

Harford County Astronomical Society

Bel Air, Maryland
www.harfordastro.org



Volume 32 Issue 6

June 2006

Public Star Party (Open House), July 1, 2006 at dusk
General Meeting: Saturday, July 8, 2006 7:30pm (19:30)

Club Calendar for 2006:

Meeting Night

July 8, 2006
August 12, 2006
September 9, 2006
October 7, 2006
November 4, 2006
December 2, 2006

Open House/Public Star Party

July 1, 2006
August 5, 2006
September 2, 2006
October 28, 2006
November 25, 2006
December 30, 2006

Meeting time is 19:30 (7:30pm) unless noted otherwise. Dates and times are taken from the HCAS website.
Please check the website for possible schedule updates and changes.

<http://www.harfordastro.org>

Check the HCAS website for other club events.

In This Issue:

Minutes of June 10, 2006 HCAS Meeting

Recent Observations by Club Members

Driving Directions to Broad Creek

A Fine Optics Cleaning System

Minutes of the June 10th, 2006 HCAS Meeting

1. **President Monroe Harden opened the meeting at 7:42 PM.** The May meeting minutes were published in the newsletter, but due to technical difficulties, the newsletter was not distributed. Monroe said he would contact Roy Troxel to see if the problem could be identified and resolved.
2. **Treasurer:** After the meeting, Tim Kamel reported that the club treasury balance was \$5121.46.
3. **Observatory operations:** None this month.
4. **Outreach:** Grace Wyatt gave a report for Tom Rusek.
 - a. Tom is in contact with the Abingdon library. He is on their schedule for an event on October 23rd. This will include an indoor and an outdoor program.
 - b. On July 12th, Tom will run an event at the Bel Air library. It will be an indoor event only.
 - c. On September 18th, Tom will run an indoor and outdoor event at the Fallston library. The club is also putting together a display for the Fallston library display case.
5. **Old business:** The club agreed that in lieu of his proposed purchase of the club's 10 inch reflector telescope and mount, Tim Kamel would be allowed to maintain custody of it, upgrade it, and use it for club events as he sees fit. Tim agreed to this plan.
6. **New business:**
 - a. Monroe announced the East Coast Conference on Astronomical Imaging, per an email that went around in early June.
 - b. The election results were announced. The new club officers, effective after the end of this meeting, are:

President: Jim Garrett

Vice President: Wayne French

Secretary: Monroe Harden

Treasurer: Tim Kamel

Monroe will prepare a letter to HCC security for Jim Garrett's signature announcing the new officers and making sure that all active members are on the observatory access roster.
 - c. Tim and Monroe collected the renewal forms and checks for members at the meeting. Tim will contact Bill Geertsen to transfer the checkbook and other treasurer paperwork, and Monroe will do the same with Irv Koplovitz.
 - d. The group discussed the keys for Broad Creek. Right now, Cathy Tingler has 2 keys, Jeremy has one, and Tim Kamel has one. Anyone interested in holding the extra one Cathy has can contact her. She reminded the group that overnight camping was not allowed at the observing site there.
[Editor's Note: Directions to Broad Creek are on page 5.]
 - e. Tom Coffee bid \$5 for the old binocular mount in the store room. Millie McCoy bid \$50, which is closer to its actual value. The club voted to sell it to her for \$50. She paid in cash.

7. The next open house (public observing session) will be on July 1st at the Harford Tech High School parking lot. The next club general meeting is on July 8th.

8. The meeting was adjourned at 8:43 PM.

Recent Observations by Club Members:

This is an observation report for May 28, 2006 at Broad Creek. We (Jeremy and I) arrived at about 8:45. A little early, but since this was my first time at this site and, having heard it was difficult to find, did not want to be trying to read street signs in the dark. As it was, the sign for Paddrick Avenue was down. The directions were clear about the distance between turns so this was not a problem. Was there supposed to be an HCAS sign on the utility pole at the driveway? Looks like we need a new one.

The site had not been mowed and we had grass to our knees. We were prepared and had tarps and had our scopes set up by 9 PM. I had my 8" Newtonian (f/4) and Jeremy had his 8" SCT (f/10). Both were GOTO. Still too bright for Polaris to do our alignments but Jupiter was visible. We were in time for Jeremy to see one of the moons disappear. I missed it but spent some time looking at the planet and the remaining three moons.

Next was the crescent moon, one day old. Not sure how we missed it when we first got there but I suspect it was behind clouds on the horizon. Spent a few minutes looking at it and noted a distinctive crater that was fairly large and close to the limb. I believe we were looking at the Pythagoras Crater, 81 miles in diameter. Naked eye, we could see earthlight on the dark side of the moon, but could not see any features on the dark side with a scope. I thought I should be able to see something. Nothing!

By now, Polaris became visible and we did our alignments.

Next target was Saturn, but I got distracted by the Bee Hive. This one never ceases to amaze me. Bright, big and beautiful and it was that way again tonight.

Back to Saturn, still magnificent this late in the apparition. In another month it will likely be too low to be decently seen but this night it was grand. It took magnification well and I could see the Cassini division and the shadow on the rings. Titan was readily seen. Two more moons just outside of the rings kept fading in and out.

By now, it was starting to get fairly dark except for a light dome to the south. My guess was at least visual magnitude 4.5 with the arc of Corona Borealis and the parallelogram of Lyra being visible. The thin clouds had gone away. It had cooled down a bit. The bugs were out but my bug repellent seemed to work, as I did not get any bites.

Jeremy set up his camera and started his shoots of M92 and M5.

And I pulled out my list. This time I was prepared and brought along a list of Messier Objects that I had printed off using my new Deep Sky Planner software program.

I started off with M67 (very dim open cluster at low power but improved substantially at 100x or so) and M81/82. Then I tried for M66 but no luck, I could not find/see it. I then saw M106 and M87, which was real small. I then proceeded to M94, M64 and M53. M51 was next and I was able to see both cores. M3 was spectacular, as was M13. Took magnification well and some edge stars could be resolved. M4 was another Galactic Cluster that was fairly large but much dimmer than M3 and M13.

By now it is about 12:30 and dew was getting to be a problem. A car had passed by earlier and we saw in its headlights that there was a slight fog. My list was damp and I could not mark my objects any more. The primary and secondary optics were fine but the eyepiece barrels and case were getting fairly wet, as were the
(Continued)

tubes of the scopes.

It was getting time to pack up, but just one more. I dialed in Jupiter, which was now about as high in the sky as it would get. Beautiful and steady views. I took it up to 160x and had great views of the bands on the planet. However, I could not see the GRS. I have yet to see this.

I then went for the double double in Lyra. But this also was not to be. I could not resolve it into the 4 components. Strange that I can see the Cassini Division, which is half an arc second, and can not split stars that are 3 arc seconds apart.

We packed up at 12:45 and called it a successful night.

.....*Tim Kamel*

Transit of Jupiter's satellite Io

May 27, 2006:



Photo above was taken by Jim Phillips with a 10" f-9 TMB Refractor.

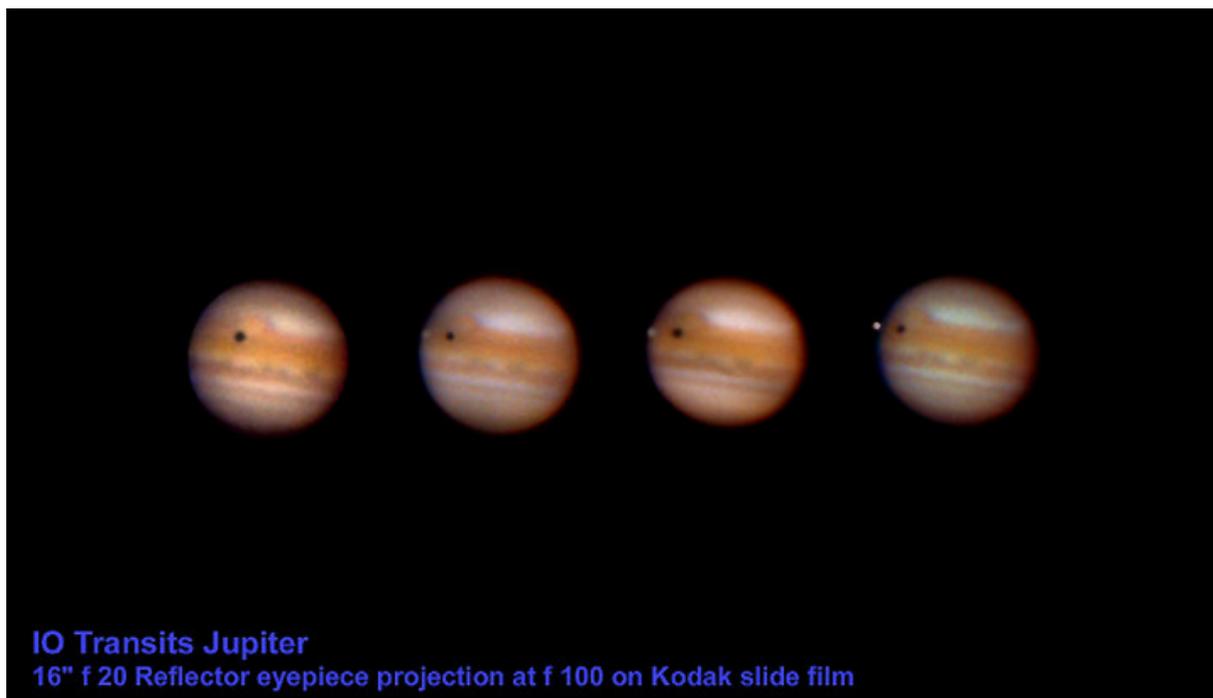


Photo by: Hubble/Heppner

Recent Observations by Club Members (cont.):

Last weekend I was out in Garrett County, (near Grantsville). The weather prediction was not too good for Astronomy but I took my big bins (25/40X100) anyway. We did get to observe for a couple of hours Sunday night (May 28) at the home of one of the members of the Cumberland Astronomy Club, a bit south of Grantsville, Md.

The transparency and seeing were not the best at sunset, but both improved greatly as the night progressed. As I was rather tired, I only went for "easy" targets.

First looked at Saturn, the rings were easily visible using either eyepiece. Jupiter's main two equatorial belts and three satellites were seen. Mars was a disappointing red speck.

M44, the beehive cluster in Cancer looked like jewels spread on a black velvet carpet. Moving over to Cygnus, M29 was a rather obvious small grouping of stars. The two globulars in Scorpius were a stark contrast to each other, M4 was large and spread out (no individual stars were visible), while M80 was rather bright and extremely compact. M107 in Ophiuchus was faint, but easily visible in the dark skies of Garrett Co.

Took a look at Melotte 111, the large open cluster in Coma Berenices, it was obvious to the naked eye, and even more impressive in the bins. I decided to try for the Ring Nebula in Lyra, M57. It was difficult to find among the many hundreds of stars visible in the binocular field. Finally, success! There it was, the soft glow of the nebula stood out amongst the stars, however, as hard as I tried, I could not see the "hole" in the center of the nebula. Decided to swing the bins over to Ursa Major to check out M81 and M82. They were brilliant in the smaller eyepiece field, M82 was an obvious cigar shaped galaxy, with M81 a large, soft glowing cotton ball right next to it. Was probably the second best sight of the night!

Searched for M65 and M66 in Leo next, and although they were both easily visible, NGC3628 was not visible. I failed to find M83 in Hydra. I checked out Albireo, the gold and blue optical double, it was the only double star I observed (this evening through my bins). I tried to split Polaris, which I have done several times in the past with these bins, but the companion eluded my efforts. M13 was extremely large and bright in the bins. The glow of the Milky Way was easily seen through Cygnus, even though Cygnus was still low in the eastern sky. As we all shut down for the night, several of us looked up into Hercules, and there we saw the sight of the night, M13 was naked eye!

...Phil Schmitz

Directions to Broad Creek

Supplied by Tim Kamel

The first direction is to get a key as you'll not be able to enter the site without one.

You'll be taking Route 1 north, toward Rising Sun.

At the junction of US1 and 136 turn left (there is a WaWa Store/gas station on the left).

Go into the town of Dublin, passing the Dublin Elementary School on your right.

Just past the school you'll come to a 4-way stop sign.

Turn right onto Glen Cove Road and go to the first left (Castleton Rd).

Turn left onto Castleton Rd. and follow it for 2.2 miles out of town, into the farmland and wooded areas. (Continued on next page...)

Directions to Broad Creek (Cont.):

After 2.2 miles you'll turn left onto Paddrick Rd. Paddrick Rd. ends in "T" with Rte 623 (Flintville Road).

Turn left onto 623.

Within a 1/4 mile, you'll go over a bridge over Broad Creek.

Go .9 miles after the end of the bridge and you'll get to three driveways on your left.

The first one is fairly wide, paved, has a substantial gate and looks like it goes into some kind of plant. The second is a narrow break in the shrubbery, is a dirt track and has a gate that is fairly near the road and behind the gate is a pile of debris/dirt that is impassable. Our gate is the third gate. It is also a dirt track, narrow and has shrubbery on both sides.

The gate itself is back from the road, say about 50 feet. There is a padlock on this gate. After you enter, you should close the gate but you do not necessarily need to lock it. You'll need to lock it when you finally leave.

Drive up the gravel road 0.3 mile to the open field, turning right onto the top of the hill.

Turn off your headlights if there are others there observing.

39deg 42.05 N; 076 deg 15.42 W.

Fine Optics Cleaning System

Cleaning Precision Coated Optical Lenses, Corrector Plates and Other Refractive Glass

From The Arkansas Sky Observatory (www.arksky.org)

Contributed by Bill Geertsen

Preface:

There are many, many variations of high precision, high reflectivity and high transmission coatings presently offered on the market for both amateur and professional scientists who use OPTICS in their respective lines of study. Smaller glass surfaces with high transmission coatings have always been seemingly easy to clean, since the smaller surface area is not as prone to spotting, sleeking and streaking of the cleaner used. On the other hand, large optical surfaces such as telescope lenses, corrector plates and optical glass "windows" are very difficult to properly clean without some residue being left behind as a result of cleaning.

The ARKANSAS SKY OBSERVATORY's new protocol for cleaning optical surfaces includes:

- 1) judging carefully when cleaning is actually necessary;
- 2) preparation of the optical surface for proper cleaning;
- 3) a new solution that combines the attributes of all previous formulae and results in very fast, easy, and streak-free results if used properly;
- 4) the proper new technique that is highly recommended for cleaning.

When To Clean Optics:

Although we are attempting to obtain the best possible light transmission efficiency from our optics by cleaning them free of deposits, film and debris, lock firmly in your memory that cleaning coated optical surfaces is the single-most damaging action that will be done to them, short of actual physical damage or breakage. No matter how careful, how delicate, nor what cleaning solution is used.....every time cleaned will result in a microscopically-reduced optical performance than before cleaning. Note that the coatings themselves –

regardless who makes them and from what they are made - are nothing more than molecule-thick deposits of a very delicate film left on the optical surface from a vacuum process in which air is evacuated and the gases of the coating materials are gently and uniformly distributed across the glass surface after the vacuum container is void of air.

This system is devoted to the cleaning of large astronomical refractive optics: lens, corrector, and other optical glass; however the techniques discussed here as well as the new ASO SuperPlus Solution is excellent for the cleaning of eyepieces, eyeglasses, binoculars, camera lenses and all other fine coated optical surface.

So...the ground rule here is: **CLEAN ONLY WHEN ABSOLUTELY NECESSARY.** In most cases, dusting alone will lead to tremendous improvement in performance and overall light transmission.

Preparation to Cleaning:

DUSTING OPTICAL SURFACES: Large area optical surfaces are frequently plagued by DUST, POLLEN, GRIT, DEBRIS and even human skin and airborne hair. If the surface of the glass is allowed to be exposed at a temperature **BELOW THE DEWPOINT**, these particulates will stick to the glass and will be stubborn to remove. However, for optimum performance, it is essential to, indeed, remove debris from the optical surface.

Your optical glass **MUST** be dusted when:

- 1) a flashlight held obliquely against the glass reveals a uniform and fairly thick layer of dust, etc;
- 2) when POLLEN is on the glass, as leaving pollen will result in "pollen sap" leaving a very difficult-to-remove stain on the surface;
- 3) **ALWAYS** prior to cleaning the glass with the solution and technique which follows.

Never clean optical glass without gently dusting first!

You will find in 3 out of 5 cases that merely dusting off the glass is sufficient to greatly enhance your performance back to optimum and that further physical cleaning is **NOT** necessary after dust removal. There can be a lot of smudges, stains, flecks and streaks on the glass before it actually begins to degrade your optical performance for all but the most exacting (i.e., high resolution planetary imaging, CCD spectrography and photometry, etc.) demands put upon your telescope.

To dust, use a **SQUARE-CUT** (not a tip-cut) very soft brush that is about 2" (50mm) wide with tapered bristles. I have found several excellent such brushes at Lowe's and Home Depot and other stores where quality painting supplies are sold. Look for the very soft and flexible "touch up" and/or "delicate trim" brushes....most of these are short-handled and have the bristles as an angled radius cut. Make sure that the bristles are incredibly soft; I use the "cheek method" for testing softness: take the brush out of its package and push the tiny ends of the bristles hard against the cheek of your face....if they do not "prick" then they are fine for optical use. Another tip on selecting a brush is the number of bristles....the **MORE** bristles on brushes just described, usually the softer and better the quality.

I start dusting by dusting the **METAL SURFACES** that surround the optics, ridding them of all debris first; just whisk away. Then start at the top of your glass and gently swipe the surface **IN ONE DIRECTION**....do **NOT** move back-and-forth with the brush. Stroke in only one direction. Do **NOT** rub....merely "pull" the brush across the surface and apply no pressure; let the brush do the work for you. Any particles that do not come off with such brush will be removed in subsequent cleaning with liquid if necessary.

The object of your dusting is to essential "move" all the particles to the bottom of the surface you are working on...once there you can brush them off the area and actually assist their removal by blowing gently against the areas being brushed.

USING COMPRESSED AIR: **DON'T**. Period. Dusting is easy, although it may take a little more time, and it is more effective. I have found that compressed air is virtually worthless for attempting to gently remove embedded particles on a glass surface and the chances of the liquid propellants within the can being expelled in liquid droplets against the glass is quite great.

The ASO SuperPlus Optical Cleaning Solution - How to mix it yourself!

There is NOTHING magic about the new concoction developed over a period of about five weeks here at the Arkansas Sky Observatory. SuperPlus Solution is quite simple, and indeed, there are many familiar components that are being used that have been touted in cleaning solutions before. Nonetheless, after hundreds of elixirs and hours later, this combination - in exactly the proportions given below - results in near-perfect results every time!

In striving for the "perfect cleaner" the following criteria were evaluated:

- 1) Streaking - the solution was required to dry streak free with minimal "dry rubbing" which can damage optical surfaces;
- 2) Spotting - the solution must dry spot-free with minimal rubbing;
- 3) Safety - the solution was required in all respects to be totally impervious to the optical coatings and totally safe for all variations of them on the market;
- 4) Simplicity - it needed to be something that anyone could mix up when needed with over-the-counter inexpensive components;
- 5) Sure-fire - it must work every time the first time....the less rubbing the better.

Experiments on all types of optical glass surfaces were conducted with EVERY cleaner offered by all makers and groups; the following SuperPlus Solution was derived as the "best of all of them" since all had some attributes that were worthy, with some extreme cases omitted. Interestingly although some of the solutions that have been previously offered were deemed very hazardous to the quality of cleaning and even the surfaces themselves, some components used within those solutions did HAVE MERIT and have been incorporated! You will be surprised perhaps at the simplicity of this.

HERE IS WHAT YOU WILL NEED:

Nearly all components should be available locally; suggested outlets for obtaining these are in parenthesis.

1. Distilled water (supermarkets)
2. "Pure" isopropyl alcohol (pharmacies, drug stores....may have to be ordered)
3. Coffee filters
4. "Regular" Windex, the blue kind (supermarket)
5. Kodak PhotoFlo solution (camera and photo houses only)
6. Pure combed cotton surgical swabs (some finer pharmacies, medical supply companies....ask your local M.D.!!)
7. Two "atomizers" or simple squirt bottles for dispensing liquids (Wal Mart or similar)
8. Box of KLEENEX [only!] pure white, no additives tissue (supermarket)
9. Quart mixing jars, very clean and sterile (try your cabinets!)
10. Sterile eye dropper (drug store).

Notes about the Ingredients:

What an how you combine these components, as well as HOW you use them will make or break your success in streak-free and perfect cleaning; please make note of the following:

Pure Isopropyl Alcohol - NEVER use "regular" isopropyl alcohol. Isopropyl is what you commonly see in stores as "Rubbing Alcohol." However, most on-the-shelf varieties is about 70% or less pure....the remaining 30% is impurities which WILL result in streaking and deposits on your glass. USE ONLY 91% OR HIGHER proof isopropyl....this is found on the same shelf typically, in very large and well-stocked pharmacies. If not, simply ask your pharmacist to order some! Expect to pay about double the price of the "store brand."

Windex - Many cleaning formulae suggest Windex, indeed from one of the largest optical houses in the world.

However, there has always been "something wrong" with Windex in that it leaves a ghostly film on optics. After much experimentation, I have found that it is the heavy impurities that are SUSPENDED in the solution that are responsible for the fog....you CAN get them out as you will see. NOTE that ONLY the blue Windex should be used. NEVER use any cleaner with vinegar on your optics.

Kodak Photo-Flo - If you have never used this before NOTE!!! This is extremely concentrated stuff and a tiny, tiny bit goes a very long way! We are talking DROPPER amounts here....NOT ounces. DO NOT USE MORE THAN RECOMMENDED....your results will be horrible.

Kleenex - ONLY USE pure white Kleenex, no other brands at all. Do not select Kleenex with "ultra softeners" or with scented oils. Only plain and simple pure white.

HERE IS HOW TO MIX ALL THIS STUFF:

You are making TWO solutions:

- 1) Solution 1 - Cleaning Solution: This is the active part of the cleaning and should be mixed very precisely in the quantities provided.
- 2) Solution 2 - Rinse Solution: This is ABSOLUTELY necessary for most cleaning session; however, you MAY find that you do NOT NEED the final solution if your optics dry streak-free (which likely they will!).

SOLUTION ONE: Cleaning Solution.

You are going to have much more solution of each component than need for one quart of final SuperPlus Cleaning Solution. Keep all left-over unused and unmixed components well sealed and marked for future use.

Step 1: FILTER THE WINDEX VIA THE COFFEE FILTER into a thoroughly washed and dried container; go ahead and filter the entire bottle as this is much simpler and more effective than attempting to filter one ounce.

Step 2: FILTER THE DISTILLED WATER using a second clean coffee filter into another jar. Yes, I know that distilled water is supposedly inclusion free, but trust me on this one.

Step 3: MIX..... In another quart jar, add the following (do NOT substitute nor change amounts!)

- a) the filtered and purified WINDEX - 1 ounce
- b) ALCOHOL - 1.5 ounce
- c) PHOTO-FLO - two drops...that's RIGHT, I said "two drops"....any more and you will be sorry. And I mean SMALL drops!! (about 1/16th ounce is pushing the limit)

Step 4: MIX together gently but do NOT shake.

Step 5: ADD 12 OUNCES OF Distilled water. I chose to mix my solution in empty quart plastic alcohol bottles; if doing so, merely fill the bottle to within 1" of the top.

Step 6: Pour liquid into your MARKED squirt bottle for use.

SOLUTION TWO: Rinse Solution.

In 12 ounces of filtered distilled water add TWO drops (only!!) of Photo-Flo solution. No more no less. Transfer liquid into SECOND MARKED squirt bottle.

You are now ready to CLEAN your optics.

The ASO SuperPlus Cleaning Technique - You CAN do it right! The FIRST time!

Tip #1:

CLEAN OPTICS ONLY IN THE DAYTIME WITH THE OPTICAL SURFACE "LOOKING" OUT OF A WINDOW OR TOWARD A BRIGHT OPEN SKY

Tip #2:

NEVER....NEVER...ATTEMPT TO SURFACE CLEAN LARGE OPTICS WHEN THE HUMIDITY IS ABOVE 65% !! Streaking will result. If you attempt to clean your optics when the humidity is high, you will be very disappointed in the results.

Tip #3:

PLAN TO USE AT LEAST ONE TISSUE PER INCH APERTURE BEING CLEANED....ALWAYS keep a dry tissue to the surface for best results!

There is no solution that will result in satisfactory cleaning if your technique is NOT good when cleaning. Unfortunately with cleaning large glass surfaces, you must normally move quickly, but gently in order to obtain a streak-free and spot-free result. If you follow this technique, you can move a bit more slowly and deliberately AND achieve the same results.

**** MAKE SURE YOU HAVE DUSTED OFF THE PARTICLES FROM THE GLASS PRIOR TO FURTHER CLEANING! (see above) ****

Step 1: Turn your telescope so that you are FACING the corrector plate or lens head-on; you are NOT going to use so much liquid that you need to be worried about cleaning solution getting away from you and down inside the retaining rings of the optics. Make yourself comfortable....you may be here a while! I prefer placing the telescope if possible in a position where I can sit down to clean. You must have a small table or area within reach where you will have your Synthetic Cotton Replacement Pads, solutions and Kleenex waiting.

Step 2: Imagine your corrector plate or lens in QUADRANTS or quarters, like large sections of pie. You are going to begin at the TOP left and work your way down to the BOTTOM left piece of pie.

Step 3: Gently shake the container (Solution ONE - Cleaner) for just a brief moment and spray a generous amount of liquid onto the Synthetic Cotton Replacement Pad, NOT the glass surface. You want the Synthetic Cotton Replacement Pad WET, but not dripping; make sure you hold the pad only on ONE side and do not TURN to use the side where your fingers have been.

Step 4: Begin in your upper left "quadrant" and gently daub (do NOT rub) this section until you have generously smeared the cleaning solution across the surface of ONLY that area. Never "push" the Synthetic Cotton Replacement Pad, only pull. Do NOT rub. The idea here is to ONLY move the liquid across the surface

to break the adhesion of film and dirt deposits against the glass. MOVE QUICKLY TO STEP 5.....

Step 5: Before the liquid begins to collect into large areas and before any drying takes place, immediately begin wiping the quadrant just soaked with KLEENEX tissue to dry it....to do this, you want to gently PULL the Kleenex across the surface in ONE DIRECTION ONLY...do NOT go back and forth as this will streak and will tear the tissue into endless amounts of clumps that will have to be removed from the surface. You will see the liquid rapidly drying behind you. Follow each swipe IMMEDIATELY with a DRY Kleenex tissue.
[Reminder: keep changing to a dry tissue constantly!!]

Step 6: When entire quadrant is reasonably dry, buff gently with a totally dry Kleenex; repeat a second time with another Kleenex while gently "puffing" a bit of your breath against the corrector plate or lens to expose possible areas of streaking.
[Reminder: keep changing to a dry tissue constantly!!]

Step 7: Repeat same procedure on remaining three quadrants with a bit of overlap on each.
[reminder: keep changing to a dry tissue constantly!!]

Step 8: Check each point where areas overlapped during cleaning and "touch up" using a fresh Synthetic Cotton Replacement Pad sprayed with a VERY SMALL amount of cleaner....you want this swab nearly dry, but just enough moisture to touch up defects in cleaning.

Step 9: Using your breath as a guide, gently "puff" against the glass while using a Synthetic Cotton Replacement Pad to buff the final cleaned surface to a high luster with not streaking!

Step 10: (OPTIONAL - USING THE RINSE SOLUTION)

This step is likely NOT necessary and should ONLY be used if there is any streaking left after the careful cleaning procedure outlined above. If there are problem areas, you should rinse your cleaned corrector/lens as follows:

- Spray a VERY SMALL amount of rinse solution onto the glass OR place some on a fresh Synthetic Cotton Replacement Pad.....you want only a tiny amount of liquid present to break the surface tension of the glass....remember, the glass is already cleaned from the CLEANING PROCEDURE. All you are attempting to do is to remove any streaks at this point.
- Gently rub the Synthetic Cotton Replacement Pad across the entire glass area quickly but very lightly and follow WITH YOUR OTHER HAND a fresh dry Kleenex tissue to absorb any moisture remaining from the first pass. This should take care of streaking very quickly.
- Again, buff the entire surface with a fresh and dry Synthetic Cotton Replacement Pad to finish.

Best of luck and take your time.....this solution and technique will work on all coated glass surfaces (NOT MIRRORS) and the solution is ideal as well for your binocular, eyepieces and camera lenses.

The key to success is: 1) take your time; 2) work in small areas; 3) use LOTS of dry Kleenex; and, 4) use ONLY the materials and techniques described.

Dr. Clay Sherrod
Arkansas Sky Observatory
www.arksky.org

There are mail restrictions (number of pages) on the snail-mail version. To get the most out of your Astro Views, you are encouraged to subscribe to the e-mail version. This is easily done by contacting Roy Troxel at rtroxel@comcast.net.

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