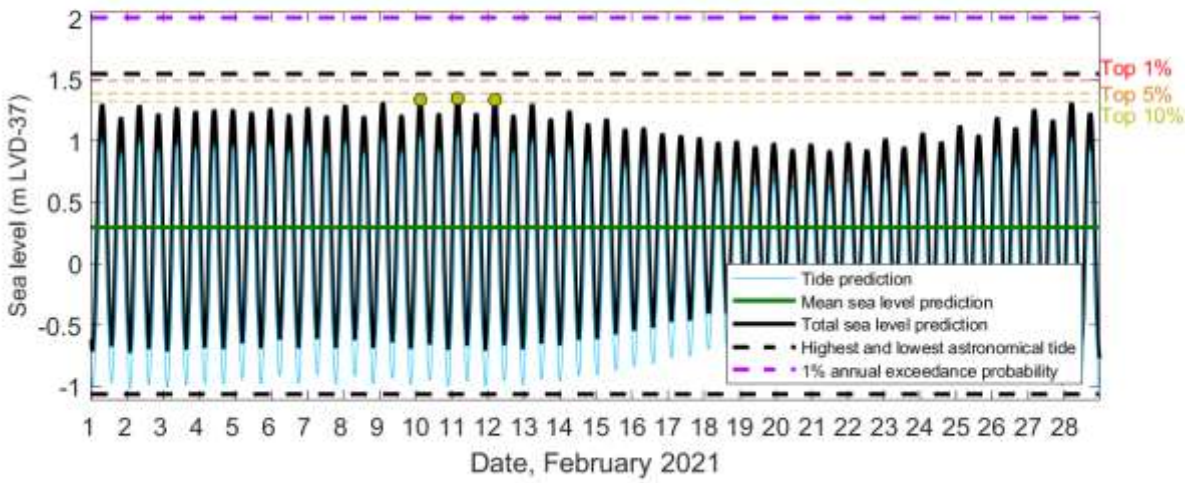
Sun 03 Jan		Mon 04 Jan		Tue 05 Jan		Wed 06 Jan		Thu 07 Jan		Fri 08 Jan		Sat 09 Jan	
01:15	-0.83	02:05	-0.85	02:55	-0.86	03:45	-0.86	04:40	-0.86	05:35	-0.85	00:20	1.03
07:30	1.01	08:20	1	09:10	1	10:05	1	11:00	1	11:55	1.01	06:35	-0.86
13:50	-0.8	14:40	-0.83	15:30	-0.85	16:20	-0.88	17:15	-0.9	18:10	-0.93	12:50	1.02
20:05	0.86	20:50	0.88	21:40	0.91	22:35	0.95	23:25	0.98			19:05	-0.96
Sun 10 Jan		**Mon 11 Jan**		**Tue 12 Jan**		**Wed 13 Jan**		**Thu 14 Jan**		**Fri 15 Jan**		**Sat 16 Jan**	
01:20	1.08	02:20	1.13	03:15	1.18	04:15	1.21	05:10	1.22	06:00	1.19	00:35	-0.96
07:40	-0.88	08:40	-0.91	09:40	-0.94	10:35	-0.95	11:30	-0.95	12:20	-0.93	06:50	1.14
13:45	1.03	14:45	1.04	15:40	1.06	16:35	1.06	17:30	1.05	18:25	1.02	13:10	-0.9
20:00	-0.97	20:55	-0.99	21:55	-1	22:50	-1.01	23:45	-1			19:15	0.98
Sun 17 Jan		**Mon 18 Jan**		**Tue 19 Jan**		**Wed 20 Jan**		**Thu 21 Jan**		**Fri 22 Jan**		**Sat 23 Jan**	
01:25	-0.9	02:10	-0.82	03:00	-0.74	03:45	-0.67	04:35	-0.6	05:25	-0.56	00:05	0.75
07:40	1.06	08:30	0.98	09:20	0.9	10:10	0.83	10:55	0.78	11:45	0.75	06:20	-0.54
14:00	-0.86	14:45	-0.8	15:35	-0.75	16:20	-0.69	17:10	-0.66	17:55	-0.63	12:30	0.73
20:05	0.93	20:55	0.87	21:40	0.83	22:30	0.79	23:15	0.76			18:40	-0.63
Sun 24 Jan		**Mon 25 Jan**		**Tue 26 Jan**		**Wed 27 Jan**		**Thu 28 Jan**		**Fri 29 Jan**		**Sat 30 Jan**	
00:50	0.77	01:40	0.8	02:25	0.84	03:10	0.89	04:00	0.94	04:45	0.99	05:30	1.04
07:10	-0.54	08:00	-0.56	08:45	-0.6	09:30	-0.65	10:15	-0.7	11:00	-0.76	11:50	-0.81
13:15	0.72	14:05	0.73	14:50	0.76	15:35	0.79	16:20	0.83	17:10	0.87	17:55	0.9
19:25	-0.63	20:05	-0.65	20:55	-0.68	21:40	-0.73	22:30	-0.79	23:15	-0.85		
Sun 31 Jan													
00:05	-0.9												
06:20	1.07												
12:40	-0.86												
18:45	0.94												



1.6 Lyttelton high-water alert calendar for February 2021

Lyttelton, February 2021: predicted tide + mean sea level

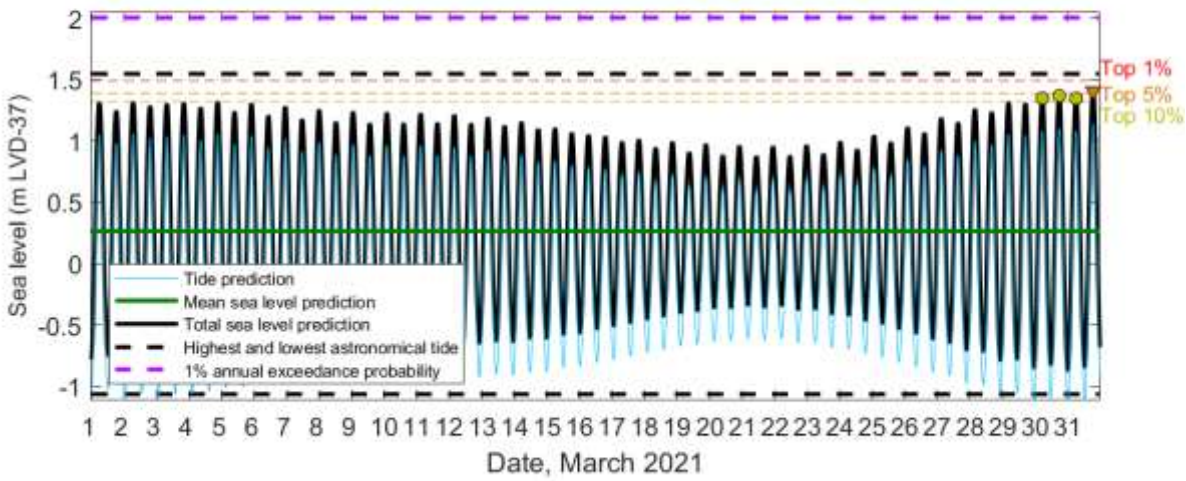
		Mon 01 Feb		Tue 02 Feb		Wed 03 Feb		Thu 04 Feb		Fri 05 Feb		Sat 06 Feb	
		00:50	-0.94	01:40	-0.95	02:35	-0.94	03:30	-0.91	04:25	-0.87	05:25	-0.85
		07:05	1.08	08:00	1.07	08:50	1.05	09:45	1.03	10:40	1.01	11:40	0.99
		13:25	-0.9	14:15	-0.92	15:05	-0.92	16:00	-0.92	16:55	-0.91	17:55	-0.91
		19:35	0.97	20:30	1	21:20	1.02	22:15	1.03	23:10	1.04		
Sun 07 Feb		**Mon 08 Feb**		**Tue 09 Feb**		**Wed 10 Feb**		**Thu 11 Feb**		**Fri 12 Feb**		**Sat 13 Feb**	
00:10	1.05	01:05	1.07	02:05	1.09	03:05	1.11	04:00	1.12	04:50	1.11	05:35	1.08
06:30	-0.83	07:30	-0.85	08:30	-0.87	09:25	-0.88	10:15	-0.89	11:10	-0.89	11:55	-0.87
12:35	0.98	13:35	0.98	14:30	0.99	15:25	1	16:20	1	17:10	0.99	18:00	0.96
18:50	-0.91	19:45	-0.91	20:40	-0.92	21:40	-0.93	22:35	-0.93	23:25	-0.92		
Sun 14 Feb		**Mon 15 Feb**		**Tue 16 Feb**		**Wed 17 Feb**		**Thu 18 Feb**		**Fri 19 Feb**		**Sat 20 Feb**	
00:10	-0.89	00:55	-0.84	01:40	-0.77	02:25	-0.7	03:10	-0.63	04:00	-0.58	04:45	-0.54
06:25	1.02	07:10	0.96	07:55	0.89	08:45	0.82	09:30	0.77	10:20	0.73	11:05	0.71
12:45	-0.84	13:30	-0.8	14:10	-0.74	14:55	-0.69	15:40	-0.63	16:25	-0.6	17:15	-0.58
18:45	0.92	19:35	0.88	20:20	0.84	21:05	0.8	21:50	0.78	22:35	0.76	23:20	0.75
Sun 21 Feb		**Mon 22 Feb**		**Tue 23 Feb**		**Wed 24 Feb**		**Thu 25 Feb**		**Fri 26 Feb**		**Sat 27 Feb**	
05:40	-0.53	00:10	0.77	01:00	0.8	01:50	0.84	02:35	0.9	03:25	0.97	04:10	1.03
11:50	0.7	06:30	-0.54	07:20	-0.58	08:05	-0.63	08:55	-0.7	09:40	-0.77	10:30	-0.84
18:00	-0.59	12:40	0.71	13:25	0.73	14:15	0.77	15:05	0.82	15:50	0.89	16:35	0.95
		18:45	-0.61	19:30	-0.65	20:20	-0.7	21:10	-0.77	22:00	-0.85	22:50	-0.93
Sun 28 Feb													
05:00	1.09												
11:20	-0.9												
17:25	1.01												
23:40	-0.99												



1.7 Lyttelton high-water alert calendar for March 2021

Lyttelton, March 2021: predicted tide + mean sea level

		Mon 01 Mar		Tue 02 Mar		Wed 03 Mar		Thu 04 Mar		Fri 05 Mar		Sat 06 Mar	
		05:50	1.09	00:30	-1.05	01:20	-1.05	02:15	-1.02	03:15	-0.97	04:15	-0.91
		12:10	-0.98	06:40	1.1	07:35	1.08	08:35	1.05	09:30	1.02	10:30	0.99
		18:20	1.02	13:00	-1.01	13:50	-1.02	14:45	-1	15:40	-0.97	16:40	-0.93
				19:15	1.06	20:10	1.09	21:00	1.1	22:00	1.08	22:55	1.06
Sun 07 Mar		**Mon 08 Mar**		**Tue 09 Mar**		**Wed 10 Mar**		**Thu 11 Mar**		**Fri 12 Mar**		**Sat 13 Mar**	
05:15	-0.88	06:20	-0.86	00:55	1.02	01:55	1.01	02:50	1	03:40	0.99	04:25	0.97
11:25	0.96	12:25	0.93	07:20	-0.86	08:15	-0.87	09:05	-0.88	09:55	-0.88	10:45	-0.86
17:40	-0.91	18:35	-0.9	13:20	0.92	14:20	0.92	15:10	0.93	16:00	0.92	16:45	0.9
23:55	1.03			19:35	-0.88	20:30	-0.88	21:25	-0.88	22:15	-0.88	23:05	-0.87
Sun 14 Mar		**Mon 15 Mar**		**Tue 16 Mar**		**Wed 17 Mar**		**Thu 18 Mar**		**Fri 19 Mar**		**Sat 20 Mar**	
05:10	0.93	05:55	0.88	00:30	-0.8	01:10	-0.74	01:50	-0.68	02:35	-0.63	03:20	-0.59
11:30	-0.84	12:10	-0.81	06:40	0.83	07:25	0.77	08:10	0.72	08:55	0.69	09:45	0.66
17:30	0.88	18:20	0.84	12:55	-0.76	13:35	-0.71	14:15	-0.66	15:00	-0.62	15:45	-0.59
23:45	-0.84			19:05	0.82	19:50	0.79	20:30	0.77	21:15	0.75	22:00	0.74
Sun 21 Mar		**Mon 22 Mar**		**Tue 23 Mar**		**Wed 24 Mar**		**Thu 25 Mar**		**Fri 26 Mar**		**Sat 27 Mar**	
04:10	-0.57	05:00	-0.57	05:50	-0.6	00:20	0.77	01:10	0.82	02:00	0.89	02:50	0.97
10:30	0.65	11:15	0.66	12:00	0.67	06:40	-0.65	07:30	-0.72	08:15	-0.8	09:05	-0.88
16:30	-0.58	17:20	-0.6	18:05	-0.64	12:50	0.71	13:40	0.77	14:30	0.84	15:15	0.93
22:45	0.73	23:30	0.74			18:55	-0.69	19:45	-0.76	20:35	-0.84	21:30	-0.94
Sun 28 Mar		**Mon 29 Mar**		**Tue 30 Mar**		**Wed 31 Mar**							
03:40	1.04	04:30	1.09	05:25	1.12	00:10	-1.1						
09:55	-0.95	10:50	-1.01	11:40	-1.06	06:20	1.12						
16:05	1.01	17:00	1.09	17:55	1.14	12:35	-1.08						
22:25	-1.02	23:15	-1.08			18:50	1.18						



1.8 Lyttelton high-water alert calendar for April 2021

Lyttelton, April 2021: predicted tide + mean sea level

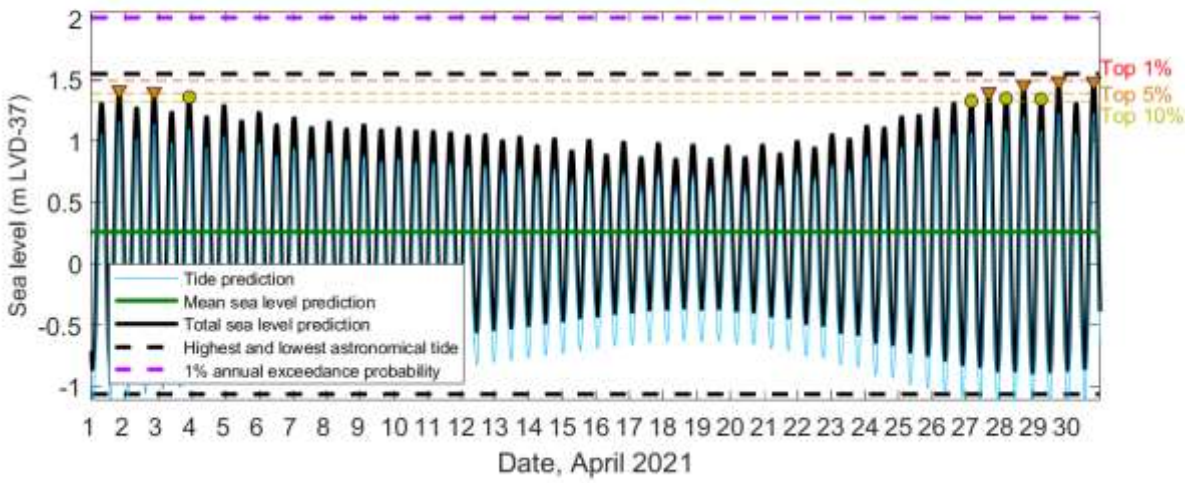
Thu 01 Apr		Fri 02 Apr		Sat 03 Apr	
01:05	-1.09	02:00	-1.05	03:00	-0.99
07:15	1.09	08:15	1.05	09:15	1.02
13:25	-1.07	14:25	-1.03	15:20	-0.98
19:45	1.19	20:45	1.17	21:40	1.13

Sun 04 Apr		Mon 05 Apr		Tue 06 Apr		Wed 07 Apr		Thu 08 Apr		Fri 09 Apr		Sat 10 Apr	
04:00	-0.94	05:05	-0.9	06:05	-0.88	00:40	0.97	01:35	0.94	02:30	0.91	03:15	0.89
10:10	0.98	11:10	0.95	12:05	0.92	07:00	-0.87	07:55	-0.87	08:45	-0.86	09:30	-0.84
16:25	-0.93	17:25	-0.89	18:20	-0.86	13:05	0.89	14:00	0.88	14:50	0.88	15:35	0.87
22:40	1.07	23:40	1.02			19:20	-0.84	20:15	-0.82	21:05	-0.81	21:55	-0.81

Sun 11 Apr		Mon 12 Apr		Tue 13 Apr		Wed 14 Apr		Thu 15 Apr		Fri 16 Apr		Sat 17 Apr	
04:00	0.86	04:45	0.83	05:25	0.79	00:00	-0.74	00:40	-0.7	01:20	-0.66	02:05	-0.63
10:15	-0.82	11:00	-0.79	11:40	-0.76	06:10	0.75	06:50	0.7	07:35	0.67	08:25	0.65
16:20	0.85	17:05	0.83	17:50	0.82	12:20	-0.72	12:55	-0.68	13:35	-0.64	14:20	-0.61
22:40	-0.8	23:20	-0.77			18:30	0.8	19:15	0.79	19:55	0.78	20:40	0.76

Sun 18 Apr		Mon 19 Apr		Tue 20 Apr		Wed 21 Apr		Thu 22 Apr		Fri 23 Apr		Sat 24 Apr	
02:50	-0.61	03:40	-0.6	04:30	-0.62	05:20	-0.66	06:05	-0.72	00:40	0.83	01:30	0.9
09:10	0.64	09:55	0.64	10:40	0.65	11:30	0.68	12:15	0.73	06:55	-0.8	07:45	-0.88
15:05	-0.59	15:55	-0.6	16:45	-0.63	17:35	-0.67	18:20	-0.74	13:05	0.8	13:55	0.89
21:20	0.75	22:10	0.74	22:55	0.75	23:50	0.78			19:10	-0.81	20:05	-0.89

Sun 25 Apr		Mon 26 Apr		Tue 27 Apr		Wed 28 Apr		Thu 29 Apr		Fri 30 Apr	
02:20	0.98	03:10	1.05	04:05	1.1	05:00	1.12	05:55	1.12	00:45	-1.1
08:35	-0.95	09:25	-1.02	10:20	-1.07	11:15	-1.11	12:10	-1.12	06:55	1.09
14:45	0.99	15:40	1.09	16:35	1.17	17:30	1.23	18:30	1.26	13:05	-1.09
21:00	-0.98	22:00	-1.06	22:55	-1.11	23:50	-1.12			19:25	1.26

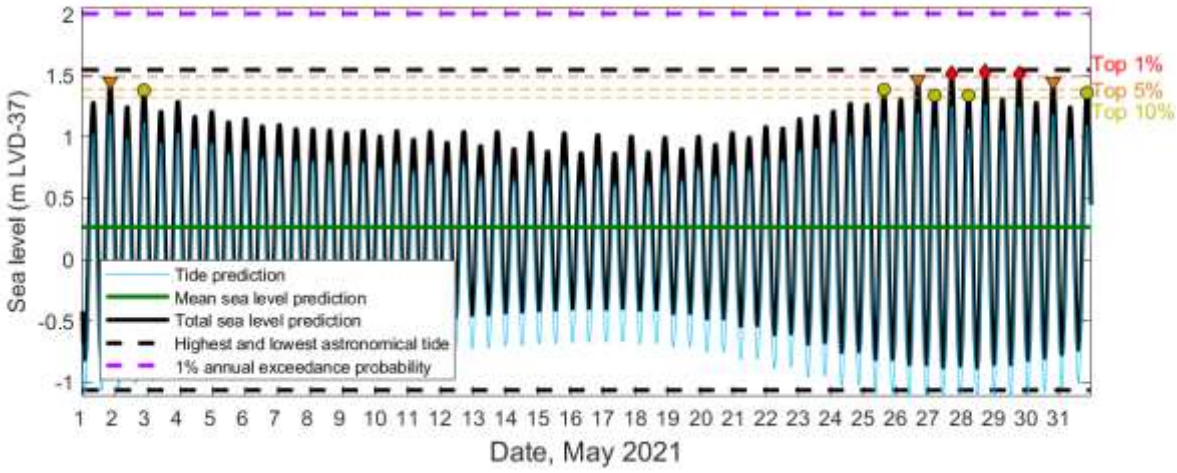


1.9 Lyttelton high-water alert calendar for May 2021

Lyttelton, May 2021: predicted tide + mean sea level

Sat 01 May	
01:45	-1.05
07:55	1.07
14:05	-1.03
20:25	1.23

Sun 02 May		Mon 03 May		Tue 04 May		Wed 05 May		Thu 06 May		Fri 07 May		Sat 08 May	
02:45	-1	03:45	-0.95	04:45	-0.91	05:45	-0.88	00:20	0.93	01:10	0.89	02:00	0.85
08:55	1.03	09:55	0.99	10:50	0.95	11:45	0.91	06:40	-0.86	07:30	-0.84	08:15	-0.82
15:05	-0.97	16:05	-0.91	17:05	-0.86	18:00	-0.81	12:40	0.87	13:35	0.85	14:25	0.84
21:20	1.16	22:20	1.07	23:20	1			18:55	-0.77	19:50	-0.75	20:45	-0.73
Sun 09 May		**Mon 10 May**		**Tue 11 May**		**Wed 12 May**		**Thu 13 May**		**Fri 14 May**		**Sat 15 May**	
02:50	0.82	03:35	0.79	04:15	0.77	04:55	0.74	05:40	0.71	00:10	-0.67	00:55	-0.65
09:00	-0.79	09:45	-0.76	10:25	-0.73	11:05	-0.71	11:45	-0.68	06:20	0.69	07:05	0.67
15:10	0.84	15:55	0.83	16:35	0.83	17:15	0.83	18:00	0.83	12:25	-0.66	13:05	-0.64
21:30	-0.73	22:15	-0.72	22:55	-0.7	23:35	-0.69			18:40	0.82	19:25	0.82
Sun 16 May		**Mon 17 May**		**Tue 18 May**		**Wed 19 May**		**Thu 20 May**		**Fri 21 May**		**Sat 22 May**	
01:35	-0.64	02:20	-0.64	03:10	-0.65	03:55	-0.67	04:45	-0.72	05:35	-0.78	00:10	0.87
07:50	0.66	08:40	0.65	09:25	0.66	10:10	0.69	10:55	0.72	11:45	0.78	06:25	-0.85
13:45	-0.63	14:35	-0.63	15:20	-0.64	16:10	-0.67	17:00	-0.72	17:50	-0.77	12:35	0.86
20:05	0.8	20:50	0.79	21:35	0.78	22:25	0.79	23:15	0.82			18:45	-0.84
Sun 23 May		**Mon 24 May**		**Tue 25 May**		**Wed 26 May**		**Thu 27 May**		**Fri 28 May**		**Sat 29 May**	
01:00	0.93	01:50	1	02:45	1.05	03:45	1.09	04:40	1.11	05:40	1.11	00:30	-1.09
07:15	-0.92	08:05	-0.99	09:00	-1.05	09:55	-1.09	10:50	-1.11	11:50	-1.12	06:35	1.1
13:30	0.95	14:20	1.06	15:15	1.16	16:10	1.24	17:10	1.29	18:10	1.31	12:45	-1.09
19:40	-0.91	20:40	-0.98	21:35	-1.05	22:35	-1.09	23:30	-1.1			19:05	1.29
Sun 30 May		**Mon 31 May**											
01:30	-1.05	02:25	-1.01										
07:35	1.07	08:35	1.03										
13:45	-1.04	14:40	-0.97										
20:05	1.23	21:00	1.14										



1.10 Lyttelton high-water alert calendar for June 2021

Lyttelton, June 2021: predicted tide + mean sea level

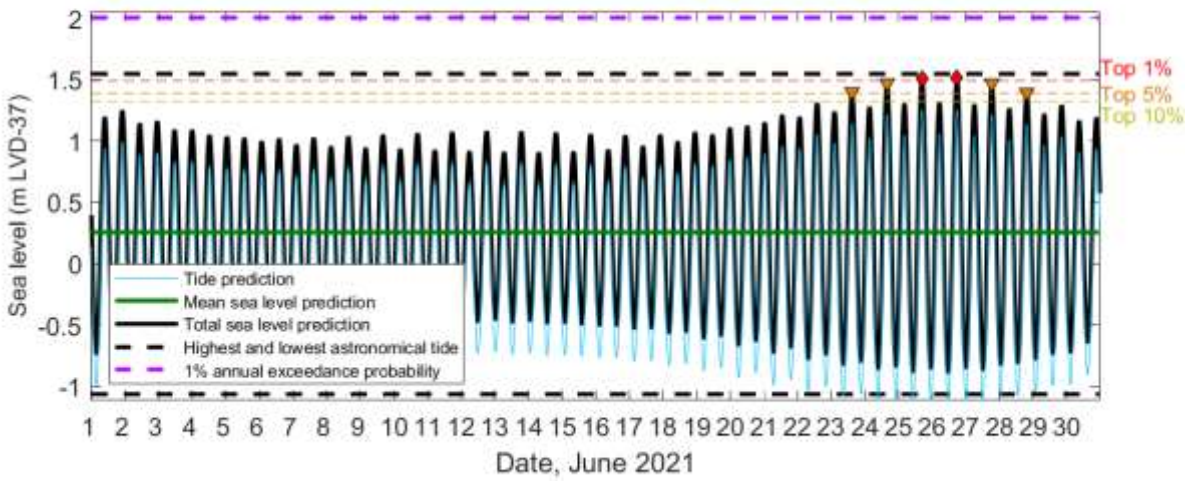
Tue 01 Jun		Wed 02 Jun		Thu 03 Jun		Fri 04 Jun		Sat 05 Jun	
03:20	-0.97	04:20	-0.92	05:15	-0.88	06:10	-0.84	00:40	0.81
09:30	0.97	10:25	0.92	11:20	0.87	12:15	0.83	06:55	-0.81
15:40	-0.9	16:35	-0.83	17:30	-0.77	18:30	-0.72	13:05	0.8
21:55	1.03	22:55	0.94	23:50	0.87			19:20	-0.69

Sun 06 Jun		Mon 07 Jun		Tue 08 Jun		Wed 09 Jun		Thu 10 Jun		Fri 11 Jun		Sat 12 Jun	
01:30	0.78	02:15	0.75	03:00	0.73	03:45	0.72	04:25	0.71	05:10	0.7	05:50	0.69
07:45	-0.78	08:25	-0.76	09:10	-0.73	09:50	-0.71	10:30	-0.7	11:10	-0.7	11:50	-0.7
13:55	0.8	14:40	0.8	15:20	0.81	16:05	0.83	16:45	0.84	17:30	0.85	18:10	0.86
20:15	-0.68	21:00	-0.68	21:45	-0.68	22:25	-0.68	23:05	-0.68	23:45	-0.68		

Sun 13 Jun		Mon 14 Jun		Tue 15 Jun		Wed 16 Jun		Thu 17 Jun		Fri 18 Jun		Sat 19 Jun	
00:25	-0.69	01:10	-0.7	01:55	-0.71	02:40	-0.73	03:30	-0.76	04:15	-0.8	05:05	-0.84
06:35	0.69	07:20	0.68	08:10	0.69	08:55	0.71	09:40	0.73	10:30	0.77	11:20	0.83
12:35	-0.71	13:20	-0.72	14:05	-0.72	14:55	-0.74	15:40	-0.76	16:35	-0.78	17:25	-0.82
18:50	0.85	19:35	0.85	20:20	0.83	21:10	0.82	22:00	0.83	22:50	0.85	23:40	0.88

Sun 20 Jun		Mon 21 Jun		Tue 22 Jun		Wed 23 Jun		Thu 24 Jun		Fri 25 Jun		Sat 26 Jun	
06:00	-0.9	00:35	0.93	01:30	0.97	02:25	1.02	03:25	1.05	04:25	1.08	05:20	1.09
12:10	0.9	06:50	-0.96	07:40	-1.01	08:35	-1.06	09:35	-1.09	10:35	-1.11	11:30	-1.12
18:20	-0.86	13:05	0.99	14:00	1.09	14:55	1.18	15:55	1.25	16:55	1.28	17:50	1.29
		19:20	-0.91	20:20	-0.97	21:20	-1.03	22:15	-1.07	23:15	-1.09		

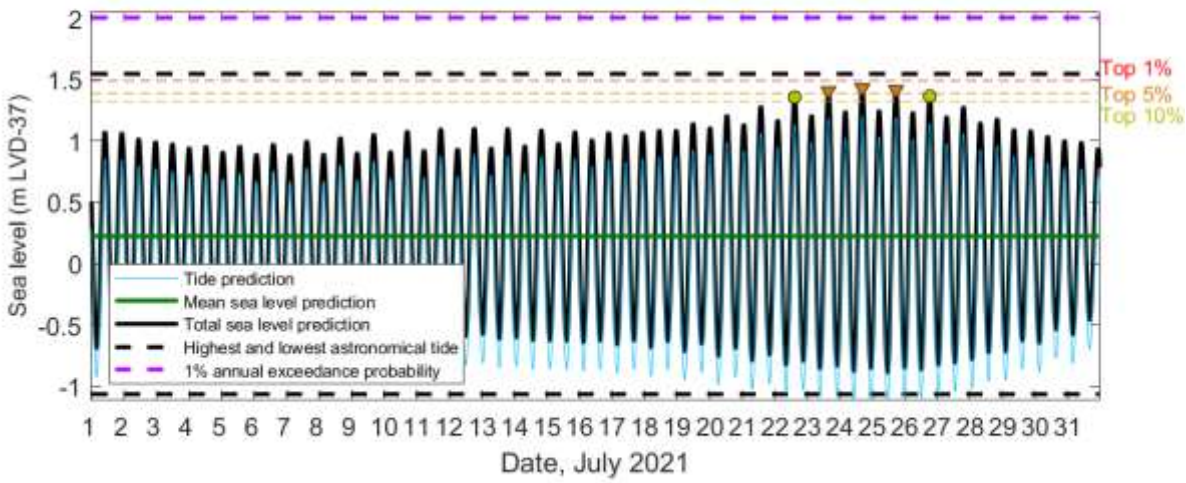
Sun 27 Jun		Mon 28 Jun		Tue 29 Jun		Wed 30 Jun	
00:10	-1.08	01:05	-1.05	02:00	-1.01	02:55	-0.95
06:15	1.07	07:15	1.04	08:10	1	09:05	0.94
12:25	-1.1	13:20	-1.04	14:15	-0.97	15:10	-0.88
18:45	1.25	19:40	1.17	20:35	1.07	21:30	0.97



1.11 Lyttelton high-water alert calendar for July 2021

Lyttelton, July 2021: predicted tide + mean sea level

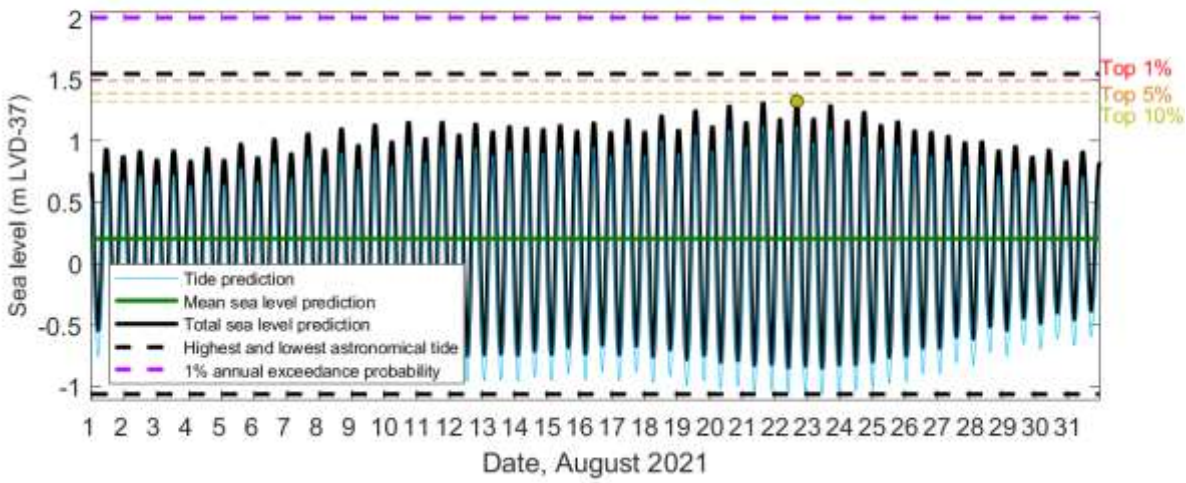
										Thu 01 Jul		Fri 02 Jul		Sat 03 Jul	
										03:45	-0.93	04:40	-0.87	05:30	-0.82
										09:55	0.85	10:45	0.8	11:40	0.76
										16:05	-0.82	17:00	-0.74	17:55	-0.69
										22:20	0.85	23:15	0.78		
Sun 04 Jul		Mon 05 Jul		Tue 06 Jul		Wed 07 Jul		Thu 08 Jul		Fri 09 Jul		Sat 10 Jul	
00:05	0.73	00:55	0.69	01:40	0.67	02:30	0.67	03:15	0.67	03:55	0.68	04:35	0.7
06:20	-0.79	07:05	-0.76	07:50	-0.74	08:30	-0.73	09:15	-0.73	10:00	-0.75	10:40	-0.77
12:30	0.74	13:20	0.74	14:05	0.76	14:50	0.78	15:30	0.81	16:15	0.84	16:55	0.86
18:50	-0.66	19:40	-0.65	20:30	-0.66	21:10	-0.68	21:50	-0.7	22:35	-0.73	23:15	-0.75
Sun 11 Jul		Mon 12 Jul		Tue 13 Jul		Wed 14 Jul		Thu 15 Jul		Fri 16 Jul		Sat 17 Jul	
05:20	0.71	00:00	-0.78	00:40	-0.81	01:25	-0.84	02:10	-0.86	03:00	-0.88	03:50	-0.9
11:25	-0.8	06:05	0.72	06:50	0.73	07:40	0.74	08:25	0.76	09:15	0.79	10:05	0.83
17:40	0.88	12:10	-0.83	12:50	-0.85	13:40	-0.86	14:25	-0.87	15:15	-0.86	16:10	-0.86
		18:20	0.89	19:05	0.88	19:50	0.87	20:40	0.86	21:35	0.85	22:30	0.85
Sun 18 Jul		Mon 19 Jul		Tue 20 Jul		Wed 21 Jul		Thu 22 Jul		Fri 23 Jul		Sat 24 Jul	
04:40	-0.92	05:35	-0.95	00:15	0.89	01:15	0.92	02:15	0.95	03:10	0.99	04:05	1.02
10:55	0.87	11:50	0.92	06:30	-0.99	07:25	-1.03	08:20	-1.06	09:20	-1.09	10:20	-1.11
17:05	-0.87	18:05	-0.89	12:45	0.99	13:45	1.06	14:45	1.13	15:40	1.18	16:35	1.21
23:20	0.87			19:05	-0.93	20:05	-0.98	21:05	-1.03	22:05	-1.07	23:00	-1.09
Sun 25 Jul		Mon 26 Jul		Tue 27 Jul		Wed 28 Jul		Thu 29 Jul		Fri 30 Jul		Sat 31 Jul	
05:00	1.03	05:55	1.01	00:45	-1.06	01:35	-1.02	02:20	-0.95	03:10	-0.88	04:00	-0.81
11:15	-1.12	12:05	-1.1	06:50	0.98	07:40	0.93	08:35	0.88	09:25	0.82	10:10	0.77
17:30	1.19	18:20	1.14	12:55	-1.04	13:50	-0.96	14:40	-0.86	15:30	-0.77	16:20	-0.69
23:50	-1.08			19:15	1.06	20:05	0.96	20:55	0.87	21:45	0.78	22:40	0.72



1.12 Lyttelton high-water alert calendar for August 2021

Lyttelton, August 2021: predicted tide + mean sea level

Sun 01 Aug		Mon 02 Aug		Tue 03 Aug		Wed 04 Aug		Thu 05 Aug		Fri 06 Aug		Sat 07 Aug	
04:50	-0.78	05:40	-0.74	00:15	0.63	01:05	0.62	01:50	0.63	02:40	0.65	03:25	0.68
11:00	0.72	11:50	0.7	06:25	-0.72	07:10	-0.72	07:55	-0.73	08:40	-0.76	09:25	-0.79
17:15	-0.66	18:10	-0.64	12:40	0.7	13:25	0.73	14:15	0.76	15:00	0.8	15:40	0.84
23:25	0.66			19:00	-0.64	19:50	-0.66	20:35	-0.7	21:20	-0.74	22:00	-0.79
Sun 08 Aug		**Mon 09 Aug**		**Tue 10 Aug**		**Wed 11 Aug**		**Thu 12 Aug**		**Fri 13 Aug**		**Sat 14 Aug**	
04:05	0.72	04:50	0.75	05:35	0.78	00:15	-0.93	01:00	-0.96	01:45	-0.98	02:35	-0.98
10:10	-0.84	10:55	-0.9	11:40	-0.94	06:20	0.81	07:10	0.83	08:00	0.86	08:50	0.89
16:25	0.88	17:10	0.92	17:50	0.94	12:25	-0.97	13:15	-0.98	14:05	-0.97	14:55	-0.95
22:45	-0.84	23:30	-0.89			18:40	0.94	19:25	0.92	20:20	0.9	21:15	0.88
Sun 15 Aug		**Mon 16 Aug**		**Tue 17 Aug**		**Wed 18 Aug**		**Thu 19 Aug**		**Fri 20 Aug**		**Sat 21 Aug**	
03:25	-0.98	04:20	-0.97	05:20	-0.98	00:00	0.86	01:00	0.87	02:00	0.9	02:55	0.93
09:45	0.91	10:40	0.93	11:35	0.96	06:15	-0.99	07:10	-1.02	08:10	-1.04	09:05	-1.06
15:50	-0.92	16:50	-0.9	17:55	-0.91	12:35	0.99	13:35	1.03	14:30	1.07	15:25	1.1
22:10	0.86	23:05	0.86			18:55	-0.94	19:55	-0.98	20:55	-1.02	21:45	-1.05
Sun 22 Aug		**Mon 23 Aug**		**Tue 24 Aug**		**Wed 25 Aug**		**Thu 26 Aug**		**Fri 27 Aug**		**Sat 28 Aug**	
03:50	0.96	04:40	0.97	05:30	0.95	00:20	-1.03	01:05	-0.99	01:50	-0.92	02:35	-0.85
10:05	-1.08	10:55	-1.08	11:45	-1.06	06:20	0.91	07:15	0.87	08:00	0.82	08:50	0.78
16:20	1.1	17:10	1.07	17:55	1.02	12:35	-1	13:20	-0.92	14:05	-0.83	14:55	-0.75
22:40	-1.07	23:30	-1.06			18:45	0.94	19:35	0.86	20:20	0.77	21:10	0.7
Sun 29 Aug		**Mon 30 Aug**		**Tue 31 Aug**									
03:20	-0.78	04:10	-0.72	04:55	-0.69								
09:35	0.74	10:20	0.71	11:10	0.69								
15:45	-0.68	16:35	-0.63	17:30	-0.62								
22:00	0.65	22:50	0.62	23:35	0.6								



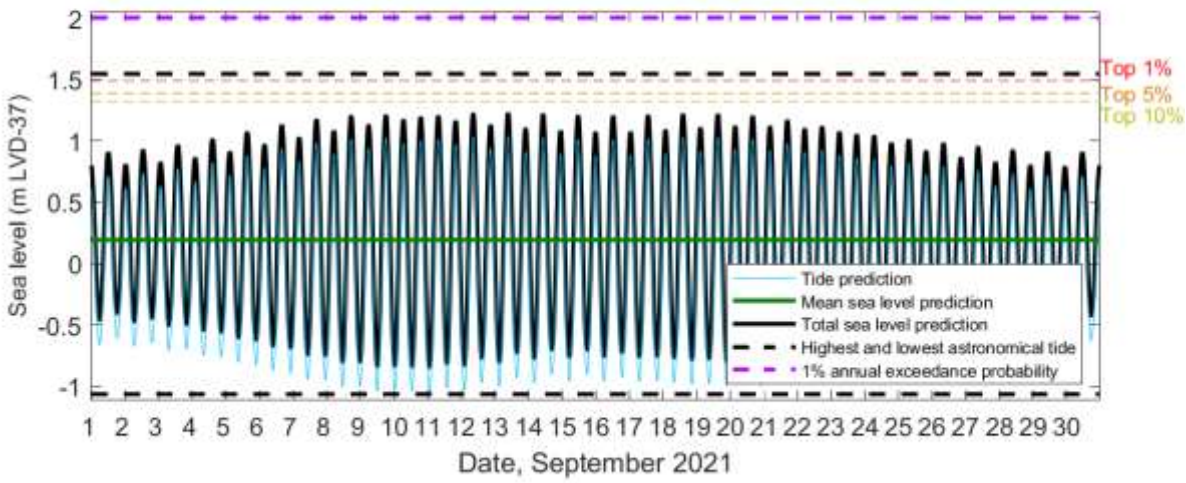
1.13 Lyttelton high-water alert calendar for September 2021

Lyttelton, September 2021: predicted tide + mean sea level

Wed 01 Sep		Thu 02 Sep		Fri 03 Sep		Sat 04 Sep	
05:45	-0.69	00:25	0.59	01:15	0.6	02:00	0.64
12:00	0.69	06:30	-0.71	07:15	-0.74	08:00	-0.78
18:20	-0.64	12:50	0.71	13:35	0.75	14:20	0.8
		19:10	-0.68	19:55	-0.73	20:40	-0.79

Sun 05 Sep		Mon 06 Sep		Tue 07 Sep		Wed 08 Sep		Thu 09 Sep		Fri 10 Sep		Sat 11 Sep	
02:50	0.69	03:35	0.75	04:15	0.81	05:05	0.86	05:50	0.91	00:30	-1.07	01:20	-1.08
08:50	-0.84	09:40	-0.9	10:30	-0.98	11:15	-1.03	12:00	-1.07	06:45	0.95	07:35	0.98
15:10	0.85	15:50	0.91	16:35	0.95	17:25	0.98	18:10	0.99	12:50	-1.07	13:45	-1.05
21:25	-0.86	22:10	-0.92	22:55	-0.98	23:45	-1.03			19:05	0.97	20:00	0.94

Sun 12 Sep		Mon 13 Sep		Tue 14 Sep		Wed 15 Sep		Thu 16 Sep		Fri 17 Sep		Sat 18 Sep	
02:10	-1.06	03:05	-1.03	04:05	-1.01	05:05	-0.99	06:00	-0.99	00:50	0.85	01:45	0.87
08:30	1	09:25	1.01	10:20	1	11:20	0.99	12:20	0.98	07:00	-0.99	07:55	-1
14:40	-1	15:40	-0.96	16:40	-0.94	17:45	-0.94	18:45	-0.96	13:20	0.99	14:20	1
20:55	0.91	21:55	0.88	22:50	0.86	23:50	0.85			19:45	-0.99	20:35	-1.01

Sun 19 Sep		Mon 20 Sep		Tue 21 Sep		Wed 22 Sep		Thu 23 Sep		Fri 24 Sep		Sat 25 Sep	
02:40	0.89	03:35	0.9	04:20	0.9	05:10	0.88	05:55	0.85	00:35	-0.93	01:15	-0.87
08:55	-1.01	09:50	-1.02	10:40	-1.01	11:25	-0.98	12:10	-0.93	06:45	0.82	07:30	0.79
15:10	1	16:00	0.98	16:45	0.95	17:30	0.9	18:15	0.83	12:50	-0.86	13:35	-0.79
21:30	-1.03	22:20	-1.03	23:05	-1.01	23:50	-0.98			19:05	0.76	19:50	0.7

Sun 26 Sep		Mon 27 Sep		Tue 28 Sep		Wed 29 Sep		Thu 30 Sep	
01:55	-0.8	02:40	-0.74	03:25	-0.7	04:15	-0.68	05:05	-0.68
08:15	0.76	09:00	0.73	09:45	0.71	10:30	0.69	11:20	0.69
14:20	-0.73	15:10	-0.67	16:00	-0.64	16:50	-0.64	17:40	-0.66
20:40	0.64	21:25	0.61	22:15	0.58	23:00	0.57	23:45	0.58