

The Flint River Observer

Newsletter of the Flint River Astronomy Club

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Please notify **Dawn Knight** if you have a change of address, telephone number and or new e-mail address.

President's Message: I'm sitting here writing this on Dec. 21, and feeling pretty good about things, partly from the season's good tidings, but mostly from the great turnout we had for the Christmas party this year. We actually overflowed the room, and it seems everyone had a good time. So good in fact, I had trouble getting the crowd to quiet down so we could give away some door prizes. Charles Anstey's son was the most pleased with his Deepmap 600; I think I can see a future astronomer in that one. Dawn won the How to Identify Night Sky book and Irene won the Destination Moon book. This was the prize I most wanted to win. A free registration was also given out as a prize and was won by one of our biscuit brigade for last year. So far, we've gotten six registrations for the Sky View, pretty good for this early, it looks like we're going to have another great party. I would like to have some discussion at the next few meetings to get some ideas ironed out, like the chili dinner on Saturday, and acquiring more speakers for Friday. So far we have the return of Art Zorka, Rod Mollise, and Dr. Schmude, so we're off to a great start, if you know of anyone that would have a topic to speak on, let me know, and I'll handle the details. Art Zorka will most likely be speaking about the Astro League and the observing programs that they offer. Think about what you would like to see changed, and bring it up at the meetings, that's how the Sky View became so unique, by doing it *our way*. Lastly, don't forget the yearly elections are coming up, and while I'll be looking for candidates, if there's an office you may be interested in, just step up and ask what the position entails. It's all easier than you probably think, and I'm sure that as long as you care about helping FRAC a few minutes a month, you'll do just fine. It's time for me to step aside and let others

run the show. Bring in new ideas, and do some different things to help the club grow. The last few meetings have been pretty productive in that regard and some really good ideas have been tossed around, and I would like to keep that going. This has been a tough, trying year for FRAC, and I want to thank all of you for being there, staying with the club, and as we go off into a new year, I hope that it turns out to be a great year for the club, but most of all I hope it's a great new year for all of you.

Club Calendar: The January meeting will be held on the 12th at the UGA campus, Stuckey building at 7:30 p.m. See the website for directions, if needed. If Smitty's wife has recovered fully from her surgery and he is willing to, I am hoping that he will do his "Mukluks and Messiers" presentation at this meeting. We are trying to get back in the swing of things with the meetings as far as having speakers lined up, etc. If you have a presentation you would like to do or see please let us know.

Membership Renewals: All renewals are due during the month of February.

December Meeting: The December meeting was our usual Christmas meet and eat. We had a great turnout and hope that everyone enjoyed themselves as much and Steve and I did. We had some great door prizes (as is the usual way with Christmas) and a wonderful time talking with everyone. Our Christmas meeting has given us the idea that every few months we should have a meet and eat. We seem to get more families involved with the club this way and we always enjoy seeing everyone's family. We will try different places to eat and different times of the year to see what works out. We will be having a snack and meet around February, March for our birthday party. This is also usually a well attended meeting. I don't know if it's the great company or the promise of cake that attracts everyone but you can rest assured both of those will be present this year also.

Calendar of Events: We have several groups that are in the works for events but nothing locked into a schedule as of yet. Curt is in the process of setting up a how to pick a telescope and basic information class with the Recreation Department. We will post more information once the class is setup. Curt is also getting our club information out to a lot of the counties around for people who are interested.

Cox Field Club Observing: January 20-21 and January 27-28.

Astronomy News:

From the NASA web site: <http://stardust.jpl.nasa.gov/science/feature002.html>

Stardust NASA's Comet Sample Return Mission

How to Bring Home a Comet

On January 15, 2006, after more than 7 years and billions of miles of travel through space, the Stardust spacecraft will finally return to Earth with some precious cargo - - pristine samples of comet and interstellar dust. Stardust will provide the world's first opportunity to analyze preserved samples of the fundamental building blocks of our Solar System that formed 4.6 billion years ago.

During a brief but daring encounter with Comet Wild 2 on January 2, 2004, Stardust captured thousands of particles and began its arduous two-year journey back to Earth, where its Sample Return Capsule (SRC) will land in the Utah Test and Training Range (UTTR) within the Great Salt Lake Desert.

The SRC will reenter Earth's atmosphere and parachute toward the surface, touching down at approximately 3:15 AM on January 15, 2006. Upon its long anticipated landing, the SRC will separate from the parachute, which will float on its own to the ground several yards away from the landing site.

After the capsule's touch down, three helicopters will begin their complex task of retrieving Stardust's precious cargo. They will fly approximately 10 miles across the desert lakebed toward a UHF homing beacon emitted from the capsule. The first helicopter, flown by a commercial pilot, will lead the way; the second helicopter, a Blackhawk, will be flown by an Army Reserve pilot; and lastly, the third, flown by another commercial pilot, will bring up the rear of the helicopter fleet.

Accompanying the lead pilot will be UTTR's On-Scene Commander (OSCAR), as well as a safety specialist from Lockheed Martin, the aerospace corporation responsible for building the Stardust spacecraft. And in order to ensure the most efficient and safe retrieval of the capsule, the second helicopter will carry the recovery Operations Manager (RCO), a Science Co-Investigator (Co-I) and a curation representative and recovery specialist from Johnson Space Center (JSC).

Staggering their arrival to the landing site, the first helicopter's navigation will unveil the exact location of the capsule and will begin sweeping the SRC landing site with a spotlight to catch its reflection on the dark desert floor.

Once the helicopters set down, the team will then begin the process of preparing the SRC for its history-making analysis. First, a gas sample will be taken and stored for preliminary examination. Then, the SRC will be placed inside a handling fixture and double bagged to ensure that no Earthly materials touch the capsule and contaminate its contents. Then, the capsule will be flown to a prepared staging area cleanroom in a nearby hangar.

Just before entering the cleanroom, Lockheed Martin engineers, clad in "bunny suits" will remove the SRC from its double bags, and take two more gas samples from within the unopened capsule for further examination. Then, because the capsule is encased in thick SLA-561 ablator materials that protect it from the heat of reentry into Earth's atmosphere, the team will have to drill into these protective coatings to access and remove the 12 bolts from the backshell of the capsule.

This is the first time that the SRC will be opened after its ambitious encounter with Comet Wild 2 in 2004.

Deep inside the capsule is a canister that holds the samples--ancient comet and interstellar dust particles that could hold possible clues to the early origins of the Solar System. The canister loosely resembles an oversized tennis racket and contains cells filled with Aerogel-- a substance so light it almost floats in air. During the brief encounter with Comet Wild 2, the sample tray with the Aerogel cells was exposed to capture the prized particles, and then retracted into the canister for its long journey back to Earth.

With great anticipation, the team will then carefully remove the canister from the capsule.

Opening the Sample Return Canister

Stardust's Sample Return Canister will be opened at a curation facility at JSC in Houston, Texas. It is here where science will again make history as the very first pristine comet and interstellar dust samples will undergo extensive investigation and analysis.

The fine dust and rocks in comets are best studied on Earth where complex instruments can be used to fully study the materials at scales approaching atomic spatial resolution.

Working in the cleanroom, scientists will painstakingly activate and slowly open the canister, exposing the sample tray which holds the Aerogel and trapped particles.

As a precaution, team members are prepared to catch any Aerogel pieces that might have become loose during any part of Stardust's interstellar journey. The sample tray will then be secured to a stand, and the individual Aerogel capture cells will be removed from the sample tray with a cell-removal tool.

In order to minimize damage, each cell will be carefully removed and analyzed, paying particular attention to unique features, composition, size, and chemical properties. Each removed cell will be placed in an individually marked box.

The need for laboratory study of samples from the Solar System's most primitive bodies, was the inspiration for the NASA Stardust mission, the first NASA mission to return samples from space since the Apollo 17 Lunar mission in 1972.

These scientists will be the world's first to witness and analyze the fundamental building blocks of our Solar System and may be able to determine not only the origins of the Solar System from these samples, but also possibly the origins of life.

January

<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
1 HAPPY 2006!!	2	3	4	5	6 First Qtr Moon	7
8	9	10	11	12 Club Meeting 7:30 p.m.	13	14 Full Moon
15 Stardust Returns to Earth	16	17	18	19	20 Cox Field Observing	21 Cox Field Observing
22 Last Qtr Moon	23	24	25	26	27 Cox Field Observing	28 Cox Field Observing
29 New Moon	30	31				

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