

My Total Solar Eclipse Observing Event, Monday 8 April 2024

By Gary T. Nowak

The day of the big event had arrived. I woke up at 03:30 EDT to get ready for the event. I then had my breakfast and packed my food and beverages into 2 coolers and placed them into my car. My solar eclipse observing equipment and coats were already packed into my car the night before. Just before I left my home, I checked my weather station and the temperature was +27° F (-2.7° C). I left my home in Williston, Vermont at 05:15 EDT to beat the eclipse traffic. I drove onto Interstate 89 South and drove to Exit 10, Waterbury Vermont. There was some traffic on Interstate 89 (I 89) going North. There were a few cars going South on I 89. I got off I 89 at Exit 10 and went by a gas station / convenience store about 05:35 EDT. The station must have just open. Cars were doubled lined up to get to the gas pumps. Plus, all the parking places around said gas station were full. I was worried that I might hit heavy traffic as I headed North on Route 100 towards Stowe, Vermont. I arrived at my destination at 06:08 EDT. I had beat the solar eclipse traffic.

I was observing at the Trapp Family Lodge, 800 Trapp Hill Road, Stowe, Vermont, 05673. I have been working with the Trapp Family Lodge for about 2 years on this Total Solar Eclipse Event. I had observed the Partial Solar Eclipse of Saturday 14 October, 2023 at the Trapp and I knew the observing area. Trapps had made me the Solar Eclipse Team Leader for this event. So, I pinned on my Trapp Family Lodge ID Badge with my title on it. This was not my first time as a Solar Eclipse Team Leader. I was the Solar Eclipse Team Leader for the Tuesday 10 May, 1994 Annular Solar Eclipse observing event at Vermont Technical College, Randolph, Vermont.

Around 07:00 EDT, I walked the 3 telescope lines which ran parallel with a cross-country ski trail. There was about 6 inches (150 mm) of snow on the ground. Although I had set up these telescope lines beforehand, I looked around a bit and chose my spot on the 1st Telescope Line. As best I can tell my position, my location was at Latitude +44.46474 and Longitude – 72.74716, Elevation 1427 feet (434.9 meters).

A thought then crossed my mind that as a member of the Solar Eclipse Committee of my astronomy club, VAS (Vermont Astronomical Society). I was probably the only one on the Eclipse Committee who did carry out the original plan of the committee of spreading out VAS members along the Path of Totality in Northern Vermont. Most of the VAS members had stayed close to the “Home Base” of Chittenden County. I then got a call from my 2 assistants which was supposed to help me that they were not going to make it to Trapp due to some personal circumstances which came up suddenly. So, I was going to be doing the solar eclipse observing event alone. I wondered how I was going to be the “Residential Astronomer” for information and operate my scopes at the same time.

About 08:00 EDT, the Staff of the Trapp Family Lodge arrived along with the 4 security guards and parking lot attendants. I had a good conversation with some of the security guards and their manager. The venue was divided into three sections; “the VIP Section,” “the three telescope lines,” and “the lounge chair viewing area” which was in the concert field. Signs were posted that people with telescopes, giant binoculars, cameras or spotting scopes with tripods and other mounts were to use the three telescope lines. People with hand held binoculars could use the concert field. Everyone had to have a QR Code Printed Pass to go onto the telescope lines. These were large orange printed strip badge with a QR code which had to be displayed at all times.

The gates were supposed to open at 10:00 EDT but folks started to pull into “the eclipse parking lot” around 08:30 EDT. Some of the first cars in were “event crashers” who tried to get into the event without a proper ticket. These crashers would try to use the excuse that they did not know about the solar eclipse and just wanted to look around. Security moved them out of the eclipse parking area. The security manager told me that no one gets into the solar eclipse event unless they got a QR code pass for each person. Then only people with the orange-colored pass were allowed into the telescope lines. I did not need the orange-colored pass because I had my Trapp Family ID Badge. I was told to make sure your ID badge is always clearly displayed.

The original plan was to have me set up my equipment around 09:30 EDT. However, with folks coming in early, I knew I had to change my plan. So, I started to set up about 09:00 EDT. I had to make trips back and forth from my car to my position at the beginning of the 1st Telescope Line. The position of the other two lines were as follows: The 2nd Telescope Line was behind me and separated from me by the cross-country ski trail. The 3rd Telescope Line was in front of me and down a hill a bit towards the South. I managed to get 3 items set up: my easel stand with the solar eclipse information display, a tripod with my Acu-Rite® Anemometer on it and my wooden tripod for my solar projection telescope. None of my optical instruments were set up yet. I did post my 2 signs: One sign for ALPO (Association of Lunar and Planetary Observers) and one sign for VAS (Vermont Astronomical Society). These signs were fastened to the wooden legs of the tripod. My display board contain the following information: timetable of the Total Solar Eclipse Event, safety warning about safe solar observing, and a series of photos showing the key features of the Total Solar Eclipse like Bailey’s Beads and the Diamond Ring.

Once I had posted the VAS sign; I had a few folks come up to me and ask if the Total Solar Eclipse was going to be “a religious event.” As soon as they said that I realized that they were referring to the TV interview with our VAS President who despite never seeing or experiencing a Total Solar Eclipse before, described it as a “religiously experience.”

I started to respond to their question when a small group of about 7 people approached me. Two of the guys in the group started to ask me a series of “rapid fire” questions about solar eclipses, solar observing, and telescopes. Their tone was a bit sassy and regal. I replied to their questions as fast as I could. I could easily see they were not trying to gain knowledge by their

questions but were testing my knowledge and experience. After a few minutes of questioning and finding out that I have seen 5 Solar Eclipses (3 Total, 2 Annular) their mood and attitude completely changed and they became very friendly and open. They told me they were impressed with my knowledge and experience. Then I learned the reason for their questioning. They told me that your club president interview was broadcast throughout the CBS TV Network. On their club and other local astronomy groups chat rooms, Vermont Astronomical Society was considered a joke and a punchline. Their view of VAS was of an “Bumpkin Astronomy Group” which was being led by a “Buffoon President”. So, they were glad to see that there was going to be a knowledgeable amateur astronomer as the “Resident Astronomer” for this event. They did not want amateur astronomers to get a bad name at an event like the Total Solar Eclipse due an inexperienced and unknowing person.

I found out that most of them were from astronomy groups from Massachusetts, Connecticut, and New York State. After the initial encounter, they were a great group of people to observe with and would come over occasionally to check on me once they found out that I was alone.

After my questioning, I started being sought out by various individuals wanting to look at my display board and wanted information about certain events of a Total Solar Eclipse. Some folks were even taking pictures of my time table and my display. Everyone that I talked to had never seen a Total Solar Eclipse before. They were surprised that I had seen 5 solar eclipses. One of their most common complaints was how disappointed they were with the Pre – Solar Eclipse TV coverage and how most of the TV segments did Not do a good job of covering the actual events which would be observed during a Total Solar Eclipse.

I had a constant stream of folks coming up to talk to me about the solar eclipse. I gave out all my 30 ALPO brochures that I had. I gave out a few VAS brochures as well. A few folks were confused by the VAS brochures with the park postings on it. Their questions were: Why would an astronomy club post park listings on their information brochure? Where are your fancy astro images? One woman used her smart phone to visit the VAS website and remarked it looked like “a street sale special for shoes.” I did a quick count and found I had about 30 people or so around me wanting to know about the Total Solar Eclipse. So, afterwards I put together a Frequently Asked Questions list from their interactions with me.

1. What is the Total Solar Eclipse time table of events?
2. Where is the Moon now? What is the position of the Moon to the Sun 1st Contact spot?
3. What is Bailey’ Beads? Diamond Ring? Corona? and Prominences?
4. What is the best optical instrument to view the Corona? Prominences?
5. Where are the visible planets as to their positions during totality?
6. When can I take off my eclipse glasses?
7. Do I need eclipse glasses to view the Corona during totality?

Up to that time, the sky was completely free of clouds. I managed to sneak away for a few minutes to get my lunch. I slammed down my lunch quickly and returned. It reminded me of how little time I had to eat when I was a Tank Platoon Leader. Around 13:00 EDT, a large gust of wind came in from the SW. The anemometer recorded it at 21 mph (33.7 km). After that a very thin cloud "shield" appeared over the mountains to the South. These thin clouds started to creep slowly over the mountains tops and slowly move toward us. I had a terrible thought of the sky clouding over before the eclipse started. I quickly made a few more runs to the car and back for the rest of my equipment. I set up my equipment and tested it out to make sure it worked. It was now 13:30 EDT. My equipment was:

60 mm (2.4") f/15 Achromatic Refractor for solar projection. Magnification was 45X, Throw distance 7 inches (175 mm), Solar Disk size 2.25" (56 mm). The 60 mm scope was using a Sun Funnel Projection Screen.

16 X 80 Giant Binoculars with Baader ASBF[®] 80 mm Filters which fit over the front of the Giant Binoculars. Giant Binoculars Field of View was 4°. Giant Binoculars were tripod mounted. The Baader filters gave the Sun a light blue tint.

7 x 35 Binoculars with 1000 Oaks Solar Filters placed over the objectives. Field of View 9.3°. These binoculars were hand held and had seen 3 solar eclipses before. The 1000 Oaks Filters gave the Sun an orange red tint.

Acu Rite[®] Portable Anemometer mounted on a tripod. This instrument would be used to record solar eclipse weather data.

I then pointed my 16 X 80 Giant Binoculars with solar filter attached properly at the Sun. This was for a wide view of the Sun. I could see a few Sunspots in the 16 X 80. My 60 mm f/15 solar projector telescope was mounted on an old Edmund Scientific[®] Medium Duty German Equatorial Mount with clock drive. The mount and clock drive date back to July 1975. The clock drive was powered by an inverter connected to a battery power source. The 60 mm f/15 refractor was a rebuilt Tasco[®] Refractor from about 1968.

I had several members from different astronomy clubs come up and marvel at how old some of my equipment was and how well it works despite its age. Several people were curious about the Sun Funnel Projector... Meanwhile I was worried about the thin layer of clouds which had moved over most of the sky and what would be following those thin clouds.

A few minutes before 1st Contact, I shut off the Anemometer and turned it on again. This cleared the instrument of all previous readings. This would track the temperature through the eclipse (Hi / Lo). Unfortunately, there was a constant wind of 7 mph (11.2 km) blowing from the SSW. This constant wind would ruin my chances to record the solar eclipse wind.

Just before 1st Contact, there were a group of people who formed around the solar projection telescope. There was also a small line of folks at the 16 x 80 Giant Binoculars. I took my timer out of my safari vest pocket and set the timer to count down from 2 minutes and 30 seconds. I plan to use this timer to warn me about putting the filters on the binoculars before 3rd contact.

1st contact came at 18:14:57 UT. A few people around the solar projection telescope screen called out when the little black notch appeared on the Sun's edge. I viewed the black notch after 1st Contact with my 7 x 35 binoculars which I had in my safari vest largest pocket. I could see the tiny black notch in the SW limb area of the Sun. As time progressed, the black notch grew bigger. This reminded me of the Partial Solar Eclipse of 14 Oct 2023. That black notch was in the same solar position as the current eclipse. As people were moving in line to look through the 16 x 80 Giant Binoculars and look at the Sun Funnel; I was amazed at how "clear" the Sun looked in both instruments despite the Alto Stratus Cirrus Clouds which had almost completely covered the sky. I was still worried that the clouds would thicken up before 2nd Contact and ruin totality.

Around 15:00 EDT, I took a quick count and the group had grown to about 75 people or so. Some folks commented on how generous I was letting folks look through your scopes. They told me about a group of amateurs who were behind me on the 2nd telescope line. They had three 60 mm (2.4") refractors on altazimuth mounts with solar projection funnels. This group was not letting anyone look at their projection screens except for their own group.

I told the group around my scopes about the events as we approached 2nd Contact. I warned everyone how little the time span is between very thin crescent, Bailey Beads, Diamond Ring and then 2nd Contact. I told them do not take off your eclipse glasses or solar viewers until after 2nd Contact. Most importantly, warning them about how short the duration of totality was (2 minutes, 49 seconds) and how fast that time will go by. Lastly, I want to make sure that people could look through my giant binoculars and my solar projection but there was no possible way I can get everyone through for a look at the Corona.

At 15:16 EDT, some people were pointing out the dark sky patch in the SW (lower right of Sun) which was growing larger. This was the Lunar Shadow coming toward us. I was surprised to see this because I thought the thin clouds would block it. Both binoculars (16 X 80 and 7 X 35) and the projection screen still showed a sharp edge Sun. Also, I noticed that the general landscape had taken on a dull greyish color which was caused by the thin clouds filtering the Thin Solar Crescent light.

I had a grade school kid who was very excited about the Total Solar Eclipse (his first) and had asked me a lot of questions about the eclipse. He had managed to get a position next to the solar projection screen. He started to call out the remaining events of the Partial Solar Eclipse: Thick Crescent, Crescent, Thin Crescent, Bailey Beads, Diamond Ring, No Sunlight, Totality. I looked over to the projection screen, the very thin Solar Crescent had turned into the Diamond

Ring which stood out nice and sharp, despite the thin clouds. 2nd contact is coming in fast. Time to spring into action.

2nd Contact came at 19:26:57 UT. I hit the button on my timer to do the 2 minute, 30 second count down. Although totality would last 2 minutes, 49 seconds; I wanted to get the solar filters on before 3rd contact. Now I need to remove the filters from my 16 X 80 Giant Binoculars and my 7 X 35 binoculars. Seeing was 8.0; Transparency was 0.0 due to thin clouds. I looked at the Total Eclipsed Sun with my 16 X 80 Giant Binoculars and then stepped aside so the public could look. I also viewed through my hand held 7 X 35 binoculars and then let the public look through them. I was a bit disappointed that the Sun Funnel Projection Screen was showing nothing. This was probably due to the thin clouds. Suddenly there was a loud high pitch scream as a child ran towards the woods with their parent chasing after them. The child ran from a group of observers on my lower right on the 3rd telescope line.

Originally, I had thought that inner corona was roughly about 2 degrees out from the edge of the Eclipsed Sun. The thin clouds made it very difficult to see where the inner corona had ended. I got another look at the corona with the 16 x 80 Giant Binoculars at maximum eclipse 19:28:21 UT. The clouds had thinned a bit and I estimated the inner corona went out about 1 degree from the edge of the Moon. The outer corona seems to go out about 1 degree more from the inner corona. There were “streamers rays” from the inner corona which out farther than the outer corona. I estimate them at about 2.5 degrees total length from the edge of the Moon. I could now feel the temperature drop rapidly. I then looked at the Eclipsed Sun with the unaided eye and could easily see a large “diamond shaped” prominence in the Southern portion of the Eclipsed Sun. I could see Venus to the lower right of the Eclipsed Sun and Jupiter to the upper left of the Eclipsed Sun. I did not try for Comet 12P/ Pons – Brooks due to the thin clouds. The anemometer kept recording a constant wind speed of 7 mph (11.2 km) so I knew I could not detect the solar eclipse wind.

I greatly encouraged some of the folks to take a quick look through the binoculars and then let others look. Time was running out. Then my alarm went off. I went to shut the alarm off and I dropped it. I picked it up and shut the alarm off. Then I grabbed the binocular filters and told folks to stop observing. Time was up and I had to get the filters onto the binoculars. I got the binocular filters on the 16 x 80 when 3rd Contact came at 19:29:46 UT. Someone next to the projection screen called out “Diamond Ring”. The solar projection scope screen easily showed the emergence of the Diamond Ring which very quickly turned into Bailey Beads. Filters now in placed on the 7 X 35 binoculars, I could see the last of the Bailey Beads and the emergence of the thin Solar Crescent.

Once the thin Solar Crescent was visible, some folks left immediately. The remaining folks around my scopes, treated themselves to a less crowded and less hurried view of the thickening Solar Crescent. Then these folks slowly started to fade away from the scene. In about 30 minutes after 3rd Contact, I had no one around me anymore. So, I got to sit down for a minute. This is the first time I got to sit down since I ate my quick lunch. I estimated that I got 18

people through totality looking through the 16 x 80. I believe I got 7 folks to look at totality with my 7 X 35 binoculars. I also now noticed that most of the telescopes on the three telescope lines were being taken down and hauled away. I did not have much time to sit peacefully. Folks who were pulling out of the telescope lines stopped by to thank me for my information and experience about Total Solar Eclipses. Others were extremely grateful that I shared my equipment with them. These folks took one last look through my Giant Binoculars and looked at my solar projection screen and then left the area.

I was able to watch the last trace of the Moon leave the face of the Sun on my solar projection screen. 4th Contact came at 20:37:47 UT. So, the 2 hour, 23 minutes of the Solar Eclipse is now over. I checked the high / low reading on my anemometer: the high was +66 ° F (18.8° C), the low was +41° F (5.0° C). So that was a temperature change of 25°F (13.8°C).

I then looked around at the 3 telescopes lines and only 5 scopes were still up and running on the lines. If you include my 16 x 80 Giant Binoculars and my 60 mm f/15 Refractor then there were 7 scopes left. I was no hurry to break down my equipment because I had planned to stay at Trapp long into the night due to the extremely large traffic jam that was happening after a Total Solar Eclipse. So, I sat there for a while and drank some ice tea and water and rested a bit. At 17:00 EDT all the remaining telescopes were being broken down and being transported back to the parking lot except for mine. So, I slowly went about and broke down some of my equipment and carry it back to my car. This went on until 17:30 EDT; when I had all my equipment transported to the car and packed away. Then I went back to my observing spot on the 1st telescope line to check and make sure that I had gotten everything. So, I stood alone on my observing spot for a for moments to realize that I had now seen 6 Solar Eclipses (4 Total and 2 Annular). I was the first person on the scope line and the last one to leave the scope line. I then scanned the area one more time, left my observing position and walked down the cross-country ski trail to my car. The Total Solar Eclipse was a success despite the thin clouds.

I went over and talked to the 1st shift security guards. They told me about the two massive traffic jams; bumper to bumper and no movement. The 1st massive traffic jam was from Stowe Village to Waterbury on Route 100 South. There was a smaller traffic jam where Route 108 South went into Route 100 in Stowe Village. The 2nd massive traffic jam which was the largest was on Interstate 89 from Waterbury to Williston. The security guards told me that some EVs (Electric Vehicles) had not been able to charge up and ran out of power on Interstate 89. There were 4 security guards waiting for their 2nd shift replacements. These replacements were caught up in traffic and were unable to arrive on time.

I did walk about the Trapp Family Lodge Area and viewed a few landmarks of the place. At 19:00 EDT; I had my dinner which consisted of gluten free turkey sandwiches, brownies and raspberry iced tea. I watched the Sunset which has hidden by clouds and the descent of twilight. Later around 20:00 EDT I went over and talked to the security guards. Their replacements had not arrived yet. Around 20:30 EDT the 2nd shift security guards finally arrived

at the Outdoor Center parking lot. They reported about the severe traffic jams still on Route 100 and Interstate 89. So, the 1st shift security guards were also stranded at the Trapp site. Also 2 cars came back into the Trapp Outdoor Center parking lot. Each one relayed a story of being stuck in traffic for hours, got tired of waiting and decided to head back to Trapps. These drivers reported that there still was a large traffic jam at the intersection of Route 100 and Interstate 89 at Waterbury.

So around 21:00 EDT, I took a quick walk around the parking lot and counted 17 cars still in the Outdoor Center parking lot and 12 cars were still left in the lower parking lot. Most of these folks were sheltering in place. I then decided it was time to get some sleep. So, I returned to my car and lowered the driver seat and tilted it back. I then got my emergency sleeping bag out and got into it on the tilted driver seat. This set up reminded me of sleeping on or in my tank when I was an armor officer and tank platoon leader. I went to sleep quickly and slept till 01:10 EDT. I then set the seat upright and got out of my car. I went over to talk to security about the traffic situation. I found out that 1st shift security had left earlier but 2nd shift security was still there waiting for their replacements. I also found out that road conditions had cleared of traffic. I thank the security guards and headed back to my car. I then check out the sky from the Outdoor Center parking lot. The site seemed to have a fairly dark sky but most of the sky had thin clouds so I could not make a Transparency estimate.

At 01:30 EDT, I left the Trapp Outdoors Center parking lot and headed for home. I had activated my timer to see how long it would take me to get home. I was worried about some traffic snarl ups. Route 100 South had no cars at all on it. Interstate 89 North just had a few scattered cars on it. These few cars were moving along quite rapidly. When I went past the Interstate pull off / rest area, I was surprised to see how packed it was with cars. At 02:20 EDT, I drove into my driveway and stopped the timer. The timer read 50 minutes. So, my Total Solar Eclipse experience had come to an end and I was safely home.