

2018

**SOUTH AFRICAN
TIDE TABLES**

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PREFACE

1. The tables contained in this publication give daily predictions of the times of heights and high and low water and hourly predictions of heights of the tide for certain ports as well as sunrise, sunset, moonrise and moonset tables.
2. In using these tables it should be remembered that meteorological conditions can cause considerable differences between predicted and actual tides.
 - a. **Atmospheric pressure.** Variations of atmospheric pressure cause the level of the sea to change by approximately 1cm per millibar. Mean atmospheric pressure at sea level on the South African coast is 1017.0mb. Highs of 1040.0mb and lows of 990.0mb are attained very occasionally.
 - b. **Wind.** The effect of wind depends on the topography in question. In general strong onshore winds pile up the water and offshore winds will lower it. Winds blowing along the coast tend to set up long waves which travel along the coast, known as “storm surges”. Variations of water level caused by storm surges of more than 0.3m about the mean tidal curve have been recorded at ports on the SE coast of the Republic.
3. All predicted heights are given in metres above Chart Datum, which is the datum to which all soundings on the largest scale navigational chart of the area have been reduced. Chart datum is now Lowest Astronomical Tide (LAT) in all ports of the Republic of South Africa and Namibia. The relationship between Chart datum and Land Levelling Datum prior to 1 January 1998 is given on page (v). The term Land Levelling Datum used in these tables refers to the datum adopted by the Chief Director, Surveys and Mapping for the Precise Levelling of the Republic of South Africa. It is commonly called Mean Sea Level by land surveyors.
4. The data for Moon Phases, Seasons and Eclipses was supplied by the South African Astronomical Observatory.
5. Rising and setting times for Sun and Moon are those when the upper limbs of these bodies appear to coincide with the horizon. They are those times when the centres of these bodies are 90° from the zenith with allowances made for mean refraction (+ 34') and semi-diameter (+ 16') for the Sun and semi-diameter minus horizontal parallax for the Moon. They are independent of altitude but should be corrected if necessary for dip, the height of eye of the observer above the plane of the horizon.
6. Users are requested to inform this office of any errors or omissions noted.
7. All times given are South African Standard Time (Time Zone -2). Users should remember that Namibia uses Time Zone-1 between April and September.

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TIDAL LEVELS

The values of Lowest Astronomical Tide (LAT) and Highest Astronomical Tide (HAT) are computed from 19 years' predictions. The Mean Levels are computed from the predictions of a recent year when the moon's average maximum declination was $23\frac{1}{2}^{\circ}$. The definitions of the several levels are given below.

- a. **HAT** and **LAT** are the highest and lowest levels respectively which can be predicted to occur under average meteorological conditions and under any combination of astronomical conditions. These levels will not be reached every year. HAT and LAT are not the extreme levels which can be reached, as storm surges and other meteorological conditions may cause considerably higher and lower levels to occur. **HATOY** and **LATOY** are the HAT and LAT for the year in question.
- b. **MHWS** (Mean High Water Springs). **MLWS** (Mean Low Water Springs). The height of mean high water springs is the average, throughout a year when the average maximum declination of the moon is $23\frac{1}{2}^{\circ}$, of the heights of two successive high waters during those periods of 24 hours (approximately once a fortnight) when the range of the tide is greatest. The height of mean low water springs is the average height obtained by the two successive low waters during the same periods.
- c. **MHWN** (Mean High Water Neaps). **MLWN** (Mean Low Water Neaps). The height of mean high water neaps is the average, throughout a year as defined in b. above, of the heights of two successive high waters during those periods (approximately once a fortnight) when the range of the tide is least. The height of mean low water neaps is the average height obtained from the two successive low waters during the same periods.

Note: The values of MHWS etc vary from year to year in a cycle of approximately 18.61 years. The mean tidal levels given in this table are computed average values for the whole cycle.

- d. **ML** (Mean Level) as given in this table, is the mean of the heights of MHWS, MHWN, MLWS and MLWN.
- e. **Years of observations.** Tidal predictions of South African ports are generally based on more than twenty years' observations.
- f. **General.** Tides on the Southern African coasts are regular, semi-diurnal and their range seldom exceeds 2.2m

PLACE	LAT	MLWS	MLWN	ML	MHWN	MHWS	HAT
Walvis Bay	0	0.27	0.67	0.98	1.29	1.69	1.97
Lüderitz	0	0.23	0.65	0.94	1.22	1.65	1.99
Port Nolloth	0	0.28	0.78	1.09	1.40	1.91	2.25
Saldanha	0	0.24	0.70	0.99	1.27	1.75	2.03
Cape Town	0	0.25	0.70	0.98	1.26	1.74	2.02
Simon's Town	0	0.24	0.73	1.00	1.29	1.79	2.09
Hermanus	0	0.27	0.75	1.02	1.29	1.78	2.07
Mossel Bay	0	0.26	0.88	1.17	1.46	2.10	2.44
Knysna	0	0.22	0.82	1.06	1.32	1.91	2.21
Port Elizabeth	0	0.21	0.79	1.04	1.29	1.86	2.12
East London	0	0.23	0.78	1.02	1.25	1.82	2.08
Durban	0	0.21	0.87	1.11	1.36	2.01	2.30
Richards Bay	0	0.27	0.97	1.20	1.48	2.11	2.47

The above levels are referred to CHART DATUM

2018

Port	LATOY			HATOY		
	Height	Time	Date	Height	Time	Date
Walvis Bay	0.087	2159	10 Sep	1.898	0419	03 Mar
Lüderitz	0.070	2157	10 Sep	1.868	0411	03 Mar
Port Nolloth	0.109	2155	10 Sep	2.142	0406	03 Mar
Saldanha	0.088	0952	12 Aug	1.965	1545	10 Sep
Cape Town	0.078	0958	12 Aug	1.924	1550	10 Sep
Simon's Town	0.052	0955	12 Aug	1.976	0412	03 Mar
Hermanus	0.065	0952	12 Aug	1.949	1547	10 Sep
Mossel Bay	0.059	0956	10 Sep	2.334	1612	10 Sep
Knysna	0.047	2239	02 Mar	2.154	1639	10 Sep
Port Elizabeth	0.076	0959	10 Sep	2.068	1615	10 Sep
East London	0.072	1005	10 Sep	2.026	1621	10 Sep
Durban	0.052	1040	11 Sep	2.223	1621	10 Sep
Richards Bay	0.072	1045	11 Sep	2.362	1601	09 Oct

The above levels are all referred to Chart Datums.

HEIGHTS OF CHART DATUM RELATIVE TO LAND LEVELLING DATUM IN SOUTH AFRICA AND NAMIBIA

Port	Up to 31 Dec 1978	1 Jan 1979 to 31 Dec 1997	1 Jan 1998 to 31 Dec 2002	1 Jan 2003 onwards
Walvis Bay	-0.913	-0.900	-0.966	-0.966
Lüderitz	-0.865*	-0.900	-0.935	-1.055
Port Nolloth	-0.718*	-0.900	-1.075	-0.925
Saldanha	-0.582	-0.900	-0.975	-0.865
Cape Town	-0.829	-0.900	-0.975	-0.825
Simon's Town	-0.651	-0.900	-1.003	-0.843
Hermanus	-0.619	-0.900	-0.978	-0.788
Mossel Bay	-0.761	-0.900	-1.163	-0.933
Knysna	-0.625	-0.900	-1.048	-0.788
Port Elizabeth	-0.838	-0.900	-1.026	-0.836
East London	-0.762	-0.900	-1.006	-0.716
Durban	-0.838	-0.900	-1.113	-0.913
Richards Bay	-0.900	-0.900	-1.205	-1.015

*In use until 1 January 1994.

2018 SEASONS

		d	h	m		d	h	m
Equinoxes :	MAR	20	18	16	SEP	23	03	54
Solstices:	JUN	21	12	07	DEC	22	00	22

Good Friday – 30 March

ECLIPSES

Lunar Eclipse*	31 Jan
Partial Solar Eclipse*	15 Feb
Partial Solar Eclipse*	13 Jul
Lunar Eclipse	27 Jul
Partial Solar Eclipse*	11 Aug

** Partially visible in SA

* Not visible in SA

MOON PHASES

New Moon				First Quarter				Full Moon				Last Quarter			
	d	h	m		d	h	m		d	h	m		d	h	m
								Jan	02	04	24	Jan	09	00	25
Jan	17	04	17	Jan	25	00	20	Jan	31	15	27	Feb	07	17	54
Feb	15	23	05	Feb	23	10	09	Mar	02	02	51	Mar	09	12	20
Mar	17	15	11	Mar	24	17	35	Mar	31	14	37	Apr	08	09	17
Apr	16	03	57	Apr	22	23	45	Apr	30	02	58	May	08	04	09
May	15	13	48	May	22	05	49	May	29	16	19	Jun	06	20	32
Jun	13	21	43	Jun	20	12	51	Jun	28	06	53	Jul	06	09	51
Jul	13	04	48	Jul	19	21	52	Jul	27	22	20	Aug	04	20	18
Aug	11	11	58	Aug	18	09	48	Aug	26	13	56	Sep	03	04	37
Sep	09	20	01	Sep	17	01	15	Sep	25	04	52	Oct	02	11	45
Oct	09	05	47	Oct	16	20	02	Oct	24	18	45	Oct	31	18	40
Nov	07	18	02	Nov	15	16	54	Nov	23	07	39	Nov	31	02	19
Dec	07	09	20	Dec	15	13	49	Dec	22	19	48	Dec	29	11	34

Note : These times are Terrestrial Dynamical Time (TDT) plus 2 hrs. This corresponds to SA standard time within 3 minutes.

MOON AT PERIGEE

Date	Hour	Date	Hour
Jan 01	23	Jul 13	10
Jan 30	12	Aug 10	20
Feb 27	17	Sep 08	02
Mar 26	17	Oct 06	00
Apr 20	16	Oct 31	22
May 17	23	Nov 26	14
Jun 15	02	Dec 24	11