Vol. 27 Issue 2

Spring 2026

HORIZON

LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
New Brunswick Centre du Nouveau-Brunswick
THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

Ted's Toon by Ted Dunphy

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Centre News

Business Meetings
Third Saturday in some months

Centre Presentation Meetings
Third-week evening of most months

Star Parties 2026
Mactaquac July 17-18
Mount Carleton August 14-15
Fundy September 4-5
Kouchibouguac September 18-19

Our membership remains at 84 thanks and a big welcome to new members since our previous newsletter: Chandler Acorn, Karine Eusanio and Zachary Phillips.

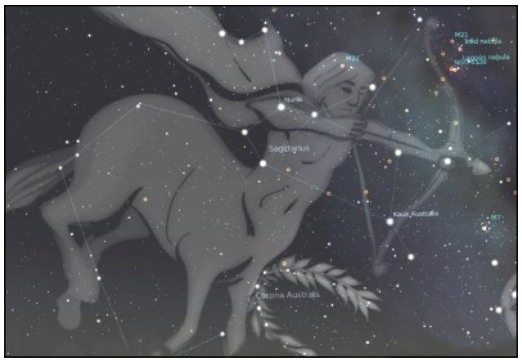
In recent Council meetings we have agreed to support local astronomy clubs by covering annual website fees on request, a Zoom account for the Sunday Night Astronomy Show (and as a back-up to our Zoom account), and to possibly purchase eclipse glasses for the August 12 partial solar eclipse. All of these are to support astronomy outreach, our mandate as a charitable organization.

The main item for our annual meeting in October will be the biennial elections for Centre Council. It would be helpful to have some fresh ideas so please consider offering for a position on Council or a committee. None of these requires a significant time commitment.

Stellar Nursery Rhymes

Yolanda Kippers

Spring is a riddle,
With May in the middle,
As Mars ducks under the Moon.
The Little Bear turns
To make a point,
The Teapot runs away with the Spoon.



The Teapot asterism is the upper part of the centaur. The three stars at the top is the Teaspoon, and Corona Australis is the Lemon Wedge.

Hickory, dickory dock.
They really messed up the clock.
Ahead by one,
Early evenings were done.
Hickory, dickory dock.

Little, by little,
As daylight is whittled,
Constellations come into play.
Along comes the morning,
Without any warning,
To frighten the Astras away.

Block the Light
Enjoy your Night

Len Larkin

I know of at least a couple of lucky folks in our area who have observatories. Undoubtedly the best option, but maybe some light-blocking is all you need. I observe on my back deck and it is impacted with light from two streetlights, several backyard lights, a few across the road plus my own house.

I took care of this in two phases. First was a folding wall (carries like a suitcase) that opens to 2.4 metres long and 1.75 m high. Light-blocking curtain fabric (rather expensive) is fastened to the three frames of 1x2 pine board. It's lasted five years and works great - sometimes the only "wall" I put up.

The last two walls are based on landscape fabric - the stuff you see on the ground around plants. The price is better - a 2 m wide roll will cost about $6 a running metre. I cut a suitable length, fastened each end to a 2x3 board (2 metres long) which can then be unrolled and secured.

Mine all fasten to the deck handrail via small boards containing a tee-nut. One "wall" is 3 m long, the other is 4 m plus an opening (started as just a flap but I finally made a lightweight doorframe, with some fabric over it). The fabric does have little gaps in it but I find it gives me a light-free, relaxing observing spot.

It does take about 20 minutes to set up but you get the added bonus of a shelter from the wind.

What's Up for Summer

Curt Nason

The highlight for the months of June to August will be a daytime occultation of Venus in June and a solar-lunar eclipse pair in August.

The **Sun** reaches its northern limit, the summer solstice, on June 21 at 05:25, just as it rises in southeastern NB. On August 12 between approximately 13:54 and 15:55 we have a partial solar eclipse with 43% of the Sun's diameter covered (magnitude) and 32% of the surface area (obscuration) on the eastern part of the province, slightly less as you move west.

New **Moon** dates are June 14, July 14 and, of course, August 12. A deep partial lunar eclipse occurs on August 27/28, with the umbral phase lasting from 23:33 to 02:52.

Mercury is at greatest eastern elongation on June 14 and at inferior conjunction on July 12. It reaches greatest western elongation August 2 and passes within 1˚ of Jupiter on the morning of July 15.

Venus has a close conjunction with Jupiter on June 9, and on June 17 the 3-day-old Moon occults it high in the south-southwest between about 17:14 and 18:00. Two days later it skims above the Beehive star cluster. Another naked-eye daytime sighting occurs around 13:00 on July 9 when it is a few degrees above the waning crescent Moon high in the southeast. Venus is at greatest eastern elongation August 15 but the shallow angle of the ecliptic has it setting 90 minutes after sunset.

Mars rises 90 minutes before sunrise on June 1 and on July 4 it sits 7' below Uranus, midway between the Pleiades and the Hyades. It passes within 2˚ of M1 in early August and within 1˚ of M35 on August 14-15.

Jupiter is part of scenic grouping with Mercury, the Moon, Castor, Pollux and Venus on June 16. On July 5 it sets an hour after sunset and it reaches conjunction on July 29.

Saturn pulls away from Neptune as it progresses through Pisces. It reaches its first stationary point on July 27, by which time it is rising before midnight. Its rings are 9˚open to the south.

Uranus rises between the Pleiades and Hyades around 05:00 in the first week of June and reaches its first stationary point on September 7.

Neptune reaches its first stationary point on July 8.

Comet 10P/Tempel 2 should be around magnitude 9 above Capricornus in late June. It could brighten by a magnitude or two when it is at perihelion and near its closest to Earth on August 2.

Meteor Showers The South Delta Aquariids peak with the full Moon on July 29. The Perseids peak with the new Moon on August 12.

Centre Poll

Regarding biannual time shifting between standard and daylight time, which do you prefer and the main reason for doing so.

- maintain as is
- continue shifting but on a different date (if so, when)
- permanent standard time
- permanent daylight time

There were 14 responses, about 17% of the membership. The bottom line:

Permanent Standard: 8
Keep as is: 2
Permanent half hour split: 2
Permanent Daylight: 1
Whatever: 1

Comments

Permanent Daylight: night owl, better fit to schedule

Split: compromise to minimize negative effects and end shifting

As is: safer for schoolkids in early winter

Permanent Standard: earlier night, no benefit in shifting; more imaging time; health and observing time; more convenient for summer astronomy; healthier, too many negatives with daylight time in winter; earlier sunrise, earlier night

Minor Rant on Time Zones and Clock Changes

Curt Nason

The annual, or biannual, debate of shifting between standard and daylight time has ramped up again with the Premier of British Columbia announcing they will go to Pacific Daylight Time permanently. This followed a provincial poll in 2019 of 223,000 people, with 93% preferring permanent daylight time. However, that poll offered two choices: keep shifting, or permanent daylight. There was no option for permanent standard time.

Up to about 150 years ago municipalities ran on local time with midday at noon. (Corrections could be made for the equation of time, as the Sun can cross the meridian up to about 15 minutes before noon or 15 minutes after. More on that on Page 10.) Plants and animals, including we relatively hairless apes, developed to this solar-based schedule called the circadian rhythm.

https://my.clevelandclinic.org/health/articles/circadian-rhythm

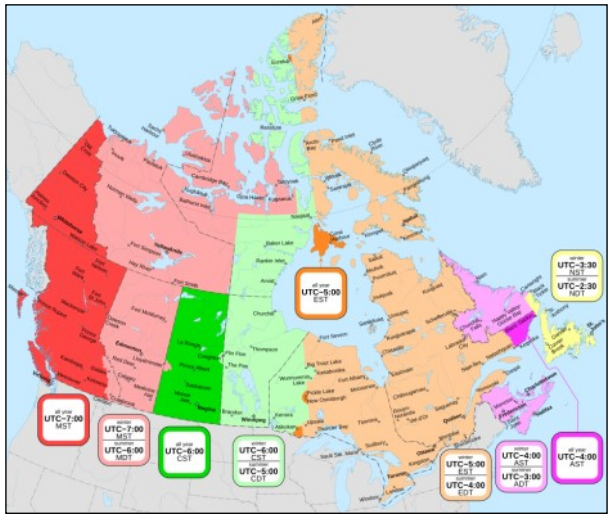
In the latter 19th century steps were being taken to standardize times over larger areas to reduce confusion in communication and particularly with railroad scheduling. Eventually, worldwide time zones were developed but it took decades before they were accepted globally.

With a mean solar day of 24 hours and 360˚ of longitude globally, 24 time zones were developed with the 0˚ longitude in Greenwich, England, which was historically the standard for marine chronology. The International Date Line follows the lowly-populated 180˚ longitude, with wiggling around some countries and island groups to minimize local confusion.

With the centre of the Greenwich time zone being 0˚ longitude, every 15˚ longitude east or west of there should theoretically centre a time zone where noon occurs at midday, plus or minus the equation of time, and the "local Sun time" at the extreme boundaries would be a half hour ahead (east) or behind (west). Political and geographic boundaries play a role in setting time zones, which could widen a zone and the difference between clock time and local Sun time.

Around the turn of the 20th century the idea of shifting the clock ahead to daylight time was beginning, and in 1910 Port Arthur and Fort William, now Thunder Bay, became the first city in the world to implement it. This made some sense as this area is 40 minutes local time behind Toronto and 45 behind Ottawa. Daylight time was implemented across the country during wartimes and in 1966 it became an annual event in most areas of Canada, later being extended by more than a month because other areas were doing so. Daylight time increases the difference between Sun time and clock time, but for our warmer months that is less dramatic.

Since the decision on what time scheme to use is with the provincial governments, let us see how the borders compare with the theoretical time zones. I will omit the degree symbol. British Columbia is in the Pacific zone, which ideally would be centred at longitude 120 West (or –120), between 112.5 and 127. Its eastern border runs along the 120 line from 57 to about 53 latitude, then angles eastward to the 49th parallel (latitude) at longitude 114. Most of Vancouver Island fits within the theoretical zone limit but the northwest corner of the province extends to 139.



Time Zone Map of Canada (unaltered) MapGrid, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons

Alberta's eastern border is entirely along longitude 110, so most of that province would theoretically be in the Pacific zone instead of Mountain. The theoretical centre of the Mountain zone runs down the middle of Saskatchewan, where people proudly declare they are on Central Standard year round when actually they are on Mountain Daylight. The western half of Manitoba fits within the Mountain zone, and only the eastern tip

crosses longitude 90, the midpoint of the Central zone. Almost all of Southern Ontario, say up to Timmins, fits nicely within the western half of the Eastern zone, whereas the northwestern half stretches across most of the Central zone. All of Québec is within the Eastern zone with the exception of the Gaspé Peninsula and a small section to the north.

This brings us to Atlantic Canada and the aptly named Atlantic zone, between longitudes 52.5 and 67.5, centred on 60. St. John's is at that eastern extreme and the entire island is within the eastern half of the zone, hence the half hour Newfoundland zone. Labrador is pretty much entirely within the Atlantic zone. Almost all of Cape Breton and all of Nova Scotia and Prince Edward Island are within the western half. The western border of New Brunswick runs halfway between 67.5 and 68, close enough, and Madawaska County stretches to longitude 69.

At the risk of alienating myself from half of the country's citizens, I would suggest having British Columbia and Alberta in the Pacific zone but renamed Mountain as they share the Rockies. The Central zone would encompass Saskatchewan and Manitoba. Ontario, Quebec, Labrador and the Maritimes would remain as is, and Newfoundland would be in Atlantic where it belongs. Yukon could regain its own zone, as I recall the mnemonic from my youth: No Apple Ever Came More Perfect Yet; or they could call it Pacific. Northwest Territories is a good fit for Mountain, and Nunavut for Central. Daylight or Standard? Let them decide but Standard keeps Sun time better, especially in winter.

Now, back to the BC Premier and his reasons (or those of his writers) for saving his province from Standard Time (and here I am quoting Postmedia journalist Adam Huras's quotes of the BC Premier, from his excellent article in the "daily" NB papers on May 6). "When we change our clocks twice a year, it creates all kinds of problems. Kids get up at the same time, even though the clocks changed. Dogs get up at the same time, even though the clocks changed. Parents lose sleep. Kids lose sleep. And even people without kids or parents, they're losing an hour of sleep. What we see is more car accidents and people not feeling well and impacts that have a huge, unnecessary impact on the lives of British Columbians." I could have fun with this but it would be too easy.

Scientific studies have revealed an increase in the risk of detrimental effects on health and safety during the week following the start of daylight time. These include a six percent increase in fatal motor vehicle accidents (with a greater risk in the early morning), a five percent increase in heart attacks, and an eight percent increase of ischemic stroke during the first two days. These studies revealed no increase in risk following the return to standard time in autumn. Furthermore, the fatal accident study and a report from the American Association of Cancer Research show increased risks for those who live in the western half of a time zone, where later sunrise and sunset times result in less sleep.

The accident study that I have seen referenced was based on the U.S. Fatality Analysis Reporting System, which recorded 732,835 fatal accidents in those states that observed daylight time between 1996 and 2017. In the Monday to Friday week following the change to daylight time there was a 5.7 percent increase in fatal accidents over the rest of the year. Having read only the summary I don't know if that was in comparison with the 51 other work weeks or the entire year; or if there was a significant increase after 2007 when the time change was moved ahead three weeks and it was suddenly darker when leaving for work.

Being able to drive home before dark in winter is often cited as a benefit of permanent daylight time, but you can't burn the candle at both ends. On permanent daylight time sunrise in Moncton would not occur before 8:00 from November 1 to February 27, and not before 9:00 from Christmas to January 9, with civil twilight beginning about half an hour earlier. In Campbellton that 8:00 stretch would increase by six days before and after. In my neighbourhood, the school bus for grades K-2 arrives at 7:30. Another reason cited for permanent daylight time is to have an extra hour of daylight to exercise or run errands after work. I am not sure what that exercise would be during winter when "too cold" is usually the excuse for not doing it.

If the USA opts to operate on daylight time year round then Quebec and Ontario will likely follow suit. This scenario offers the Maritimes an opportunity that some politicians had desired in the past decade: being on the same time as our major trading partners. This, of course, would be achieved by remaining on standard time.

As an amateur astronomer I prefer standard time over daylight. The main drawback of daylight time is that it is late evening before it is dark enough for outreach at star parties, with the occasional exception of bright planets and the Moon if they are in the evening sky. Astronomical twilight in Fredericton ends at 23:38 in mid-July, 22:29 in mid-August, and 21:17 in mid-September. Also, youth groups often request observing sessions in spring but with the time change in early March their meetings end before or near sunset.

However, I am in favour of a compromising position. Perhaps the majority of people enjoy that extra hour of evening sunlight for healthy recreation in the warmer months. As a Little League ballplayer in my youth and a coach in adulthood I know a six-inning game could start at 18:00 and finish before dark. Under standard time games would have to start at 17:00, making it more difficult for working parents to volunteer. And, as an older amateur astronomer who is up late and up early and who has observing goals for Mercury and comets, I am out around 04:30 for them from June to August. That would be an hour earlier at standard time. Stay up or get up?

I propose we begin daylight time on the Saturday morning of the long weekend in May, and revert to standard time on the Saturday morning of Thanksgiving weekend in October. We get the sunshine our bodies require on most winter mornings, extended playtime on summer evenings, and non-shift workers get two extra days for the spring time-change adjustment when sunrise is still before seven o'clock. I have proposed this twice in my monthly newspaper columns in the past eight years and perhaps once in a letter to the editor. I just hope politicians or their advisors read the papers.

I haven't forgotten the people who just don't like having to change their clocks twice a year. Surely there are bigger nits to pick. Newer timepieces change automatically. Some older ones have a toggle switch to go ahead or back an hour. I have 12 timepieces that I am anal enough to change, usually one or two a couple of days later when I happen to notice them. After a few months few of them show the same time so I don't mind somewhat synchronizing them twice a year. If I am lucky enough to remember how they all work I can change them within 30 to 40 minutes and then have a happy a nap.

Origin of the William Brydone-Jack Astronomy Club

Don Kelly

On Tuesday, February 4, 1980, a notice was sent out to those interested in astronomy of an inaugural meeting in the University of New Brunswick's Physics building, room # 204. The records show over 30 people attended. One of the attendees was Professor Merrill Edwards. Minutes of the meeting indicate that a business meeting was held and a constitution committee was formed and activated. The name of the astronomy club was to be the Fredericton Astronomy Club.

On March 25, 1980, the second meeting of the Fredericton Astronomy Club was held. The featured speaker was Dr. Derek Livesey who would talk on "Astronomy for the Amateur."

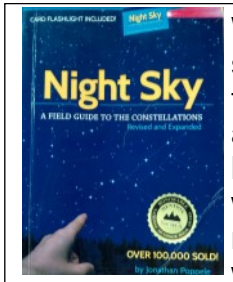
The Fredericton Astronomy Club members held their third meeting on April 21, their fourth on May 11, their fifth meeting July 7, and their sixth and last recorded meeting on August 4, 1980.

The log book that was used for minutes of the Fredericton Astronomy club is a 25x31 cm hard covered blue lab book with graph-lined pages. It shows the minutes of six meetings. The William Brydone Jack Astronomy Club continues to use the logbook and its identical successor to record their club meetings.

One of the suggestions made in the minutes of the Fredericton Astronomy Club's July 7, 1980 meeting was to hold the club meetings in the Old Observatory. It is unlikely it happened. When I and two other students requested to see the inside of the Old Observatory in 1964, we could not enter the main door as it was packed to the ceiling with student desks and chairs. Once it was declared a national historic site, it became a beautifully restored facility. Currently it is maintained by UNB's Physics Department.

Night Sky – A Field Guide to the Constellations

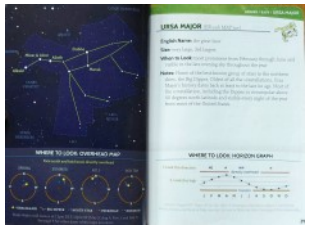
Book Review by Trudy Almon



When I started getting more serious about my interest in the night sky about ten years ago I found tons of books to help my journey but a lot were more in depth than I needed at the time. I found it was too much information just starting out and wanted less, knowing when I figured out where my interests were I could do more research. So I set out to find some books that were more basic and on a beginners level for me… short and to the point has always been my learning method! One of the books I fell in love with is *Night Sky – A Field Guide to the Constellations*, authored by Jonathan Poppele. I purchased it on Amazon and it is still available there for $29.50, or less if you buy used.

The book is small measuring 6" tall x 4 ½" wide x ¾" thick, making it easy to use out in the field. It slides into my pocket on my winter jacket or the pouch of my hoodie quite easily. This 384-page book starts with an introduction and instructions on how to use it. The main body concentrates on the 88 constellations with instructions for locating and identifying plus some interesting details and history about each one. There is also a short section on the southern constellations. The end of the book includes some more in-depth information on the solar system, deep sky objects, planet location tables and lists of prominent meteor showers, 100 brightest stars, constellations, asterisms and deep sky objects visible to the naked eye.

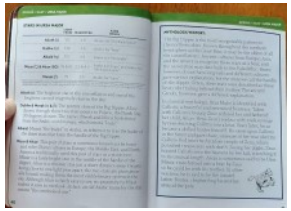
I'm going to talk about the main body of the book as it's what I use the most. It is laid out by season and based on when the constellation is the highest in the sky making it the easiest to see. For example, even though you can see Ursa Major all year it is listed under Spring because that's when it's at its highest. Once you pick your season you then can pick the constellation you'd like to look



at. They are listed in order of difficulty from easiest to hardest so it's great to just start at the first of the season and work your way through. The author does suggest that if you already know how to find a few of the well-known constellations like Ursa Major, Ursa Minor or Orion, use the book to look for those to help you learn how the book works.

The next step is to choose your location method. The book has two ways to do this, either the overhead map or a horizon guide. I personally like the overhead map as it shows the constellation's location in relation to zenith, the North Star and the Big Dipper. The last step explains adjusting your viewing time. Both the overhead map and horizon guide are based on a mid-season date and a time of 11 pm DST. There is a chart in the introduction section that allows you to pick your month and time and tells you which season charts to use.

Each constellation has four pages dedicated to it. The first page shows the constellation map and the overhead map for locating it. Page two gives some interesting facts about it. It lists the constellation name and how to pronounce it, the English name, its overall size out of all the constellations, when is the best time to look for it, and notes with a brief introduction including historical background. The horizon guide for locating is also on this page. The third page tells you the major stars in the constellation and includes various information which could be their light years from Earth, magnitude, star name and any objects of interest. The last page gives the mythology and historical information. If there is little mythology known then there is information on how it was first defined or who



was the first person to describe it. In the lower corner of this page there is a drawing of the person or object that it represents.

This little book is still a favorite, especially if I'm sitting with someone new sharing the sky and don't want to overwhelm them with too much information. It gives just enough information for a beginner and a little extra for an experienced astronomer. I highly recommend it for those interested in the constellations and looking to expand their knowledge. One of my favourite things to do is stretch out on the picnic table or a recliner and work my way through a season of constellations. Even if I'm out with my telescope I usually finish the night with a trip around the sky with this book.

The outreach events to date are as expected for the end of May and a few more events have yet to be logged in our spreadsheet. Approximately half of the presentations are from the Sunday Night Astronomy Show, which will likely be on a break for some of the summer. Youth group visits appear to be down but many of the visits last year were at libraries for the Summer Reading Clubs. Also, with more clement weather and star parties the observing events will pick up.

Emma MacPhee has been busy giving astronomy courses for seniors, with six presentations so far this year. And a shout-out to Carl Fleck in Salisbury who answered an observing request from a family that would be visiting Moncton on Astronomy Day weekend. Here is a follow-up message.

"Last Sunday evening, we received a very warm welcome from Carl and his wife, and we looked at the stars together. Carl taught our children a lot about the universe. It was a successful evening and an experience that made our holiday just that little bit more special.
Best regards, Sandra"

Carl answered another request earlier from parents in Moncton who were seeking someone to act as an astronomy mentor for their son. Thank you for stepping up Carl, you do us proud.

The partial solar eclipse in August could be out biggest event for the year,

RASC NB Outreach Events and Handouts

Year	# of Events	People At Events	Live Feed	Youth	Star Finders English	Star Finders French	Moon Guides English	Moon Guides French	Volunteer Hours
2017	248	9951	8441		2276	162	2262	131	1937
2018	187	7289	37,922	>1300	1788	170	1635	79	1355
2019	240	7036	46,675	2997	1320	216	1520	213	1950
2020	171	1859	161,688	954	817	22	636	125	1079
2021	131	731	60,240	565	108	0	46	0	1160
2022	173	12,952	63,122	10,192	586	60	472	106	1809
2023	168	23,419	9787	20,612	556	223	452	110	1789
2024	186	12,362	12,304	6805	352	92	506	87	2331
2025	167	4907	61,810	2506	607	167	808	90	2237
2026	70	1336	2427	635	149	32	229	32	816

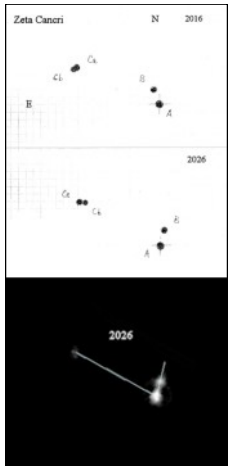
Types of Outreach Events

Year	Presentation	Night Observing	Day Observing	Youth Group	School Talks	Exhibition	Observ./ Planet'm
2017	61	89	22	19	50	6	1
2018	50	80	13	18	20	5	1
2019	73	94	10	22	36	5	0
2020	86	43	5	8	29	0	0
2021	65	48	6	1	11	0	0
2022	72	52	6	4	34	4	0
2023	60	13	8	14	69	4	0
2024	101	23	8	15	33	6	0
2025	76	36	7	21	26	1	0
2026	46	8	1	1	13	1	

More Double Stars

Len Larkin

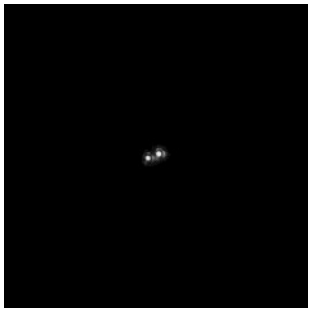
Zeta Cnc contains 3 Orbital Systems:
AB-C - 735 year orbit
A-B - 60 year orbit
Ca-Cb - 17 year orbit



The Zeta Cancri graphic compares an orbit snapshot of the system ten years ago *vs* current alignment, along with my image this spring. The orbit of the AB stars has rotated 33˚ in ten years - the separation is still tight at 1.1". The very difficult Ca-Cb system (0.3") has rotated over 200˚ in that time frame but few people have imaged it.

The Xi UMa image below is a stack of the 128 best images out of 1000 and gives cleaner Airy discs. Separation is 2.7".

The camera is an ASI678 mounted to a 180 mm SW Mak-Cas. Thanks to Mike Powell (in a recent Sunday Night Astronomy Show) for introducing the PIPP image program to us and showing how to use it. It helps with double stars, too!"



Equation of Time

Curt Nason

If the Earth had a circular orbit with its rotational axis perpendicular to its orbital path, then sunrise and sunset would occur at the same times each day and the Sun would cross the north-south meridian at local noon, as it did before the introduction of standard time zones a century and a half ago. Our time system is based on this hypothetical scenario, with a mean solar day of 24 hours between meridian crossings.

As Earth travels from aphelion toward perihelion it moves closer to the Sun each day, cutting the corner so that the Sun crosses the meridian a little sooner than average. This builds up to it being seven minutes early in October, which then lessens to crossing the meridian at mean solar noon in early January. On that day Earth will start moving farther from the sun and cross the meridian after mean solar noon, being as late as seven minutes in early April and returning to match mean time at aphelion. But these times do not really happen because there is something else to consider.

If Earth's rotational axis were perpendicular to its orbit, then the Sun's apparent path through the zodiac constellations, called the ecliptic, would be along the celestial equator. It would always rise due east and set due west, taking the most direct path across the sky like it does on the spring and autumn equinoxes. However, the axis is tilted 23.45˚ and the Sun travels north or south of west en route to a solstice point on the ecliptic. To get an idea how far apart the ecliptic can get from the celestial equator, look to the night sky in winter when the constellation Orion is highest in the south. The equator crosses just above Orion's Belt and the ecliptic is above his club, a hand span higher, between Taurus and Gemini where the Sun is located at the summer solstice.

Any movement north or south away from the westerly direction, as from an equinox to a solstice, makes the Sun late to reach the meridian. Movement toward the equator between a solstice and an equinox makes it arrive early. Local time and mean solar time agree on the days of the solstices, when the north-south movement ceases and reverses, and on the equinoxes, with extreme differences of up to ten minutes occurring on the cross-quarter days halfway between them.

Taken together, the two factors combine to make the Sun as much as 16 minutes fast on November 4 and 14 minutes slow on February 12. They cancel each other so that local time equals mean solar time around April 16, June 15, September 1 and December 25. The sun is six minutes fast around December 9-10, and four minutes slow on January 2-3, offsetting the earliest sunset and latest sunrise dates from the winter solstice. The daily differences between local and mean solar time are called the equation of time.

An analemma (definitely not named for our Secretary) is a visual representation of the equation of time. For this, see:

https://en.wikipedia.org/wiki/Equation_of_time