



# REFLECTIONS

## REFRACTIONS

### of the University Lowbrow Astronomers

April 2002



The University Lowbrow Astronomers is a club of Astronomy enthusiasts which meets on the third Friday of each month in the University of Michigan's Physics and Astronomy building (Dennison Hall, Room 130 or 807). Meetings begin at 7:30 PM and are open to the public. Public star parties are held twice a month at the University's Peach Mountain Observatory on North Territorial Road (1.1 miles west of Dexter-Pinkney Road; further directions at the end of the newsletter) on Saturdays before and after the new Moon. The party may be canceled if it's cloudy or very cold at sunset. For further information call (313) 480-4514.



*Photos by Clayton Kessler & Mark Deprest of Comet Ikeya-Zhang.*

*Clay's photo on the left taken in Tucson, AZ in March.*

*Mark's photo on the right taken at Lake Hudson State Rec. Area on March 16th during the clouded out Messier Marathon.*



#### This Month:

**April 6th** Public Open House and Star Party at the Peach Mt. Observatory

**April 13th** Public Open House and Star Party at the Peach Mt. Observatory. Also, an alternate date for a Messier Marathon at Lake Hudson State Recreation Area. Contact Mark Deprest for more info.

**April 19th** is the Lowbrow Meeting at 7:30pm in Room 130 of the Dennison Bldg. Election Night - cast your vote for the Club's Officers. **Also a**

"Astro-Stuff Swap Meet. Also note that our web site has a new URL: [www.umich.edu/~lowbrows/](http://www.umich.edu/~lowbrows/) Thanx Dave!!

#### Next Month:

**May 11th** Public Open House and Star Party at the Peach Mt. Observatory

**May 17th** is the Lowbrow Meeting at 7:30pm in Room 130 of the Dennison Bldg. Speaker will be Matthew Walker, "Shedding Some Light on Dark Matter"

**May 18th** Public Open House and Star Party at the Peach Mt. Observatory

# Michigan Messier Madness

By Christopher Sarnecki

Last month's March 16th found a number of Lowbrows at the Lake Hudson State Recreation area for the annual Messier Marathon. Most Lowbrows know this event is an opportunity to test your observing skills by attempting to observe as many Messier objects as possible during a single night. As many mid-west observers know it is often a challenge just to try to observe during this late winter period with clear skies as rare as light jacket temperatures. This year the weather had all the promise of being a totally clear night, Sun down to Sun up, and the temperature above freezing with a low humidity level. Pretty amazing when one thinks that all this was occurring on a Saturday night of the optimum Messier Marathon weekend. The event was fairly well attended with Lowbrows Mark Deprest, Milton French, Doug Nelle, Brian Ottum, Doug Scobel, and yours truly along with a half dozen participants from the Ford club observing from the east picnic area. Lowbrow Mike Huff tells us he observed with 25 others on the south beach area.

If all this was not enough I was about to have 'first light' with a new 18 inch F4.5 *Obsession* telescope. The scope took a year of waiting mostly to obtain the Nova Optics primary. When I did receive everything it was in the dead of winter. Becoming an old man I looked for excuses not to observe in sub freezing temperatures and the Michigan winter obliged me a never ending sequence of cloudy skies with few exceptions through January and February.

If you have ever attended an Messier Marathon you quickly learn that as darkness approaches your observing buddies become less sociable and more pensive. As the marathon is about to begin, no one wants to be left on the starting line when darkness falls. Knowing this, seasoned observers show up early and get everything ready. Initiating a new scope, I was anxious to have time to collimate the scope before beginning the marathon. One would think that the it should be easy to find an astronomical object such as a few day Moon in an F4.5 scope. Well, if the scope has never been aligned, it isn't. After a few moments of shear terror, Mark Deprest came to my aid and the Moon was found. (Thanks Mark). After the scope was alighted, it was off to the races.

Every marathoner needs to have a plan, an observing sequence. Pick up the really bright objects before it gets dark. M45, 42, 43, and 41 all fall to easing picking. Comet Ikeya-Zhang (C/2002 C1) was an early and constant favorite that night. As the sky darkens, M35 and M31 with it's satellite companions M32 and 110 are snapped up. All this fast action might make you think that you are God's gift to observing, but all of a sudden totally dark, and you are fumbling with your star charts

as you try to locate the likes of M77, 33, 79 and 74. M74, called the most difficult Messier in the best of skies, is often not located except by the more experienced observers in pristine skies. While I have seen it before at Lake Hudson, tonight wasn't too be. Soon you find your individual groove and the objects fall away with steady progress.

Some objects are just too beautiful to run past and I find myself stopping by the starry road to take in the sights. While I used to observe with moderately large scope, a Coulter 13 inch; having access to an 18 incher all to myself for the first time, is a photon consuming experience. My eyeballs were experiencing some of these familiar old friends like I was seeing them for the first time. Anyone who knows me knows I like my astronomy 'BIG and chunky'. Some of the eye-popping objects I just couldn't sprint by that night are...

**M35** - This fine Mag 5 galactic star cluster located at the toes of the Gemini twins is a sparkling jewel box of stars. M35 is one of the first objects that beginners locate on their own probably due to its ease of locating it, but what makes this cluster stand out for me is the adjacent faint open cluster NGC 2158 one half degree away from M35. M35 is approximately 2700 light years away, while NGC 2158 is about 16,000 light years away. NGC 2158 has a combined luminosity of Mag 8.6. M35 appears in the eyepiece as a large cluster with many bright stars, while NGC 2158 is small with many faint stars packed together in a tight little area. It is possible to squeeze both M35 and NGC 2158 in to the same low power field and experience something rarely seen in any astronomical paring. That is the illusion of distance in the eyepiece. Years ago in the same month of March, I experienced a 'take-your-breath-away' view of M35 and NGC 2158 I will never forget. The sky was absolutely transparent. These two objects gave me the feeling of flying towards them in an imaginary space craft. A 3-D view I still see in my mind's eye today. Try looking at these objects and see if you can't experience the same. You will cherish the sight.

**M76** - I have never been a fan of the Little Dumbbell, M76. This planetary nebula, shinning at Mag 10 has always looked like so much as a nondescript blob. Nothing more. Tonight with the clear skies of Lake Hudson and more aperture than usual M76 looked more like its brighter cousin M27. That night the Little Dumbbell was the big Dumbbell. Stop by next fall, when this object is observable again, and I'll show you what I mean.

**Comet Ikeya-Zhang (C/2002 C1)** - Appearing in the western sky at between Mag 3 - 4. The comet was naked eye. So was a nice dust tail. Man is that comet GREEN! I seen a few comets in my time, but never have I seen a

such green nucleus. The coma was big and bright as you might expect for a naked eye comet. Telescopically the tail started where the coma ended and was filled with countless filamentary streamers that went right off the field of view and well into the next field of view. The bright dust tail continued for approximately four degrees. The blue ion tail was not seen. Perhaps this was because the proximity to the Sun, now well placed below the horizon or due to the lack of observing time allowed in our marathon pace. It is recommended to return to this object again and again as naked eye comets are a rarity.

**M46** - This Mag 6 open cluster, located in Puppis is not the brightest cluster in celestial sea. It's claim to fame is the planetary nebula NGC 2438 that is easily visible within the cluster. Since M46 is winter object, not many get to experience this unique pairing. I found myself stopping the marathon to study the little planetary nebula wrapped in the stars of the open cluster. I since have read that the planetary may be a foreground object, not part of the cluster after all. On the scale of sheer beauty, this object is one of my all time favorite.

**M81 and M82** - Everyone knows these two popular galaxies located in Ursa Major. At the three hour mark of our Messier Marathon, I found myself tracking down these bright objects. Bright I thought. Well why can't I seem to locate two galaxies in a single field that I must have seen hundreds of times before? Our sky was starting to go to white or beginning to be impacted by cloud cover. In winter transitional observing the sky can be come clouded over in a heartbeat. The upper level moisture condenses out as water vapor due to air temperature cooling and clouds form. Well I knew the sky was becoming clouded over, but on a marathon one presses on. The game is quantify, not quality. I found a bright face on galaxy. M81 I thought. This spiral galaxy has a bright nucleus. I saw none of this. What I did see was a large thumb print of a galaxy. OK, Now M82 should be in the same field, just pan around M81 and M82 will show itself. Both galaxies are about Mag 8. No paired galaxies were found. What goes? Just then the skies went south. Time to stop observing and start socializing. After a short time a 'sucker hole' opened up and it was back to the scopes. Well I found M 81 and 82, but not before finding the 'Thumb print' galaxy. As it turned out to be, NGC 3077 is a Mag 9.8 large round M81 imposter. It is not easy using an 18 incher for Messier Marathoning. After I figured this out, I found M81 and 82. M82 is a peculiar galaxy, meaning this galaxy type is a general term for galaxy that generally defy common description for more common spiral and elliptical galaxies. M82 is an edge on galaxy and in the 18 incher 'molting' can be seen above and below the plane of the galaxy. "Just like

in the long exposure photographs" I thought. I have read descriptions of other observers that have claimed to have seen the molting in M82. Now I have seen it and what a sight it is. I will be back at this foreign shore for more studies at a later date when my marathon track shoes are idle.

All too fast the night was over. Clouded in and no amount of wishes for 'sucker holes' was going to help. In a short three hours of observing I probably located too few objects to keep pace with my fellow Lowbrow marathoners. But hey, I couldn't help myself. I had to stop at sights that called out to me. I actually like Michigan marathoning for its lack of accommodating skies that would otherwise force me to stay on task and dutifully finish a task that I never wanted to race through in one night. I prefer to take the slower path. Approach each Messier object as I would a work of art and appreciate it for what it is. With some luck I will continue to be disappointed by Michigan skies in March and be allowed to walk through Messier's catalog at a pace that allows me to appreciate each object in my own way. After more than ten years of observing I have never finished a Messier Marathon and at this pace I don't ever expect I will.

*Below: Chris Sarnecki and his observation table - accessories case.*



## **TWO GREAT VIEWING TREATS WITH JUPITER!**

**by Harry L. Juday**

I know that all of you have many favorite viewing memories. Who can ever forget their first view of Saturn through a decent sized telescope ? I just couldn't stop looking on mine.

But two of my favorite viewing experience occurred with Jupiter.

On the night of Oct. 12, 1999 the "seeing" conditions were probably the best I have ever experienced.

I wheeled my still then new to me 18" Dobs out to my usual viewing site, about 50 feet from my garage door, with a great, down to the distant trees, view from SE to SW and good viewing everywhere else except NE to SE (Ann Arbor, thru the Detroit Metroplex and a bit of sky glow from Saline). The scope is an AstroSystems kit with Galaxy mirrors that a friend from the Ford club had masterfully constructed, only to decide that it was too big to keep hauling around and as his home skies were in the middle of a city, he could not really use it there.

I, unfortunately do not have much in the way of weather conditions or time data for this event, but it was a 3 day old Moon (looked it up), and as I remember, very pleasant out.

I checked collimation and spotter scope centering (sometimes the collimation shifts a bit as I wheel the scope in and out of the garage, due to the mirror being held in a sling).

Jupiter was well up. I put in my 9mm Nagler (229x) and slewed the scope to it, my eyes nearly popped out of my head. The clarity of the view was breathtaking. I view the planets every chance I get, but this was like nothing I had ever seen. The major bands were extremely well defined and showed swirling features that I had never viewed before. The great Red Spot was clearly visible with a white space surrounding it and a noticeable darkening of the major band where it was indented around it. There was detail between the major bands, with what appeared as swirling and streaking lines visible. There was one complete narrow band and two partial band below (scope view, UD&BW ) the one major band and a complete narrow band, bulged out around the GRS above the other. The rest of the planet was slightly darkened, as if it were in shadow.

After quite a while of viewing, I knew that this was so spectacular that I somehow had to record it. I got out some 8 1/2" x 11" note paper and started sketching. I spent the next couple of hours viewing and sketching. I sketched a 5 1/2" dia. circle with all of the detail that I could see. It is kind of crude by most standards, but every time I look at it, it brings back that great sight, one which I have not experienced since, nor do I really expect to from here. Arizona maybe. Someday.

I didn't even bother to look at anything else that night. I had savored a wonderful sight, and I was grateful.

My second "GREAT JUPITER VIEWING EVENT" happened on the night of the 29th/30th of September, 2000.

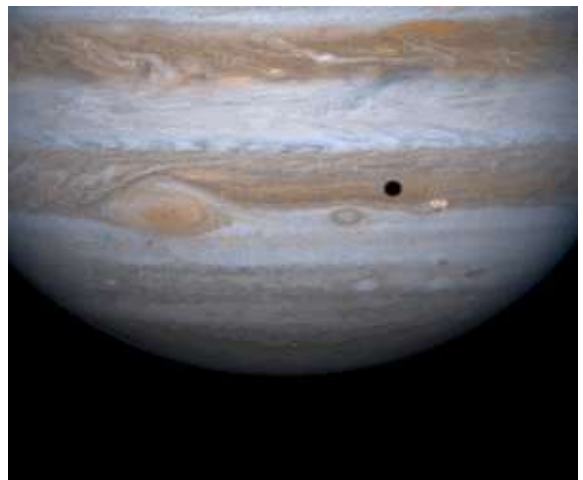
The same location, but the conditions were not even close to the first one. At 10:00PM it was 45dF, with very light to calm winds from the S, 75% humidity and the sky was slightly hazy. The evening started out with the air fairly steady, I could split the double-double at 147x, but M13 was not crisp at a higher power. The wonderful Jet Stream was probably parked overhead, as usual, and creating turbulence that becomes quite evident in the 18". I viewed a few NGC's, noting NGC 7789 in Cas., but the wind was picking up a bit and the seeing seemed to be deteriorating.

I hadn't bothered to look at the planets, as I figured they would not be very sharp, due to the seeing conditions. About 2:45 AM on the 30th, I finally slewed to Jupiter, not expecting to see much. I looked, and did a double take.

Right in the middle of the major bands, on the right limb (scope view), was a bright point of light. Either Jupiter was occulting a large star, or one of its Moons, or a Moon was rising. I quickly ruled out the star occultation idea as I subscribe to all of the S&T Astro-Alerts, and nothing had been mentioned.

I had put in the 9mm (299x), and the view was not sharp. I quickly stepped down to my 14mm Radian (147x) and got a better view. lo (I looked it up later), was rising right between the 2 major bands. I was spell bound. I watched for about an hour, until it was well clear of Jupiter's horizon. Even though the seeing was rather poor, it was a sight that I will not soon forget. Perhaps many of you have had the same experience in your many years of viewing. I imagine the opportunity to see one of Jupiter's Moons rise from, or set behind the planet occurs fairly often, (I am sure someone in the club can tell me how many times each year), but for me it was a first, that I hope to repeat. It makes for some great viewing.

My only regret was that I was not able to photograph, or better yet, video it. What a great video that would have made, poor seeing and all.



## **HAS ANYONE ELSE NOTICED IT, OR IS IT JUST ME?** by Harry L. Juday

As stated in other articles, I have only been an active amateur astronomer since Mar. 1997. However, in those few short years, I have noticed a real deterioration in the darkness of the night sky. To me there was a major change in 1999, and it has not gotten any better.

Until July of 1998, all of my viewing was done from Ford Field in Dearborn, the outskirts of the city of Frankfort Ky., or the Ford AAC viewing site at Island Lake, so it was not really possible to get a real good object evaluation of the sky quality (plus, I was trying to learn what good "seeing" meant).

In 1998 we moved to our current home on Parker Road in Freedom Township, and I discovered what "Country Skies" could be like. Not Arizona desert or Colorado mountain skies, but they certainly appeared black to me, especially after 2:00 AM.

I have found that to be the magic hour when the darkness of the skies seems to improve, (to me at least), at every place I have viewed. Granted that I have done almost all of my viewing from Urban or near Urban sites, but it seems that a lot of advertising lighting must go off about that time (3:00 AM for some of it during DST).

However, since late 1998, early 1999, without time for wholesale major increases in lighting near our home, or in this general area, the night skies are not "black" any more. A dark charcoal gray seems to be about as good as they get, even at the rare times I have been to Lake Hudson.

The Earth has experienced numerous volcanic eruptions and major fires (e.g. Mexico, Florida, the U.S. West), since 1998 that seem to have left a still lingering haze in the air.

To check this out, all you have to do is take a very powerful flashlight and/or spotlight outside some night and shine it straight up, any time of the year, (excepting during Star Parties or viewing sessions with others present, you could get the light put where it will hurt). The amount of particles in the air is shocking, and probably a quick answer to why our area skies are not really black at night.

It seems to me that this "dirty air", with all of the South East Michigan lights bouncing off of it, is a large contributor to our skies being various shades of gray, not black, except for very rare occasions (there is noticeable improvement after major windy periods, which leads me to believe that this "dirty air", plays a large role in the darkness of our local skies).

In the book "Orbit", a collection of great Astronaut photographs from space, Astronaut Dr. Jay Apt, states (page 128), that on his first mission, in 1991, the sky appeared very clear. On his second mission in 1992, less than 2 months after Mt. Pinatubo, in the Philippines exploded, the ascending shuttle went thru 2 separate layers of volcanic dust at about

100,000 feet of altitude. He felt that this dust made a real difference in the quality of Earth viewing on that mission.

Well, we can't do anything about volcanoes erupting and very little about major fires in our country and others (except to make sure we never start any), so what is the point of this article anyway?

1. A Question: Have any of you longtime astronomers out there noticed a decrease in local sky darkness that you can attribute to "dirty air"?

Yes, I know that we have had megafold increases in the amount of light output in this area and across our country in the last few years, which gets reflected and bounced around in whatever atmosphere is present. But, it seems to me that if the air were cleaner, that would help the darkness of the sky also.

I would like to hear the thoughts of others on this subject. Perhaps we can discuss this issue at the Club some time.

2. We can, of course, support the Dark Sky Association and other dark sky efforts. Tell your elected officials.

3. We can support efforts to clean up the air pollution. Again, tell your elected official, at all levels.

4. Mark was desperate for articles.

### **For Sale**

***Vixen LV Lanthanum Eyepieces. \$80.00 each.***

***20mm eye relief and complete with caps and boxes except as noted.***

6mm

7mm - no box and missing bottom cap

10mm

12mm - no box

15mm

20mm

25mm

***Sirius Plössl Eyepieces - Priced as indicated.***

7.5mm - \$35

40mm - \$45

***Meade Finder Scope - \$150***

9 x 60 blue tube, right angle, illuminated reticule finder scope with complete mount and 60mm cap.

***Filters - Priced as indicated***

1.25 inch "no brand" UHC - \$70

Rated the best filter for observing nebulae.

1.25 inch Orion variable polarizer - \$25

Excellent for lunar observations.

***DMR Laser Collimator - \$80***

5mw laser source in a precision machined and black anodized 1.25 inch focus tube mount. Uses economical 9 volt battery power.

***Tom Stoner - (734) 663-3232 - tgstoner@umich.edu***

## Comets of April 2002

By Mark S Deprest

In the month of April we will be treated to 6 comets of magnitudes brighter than 12.0. I know 12.0? That's not what I would call blazin' up the sky, but that is bright enough to be seen in a 10" scope! On the pages that follow I have printed some charts that show the paths of these "inner-solar system's" visitors. I have also provided the "Orbital Elements" of these 6 comets. Good Luck ... may your optics be clean and collimated, and your skies be clear and dark!

### **Snyder-Murakami (C/2002 E2) mag 10.2 to 10.8**

Perihelion distance: 1.4662870 AU

#### **Orbital elements:**

Eccentricity: 1.0000000

Inclination of orbit: 92.5454000 degrees

Argument of perihelion: 9.0221000 degrees

Long. Ascending node: 244.5788000 degrees

Date of perihelion: JD 2452327.27740 (21 Feb 2002 18:39:27.3)

Absolute magnitude: 7.5

Slope: 4

### **LINEAR (C/2000 WM1) mag 9.9 to 11.0**

Perihelion distance: 0.5553300 AU

#### **Orbital elements:**

Eccentricity: 1.0002620

Inclination of orbit: 72.5520000 degrees

Argument of perihelion: 276.7731000 degrees

Long. Ascending node: 237.8958000 degrees

Date of perihelion: JD 2452297.17340 (22 Jan 2002 16:09:41.7)

Absolute magnitude: 7.5

Slope: 4

### **P/Pons-Winnecke (7P) mag 11.6 to 10.9**

Period of orbit: 6.37 years (2328.0 days)

Perihelion distance: 1.2581990 AU

Aphelion distance: 5.62 AU

#### **Orbital elements:**

Semimajor axis: 3.4376270 AU

Eccentricity: 0.6339920

Inclination of orbit: 22.2848000 degrees

Argument of perihelion: 172.2926000 degrees

Long. Ascending node: 93.4504000 degrees

Date of perihelion: JD 2452410.23130 (15 May 2002 17:33:04.3)

Absolute magnitude: 10

Slope: 6

### **Utsunomiya (C/2002 F1) mag 6.8 to 5.8**

Perihelion distance: 0.4384450 AU

#### **Orbital elements:**

Eccentricity: 1.0000000

Inclination of orbit: 80.8641000 degrees

Argument of perihelion: 125.8755000 degrees

Long. Ascending node: 289.0275000 degrees

Date of perihelion: JD 2452387.39610 (22 Apr 2002 21:30:23.0)

Absolute magnitude: 8.5

Slope: 4

### **Ikeya-Zhang (C/2002 C1) mag 3.9 to 5.3**

Period of orbit: 362.57 years (132428.3 days)

Perihelion distance: 0.5070850 AU

Aphelion distance: 101.18 AU

#### **Orbital elements:**

Semimajor axis: 50.8457836 AU

Eccentricity: 0.9900270

Inclination of orbit: 28.1217000 degrees

Argument of perihelion: 34.6718000 degrees

Long. Ascending node: 93.3677000 degrees

Date of perihelion: JD 2452352.48330 (18 Mar 2002 23:35:57.1)

Absolute magnitude: 11.0

Slope: 4

### **LONEOS (C/2001 OG108) mag 10.3 to 11.0**

Period of orbit: 48.51 years (17719.3 days)

Perihelion distance: 0.9940840 AU

Aphelion distance: 25.61 AU

#### **Orbital elements:**

Semimajor axis: 13.3014518 AU

Eccentricity: 0.9252650

Inclination of orbit: 80.2456000 degrees

Argument of perihelion: 116.4178000 degrees

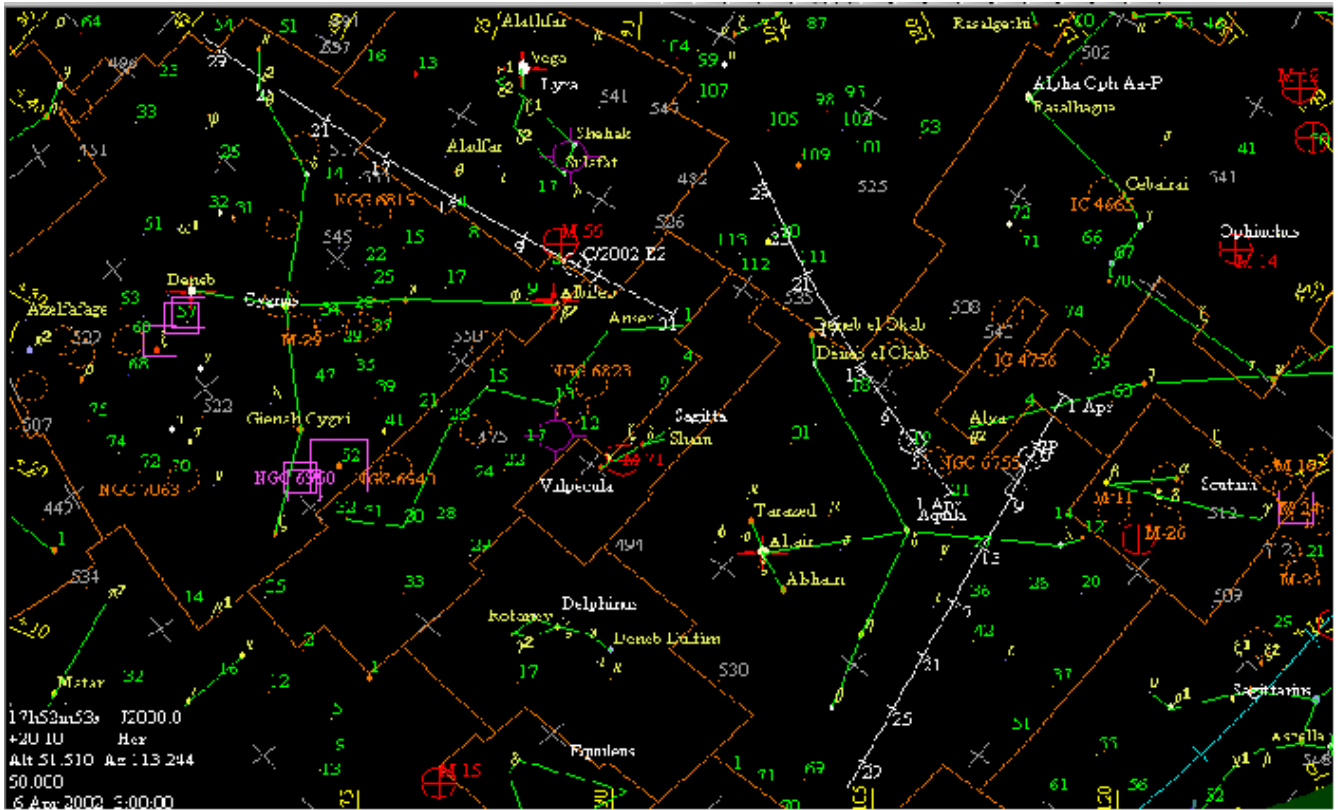
Long. Ascending node: 10.5554000 degrees

Date of perihelion: JD 2452348.70730 (15 Mar 2002 4:58:30.7)

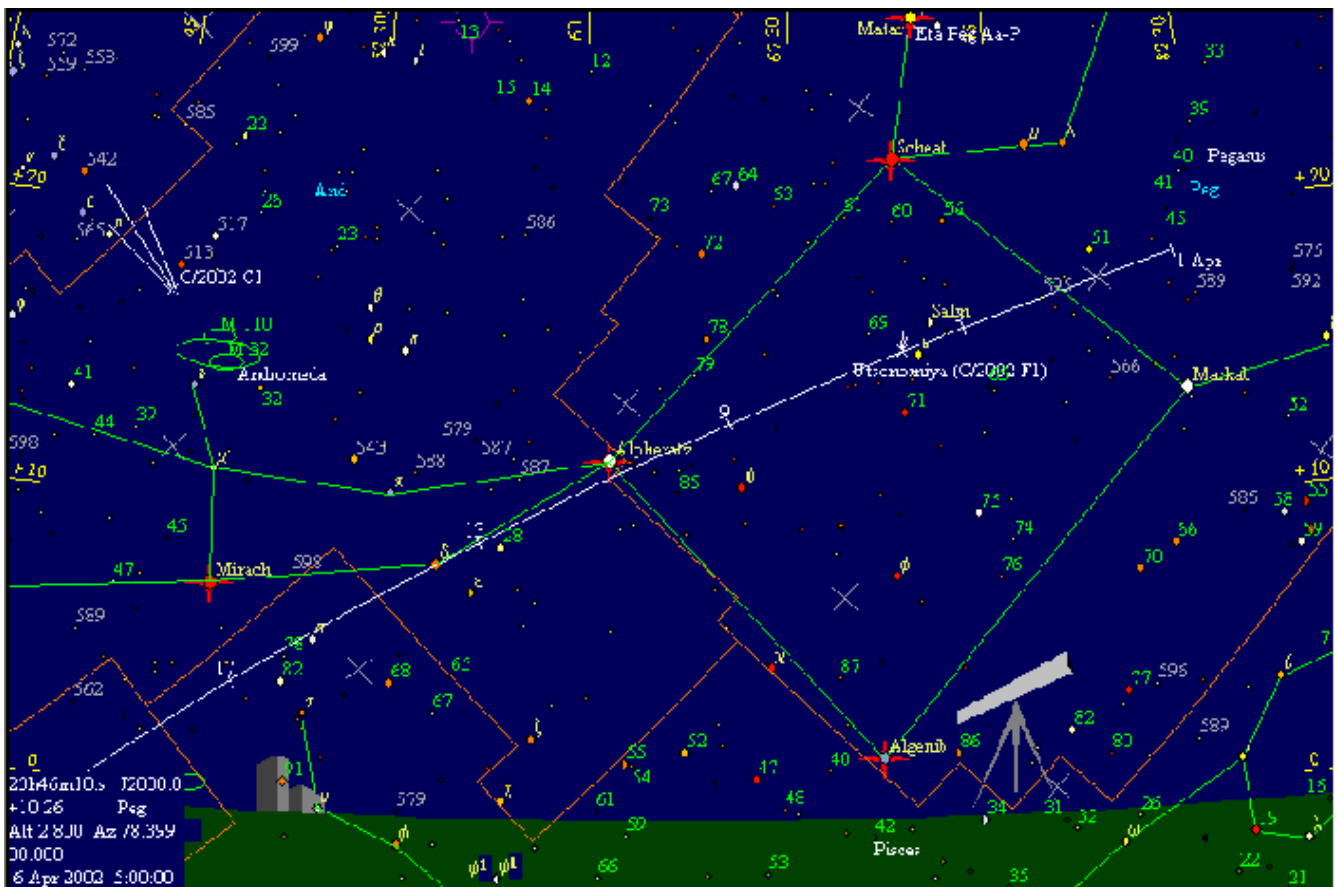
Absolute magnitude: 11.0

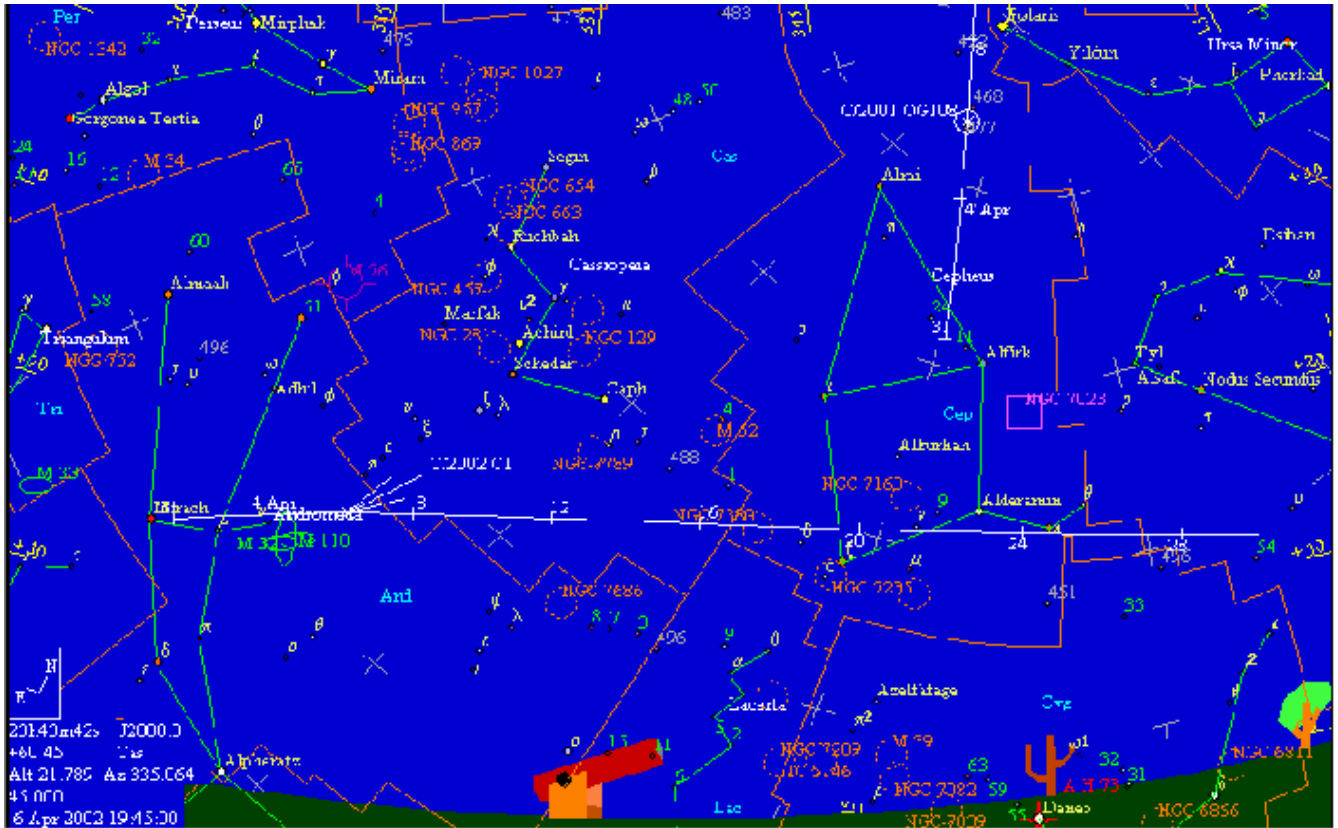
Slope: 4



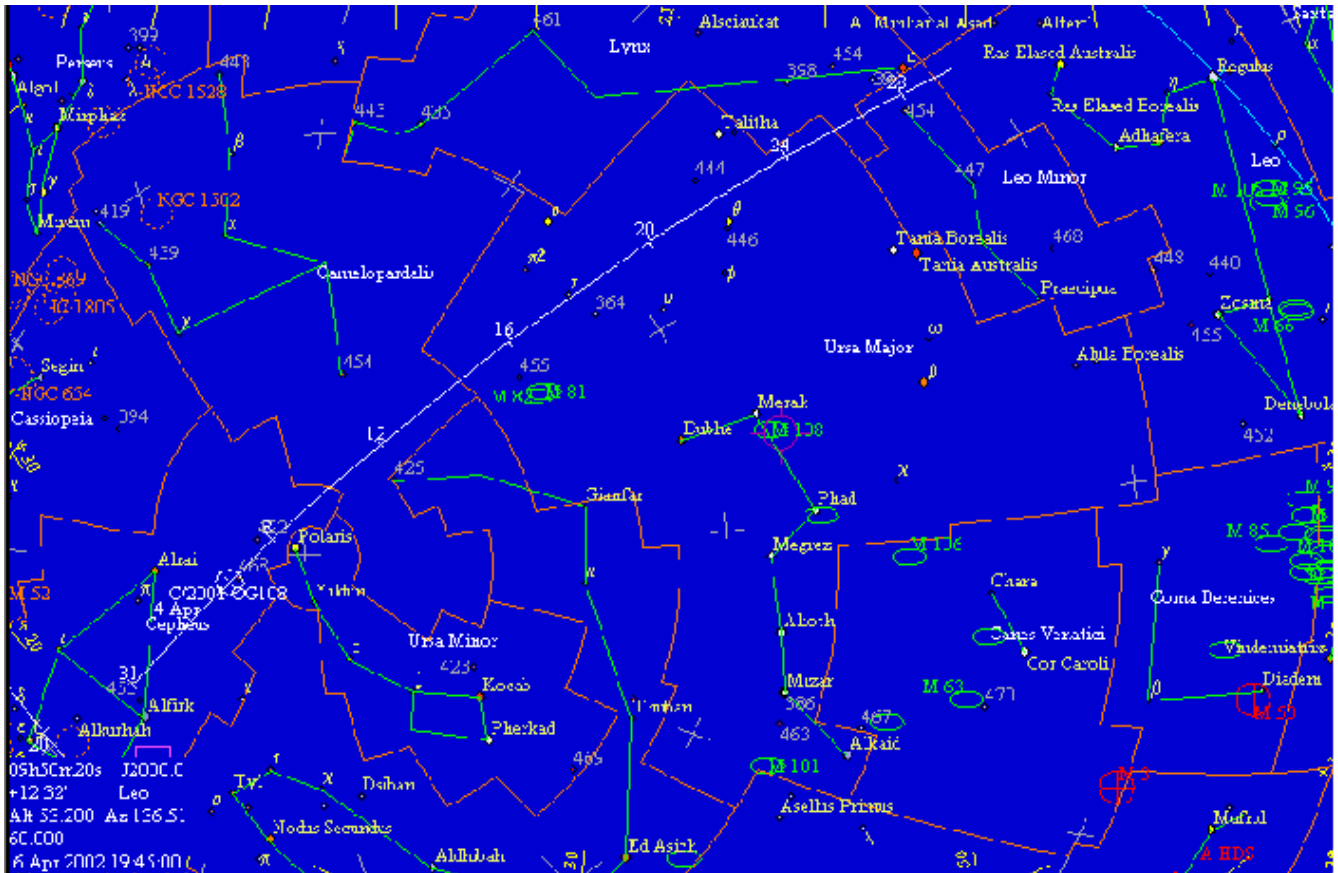


Above: Three comets in the wee hours of the morning. Below: Utsunomiya (C/2002 F1) is a predawn sight.





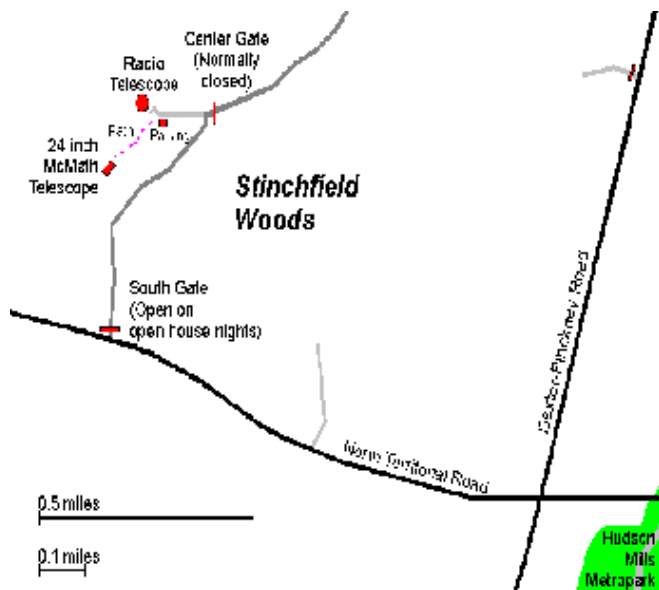
Above: Comet Ikeya-Zhang (C/2002 C1) moves north. Below: Loneos (C/2001 OG108) stays circumpolar.





## Places and Times:

Dennison Hall, also known as The University of Michigan's Physics and Astronomy building, is the site of the monthly meeting of the University Lowbrow Astronomers. It is found in Ann Arbor on Church Street about one block north of South University Avenue. The meeting is held in room 130. Monthly meetings of the Lowbrows are held on the 3rd Friday of each month at 7:30 PM. During the summer months, and when weather permits, a club observing session at Peach Mountain will follow the meeting.



Peach Mountain Observatory is the home of The University of Michigan's 25 meter radio telescope as well as the University's McMath 24 inch telescope which is maintained by the Lowbrows. The observatory is located northwest of Dexter. The entrance is on North Territorial Road, 1.1 miles west of Dexter-Pinckney Road. A small maize-and-blue sign marks the gate. Follow the gravel road one mile to a parking area near the radio telescopes. Walk along the path between the two fenced in areas (about 300 feet) to reach the McMath telescope building.

## Public Star Parties:

Public Open House/Star Parties are held on the Saturday before and after each new Moon at the Peach Mountain Observatory. Star Parties are canceled if the sky is cloudy at sunset or the temperature is below 10 degrees F. Call 480-4514 for a recorded message on the afternoon of a scheduled Star Party to check on the status. Many members bring their telescopes and visitors are welcome to do likewise. Peach Mountain is home to millions of hungry mosquitoes - bring insect repellent, and it does get cold at night so dress warmly!

Amateur Telescope Making Group meets monthly, with the location rotating among member's houses. See the calendar on the front cover page for the time and location of next meeting.

## Membership:

Membership dues in the University Lowbrow Astronomers are \$20 per year for individuals or families, and \$12 per year for students and seniors (age 55/+). This entitles you to the monthly REFLECTIONS newsletter and the use of the 24" McMath telescope (after some training). Dues can be paid to the club treasurer **Charlie Nielsen** at the monthly meeting or by mail at this address:

**6655 Jackson Road #415  
Ann Arbor, MI 48103**

## Magazines:

Members of the University Lowbrow Astronomers can get a discount on these magazine subscriptions:  
Sky and Telescope: \$29.95 / year  
Astronomy: \$29.00 / year

For more information contact the club Treasurer. Members renewing subscriptions are reminded to send your renewal notice along with your check when applying through the club Treasurer. Make the check payable to "University Lowbrow Astronomers".

## Newsletter Contributions:

Members and (non-members) are encouraged to write about any astronomy related topic of interest. Call or E-mail to Newsletter Editors at:

**Mark Deprest (734)223-0262 [msdeprest@comcast.net](mailto:msdeprest@comcast.net)**

**Bernard Friberg (743)761-1875 [bfriberg@aol.com](mailto:bfriberg@aol.com)**

to discuss length and format. Announcements and articles are due by the first Friday of each month.

## Telephone Numbers:

President:	D.C. Moons	
Vice Presidents:	Dave Snyder	(734)747-6537
	Paul Walkowski	(734)662-0145
	Doug Warshow	(734)998-1158
Treasurer:	Charlie Nielsen	(734)747-6585
Observatory Dir.:	Bernard Friberg	(734)761-1875
Newsletter Editors:	Mark Deprest	(734)662-5719
	Bernard Friberg	(734)761-1875
Parking Enforcement	Lorna Simmons	(734)525-5731
Keyholders:	Fred Schebor	(734)426-2363
	Mark Deprest	(734)662-5719

## Lowbrow's Home Page:

<http://www.umich.edu/~lowbrows/>

Dave Snyder, webmaster



*Photos by Clayton Kessler & Mark Deprest of Comet Ikeya-Zhang.*

*Clay's photo on the left and Mark's photo on the right were both taken on March 30th and show the comet moving past the 2.1 magnitude star Mirach in Andromeda.*

*Clayton had obviously darker skies out west of Manchester, MI than Mark at Sugar Bush Park in Ann Arbor, MI*



UNIVERSITY LOWBROW  
ASTRONOMERS  
3684 Middleton Drive  
Ann Arbor, Michigan 48105



Lowbrow's WWW Home Page:  
[www.astro.lsa.umich.edu/lowbrows.html](http://www.astro.lsa.umich.edu/lowbrows.html)  
Check your membership expiration date on the mailing label!