



EPHEMERALS - January 2007

DATE	WHEN	WHAT & WHERE
4	7:30p	January Meeting @ Chuck Rippel's
12	Dusk	Skywatch @ Northwest River Park
13	Dusk	Cloverwatch @ Franklin Fairgrounds
20	Dusk	Nightwatch @ Chippokes Plantation
27	Dusk	Garden Stars @ Norfolk Botanical Gardens

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LOOKING UP

Hello fellow observers,

Thank you all for the vote of confidence. It was a tight race, but I managed to bribe a few votes and here I am. First, let me say thanks to George for his contributions and leadership to the club for the last 2 years. It is good to know that George will continue to be a Solar System Ambassador, and our unofficial one man "refreshment center", and (using the powers vested in me) I appoint George as next year's picnic chief cook and bottle washer. I would do it, but I must protect myself from GG's water balloon sneak attacks, and trying to keep up with my 150 mph granddaughter. (OK George?)

I look for good things for BBAA in 2007, and with everyone's help, we will forge on to greater heights, leap tall mountains, search the final frontier, go where no member has gone before. Ok, I know, enough already and on with the news. Everyone always wonders what a new president has in store for the upcoming year. Some will listen with ears wide open in anticipation for exciting new ideas and challenges, while others grip their seats, take a big drink of G3's coffee, and are ready to faint on a moment's notice. So, to give everyone a chance to rush to the January meeting and take part in my first act as president, here goes.

I'm going to create the "e-mail committees". No more let's meet at so and so's once a month, no more taking 6 months for a committee to reach conclusions. Communications now a

days are through the internet, and that's where we are going. George had a great idea at a meeting in having us divide up and come up with suggestions. This will carry on where that left off. I will appoint 2 committees of 4 or more members to solicit ideas from club members, review and discuss, and bring those ideas to the next meeting. I thought it would be interesting to have 2 committees and see what ideas may duplicate. As we decide which idea's to proceed on, a separate committee will be assigned for that project. Each committee will have their own mailing list and will have the month to complete their task. E-mail committees will also allow those with time to participate in more than one committee. Answering email is much faster and far less time consuming than meetings. I hope you will make an attempt to come to the January meeting and join in on a committee for the future. If you can't attend but would like to be on one of the committees, just drop an email to any of the officers and we will throw you in the fire, I mean assign you to a committee.

Most of all I will endeavor to make the BBAA meetings fun and informative. We will move fast through the normal reports, news and upcoming events, leaving more time to play. Because TCC is closed, the January 4th meeting will be held at Chuck Rippel's home in Chesapeake. I also will show a 10 minute video of the Chiefland Star Party held in November.

So come one, come all, get on your broom and join us for a new year.

THE ADVENTURE BEGINS

Dale Carey

THE BACK BAY AMATEUR ASTRONOMER'S OBSERVER

DECEMBER'S MEETING MINUTES

The December meeting of the Back Bay Amateur Astronomers was called to order by President George Reynolds on Thursday December 7th, 2006 at 7:30 PM at the Tidewater Community College. Secretary Chuck Jagow was not in attendance so the meeting minutes were taken by the talented Georgie June.

Members in Attendance: There were seventeen people in attendance which included: Neill Alford, Dr. Bruce Bodner, Gerry Carver, Steve Hamilton, Jeffrey Heiliger, Georgie June, Matt McLaughlin, Randy Pascal, Mike Pereira, Bill Powers, George 3 Reynolds, Chuck Rippel, Kevin Swann, Barbara Weiner, Kevin Weiner, new member Jeff Dunn, Kenny Broun, and Glenn Hart was a guest!

Treasurer's Report: \$4,598.88 in treasury, \$1,412.25 in Scholarship, which leaves \$3,186.63 remaining but the treasury just received about \$100 dues today.

Secretary's Report: None, Chuck Jagow wasn't there!! (Shame on you!).

Astronomical League Correspondent's Report: Still waiting to receive 3 AL Certificates: Outreach Award for Chuck Rippel, Advanced Lunar Certificate for Ted Forte, and Comet Observers Certificate for Ted Forte.

Old Business: Steve Hamilton brought the club's PST and George 3 was going to take it to Kent Blackwell for use.

New Business: No new business was discussed.

George 3 went over the upcoming events for December which included the luncheon on the 9th, Skywatch on the 15th, Cloverwatch on the 16th, and Nightwatch at Chippokes on the 23rd.

The Jan 4th meeting will be at Chuck Rippel's house in Chesapeake and directions have been posted on the yahoo site.

Rapid Response Robotic Telescope Project Report:

Kevin reported that ground breaking has begun for the RRRT project.

Observer's Corner: Doc. Bodner reported on his adventure to Chiefland. He said he had 4 good nights in a row and did a lot of imaging. He used the TAK106. Out of the 8 nights at Chiefland, they had 6 good nights. 350 Observers were there. Doc Bruce also made sure to report that Dale Carey did not win any raffle prizes this year!

Miscellany : Kevin also reported that he and G3 had worked with some Girl Scouts in Churchland and showed them the

moon, M31, Albireo, and the double double. The girls and their parents had a lot of good questions. Kevin also would like some help with ideas for Garden Stars at Norfolk Botanical Gardens. At the last event, there were 34 people in attendance. Kevin said that Garden Stars is now held in the old spot by the patio and they also have a meeting room available. Steve Hamilton showed the plans of his new observatory complete with pictures of the finished product. Kenny Broun also had NASA on the screen for us to see the shuttle take off but of course that didn't happen. I left the meeting promptly at 9:00 PM although some others hung around to see if the shuttle would launch.

Presentation: George brought some DVD's to be watched but they wouldn't work so Chuck Rippel stood up and talked about the sunspots he observed on that day.

In Conclusion: The meeting was adjourned at 9:00 PM.

Georgie June

DIRECTIONS TO CHUCK RIPPEL'S HOUSE LOCATION FOR THE JANUARY MEETING

Coming west on 64. Exit at #291B, which will put you on Dominion Blvd, Rt#104. You'll essentially be heading south toward Elizabeth City, NC.

Once on Rt 104, there will be "Y" in the road. Bear to the right, going UNDER the overpass.

Go through the Light at Great Bridge Blvd Pass over the Steel Bridge Go through the light at Cedar Rd (MRO Computers and Astronomy will be on your left).

Go through the next light and past the Walmart on your left hand side.

Go through yet another light and past the new Grassfield Middle School, on your left.

Take the next left at West Rd, its about an 70 degree turn.

Continue up West about 1.5 mi. You will go through a series of "S" turns then come to a small bridge over a creek. Immediately past the bridge, you'll take a right onto Herring Ditch, a one lane, dead end road.

I am at 2341, about the 7th house on your left; a white 2 story w/ a detached garage. This is the country and you park wherever. Just don't knock down any cars up on cinder blocks in the front yard. There is plenty of room. Come on up to the front door; don't trip over the washing machine on the porch.

Problems? 485-1992 or will have my cell at hand. 615-7234.

Chuck Rippel



Marshmallows? Cotton Candy?

By Trent Wells

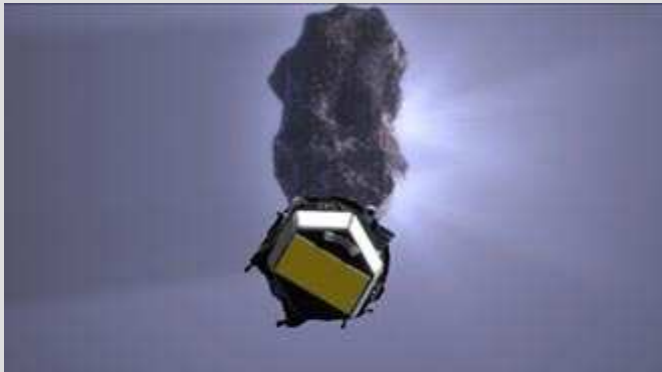
What IS inside a comet's nucleus? Here is what scientists have found out.

Comets are part of the solar system. They orbit the Sun, just as planets do, except a comet usually has a very elongated orbit. Part of its orbit is very, very far from the Sun and part is quite close to the Sun.

A comet's nucleus is like a dirty snowball made of ice. As the comet gets closer to the Sun, some of the ice starts to melt and boil off, along with particles of dust. These particles and gases make a cloud around the nucleus, called a coma. The coma is lit by the Sun. The sunlight also pushes this material into the beautiful brightly lit tail of the comet.

Scientists have now had a look inside a comet's nucleus.

On July 4, 2005, NASA's Deep Impact spacecraft's "smart impactor" scooped out . . . well, more like blasted out a crater in the nucleus of Comet Tempel 1. What did they find? Was it dark and crusty like the surface, or soft and squishy like a marshmallow, or full of holes like Swiss cheese, or full of big rocks like nutty nougat?



The comet's nucleus is spongy, with lots of holes inside. No one knows yet whether there are a few large holes or many smaller ones. So what?

If there are a few large holes, it might mean that the comet was formed from large, dirty ice boulders. If there are many smaller holes, it might mean the comet was formed from many more dirty ice snowballs.

Parts of the surface are very fragile and weak. So what?

It may be that the comet's ice was the "glue" that held the comet dust and rocks together. Then, as the comet came closer to the Sun, the surface ice evaporated, leaving little or no "glue." The rocky and dusty structures would then be fragile and crumbly.

The surface of the nucleus is covered with fine dust, like baby powder. What is this dust and where did it come from?

Originally, the comet's surface ice probably contained a lot of fine dust. When the orbit of the comet brings it close to the Sun, the ice evaporates into space, leaving some of the fine dust sitting on the surface. The dust

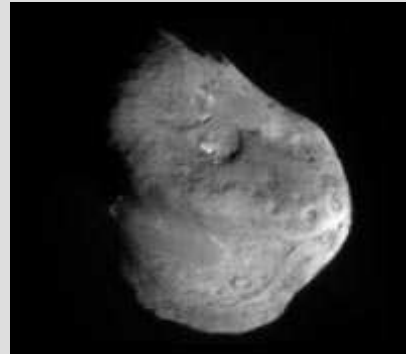
is fine like talcum powder because comets are too small to have enough gravity to squeeze the dust together into larger particles.

The surface is very black. What is this black stuff?

The very black material on the surface is carbon-based material similar to the greasy black goo that burns onto your barbecue grill. The comet originally formed from ices (mostly water ice), silicate dust (like powdered beach sand), and this type of black space gunk.

Some parts of the nucleus are smooth and young, while other areas are cratered and old. What happened?

The old-
the surface has
for thousands
small, rocky
other comets.
some areas
possible that as
approached the
years, the ices
have vapor-
some of the
particles with



looking part of
been battered
of years by
asteroids or
So why are
smooth? It is
the comet has
Sun over the
on the surface
ized, and taken
embedded dust
it. Then, some

of the dust particles could have settled back down on the surface, filling in some of the craters. Or, maybe the smooth surface areas that are covered with dust and dirty ice are disappearing as the comet repeatedly gets close to the Sun. After a long time, the smooth icy regions may have retreated, revealing the older cratered surface below.

The nucleus seems to have formed from overlapping layers of different materials. Why?

The layers must have formed as the comet grew. As it got bigger, gravitational forces drew in ices, dust, and the black "space gunk" we talked about earlier from the comet's neighborhood.

There is ice beneath the surface, both water ice just below the surface and carbon dioxide ice (also known as "dry ice") farther down. Why different kinds of ice at different depths?

Most of the ice in our solar system, including the ice in comets, is water ice. In Comet Tempel 1, almost all the ice is water ice, but some is carbon dioxide ice-or "dry ice." Carbon dioxide ice vaporizes faster than water ice. (That is why you might use "dry ice" to make "smoke" for a model volcano or "fog" for a stage play.) As the comet gets close to the Sun, the carbon dioxide ice will vaporize before the water ice. So, after thousands of years, even though the two kinds of ice were initially mixed together near the surface, only the water ice remains. The carbon dioxide ice a meter or so beneath the surface is more protected from the Sun's heat, so may survive, with water ice above it.

Tempel 1 contains materials from the outer, middle, and inner parts of the solar system. Why?

We are not sure. Comets probably formed in the outer solar system. The inner solar system type of dust particles found in them could have traveled to the outer solar system where the comets formed. Or, not as likely, these dust particles could have arrived from other solar systems. Water and carbon dioxide ices are both found in the outer solar system, so comets could pick up both ices while forming.

(Continued on page 7)

THE BACK BAY AMATEUR ASTRONOMER'S OBSERVER

BBAA INFO

The BBAA meet the first Thursday of every month. While school is in session we meet at the VA Beach TCC campus in the Pungo building. Summer meetings are usually held at the Chesapeake COX campus. The January meeting will be on Thursday January 4th at 7:30 PM at member **Chuck Rippel's residence in Chesapeake.**

WHERE IS THE MEETING?

Normally the BBAA meeting is held at a public or semi public location. Due to circumstances, our usual meeting places were unavailable. Member Chuck Rippel has graciously offered the use of his home in Chesapeake for the wayward January meeting (I sure hope Chuck tells his wife). The following directions should help us all locate his homestead.

FROM Interstate I-64:

1. Follow Interstate 64 to Chesapeake and take exit Exit 291B to Route 17 South which is also Dominion Blvd South.
2. Continue on Route 17S/Dominion Blvd. and you will cross the intersection of Cedar road, just prior to the intersection you will pass the MRO Computers & Astronomy store on the left (shameless plug for Mike).
3. There has been shameless construction in this area and a blaring new light source named WALMART has been added just to the left two lights after you pass Cedar road.
4. By now you should have traveled approximately 4 miles and should be approaching the intersection with West road. Unless the construction has demolished it, there should be sign indicating the Chesapeake Municipal Airport, it is NOT a very big sign. You will be taking a LEFT onto West road. There is NO light here.
5. Follow West road about a mile and a half through some "S" turns. As soon as you see a small bridge, begin to slow as the RIGHT hand turn onto Herring Ditch road is IMMEDIATELY after the bridge.
6. After turning RIGHT onto Herring Ditch road, Chuck's house will be the 7th one on the left at 2341 Herring Ditch Rd. Park anywhere, but in the ditch.

BBAA INTERNET LINKS

BBAA WEB SITE

<http://groups.hamptonroads.com/bbaa/>

YAHOO GROUP

<http://groups.yahoo.com/group/backbayastro>

BBAA OBSERVER NEWSLETTER

<http://www.backbayastro.org/newsletters/newsletter.shtml>

President

Dale Carey
757-431-8556
vbstargazer@verizon.net

Vice President

Kevin Weiner
757.548.4936
Kevin.weiner@cox.net

Treasurer

Barb Weiner
757.548.4936
Barb.weiner@cox.net

Secretary

Chuck Jagow
757.547.4226
Chuck@jagowds.com

ALCOR

Georgie June
doublestarjune@msn.com

Librarian

Gerry Carver
popcarg@aol.com

Web Master / RRRT Coordinator

Ted Forte
twforte@cox.net

Scholarship Coordinator

Ben Lyola
benito@loyola.com

What do you want to do?

OBSERVER INFO

The BBAA Observer is published monthly, the monochrome version is mailed to members who do not have Internet access. Members who do have Internet access can acquire the full color version on the Internet at:

<http://www.backbayastro.org/newsletters/newsletter.shtml>

Please submit articles and items of interest no later than the 20th of January for the February issue. Please submit all items to:

ObserverBBAA@cox.net

OR

BBAA Observer
P.O. Box 9877
Virginia Beach, VA 23450-9877

THE BACK BAY AMATEUR ASTRONOMER'S OBSERVER

Annual BBAA Anniversary Luncheon

On Saturday, December 9, 2006, a bunch of BBAA members converged on The Grate Steak in Norfolk to celebrate the 28th Annual BBAA Anniversary Luncheon. In attendance were Charles Allewelt, Rick and

Mary Bish and Kate, Kent Blackwell, Bruce Bodner, Dale and Connie Carey, Gerry and Joy Carver, Larry and Sue Channel, Taylor Christy, Cliff Hedgepeth, Jeff Heiliger and

Noah, Bob Hitt, Karen Jagow, Georgie June, Brian and Karen Murphy, Mike Pereira, Bill Powers, George and Linda Reynolds, Chuck Rippel, Dave Sanderson, Keith Smith, Kevin Swann, Kevin and



California on a business trip. We missed you guys, and others who weren't there.

Many members opted to cook their own steak on the huge charcoal grill, while others selected chicken or seafood or steak or roast beef from the menu. I enjoyed grilling my steak, though I think I singed the hair off my arm. The food and fellowship were excellent.

We were especially glad to see Taylor Christy there, with her ride, grandpa Cliff Hedgepeth.

Little Kate Bish brought her mommy and daddy, and Noah brought his dad too.

Outgoing president George Reynolds (that's me) presented the official BBAA gavel to the new president



Barb Weiner. Conspicuous by their absence were Ted Forte, who had to work, and Chuck Jagow, who was in



Dale Carey. (I didn't really hit him on the head with it.) Now Dale can officially bring the January meeting to order.

After the luncheon Chuck Rippel set up his Personal Solar Telescope (PST) in the parking lot in front of the restaurant and several of us hung around for another half hour looking at the Sun and chatting. It was a good way to close out the year (though Skywatch and Nightwatch are left on the 2006 schedule), and I think everyone had a good time.

George Reynolds

THE BACK BAY AMATEUR ASTRONOMER'S OBSERVER

NASA's Mars Global Surveyor May Be at Mission's End

NASA's Mars Global Surveyor has likely finished its operating career. The spacecraft has served the longest and been the most productive of any mission ever sent to the red planet.

"Mars Global Surveyor has surpassed all expectations," said Michael Meyer, NASA's lead scientist for Mars exploration at NASA Headquarters, Washington. "It has already been the most productive science mission to Mars, and it will yield more discoveries as the treasury of observations it has made continues to be analyzed for years to come." Its camera has returned more than 240,000 images to Earth.

The orbiter has not communicated with Earth since Nov. 2. Preliminary indications are that a solar panel became difficult to pivot, raising the possibility that the spacecraft may no longer be able to generate enough power to communicate. Engineers are also exploring other possible explanations for the radio silence.

"Realistically, we have run through the most likely possibilities for re-establishing communication, and we are facing the likelihood that the amazing flow of scientific observations from Mars Global Surveyor is over," said Fuk Li, Mars Exploration Program manager at NASA's Jet Propulsion Laboratory, Pasadena, Calif. "We are not giving up hope, though."

Efforts to regain contact with the spacecraft and determine what has happened to it will continue. NASA's newest Mars spacecraft, the Mars Reconnaissance Orbiter, pointed its cameras toward Mars Global Surveyor on Monday. "We have looked for Mars Global Surveyor with the star tracker, the context camera and the high-resolution camera on Mars Reconnaissance Orbiter," said Doug McCuiston, Mars Exploration Program director at NASA Headquarters. "Preliminary analysis of the images did not show any definitive sightings of a spacecraft."

The next possibility for learning more about Mars Global Surveyor's status is a plan to send it a command to use a transmitter that could be heard by one of NASA's Mars Exploration Rovers later this week.

Mars Global Surveyor launched on Nov. 7, 1996, and began orbiting Mars on Sept. 11, 1997. It pioneered the use of aero-braking at Mars, using careful dips into the atmosphere for friction to shrink a long elliptical orbit into a nearly circular one. The mission then started its primary mapping phase in April 1999. The original plan was to examine the planet for one Mars year, nearly two Earth years. Based on the value of the science returned by the spacecraft, NASA extended its mission four times.

"It is an extraordinary machine that has done things the designers

never envisioned despite a broken wing, a failed gyro and a worn-out reaction wheel. The builders and operating staff can be proud of their legacy of scientific discoveries and key support for subsequent missions," said Tom Thorpe, project manager for Mars Global Surveyor at JPL.

The spacecraft evaluated landing sites for the twin NASA rovers that landed in 2004 and sites for future landings of the Phoenix and Mars Science Laboratory missions. It monitored atmospheric conditions during aero-braking by newer orbiters. It served as a relay link for the rovers and provided mapping information about their surroundings.

"When we watched the launch 10 years ago, we wondered if we would make the specified mission length. We certainly were not thinking of a 10-year operating life," said JPL retiree Glenn Cunningham, who managed the Global Surveyor project through development and launch.

A few of the mission's many important discoveries about Mars include:

- The spacecraft's camera found gullies cut into many slopes that have few, if any, impact craters. This indicates the gullies are geologically young. Scientists interpret this as evidence of action by liquid water, essentially in modern times.
- The mineral-mapping infrared spectrometer found concentrations of a mineral that often forms under wet conditions, fine-grained hematite. This discovery led to selection of a hematite-rich region as the landing site for NASA's Mars Exploration Rover Opportunity.
- Laser altimeter measurements have produced an unprecedented global topographic map of Mars. The instrument revealed a multitude of highly eroded or buried craters too subtle for previous observation, and mapped canyons within the polar ice caps.
- The magnetometer found localized remnant magnetic fields, indicating that Mars once had a global magnetic field like Earth's, shielding the surface from deadly cosmic rays.
- The camera found a fan-shaped area of interweaving, curved ridges interpreted as evidence of an ancient river delta resulting from persistent flow of water over an extended period in the planet's ancient past.
- A long life allowed Global Surveyor to track changes through repeated annual cycles. For three Martian summers in a row, deposits of carbon-dioxide ice near Mars' South Pole shrunk from the previous year's size, suggesting a climate change in progress.



Guy Webster
Jet Propulsion Laboratory

THE BACK BAY AMATEUR ASTRONOMER'S OBSERVER

(Continued from page 3)

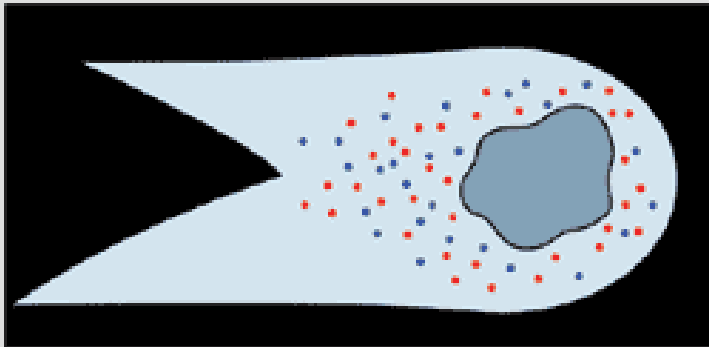
Of course, not every comet may be just like Tempel 1.

Deep Impact blasted lots of material from beneath the surface into the comet's coma. Remember, the coma is the cloud of dust and gas that boils off the nucleus as the comet's orbit takes it closer and closer to the Sun.

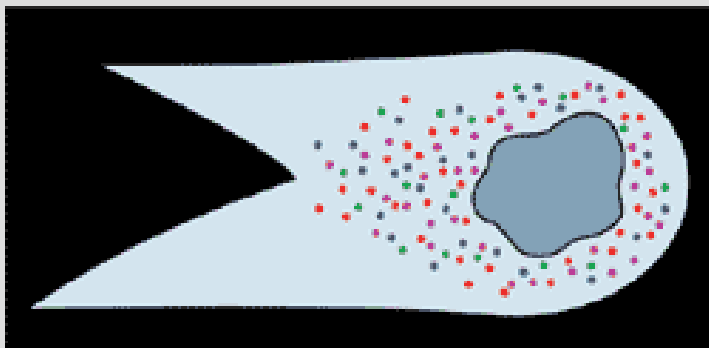
The coma contains material from near the surface of the nucleus. This material is what the Sun heats up most and what boils off first. Scientists saw what was in the coma right after the impact, and compared that with what was there before the impact. This way, they could get an idea what was added from the material blasted out of the hole in the nucleus.

But, whether before or after the blast, how do the scientists know what the coma is made of? After all, the comet and its coma are millions of miles away!

Here's how: They observe the coma through a telescope equipped with a spectrometer.



Comet Tempel 1's coma before impact. Colored dots stand for different materials that have boiled off the surface of comet's nucleus.

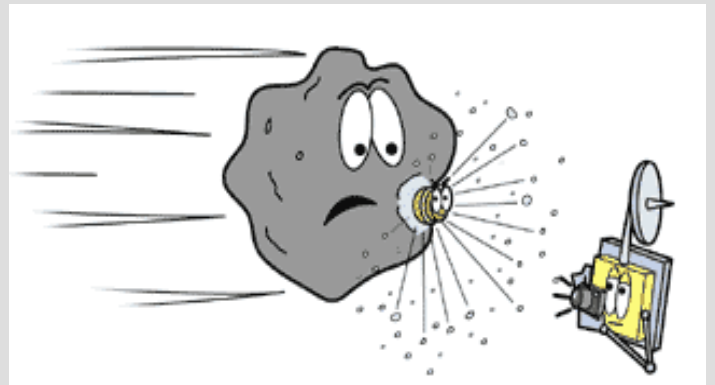


Comet Tempel 1's coma after impact. Added dots, some of different colors, stand for materials from below the surface of the nucleus that were "splashed" into the coma from the impact crater.

A spectrometer creates something like a rainbow. Like droplets of water may do after a rain, a spectrometer breaks light apart into its different wavelengths, or "colors." Depending on what gases (such as those in air) the light has passed through, the "rainbow" will look different. That is because each gas absorbs one or more particular colors of the light that passes through it.

We have lots more on spectrometers, by the way!

Did you see the "Cosmic Car Crash" page on The Space Place? If so, you know that the Deep Impact Flyby Spacecraft observed and recorded the impact with its telescope and spectrometer.



But it wasn't the only telescope with its eyes on this first-of-its-kind cosmic event. The Hubble Space Telescope, the Spitzer Space Telescope, the huge Keck telescopes on top of a tall mountain in Hawaii, as well as many other space and ground telescopes recorded the impact and what followed. Even backyard astronomers-people like you who have their own telescopes-were able to see and photograph the impact.

It will take scientists a long time to understand all the comet information from all the telescopes and spectrometers. But already, they have a better idea of what this particular comet is like and what lies beneath its surface.

MISSED IT BY "THAT" MUCH!





Saturday morning, Dec. 16th, I was reading the paper and saw an article about the Wallops Island launch. Looking at the clock I said, "Dang, right now", so I jumped up and walked out on to the driveway and what do you know, the inaugural launch of the Minotaur 1 rocket from Wallops Island, was overhead.

Payload was the USAF TacSat-2 and NASA GeneSat-1 satellites. As the rocket went into the clouds and disappeared I thought, "grab the camera you ..". By the time I ran inside and back out all I got was the contrail. But it was a neat sight, and will plan better on the next one.

Dale Carey



JANUARY 2007

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1 NEW YEAR'S DAY	2	3 Full Moon 	4 BBAA MEETING @ C4'S HOUSE	5	6
7	8	9	10	11 Last Qtrr 	12 SKYWATCH @ NWRP	13 CLOVERWATCH @ FRANKLIN
14	15	16	17	18	19 New Moon 	20 NIGHTWATCH @ CHIPPOKES
21	22	23	24	25 First Qtrr 	26	27 GARDEN STARS @ NBG
28	29	30	31			