

# Tábuas das marés de Ubatuba, Santos e Cananéia para os anos de 2018 e 2019

Joseph Harari & Afranio Rubens de Mesquita

Instituto Oceanográfico da Universidade de São Paulo  
(Caixa Postal 66149, 05315-970 São Paulo, SP, Brasil)

- **Abstract:** The tide tables of Ubatuba, Santos and Cananéia here presented give predictions of the levels and the times of high and low waters, in these stations, for the years of 2018 and 2019. The predictions of the tidal extremes are based on the Tidal Analysis by the Harmonic Method, considering hourly records of the surface level with the extension of one year; the harmonic constants computed in the analysis are used in hourly predictions, so that interpolations near the extremes of the predicted hourly series give the extreme values of the tables. Meteorological effects, mostly the wind, may cause significant variations of the observed maximum and minimum sea levels relative to the correspondent predicted tidal extreme values, although, in general, they do not affect the respective times.

- **Resumo:** As tábuas das marés de Ubatuba, Santos e Cananéia aqui apresentadas contêm a previsão dos níveis de preamar e baixamar da maré e seus respectivos instantes de ocorrência, nessas estações, para os anos de 2018 e 2019. As previsões dos extremos de maré são baseadas na Análise de Maré pelo Método Harmônico, considerando registros horários do nível da superfície com a extensão de um ano; as constantes harmônicas determinadas pela análise são utilizadas em previsões horárias, sendo que interpolações próximo aos extremos das séries horárias previstas fornecem os valores extremos das tábuas. Efeitos meteorológicos, notadamente o vento, podem causar significativas variações nos máximos e mínimos de nível do mar observados em relação aos correspondentes níveis extremos de maré previstos, embora, em geral, eles não afetem os instantes de sua ocorrência.

- **Descriptors:** Tide tables, Tidal prediction, High water, Low tide, Extreme values, Southeastern Brazilian coast, Ubatuba, Santos, Cananéia, São Paulo State.

- **Descritores:** Tábuas das marés, Previsão da maré, Preamar, Baixamar, Valores extremos, Costa Sudeste do Brasil, Ubatuba, Santos, Cananéia, Estado de São Paulo.

## Introdução

A presente publicação contém a previsão dos extremos de maré de Ubatuba, Santos e Cananéia, para os anos de 2018 e 2019 (Harari & Mesquita, 2016). Na previsão são fornecidos os níveis máximos e mínimos de maré e seus respectivos instantes de ocorrência, nessas três estações maregráficas, localizadas na Base “Clarimundo de Jesus” (Base Norte do Instituto Oceanográfico da Universidade de São Paulo - IOUSP, em Ubatuba), no Porto de Santos (da Companhia Docas do

Estado de São Paulo - CODESP, em Torre Grande) e na Base “Dr. João de Paiva Carvalho” (Base Sul do IOUSP, em Cananéia). Características dos marégrafos e a análise das respectivas observações de maré são fornecidas em Mesquita & Harari (1983) e em Harari & Camargo (1995).

As previsões apresentadas neste trabalho são baseadas na análise de maré das observações horárias da elevação da superfície nas estações maregráficas de Ubatuba, Santos e Cananéia. Esta análise foi efetuada através do Método Harmônico de Análise de Maré (Franco, 1988), sendo as constantes harmônicas de amplitude e fase das componentes de maré apresentadas em Mesquita & Harari (1983, 2003) e em Harari & Camargo (1995). Com os valores dessas constantes, são efetuadas previsões horárias de maré, através da composição harmônica das componentes estatisticamente selecionadas; além da seleção do método de análise, são consideradas apenas as componentes cuja amplitude é maior ou igual a 0,5 cm. Finalmente, previsões de preamares e baixamares são realizadas através de interpolações sucessivas próximo aos extremos das séries horárias previstas, considerando intervalos de tempo progressivamente divididos ao meio, a partir do valor inicial de uma hora; essas interpolações são efetuadas segundo a fórmula de interpolação de Newton, do terceiro grau (Franco et al, 1975). Os programas de computador utilizados nos processamentos de dados segundo a metodologia acima citada são apresentados em Franco & Harari (1987).

No cabeçalho das tábuas apresentadas são fornecidos o ano de previsão, o nome de identificação da estação, sua posição geográfica, o fuso horário, a sigla da instituição mantenedora da estação maregráfica, o nível de referência considerado nos cálculos e a carta náutica que melhor representa o local considerado. A disposição dos resultados é similar à utilizada pela Diretoria de Hidrografia e Navegação (DHN) da Marinha do Brasil, na apresentação de suas Tábuas de Marés (DHN, 2001), regularmente disponibilizadas na internet no endereço <https://www.marinha.mil.br/chm/dados-do-segnav-publicacoes/tabuas-das-mares>.

Nas tábuas apresentadas, os instantes de ocorrência dos extremos de maré são relativos à hora legal referida ao fuso horário internacional. As alturas extremas previstas são referidas ao nível de redução adotado para a confecção das respectivas Cartas Náuticas pela Diretoria de Hidrografia e Navegação da Marinha do Brasil.

É necessário frisar que fatores meteorológicos, principalmente o vento, podem causar significativas variações nos máximos e mínimos de nível do mar observados em relação aos correspondentes níveis extremos de maré previstos, embora, em geral, eles não afetem os instantes de sua ocorrência.

Solicita-se aos usuários destas Tábuas de Marés que comuniquem aos autores do trabalho, no Instituto Oceanográfico da USP, quaisquer informações que possam ser úteis para futuras correções e aprimoramentos nas Tábuas. Nos casos de discrepâncias significativas entre as previsões e observações, solicita-se informar as diferenças de nível e de tempo, se possível com um relato das

condições meteorológicas reinantes, especialmente a intensidade e a direção do vento.

Após as Tábuas das Marés, é fornecida a tabela dos instantes de ocorrência das fases da Lua, segundo o Tempo Médio de Greenwich (TMG); esta tabela é baseada no cálculo de uma série horária das diferenças de longitude do Sol e da Lua, seguida de interpolações quadráticas para instantes intermediários.

### **As Tábuas das Marés de Ubatuba, Santos e Cananéia**

A posição geográfica da estação maregráfica da Base de Ubatuba é 23°30,0' S - 45°07,3' W e o nível médio considerado na análise é de 0,66 m, conforme apresentado na Carta Náutica nº 1613 da Diretoria de Hidrografia e Navegação da Marinha do Brasil. Na previsão de maré em Ubatuba, foram consideradas 33 componentes de maré, as quais caracterizam uma maré do tipo "desigualdades diurnas", sendo que o estabelecimento do porto é em 02 h 46 min.

As previsões de maré do Porto de Santos são referentes a Torre Grande, localizado em 23°57,0' S - 46°18,5' W, tendo nível médio de 0,77 m, conforme a Carta Náutica nº 1701 da DHN. Foram consideradas 44 componentes harmônicas nas previsões do Porto de Santos, cuja classificação de maré é do tipo "desigualdades diurnas", com estabelecimento do porto em 03 h 01 min.

A posição geográfica da estação maregráfica da Base de Cananéia é 25°01,0' S - 47° 55,5' W e o nível médio considerado na análise é de 0,80 m, segundo a Carta Náutica nº 1703 da DHN. A previsão de maré em Cananéia foi realizada com 43 componentes harmônicas, as quais caracterizam uma maré de "desigualdades diurnas", cujo estabelecimento do porto é em 03 h 13 min.

Estimativas da maré em instantes intermediários entre as ocorrências das preamares e baixamares previstas na Tábua podem ser obtidas, em primeira aproximação, através de uma interpolação linear, considerando dois extremos consecutivos fornecidos e seus respectivos instantes de ocorrência. Uma aproximação mais precisa desta interpolação considera o caráter senoidal da maré, de modo que, sendo  $\Delta H$  a variação de nível entre dois extremos consecutivos da maré e sendo  $\Delta T$  o intervalo de tempo para a ocorrência desta variação, se tem que: em 5% de  $\Delta T$  a maré varia 0,6% de  $\Delta H$ ; 12,5% de  $\Delta T$  corresponde a 3,4% de  $\Delta H$ ; e assim sucessivamente, conforme apresentado na Tabela 1. Deve-se notar que valores  $\Delta H$  e  $\Delta T$  são facilmente obtidos das Tábuas de Marés, e que as porcentagens de  $\Delta H$  obtidas na Tabela 1 são aditivas após as baixamares e são subtrativas após as preamares.

Outras informações sobre as marés de Ubatuba, Santos e Cananéia, tais como valores médios mensais, valores extremos mensais, etc..., podem ser obtidas em Mesquita & Harari (1983) e em Harari & Camargo (1995).

Após as referências bibliográficas, são fornecidas as Tábuas das Marés de Ubatuba, Santos e Cananéia, para os anos de 2018 e 2019, seguidas da Tabela das Fases da Lua desses anos. As tábuas de marés e as informações sobre as fases da lua podem também ser encontradas na internet, através dos endereços [www.mares.io.usp.br](http://www.mares.io.usp.br) e [www.labsip.io.usp.br](http://www.labsip.io.usp.br).

Tabela 1. Valores da porcentagem de  $\Delta T$  e correspondente porcentagem de  $\Delta H$  numa maré senoidal, onde  $\Delta T$  é o intervalo de tempo que decorre entre dois extremos consecutivos da maré e  $\Delta H$  é a correspondente variação de nível desses extremos. Os valores percentuais de  $\Delta H$  são aditivos após as baixamares e subtrativos após as preamares

% de $\Delta T$	% de $\Delta H$	% de $\Delta T$	% de $\Delta H$
0	0		
2,5	0,1	27,5	16,1
5	0,6	30	19,1
7,5	1,2	32,5	22,3
10	2,2	35	25,7
12,5	3,4	37,5	29,3
15	4,9	40	33,1
17,5	6,6	42,5	37,1
20	8,7	45	41,2
22,5	10,9	47,5	45,5
25	13,4	50	50,0

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2018

UBATUBA - BASE NORTE DO IOUSP

2018

LATITUDE 23 30.0 S      LONGITUDE 45 7.3 W      FUSO + 3 HORAS

IOUSP-BASE NORTE      NIVEL MEDIO .66 M      CARTA 1613

JANEIRO						FEVEREIRO						MARÇO					
HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT		
DIA	H M	M	DIA	H M	M	DIA	H M	M	DIA	H M	M	DIA	H M	M	DIA	H M	M
01	0302	1.2	16	0153	1.1	01	0421	1.1	16	0239	1.2	01	0317	1.2	16	0153	1.2
	0839	0.3		0856	0.3		0954	0.3		0941	0.3		0853	0.3		0838	0.2
	1339	1.0		1354	1.1		1419	1.1		1449	1.2		1345	1.1		1358	1.2
	2053	0.0		2104	0.0		2211	-0.1		2202	0.0		2108	-0.1		2058	-0.1
02	0354	1.2	17	0224	1.2	02	0330	1.0	17	0309	1.2	02	0334	1.1	17	0215	1.2
	0926	0.3		0932	0.3		1032	0.4		1009	0.3		0926	0.3		0909	0.2
	1358	1.0		1428	1.1		1456	1.1		1517	1.2		1406	1.2		1426	1.2
	2143	0.0		2147	0.0		2258	0.0		2245	0.0		2154	-0.1		2139	0.0
03	0447	1.1	18	0300	1.2	03	0336	1.0	18	0341	1.1	03	0247	1.0	18	0243	1.2
	1011	0.3		1004	0.4		1104	0.4		1045	0.3		1000	0.3		0945	0.2
	1424	1.0		1502	1.1		1532	1.2		1549	1.1		1439	1.2		1456	1.2
	2230	0.0		2226	0.0		2347	0.1		2323	0.1		2238	0.0		2217	0.0
04	0539	1.0	19	0332	1.1	04	0404	1.0	19	0409	1.1	04	0306	1.0	19	0309	1.2
	1058	0.4		1039	0.4		1143	0.4		1119	0.3		1036	0.3		1017	0.2
	1502	1.0		1538	1.1		1609	1.1		1613	1.1		1513	1.2		1521	1.2
	2317	0.0		2306	0.1								2315	0.2		2256	0.1
05	0402	1.0	20	0408	1.1	05	0028	0.2	20	0002	0.2	05	0338	1.0	20	0338	1.1
	0639	0.9		1109	0.4		0439	0.9		0441	1.0		1106	0.3		1054	0.2
	1139	0.5		1608	1.0		1217	0.5		1158	0.4		1554	1.2		1553	1.2
	1545	1.0		2351	0.1		1656	1.1		1645	1.0		2356	0.3		2339	0.2
06	0006	0.1	21	0441	1.0	06	0111	0.4	21	0051	0.3	06	0408	1.0	21	0404	1.0
	0428	0.9		1151	0.4		0513	0.9		0508	0.9		1145	0.4		1136	0.3
	0754	0.8		1636	1.0		1302	0.5		1251	0.4		1632	1.1		1619	1.1
	1217	0.5					1741	1.0		1713	1.0						
	1623	1.0															
07	0058	0.2	22	0034	0.2	07	0202	0.5	22	0141	0.4	07	0038	0.4	22	0023	0.3
	0506	0.8		0515	1.0		0600	0.8		0543	0.8		0447	0.9		0432	0.9
	0747	0.7		1232	0.5		1041	0.6		1353	0.4		1230	0.4		1226	0.4
	0908	0.8		1706	1.0		1402	0.5		1800	0.8		1711	1.0		1656	1.0
	1300	0.5					1838	0.9		2017	0.8						
	1709	1.0					2200	0.7		2219	0.8						
							2343	0.7									
08	0154	0.3	23	0117	0.3	08	0302	0.6	23	0245	0.5	08	0113	0.5	23	0115	0.5
	0554	0.8		0554	0.9		0656	0.8		0613	0.7		0517	0.9		0500	0.8
	0824	0.7		1321	0.5		1002	0.7		0847	0.7		1326	0.4		1332	0.4
	1015	0.7		1745	0.9		1121	0.7		1056	0.7		1802	0.9		1739	0.8
	1353	0.5					1511	0.5		1502	0.4		2126	0.7		1951	0.7
	1806	0.9					1958	0.8		1902	0.7		2311	0.7		2223	0.9
							2202	0.7		2008	0.7						
										2339	0.9						
09	0254	0.4	24	0209	0.3	09	0017	0.8	24	0358	0.5	09	0206	0.6	24	0221	0.6
	0649	0.8		0636	0.8		0417	0.6		0706	0.7		0558	0.8		0528	0.7
	0908	0.7		1421	0.5		0841	0.7		0849	0.6		1049	0.6		0823	0.6
	1108	0.7		1834	0.8		1013	0.7		1156	0.8		1438	0.4		1051	0.7
	1453	0.5		2039	0.8		1151	0.7		1624	0.4		1909	0.8		1451	0.4
	1915	0.8		2204	0.8		1632	0.4					2119	0.7		1951	0.7
	2224	0.7											2358	0.8		2328	1.0
	2349	0.7															
10	0358	0.5	25	0309	0.4	10	0053	0.8	25	0034	1.0	10	0317	0.6	25	0351	0.6
	0800	0.7		1100	0.8		0547	0.6		0526	0.5		0709	0.7		0602	0.6
	0958	0.7		1528	0.4		1206	0.8		1245	0.9		0958	0.7		0834	0.6
	1151	0.7		2338	0.9		1741	0.3		1747	0.3		1132	0.7		1147	0.7
	1602	0.5											1553	0.4		1611	0.4
	2053	0.8															
	2256	0.8															
11	0026	0.8	26	0417	0.4	11	0109	0.9	26	0119	1.1	11	0024	0.9	26	0019	1.1
	0504	0.5		1200	0.9		0647	0.5		0645	0.4		0608	0.6		0541	0.5
	1204	0.8		1645	0.4		1217	0.9		1319	0.9		1154	0.8		1226	0.8
	1713	0.4					1834	0.2		1849	0.1		1702	0.3		1734	0.3
12	0053	0.8	27	0038	1.0	12	0126	1.0	27	0204	1.2	12	0053	0.9	27	0104	1.2
	0608	0.5		0532	0.4		0726	0.4		0736	0.4		0643	0.5		0641	0.5
	1130	0.8		1251	0.9		1239	1.0		1351	1.0		1217	0.9		1302	0.9
	1811	0.3		1756	0.3		1919	0.1		1941	0.0		1802	0.2		1834	0.1
13	0041	0.9	28	0128	1.1	13	0134	1.1	28	0247	1.2	13	0109	1.0	28	0147	1.2
	0658	0.4		0643	0.4		0800	0.4		0813	0.3		0708	0.4		0715	0.4
	1204	0.9		1332	0.9		1309	1.0		1353	1.0		1236	0.9		1324	1.0
	1900	0.2		1858	0.2		2002	0.0		2024	-0.1		1853	0.1		1921	0.0



2018

UBATUBA - BASE NORTE DO IOUSP

2018

LATITUDE 23 30.0 S						LONGITUDE 45 7.3 W						FUSO + 3 HORAS					
IOUSP-BASE NORTE						NIVEL MEDIO .66 M						CARTA 1613					
ABRIL						MAIO						JUNHO					
HORA		ALT	HORA		ALT	HORA		ALT	HORA		ALT	HORA		ALT	HORA		ALT
DIA	H M	M	DIA	H M	M	DIA	H M	M	DIA	H M	M	DIA	H M	M	DIA	H M	M
01	0211	1.1	16	0213	1.2	01	0213	1.1	16	0211	1.1	01	0309	1.1	16	0258	1.0
	0934	0.2		0917	0.1		0945	0.1		0941	0.1		1049	0.1		1106	0.1
	1417	1.3		1430	1.2		1441	1.2		1447	1.2		1549	1.1		1604	1.0
	2209	0.1		2153	0.0		2223	0.3		2215	0.2		2306	0.5		1706	1.0
																1841	1.0
																2341	0.5
02	0239	1.1	17	0239	1.1	02	0253	1.1	17	0241	1.0	02	0349	1.0	17	0334	1.0
	1006	0.2		0954	0.1		1023	0.2		1026	0.1		1130	0.2		1200	0.1
	1458	1.2		1500	1.2		1517	1.2		1519	1.1		1626	1.0		1632	0.9
	2251	0.2		2236	0.1		2256	0.4		2302	0.3		2345	0.5		1800	0.9
																2000	0.9
03	0309	1.1	18	0306	1.1	03	0323	1.0	18	0308	1.0	03	0417	0.9	18	0026	0.5
	1043	0.2		1038	0.2		1102	0.2		1115	0.1		1215	0.2		0409	0.9
	1534	1.2		1528	1.1		1600	1.1		1558	1.0		1708	0.9		1258	0.2
	2324	0.4		2317	0.3		2330	0.5		2356	0.5					1711	0.8
																1851	0.8
																2113	0.9
04	0347	1.0	19	0334	1.0	04	0358	1.0	19	0343	0.9	04	0024	0.6	19	0115	0.6
	1121	0.3		1123	0.2		1149	0.2		1209	0.2		0443	0.9		0500	0.9
	1611	1.1		1604	1.1		1639	1.0		1638	0.9		1306	0.3		1358	0.3
	2358	0.5								1813	0.9		1758	0.9		1802	0.7
										2036	0.9					1924	0.7
																2219	0.9
05	0415	1.0	20	0004	0.4	05	0004	0.6	20	0053	0.6	05	0115	0.6	20	0209	0.6
	1204	0.3		0400	0.9		0424	0.9		0411	0.9		0506	0.8		0558	0.9
	1654	1.0		1215	0.3		1239	0.3		1311	0.3		1402	0.3		1500	0.3
				1643	0.9		1721	0.9		1723	0.8		1924	0.8		1902	0.7
				1904	0.8					1851	0.8					2002	0.7
				2051	0.9					2153	0.9					2313	0.8
06	0038	0.6	21	0102	0.5	06	0056	0.6	21	0153	0.6	06	0213	0.6	21	0311	0.6
	0449	0.9		0428	0.8		0445	0.8		0458	0.8		0604	0.7		0711	0.8
	1300	0.4		1321	0.3		1338	0.3		0947	0.6		1502	0.3		1000	0.7
	1739	0.9		1724	0.8		1817	0.8		1419	0.3		2241	0.9		1126	0.8
	2106	0.7		1906	0.7		2043	0.8		2251	1.0					1606	0.4
	2234	0.7		2209	0.9		2213	0.8									
07	0123	0.6	22	0208	0.6	07	0156	0.6	22	0300	0.6	07	0317	0.5	22	0000	0.8
	0506	0.8		0500	0.8		0456	0.7		0600	0.7		1024	0.8		0421	0.5
	1402	0.4		0809	0.6		1441	0.4		0843	0.7		1602	0.3		0900	0.8
	1841	0.8		1026	0.6		2302	0.9		1054	0.7		2321	0.9		1019	0.8
	2053	0.7		1439	0.4					1534	0.3					1213	0.8
	2313	0.8		2309	1.0					2339	1.0					1711	0.4
08	0232	0.7	23	0338	0.6	08	0302	0.6	23	0413	0.6	08	0421	0.5	23	0034	0.8
	0506	0.7		0547	0.7		0517	0.7		1143	0.8		1123	0.9		0526	0.4
	1036	0.7		0817	0.6		0656	0.7		1645	0.3		1700	0.3		1247	0.9
	1509	0.4		1123	0.7		1026	0.7					2356	1.0		1811	0.4
	2353	0.9		1558	0.3		1547	0.3									
							2338	0.9									
09	0409	0.6	24	0000	1.1	09	0419	0.6	24	0017	1.0	09	0519	0.4	24	0047	0.8
	0656	0.6		0515	0.6		1117	0.8		0517	0.5		1208	1.0		0621	0.3
	1128	0.7		1204	0.8		1649	0.3		1215	0.9		1756	0.2		1221	0.9
	1623	0.3		1709	0.2					1747	0.3					1902	0.4
10	0015	0.9	25	0045	1.1	10	0002	1.0	25	0056	0.9	10	0028	1.0	25	0004	0.9
	0632	0.6		0608	0.5		0523	0.5		0606	0.4		0613	0.3		0706	0.2
	1154	0.8		1239	0.9		1153	0.9		1230	0.9		1251	1.1		1226	1.0
	1726	0.3		1809	0.2		1743	0.2		1839	0.2		1849	0.2		1949	0.3
11	0041	1.0	26	0117	1.1	11	0026	1.0	26	0115	0.9	11	0053	1.0	26	0028	1.0
	0630	0.5		0647	0.4		0608	0.4		0651	0.3		0702	0.2		0751	0.1
	1219	0.9		1253	1.0		1223	1.0		1208	1.0		1332	1.1		1306	1.1
	1819	0.2		1900	0.1		1832	0.1		1923	0.2		1938	0.2		2028	0.3
12	0056	1.1	27	0151	1.0	12	0045	1.1	27	0036	0.9	12	0117	1.0	27	0108	1.0
	0656	0.4		0721	0.3		0651	0.3		0732	0.2		0753	0.1		0832	0.1
	1243	1.0		1238	1.0		1253	1.1		1232	1.1		1413	1.1		1341	1.1
	1904	0.1		1949	0.1		1917	0.1		2004	0.2		2026	0.2		2104	0.3
13	0111	1.1	28	0147	1.0	13	0106	1.1	28	0049	1.0	13	0130	1.0	28	0149	1.1
	0730	0.3		0756	0.2		0732	0.2		0809	0.1		0841	0.0		0909	0.0
	1309	1.1		1256	1.1		1321	1.2		1308	1.1		1443	1.2		1419	1.1
	1951	0.0		2028	0.1		2002	0.0		2049	0.2		2113	0.2		2141	0.4



14	0128	1.2	29	0121	1.0	14	0124	1.1	29	0119	1.1	14	0156	1.0	29	0224	1.1
	0804	0.2		0834	0.2		0811	0.1		0851	0.1		0928	0.0		0953	0.0
	1336	1.2		1323	1.2		1349	1.2		1349	1.2		1530	1.1		1500	1.1
	2032	0.0		2106	0.1		2047	0.1		2124	0.3		2202	0.3		2213	0.4
15	0149	1.2	30	0143	1.1	15	0147	1.1	30	0158	1.1	15	0221	1.0	30	0302	1.1
	0841	0.1		0908	0.1		0856	0.1		0928	0.1		1017	0.0		1032	0.1
	1404	1.2		1402	1.2		1417	1.2		1426	1.2		1628	1.1		1536	1.1
	2109	0.0		2149	0.2		2132	0.1		2200	0.3		2253	0.4		2249	0.4
									31	0236	1.1						
										1006	0.1						
										1508	1.1						
										2236	0.4						

2018

UBATUBA - BASE NORTE DO IOUSP

2018

LATITUDE 23 30.0 S						LONGITUDE 45 7.3 W						FUSO + 3 HORAS					
IOUSP-BASE NORTE						NIVEL MEDIO .66 M						CARTA 1613					
JULHO						AGOSTO						SETEMBRO					
HORA	ALT		HORA	ALT		HORA	ALT		HORA	ALT		HORA	ALT		HORA	ALT	
DIA	H	M	DIA	H	M	DIA	H	M	DIA	H	M	DIA	H	M	DIA	H	M
01	0339	1.0	16	0324	1.1	01	0424	1.0	16	0000	0.4	01	0021	0.4	16	0104	0.4
	1109	0.1		1147	0.0		1209	0.2		0430	1.1		0500	1.0		0539	0.9
	1611	1.1		1613	0.9		1658	1.0		1254	0.3		1308	0.4		0904	0.7
	2319	0.5		2356	0.5					1654	0.9		1717	0.9		1102	0.7
																1353	0.6
																1732	0.8
																2245	0.6
02	0411	1.0	17	0404	1.1	02	0006	0.4	17	0045	0.4	02	0117	0.4	17	0209	0.4
	1156	0.2		1236	0.2		0454	1.0		0511	1.0		0538	0.9		0641	0.8
	1651	1.0		1649	0.9		1256	0.3		1345	0.5		1406	0.5		0906	0.7
	2358	0.5		1913	0.8		1728	0.9		1728	0.8		1754	0.8		1153	0.8
				2028	0.8					2109	0.6		2100	0.7		1500	0.7
										2226	0.6		2200	0.7		1813	0.7
																2158	0.6
																2321	0.7
03	0443	0.9	18	0039	0.5	03	0054	0.4	18	0139	0.5	03	0226	0.4	18	0326	0.4
	1243	0.2		0453	1.0		0523	0.9		0602	0.9		0624	0.8		1213	0.8
	1728	0.9		1326	0.3		1345	0.3		0932	0.7		0806	0.7		1802	0.6
				1721	0.8		1806	0.9		1123	0.7		1106	0.9		2349	0.7
				2004	0.7					1441	0.6		1515	0.5			
				2154	0.7					1811	0.8		1830	0.7			
										2143	0.6		2043	0.6			
										2315	0.6		2323	0.7			
04	0045	0.5	19	0123	0.5	04	0153	0.5	19	0249	0.5	04	0349	0.4	19	0445	0.4
	0511	0.9		0539	1.0		0604	0.9		0708	0.8		1204	1.0		1243	0.9
	1330	0.3		1421	0.4		1441	0.4		0949	0.7		1643	0.5		1843	0.5
	1813	0.9		1806	0.8		1853	0.8		1211	0.8						
				2054	0.6		2104	0.8		1558	0.6						
				2256	0.7					1924	0.7						
										2204	0.7						
										2354	0.7						
05	0136	0.5	20	0219	0.5	05	0256	0.4	20	0406	0.4	05	0013	0.8	20	0008	0.8
	0551	0.8		0638	0.9		0709	0.8		1251	0.8		0506	0.3		0549	0.3
	1421	0.3		1000	0.7		0819	0.8		1741	0.6		1258	1.1		1300	1.0
	1915	0.8		1128	0.7		1104	0.8					1811	0.5		1902	0.5
				1524	0.5		1545	0.4									
				1904	0.7		2328	0.8									
				2132	0.7												
				2345	0.7												
06	0234	0.5	21	0328	0.5	06	0406	0.4	21	0011	0.8	06	0058	0.9	21	0023	0.9
	0709	0.8		0756	0.8		1209	1.0		0521	0.3		0617	0.2		0638	0.2
	1517	0.3		1009	0.7		1656	0.4		1306	0.9		1343	1.2		1313	1.0
	2241	0.8		1219	0.8					1843	0.5		1908	0.4		1926	0.4
				1641	0.5												
				2030	0.7												
				2204	0.7												
07	0336	0.5	22	0009	0.7	07	0021	0.9	22	0019	0.8	07	0134	1.0	22	0047	1.0
	1104	0.8		0447	0.4		0521	0.3		0619	0.2		0711	0.0		0719	0.1
	1617	0.3		1258	0.8		1304	1.1		1326	1.0		1421	1.2		1321	1.1
	2338	0.9		1753	0.5		1808	0.4		1921	0.4		1953	0.3		1953	0.3
08	0441	0.4	23	0030	0.8	08	0104	0.9	23	0028	0.9	08	0154	1.0	23	0111	1.1
	1208	0.9		0554	0.3		0628	0.2		0706	0.1		0802	-0.1		0802	0.0
	1719	0.3		1321	0.9		1354	1.2		1332	1.0		1500	1.2		1334	1.2
				1849	0.5		1911	0.3		1953	0.4		2028	0.3		2023	0.2
				2349	0.9												
09	0023	0.9	24	0647	0.2	09	0145	0.9	24	0058	1.0	09	0149	1.1	24	0143	1.2
	0545	0.3		1330	1.0		0724	0.1		0751	0.1		0851	-0.1		0843	0.0
	1302	1.0		1934	0.4		1441	1.2		1338	1.1		1528	1.1		1358	1.2
	1821	0.3					2004	0.3		2023	0.3		2104	0.2		2054	0.2
10	0102	1.0	25	0024	1.0	10	0209	1.0	25	0128	1.1	10	0158	1.2	25	0209	1.2
	0643	0.2		0730	0.1		0815	0.0		0828	0.0		0934	-0.1		0919	0.0
	1354	1.1		1324	1.0		1521	1.2		1358	1.2		1445	1.0		1424	1.2
	1919	0.3		2009	0.4		2051	0.3		2054	0.3		2141	0.2		2126	0.2
11	0138	1.0	26	0102	1.0	11	0213	1.0	26	0202	1.1	11	0221	1.2	26	0241	1.2
	0738	0.1		0809	0.0		0904	-0.1		0906	0.0		1013	0.0		0958	0.0
	1443	1.2		1341	1.1		1600	1.2		1424	1.2		1451	1.0		1454	1.2
	2011	0.3		2047	0.3		2132	0.3		2124	0.3		2215	0.3		2200	0.2



2018

UBATUBA - BASE NORTE DO IOUSP

2018

LATITUDE 23 30.0 S LONGITUDE 45 7.3 W FUSO + 3 HORAS

IOUSP-BASE NORTE NIVEL MEDIO .66 M CARTA 1613

OUTUBRO NOVEMBRO DEZEMBRO

HORA			HORA			HORA			HORA			HORA					
ALT			ALT			ALT			ALT			ALT					
DIA	H	M	M	DIA	H	M	M	DIA	H	M	M	DIA	H	M	M		
01	0058	0.4	16	0147	0.4	01	0315	0.3	16	0317	0.3	01	0404	0.3	16	0338	0.3
	0513	0.9		0615	0.8		1130	1.0		1117	0.9		1158	1.0		1053	0.9
	0745	0.8		0851	0.7		1613	0.6		1551	0.6		1636	0.5		1556	0.5
	0945	0.8		1100	0.8		1939	0.6		2247	0.8		2358	0.8		2256	0.8
	1351	0.5		1406	0.7		2338	0.8									
	1706	0.8		1711	0.7												
	2154	0.6															
02	0209	0.4	17	0254	0.4	02	0434	0.3	17	0421	0.3	02	0509	0.3	17	0436	0.3
	0608	0.7		1139	0.8		1213	1.1		1147	0.9		1239	0.9		1132	0.9
	0741	0.7		1651	0.7		1730	0.5		1658	0.5		1736	0.4		1656	0.4
	1058	0.9		1826	0.7					2330	0.9					2347	0.9
	1502	0.6		2309	0.7												
	1745	0.7															
	2015	0.6															
	2308	0.7															
03	0334	0.4	18	0402	0.4	03	0013	0.9	18	0517	0.3	03	0036	0.9	18	0528	0.3
	1154	1.1		1202	0.9		0541	0.2		1208	1.0		0609	0.3		1202	1.0
	1641	0.6		1824	0.6		1258	1.1		1747	0.4		1308	0.9		1751	0.3
	1851	0.6		2336	0.8		1815	0.4					1824	0.3			
	2002	0.6															
04	0000	0.8	19	0506	0.3	04	0047	1.0	19	0004	1.0	04	0043	1.0	19	0032	1.0
	0456	0.3		1228	1.0		0636	0.1		0608	0.2		0702	0.2		0621	0.2
	1239	1.1		1824	0.5		1336	1.1		1224	1.0		1326	0.9		1230	1.0
	1808	0.5					1856	0.3		1830	0.3		1908	0.2		1843	0.2
05	0039	0.9	20	0002	0.9	05	0054	1.0	20	0034	1.0	05	0024	1.0	20	0113	1.1
	0602	0.2		0600	0.2		0723	0.1		0658	0.1		0751	0.2		0711	0.2
	1319	1.2		1241	1.0		1358	1.0		1241	1.1		1236	0.9		1254	1.0
	1851	0.4		1843	0.4		1936	0.2		1911	0.2		1953	0.2		1932	0.1
06	0109	1.0	21	0026	1.0	06	0045	1.1	21	0104	1.1	06	0056	1.1	21	0153	1.1
	0656	0.1		0649	0.1		0806	0.1		0743	0.1		0832	0.3		0802	0.2
	1358	1.2		1251	1.1		1326	1.0		1306	1.1		1304	1.0		1321	1.0
	1926	0.3		1913	0.3		2011	0.2		1954	0.1		2036	0.1		2019	0.1
07	0128	1.0	22	0054	1.1	07	0109	1.2	22	0134	1.2	07	0132	1.1	22	0238	1.2
	0745	0.0		0732	0.1		0853	0.1		0824	0.1		0909	0.3		0853	0.2
	1432	1.1		1308	1.1		1324	1.0		1330	1.1		1339	1.1		1347	1.0
	2000	0.3		1949	0.2		2053	0.1		2038	0.1		2113	0.1		2106	0.0
08	0121	1.1	23	0119	1.2	08	0145	1.2	23	0206	1.2	08	0211	1.1	23	0326	1.1
	0828	0.0		0809	0.0		0932	0.2		0908	0.1		0951	0.3		0941	0.3
	1439	1.1		1328	1.2		1356	1.1		1400	1.1		1415	1.1		1415	1.0
	2039	0.2		2023	0.2		2132	0.1		2119	0.1		2154	0.1		2156	0.0
09	0130	1.2	24	0149	1.2	09	0219	1.2	24	0236	1.2	09	0254	1.1	24	0423	1.1
	0909	0.0		0853	0.0		1008	0.3		0954	0.2		1024	0.4		1028	0.3
	1402	1.0		1356	1.2		1428	1.1		1426	1.1		1458	1.1		1449	1.0
	2113	0.2		2058	0.1		2208	0.1		2204	0.1		2236	0.1		2247	0.0
10	0202	1.2	25	0217	1.2	10	0300	1.2	25	0311	1.1	10	0332	1.1	25	0428	1.0
	0954	0.1		0934	0.1		1047	0.4		1041	0.3		1056	0.5		1111	0.4
	1417	1.0		1423	1.2		1504	1.0		1458	1.0		1536	1.0		1519	1.0
	2151	0.2		2138	0.1		2251	0.2		2254	0.1		2315	0.1		2339	0.1
11	0238	1.2	26	0247	1.2	11	0343	1.1	26	0347	1.0	11	0411	1.0	26	0545	0.9
	1034	0.2		1011	0.2		1119	0.5		1128	0.4		1130	0.5		0704	1.0
	1453	1.0		1453	1.1		1545	1.0		1528	1.0		1611	1.0		1200	0.5
	2228	0.2		2215	0.1		2336	0.2		2349	0.2					1600	1.0
12	0311	1.2	27	0317	1.2	12	0423	1.0	27	0423	0.9	12	0000	0.2	27	0032	0.1
	1109	0.3		1054	0.3		1154	0.6		0604	0.9		0456	1.0		0500	0.9
	1521	1.0		1517	1.1		1615	0.9		0739	0.9		1206	0.6		0611	0.8
	2306	0.2		2258	0.2					1219	0.5		1649	0.9		0828	0.9
										1602	0.9					1251	0.5
																1643	0.9
13	0356	1.1	28	0353	1.1	13	0021	0.3	28	0047	0.2	13	0051	0.3	28	0124	0.2
	1149	0.5		1143	0.4		0508	0.9		0509	0.8		0541	0.9		0538	0.8
	1558	1.0		1549	1.0		1238	0.6		0617	0.8		1256	0.6		0702	0.8
	2353	0.3		2351	0.2		1649	0.8		0902	0.9		1721	0.8		0945	0.9
										1315	0.6					1341	0.6
										1645	0.8					1728	0.9
14	0436	1.0	29	0424	1.0	14	0113	0.3	29	0151	0.3	14	0145	0.3	29	0224	0.3
	1223	0.6		1236	0.5		0602	0.8		0649	0.7		0634	0.8		0621	0.7
	1630	0.9		1611	0.9		0943	0.8		1009	1.0		1353	0.6		0756	0.7



2018

PORTO DE SANTOS - TORRE GRANDE

2018

LATITUDE 23 57.0 S						LONGITUDE 46 18.5 W						FUSO + 3 HORAS					
PORTO DE SANTOS						NIVEL MEDIO .77 M						CARTA 1701					
JANEIRO						FEVEREIRO						MARCO					
HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT		
DIA	H M	M	DIA	H M	M	DIA	H M	M	DIA	H M	M	DIA	H M	M	DIA	H M	M
01	0332	1.5	16	0217	1.4	01	0439	1.5	16	0308	1.5	01	0339	1.5	16	0219	1.5
	0830	0.2		0845	0.4		0934	0.3		0923	0.3		0839	0.3		0839	0.3
	1413	1.2		1504	1.3		1515	1.3		1543	1.4		1441	1.3		1500	1.5
	2036	0.1		2045	0.0		2158	0.0		2141	0.0		2054	-0.1		2038	-0.1
02	0417	1.5	17	0254	1.4	02	0504	1.4	17	0338	1.5	02	0402	1.5	17	0243	1.5
	0913	0.3		0915	0.4		1006	0.4		0939	0.3		0908	0.2		0856	0.3
	1447	1.2		1530	1.3		1541	1.3		1604	1.3		1500	1.4		1528	1.5
	2123	0.1		2126	0.0		2243	0.1		2224	0.0		2132	0.0		2119	-0.1
03	0500	1.5	18	0326	1.5	03	0515	1.3	18	0406	1.5	03	0415	1.4	18	0308	1.5
	0953	0.4		0939	0.4		1038	0.4		1002	0.3		0938	0.2		0917	0.2
	1513	1.2		1551	1.3		1604	1.3		1619	1.3		1519	1.4		1549	1.4
	2213	0.1		2211	0.0		2328	0.2		2309	0.1		2211	0.1		2158	0.0
04	0541	1.4	19	0400	1.5	04	0519	1.2	19	0441	1.4	04	0419	1.3	19	0336	1.5
	1028	0.5		1002	0.4		1109	0.4		1026	0.4		1009	0.3		0941	0.3
	1547	1.1		1608	1.2		1634	1.3		1638	1.2		1549	1.4		1611	1.4
	2308	0.1		2254	0.1					2356	0.2		2256	0.2		2241	0.1
05	0611	1.2	20	0434	1.4	05	0013	0.3	20	0513	1.3	05	0428	1.2	20	0404	1.4
	1104	0.5		1023	0.4		0534	1.1		1058	0.4		1049	0.3		1008	0.3
	1611	1.1		1619	1.2		1153	0.5		1658	1.1		1613	1.4		1630	1.3
				2341	0.1		1704	1.2					2338	0.3		2326	0.2
06	0000	0.2	21	0509	1.4	06	0102	0.4	21	0047	0.3	06	0447	1.1	21	0439	1.3
	0626	1.1		1047	0.5		0554	1.0		0554	1.2		1132	0.3		1041	0.3
	1143	0.6		1638	1.1		1245	0.5		1134	0.5		1651	1.3		1656	1.2
	1647	1.1					1747	1.1		1711	1.0						
07	0054	0.3	22	0026	0.2	07	0154	0.5	22	0145	0.4	07	0019	0.5	22	0015	0.4
	0638	1.0		0553	1.3		0613	0.9		0641	1.0		0502	1.1		0508	1.1
	1223	0.6		1119	0.5		1354	0.5		1226	0.5		1224	0.4		1121	0.4
	1723	1.0		1656	1.0		1839	1.0		1717	0.9		1723	1.2		1715	1.0
							2223	0.8		1904	0.9		2145	0.7			
							2349	0.8		2239	1.0		2300	0.7			
08	0145	0.4	23	0115	0.3	08	0254	0.6	23	0253	0.5	08	0108	0.6	23	0113	0.5
	0704	0.9		0638	1.2		0643	0.9		0749	0.9		0521	1.0		0547	1.0
	1319	0.6		1158	0.6		0958	0.8		1413	0.6		1330	0.4		1234	0.5
	1819	1.0		1702	0.9		1100	0.8		1854	0.7		1806	1.1		1736	0.9
				1854	0.9		1504	0.5		2358	1.1		2158	0.7		1902	0.9
				2109	0.9		2000	0.9								2241	1.0
							2251	0.9									
09	0234	0.5	24	0208	0.3	09	0028	0.9	24	0417	0.6	09	0002	0.8	24	0236	0.7
	0753	0.9		0734	1.1		0402	0.7		0943	0.8		0211	0.7		0630	0.8
	1438	0.6		1300	0.6		1158	0.9		1623	0.6		0543	0.9		1413	0.6
	2000	0.9		1702	0.8		1615	0.4					1051	0.8		2356	1.1
				1836	0.8								1438	0.5			
				2239	1.0								1906	1.0			
													2209	0.8			
10	0328	0.5	25	0309	0.4	10	0049	1.0	25	0058	1.3	10	0047	0.9	25	0623	0.7
	1130	0.9		0847	1.0		0539	0.7		0632	0.5		0349	0.8		1208	0.8
	1553	0.5		1454	0.7		1239	1.0		1304	0.9		0554	0.8		1611	0.5
	2204	1.0		1715	0.7		1721	0.3		1830	0.4		0821	0.7			
				1845	0.7								1139	0.9			
				2351	1.1								1545	0.4			
													2151	0.9			
11	0432	0.6	26	0421	0.4	11	0054	1.1	26	0147	1.4	11	0100	1.0	26	0051	1.3
	1213	1.0		1004	1.0		0704	0.6		0726	0.4		0734	0.7		0700	0.5
	1658	0.4		1717	0.6		1311	1.2		1343	1.1		1213	1.0		1249	1.0
	2324	1.0					1815	0.2		1902	0.2		1649	0.4		1826	0.4
12	0543	0.6	27	0054	1.2	12	0117	1.2	27	0226	1.5	12	0104	1.1	27	0130	1.4
	1254	1.1		0541	0.4		0739	0.5		0751	0.3		0726	0.6		0726	0.4
	1753	0.3		1138	1.0		1351	1.3		1413	1.2		1253	1.2		1317	1.1
				1826	0.4		1902	0.1		1934	0.1		1747	0.3		1841	0.2
13	0019	1.1	28	0151	1.4	13	0145	1.3	28	0302	1.6	13	0115	1.2	28	0204	1.5
	0645	0.5		0654	0.4		0809	0.4		0819	0.3		0743	0.5		0738	0.3
	1328	1.2		1332	1.1		1421	1.3		1432	1.3		1324	1.3		1338	1.2
	1839	0.2		1906	0.3		1943	0.0		2013	0.0		1836	0.2		1919	0.1
14	0102	1.2	29	0241	1.5	14	0211	1.4				14	0134	1.3	29	0238	1.5
	0734	0.5		0745	0.3		0838	0.4					0802	0.4		0749	0.3
	1402	1.3		1419	1.2		1453	1.4					1358	1.4		1351	1.3
	1921	0.1		1945	0.1		2023	0.0					1921	0.1		1954	0.0



2018

PORTO DE SANTOS - TORRE GRANDE

2018

LATITUDE 23 57.0 S						LONGITUDE 46 18.5 W						FUSO + 3 HORAS					
PORTO DE SANTOS						NIVEL MEDIO .77 M						CARTA 1701					
ABRIL						MAIO						JUNHO					
HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT		
DIA	H M	M	DIA	H M	M	DIA	H M	M	DIA	H M	M	DIA	H M	M	DIA	H M	M
01	0326	1.3	16	0238	1.5	01	0308	1.3	16	0243	1.4	01	0338	1.2	16	0330	1.2
	0909	0.1		0851	0.2		0926	0.1		0908	0.1		1049	0.1		1053	0.2
	1458	1.5		1539	1.5		1506	1.5		1634	1.4		1611	1.4		1824	1.3
	2145	0.1		2138	0.0		2156	0.3		2204	0.2		2239	0.5		2309	0.5
02	0338	1.3	17	0304	1.4	02	0326	1.2	17	0309	1.3	02	0353	1.2	17	0400	1.1
	0949	0.2		0919	0.2		1011	0.1		0954	0.2		1143	0.2		1156	0.2
	1524	1.5		1611	1.4		1547	1.5		1728	1.3		1654	1.4		1909	1.2
	2221	0.3		2219	0.1		2230	0.4		2247	0.4		2253	0.6		2351	0.6
03	0353	1.2	18	0336	1.4	03	0345	1.2	18	0341	1.2	03	0406	1.1	18	0424	1.0
	1028	0.2		0956	0.2		1104	0.2		1051	0.3		1232	0.2		1256	0.3
	1558	1.5		1638	1.3		1619	1.4		1830	1.2		1736	1.3		1953	1.1
	2258	0.4		2302	0.3		2258	0.5		2328	0.5		2306	0.6			
04	0406	1.2	19	0402	1.2	04	0400	1.1	19	0404	1.1	04	0415	1.0	19	0034	0.7
	1117	0.3		1041	0.3		1200	0.2		1158	0.3		1317	0.3		0449	0.9
	1634	1.4		1715	1.2		1700	1.3		1947	1.1		1819	1.2		1353	0.3
	2339	0.5		2353	0.5		2323	0.6					2326	0.7		2047	1.0
05	0424	1.1	20	0434	1.1	05	0415	1.1	20	0017	0.7	05	0409	0.9	20	0136	0.8
	1213	0.3		1141	0.4		1256	0.3		0424	0.9		0708	0.8		0517	0.9
	1708	1.3		1953	1.0		1747	1.2		1306	0.4		0913	0.8		0804	0.8
	2126	0.6					2204	0.7		2117	1.1		1402	0.3		1011	0.9
	2304	0.7											1913	1.1		1447	0.4
																2247	0.9
06	0019	0.7	21	0051	0.7	06	0424	0.9	21	0123	0.8	06	0032	0.8	21	0308	0.7
	0443	1.0		0456	0.9		1349	0.3		0402	0.9		0354	0.8		1045	0.9
	1311	0.4		1258	0.5		1836	1.1		0808	0.7		0649	0.7		1539	0.5
	1754	1.2		2215	1.0		2228	0.8		1006	0.8		1017	0.9		2358	1.0
	2149	0.7								1411	0.4		1451	0.3			
										2253	1.1		2024	1.1			
07	0006	0.8	22	0211	0.8	07	0406	0.8	22	0623	0.7	07	0651	0.6	22	0439	0.6
	0128	0.8		0432	0.8		0721	0.7		1054	0.9		1104	1.0		1111	1.0
	0458	0.9		0902	0.7		1017	0.9		1517	0.4		1539	0.3		1634	0.5
	0900	0.7		1054	0.7		1438	0.3		2356	1.1		2154	1.1			
	1009	0.7		1421	0.5		1943	1.0									
	1409	0.4		2339	1.1		2304	0.9									
	1847	1.0															
	2204	0.8															
08	0041	0.9	23	0643	0.7	08	0011	0.9	23	0621	0.6	08	0658	0.6	23	0039	1.0
	0309	0.8		1139	0.9		0700	0.7		1126	1.0		1151	1.1		0528	0.5
	0447	0.8		1554	0.5		1102	1.0		1619	0.4		1634	0.3		1130	1.1
	0756	0.7					1524	0.3					2309	1.1		1734	0.5
	1102	0.9					2141	1.0									
	1508	0.4															
	2008	0.9															
	2208	0.9															
09	0051	1.0	24	0028	1.2	09	0702	0.6	24	0038	1.2	09	0706	0.5	24	0108	1.1
	0719	0.6		0653	0.6		1143	1.1		0624	0.5		1234	1.3		0608	0.3
	1145	1.0		1209	1.0		1617	0.3		1143	1.1		1736	0.3		1208	1.2
	1606	0.4		1715	0.4		2347	1.1		1719	0.4					1834	0.5
10	0047	1.1	25	0104	1.3	10	0713	0.5	25	0106	1.2	10	0008	1.2	25	0139	1.2
	0717	0.5		0700	0.5		1219	1.2		0623	0.4		0708	0.4		0649	0.2
	1217	1.1		1232	1.1		1715	0.3		1206	1.2		1321	1.3		1251	1.2
	1706	0.3		1809	0.3					1811	0.3		1839	0.2		1926	0.5
11	0051	1.2	26	0139	1.4	11	0023	1.2	26	0134	1.2	11	0047	1.2	26	0206	1.3
	0732	0.5		0708	0.4		0730	0.4		0641	0.3		0713	0.3		0724	0.1
	1254	1.2		1247	1.2		1258	1.3		1230	1.3		1411	1.4		1328	1.3
	1802	0.2		1849	0.2		1815	0.2		1900	0.3		1936	0.2		2009	0.4
12	0106	1.3	27	0202	1.4	12	0049	1.3	27	0154	1.3	12	0123	1.3	27	0236	1.3
	0749	0.4		0717	0.3		0736	0.3		0709	0.2		0739	0.2		0806	0.0
	1330	1.3		1309	1.3		1338	1.4		1304	1.3		1504	1.5		1409	1.4
	1849	0.1		1926	0.1		1908	0.1		1943	0.3		2026	0.2		2051	0.4
13	0128	1.4	28	0224	1.4	13	0117	1.4	28	0217	1.3	13	0158	1.3	28	0300	1.3
	0802	0.3		0739	0.2		0739	0.3		0747	0.1		0817	0.1		0851	0.0
	1402	1.4		1334	1.4		1419	1.5		1341	1.4		1558	1.5		1451	1.4
	1932	0.0		2004	0.1		1953	0.0		2021	0.3		2113	0.2		2123	0.4
14	0149	1.4	29	0239	1.4	14	0145	1.4	29	0239	1.3	14	0228	1.3	29	0324	1.3
	0815	0.3		0809	0.1		0800	0.2		0824	0.0		0902	0.1		0934	0.0
	1438	1.5		1402	1.4		1500	1.5		1417	1.4		1651	1.5		1526	1.4



	2015	0.0		2043	0.2		2038	0.0		2100	0.3		2154	0.3		2154	0.4
15	0211	1.5	30	0254	1.3	15	0211	1.4	30	0300	1.3	15	0300	1.2	30	0345	1.3
	0826	0.2		0847	0.1		0828	0.1		0908	0.0		0954	0.1		1023	0.0
	1509	1.5		1436	1.5		1543	1.5		1458	1.4		1739	1.4		1602	1.4
	2056	0.0		2119	0.2		2121	0.1		2138	0.4		2232	0.4		2219	0.4
									31	0319	1.3						
										0956	0.1						
										1536	1.4						
										2208	0.4						

2018

PORTO DE SANTOS - TORRE GRANDE

2018

LATITUDE 23 57.0 S LONGITUDE 46 18.5 W FUSO + 3 HORAS

PORTO DE SANTOS NIVEL MEDIO .77 M CARTA 1701

JULHO

AGOSTO

SETEMBRO

HORA			HORA			HORA			HORA			HORA					
ALT			ALT			ALT			ALT			ALT					
DIA			DIA			DIA			DIA			DIA					
H	M	M	H	M	M	H	M	M	H	M	M	H	M	M	H	M	M
01	0358	1.2	16	0400	1.2	01	0424	1.2	16	0443	1.3	01	0453	1.1	16	0058	0.4
	1111	0.1		1134	0.1		1208	0.2		1239	0.4		1311	0.4		0541	1.1
	1641	1.4		1821	1.2		1728	1.4		1741	1.0		1806	1.1		0923	0.7
	2239	0.5		2319	0.5		2300	0.4					2339	0.5		1156	0.8
																1354	0.7
																1713	0.9
																2241	0.7
02	0409	1.2	17	0424	1.1	02	0439	1.1	17	0006	0.5	02	0500	1.0	17	0208	0.5
	1200	0.1		1226	0.2		1254	0.2		0513	1.2		0756	0.9		0632	1.0
	1717	1.4		1832	1.1		1806	1.3		1328	0.5		1002	0.9		0949	0.7
	2254	0.5		2356	0.6		2328	0.5		1754	1.0		1413	0.5		1234	0.9
													1856	1.0		1506	0.8
																1721	0.8
																2047	0.7
																2330	0.8
03	0421	1.1	18	0456	1.1	03	0449	1.0	18	0108	0.5	03	0054	0.6	18	0323	0.4
	1247	0.2		1315	0.3		1345	0.3		0558	1.0		0504	0.8		0808	0.8
	1800	1.3		1847	1.0		1854	1.1		0947	0.7		0706	0.8		0947	0.8
	2319	0.6								1143	0.8		1130	1.0		1258	1.0
										1423	0.7		1532	0.6		2002	0.7
										1804	0.9		2023	0.8			
										2213	0.7						
04	0428	1.0	19	0039	0.6	04	0008	0.6	19	0236	0.5	04	0328	0.6	19	0004	1.0
	1328	0.3		0534	1.0		0454	0.9		0704	0.9		0508	0.6		0434	0.4
	1845	1.2		1404	0.5		0708	0.9		1000	0.8		0700	0.6		1304	1.1
	2354	0.6		1906	0.9		1008	0.9		1232	0.9		1230	1.2		1943	0.6
							1439	0.4		1532	0.7		1741	0.6			
							1951	1.0		1811	0.8						
										2106	0.8						
05	0423	0.9	20	0149	0.6	05	0134	0.6	20	0000	0.8	05	0054	0.9	20	0039	1.1
	0656	0.8		0643	0.9		0502	0.8		0358	0.5		0651	0.4		0536	0.3
	0926	0.9		1004	0.8		0658	0.7		1302	1.0		1317	1.4		1308	1.2
	1413	0.3		1500	0.5		1124	1.0		1700	0.7		1917	0.5		1941	0.5
	1939	1.1		1939	0.8		1543	0.5		1815	0.7						
				2211	0.8		2106	0.9		2024	0.7						
06	0053	0.7	21	0315	0.6	06	0402	0.6	21	0038	1.0	06	0130	1.1	21	0108	1.3
	0423	0.8		0915	0.9		0511	0.6		0508	0.4		0645	0.3		0626	0.1
	0647	0.8		1154	0.9		0656	0.6		1319	1.1		1402	1.5		1319	1.3
	1034	1.0		1600	0.6		1228	1.2		1954	0.6		1951	0.4		1954	0.4
	1504	0.3					1704	0.5									
	2047	1.1					2300	0.9									
07	0258	0.7	22	0017	0.9	07	0632	0.5	22	0104	1.1	07	0156	1.2	22	0143	1.4
	0439	0.7		0439	0.5		1324	1.3		0604	0.2		0719	0.1		0708	0.1
	0653	0.7		1230	1.0		1839	0.4		1324	1.2		1445	1.6		1339	1.4
	1128	1.1		1706	0.6					1945	0.5		2019	0.3		2013	0.3
	1604	0.4															
	2202	1.0															
08	0654	0.6	23	0054	1.0	08	0134	1.0	23	0139	1.3	08	0224	1.3	23	0211	1.5
	1223	1.2		0539	0.3		0645	0.3		0651	0.1		0753	0.0		0743	0.0
	1711	0.4		1230	1.1		1413	1.5		1338	1.3		1519	1.6		1400	1.4
	2321	1.1		1824	0.6		1945	0.4		2008	0.4		2036	0.2		2032	0.3
09	0634	0.4	24	0124	1.2	09	0209	1.2	24	0206	1.4	09	0236	1.4	24	0243	1.5
	1321	1.3		0624	0.2		0723	0.1		0730	0.0		0828	-0.1		0821	-0.1
	1828	0.3		1302	1.2		1500	1.6		1400	1.4		1549	1.5		1423	1.5
				1928	0.5		2028	0.3		2030	0.4		2102	0.2		2049	0.3
10	0032	1.1	25	0156	1.3	10	0236	1.2	25	0238	1.4	10	0249	1.4	25	0308	1.5
	0653	0.3		0708	0.1		0804	0.0		0808	-0.1		0908	-0.1		0854	-0.1
	1415	1.4		1334	1.3		1547	1.6		1426	1.4		1609	1.4		1449	1.5
	1934	0.3		2008	0.5		2058	0.3		2054	0.3		2126	0.2		2108	0.2
11	0128	1.2	26	0224	1.3	11	0251	1.3	26	0302	1.5	11	0306	1.5	26	0330	1.5
	0728	0.1		0751	0.0		0847	-0.1		0845	-0.1		0949	0.0		0934	0.0
	1508	1.5		1408	1.3		1623	1.6		1454	1.5		1617	1.3		1513	1.5
	2026	0.3		2041	0.4		2126	0.3		2117	0.3		2200	0.2		2128	0.2
12	0211	1.2	27	0254	1.4	12	0309	1.3	27	0328	1.5	12	0328	1.4	27	0351	1.4
	0809	0.0		0830	0.0		0928	-0.1		0924	-0.1		1026	0.2		1015	0.1
	1558	1.6		1443	1.4		1654	1.5		1519	1.5		1623	1.2		1547	1.4
	2109	0.3		2109	0.4		2156	0.3		2136	0.3		2232	0.3		2154	0.2

13	0236	1.2	28	0319	1.4	13	0324	1.3	28	0347	1.4	13	0358	1.4	28	0409	1.4
	0858	0.0		0909	-0.1		1015	0.0		1004	0.0		1108	0.3		1058	0.2
	1645	1.5		1513	1.5		1715	1.3		1551	1.5		1636	1.1		1615	1.3
	2143	0.3		2138	0.4		2223	0.3		2154	0.3		2308	0.3		2221	0.3
14	0306	1.2	29	0343	1.4	14	0351	1.3	29	0404	1.4	14	0424	1.4	29	0430	1.2
	0947	0.0		0953	0.0		1102	0.1		1045	0.1		1156	0.5		1149	0.4
	1724	1.5		1549	1.5		1719	1.2		1619	1.5		1651	1.1		1653	1.2
	2217	0.4		2200	0.4		2256	0.4		2213	0.3		2356	0.4		2256	0.4
15	0332	1.2	30	0400	1.3	15	0411	1.3	30	0417	1.3	15	0500	1.3	30	0454	1.1
	1039	0.1		1038	0.0		1151	0.3		1130	0.2		0909	0.7		1247	0.5
	1756	1.4		1617	1.5		1726	1.1		1654	1.4		1051	0.7		1723	1.1
	2251	0.4		2219	0.4		2326	0.4		2239	0.3		1249	0.6		2348	0.5
													1702	1.0			
			31	0413	1.3				31	0436	1.2						
				1123	0.1					1219	0.3						
				1654	1.4					1726	1.3						
				2236	0.4					2306	0.4						





2018

CANANEIA - BASE SUL DO IOUSP

2018

LATITUDE 25 1.0 S						LONGITUDE 47 55.5 W						FUSO + 3 HORAS					
IOUSP-BASE SUL						NIVEL MEDIO .80 M						CARTA 1703					
JANEIRO						FEVEREIRO						MARCO					
HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT		
DIA		DIA		DIA		DIA		DIA		DIA		DIA		DIA			
H M	M	H M	M	H M	M	H M	M	H M	M	H M	M	H M	M	H M	M		
01	0254	1.5	16	0238	1.5	01	0409	1.6	16	0332	1.6	01	0309	1.6	16	0230	1.6
	0941	0.3		0817	0.5		0917	0.5		0851	0.3		0902	0.4		0823	0.3
	1451	1.4		1538	1.4		1606	1.4		1634	1.4		1504	1.4		1534	1.5
	2132	0.2		2051	0.0		2206	0.2		2151	-0.1		2145	0.1		2058	-0.1
02	0343	1.6	17	0315	1.5	02	0456	1.5	17	0406	1.6	02	0353	1.6	17	0304	1.6
	1028	0.4		0838	0.4		0921	0.4		0911	0.3		0847	0.4		0832	0.3
	1539	1.3		1613	1.4		1649	1.4		1706	1.4		1547	1.4		1608	1.5
	2141	0.2		2128	0.0		2202	0.2		2224	0.0		2136	0.2		2130	-0.1
03	0428	1.6	18	0354	1.5	03	0538	1.5	18	0445	1.6	03	0430	1.5	18	0343	1.6
	0934	0.6		0900	0.4		0953	0.4		0939	0.3		0904	0.3		0853	0.2
	1623	1.3		1653	1.3		1724	1.3		1741	1.3		1623	1.4		1645	1.5
	2143	0.2		2206	0.0		2217	0.3		2302	0.1		2136	0.2		2204	0.0
04	0511	1.5	19	0432	1.5	04	0615	1.3	19	0521	1.5	04	0508	1.4	19	0417	1.6
	0938	0.6		0924	0.4		1023	0.3		1006	0.2		0934	0.2		0915	0.2
	1706	1.2		1728	1.3		1800	1.2		1811	1.2		1658	1.4		1717	1.4
	2206	0.3		2247	0.0		2249	0.3		2338	0.2		2154	0.3		2236	0.1
05	0600	1.4	20	0508	1.5	05	0700	1.2	20	0602	1.4	05	0553	1.3	20	0456	1.5
	1002	0.5		0956	0.3		1102	0.3		1039	0.3		1006	0.2		0945	0.2
	1754	1.2		1802	1.2		1651	1.1		1854	1.2		1730	1.3		1754	1.3
	2238	0.3		2328	0.1		1838	1.1					2213	0.3		2302	0.3
							2313	0.4									
06	0647	1.3	21	0549	1.5	06	0300	0.8	21	0015	0.4	06	0634	1.2	21	0539	1.3
	1039	0.5		1024	0.3		0424	0.8		0653	1.3		1049	0.2		1011	0.2
	1423	1.0		1845	1.1		0753	1.1		1109	0.3		1758	1.2		1836	1.2
	1604	1.0					1149	0.4		1653	1.0		2243	0.4		2324	0.4
	1841	1.1					1611	1.0		1951	1.1						
	2309	0.4					1800	1.0									
							1919	1.0									
							2351	0.5									
07	0732	1.2	22	0015	0.2	07	0315	0.9	22	0109	0.6	07	0236	0.9	22	0626	1.2
	1115	0.5		0630	1.4		0547	0.7		0747	1.1		0430	0.8		1049	0.3
	1506	1.1		1100	0.4		0851	1.0		1151	0.4		0719	1.0		1924	1.1
	1728	0.9		1526	1.0		1239	0.5		1538	0.9		1126	0.3		2345	0.6
	1934	1.0		1658	1.0		1700	0.9		1745	0.8		1836	1.1			
	2354	0.5		1934	1.1		1813	0.9		2100	1.0		2308	0.5			
							2036	1.0									
08	0302	0.7	23	0113	0.3	08	0026	0.7	23	0458	0.6	08	0256	1.0	23	0209	0.7
	0430	0.7		0715	1.3		0341	0.9		0853	1.0		0545	0.8		0353	0.7
	0823	1.1		1138	0.4		0643	0.7		1230	0.6		0817	0.9		0724	1.0
	1204	0.5		1539	1.0		1000	1.0		1541	0.8		1213	0.4		1121	0.4
	1554	1.0		1741	0.9		1354	0.6		1817	0.7		1932	1.0		1508	0.8
	1823	0.9		2036	1.0		2156	1.0		2228	1.1		2343	0.6		1658	0.8
	2038	1.0														2036	1.1
09	0039	0.6	24	0249	0.4	09	0119	0.8	24	0608	0.5	09	0311	1.0	24	0000	0.8
	0328	0.7		0809	1.2		0354	0.9		1004	1.0		0634	0.7		0156	0.9
	0545	0.7		1213	0.5		0719	0.6		1323	0.7		0934	0.9		0521	0.6
	0924	1.0		1551	0.9		1113	1.0		1541	0.8		1323	0.5		0841	0.9
	1304	0.6		1804	0.8		1613	0.6		1858	0.5		2051	1.0		1204	0.6
	1641	0.9		2143	1.1		2306	1.1								1508	0.8
	1856	0.8														1754	0.6
	2151	1.0														2208	1.1
10	0141	0.7	25	0439	0.4	10	0754	0.6	25	0008	1.2	10	0015	0.8	25	0011	1.0
	0356	0.8		0913	1.2		1221	1.1		0706	0.4		0326	1.0		0151	1.0
	0643	0.6		1304	0.6		1754	0.4		1123	1.0		0708	0.6		0619	0.5
	1038	1.0		1558	0.8					1938	0.3		1053	1.0		1000	0.9
	1438	0.6		1839	0.7								1556	0.6		1304	0.7
	2254	1.0		2256	1.1								2211	1.0		1504	0.8
																1838	0.5
11	0723	0.6	26	0556	0.4	11	0008	1.2	26	0109	1.3	11	0111	0.9	26	0030	1.2
	1149	1.1		1023	1.1		0815	0.5		0756	0.3		0324	1.0		0704	0.4
	1647	0.5		1409	0.7		1313	1.2		1236	1.1		0739	0.5		1115	1.0
	2351	1.1		1558	0.8		1843	0.2		2011	0.2		1200	1.1		1915	0.3
				1908	0.5								1739	0.4			
													2336	1.1			
12	0754	0.6	27	0002	1.2	12	0058	1.3	27	0154	1.5	12	0800	0.5	27	0106	1.3
	1247	1.2		0700	0.3		0836	0.5		0838	0.3		1253	1.2		0743	0.4
	1800	0.4		1139	1.1		1358	1.3		1334	1.3		1826	0.3		1221	1.1

			1949	0.4		1923	0.1		2051	0.1			1956	0.2			
13	0036	1.2	28	0104	1.3	13	0139	1.4	28	0232	1.6	13	0034	1.3	28	0139	1.4
	0811	0.5		0800	0.3		0843	0.5		0906	0.4		0819	0.4		0808	0.4
	1334	1.3		1247	1.2		1441	1.4		1421	1.4		1338	1.3		1313	1.3
	1849	0.2		2024	0.3		2002	0.0		2123	0.1		1908	0.1		2032	0.1
14	0115	1.3	29	0158	1.5	14	0217	1.5				14	0115	1.4	29	0211	1.5
	0817	0.5		0853	0.3		0836	0.4					0830	0.4		0817	0.4
	1415	1.4		1347	1.3		1517	1.4					1415	1.4		1400	1.4
	1930	0.1		2102	0.2		2039	-0.1					1947	0.0		2100	0.2
15	0158	1.4	30	0245	1.5	15	0256	1.5				15	0154	1.5	30	0251	1.6
	0811	0.5		0938	0.4		0836	0.4					0828	0.4		0806	0.3
	1458	1.4		1438	1.3		1556	1.5					1456	1.5		1443	1.4
	2009	0.0		2139	0.1		2113	-0.1					2021	-0.1		2115	0.2
			31	0328	1.6										31	0326	1.6
				1004	0.4											0815	0.2
				1523	1.4											1519	1.5
				2208	0.1											2102	0.3





			2009	0.3				2030	0.5		2024	0.2		1958	0.6		
12	0043	1.4	27	0151	1.5	12	0049	1.5	27	0200	1.4	12	0153	1.5	27	0258	1.4
	0802	0.4		0721	0.3		0738	0.3		0700	0.2		0751	0.2		0758	0.0
	1345	1.4		1332	1.3		1345	1.4		1343	1.3		1449	1.5		1445	1.4
	1921	0.0		2038	0.3		1939	0.1		1953	0.5		2117	0.3		2017	0.5
13	0123	1.5	28	0224	1.5	13	0130	1.5	28	0241	1.4	13	0238	1.5	28	0336	1.4
	0804	0.3		0724	0.2		0739	0.3		0730	0.1		0809	0.2		0838	0.0
	1423	1.5		1409	1.4		1426	1.5		1423	1.4		1541	1.5		1526	1.4
	2000	0.0		2034	0.3		2023	0.1		1958	0.5		2202	0.4		2043	0.5
14	0200	1.6	29	0302	1.5	14	0211	1.6	29	0315	1.4	14	0319	1.4	29	0409	1.3
	0800	0.3		0753	0.1		0749	0.2		0806	0.0		0832	0.2		0917	0.0
	1502	1.5		1454	1.4		1511	1.5		1504	1.4		1630	1.5		1608	1.5
	2038	0.0		2024	0.4		2104	0.1		2019	0.4		2224	0.5		2108	0.4
15	0239	1.6	30	0341	1.5	15	0254	1.5	30	0354	1.4	15	0404	1.3	30	0447	1.3
	0808	0.2		0823	0.0		0806	0.2		0849	0.0		0904	0.2		1000	0.0
	1543	1.5		1532	1.4		1558	1.5		1549	1.4		1715	1.5		1649	1.5
	2111	0.0		2039	0.4		2138	0.2		2049	0.4		2204	0.6		2136	0.4
									31	0430	1.3						
										0926	0.0						
										1626	1.4						
										2113	0.4						

2018

CANANEIA - BASE SUL DO IOUSP

2018

LATITUDE 25 1.0 S LONGITUDE 47 55.5 W FUSO + 3 HORAS

IOUSP-BASE SUL NIVEL MEDIO .80 M CARTA 1703

JULHO AGOSTO SETEMBRO

JULHO			AGOSTO			AGOSTO			SETEMBRO			SETEMBRO		
HORA	ALT	DIA	HORA	ALT	DIA	HORA	ALT	DIA	HORA	ALT	DIA	HORA	ALT	DIA
H M	M		H M	M		H M	M		H M	M		H M	M	
01 0523	1.2	16	0519	1.2	01 0323	1.1	16 0315	1.1	01 0328	1.0	16 0719	1.0		
1047	0.1		1023	0.3	0615	1.1	0421	1.1	0500	1.0	1121	0.6		
1724	1.5		1824	1.4	1154	0.2	0608	1.1	0723	1.0	1500	1.0		
2202	0.4		2224	0.5	1811	1.5	1056	0.4	1239	0.5	1811	0.7		
					2249	0.3	1419	0.7	1911	1.2	2058	0.9		
							1549	0.7	2326	0.4				
							1924	1.2						
							2319	0.3						
02 0236	1.0	17	0223	1.0	02 0313	1.0	17 0332	1.1	02 0323	0.9	17 0047	0.5		
0400	1.0		0319	1.0	0515	1.0	0558	1.0	0538	0.8	0847	1.0		
0606	1.1		0606	1.1	0709	1.0	0706	1.0	0843	1.0	1202	0.7		
1138	0.2		1058	0.4	1247	0.3	1126	0.5	1551	0.6	1524	1.0		
1802	1.5		1906	1.3	1854	1.4	1458	0.9	2008	1.1	1902	0.7		
2232	0.4		2300	0.5	2317	0.4	1706	0.8			2223	0.9		
							2013	1.0						
03 0243	1.0	18	0249	1.1	03 0324	1.0	18 0004	0.4	03 0002	0.5	18 0430	0.6		
0511	0.9		0506	0.9	0554	0.9	0402	1.0	0319	0.8	1002	1.0		
0706	1.0		0704	1.0	0817	1.0	0621	0.9	0602	0.7	1300	0.9		
1234	0.2		1138	0.5	1354	0.4	0828	0.9	1000	1.1	1541	1.0		
1843	1.4		1954	1.2	1941	1.3	1206	0.6	1730	0.6	1939	0.6		
2302	0.4		2339	0.5	2356	0.4	1528	0.9	2119	1.0	2349	1.0		
							1821	0.7						
							2119	0.9						
04 0300	1.0	19	0319	1.1	04 0338	0.9	19 0102	0.6	04 0053	0.7	19 0538	0.4		
0556	0.9		0606	0.9	0604	0.8	0436	0.8	0311	0.8	1109	1.1		
0815	1.0		0817	1.0	0923	1.0	0624	0.8	0634	0.5	2002	0.5		
1338	0.3		1217	0.6	1530	0.5	0947	1.0	1115	1.2				
1923	1.4		1513	0.7	2036	1.2	1258	0.8	1841	0.5				
2341	0.5		1656	0.7			1558	0.9	2249	1.0				
			2047	1.1			1917	0.7						
							2253	1.0						
05 0317	1.0	20	0023	0.6	05 0036	0.6	20 0547	0.6	05 0704	0.3	20 0043	1.2		
0611	0.8		0358	1.0	0343	0.8	1051	1.0	1224	1.3	0613	0.2		
0917	1.0		0645	0.8	0623	0.7	1402	0.8	1936	0.4	1206	1.2		
1443	0.3		0928	1.0	1024	1.1	1611	0.9			2023	0.5		
2009	1.3		1306	0.7	1706	0.5	2000	0.6						
			1558	0.8	2145	1.1								
			1815	0.7										
			2156	1.0										
06 0017	0.6	21	0138	0.6	06 0130	0.7	21 0008	1.1	06 0009	1.1	21 0123	1.3		
0338	0.9		0436	0.8	0338	0.8	0556	0.4	0741	0.2	0651	0.1		
0626	0.7		0656	0.7	0651	0.5	1145	1.1	1321	1.4	1253	1.3		
1009	1.1		1028	1.0	1124	1.2	2030	0.6	2019	0.3	2034	0.5		
1553	0.4		1406	0.7	1832	0.4								
2108	1.3		1632	0.8	2302	1.1								
			1924	0.7										
			2319	1.0										
07 0111	0.7	22	0606	0.6	07 0715	0.4	22 0104	1.2	07 0109	1.3	22 0200	1.4		
0345	0.8		1119	1.1	1223	1.3	0628	0.2	0815	0.1	0723	0.0		
0643	0.6		1517	0.8	1939	0.4	1232	1.2	1406	1.5	1334	1.4		
1100	1.1		1658	0.8			2051	0.5	2058	0.3	2034	0.4		
1704	0.4		2011	0.6										
2215	1.2													
08 0658	0.5	23	0032	1.1	08 0019	1.2	23 0149	1.3	08 0158	1.4	23 0238	1.5		
1149	1.2		0558	0.4	0753	0.2	0704	0.1	0853	0.0	0756	-0.1		
1821	0.4		1206	1.2	1323	1.4	1315	1.3	1453	1.6	1411	1.5		
2330	1.2		2049	0.6	2036	0.3	2058	0.5	2123	0.4	2024	0.4		
09 0721	0.4	24	0121	1.3	09 0121	1.3	24 0223	1.4	09 0239	1.5	24 0308	1.5		
1238	1.3		0634	0.2	0826	0.1	0739	0.0	0923	0.1	0828	-0.1		
1932	0.3		1253	1.2	1419	1.5	1400	1.4	1536	1.6	1451	1.6		
			2106	0.6	2123	0.3	2053	0.5	2108	0.4	2030	0.3		
10 0039	1.3	25	0204	1.4	10 0209	1.4	25 0300	1.5	10 0315	1.5	25 0345	1.5		
0751	0.3		0711	0.1	0904	0.1	0813	-0.1	0926	0.2	0902	-0.1		
1332	1.4		1338	1.3	1509	1.6	1443	1.5	1613	1.6	1526	1.6		
2038	0.3		2108	0.6	2200	0.4	2045	0.4	2102	0.3	2049	0.2		
11 0134	1.4	26	0245	1.4	11 0258	1.4	26 0336	1.5	11 0356	1.5	26 0415	1.5		
0821	0.2		0751	0.0	0939	0.1	0851	-0.1	0913	0.2	0936	0.0		

1430	1.5		1421	1.4		1558	1.6		1521	1.5		1658	1.5		1604	1.5
2130	0.3		2041	0.5		2211	0.5		2054	0.4		2121	0.2		2109	0.2
12 0223	1.4	27	0317	1.4		12 0339	1.4	27	0406	1.5		12 0430	1.4	27	0451	1.4
0853	0.2		0826	-0.1		0953	0.1		0923	-0.1		0924	0.3		1006	0.1
1524	1.5		1506	1.5		1641	1.6		1558	1.6		1739	1.4		1643	1.5
2215	0.4		2049	0.5		2128	0.5		2109	0.3		2154	0.2		2138	0.2
13 0308	1.4	28	0354	1.4		13 0415	1.4	28	0441	1.4		13 0500	1.3	28	0521	1.3
0924	0.2		0906	-0.1		0945	0.2		1000	0.0		0953	0.3		1039	0.2
1613	1.6		1549	1.5		1721	1.5		1636	1.6		1817	1.3		1719	1.4
2241	0.5		2104	0.4		2143	0.4		2134	0.3		2226	0.2		2204	0.2
14 0354	1.4	29	0428	1.4		14 0456	1.3	29	0509	1.3		14 0536	1.2	29	0600	1.2
0936	0.2		0947	0.0		1000	0.3		1038	0.1		1015	0.4		1106	0.4
1700	1.6		1624	1.5		1802	1.4		1708	1.5		1400	0.9		1802	1.3
2153	0.6		2126	0.4		2208	0.3		2200	0.2		1556	0.8		2236	0.3
												1902	1.1			
												2304	0.2			
15 0438	1.3	30	0500	1.3		15 0534	1.2	30	0545	1.2		15 0611	1.1	30	0658	1.1
0956	0.2		1024	0.0		1021	0.4		1113	0.2		1051	0.5		1130	0.6
1745	1.5		1700	1.5		1845	1.3		1747	1.5		1430	1.0		1854	1.1
2200	0.5		2153	0.3		2245	0.3		2224	0.2		1708	0.8		2304	0.4
												1954	1.0			
												2351	0.4			
			31 0538	1.2					31 0623	1.1						
			1108	0.1					1154	0.3						
			1738	1.5					1826	1.4						
			2217	0.3					2258	0.3						

2018

CANANEIA - BASE SUL DO IOUSP

2018

LATITUDE 25 1.0 S LONGITUDE 47 55.5 W FUSO + 3 HORAS

IOUSP-BASE SUL NIVEL MEDIO .80 M CARTA 1703

OUTUBRO						NOVEMBRO						DEZEMBRO					
DIA	HORA	ALT	DIA	HORA	ALT	DIA	HORA	ALT	DIA	HORA	ALT	DIA	HORA	ALT	DIA	HORA	ALT
01	0304	0.9	16	0041	0.5	01	0036	0.7	16	0406	0.4	01	0602	0.4	16	0419	0.4
	0447	0.8		0754	1.0		0204	0.7		0923	1.1		1054	1.1		0938	1.2
	0806	1.1		1134	0.7		0539	0.4		1300	0.8		1856	0.6		1343	0.7
	1158	0.8		1502	1.1		1024	1.1		1523	0.9		2304	1.1		1556	0.8
	1349	0.8		1845	0.7		1830	0.6		1909	0.6					1900	0.6
	1632	0.7		2158	0.9		2223	1.0		2328	1.1					2326	1.1
	1956	1.0															
	2343	0.5															
02	0256	0.8	17	0321	0.5	02	0621	0.3	17	0504	0.3	02	0654	0.4	17	0517	0.3
	0528	0.6		0906	1.0		1145	1.2		1030	1.2		1200	1.2		1038	1.2
	0934	1.1		1217	0.8		1904	0.5		1924	0.5		1908	0.6		1908	0.6
	1745	0.6		1517	1.0		2334	1.1									
	2108	0.9		1911	0.6												
				2313	1.0												
03	0026	0.7	18	0458	0.4	03	0704	0.2	18	0013	1.2	03	0000	1.2	18	0011	1.2
	0247	0.8		1019	1.1		1238	1.3		0553	0.2		0739	0.4		0609	0.2
	0606	0.4		1341	0.9		1932	0.5		1126	1.3		1254	1.3		1138	1.3
	1108	1.2		1509	1.0					1934	0.5		1843	0.5		1919	0.5
	1839	0.5		1939	0.5												
	2239	1.0															
04	0649	0.3	19	0009	1.1	04	0026	1.2	19	0054	1.3	04	0047	1.3	19	0058	1.3
	1219	1.3		0547	0.2		0745	0.2		0634	0.1		0815	0.4		0700	0.2
	1919	0.4		1123	1.2		1319	1.4		1217	1.4		1339	1.3		1232	1.4
	2358	1.1		1954	0.5		1938	0.4		1934	0.4		1851	0.3		1934	0.4
05	0723	0.1	20	0054	1.3	05	0109	1.4	20	0132	1.4	05	0126	1.4	20	0141	1.4
	1306	1.4		0624	0.1		0815	0.2		0713	0.1		0824	0.5		0751	0.2
	1958	0.4		1213	1.3		1402	1.4		1304	1.5		1421	1.4		1323	1.4
				2002	0.4		1928	0.3		1934	0.3		1921	0.2		1954	0.3
06	0054	1.3	21	0130	1.4	06	0153	1.4	21	0208	1.5	06	0206	1.4	21	0224	1.5
	0800	0.1		0700	0.0		0828	0.3		0753	0.1		0738	0.5		0838	0.2
	1349	1.5		1258	1.4		1447	1.5		1351	1.5		1504	1.4		1411	1.4
	2023	0.4		2002	0.4		1943	0.2		1945	0.3		2000	0.1		2024	0.2
07	0138	1.4	22	0204	1.5	07	0230	1.5	22	0251	1.5	07	0247	1.4	22	0309	1.5
	0834	0.1		0734	0.0		0804	0.4		0828	0.1		0756	0.5		0923	0.3
	1426	1.5		1339	1.5		1524	1.4		1432	1.5		1549	1.4		1502	1.4
	2026	0.4		1956	0.3		2011	0.1		2008	0.2		2039	0.0		2054	0.2
08	0215	1.5	23	0243	1.5	08	0306	1.5	23	0330	1.5	08	0323	1.5	23	0358	1.5
	0854	0.2		0808	0.0		0809	0.4		0904	0.2		0819	0.4		0949	0.4
	1508	1.5		1417	1.5		1606	1.4		1515	1.5		1626	1.3		1551	1.4
	2017	0.3		2004	0.3		2051	0.1		2036	0.2		2117	0.0		2124	0.2
09	0256	1.5	24	0315	1.5	09	0345	1.5	24	0409	1.5	09	0402	1.5	24	0447	1.5
	0843	0.2		0841	0.0		0836	0.4		0932	0.3		0853	0.4		0953	0.5
	1553	1.5		1458	1.6		1651	1.3		1600	1.4		1706	1.3		1638	1.3
	2034	0.2		2023	0.2		2124	0.1		2106	0.2		2200	0.1		2158	0.2
10	0332	1.5	25	0353	1.5	10	0419	1.4	25	0456	1.5	10	0443	1.4	25	0532	1.5
	0841	0.3		0913	0.1		0902	0.4		0954	0.4		0921	0.4		1002	0.6
	1632	1.4		1539	1.5		1313	0.9		1649	1.3		1751	1.2		1723	1.2
	2102	0.1		2049	0.2		1730	1.2		2141	0.2		2245	0.1		2226	0.3
							2204	0.1									
11	0404	1.5	26	0428	1.5	11	0458	1.4	26	0545	1.4	11	0519	1.4	26	0615	1.4
	0858	0.3		0945	0.2		0934	0.4		1011	0.6		0956	0.4		1023	0.6
	1709	1.3		1617	1.4		1334	1.0		1736	1.2		1402	1.0		1809	1.1
	2139	0.1		2115	0.2		1528	0.9		2215	0.3		1602	0.9		2302	0.4
							1811	1.1					1834	1.1			
							2249	0.2					2328	0.2			
12	0441	1.4	27	0506	1.4	12	0539	1.3	27	0634	1.3	12	0602	1.3	27	0704	1.3
	0921	0.4		1009	0.3		1004	0.4		1038	0.7		1028	0.5		1058	0.6
	1315	0.8		1700	1.3		1400	1.0		1332	0.8		1424	1.0		1413	1.0
	1421	0.8		2149	0.2		1645	0.9		1508	0.8		1704	0.9		1611	0.9
	1756	1.2					1902	1.0		1828	1.1		1924	1.0		1904	1.1
	2211	0.1					2336	0.3		2258	0.4					2341	0.5
13	0513	1.3	28	0554	1.3	13	0623	1.2	28	0726	1.2	13	0024	0.3	28	0206	0.5
	0953	0.4		1032	0.5		1041	0.5		1106	0.7		0651	1.3		0328	0.5
	1345	1.0		1749	1.2		1424	1.1		1356	0.9		1102	0.5		0800	1.2
	1554	0.9		2217	0.3		1741	0.8		1641	0.8		1454	1.0		1138	0.6
	1841	1.1					2004	0.9		1932	1.0		1756	0.8		1458	1.0
	2256	0.2								2347	0.5		2028	0.9		1728	0.9



2019

UBATUBA - BASE NORTE DO IOUSP

2019

LATITUDE 23 30.0 S      LONGITUDE 45 7.3 W      FUSO + 3 HORAS

IOUSP-BASE NORTE      NIVEL MEDIO .66 M      CARTA 1613

JANEIRO						FEVEREIRO						MARCO					
HORA		ALT	HORA		ALT	HORA		ALT	HORA		ALT	HORA		ALT	HORA		ALT
DIA			DIA			DIA			DIA			DIA			DIA		
H	M	M	H	M	M	H	M	M	H	M	M	H	M	M	H	M	M
01	0041	0.9	16	0454	0.4	01	0147	0.9	16	0134	1.1	01	0106	0.9	16	0034	1.1
	0551	0.4		1156	0.9		0724	0.5		0651	0.4		0641	0.6		0539	0.5
	1253	0.8		1715	0.3		1219	0.9		1321	0.9		1228	0.8		1234	0.9
	1754	0.4					1913	0.1		1900	0.1		1802	0.3		1749	0.2
02	0111	0.9	17	0045	1.0	02	0147	1.0	17	0213	1.2	02	0124	1.0	17	0115	1.2
	0647	0.4		0556	0.3		0802	0.4		0745	0.3		0715	0.5		0647	0.4
	1245	0.8		1239	0.9		1249	1.0		1353	1.0		1224	0.9		1308	0.9
	1849	0.3		1817	0.2		1958	0.1		1954	0.0		1853	0.2		1849	0.1
03	0126	1.0	18	0136	1.1	03	0139	1.1	18	0258	1.3	03	0136	1.0	18	0158	1.3
	0736	0.4		0656	0.3		0841	0.4		0828	0.3		0749	0.4		0730	0.3
	1215	0.9		1315	0.9		1324	1.1		1413	1.0		1245	1.0		1341	1.0
	1934	0.2		1913	0.1		2039	0.0		2045	-0.1		1936	0.1		1939	0.0
04	0106	1.0	19	0221	1.2	04	0204	1.1	19	0339	1.2	04	0132	1.1	19	0239	1.2
	0815	0.4		0753	0.3		0909	0.3		0908	0.3		0815	0.3		0806	0.3
	1251	1.0		1343	1.0		1402	1.1		1417	1.1		1315	1.1		1353	1.1
	2015	0.1		2004	0.0		2117	0.0		2130	-0.1		2013	0.0		2024	-0.1
05	0130	1.1	20	0306	1.2	05	0232	1.2	20	0409	1.1	05	0145	1.1	20	0309	1.2
	0856	0.4		0843	0.3		0941	0.3		0949	0.3		0845	0.3		0845	0.2
	1328	1.1		1404	1.0		1439	1.1		1432	1.1		1349	1.1		1354	1.2
	2056	0.0		2056	-0.1		2156	0.0		2213	-0.1		2054	0.0		2108	-0.1
06	0209	1.1	21	0353	1.2	06	0304	1.2	21	0332	1.0	06	0211	1.2	21	0328	1.1
	0932	0.4		0928	0.3		1009	0.3		1024	0.3		0911	0.3		0919	0.2
	1408	1.1		1419	1.0		1511	1.1		1500	1.2		1419	1.2		1409	1.2
	2138	0.0		2147	-0.1		2238	0.0		2300	0.0		2134	0.0		2154	-0.1
07	0247	1.1	22	0439	1.2	07	0338	1.1	22	0332	1.0	07	0239	1.2	22	0239	1.0
	1004	0.4		1009	0.3		1039	0.4		1100	0.3		0941	0.3		0954	0.2
	1451	1.1		1445	1.1		1547	1.1		1534	1.2		1453	1.2		1439	1.3
	2215	0.0		2236	-0.1		2313	0.1		2349	0.1		2208	0.0		2239	0.1
08	0323	1.1	23	0523	1.1	08	0408	1.1	23	0400	0.9	08	0308	1.2	23	0300	1.0
	1036	0.4		1054	0.4		1109	0.4		1139	0.4		1009	0.3		1032	0.3
	1526	1.1		1513	1.1		1613	1.1		1608	1.2		1521	1.2		1509	1.2
	2258	0.1		2321	0.0		2354	0.2					2249	0.1		2319	0.2
09	0400	1.1	24	0413	1.0	09	0439	1.0	24	0034	0.3	09	0338	1.1	24	0324	1.0
	1104	0.5		1136	0.4		1147	0.4		0428	0.9		1043	0.3		1108	0.3
	1604	1.0		1553	1.1		1641	1.0		1219	0.4		1551	1.2		1553	1.2
	2341	0.1								1653	1.1		2323	0.2			
10	0436	1.0	25	0008	0.1	10	0036	0.3	25	0117	0.4	10	0404	1.1	25	0000	0.4
	1141	0.5		0430	0.9		0509	1.0		0502	0.8		1115	0.3		0400	0.9
	1638	1.0		1211	0.5		1228	0.4		0853	0.5		1613	1.1		1153	0.3
				1628	1.1		1708	1.0		1004	0.6					1628	1.1
										1308	0.5						
										1736	0.9						
										2109	0.7						
										2300	0.7						
11	0021	0.2	26	0100	0.2	11	0117	0.3	26	0211	0.6	11	0000	0.3	26	0047	0.5
	0511	1.0		0504	0.8		0543	0.9		0543	0.8		0432	1.0		0432	0.9
	1217	0.5		0751	0.7		1319	0.5		0913	0.6		1154	0.4		1247	0.4
	1706	0.9		0904	0.7		1745	0.9		1108	0.6		1645	1.0		1711	0.9
				1258	0.5					1413	0.5					2043	0.7
				1709	1.0					1832	0.8					2253	0.7
										2117	0.7						
12	0106	0.3	27	0156	0.3	12	0208	0.4	27	0002	0.8	12	0045	0.4	27	0134	0.6
	0553	0.9		0545	0.8		0615	0.8		0326	0.6		0500	0.9		0502	0.8
	1306	0.5		0823	0.6		1423	0.5		0628	0.7		1249	0.4		0921	0.5
	1738	0.9		1026	0.7		1832	0.8		0951	0.6		1713	0.9		1039	0.5
				1351	0.5		2051	0.8		1154	0.6					1351	0.4
				1802	0.9		2239	0.8		1538	0.4					1806	0.8
				2254	0.7					2002	0.7					2054	0.7
										2123	0.7					2345	0.8
13	0158	0.3	28	0256	0.5	13	0308	0.5	28	0045	0.8	13	0139	0.5	28	0243	0.7
	0636	0.8		0624	0.7		0706	0.8		0530	0.6		0524	0.8		0536	0.8
	1402	0.5		0904	0.6		0900	0.7		0826	0.7		1354	0.4		0947	0.6
	1823	0.8		1124	0.7		1056	0.7		1000	0.7		1802	0.8		1113	0.6
				1454	0.5		1538	0.4		1213	0.7		2006	0.7		1502	0.4
				1904	0.8		2354	0.9		1658	0.4		2243	0.8		2051	0.7

			2154	0.7															
14	0254	0.4	29	0002	0.8	14	0419	0.5	14	0245	0.5	29	0009	0.8					
	0743	0.8		0406	0.5		1158	0.8		0600	0.7		0611	0.7					
	1502	0.5		0730	0.7		1653	0.3		0849	0.6		0804	0.7					
	2228	0.8		0953	0.6					1053	0.7		1147	0.7					
				1206	0.7					1508	0.4		1621	0.4					
				1609	0.5					2347	1.0								
				2045	0.8														
				2200	0.7														
15	0353	0.4	30	0054	0.8	15	0047	1.0	15	0402	0.6	30	0036	0.9					
	1104	0.8		0530	0.5		0539	0.4		0651	0.6		0641	0.6					
	1608	0.4		0917	0.7		1245	0.9		0826	0.6		1200	0.8					
	2349	0.9		1239	0.7		1800	0.2		1151	0.8		1730	0.3					
				1726	0.4					1634	0.3								
			31	0123	0.9							31	0054	1.0					
				0639	0.5								0700	0.5					
				1239	0.8								1213	0.9					
				1826	0.3								1821	0.2					

2019

UBATUBA - BASE NORTE DO IOUSP

2019

LATITUDE 23 30.0 S						LONGITUDE 45 7.3 W						FUSO + 3 HORAS					
IOUSP-BASE NORTE						NIVEL MEDIO .66 M						CARTA 1613					
ABRIL						MAIO						JUNHO					
HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT		
DIA		DIA		DIA		DIA		DIA		DIA		DIA		DIA			
H M	M	H M	M	H M	M	H M	M	H M	M	H M	M	H M	M	H M	M		
01	0104	1.0	16	0138	1.2	01	0036	1.0	16	0149	1.0	01	0045	1.1	16	0049	0.9
	0721	0.4		0702	0.3		0700	0.3		0708	0.3		0738	0.2		0813	0.1
	1232	1.0		1315	1.0		1238	1.1		1251	1.1		1319	1.1		1319	1.1
	1906	0.1		1917	0.0		1913	0.1		1947	0.1		2004	0.2		2058	0.3
02	0109	1.1	17	0209	1.2	02	0051	1.1	17	0158	1.0	02	0113	1.1	17	0117	1.0
	0745	0.3		0739	0.3		0732	0.2		0751	0.2		0817	0.1		0858	0.1
	1300	1.1		1326	1.1		1304	1.1		1300	1.1		1351	1.2		1358	1.1
	1949	0.0		2004	0.0		1956	0.1		2030	0.1		2051	0.2		2139	0.4
03	0121	1.1	18	0241	1.1	03	0111	1.1	18	0115	1.0	03	0143	1.1	18	0200	1.0
	0809	0.2		0813	0.2		0806	0.2		0832	0.1		0900	0.1		0941	0.0
	1326	1.1		1324	1.2		1332	1.2		1324	1.2		1424	1.2		1438	1.1
	2026	0.0		2051	0.0		2036	0.1		2111	0.2		2134	0.2		2213	0.4
04	0141	1.2	19	0215	1.0	04	0139	1.2	19	0136	1.0	04	0213	1.1	19	0239	1.1
	0839	0.2		0853	0.2		0843	0.1		0909	0.1		0947	0.1		1021	0.1
	1358	1.2		1347	1.2		1402	1.2		1402	1.2		1504	1.1		1515	1.1
	2104	0.0		2134	0.1		2111	0.1		2154	0.3		2217	0.3		2249	0.5
05	0208	1.2	20	0204	1.0	05	0206	1.2	20	0208	1.0	05	0247	1.0	20	0317	1.0
	0909	0.2		0930	0.2		0919	0.1		0954	0.1		1034	0.1		1102	0.1
	1424	1.2		1415	1.2		1432	1.2		1443	1.1		1538	1.1		1600	1.1
	2143	0.0		2211	0.2		2154	0.2		2234	0.4		2304	0.4		2317	0.5
06	0238	1.2	21	0228	1.0	06	0236	1.1	21	0247	1.0	06	0315	1.0	21	0400	1.0
	0945	0.2		1008	0.2		0958	0.1		1038	0.1		1123	0.1		1147	0.2
	1456	1.2		1456	1.2		1504	1.2		1521	1.1		1619	1.0		1641	1.0
	2217	0.1		2256	0.3		2234	0.3		2308	0.5		2356	0.5		2353	0.5
07	0306	1.2	22	0302	1.0	07	0304	1.1	22	0321	1.0	07	0353	0.9	22	0439	0.9
	1017	0.2		1051	0.2		1041	0.2		1119	0.2		1217	0.2		1234	0.2
	1523	1.2		1534	1.1		1539	1.1		1606	1.0		1709	0.9		1721	0.9
	2256	0.2		2336	0.5		2315	0.4		2345	0.6		1800	0.9			
													2013	0.9			
08	0332	1.1	23	0338	1.0	08	0332	1.0	23	0400	1.0	08	0051	0.5	23	0034	0.6
	1053	0.2		1136	0.2		1128	0.2		1204	0.2		0426	0.9		0519	0.9
	1554	1.1		1611	1.0		1613	1.0		1654	0.9		1315	0.2		1321	0.3
	2336	0.3											2134	1.0		1809	0.9
09	0400	1.0	24	0009	0.6	09	0004	0.5	24	0019	0.6	09	0147	0.6	24	0121	0.6
	1136	0.3		0408	0.9		0400	0.9		0438	0.9		0511	0.8		0611	0.8
	1623	1.0		1224	0.3		1224	0.3		1258	0.3		1419	0.3		1413	0.3
				1700	0.9		1700	0.9		1743	0.9		2234	1.0		1913	0.8
				2021	0.7		1853	0.8									
				2200	0.7		2047	0.9									
10	0017	0.4	25	0054	0.7	10	0102	0.6	25	0106	0.6	10	0249	0.6	25	0219	0.6
	0421	0.9		0443	0.9		0426	0.8		0515	0.8		0619	0.8		0806	0.8
	1230	0.3		1323	0.3		1330	0.3		1356	0.3		0819	0.7		1509	0.4
	1700	0.9		1756	0.8		1849	0.8		1853	0.8		1017	0.8		2219	0.8
	2051	0.8		2032	0.7		2200	1.0		2053	0.8		1528	0.3			
				2256	0.8					2217	0.8		2324	1.0			
11	0113	0.5	26	0154	0.7	11	0209	0.6	26	0208	0.6	11	0353	0.5	26	0323	0.5
	0453	0.8		0506	0.8		0502	0.7		0723	0.7		1121	0.8		1017	0.8
	1339	0.4		1428	0.4		0800	0.6		1458	0.4		1638	0.3		1608	0.4
	1751	0.8		1921	0.7		0954	0.7		2258	0.8					2308	0.9
	1923	0.8		2324	0.8		1443	0.3									
	2224	0.9					2300	1.0									
12	0224	0.6	27	0609	0.7	12	0328	0.6	27	0319	0.6	12	0011	1.0	27	0426	0.4
	0513	0.7		0811	0.7		0602	0.7		1006	0.8		0456	0.5		1128	0.9
	0811	0.6		1541	0.4		0749	0.6		1600	0.3		1209	0.9		1706	0.3
	1030	0.7		2354	0.9		1100	0.8		2332	0.9		1743	0.3		2338	0.9
	1456	0.4					1558	0.3									
	2323	1.0					2351	1.1									
13	0356	0.6	28	0611	0.6	13	0449	0.5	28	0432	0.5	13	0056	0.9	28	0526	0.4
	0558	0.6		1124	0.8		1149	0.9		1111	0.8		0554	0.4		1217	0.9
	0802	0.6		1649	0.3		1704	0.2		1700	0.3		1251	1.0		1800	0.3
	1128	0.8								2349	0.9		1839	0.3			
	1615	0.3															
14	0009	1.1	29	0013	0.9	14	0034	1.1	29	0526	0.4	14	0126	0.9	29	0008	1.0
	0534	0.5		0624	0.5		0545	0.5		1145	0.9		0645	0.3		0621	0.3
	1209	0.9		1145	0.9		1224	0.9		1753	0.2		1315	1.0		1258	1.0
	1730	0.2		1745	0.2		1804	0.1					1928	0.3		1854	0.3
15	0056	1.2	30	0030	1.0	15	0111	1.1	30	0006	1.0	15	0126	0.9	30	0034	1.0



0624	0.4	0636	0.4	0628	0.4	0611	0.3	0732	0.2	0709	0.2
1251	1.0	1211	1.0	1253	1.0	1217	1.0	1247	1.0	1339	1.1
1828	0.1	1832	0.2	1858	0.1	1839	0.2	2011	0.3	1945	0.3
						31	0023	1.0			
							0656	0.2			
							1247	1.1			
							1923	0.2			



	1309	0.9		1726	0.4		1400	1.0		1354	1.2		1330	1.1		1451	1.2
	1823	0.4					1954	0.4		1919	0.4		2032	0.3		2019	0.2
13	0108	0.8	28	0015	0.9	13	0039	0.9	28	0132	1.0	13	0132	1.1	28	0151	1.1
	0624	0.3		0554	0.3		0745	0.1		0730	0.0		0841	0.0		0849	-0.1
	1351	1.0		1315	1.0		1349	1.0		1434	1.3		1354	1.2		1515	1.1
	1917	0.4		1832	0.4		2030	0.4		2004	0.3		2058	0.2		2056	0.2
14	0041	0.9	29	0053	0.9	14	0111	1.0	29	0158	1.0	14	0204	1.2	29	0200	1.2
	0713	0.2		0653	0.2		0823	0.0		0819	-0.1		0915	0.0		0932	-0.1
	1406	1.0		1400	1.1		1353	1.1		1509	1.2		1421	1.2		1436	1.0
	2002	0.4		1928	0.3		2100	0.3		2047	0.2		2126	0.2		2136	0.2
15	0038	0.9	30	0126	1.0	15	0149	1.1	30	0215	1.1	15	0238	1.2	30	0221	1.2
	0800	0.1		0747	0.0		0902	0.0		0904	-0.1		0954	0.0		1013	0.0
	1336	1.0		1445	1.2		1417	1.2		1547	1.2		1453	1.2		1445	1.0
	2047	0.4		2019	0.3		2128	0.3		2124	0.2		2154	0.2		2211	0.2
			31	0151	1.0				31	0224	1.2						
				0836	0.0					0953	-0.1						
				1526	1.2					1545	1.1						
				2104	0.3					2202	0.3						

2019

UBATUBA - BASE NORTE DO IOUSP

2019

LATITUDE 23 30.0 S LONGITUDE 45 7.3 W FUSO + 3 HORAS

IOUSP-BASE NORTE NIVEL MEDIO .66 M CARTA 1613

OUTUBRO					NOVEMBRO					DEZEMBRO							
DIA	HORA	ALT	DIA	HORA	ALT	DIA	HORA	ALT	DIA	HORA	ALT	DIA	HORA	ALT			
	H M	M		H M	M		H M	M		H M	M		H M	M	H M	M	
01	0256	1.2	16	0309	1.2	01	0358	1.1	16	0404	1.0	01	0434	1.0			
	1058	0.2		1039	0.2		1200	0.6		1143	0.5		1209	0.6	16	0454	1.0
	1506	1.0		1515	1.1		1553	0.9		1551	1.0		1624	0.9	0704	1.0	
	2253	0.3		2238	0.2					2358	0.2				1217	0.5	
02	0328	1.2	17	0341	1.1	02	0008	0.3	17	0445	0.9	02	0045	0.2			
	1145	0.3		1113	0.3		0441	0.9		1236	0.5		0519	0.9	17	0051	0.2
	1539	0.9		1545	1.0		0800	0.7		1613	0.9		1253	0.6	1309	0.5	
	2338	0.3		2315	0.3		0934	0.8					1711	0.9	1700	0.9	
03	0406	1.1	18	0409	1.0	03	0104	0.3	18	0058	0.3	03	0138	0.3			
	1226	0.5		1156	0.4		0530	0.8		0917	0.9		0615	0.8	18	0149	0.2
	1606	0.9		1606	1.0		0809	0.7		1338	0.6		0949	0.8	1406	0.6	
							1038	0.8		1654	0.8		1345	0.6	1756	0.8	
04	0026	0.3	19	0002	0.3	04	0206	0.3	19	0204	0.3	04	0236	0.3			
	0454	1.0		0449	0.9		0641	0.8		1023	1.0		0741	0.8	19	0253	0.3
	0811	0.7		1249	0.5		0823	0.7		1447	0.6		0902	0.8	1508	0.5	
	1013	0.7		1632	0.9		1108	0.8		1747	0.7		1039	0.8	1919	0.8	
05	0128	0.4	20	0106	0.3	05	0315	0.4	20	0315	0.3	05	0338	0.4			
	0545	0.8		0528	0.8		1143	0.9		1115	1.0		1109	0.8	20	0358	0.3
	0826	0.7		0715	0.8		1739	0.6		1558	0.5		1602	0.5	1613	0.5	
	1119	0.8		0953	0.9		2243	0.8		2309	0.8		2228	0.8	2349	0.9	
06	0241	0.4	21	0219	0.4	06	0423	0.3	21	0426	0.2	06	0438	0.3			
	0656	0.7		1056	1.0		1200	0.9		1204	1.1		1132	0.9	21	0504	0.3
	0843	0.7		1506	0.6		1802	0.5		1702	0.5		1704	0.5	1717	0.4	
	1200	0.9		1739	0.7		2326	0.9		2358	0.9		2324	0.9			
07	0358	0.4	22	0341	0.3	07	0523	0.3	22	0532	0.2	07	0530	0.3			
	1223	0.9		1147	1.1		1215	0.9		1253	1.1		1139	0.9	22	0041	0.9
	1819	0.6		1638	0.6		1823	0.4		1756	0.4		1754	0.4	1311	0.3	
	2356	0.8		2345	0.8		2351	0.9							1815	0.3	
08	0508	0.3	23	0456	0.2	08	0611	0.2	23	0039	1.0	08	0004	1.0			
	1247	0.9		1228	1.2		1221	1.0		0628	0.1		0617	0.2	23	0126	1.0
	1847	0.5		1749	0.5		1847	0.3		1330	1.0		1202	1.0	0704	0.3	
										1843	0.3		1838	0.3	1906	0.2	
09	0002	0.9	24	0023	0.9	09	0019	1.0	24	0108	1.0	09	0034	1.0			
	0604	0.2		0558	0.1		0658	0.2		0719	0.1		0704	0.2	24	0158	1.0
	1254	1.0		1308	1.2		1230	1.1		1400	1.0		1226	1.0	1317	0.9	
	1908	0.4		1834	0.4		1917	0.3		1926	0.2		1919	0.2	1956	0.1	
10	0017	1.0	25	0056	1.0	10	0049	1.1	25	0115	1.1	10	0108	1.1			
	0651	0.1		0653	0.0		0739	0.1		0806	0.1		0749	0.2	25	0132	1.0
	1251	1.0		1353	1.2		1254	1.1		1336	0.9		1258	1.1	1306	1.0	
	1932	0.3		1911	0.3		1953	0.2		2008	0.2		2002	0.1	2043	0.1	
11	0041	1.1	26	0123	1.1	11	0117	1.2	26	0117	1.1	11	0139	1.1			
	0732	0.1		0741	0.0		0817	0.1		0854	0.2		0832	0.2	26	0149	1.1
	1302	1.1		1423	1.1		1321	1.1		1321	1.0		1328	1.1	1343	1.0	
	1956	0.3		1953	0.2		2028	0.1		2054	0.1		2047	0.1	2124	0.0	
12	0109	1.1	27	0126	1.1	12	0149	1.2	27	0149	1.1	12	0215	1.1			
	0809	0.0		0824	0.0		0856	0.1		0939	0.3		0913	0.3	27	0223	1.1
	1323	1.2		1436	1.0		1353	1.2		1353	1.0		1402	1.1	1419	1.1	
	2024	0.2		2030	0.2		2104	0.1		2139	0.1		2128	0.0	2206	0.0	
13	0141	1.2	28	0134	1.2	13	0219	1.2	28	0223	1.1	13	0251	1.1			
	0851	0.0		0908	0.0		0938	0.2		1017	0.4		0958	0.3	1039	0.5	
	1353	1.2		1354	1.0		1419	1.1		1423	1.0		1434	1.1	1502	1.1	
	2056	0.2		2109	0.2		2143	0.1		2221	0.1		2211	0.1	2251	0.1	

14	0209	1.2	29	0202	1.2	14	0254	1.2	29	0306	1.1	14	0330	1.1	29	0343	1.1
	0924	0.1		0954	0.2		1013	0.3		1058	0.5		1045	0.4		1108	0.5
	1419	1.2		1409	1.0		1453	1.1		1502	1.0		1506	1.0		1545	1.0
	2128	0.2		2153	0.1		2223	0.1		2304	0.1		2300	0.1		2334	0.1
15	0241	1.2	30	0236	1.2	15	0326	1.1	30	0351	1.0	15	0413	1.0	30	0419	1.0
	1000	0.1		1039	0.3		1056	0.4		1138	0.6		1130	0.4		1139	0.5
	1451	1.2		1443	1.0		1517	1.0		1547	1.0		1543	1.0		1624	1.0
	2200	0.2		2236	0.2		2306	0.2		2355	0.2		2354	0.1			
			31	0311	1.1										31	0015	0.2
				1117	0.4											0502	1.0
				1511	1.0											1209	0.5
				2319	0.2											1706	0.9



1702	0.8			1645	0.5			1600	0.4
1832	0.7								
2306	1.0								
15 0347	0.4	30 0054	1.0	15 0104	1.3	15 0008	1.1	30 0117	1.1
0926	1.0	0458	0.7	0626	0.5	0530	0.6	0747	0.6
1600	0.6	0745	0.7	1236	1.0	1153	0.8	1217	1.1
		1239	0.9	1808	0.4	1617	0.5	1702	0.3
		1702	0.4						
		31 0132	1.0					31 0123	1.1
		0726	0.6					0736	0.5
		1309	1.1					1251	1.2
		1800	0.3					1800	0.2





1830	0.2	1817	0.2	1845	0.2	1828	0.2	1951	0.4	1956	0.3
						31 0041	1.2				
						0719	0.3				
						1339	1.4				
						1923	0.2				



	0613	0.3		1336	1.3		0719	0.0		0719	0.1		0819	-0.1		0824	-0.1
	1332	1.1		1906	0.4		1415	1.3		1456	1.6		1423	1.4		1534	1.5
	1911	0.6					2019	0.5		2034	0.3		2047	0.3		2100	0.2
14	0154	1.2	29	0121	1.1	14	0232	1.4	29	0230	1.3	14	0300	1.5	29	0243	1.5
	0656	0.2		0647	0.3		0802	-0.1		0802	-0.1		0858	-0.1		0906	-0.1
	1332	1.2		1423	1.4		1424	1.3		1536	1.6		1447	1.5		1553	1.4
	1949	0.5		1956	0.3		2041	0.4		2102	0.2		2109	0.2		2128	0.2
15	0221	1.2	30	0145	1.2	15	0258	1.4	30	0247	1.4	15	0324	1.5	30	0304	1.5
	0738	0.0		0724	0.1		0843	-0.1		0843	-0.1		0936	0.0		0945	0.1
	1402	1.3		1509	1.5		1449	1.4		1608	1.6		1511	1.5		1604	1.3
	2023	0.5		2039	0.3		2106	0.3		2128	0.2		2130	0.2		2202	0.2
			31	0223	1.2				31	0308	1.4						
				0809	0.0					0926	-0.1						
				1554	1.6					1638	1.5						
				2119	0.3					2158	0.2						

2019

PORTO DE SANTOS - TORRE GRANDE

2019

LATITUDE 23 57.0 S						LONGITUDE 46 18.5 W						FUSO + 3 HORAS																																																																																			
PORTO DE SANTOS						NIVEL MEDIO .77 M						CARTA 1701																																																																																			
OUTUBRO						NOVEMBRO						DEZEMBRO																																																																																			
HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT																																																																																
DIA		DIA		DIA		DIA		DIA		DIA		DIA		DIA																																																																																	
H M	M	H M	M	H M	M	H M	M	H M	M	H M	M	H M	M	H M	M																																																																																
01 0326	1.5	16 0354	1.4	01 0413	1.3	16 0513	1.2	01 0000	0.2	16 0639	1.2	01 1023	0.2	1021	0.2	01 1058	0.7	1124	0.5	01 0454	1.2	1156	0.6	01 1609	1.1	1536	1.4	01 1551	1.0	1608	1.2	01 1056	0.7	1636	1.0	01 2239	0.2	2145	0.2			2317	0.3	01 1558	1.0																																																		
02 0356	1.4	17 0419	1.3	02 0011	0.3	17 0621	1.1	02 0054	0.2	17 0030	0.3	02 1102	0.4	1100	0.3	02 0456	1.2	1219	0.6	02 0538	1.2	0747	1.1	02 1621	1.1	1604	1.3	02 0851	0.7	1643	1.0	02 1019	0.7	1251	0.7	02 2321	0.3	2217	0.3	02 1545	1.0			02 1602	0.9	1719	0.9																																																
03 0424	1.3	18 0447	1.2	03 0109	0.3	18 0028	0.4	03 0145	0.2	18 0138	0.3	03 1145	0.6	1149	0.5	03 0543	1.1	0845	1.0	03 0624	1.1	0904	1.1	03 1624	1.0	1639	1.2	03 0906	0.7	1332	0.7	03 1034	0.8	1400	0.7			2300	0.4	03 1543	0.9	1709	0.9	03 1604	0.9	2128	0.9					03 2008	0.7			03 1845	0.8							03 2208	0.8			03 2147	0.9																										
04 0015	0.4	19 0517	1.1	04 0208	0.3	19 0151	0.4	04 0234	0.3	19 0243	0.4	04 0500	1.2	1251	0.6	04 0639	1.0	1032	1.1	04 0728	1.0	1030	1.0	04 0849	0.7	1708	1.0	04 0938	0.8	1749	0.7	04 1828	0.7	1538	0.7	04 1108	0.8			04 1234	0.9	2215	0.9	04 2239	1.0	2230	1.0	04 1238	0.8			04 1917	0.7							04 1613	1.0			04 2251	0.9							04 2104	0.6											04 2204	0.6										
05 0121	0.4	20 0008	0.5	05 0306	0.3	20 0306	0.4	05 0323	0.3	20 0351	0.4	05 0545	1.0	1002	1.0	05 0809	0.9	1134	1.2	05 0856	1.0	1141	1.1	05 0902	0.7	1406	0.7	05 0956	0.9	1808	0.6	05 1836	0.6	1728	0.6	05 1211	0.9	1747	0.9	05 1243	1.0	2309	1.0	05 2319	1.1	2323	1.1	05 1402	0.9			05 1904	0.7							05 1602	0.9			05 2323	1.0							05 2041	0.7											05 2302	0.7										
06 0232	0.4	21 0149	0.5	06 0406	0.3	21 0426	0.3	06 0419	0.3	21 0458	0.4	06 0645	0.9	1121	1.1	06 1232	1.0	1219	1.2	06 1028	1.0	1234	1.1	06 0921	0.8	1758	0.7	06 1904	0.6	1832	0.5	06 1845	0.5	1749	0.5	06 1251	1.0	2254	0.8	06 2358	1.2	2347	1.1					06 2002	0.7											06 2339	0.9																																		
07 0343	0.4	22 0324	0.5	07 0506	0.3	22 0532	0.3	07 0000	1.2	22 0015	1.1	07 1306	1.1	1209	1.2	07 1217	1.1	1258	1.3	07 0517	0.3	0600	0.4	07 1951	0.6	1836	0.6	07 1909	0.5	1843	0.4	07 1134	1.1	1313	1.1			2351	1.0					07 1854	0.5	1823	0.3																																																
08 0006	1.0	23 0519	0.4	08 0032	1.3	23 0026	1.2	08 0043	1.3	23 0041	1.2	08 0449	0.3	1254	1.4	08 0600	0.2	0623	0.2	08 0615	0.3	0647	0.4	08 1315	1.1	1900	0.4	08 1230	1.2	1334	1.3	08 1217	1.2	1349	1.2	08 1945	0.6			08 1921	0.4	1902	0.3	08 1904	0.4	1900	0.2																																																
09 0038	1.2	24 0032	1.1	09 0104	1.4	24 0054	1.3	09 0121	1.4	24 0126	1.2	09 0545	0.2	0617	0.2	09 0647	0.1	0706	0.2	09 0704	0.2	0728	0.4	09 1313	1.2	1330	1.5	09 1254	1.3	1404	1.3	09 1249	1.3	1421	1.2	09 1938	0.5	1923	0.3	09 1934	0.3	1926	0.2	09 1917	0.3	1939	0.1																																																
10 0104	1.3	25 0108	1.3	10 0143	1.4	25 0124	1.4	10 0202	1.4	25 0151	1.3	10 0634	0.1	0649	0.1	10 0730	0.1	0745	0.2	10 0745	0.2	0808	0.4	10 1315	1.3	1402	1.5	10 1319	1.4	1430	1.3	10 1319	1.3	1447	1.2	10 1941	0.4	1939	0.2	10 1949	0.3	2000	0.1	10 1938	0.2	2021	0.0																																																
11 0138	1.4	26 0130	1.4	11 0213	1.5	26 0154	1.4	11 0245	1.4	26 0223	1.3	11 0717	0.0	0726	0.0	11 0808	0.1	0819	0.3	11 0828	0.2	0845	0.4	11 1330	1.4	1434	1.5	11 1345	1.4	1451	1.2	11 1349	1.3	1509	1.2	11 2000	0.3	2002	0.2	11 2008	0.2	2039	0.1	11 2009	0.1	2106	0.0																																																
12 0206	1.5	27 0153	1.4	12 0249	1.5	27 0223	1.4	12 0326	1.5	27 0258	1.3	12 0754	0.0	0806	0.0	12 0843	0.1	0900	0.4	12 0908	0.2	0915	0.5	12 1353	1.4	1454	1.4	12 1409	1.4	1508	1.2	12 1417	1.3	1534	1.2	12 2019	0.2	2028	0.1	12 2028	0.2	2123	0.1	12 2049	0.1	2156	0.0																																																
13 0238	1.5	28 0215	1.5	13 0321	1.5	28 0300	1.4	13 0409	1.4	28 0330	1.3	13 0832	0.0	0843	0.1	13 0921	0.2	0932	0.5	13 0947	0.3	0951	0.5	13 1413	1.5	1511	1.3	13 1438	1.4	1524	1.1	13 1453	1.3	1556	1.2	13 2039	0.2	2102	0.1	13 2100	0.2	2211	0.1	13 2132	0.1	2249	0.0																																																
14 0302	1.5	29 0243	1.5	14 0354	1.4	29 0334	1.3	14 0454	1.4	29 0404	1.3	14 0908	0.0	0917	0.2	14 0958	0.2	1004	0.6	14 1026	0.4	1017	0.5	14 1439	1.5	1523	1.2	14 1506	1.3	1543	1.1	14 1523	1.2	1615	1.1																																																												





			2151	1.0															
14	0332	0.4	29	0104	0.8	14	0613	0.4	14	0517	0.6	29	0006	0.8					
	0853	1.2		0345	0.9		1034	1.1		0900	1.0		0323	1.1					
	1258	0.6		0706	0.6		1423	0.7		1239	0.6		0726	0.5					
	1606	0.9		1047	1.0		1541	0.7		1526	0.8		1119	1.0					
	1843	0.7		1428	0.6		1902	0.5		1802	0.6		1628	0.5					
	2238	1.1		1851	0.7					2234	1.1		2247	1.0					
				2300	1.0														
15	0454	0.4	30	0213	0.9	15	0019	1.2	15	0619	0.5	30	0106	1.0					
	0956	1.2		0400	0.9		0711	0.3		1015	1.0		0317	1.0					
	1400	0.7		0758	0.6		1147	1.1		1353	0.7		0754	0.5					
	1608	0.7		1200	1.0		1941	0.3		1500	0.7		1217	1.1					
	1856	0.6		1658	0.5					1845	0.4		1741	0.3					
	2336	1.2																	
			31	0000	1.1							31	0004	1.2					
				0834	0.6								0808	0.5					
				1300	1.2								1304	1.3					
				1813	0.4								1828	0.2					





13	0006	1.1	28	0047	0.9	13	0645	0.5	28	0154	0.9	13	0030	1.2	28	0704	0.5
	0141	1.1		0311	1.0		1058	1.1		0302	0.9		0654	0.5		1232	1.3
	0615	0.5		0726	0.5		1830	0.3		0717	0.5		1204	1.3		1832	0.4
	1008	1.0		1149	1.1					1151	1.2		2021	0.5			
	1808	0.4		1700	0.3					1709	0.3						
				2300	1.2					2302	1.2						
14	0021	1.2	29	0743	0.5	14	0015	1.3	29	0721	0.5	14	0119	1.3	29	0011	1.3
	0658	0.4		1230	1.2		0708	0.4		1230	1.3		0645	0.3		0709	0.4
	1117	1.1		1753	0.2		1149	1.2		1800	0.2		1254	1.3		1315	1.3
	1858	0.2					1923	0.3					2115	0.5		1934	0.3
15	0056	1.4	30	0004	1.3	15	0102	1.4	30	0002	1.3	15	0202	1.4	30	0106	1.4
	0732	0.3		0747	0.4		0724	0.4		0717	0.4		0704	0.2		0726	0.3
	1213	1.2		1309	1.3		1234	1.3		1308	1.3		1339	1.3		1406	1.4
	1943	0.1		1838	0.1		2013	0.3		1851	0.2		2156	0.5		2032	0.3
										31	0053						
											0711	0.3					
											1353	1.4					
											1936	0.2					

2019

CANANEIA - BASE SUL DO IOUSP

2019

LATITUDE 25 1.0 S			LONGITUDE 47 55.5 W			FUSO + 3 HORAS											
IOUSP-BASE SUL						NIVEL MEDIO .80 M						CARTA 1703					
JULHO						AGOSTO						SETEMBRO					
HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT	HORA	ALT		
DIA	DIA	DIA	DIA	DIA	DIA	DIA	DIA	DIA	DIA	DIA	DIA	DIA	DIA	DIA	DIA		
H M	M	H M	M	H M	M	H M	M	H M	M	H M	M	H M	M	H M	M		
01	0154	1.4	16	0308	1.4	01	0309	1.4	16	0402	1.4	01	0411	1.5	16	0445	1.4
	0754	0.2		0808	0.0		0934	0.1		0913	-0.1		0958	0.2		0956	0.0
	1458	1.4		1456	1.4		1615	1.6		1556	1.5		1717	1.5		1634	1.5
	2121	0.3		2024	0.6		2224	0.4		2106	0.3		2145	0.3		2136	0.2
02	0239	1.4	17	0349	1.4	02	0354	1.4	17	0438	1.4	02	0453	1.4	17	0513	1.3
	0826	0.2		0851	0.0		1009	0.1		0953	0.0		1000	0.3		1026	0.1
	1551	1.5		1539	1.4		1700	1.6		1630	1.5		1800	1.4		1704	1.4
	2158	0.4		2051	0.5		2202	0.5		2132	0.3		2206	0.3		2200	0.2
03	0319	1.4	18	0423	1.3	03	0436	1.4	18	0508	1.3	03	0532	1.3	18	0547	1.2
	0904	0.2		0930	0.0		1030	0.2		1026	0.0		1015	0.4		1058	0.3
	1636	1.5		1617	1.5		1743	1.6		1704	1.5		1319	0.7		1743	1.4
	2221	0.5		2115	0.4		2206	0.5		2158	0.3		1454	0.6		2228	0.2
													1847	1.2			
													2243	0.3			
04	0402	1.3	19	0500	1.3	04	0513	1.3	19	0543	1.2	04	0611	1.1	19	0624	1.1
	0943	0.2		1011	0.0		1045	0.3		1104	0.1		1045	0.5		1126	0.4
	1717	1.6		1656	1.5		1821	1.5		1739	1.5		1358	0.8		1821	1.2
	2213	0.5		2147	0.4		2228	0.4		2223	0.3		1617	0.7		2258	0.3
													1932	1.1			
													2317	0.3			
05	0451	1.2	20	0539	1.2	05	0600	1.2	20	0311	1.1	05	0338	1.0	20	0330	1.0
	1026	0.2		1058	0.1		1104	0.4		0421	1.1		0523	1.0		0500	1.0
	1800	1.5		1734	1.5		1904	1.3		0617	1.1		0713	1.0		0724	1.0
	2223	0.6		2211	0.4		2300	0.4		1143	0.3		1109	0.6		1202	0.6
										1811	1.4		1434	1.0		1909	1.1
										2254	0.3		1741	0.7		2330	0.4
													2026	0.9			
06	0538	1.2	21	0234	1.1	06	0308	1.0	21	0315	1.1	06	0002	0.4	21	0324	0.9
	1113	0.3		0413	1.0		0453	1.0		0536	1.0		0400	0.9		0528	0.8
	1845	1.5		0619	1.1		0658	1.1		0709	1.0		0604	0.8		0845	1.0
	2249	0.6		1145	0.2		1130	0.5		1224	0.4		0841	0.9		1351	0.8
				1806	1.5		1409	0.7		1854	1.3		1151	0.7		1630	0.7
				2243	0.4		1558	0.6		2321	0.3		1506	1.1		2013	1.0
							1954	1.1					1849	0.6			
							2338	0.4					2149	0.9			
07	0636	1.1	22	0253	1.1	07	0326	1.0	22	0330	1.0	07	0108	0.6	22	0006	0.5
	1200	0.4		0523	0.9		0558	0.9		0600	0.9		0415	0.8		0309	0.8
	1926	1.3		0715	1.0		0808	1.0		0817	1.0		0615	0.7		0554	0.6
	2315	0.6		1236	0.3		1202	0.6		1323	0.5		1000	0.9		1006	1.1
				1847	1.4		1454	0.8		1941	1.2		1232	0.8		1751	0.6
				2309	0.4		1723	0.7		2358	0.4		1543	1.1		2138	1.0
							2051	1.0					1941	0.6			
													2317	0.9			
08	0247	1.0	23	0309	1.1	08	0019	0.5	23	0345	0.9	08	0602	0.5	23	0102	0.7
	0504	0.9		0602	0.9		0358	0.9		0611	0.8		1108	1.0		0251	0.8
	0749	1.0		0819	1.0		0632	0.8		0930	1.0		1343	0.9		0619	0.4
	1239	0.5		1332	0.4		0924	1.0		1545	0.6		1600	1.0		1130	1.2
	1400	0.5		1926	1.3		1247	0.7		2041	1.1		2015	0.5		1847	0.5
	1536	0.5		2349	0.5		1530	0.9								2302	1.0
	2013	1.2					1847	0.6									
	2356	0.6					2202	0.9									
09	0309	1.0	24	0334	1.0	09	0132	0.6	24	0039	0.6	09	0028	1.1	24	0656	0.2
	0600	0.8		0624	0.8		0421	0.8		0345	0.8		0609	0.4		1234	1.3
	0858	1.0		0923	1.0		0651	0.7		0626	0.6		1204	1.1		1930	0.3
	1319	0.6		1436	0.4		1034	1.0		1041	1.1		2047	0.5			
	1447	0.6		2013	1.2		1334	0.8		1739	0.6						
	1658	0.6					1602	0.9		2156	1.1						
	2113	1.1					1951	0.6									
							2339	1.0									
10	0049	0.7	25	0026	0.5	10	0636	0.6	25	0145	0.7	10	0115	1.3	25	0013	1.2
	0347	0.9		0353	0.9		1130	1.1		0315	0.7		0638	0.2		0730	0.1
	0634	0.7		0643	0.7		1449	0.9		0649	0.5		1253	1.3		1321	1.5
	1000	1.0		1019	1.0		1630	0.9		1145	1.2		2100	0.5		2009	0.3
	1406	0.7		1551	0.5		2038	0.6		1851	0.5						
	1517	0.7		2113	1.2					2315	1.1						
	1821	0.6															
	2238	1.0															

11	0223	0.7	26	0119	0.6	11	0049	1.1	26	0711	0.3	11	0158	1.4	26	0106	1.3
	0356	0.8		0358	0.8		0624	0.4		1243	1.3		0709	0.0		0806	0.0
	0653	0.6		0651	0.6		1219	1.2		1947	0.4		1332	1.4		1404	1.6
	1058	1.1		1109	1.1		2109	0.6					2041	0.5		2045	0.3
	1504	0.8		1717	0.5												
	1600	0.8		2224	1.1												
	1941	0.6															
12	0000	1.1	27	0700	0.5	12	0136	1.3	27	0030	1.2	12	0234	1.5	27	0153	1.4
	0639	0.5		1202	1.2		0651	0.2		0747	0.1		0745	-0.1		0847	0.0
	1149	1.2		1839	0.5		1308	1.3		1338	1.4		1409	1.4		1449	1.6
	2039	0.6		2343	1.2		2136	0.6		2034	0.3		2021	0.4		2106	0.3
13	0102	1.2	28	0717	0.4	13	0213	1.4	28	0126	1.3	13	0306	1.5	28	0234	1.5
	0628	0.4		1254	1.3		0723	0.0		0821	0.0		0817	-0.1		0921	0.0
	1234	1.2		1949	0.4		1354	1.3		1424	1.5		1449	1.5		1530	1.6
	2123	0.6					2123	0.6		2111	0.3		2030	0.3		2102	0.3
14	0151	1.3	29	0047	1.3	14	0254	1.4	29	0211	1.4	14	0341	1.5	29	0311	1.5
	0654	0.2		0747	0.2		0800	0.0		0858	0.0		0853	-0.1		0932	0.2
	1319	1.3		1349	1.4		1436	1.4		1509	1.6		1524	1.5		1609	1.6
	2156	0.6		2043	0.3		2032	0.5		2145	0.3		2051	0.3		2100	0.3
15	0230	1.4	30	0141	1.3	15	0328	1.5	30	0256	1.5	15	0411	1.5	30	0353	1.5
	0730	0.1		0819	0.1		0838	-0.1		0934	0.0		0923	0.0		0913	0.3
	1408	1.3		1443	1.5		1515	1.5		1556	1.6		1600	1.5		1656	1.4
	2149	0.6		2130	0.3		2047	0.4		2149	0.4		2109	0.2		2117	0.2
			31	0226	1.4				31	0336	1.5						
				0856	0.1					1000	0.1						
				1532	1.6					1639	1.6						
				2206	0.4					2130	0.4						





## FASES DA LUA PARA O ANO DE 2018

LUA NOVA				Q. CRESCENTE				LUA CHEIA				Q. MINGUANTE			
MES	D	H	M	MES	D	H	M	MES	D	H	M	MES	D	H	M
JAN	17	2	7	JAN	24	22	7	JAN	2	2	30	JAN	8	22	26
FEV	15	20	42	FEV	23	7	47	JAN	31	13	5	FEV	7	15	36
MAR	17	12	43	MAR	24	15	15	MAR	2	0	16	MAR	9	10	57
ABR	16	1	31	ABR	22	21	33	MAR	31	12	9	ABR	8	7	4
MAI	15	11	30	MAI	22	3	40	ABR	30	0	50	MAI	8	2	14
JUN	13	19	38	JUN	20	10	38	MAI	29	14	27	JUN	6	18	55
JUL	13	2	57	JUN	19	19	35	JUN	28	5	3	JUL	6	8	21
AGO	11	10	18	JUL	18	7	33	JUL	27	20	23	AGO	4	18	45
SET	9	18	28	AGO	16	23	10	AGO	26	11	57	SET	3	2	57
OUT	9	4	16	SET	16	18	13	SET	25	3	3	OUT	2	10	3
NOV	7	16	29	OUT	15	15	15	OUT	24	17	12	OUT	31	17	2
DEZ	7	7	42	NOV	15	12	8	NOV	23	6	13	NOV	30	0	43
				DEZ	15	12	8	DEZ	22	18	9	DEZ	29	9	50

TEMPO SEGUNDO O TMG

## FASES DA LUA PARA O ANO DE 2019

LUA NOVA				Q. CRESCENTE				LUA CHEIA				Q. MINGUANTE			
MES	D	H	M	MES	D	H	M	MES	D	H	M	MES	D	H	M
JAN	6	1	39	JAN	14	6	50	JAN	21	5	8	JAN	27	21	7
FEV	4	20	59	FEV	12	22	12	FEV	19	15	20	FEV	26	11	7
MAR	6	15	45	MAR	14	10	2	MAR	21	1	0	MAR	28	3	45
ABR	5	8	25	ABR	12	18	42	ABR	19	10	40	ABR	26	22	5
MAI	4	22	21	MAI	12	0	57	MAI	18	21	2	MAI	26	16	38
JUN	3	9	46	JUN	10	5	51	JUN	17	8	42	JUN	25	10	7
JUL	2	19	13	JUL	9	10	49	JUL	16	21	59	JUL	25	1	48
AGO	1	3	25	AGO	7	17	26	AGO	15	12	48	AGO	23	15	27
AGO	30	11	4	SET	6	3	9	SET	14	4	44	SET	22	3	5
SET	28	19	0	OUT	5	16	53	OUT	13	21	18	OUT	21	12	57
OUT	28	4	11	NOV	4	10	35	NOV	12	13	49	NOV	19	21	25
NOV	26	15	29	DEZ	4	7	10	DEZ	12	5	26	DEZ	19	5	9
DEZ	26	5	24												

TEMPO SEGUNDO O TMG