

Sierra Signals

Sierra Foothills Amateur Radio Club
Auburn, CA
An ARRL Special Service Club

<http://sf-arc.org>

July 2006

P.O. Box 1005, Newcastle, CA 95658

The Attack of the CubeSats!

(Reported by Greg, KO6TH)

They're coming! Or, rather in this case, they're going to be launched! Fourteen little satellites, going into orbit all at once on the same rocket. Launch is planned for July 26th having been delayed from a late June launch by issues with the launch vehicle. All but one of these "CubeSats" is a university project, involving amateur radio in conjunction with other space-related research activities. Ten different universities are involved.

A cubesat is literally a satellite in the form of a cube. For those who are fans of Star Trek, this isn't a Borg invasion; we're talking about little cubes here. Really, really little. Each cube measures a tiny 4 inches on a side, and weighs 1kg (about two pounds). Into

that cramped space go all the electronics, batteries, and wiring to make it all work. The outside surface is usually covered with solar cells, and antennas are coiled around the outside edges, to be released once the craft achieves orbit.

Coordinated by the California Polytechnic State University, each university's project has a different mission. Some are researching materials for use in space, some the control functions necessary to build more active satellites, and some are looking at the space environment itself. For example,

(continued on page 2)

At the Key of S.F.A.R.C.

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Satellites: Greg, KO6TH

History: Gary, KQ6RT

Digital/VE: Rob, WW6G

WEBMASTER

Marc North, W6SQL
marc@marcnorth.com

RESOURCES

REPEATERS

145.430 (-0.6 MHz/PL 162.2)
440.575 (+5.0 MHz/PL 94.8)
223.860 (-1.6 MHz/PL 100.0)

CLUB NET

Thursdays, 7:30PM, K6ARR/R
145.430

CLUB MEETINGS

Second Friday of the month,
7:30PM at the Library, 350
Nevada St, Auburn CA

CLUB BREAKFAST

Last Sat of the month at Susie's
Café, Cirby at Riverside, Roseville
- 8:00 AM

NET CONTROL OPS

Dave Jenkins, WB6RBE
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Joe Sylvia, KF6OQY
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2006 Calendar of Events

(Operating Events in Italics)

[Dates are local unless otherwise indicated]

July 8-9	<i>IARU World Championships</i>
July 14	Regular Meeting
July 15-16	<i>NAQP RTTY</i>
July 29	Club Breakfast
July 30	<i>Flight of the Bumblebees</i>
Aug 11	Regular Meeting
Aug 26	Club Breakfast

We encourage members to receive Sierra Signals via email to save the Club the cost of reproduction and mailing

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Forty Years Ago At The SFARC

(Reported by Gary, KQ6RT)

July 20, 1965

Minutes were read and approved. There were 9 members present. Les and Ken paid dues to end of year.

Joe made motion to let Dick go ahead with the treasurer's books as he sees fit to try to straighten them out. Carl seconded motion and it passed.

The One Hundred Mile One Day Trail Ride was discussed.

Jim brought the Field Day material that he had compiled and Dick mailed it off to ARRL.

Dick Lund will take Treasurers job for balance of year.

Meeting adjourned.

Respectfully Submitted,

Dick Lund, WA6HYO

It was ascertained that Frank Carman, Dick Lund, Otto Rudd, Joe Merryman, Bob Colling, and Gene Epperly were paid up to the end of the year. Less and Ken paid dues to the end of year.

73,

Gary, KQ6RT

CubeSats

(Continued from front page)

MEROPE, the cubesat from the Montana State University, will attempt to map the Van Allen radiation belts as well as to "test hardware and ideas not yet flown in space." Cal Poly themselves will launch two cubes to test and flight-prove the hardware "bus" of the cube platform for future cubesat projects. Cornell University also has two cubes on board, which are focused on the Earth's ionosphere and its impact on the use of GPS-based navigation. KUTESat (Kansas University) will have an on-board camera, and nCube-1 from four universities in Norway will give hands-on experience to its students, as well as demonstrating the possibility of receiving

navigational messages from ships at sea. None of the satellites will have "transponders" for carrying casual ham radio traffic.

The rocket is intended to deposit the cubesats into a roughly circular orbit, 500 by 566 km above the Earth. This will be a "Sun synchronous" orbit, which means that the satellites will travel from pole to pole around the Earth, with the plane of the orbit always facing the Sun. These lucky satellites should have the benefit of full sunlight to power their experiments.

Once the rocket is in orbit, the individual satellites will be released from their "pods". Spring loaded, the five pods carry several of the satellites stacked one on top of the other. Think of it as a cosmic Pez dispenser. Then the fun begins. Each satellite is responsible for turning itself on and becoming active. They generally have a delay built in, so that they don't try to activate and deploy their antennas too soon - that could get them all tangled up. It could also jam the launch mechanism.

But even then, trying to identify and communicate with any particular cubesat will be difficult for a while. Several of them are on the same frequency, and since they are all launched at roughly the same time, they all have roughly the same orbit. It will take several weeks for the satellites to drift far enough apart for their identities and operational status to be confirmed. That task will take the combined work of the satellite command teams, the world-wide satellite tracking system, and many amateur radio operators on the ground providing their reports and observations. The cubesat website will have a link for observations, once the satellites have launched.

Further information on the Dnepr Launch 1 can be seen at: <http://littonlab.atl.calpoly.edu/>

Ralph, WØRPK, maintains a web page with up-to-date CubeSat status at:

<http://showcase.netins.net/web/wallo/CubeSat.htm>

The July 26 CubeSat launch manifest, summarized below, is from Ralph's web page.

Cubesat Frequency Summary for July 26 Launch

Satellite	Downlink	Beacon	Mode	Callsign
SACRED	436.870		1200 baud AFSK	WA4CEW
ION	437.505	437.505	1200 baud AFSK	---
RINCON	436.870	437.345	1200 baud AFSK	WA4CEW
ICEcube1	437.305		9600 baud FSK	W2CXM
KUTESat				
Pathfinder	437.385		1200 baud AFSK	KCØRMW
nCUBE-1	437.305		9600 baud GMSK	LA1CUB
HAUSAT-1	437.465	437.465	1200 baud AFSK	D9ØHP
SEEDS	437.485		1200 baud AFSK	JQ1YGU
PolySat				
CP2	437.325	437.325	1200 baud AFSK	---
AeroCube1	902/928		9600 baud GFSK	---
MEROPE	145.980		1200 baud AFSK	K7MSU-1

Satellite	Downlink	Beacon	Mode	Callsign
MeaHuaka'i				
Voyager	437.405/5.840GHZ	1200 baud	AFSK	---
ICEcube2	437.425	9600 baud	FSK	N2VR
PolySat				
CP1	436.845	15 baud	DTMF,CW	N6CP

(Thanks to Mineo, JE9PEL for compiling the above table)

Late July should be a busy time for the amateur satellite community. We wish them all the best.

73s,

Greg KO6TH

Contesting News

(Reported by Fred, K6DGW)

Selected Contests for July 2006

IARU World Championships: (8 Jul 1200Z – 9 Jul 1200Z)

NAQP RTTY: (15 Jul 1800Z – 16 Jul 0600Z)

Flight Of The Bumblebees: (30 Jul 1700Z – 2100Z)

Contest Comments

IARU World Championships: This is a don't miss contest! The entire world will be on the air and, like the CQ WPX, it's a great place to pick up new countries. The exchange is just a signal report and your ITU Zone (we're all in zone 6). Both CW and SSB, multipliers are the ITU Zones, and multipliers count separately by band. You will also hear stations (generally with the suffix "HQ"). These are the headquarters for each of the IARU member societies, and they will send a signal report and the abbreviation for their society (e.g. ARRL or RAC, RSGB). In addition, stations operated by members of the Administrative Council and the three Regional Executive Committee will send "AC" and "R1," "R2," or "R3." Finally, NU1AW is the station operated by the ARRL who administers the programs for the IARU. Scoring depends on where the station you work is located. Rules at www.iaru.org/contest.html and see below for an added feature this year.

NAQP RTTY: The North American QSO Parties (there are two sets of three, one set in the winter and one in the middle of summer, with separate contests for CW, SSB, and RTTY in each set) are very popular and activity will be high. Multipliers are the states and Canadian provinces, and there is a power limit of 100W which is a real equalizer for those of us with modest stations. The exchange is simply a name and your state/province abbreviation, and you can operate for 10 of the 12 hours (there is an off-time limitation, check the rules). Note that you send "a name" ... any name ... it just has to be the same name throughout the contest (but not necessarily the same

as the last NAQP you entered). Nor does it have to be the name your Mom and Dad gave you. So, if you've always fancied being a boy named "Sue," or a girl named "Norm," here is your chance. Rules are at www.ncjweb.com/naqprules.php and one good thing about the NAQPs is that you can have a lot of radio fun and still have a lot of the weekend left for other things.

One member of my former combat team is N8EA. Joe pointed out that the 40th anniversary of our last airborne mission will be coming up in September 2006 and in a recent email, he suggested I use the nickname they gave me in all three summer NAQP's. One of my guys was a Navy brat and started calling me "Skipper," which lasted all of 15 minutes before becoming "Skip." I've been working my way through the first and middle names of our family, and I'm beginning to run out of names, so if you work me this summer in the NAQPs, I will be a "Skip."

Flight Of The Bumblebees: FOBB is a QRP contest with a little twist or two. You are encouraged to operate outside, use some non-fossil fueled power source, and hike, bike, paddle, or swim to your operating site (how far you hike, bike, paddle, or swim is up to you). If you do go outside, get a "Bee Number" from hjohnc@core.com before the contest. Rules at www.arsqr.com/ars/pages/bumblebees/bb_rules.html Last year, I charged a 12Ah gel cell with a borrowed RV solar panel, drove to the regional park here in Auburn, and schlepped my K2 and gear about ¼ miles into the park. I'm going to see if I can find another equally good spot for this year. My Bee # is 67 for this year.

And finally, WRTC: In even numbered years, the World Radiosport Team Championships are held during the IARU contest. These Championships are hosted by a different country each time (this year it is Brazil), and are a refereed effort. Each 2-person team operates a loaned station in the IARU, and all of the stations are essentially identical to keep the field totally level, leaving operating skill as the only variable. Referees observe each operation. Participation is by invitation from the IARU member societies, and this year, Dean Straw (N6BV and Editor of the ARRL Antenna Book, 20th ed.) and president of the No. Calif. Contest Club will head up a US team. Call signs will be assigned just before the event starts from the block PT5 and PW5 with one letter suffixes. More info about WRTC and previous year's results can be found at www.arrl.org/news/stories/2003/10/16/4/?nc=1 (you may have to browse around from that URL to find this year's info).

73,

Fred K6DGW

June Meeting Minutes

(Reported by Leslie, K7NYE)

Minutes of the SFARC Board and General Meeting, June 9th, 2006 at the Auburn, CA main library:

Board of Directors meeting began at 7:02 PM with all officers in attendance. New business was brought up by Casey, W7IB. He is contacting Troy Baucom, AE6VP a teacher and ham from Whitney Ave. Elementary in the San Juan Unified School District. Casey will ask him if he can speak to the club about his ham radio work with elementary school children. (Since that time, Troy has agreed to speak to the club.)

Old business brought up included upcoming Field Day preparations needed. Discussion ensued about the various supplies and equipment needed to make Field Day a success. Club picnic in August was also mentioned. The draft of the SFARC Club brochure was presented by Leslie, K7NYE and Wayne W6DT. Joe, KF6OQY suggested a public introduction to ham radio, a community based event where individuals new to ham radio could obtain more information about the hobby. Board meeting was adjourned at 7:28 PM.

SFARC General Meeting Minutes:

7:34 PM Meeting started by W7IB, President, Casey McPartland; Meeting started with Pledge of Allegiance, Introduction of SFARC Board Members and introductions were made of all club members and guests, total of 33 in attendance; Vice President, Treasurer's and Secretary's report from last meeting was given; Committee reports were made. These included ARES, VE, Repeater and Satellite reports by the designated representatives. George, KG6LSB reported that SFARC currently has 55 dues-paying members at this time. The draft of the club brochure was introduced by Leslie, K7NYE for comments and suggestions. Greg, KO6TH said that contact will be attempted to the ISS on Field Day on 145.800. Rob, WW6G mentioned that regarding BPL, technology companies are introducing options to prevent interference with amateur radio frequencies. Rob touched on a technology, named Internet Zero, that allows the intelligent linkage of all appliances in your home. Marianne, KA6EST gave feedback on a test for the SOS sweep riders for the Tevis and Western States run. The test determined if APRS could be used in the American River canyon to help track the sweep riders as they do their job during these events. The test was successful and will be repeated on June 24th with a second digipeater. This means that the sweep riders will be outfitted with a tiny tracker that will communicate with a digipeater, providing their exact coordinates on a computer.

New Business:

No new business was introduced.

Presentation:

Ed, N6EOD led a discussion about the upcoming field day events in Nyack on June 24th-25th, including planning and equipment needed for a successful outing. Radio equipment, antennas, food, supplies and other necessary items were identified. Everyone attending is responsible for bringing a side dish for dinner, as well as his or her own set-ups (plate, cup, utensils), chairs and awnings for shade. The talk-in frequency is 147.58. The exit number for Nyack is Exit 156.

Gary, KQ6RT, held monthly Drawing. Meeting was adjourned approximately 9:30 PM.

Respectfully submitted:

Leslie, K7NYE

Secretary

APRS Update

Maryanne, KE6EST, wanted to thank Greg, KO6TH for all his assistance with the APRS before and during the Western States 100 (WSER). Results of the testing showed that some of the equipment worked and some of it didn't. All testing is on hold for now. Maryanne was hopeful that SOS would have their own tracking system, but it doesn't look like it at this time. Maybe in the future we need to do more research of affordable equipment. At this time there seems to be disagreement about the value of the input from the APRS.

Items for Sale

The following items are a partial list of items that once belonged to Roger Hedgepeth, N7TK (silent key). Richard, WA6RWS, will be bringing these and other items to our next club meeting to offer them for sale. He has not yet set the prices, but will do that before the meeting. If you are interested and need any additional information, please contact Richard.

<u>Make</u>	<u>Model</u>	<u>Description</u>
Heathkit	HW8 1975	QRP HR Transceiver 2/5 to 3.5 watts 13.4vdc
Heathkit	HR-10B 1968	HF tube receiver
Heathkit	HWA-7-1	HF QRP Power Supply
Icom	u2AT 1987	2m handie talkie Max 3 watts w/PL dipswitches
Yaesu	FT7100M 2001	Mobile VHF/UHF w/remote kit 50/35/20/10/5 w
Yaesu	FT2400H 1991	Mobile VHF 50/25/5 watt w/encoder
LDG	AT-11MP	Automatic Antenna Tuner
RF Concepts	2-23	2M Power Amp 2 in 20 watts output + SSB
Comet	CM-420	15/60 watt 144/430 SWR/ Power Meter

<u>Make</u>	<u>Model</u>	<u>Description</u>
CenTech	P30756	Digital VOM
Samlex		
America	RPS 12-15	Power Supply
MFJ	941C	Versa Tuner HF
Trac	CMOS Keyer	Electronic Keyer
Bencher	BY-1	Iambic Paddles
Roanoke	Doppler DF Kit	
Van Gordon	G5RV	HF dipole antenna
ARRL	QST Magazines	
Radio Shack	Pulser/ Alarm Watch	Checks your pulse
Books		
Misc Magazines		

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Editor's note: Anyone wishing to submit items for sale may do so by emailing me with the details (in a plain text or Word document) and I will publish as space permits.

Raffle

Gary would like to thank Gene Freeland, KG6NYH who has agreed to become our new Raffle Chairperson. Gene will be taking over his new duties in the fall. Thank you Gene for volunteering!



Don Tollefson
Owner

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Facsimile 916.722 2489
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**SIERRA FOOTHILLS AMATEUR RADIO CLUB
2006 MEMBERSHIP APPLICATION**

Name: _____ Call: _____ Class: _____ e-mail: _____

Address: _____ City: _____ State: _____ Zip: _____

Associate Name: _____ Call: _____ Class: _____

Phone Number: _____ Application: (Circle One) New Renewal

Member Dues: Circle Amounts That Apply. Applications received in the middle of the year will be pro rated. Contact the President or Treasurer for exact rate.

Membership:	\$22.00	Name Badge:	\$7.00
Associate:	\$ 7.00	Repeater Donation:	\$ _____
Auto Patch Donation:	\$ _____	Newsletter Booster:	\$ _____
Miscellaneous Donation:	\$ _____	Christmas Donation:	\$ _____
Worldradio Renewal:	\$ _____	TOTAL:	\$ _____

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Date: _____	Treasurer: _____	Secretary: _____	Roster: _____
Payment: _____	Check Number: _____	Cash: _____	