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## REGIME CHANGE, STARSCAN

Hi, folks. I'm Ken Steele and I'm your new Starscan editor. After many years of steering the Starscan to newer and better things, the previous editor, Ken Lester, has decided to take a much deserved break. He's managed to talk me into taking over for him (i.e. he has the only negatives, so I didn't really have a choice!)

This first issue (October 2006) is going to be in a pretty rough state. Hopefully, by November things will start to look a little more polished. I'm going to need input from everyone if this is going to continue to be a newsletter for the everyday club member.

If you want to write a story about your observing adventures, feel free to do so. I want to know what you did on the latest trip, what you experienced at the last star party, what's your favorite astronomical memory, what's your latest project?

Sometimes I'll ask the club as a whole for a particular memory. For instance, could all of you send me a one paragraph story about your first telescope / pair of binoculars – how old were you, what type of scope was it, what did you look at, that sort of thing? Do it by the end of October, and I'll try to have an article written encompassing all of you and your first experiences with astronomy. What experiences do we have in common? What about our experiences is unique? I think it would be interesting to find out.

Ken Lester leaves some big shoes for me to fill, and it's going to be rough for awhile, but with your help, I'm confident I can keep the newsletter relevant to our members for years to come.

Please submit all articles to [Psteele2@houston.rr.com](mailto:Psteele2@houston.rr.com)

All articles should be in TXT format or Word format (preferably 11pt Arial). Photos should be JPG or other common picture format.

Ken Steele, Starscan Editor

# Tracking STS-115

Aldora Louw

Pictures: David Louw

STS-115 was originally scheduled to launch on Sunday August 27, 2006. The timing could not be better. David and I would be spending the week of August 21st in Orlando, Florida for training. This training is an annual event and I usually arrange a visit to Kennedy Space Center after the training. This year the training happened to overlap with my birthday and my birthday present from me to me was for David and me to attend ATX (Astronaut Training experience) on August 26<sup>th</sup>. So we were already going to be in the KSC area on launch day. At the August JSCAS meeting I told Triple Nickel about the planned trip and about how excited I was because I had purchased launch tickets. Triple offered to see if he could make our launch tickets better. Triple did not manage to make the tickets better - he managed to make them unbelievable. Somehow Triple managed to get us passes to view the launch from the VIP viewing area. The VIP viewing area is only about 3.5 miles from the launch pads.

Our training ended at lunch time, Friday August 25<sup>th</sup>. On the way to Cocoa Beach we drove through the outskirts of a large storm which was producing a lot of lightning. This lightning would prove to cause the first delay in STS-115's launch. During the storm, lightning struck the pad; the launch was delayed to allow engineers to verify that the lightning conductors on the pad had functioned correctly and that the



shuttle was not harmed by the strike. All the components of the shuttle were cleared on Monday, but then another factor blew in. Tropical storm Ernesto, which up till then had not posed a threat to the launch changed its course and was heading towards the Cape. The weather in Cape Canaveral was very pleasant, and there really were no indications of the storm that was approaching. We saw an almost full arc rainbow on Sunday afternoon. On Monday the decision to roll back to the VAB was announced during the morning press conference. As the press conference was coming to a close, Triple called to let us know that he was

heading back to Houston. Initially we wanted to stay and watch the stack being rolled back, but after looking at what had then become Hurricane Ernesto's track we decided it would be best to leave. We returned to Houston on Monday afternoon determined to return to see STS-115 launch.

The rollback started early on Tuesday morning. Halfway through the rollback Ernesto's projected track changed again and Mike Leinbach (NASA Shuttle Director) made the suggestion to return the stack to the launch pad. This was funny because earlier that week at a press conference one of the reporters asked if NASA would consider stopping a rollback halfway and return the stack to the launch pad if Ernesto's track changed during the rollback. Mike Leinbach's reply was that it had never been done before and if they changed direction during the rollback he would buy the reporter dinner. I hope the reporter got his dinner! STS-115 was returned to the launch pad to weather the storm. The storm came through on Wednesday and on Thursday evaluations to determine if the Shuttle had been damaged began. By the end of day Thursday, an announcement was made that the next launch attempt would be on Wednesday September 6th. Triple arranged to keep our names on the VIP list. I booked our dogs into Rover Oaks (their kennel) and told everybody at work that I would be working from Florida during the next week. With all that done we were ready for the launch.

We left Houston on Tuesday (September 5<sup>th</sup>) afternoon and arrived in Cocoa Beach around 20:30. We went to Grills for dinner. Grills became our favorite restaurant during the time we spent in Cape Canaveral. They have a great tuna sandwich (all the other tuna dishes are really good too). They also have

really good rock shrimp. Thanks Triple for pointing us to Grills and for the tuna sandwich recommendation.

At approximately 5:00 on Wednesday (September 6<sup>th</sup>) morning it was announced that the launch was



going to be postponed because of a voltage spike in one of the fuel cells. After a lot of discussion and research it was determined that they could fly with this condition and the launch was rescheduled for Friday September 8, 2006 at 11:45. This meant we had two days to spend in Cocoa beach waiting for the launch. Of course we both had work to do, but we arranged our work schedules so that we could spend some time exploring the area. We decided to visit the Kennedy Space Center so that we could see the shuttle on the launch pad. It is not often that you get to see the shuttle on the pad with the retractable service arm moved away from the shuttle.

On Thursday night the moon was supposed to be closer to earth than what it usually is. We thought this would be an opportunity to get a few good pictures of the moon, but the clouds did not agree with that idea.



Finally Friday arrived. I was so excited I could not sleep on Thursday night. I was like a five year old the night before Christmas. We arrived at KSC at 8:30 and stood in line to get through security. We proceeded to guest services to get our launch packet and our bus passes. We boarded the bus and were on our way to the Banana Creek viewing area. The viewing site was great. You could see both the launch pads and the VAB from the viewing area, and of course there were count down clocks. We had to

take photos of ourselves in front of one of the count down clocks! The count down continued until we got to the T-9 hold.

During the hold Triple sent me an SMS letting me know the launch had been scrubbed for 24 hours. A faulty ECO sensor on the external fuel tank was to blame for the scrub. NASA would have to de-tank and re-tank to evaluate the behavior of the ECO sensor. Part of the Tyvek cover for one of the thrusters, had come off during the storm the previous night. However it was determined that it was OK to fly with part



of the cover missing. Once we realized that we were not going to see a launch that day we reluctantly boarded the bus and returned to the KSC visitor's center. Although we did not see a launch we did see some wild life. KSC is on Merritt Island which is a nature preserve. It is not uncommon to see alligators swimming around in the water. There were a few gators in Banana creek – I guess they were also there to see the launch.

Friday night was pretty much a repeat of the previous night. I was so excited for the launch the next day that I struggled to sleep. I was awake every half hour. Eventually 6:00 rolled around and I could get up and get ready to leave. I woke David up and kicked him out of bed. The excitement started to mount as we drove to KSC. We got onto the bus and arrived at the Banana Creek viewing facility. The reading on the clock was 1:43 when we got to the viewing area. A T-38 flew over head and did a cool turn. The chief astronaut flies the T-38 before the launch to do weather reconnaissance. Shortly after that an announcement was made that the STA (shuttle training aircraft) was going to take off to do weather reconnaissance. I heard the STA take off but could not see it. A few minutes later I caught sight of it and saw it do a test landing. It was incredible to see it falling out of the sky like a brick. Triple was not flying the STA that day; he was working at Ellington Field.



We went into the T-20 hold and came out of that and then we went into the T-9 hold. This was the tensest part of the day. This was the last hold before we would know whether we would launch or not. With about 10 minutes left in the hold Triple sent an SMS saying “Everything is a GO for launch! You are about to see the greatest show on earth” This message caused the level of excitement to increase. I announced to David that I needed to use the restroom, because of a piece of advice that Bob Taylor had given me. With approximately 3 minutes remaining in the T-9 hold I was so excited I could not stand still any more. The

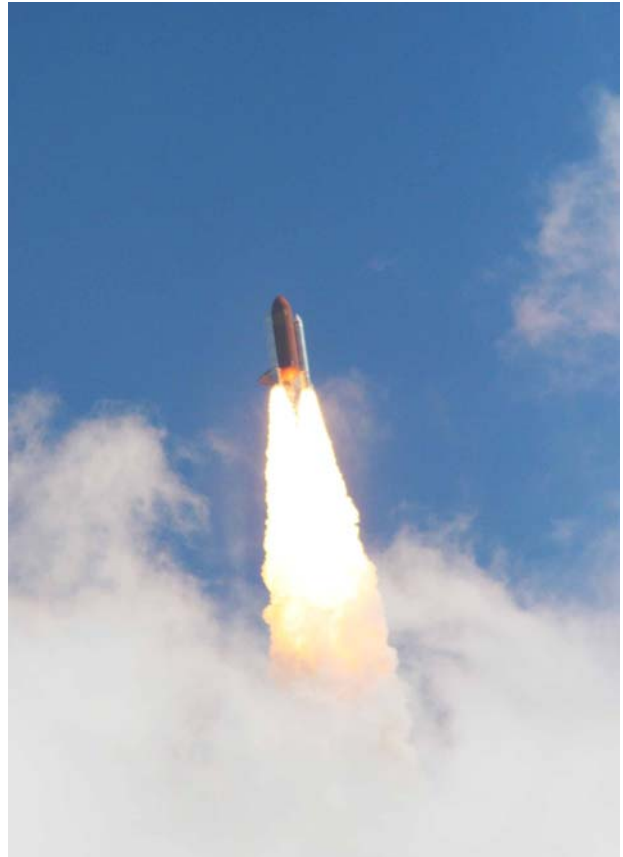
crowd at the viewing area watched as the count down clock moved from 9:00 to 8:59 and we were out of the T-9 hold! The whole crowd cheered and applauded. At that point we all knew that we were going to see a launch.

Those last nine minutes flew by. At T-4 they asked us to stand and join in the singing of the national



anthem. After correcting a small glitch with the sound tracks, we sang the anthem. Then came the moment we had all been waiting for. The whole crowd counted down, 10...9...8...7...6...5...4...3...2...1. Somewhere between 3 and 1 we saw the steam plume from the sound suppression system and then for a while nothing happened. At that point I was jumping up and down clapping and cheering “It’s launching - It’s launching”. As the enormous stack slowly

started to move something unexpected happened: the great wonder of what I was seeing paralyzed me with awe. I stopped jumping, grasped my hands and my jaw nearly hit the ground. There really are no words that describe the experience of watching the shuttle lift off. In some ways it did not seem real. I just stood and watched as the huge stack slowly ascended, higher and higher – through the clouds. The solid rocket boosters separated and shortly after that the orbiter and its external fuel tank were so far away that they appeared as a speck in the distance.





We listened to the communications between the firing room and the shuttle crew. I heard “push to MECO”, this meant Atlantis and her crew were on their way to orbit. At that point they could reach orbit even if one of the three main engines on the orbiter failed. I waited to hear Commander Bent Jett announce “we have MECO”. Whooo!!! They were in orbit. I think after hearing this, my mouth finally closed. Up till then I had been staring into the sky looking at the trail the shuttle had left behind and at the steam and smoke cloud that had started to settle.



We walked back to the bus. I was still having trouble talking. Triple called and I started to try and verbalize what I had just experienced, but could not find the right words. Words like cool, amazing, awesome came to mind but none of them came close to really explaining the experience. These words did not seem big enough. On the way back to the KSC visitors center I thought of a word that seemed to fit best – SURREAL.



We left the KSC visitor’s center and made one last stop at our favorite Cape Canaveral restaurant, Grills, before returning to Houston.

David and I feel very fortunate that we were able to experience one of the human races’ greatest achievements from such a close proximity. We are indebted to Triple for making this possible.





## OBSERVING DIARY

By Ken Lester

Monday, September 18. After lounging in bed until the Sun was up, I awoke to discover that the feel of fall was in the air. The temperature was very cool and the sky was deep blue with absolutely no clouds.

What better weather for observing! The forecast is for very cool temperatures tonight with no clouds. The Moon won't rise until early in the morning so the sky will be dark. Furthermore, today is the first of my 2 days off, so I can sleep in the tomorrow morning if I want. Even better, there is nothing on TV tonight that I want to watch (I finally got TV last week).

Since I've been out here at Fort McKavett, I really haven't taken advantage of the dark West Texas skies. I've observed several times with binoculars and twice with the 22". But I haven't had a really good evening of observing. I have had to deal with the long days of Summer and clouds on my days off. Tonight would be the night.

I live on a small ranch just down County Road 245 (Cemetery Road) from the fort. The property is bounded on the east by Tarrant Draw which is wooded with huge pecan, oak and mesquite trees. The county road runs along the south side. Big Lake is to the north and is also lined with huge trees. To the west, past the pasture, lies a stand of trees with a couple of houses beyond the trees. The ranch house lies beneath three huge pecan trees next to Tarrant Draw and is about 165 yards from the road. There is a large three sided barn about half-way between the road and the house. My 22" and Lisa's 16" Dobsonian rest comfortably in my enclosed utility trailer in the barn. Except for the area around the house and along the fence lines, the rest of the approximately 50 acres is pasture land.

I haven't yet established an ideal location to observe. I cannot be near the house because the trees would block either the southern exposure or the northern exposure, depending upon which side of the house I set up. I really can't pick a spot in the pasture because of the dust, old growth, and blood sucking varmints (ticks). I have been setting up just south of the barn on or near the drive way. This gives a very good view to the west and a slightly obstructed view to the

south and north. The barn blocks the eastern horizon which means I have to patient and wait for objects to rise over the barn.

At about 3:30 I decide to set up Lisa's scope on the driveway. After completing the scope assembly, I head for the house for dinner and to wait for dark.

A little after 8 pm, I head back out to collimate the scope and prepare for the stars. Jupiter was already visible but was low in the sky. The view through the scope was very disappointing. Jupiter's cloud bands came and went. I decided that the temperature of the mirror still hadn't equalized. I waited a little while then re-collimated. Unfortunately, Jupiter's view was not much better.

By 8:45, the sky glow from the Sun was only 10° above the horizon. Stars down to 15° above the horizon were visible. I could even see the Milky Way streaming out of the teapot. Better yet, the mirror had cooled down and my first object of the evening was crisp with individual stars. I always take a quick peek at M-13 first whenever it's visible. Tonight I took more than a quick peek. I literally soaked up the photons, savoring the sight.

I then turned the scope toward Cygnus and the Veil Nebula. While I could find the Veil without a filter, an OIII increased the contrast, bringing out the wispy filaments of an incredible supernova remnant. I could easily cross the void finding the other side of the nebula, even spotting several knots of gas drifting between the two.

The ranch is a wonderful place to observe. Ideally, I would like a better view of the eastern horizon, but the peace and quiet are great. Well... almost peaceful and quiet. There is the occasional honking of horns by big rigs trying the scare the deer off nearby Hwy 842 or the occasional pecan falling on the metal roof of the barn making me jump. But as long as the bugs stay away and the skies are clear then this place is a little bit of heaven.

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## **HAAK WINERY STAR PARTY**

By Lisa Lester

Saturday, September 23, 2006 started out as a sunny day, but by midmorning, the clouds had begun to move in. Some of the clouds were the fluffy white variety but others were of varying shades of gray. By mid-afternoon, it was mostly cloudy but I didn't cancel the star party at the Haak Winery because I knew from past experience that overcast skies would not keep the visitors away from the winery. Before heading out, I checked the weather one more time. It didn't look great but there were no predictions of heavy rain so I sent out an email stating that the star party was on and I loaded up my car.

I had not left Deer Park before the first sprinkles hit my car. I kept on going and the shower didn't last long. I encountered another brief shower on I-45 around Bay Brook Mall but I kept on going. I turned onto Avenue T in Santa Fe knowing that my destination was almost in sight only to be hit by another shower! As I parked my car in the parking lot the rain let up and by the

time I made it to the front door the rain had stopped and I had my fingers crossed that there would be no more rain in the area until after we had all gone home!

My prayers were answered but I should have included something about the mosquitoes! Lisa Hommel patrolled the grounds looking for red ant mounds as everyone unloaded their equipment and began setting up. The winery had some orange cones, which Lisa put over the ant mounds so that we would not step on them in the dark.

We had a great turn out of club members and telescopes! The Hommels, Chris Randall, the Taylors, and the Brewers were among the first to arrive. Then Triple and Todd Nickel showed up with David & Aldora Louw and Pat and Charlie McLeod right behind them! Most people set up in the grassy area between the back of the winery and the new kitchen and dining area. The idea was that if it did start raining it would not take long to pack up, as the parking lot was close by. This strategy worked because it didn't rain!

A few people set up on the other side of the sidewalk, where we've set up in the past. However, I'm still on crutches so I didn't make it over there! I know that we had a couple of new people with a scope that was seeing first light and that Walt from Galveston was over there too. I'm sorry if I overlooked anyone!

I don't know what time Karen Nickel showed up but I know that she was there long enough to put on 2 layers of mosquito repellent and still get eaten alive! The mosquitoes were vicious, the humidity was very thick, and the clouds were not cooperating, but I still saw a fair number of people looking at a few objects through the telescopes and asking a lot of wonderful astronomy questions.

I didn't find out until we were packing up that some people felt we were destined for trouble from the start because we had three new scopes on the field. The new couple had a brand new scope but so did the Hommels and the Louws! Since those scopes have now been broken in, we should be in good shape for the trip to Fort McKavett October 19 – 22 and our final star party of the year at the Haak Winery on November 11<sup>th</sup>! I hope to see y'all at both events!

## Star Party News

Lisa Lester

Space Center Houston will be having a special event on Thursday, December 14, 2006. It is called "Superstar Day" and it's a day filled with educational programs for students. As a part of that day, they have asked JSCAS to share the Sun with the students through some of our solar scopes and telescopes with solar filters. The time frame is 9:00a.m. – 3:00p.m. and they are expecting between 300 – 400 students. Last year club members helped out with a similar two-day event in November and it was a big success. We touched the lives of a huge number of students and wowed some grownups too. Ken won't be here this year and as a teacher December is a crazy month to take a day off so I'm asking you to check your calendars to see if you could help during this busy time of year. Please let me know if you can help out this time by calling Lisa Lester at 281-479-1102 or emailing at [lesteln@swbell.net](mailto:lesteln@swbell.net)

Because of a conflict with Astronomy Day, held at Brazos Bend State Park, the Moody Gardens star party scheduled for October 28<sup>th</sup> has been canceled.

Event	Date	Sun Set	Moon			Jupiter		Saturn		Mars		Venus	
			Illum.	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
<b>2006</b>													
Fort McKavett	Oct 19 - 22	19:02	6%	05:28	17:47	09:48	20:28	02:52	16:08	07:51	19:09	07:35	19:03
Astronomy Day	Oct 28	18:35	36%	13:31	23:46	08:59	19:42	02:02	15:12	07:22	18:30	07:30	18:38
Haak Winery	Nov 11	17:25	61%	23:17	12:33	07:18	17:54	00:11	13:20	06:12	17:04	06:58	17:38
SCH	Dec 14	Solar Viewing											

## CCD Imaging with a CGE-1400

By Al Kelly

Almost all of my past CCD imaging has been with homebuilt (mostly Saulietis- and Kelly-built) Newtonian telescopes and a highly modified 1977-vintage C8. The drive systems were responsive to autoguiding commands, which is a necessity for long-time-exposure, long-focal-length imaging, but each of these systems had its own "personality" and required much care and monitoring during image acquisition. Finding and centering the desired object was primarily a matter of star hopping and, often, careful consultation with star charts. Four-letter colloquialisms frequently came into play.

Before receiving my new CGE-1400 (the Celestron 14" SCT on a German equatorial mount), I read the online manual in great detail several times. I even called Celestron to get interpretations of their intent for a few of the less-well-phrased technical sections. I came to believe that the scope was designed to be an optimum "GOTO" visual and imaging machine, but was skeptical until I could test the delivered article. Having now done so, I'm a believer.

The tripod and drive system are very heavy-duty, well capable of handling the large C14 tube assembly. This was my first concern to be quickly dispelled. The whole system breaks down into parts no heavier than about 45 pounds, so one-person setup is relatively easy....second concern dispelled.

Drive calibration includes a multi-star alignment procedure which leads to very expeditious and accurate polar alignment. Once aligned, the drive can be further calibrated for 1) errors between the pointing of the drive axes and the optical axis and 2) RA periodic error correction. These latter calibrations are permanent and easy. They result in improved GOTO pointing, tracking, and autoguiding accuracy. The system is truly amazing to an old star-hopper and scope-pusher like me.

By the way, the optics are very good. The first night out, with fair seeing, I used 375x on the double-double in Lyra (Epsilon Lyra) and saw each of the twin doubles split as cleanly as I have ever seen them. I expected optical quality from Celestron and got it.

For CCD imaging I put an Optec telecompressor lens between the scope and the CCD camera to take the slow f/11 to a fairly fast f/5.5 and increase the image field of view (FOV). This works nicely and results in a 16x12 arcminute FOV through my MX916 CCD camera. This being a little less than 1/4-degree, I was very pleasantly surprised to find that the well-aligned and well-calibrated scope could put requested objects or RA/DEC locations very close to the middle of

the FOV. This is almost magical to an old star-hopping curmudgeon. It is definitely cheating (but now I like to cheat).

The tracking and autoguiding are smooth and precise. The proof is in the pudding, as the following three images attest. M13, SH2-80, and NGC 6781 were acquired from my light-polluted back yard. This scope is going to be fun!



**M13**



**SH2-8**



NGC 6781





# October 2006 Fort McKavett Challenge List

★ SSO: (Solar System Objects) Summary for the 20 Oct 06

Object	Const	Mag	% Ill	Rise Time	Transit	Set Time
Sun	Vir	-26.7	100	07:46	13:24	19:02
Moon	Vir	----	1	06:23	12:19	18:13
Mercury	Lib	0.0	54	09:49	14:57	20:10
Venus	Vir	-3.9	100	07:41	13:21	19:05
Mars	Vir	1.6	100	07:53	13:29	19:10
Jupiter	Lib	-1.7	100	09:47	15:05	20:27
Saturn	Leo	0.7	100	02:50	09:28	16:06
Uranus	Aqr	5.8	100	16:52	22:38	04:20
Neptune	Cap	7.9	100	02:27	21:05	15:38
Pluto	Oph	14:0	99	11:59	17:21	22:47
SWAN C/2006 M4	Boo	8.0	72	07:00	14:54	22:52
Faye 4P	Cet	10.6	99	19:32	01:55	08:18

Highlighted times denote daylight events.

## Lunar phases for October 06

Full 	Third 	New 	First 
6 <sup>th</sup> 22:13	13 <sup>th</sup> 19:26	22 <sup>nd</sup> 00:14	29 <sup>th</sup> 15:25 CST

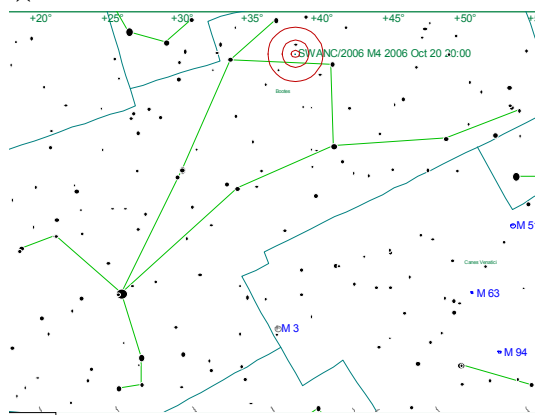
Central Daylight time

## ★ Challenge List

Since it is once again the time to enjoy Fort McKavett, so I thought I'd put together a list of interesting objects to look for. If you don't already have an observing plan prepared. See the attached list. The objects are listed in RA order. If you complete simple observations of the objects listed then you will get an observing participation certificate. Don't forget about the comets, see finder charts plotted for 18 through 20 October @ 22:00 Local below for two visible ones, and other solar system objects.

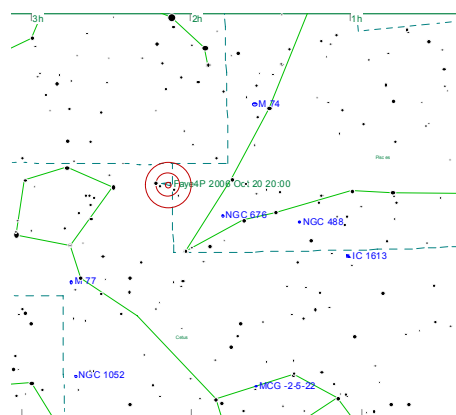
## ★ Comet Finder Charts

★

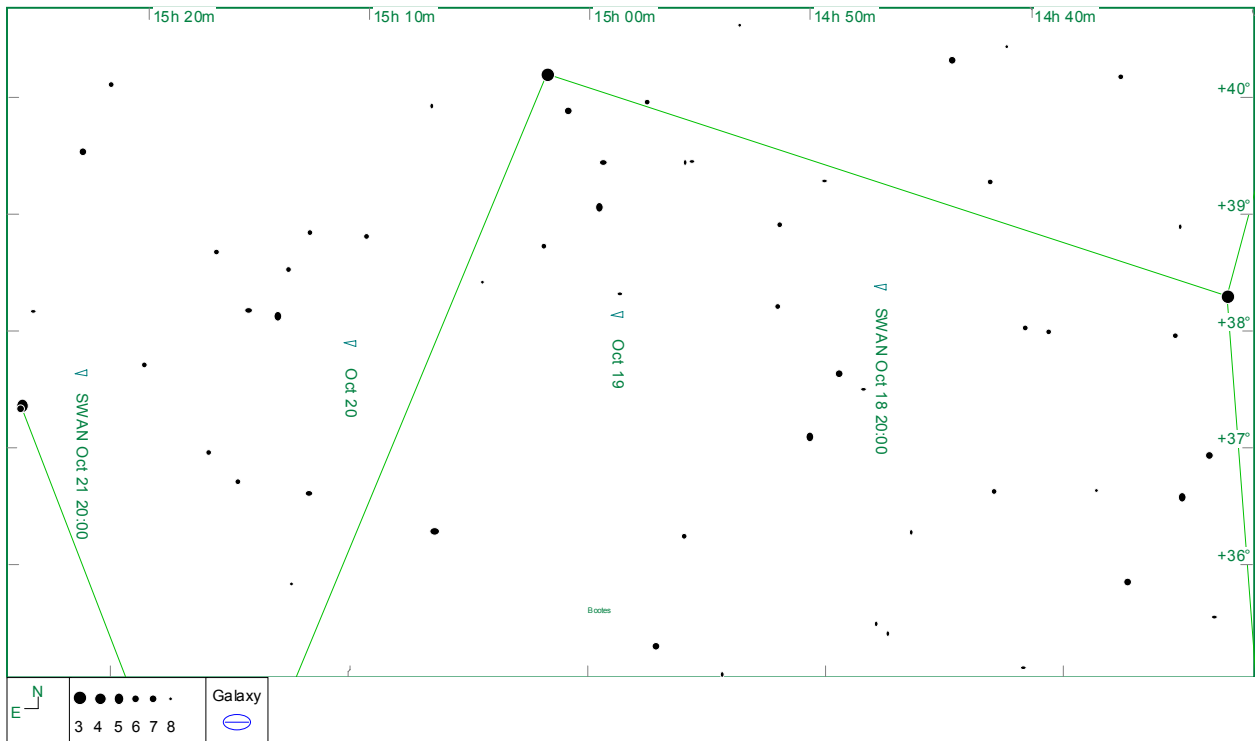


Comet SWAN C/2006 M4

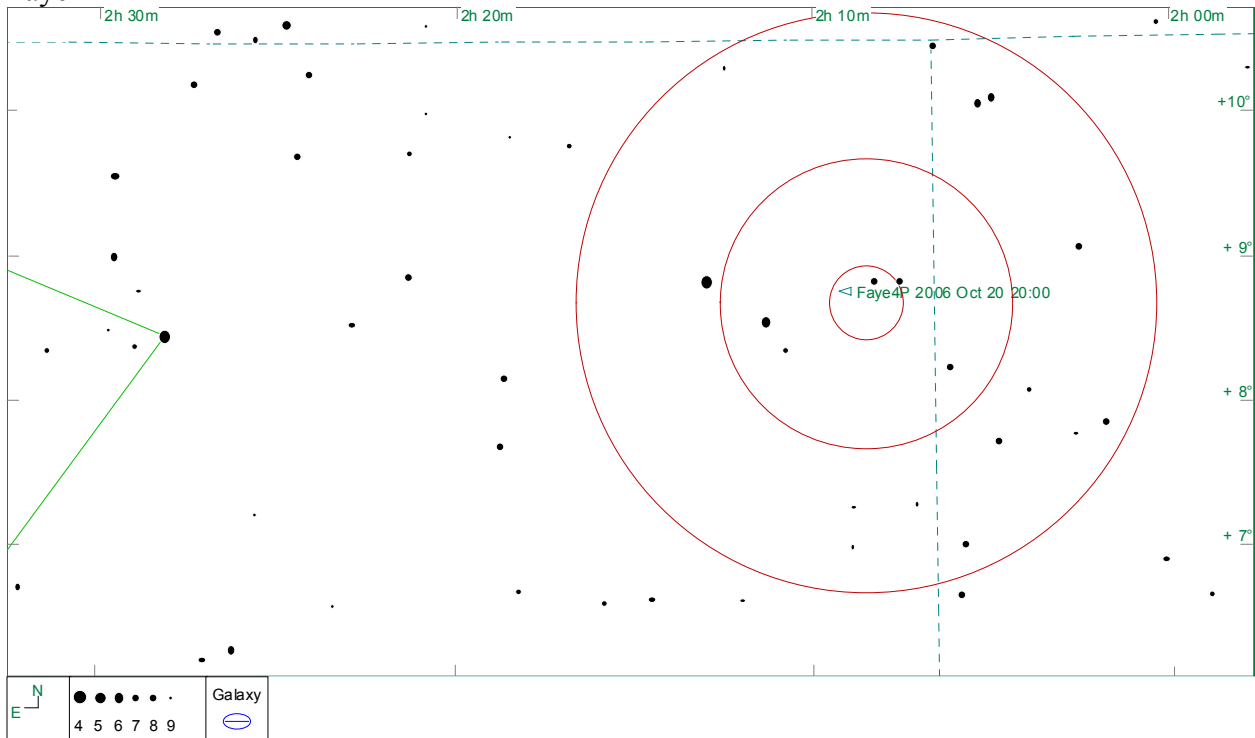
Swan



Comet Faye 4P

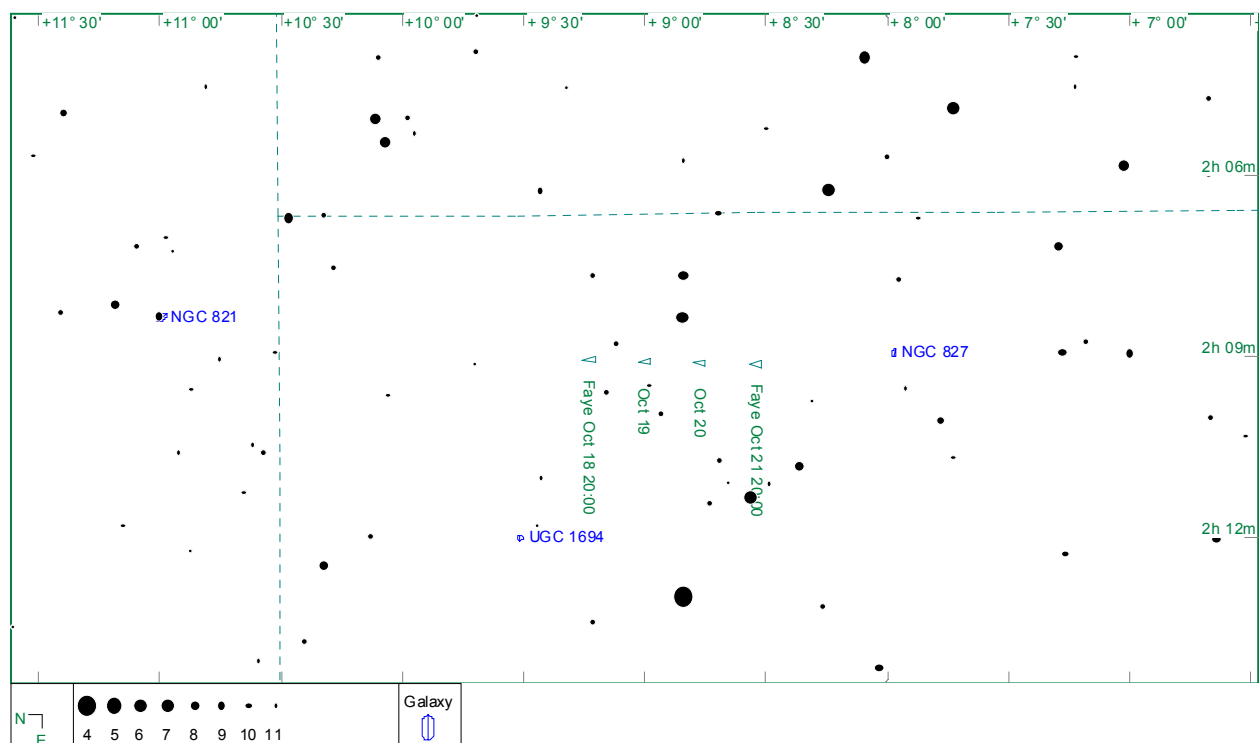


### Faye



### FAYE





Note for November 08, 2006:

## Solar Transit of Mercury

Since November will be here shortly, I thought I would let you in on an event early. It is better on the west coast, but is partially visible here in Houston. Many details are available on the Internet for the event. **Remember Safe Solar Viewing**, Our times for Houston are:

<u>Event</u>	<u>Universal Time</u>	<u>Position Angle on Sun</u>	<u>Local Time</u>	<u>Altitude in Sky</u>
Contact I	19:12:04	141°	13:12	41
Contact II	19:13:57	141°	13:14	41
Greatest Transit	21:41:04	205°	15:40:48	23
Sun Set	23:40	---	17:46	0.5
Contact III	00:08:16	269°	---	---
Contact IV	00:10:08	269°	---	---

For more details <http://sunearth.gsfc.nasa.gov/eclipse/OH/transit06.html>

# Chris' Ft. McKavett Observing List

Object	AKA	Mag	Type	Const	Notes	Size/Sep	RA	DEC	Urn	SA
NGC 6543	C 6	8.8	PN	Dra	Cat's Eye Nebula	24"	17h 58.6m	+66° 38'		
NGC 6523	M 8	5.8	BN	Sgr	!! Lagoon Nebula with open cl. NCG 6530	90' x 40'	18h 03.8m	-24° 23'	339	22
B 86			DN	Sag	B 86	4 x 6	18h 03m	-27° 50'		
Cr 399		3.6	OC	Vul	Coathanger	60.0'	19h 05.4m	+20° 11'	161	8
NGC 6826	C 15	9.8	PN	Cyg	Blinking Planetary	27" x 24"	19h 44.8m	+50° 31'	55	3
NGC 6822	C 57	9.3	Gal	Sgr	Barnard's Galaxy	10 x 9	19h 44.9m	-14° 48'		
NGC 6913	M 29	6.6	OC	Cyg	small, poor open cluster 2° S of (Gamma) Cygni		20h 03.9m	+38° 32'		
NGC 6888	C 27		BN	Cyg	Crescent Nebula	20' X 10'	20h 12m	+38° 23'		
NGC 6934	C 47	8.9	GC	Del		5.9'	20h 34.2m	+07° 24'	209	16
NGC 7006	C 42	10.6	GC	Del		2.8	21h 01.5m	+16° 11'		
NGC 7009	C 55	8.3	PN	Aqr	Saturn Nebula	44" x 23"	21h 04.2m	-11° 22'	300	16
NGC 7078	M 15	6.4	GC	Peg	rich, compact globular	12.0'	21h 30.0m	+12° 10'	210	16
Xi Cephei		4.4, 6.5	dblstr	Cep	PA 277°	7.7"	22h 03.8m	+64° 38'		
94 Aquarii		5.3, 7.3	dblstr	Aqr	PA 350°	12.7"	23h 09.1m	-13° 28'		
NGC 7635	C 11	8.5	BN	Cas	Bubble Nebula	15 x 8	23h 21m	+61° 12'		
NGC 7662	C 22	8.3	PN	And	Blue Snowball	32" x 28"	23h 25.9m	+42° 33'	88	9
NGC 253	C 65	7.1	Gal	Sci	Sculptor Galaxy	28' x 7'	00h 47.6m	-25° 17'	306	18
NGC 404	H-224-2	12	Gal	And	next to beta	4' x 4'	01h 09.5m	+35° 43'		4
NGC 457	C 13	6.4	OC	Cas	ETI, Owl Cluster; Phi Cas Cluster	13.0'	01h 19.1m	+58° 20'	36	1
IC 5146	C 19	10	BN	Cyg	Cocoon Neb	12 x 12	01h 53.5m	+47° 16'		
Sh2-155	C 9	7.7	BN	Cep	Cave Nebula	50 x 10	02h 56.8m	+62° 37'		
IC 405	C 31	6	BN	Aur	Flaming Star Nebula	30 x 19	05h 06.2m	+34° 16'		
NGC 2392	C 39	9.9	PN	Gem	Eskimo Nebula	47" x 43"	07h 29.2m	+20° 55'	139	5
NGC 3587	M 97	11.2	PN	UMa	!! Owl Nebula; appears brighter than 11.2m		11h 04.8m	+55° 01'		

## LAND, SEA AND SKY Texas Nautical Repair, Inc.

The owners of Land, Sea and Sky, purveyors of fine telescopes and other observing aids to the Houston area, would like to remind you that members of local astronomy clubs receive a 10% discount on many items. All you have to do is let them know what club you're in. The store is located at 1925A Richmond Ave, Houston, TX 77098, just a couple of blocks off of Shepherd Drive. Their phone number is 713-529-3551.

## Telescope and Mount for Sale

Takahashi FC-50 Apochromatic Fluorite Refractor, 50mm f:8  
Finder  
Thousand Oaks Solar Filter  
10-1 TNR Micro Focuser

Takahashi Sky Patrol Equatorial Mount, complete with:

- DC powered sidereal drive
- Three counterweights
- Knobs, power pack, charger
- Illuminated Polar Axis Alignment scope

Fitted Tundra Waterproof Case  
Original Sky Patrol backpack included.

This is the equipment I used to photograph the 1991 Solar Eclipse.

All are in superb condition.

\$1500.00 As is, \$1600 with Bogen tripod and all head adapters.



Call Ed Malewitz (281) 488 1959 [emalewitz@sprynet.com](mailto:emalewitz@sprynet.com)

## Upcoming Events

**6th Annual Houston/Beaumont Regional Astronomy Meeting** will be held Friday, October 27 from 8:00 to 10:15 pm at the Houston Community College. The meeting will be hosted by the North Houston Astronomy Club. There will be no JSCAS meeting at LPI in October.

**Astronomy Day 2006** will be held Saturday, October 28th at the George Observatory, Brazos Bend State Park from 3:00 - 10:30 PM.

Visit <http://www.astronomyday.org> for more information.

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Arkaroola Wilderness Sanctuary and the Astronomical Society of South Australia present **Star Party DownUnder 2007**. To be held January 18<sup>th</sup> to 21<sup>st</sup>, 2007 at the Arkaroola Wilderness Sanctuary, Flinders Ranges, South Australia.

Their lineup of guest speakers include:

Prof Ian Plimer - Chair of Geology, The University of Adelaide  
Prof Fred Watson - Astronomer-in-Charge, Anglo-Australian Observatory  
Dr Kym Thalassoudis - Star Chart development through the ages  
Paul Curnow - Aboriginal Dreaming and Astronomy

Arkaroola Wilderness Sanctuary is situated in the majestic Flinders Ranges, 600 kilometres north of Adelaide, South Australia. It has it all. Beautiful landscapes during the day, and skies at night that make you want to reach up and touch the stars.

More details at <http://www.arkaroola.com.au/events.php>.

### **Sky & Telescope and Astronomy Magazine Subscriptions – Don't Forget about the Club Discount!**

Sky & Telescope offers a "Club Discount" on subscriptions. You can subscribe to Sky and Telescope for \$10 off the normal price (\$32.95 with the club discount). Astronomy magazine is also offering a club discount. JSCAS members can subscribe to Astronomy for \$34 a year. We need to have a minimum of five subscribers to take advantage of the discount. If you are a current subscriber, *please* contact me so I can put you on the list for the club discount when your subscription is due for renewal!

Contact me by the email listed on the JSCAS web site, catch me at a meeting, or send your check and renewal form to my home address: 2407 Elkton Ct., Pearland, TX, 77584. I'll put your renewal in the mail within 48 hours after I receive it.

David Haviland  
Vice-president and Secretary

## **October Meeting**

**6th Annual Houston/Beaumont Regional Astronomy Meeting** will be held Friday, October 27 from 8:00 to 10:15 pm at the Houston Community College. The meeting will be hosted by the North Houston Astronomy Club. There will be no JSCAS meeting at LPI in October.

## **Johnson Space Center Astronomical Society**

An association of amateur astronomers dedicated to the study and enjoyment of astronomy. Membership is open to anyone wishing to learn about astronomy.

### **OFFICERS**

President	Bob Taylor
Vice President	David Haviland
Secretary	David Haviland
Starscan Editor	Ken Steele
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CCD Imaging	Al Kelly
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