Çaka-Sunda (**Ç**)Calendar (Sunda Lunar Calendar system)

Starts from the beginning of the reign of Aki Tirem (Aji Saka) in **122 J**ulian **C**alendar (**JC**).

Displaced and abandoned after the introduction of the Javanese Lunar Calendar (a combination of Çaka-Sunda, Saka-Sunda, and Hijrah) in 08-07-1633 by Anyakrakusuma of Mataram).

Rediscovered, researched, analysed and documented **by Ali Sastramidjaja**. Accessed from https://inug.tripod.com/Caka.htm and modified/simplified.

[Generally:
- **Lunar Calendar**: Based on the moon's cycles; a lunar year is typically **354/355 days**.
- **Gregorian Calendar (GC)**: Based on the earth's orbit around the sun; a solar year is **365/366 days**.
- As a lunar year is about 11 days shorter, the two calendars drift apart over time; i.e. **for everythree years that pass in the GC**, the **lunar calendar will be approx. 1 mth behind**.Thus lunar-based designated special days "move" backwards through the seasons, completing a full cycle about every 33 years.
- The old-style **Julian** calendar (**JC**) was used for dates **prior to** 15th Oct **1582**, while the modern **Gregorian** calendar is used **after that date**. **JC is 13 days behind GC**.]

There are three sub-systems in the Soenda Calendar System:
.(Kala Candra) **Çaka-Sunda** (**Ç**).(lunar)
.(Kala) **Saka-Sunda** / Kala Surya Çaka Sunda (**S**).(solar)
.**Kala Tjakra Çaka-Sunda** (**C**).(positioning of stellar bodies/constellations, combines astral phenomena with life / human activity to determine correct times for cultural / spiritual events/activities; e.g. **Paririmbon**)]

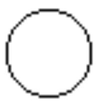
3.1 Description

This calendar is based on lunar phases.

Çaka-Sunda is a very practical calendar. With a simple calculation, we can make a table which is valid for 120 years; previous 120 years, next 120 years, etc.(see Table 3.4.1). This calendar system was used as a civil calendar. It is a daily calendar. **Historical Sunda artefacts were mostly written in this calendar system**.

3.2 Rules

Perfectly half bright moon
1st Day of Suklapaksa



full moon
7th/8th Dav of Suklapaksa

half dark moon
15th day of Suklapaksa

Perfectly hal dark moon
1st day of Kresnapaksa

totally dark moon

half bright moon
14th/15th day of Kresnapaksa

The month begins with a <u>perfectly</u> half-bright moon to full-moon to half-dark moon (15 days long;), called **Suklapaksa**; this is then followed by a <u>perfectly</u> half-dark moon to dark-moon to half-bright moon (14 or 15 days long), called **Kresnapaksa** (ref. diags. below).
So the 22nd day of the a month would be the same as the 7th (=22-15) day of Kresnapaksa.
The **Suklapaksa** is sometimes called '**paro caang**' (bright segment), and **Kresnapaksa** is sometimes called '**paro poé**k' (dark segment).
Names of Çaka-Sunda months are similar to Saka-India. But Saka-India is a solar system calendar and its rules are definitely different from Çaka-Sunda calendar's.

Table 3.2.1
Month name in Caka Sunda Calendar

#	Month Name	length (days)
1	*Kartika*	30
2	*Margasira*	29
3	*Posya*	30
4	*Maga*	29
5	*Palguna*	30
6	*Setra*	29
7	*Wesaka*	30
8	*Yesta*	29
9	*Asada*	30
10	*Srawana*	29
11	*Badra*	30
12	*Asuji*	29 or 30*:

*The **12th month** (**Asuji**) will be **29 days long** (**wastu**), if it falls **on a** '**taun pondok**' (short year) and it will be **30 days long** (**wuntu**), if it falls **on a** '**taun panjang**' (long year). It depends on the 8-year '**Windu**' cycle; see below:

Table 3.2.2
Short and long year in 1 Windu

year #	short/long year	# of days/yrs.	Name of year (Dewataun)
1	short	354	*Kebo*
2	long	355	*Monyet*
3	short	354	*Hurang*
4	short	354	*Kalabang*
5	long	355	*Embe*
6	short	354	*Keuyeup*
7	short	354	*Cacing*
8	long/short	355 or 354*	*Hurang*

*__Déwa Taun__ refers to each year of a ‘__Windu__’ cycle, Hurang in this case.The **8th year** <u>**must be**</u> **a short year on each** <u>**15th**</u> Windu-cycle ; i.e. on each: (8 years x 15 cycles)=**120-year** (**Warsa**)**cycle**, also called **Tunggul Taun** (end-of-cycle) or sa(one)-**Indung Poé** (1st day of cycle). So, the total number of days in one **Tunggul Taun / Indung Poé** will be (354+355+354+354+355+354+354+355)15-1=**42524 days** (the -1 being from the **short year** of the <u>**15th Windu**</u>).
The average length of a month in 120 years(42524/120/12) is **29.530556** days.[Actual astronomical average day in a month is **29.53059**, when this research was done in 1990].[At present, Larry Freeman’s Calendar home page says the average days in a month is **29.530588** days.]

Indung Poé is accurate for the next 2420 years (see Table3.4.1). The 21st ‘Tunggul Taun’, *Salasa-Manis* Indung Poé, where **the period is only 20 years**, is not included. This period consists of 2 Windu (2x8=16years) and <u>*4 years*</u>; 16+4=20 years. From Table 3.2.2, we see that <u>*the 4th year*</u> of a Windu cycle <u>*is a short one*</u>.This means we will need to <u>*add 1 day*</u> <u>*in the 2420th year*</u>.

3.3 Day (**Poé**, for 7-day week & **Pasar**, for 5-day week); Week (**Wuku**)

Table 3.3.1 below is a list of week-cycles’ names, where the column on the left shows the number of days in a particular week-cycle.

Table 3.3.1
Number of weekdays and its name

# of Weekdays	Name
1	*Ekawara*
2	*Dwiwara*
3	*Triwara*
4	*Caturwara*
5	*Pancawara* *
6	*Sadwara*
7	*Saptawara* *
8	*Astawara or Padewar*
9	*Sangawara or Padan*
10	*Dasawara*

*SaptaWara (7-day week-cycle) and PancaWara (5-day week-cycle) are mainly used, often simultaneously. There are individual day names within each cycle.
The number of days in a week-cycle in the Çaka calendar may vary from 1 (EkaWara) to 10 (DasaWara) days.

Table 3.3.2
Weekdays name in Saptawara (Poe)

Day #	Day Name	Meaning	Name which now commonly used (Islamic influence)
1	*Dite or Radite*	The Sun	*Ahad*
2	*Soma*	The Moon	*Senen*
3	*Anggara*	Mars	*Salasa*
4	*Buda*	Mercurius	*Rebo*
5	*Respati*	Jupiter	*Kemis*
6	*Sukra*	Venus	*Jumaah*
7	*Tumpek*	Saturnus	*Saptu*

Day names in SaptaWara (Poé) are the names of stars. The ancient Sundanese identified planets also as stars.

Table 3.3.3
Weekdays name in Pancawara (Pasar)

Day#	Day (in 5 days/cycle=Pasar) Name
1	*Manis (='Legi' in Java Calendar)*
2	*Pahing*
3	*Pon*
4	*Wage*
5	*Kaliwon*

The simultaneous use of both SaptaWara and PancaWara, results in a different weekly 1st-day's name over a 35-week period in a 7-day week-cycle (i.e. SaptaWara x PancaWara = 7 x 5=35), only 30 (=210 days) of which are used and known as **Wuku** (7-day week) (Table 3.3.4) .

A Wuku is the period from **Ra**dite (Ahad) to **Tu**mpek (Saptu) in SaptaWara. The 1st-day name in a Wuku (Ahad) is usually followed by a Pasar-day name. Every Wuku-period has a name (example: Wuku-Sinta is a 7-day cycle which begins with Ahad-Wage through to Saptu-Kaliwon and Wuku-Wukir is Ahad-Pon to Saptu-Wage, refs. Tables 3.3.3&3.3.4).

Table 3.3.4
Wuku

#	Wuku Name	Pasar which falls on poe Ahad
1	*Sinta*	Wage
2	*Landep*	Manis
3	*Wukir*	Pon
4	*Kurantil*	Kaliwon
5	*Telu*	Pahing
6	*Gumreg*	Wage
7	*Warigalit*	Manis
8	*Warigagung*	Pon
9	*Julungwangi*	Kaliwon
10	*Sungsang*	Pahing
11	*Galungan*	Wage
12	*Kuningan*	Manis
13	*Langkir*	Pon
14	*Mandasiya*	Kaliwon
15	*Julungpujud*	Pahing
16	*Pahang*	Wage
17	*Kuruwelit*	Manis
18	*Marakeh*	Pon
19	*Tambir*	Kaliwon
20	*Madangkungan*	Pahing
21	*Maktal*	Wage
22	*Wuye*	Manis
23	*Manahil*	Pon
24	*Prangbakat*	Kaliwon
25	*Bala*	Pahing
26	*Wugu*	Wage
27	*Wayang*	Manis
28	*Kulawu*	Pon
29	*Dukut*	Kaliwon
30	*Watugunung*	Pahing

*The third column in the above table is a list of **Pasar days** which **coincide** with **Poé Ahad** / Radite / Sunday (Table 3.3.2).

3.4 **Indung Poé** (=main day) & **Naktu**

Indung Poé is **the first day of a 120-year period**(**Warsa**); see * under Table 3.2.2. It is written in both Poé ('day' in Saptawara) and Pasar ('day' in Pancawara). Example : Radite-Kaliwon, Soma-Manis or Senén-Manis, etc.

With a combination of Indung Poé and Naktu, we can make a calculation to define Poé and Pasar on a specific date, both in the past and the future. So, if we want to, we don't need to see a calendar as a table, a common format which we see daily. We can simply calculate it, as in the example in section 3.5 below.

Naktu consists of **Naktu Pasar** ('5-day cycle Naktu'), **Naktu Poé** (7-day cycle Naktu'), **Naktu Bulan** (monthly Naktu), and **Naktu Taun** (annual Naktu).

Indung Poe's and Naktu's numbers originate from **Çaka-Sunda** Calendar rules. Indung Poé and Naktu have a strong correlation with the Sundanese Almanac (Paririmbon).

Table 3.4.1
List of Indung poe within 2400 years -

#	Period	Indung poe	Warsa
1	0001 – 0120	*Senén Manis*	120
2	0121 – 0240	*Ahad Kaliwon*	120
3	0241 – 0360	*Saptu Wagé*	120
4	0361 – 0480	*Jumaah Pon*	120
5	0481 – 0600	*Kemis Pahing*	120
6	0601 – 0720	*Rebo Manis*	120
7	0721 – 0840	*Salasa Kaliwon*	120
8	0841 – 0960	*Senén Wagé*	120
9	0961 – 1080	*Ahad Pon*	120
10	1081 – 1200	*Saptu Pahing*	120
11	1201 – 1320	*Jumaah Manis*	120
12	1321 – 1440	*Kemis Kaliwon*	120
13	1441 – 1560	*Rebo Wagé*	120
14	1561 – 1680	*Salasa Pon*	120
15	1681 – 1800	*Senén Pahing*	120
16	1801 – 1920	*Ahad Manis*	120
17	1921 – 2040	*Saptu Kaliwon*	120*
18	2041 – 2160	*Jumaah Wagé*	120
19	2161 – 2280	*Kemis Pon*	120
20	2281 – 2400	*Rebo Pahing*	120

Column # represents the 120-year cycle (Tunggul Taun)number. Each Tunggul Taun's 120-year period of is called a **Warsa**

As an example:
1998 GC is about year **1934** in the **Çaka-Sunda** Calendar(generally-accepted difference of 63/64 yrs); thus it should be in the **17th Tunggul Taun** (marked with '*'in the above Table), with a valid corresponding Indung Poé which is **Saptu Kaliwon**.

Table 3.4.2: **17th Tunggul Taun in Çaka-Sunda Calendar:**

17th TUNGGUL TAUN
Indung poe : Saptu Kaliwon
Validity : 1921 - 2040

short yrs				long years					short yrs				short yrs				long years					short yrs				short yrs				long years					Leap/comm. Years
1				2					3				4				5					6				7				8					Dewataun
S	A	S	S	R	K	J	S	A	S	S	R	K	J	S	A	S	S	R	K	J	S	A	S	S	R	K	J	S	A	S	S	R	K	J	Poe, Sequentially
k	m	p	p	w	k	m	p	p	w	k	m	p	p	w	k	m	p	p	w	k	m	p	p	w	k	m	p	p	w	k	m	p	p	w	Pasar, Sequentially
1921				1922					1923				1924				1925					1926				1927				1928					
1929				1930					1931				1932				1933					1934				1935				1936					
1937				1938					1939				1940				1941					1942				1943				1944					
1945				1946					1947				1948				1949					1950				1951				1952					
1953				1954					1955				1956				1957					1958				1959				1960					
1961				1962					1963				1964				1965					1966				1967				1968					
1969				1970					1971				1972				1973					1974				1975				1976					
1977				1978					1979				1980				1981					1982				1983				1984					
1985				1986					1987				1988				1989					1990				1991				1992					
1993				1994					1995				1996				1997					1998				1999				2000					
2001				2002					2003				2004				2005					2006				2007				2008					
2009				2010					2011				2012				2013					2014				2015				2016					
2017				2018					2019				2020				2021					2022				2023				2024					
2025				2026					2027				2028				2029					2030				2031				2032					
2033				2034					2035				2036				2037					2038				2039				2040				X	

X = 120th year rule. This year should be a **leap/common year only**. The next **Indung Poé** will fall on this day = **J**umaah **w**age. **Poé** sequence (Row #3) : Saptu, Ahad, **S**enen, **S**alasa, **R**ebo, **K**emis, **J**umaah, Saptu, Ahad, etc. **Pasar** sequence (Row #4): **k**aliwon, **m**anis, **p**ahing, **p**on, **w**age, kaliwon, manis, pahing, etc.

Example for using this Table : **1st day** in the year **1921 Ç** (1st year in this 120 years period, i.e Déwataun1, column1) falls on **S**aptu **k**aliwon (**S**(Poé),**k**(Pasar) on Table). 1st day of the **1990** Ç, falls on **A**had **p**ahing (Déwataun6/column6, **A**,**p** on Table). For year **1925** it falls on **5th Déwataun**; year **2040**, falls on **8th Dewataun**.

Table 3.4.3
Table of Naktu Taun (annual Naktu)

#	Dewataun	Poé	Pasar
1	Kebo	1	1
2	Monyet	5	5
3	Hurang	3	5
4	Kalabang	7	4
5	Embe	4	3
6	Keuyeup	2	3
7	Cacing	6	2
8	Hurang	3	1

Table 3.4.4
Naktu Bulan (Monthly Naktu)

Month	Name	Poe	Pasar
1	*Kartika*	7	5
2	*Margasira*	2	5
3	*Posya*	3	4
4	*Maga*	5	4
5	*Palguna*	6	3
6	*Setra*	1	3
7	*Wesaka*	2	2
8	*Yesta*	4	2
9	*Asada*	5	1
10	*Srawana*	7	1
11	*Badra*	1	5
12	*Asuji*	3	5

3.5 **Examples to define Poé and Pasar of a definite date on a Çaka-Sunda Calenda**r.

Example 1: On which day (Poé and Pasar) does **1st Maga** (Table 3.2.1, #4) **1925 Ç** fall?

Answer:

According to table 3.4.2, we see that 1925 is 5th Dewataun (years).				
According to table 3.4.3, Naktu Taun for 5th Dewataun (Embe) are:	poe =	4	pasar =	3
According to table 3.4.4, we know that monthly Naktu for *Maga* are:	poe =	5	pasar =	4
		--- +		--- +
We just adding those naktu number:	poe =	9	pasar =	7

We begin by finding the period that the Çaka year **1925** belongs to and obtain its corresponding **Indung Poé** (i.e. **Saptu Kaliwon**; ref. Table 3.4.1, # 17, marked with '*')

To get **Poé**, count **9** (result from addition above) days **sequentially** from **Saptu, inclusive**: Saptu, Ahad, Senen, Salasa, Rebo, Kemis, Jumaah, Saptu, **Ahad** (ref. Table 3.3.2)
For **Pasar**, we count **sequentially 7** (result from addition above) days from **Kaliwon, inclusive**: Kaliwon, Manis, Pahing, Pon, Legi, Kaliwon, **Manis** (ref. Table 3.3.3)

Tips:
Because Poé is 7 days per cycle, we can subtract 7 from any amount more than 7. In this example, 9 – 7 = 2. Then we count sequentially 2 days from Saptu inclusive: Saptu, **Ahad**

Because Pasar is a 5-day cycle, we can subtract 5 from any amount larger than 5, in this example, 7 – 5 = 2. Then we count sequentially 2 days from Kaliwon, inclusive: Kaliwon, **Manis**
So, **1st Maga 1925 Ç**, falls on **Ahad Manis**

Example 2: What of 12th Maga in 1925 Çaka?

Answer:

We just count Poé and Pasar 12 days sequentially from 1st Maga (=Ahad Manis; see previous example):

Ahad, Senén, Salasa, Rebo, Kemis, Jumaah, Saptu, Ahad, Senén, Salasa, Rebo, **Kemis**

Manis, Pahing, Pon, Kaliwon, Wage, Manis, Pahing, Pon, Kaliwon, Wage, Manis, **Pahing**

Thus, **12th Maga 1925 Ç** falls on **Kemis Pahing**

[Alternatively, one can count in multiples of 10-days.
For instance:
In this example (**12**th), one repeats the beginning of the 7-day sequence: **Ahad** – **Ahad**; adding the next 2 days: **Senén**, **Salasa** (it should total **10** days from the first Ahad inclusive. Then add the next (**12-10**=)2 days of the sequence, **Rebo**, **Kemis**. (Thus the complete sequence is:
Ahad, Senén, Salasa, Rebo, Kemis , Jumaah, Saptu, **Ahad**, Senén, Salasa, Rebo, **Kemis**.
Similarly:
Manis, Pahing, Pon, Kaliwon, Wage, **Manis**, Pahing, Pon, Kaliwon, Wage, **Manis**, **Pahing**.

For counting days more than 20, 22nd for example:
Ahad to Ahad, Senén, Salasa then **Rebo** to Rebo, Kemis, Jumaah, **Saptu**, **Ahad**.

As in the above examples, we just need to know which Déwa Taun, NaktuTaun, Naktu Bulan and Indung Poé should be used. DéwaTaun and Indung Poé can be obitained from a Tunggul Taun table (like Table 3.4.2 and will be valid for 120 years). Naktu Taun (Table3.4.3) and Naktu Bulan (Table 3.4.4) will be valid as long as the Çaka-Sunda calendar is used within the rules]

Misc. examples:

I Conversion: Gregorian(G) - Çaka-Sunda(Ç)

1 March 2012G to Ç:

N.B. ***** 1 Kartika 1948 Ç = 4 November 2011 **[generally accepted as a verified / precise benchmark]*****

a. Calculating the **difference between G - Ç**

1. No. of days for **1 Kartika 1948**: 1947 yrs + 0 mths + 1 day

- 1947 : 120 = 16 warsa + 27 yrs

16 x 42524 = 680,384 days

27 : 8 = 3 windu + 3 yrs

3x (42524 : 15) = 3 x 2834.93 = 8,504.79 days

(354+355+354) = 1,063 days

\- = 1 day +

Total: **689,952.79 days**

2. No. of days for **4 November 2011**: 2010 yrs + 10 mths + 4 days

(note: Earth takes about 365.25 days to make one revolution around the Sun.

The leap-year system is a 4-year cycle, i.e. 4 x 365.25 = 1461 days.The avg. days in month = 30.44

The Julian calendar is currently 13 days behind the Gregorian calendar)

\- 2010:4 = 502 leap-yr cycs + 2 yrs

502 leap-yr cycs x 1461 = 733,422 days

2 yrs x 365.25 = 730.5 days

\- 10 mths x 30.44 = 304.4 days

\- 4 days = 4 days +

Total: **734,460.9 days**

\- Gregorian Correction Factor 13 days -

Sum Total: **734,447.9 days**

Thus the **difference between G - Ç** is : 734,447.9 days - 689,952.8 days = **44,495.1 days**

b. Conversion: G to Ç

Avg. windu has (354+355+354+354+355+354+354+355) = 2835 days

Avg. days/yr = 2835 : 8 = 354.375

Avg. day/month = 29.53

1 March 2012 = 2011 yrs + 2 mths + 1 day

\- 2011 : 4 = 502 leap-yr cycs + 3 yrs

502 leap-yr cycs x 1461 = 733,422 days

3 yrs x 365.25 = 1,095.75 days

\- 2 mths = 2 x 30.44 = 60.88 days

\- 1 day 1 day +

Sub-Total: **34,579.63** days

- Gregorian Correction Factor 13 days -

Total: **734,566.63 days**

The difference between G - Ç (from result of part **a.** above): 44,495.1 days -

S**umTotal**: **690,071.53 days**

690,071.53 : 42524 = 16 warsa + 9687.53 days
16 warsa x 120 = *1920 yrs*
9687.53 : (42524 : 15) =

9687.53 : 2834.93 = 3 windu + 1182.74 days
3 windu x 8 = *24 yrs*

1182.74: 354.375 = *3 yrs* +
119.615 days

119.615 days : 29.53= *4 mths* + *1 day*

The total becomes: **1947 yrs** (=1920 yrs + 24 yrs + 3 yrs) **+4 mths + 1 day** = 1st day of the *5th* mth of 1948; i.e tanggal 1 Palguna 1948 Ç

Thus **1 March 2012 G** = **Tanggal 1 Palguna 1948 Ç. Difference: 64 yrs.**

II Conversion: Çaka-Sunda(Ç) -Gregorian(G)

If we are given a precise Çaka date, to calculate the GC date:
Tanggal(day of month): **dwadashi**(**12**) **Shuklapaksa**
Poé and Pasar(saptawara-pancawara days): **Ra**dite(Sunday) **Ka**liwon
Wara/Wuku(saptawara-pancawara 7-day week): **Tambir**
Masa/Bulan(month): **Kartika**
Taun(year): **952 Ç**: tunggul taun #8

Additional info which may be gleaned for possible use:
Taun 952 Ç(corresponding **Indung-Poé**(1st day of 120-yr cycle), Senén-Wagé; Table 3.4.1#8); **Bulan** Kartika has 30 days (Table 3.2.1#1. **Naktu Bulan** Kartika(day of the month), Poé-Pasar, 7-5(Saptu-Kaliwon); Table 3.4.4#1), **Wuku** Tambir, **Poé-Pasar** Ra(dite)-Ka(liwon) (= Ahad-Kaliwon; verified by Table 3.3.4#19. Thus 7-day week is Ahad-Kaliwon to Saptu-Manis; Tables 3.3.2&3.3.3.), **Tanggal** dwadashi(=12) ShuklaPaksa=12-7=5th day of 7-day week i.e. Kemis(=Poé); Table 3.3.2#5); (12-2x5)=2nd day of 5-day week is Pahing(=Pasar); Table 3.3.3. So the 12th-day of Kartika is Kemis-Pahing)

Tanggal 12 Kartika 952 Ç:
i.e. 951 yrs + 0 mths + 12 days
951 : 120 = 7 warsa + 111 yrs
7 x 42,542 = 297,668 days
111 : 8 = 13 windu + 7 yrs
13 x (42,542/15) = 13 x 2,834.93 = 36,854.13 days

(354+355+354+354+355+354+354) = 2,480 days
12 days +
Total: 337,014.13 days

337,014.13 + 44,495.1(=diff. bet G-Ç, from previous example) = **381,509.23 days**

381,527 : 1461 = <u>261 leap-year cycles</u> + 188.23 days

188.23: 30.44 = <u>6 mths</u> + <u>5.59 days</u>

261 x 4 = *<u>1044 yrs</u>*

<u>6 mths</u>

<u>6 days</u>

Therefore: **Tanggal 12 Kartika 952 Ç = <u>Sunday</u> 6th July 1045 GC**(GC date checked per https://astropixels.com/ephemeris/phasescat/phases1001.html & http://5ko.free.fr/en/year.php?y=1045&s=0, see below; **c.f.** *<u>Mon. 7th July 1045</u>* calculated by Muhammad Maimun, National Seminar "Menelusuri Sejarah Penanggalan Nusantara", Faculty of Cultural Sciences GajahMada Uni, Yogyakarta, 2008, p. 11)

Difference: (1044-952) = **93 yrs**

(from https://astropixels.com/ephemeris/phasescat/phases1001.html):

Year	New Moon	First Quarter	Full Moon	Last Quarter
1045			Jan 6 02:09	Jan 12 21:25
	Jan 21 01:54	Jan 28 21:18	Feb 4 12:24	Feb 11 14:47
	Feb 19 19:29	Feb 27 06:47	Mar 5 22:35	Mar 13 09:38
	Mar 21 10:25	Mar 28 13:28	Apr 4 09:20	Apr 12 04:28
	Apr 19 22:34 P	Apr 26 18:34	May 3 21:12 t	May 11 22:03
	May 19 08:12 P	May 25 23:37	Jun 2 10:23	Jun 10 13:45
	Jun 17 16:00	*Jun 24 06:08	Jul 2 00:47	Jul 10 03:17
	Jul 16 22:53	Jul 23 15:24	Jul 31 16:06	Aug 8 14:36
	Aug 15 06:00	Aug 22 04:13	Aug 30 07:58	Sep 6 23:54
	Sep 13 14:31	Sep 20 20:44	Sep 28 23:54	Oct 6 07:45
	Oct 13 01:24 P	Oct 20 16:20	Oct 28 15:13 t	Nov 4 15:03
	Nov 11 15:02 P	Nov 19 13:44	Nov 27 05:12	Dec 3 22:58
	Dec 11 07:13	Dec 19 11:03	Dec 26 17:30	

(from http://5ko.free.fr/en/year.php?y=1045&s=0):

April 1045

M	T	W	T	F	S	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

May 1045

M	T	W	T	F	S	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

June 1045

M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

July 1045

M	T	W	T	F	S	S
	1	2	3	4	5	*6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

August 1045

M	T	W	T	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

September 1045

M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					