

August 2006
 KL7KC
 Fairbanks, Alaska



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*A Dog's Leash, Baloney Sandwiches, and a \$20 Bill
 (or how we fixed the Chena Dome repeater)*

By Dan Wietchy KL1JP

The Chena Dome repeater has been ill since last December, sometimes working, sometimes not working, or working on abnormal frequencies when it works at all. It has not been reliable, period! The situation was especially distressful during the last Yukon Quest when the AARC crew stationed at Angel Creek had to switch to abnormal frequencies to get dog and musher data to our communication center located at the Log Cabin visitor center.

So, my decision to hike out to the repeater was a result of someone needing to repair the problem for the upcoming 2007 Quest communications and because it is one of the few repeaters I can access from home. Living where I live, the 146.79 has always been my repeater of choice. I guess I was being somewhat selfish in selecting this as my "adopt-a-repeater" project.

The Chena Dome repeater is accessible via helicopter or hiking. You can't "get there" by driving to it. So my story begins innocently enough.

The repeater was first established on February 15, 2003 by Brian Lawson (WL7TP) and Kevin Karella (Benny's son in law). They delivered it, via helicopter, and placed it into an insulated communications conex on top of Chena Dome. The conex is powered by both a series of solar panels and a

wind driven generator, which charge a rechargeable multi-cell battery array responsible for providing power to our setup as well as a variety of emergency communications radios operated by ATT/ACS. The AARC gear piggybacks on their system. The AARC repeater package consists of a Kenwood 79A (dual-band) hand held radio driving a Mirage BD35 dual band amp. The 79A power is turned down to put out about 800 ma. This drives the BD35 to about 9 watts. The antenna is a Diamond X50A dual band located on top of the roof which is about 10 feet off the ground. When working, the repeater gives good coverage from Eagle Summit all the way to Fairbanks with exceptional coverage up and down Chena Hot Springs road. Oh sure... a couple of locations are spotty but the signal out at Angel Creek Lodge is +20 over. It's perfect for the Quest communications back to into Fairbanks!

somewhat scanty (that's putting it mildly). We wandered around a bit and selected what appeared to be a wide, but very wet ATV and foot-traffic trail. Simply following the trail for several miles led us through 4-6 very wet, low lying ponds scattered among bogs suitable for low bush blueberries, but not two guys wearing hiking boots instead of hip waders. The only one who had fun in the ponds was the dog. Over the next several hours – with the water squeezing between our toes, we hiked about 3 miles – through burned areas,

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ARES Needs Help!

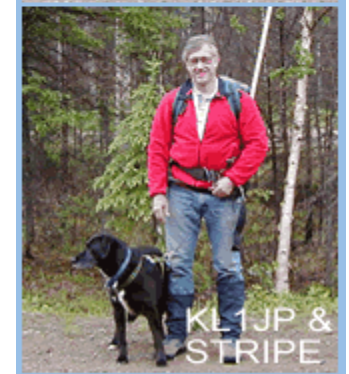
There will be a mass casualty exercise August 8 starting at 8AM. This will involve transporting 25 "patients" to Fairbanks Memorial hospital via helo and ambulance.

We have been asked to participate with stations at FMH, the Borough EOC on Pagar Rd, the EOC in the Borough building, 3rd floor Salcha Conference Room and possibly at Eielson AFB.

Contact AD4BL to help: 488-7046.

First Attempt

Kody (KL0RN) and Dan (KL1JP, with his dog Stripe) drove out to 50.5 mile Chena Hot Springs road and began to determine a potential trail out to the repeater. We picked this as a starting point because it looked correct on the USGS topo maps. At this point, neither of us realized there was actually an Upper and Lower Chena Dome Trail system. When no one has ever hiked to the repeater site, information is



(Chena Dome —Continued from page 1)

not so burned areas, and of course - more swamps. Surprisingly, it was walking through one of these “wet” areas that I looked down and found a wadded-up \$20.00 bill. “Wah...Hooo... someone just bought us burgers at the Chena Hot Springs Resort!”. We eventually reached the top of a small hill and there, we came to the unfortunate discovery that we were situated in between the two possible ridge routes that could take us to the repeater. So much for our first attempt. Kody and I called it quits at this point. As we headed back to our vehicles, we decided it would be prudent to continue to explore the area. Along our return route, we saw at least a half-dozen “other” trails. After further investigation, these turned into a variety of north/south brushed survey lines, US Cadastral survey boundary lines for the adjacent property owners and other trails just seem to stop in the middle of nowhere. These may actually be dozer trails put in when the fire-fighting crews were attempting to control the Wolf Creek fire (do you remember 2004?). After arriving back at our trucks, we examined the back-side of the State Recreational display and much to our dismay, posted there, in all its glory were Xerox copies of the Upper to Lower Chena Dome Trail. And it appeared that this trail passed

directly by the repeater site. It was definitely one of those “duh” moments. Kody and I could have saved the day, at least, by starting out on the correct trail. Some may think that our first attempt was useless but quite the contrary; we now know where the correct trail starts and we know where many of the “other” trails go. Prior to us going “there”, there were rumors and rumors of rumors that an ATV access trail existed. Although an ATV trail does exist, it appears to either dead-end after 4 miles or continue to the east along the lower section of Angel Creek.

Lessons Learned

After arriving home and mulling over the unfortunate series of incidents on our false start, I checked the weather and decided to make a second but solo attempt on Saturday. This time, the weather was definitely in my favor. Loading up the radio gear and the dog, I once again drove to the 50.5 mile CHS take-off point. I commenced hiking, this time on the correct trail system. Hiking is hiking. You point yourself in the right direction and simply put one foot down in front of the other, enjoying the scenery and companionship. Three miles of winding trail through burned and not so burned areas while sighting lots of porcupines gnawing on the fresh sprouts. At the 3.2 mile mark, you literally pop open onto the high alpine tundra ridge system. From there it’s up and

down, then up again, then down again, etc... About the hardest thing were the two sections of the trail that are just killers: 900 feet straight down on a 45 degree slope - crossing a horizontal 500 foot saddle - then 1,000 feet up on a 45 degree slope. And... there are two like that! Whew....

After 9 hours of continuous hiking, I eventually reached the repeater. Setting my pack down and removing the dog’s pack system, we had lunch. God bless baloney and cheese sandwiches. There’s nothing better than one served up with a magnificent viewpoint! And, I had made it to the site. If nothing else, I could accomplish a data gathering session for Benny – we could have pictures and documentation of what existed and how it was put together. Maybe, even fix the problem. Prior to my arrival, very little was known about this particular repeater. Evidently, the helicopter trip and radio assembly was completed in a rather hurried environment so very little, if anything was documented.

The first item on my list was to

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Send your photos to n1tx@amsat.org





(Chena Dome — Continued from page 2)

find out if the key fit the lock on the conex door. I could just envision hiking all this way and finding out that I'm locked out. Let me tell you, I took a really deep breath before I tried to fit the key into that lock. **And - It fit!** I can't begin to describe how elated I was when I started to swing that door open. The rest of the repair operation was a systematic series of testing, replacing, finding the correct connectors, and figuring out what was wrong. With Jerry's (KL7EDK) help via HT back to Fairbanks on 146.88, I was able to deduce that the antenna was not working. Now – how do you get on top of something that's 10 feet off the ground without a ladder? It took a few minutes for me to piece together that I could use the dog leash and a carabineer I brought and sort-of-push-it-up until it snagged onto a sturdy steel support angle bracket. Using that, I basically pulled myself up and onto the conex roof. When I touched the antenna, the coax simply fell out. **It wasn't just loose, it wasn't even connected!**

From what I can deduce, the 6mm set screw holding the antenna to its mount had either fallen out or it was never put in. Over the years, the wind pushed on the antenna's tiny

ground plane radials and slowly but inexorably turned it around and around, slowly... oh so slowly unscrewing the coax – until it simply fell out. It appears that the coax itself was acting as a pseudo antenna. Extra set screws were one thing

that I had actually thought to bring along so I replaced it while Jerry drove up Chena Pump road to test the system from Fairbanks. His report said that it worked again! Realizing that the power amp had not been connected to an antenna for a while, I replaced that too in the event that it was electronically damaged while attempting to transmit without an antenna connected to the system.

Hiking out was similar to hiking in. You again put one foot down in front of the other, stopping occasionally for food and water. Dogs make great hiking companions; they watch for bears, they don't get stuck in the mud and they don't care how badly off key you sing. Stripe also helped pull me up hills when I was tired and together we eventually returned to the trail head, arriving at 1:45am (the next morning). From there we headed home. Mission accomplished!

A Round of Applause

As for the trip, it was a 21.5 mile - 16 hour grueling hike. But, I could not have asked for better weather and the

view from up there is absolutely gorgeous. Several people (and the dog) deserve a round of applause for their generous support; Benny (NL7XH) for putting all the components together and showing me how to “fix” things, Kody (KL0RN) for helping me on the first trip – to discover where many of the trails go and to dispel several myths about what exists and what doesn't exist; to Jerry (KL7EDK) for helping me to troubleshoot the problem, offer tentative suggestions and for staying up most of the night near his HT to make sure I was safe; and to my dog Stripe who carried extra water, radio parts and 75 feet of coax to the site. Had Stripe not been along, I would not have had the leash or carabineer to access the roof antenna.

The repeater system needs your support; which may come in many forms: physically going to the sites, offering to drive someone to a site, perhaps monitoring your HT to make sure people get in and out again in safety or perhaps showing up with cookies and coffee at the start or end of a repair job. It's *your* club. If you don't lend a hand – then who? ☺



23cm Experiments for D-STAR



By Pierre Loncle AL7OC

Al KL7NO and I are conducting base-mobile propagation testing on 1294.500 MHz. The objective is to get some idea on what kind of range a D-STAR system would have on the 1296 band. Albert is using his ID-1 D-STAR digital voice and high speed data radio in FM mode with a high gain base station antenna. I am running mobile with his IC-1271A radio and a magnetic mount high gain antenna. We are just starting to take note of propagation characteristics and having fun doing so.

As expected, the range is very much line of sight. We have noted significant Rayleigh noise caused by multipath propagation. Some test results have been a little surprising; we'll share those findings with you all in the near future. Covering Fairbanks on 1296 FM/DV will be a challenge for our RF hardware experts. The nice thing about 23 cm is that you can get a very high gain antenna in a small package.

If anyone has a 23 cm rig capable of FM, a vertically polarized antenna and interest in learning about terrestrial communications on this band, feel free to join us in our experimenting. I will go to the top of Ester Dome with the mobile someday soon. We can set up a schedule if anyone wants to see if they can hit the Dome from their home QTH on 1294.500.

I heard a new D-STAR station on 147.5100. KL0RN was able to get into town with his HT and an external antenna from North Pole. I heard him quite well on Chena Ridge with his IC-V82 handheld with a rub-

ber-ducky antenna. Hopefully, we'll get enough interest to set up a 2m DV repeater and gateway here in FNSB. If testing goes well enough on 23 cm, maybe we'll have a 128K DD node and DV repeater on that band as well.

My pipe dream would be to see Fairbanks, Anchorage, and other communities on the road system linked together via D-STAR zones. The primary link could be via ISP with a microwave back-up plan. A D-STAR networked radio system could function similarly to the APCO P25 based ALMR system in use by the DoD and SOA. The concept would be to have local zones established with the capability to route your radio traffic to other zones or specific users in any zone. This would simplify connecting zones wherever you can establish an Internet connection.

Some may balk at the idea of using the Internet as a backbone for linking zones. Yes, it would be nice to be able to use amateur UHF and microwave links to do the same, but the investment in hardware and maintenance to do this is a lot for a club to take on. There has been discussion about linking Fairbanks and Anchorage together on an amateur microwave system using Denali as a passive reflector. There has been some success in doing so, but the results are not consistent enough for a reliable link on any one band. Perhaps using frequency diversity and a voting receiver controller could overcome this problem? If your Internet connection is lost, each zone will still function as a local repeater so long as you have power to the sys-

tem.

Of course, we are not beholden to the Internet for long distance communications. That's why we have HF multi-mode radios. It's just that we can do a lot more with digital radio technology when it comes to public service communications. I strongly believe that we should start moving forward with digital radio technologies available as that it the direction public safety radio is moving in. #

Some may balk at the idea of using the Internet as a backbone for linking zones.

D-STAR is an open protocol – although it is published by JARL, it is available to be implemented by anyone. While Icom is the only company to date that manufactures D - S T A R - compatible radios, any equipment or software that supports the D-STAR protocol will work with a D-STAR system. D-STAR systems can be built using both commercial and homebrew equipment and software.

<http://www.icomamerica.com/amateur/dstar/>

Tour-de-Cure Wrap-Up

By Helen Brown KL0CM

Ham participation in the Tour-de-Cure (something we have been doing for over a decade) started off bleakly, with only 3 checkpoint hams and 4 riding hams signed on at the May meeting.

Then things got really bad. Two of the 3 checkpoint hams discovered a time conflict (for some reason they thought going to a wedding took priority over ham activities).

Then 2 of our 4 riding hams developed health problems and couldn't ride.....

Sue Englebrecht, KL0UE, accompanied by harmonic and major fundraiser (congratulations Carl Eshright, 11 years old and 5th place fundraiser two years running) picked a good time and location to run out of gas. More on this in the discussion of problems.

By the time the ride was over the only ham to complete it was KLOVB, Ray Hynson. Bravo, Ray!

(Seriously, If you want to ride next year, but don't feel up to the whole 25K route, sign on for a stretch of it. Find a partner and commit to each do half -- even 2 partners and each do a third.)

As far as checkpoints go, when the time came the club came through beautifully.

We had 2 hams at most checkpoints.

Only yours truly was unable to do her assigned job. Next time I commit to a checkpoint I will make sure ahead of time that you can see the checkpoint from someplace safe to park a

car. Either that or I will get 200 feet of cable and turn my car-mount into a shoulder-dragger-bag held.

KL7AZ, Al Webber, was net control. This allowed those who have been hams in Fairbanks for over a quarter of a century to wallow in nostalgia.

He was assisted by a comparatively juvenile KL1PF, Scott Rosengren. Scott proved it isn't just Boy Scouts who are always prepared. He showed up with 2 boat batteries on a hand cart. Good thing, too, as the promised drop cord with GVEA's highest quality commercial electrons failed to materialize. (Does this sound familiar folks?) The 8 foot stockade fence surrounding our venue did a fine job supporting a portable mast and antenna which Scott also brought. Scott's "portable" rig may bear a stronger resemblance to field day than it does to a hand held, but it sure does a bang-up job. Thanks, Scott, we would have been hard pressed to run net control on a fist-full of AAA batteries.

Most outlying checkpoints went smoothly.

KL1NU, Myles Thomas was at the Vallata (Ballaine & Goldstream Roads)

KL1WI, Wei Yuan Wang and KL1JP, Dan Wietchy held down the fort Out at Fox (Goldstream and the Old Steese) after our original couple had to cancel.

KL0RN, Kody Moore, had worried about bears (the bear killed the previous week was shot a quarter mile from where Kody was staked out with a box of bananas -- leaving Kody feeling just a tad like bait). But

the wedding taking place at Dog Musher's Hall (wonder if this is where our original Fox couple was?) kept all four-footed livestock away.

Since I was unable to simultaneously see the riders and use my radio I cleverly had Fred, KL7CUS, beloved spouse, occasional alter ego and designated "float" grab his hand-held and fill in for me.

KA2TJZ Randy Stein and WL7GK, Bob Kreiser, held down University and Geist, the first checkpoint out and the last one home. KL7AZ, John Slater was joined by Jim Matthews KL0JM and Ken Klopf KL0PF, at Steese and Johansen, definitely our most popular spot.

WL7GKM, Greg Martin had the lonely spot where the Johnson crosses College Road. Cars get a beautiful overpass, but the bike trail dips down to surface level where it blindly leaps from behind an abutment to cross College Road. Being at this location can be incredibly dull. And boy do we want it to stay that way. If we ever needed here we will be desperately needed.

For the second year running, and it does involve running, Carol Klopf was our go-for. She patrolled stretches of road to make sure all Tour-de-Cure riders were done, responded to calls for help and made all of us feel more secure.

Once relieved from my original location I went to Johansen and Danby, not a check point, not a refreshment stop, but a good place to see who the real stragglers are. And we had stragglers. We also had a few

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**Thanks, Scott,
we would have
been hard
pressed to run
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AAA batteries.**





July 12, 2006

Helen Brown
Arctic Amateur Radio Club
Fairbanks, Alaska

Dear Helen,

On behalf of thousands of people affected by diabetes in our community, I thank you and the membership of the Arctic Amateur Radio Club for your dedicated, skillful and dependable volunteer service to the Fairbanks Tour de Cure.

The Arctic Amateur Radio Club has provided the vital safety and communication network for our fundraising event since 1994 (1992?), donating over 3600 volunteer hours of service to the Tour-de-Cure. (6 hrs per event, 20 volunteers, 15 years of service)

The Tour de Cure is a national fundraising event for the American Diabetes Association providing local participants and volunteers an opportunity to support programs such as:

- National research to discover a cure for diabetes.
- Vital services for people affected by diabetes including patient and professional education, resource guides, standards of care, and patient support groups.
- Summer camp for children affected by diabetes.
- Advocacy and public awareness campaigns.

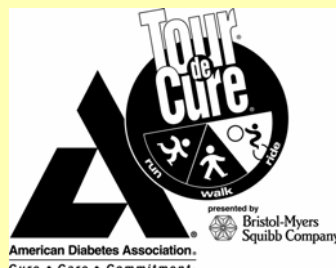
Diabetes is a very serious disease that affects over 18 million people in our nation. It is a leading cause of heart disease and stroke. Other complications from diabetes include blindness, amputation, and kidney failure. 780,000 people will be diagnosed with diabetes this year and more than 180,000 will die. Approximately 7500 people in the Fairbanks area, and more than 40,000 Alaskans, are affected by diabetes.

We are very honored by the continued commitment of the Arctic Amateur Radio Club to the health of the Fairbanks community. We hope you have found value in our partnership to support a cure for diabetes.

With profound gratitude,

Sincerely,

Betsy Turner-Bogren



“The Arctic Amateur Radio Club has provided the vital safety and communication network ...”

Health Department Gets an Antenna Lift!

The Health Dept is delighted to have the system available and on location.



I said cut me some slack!

Success at last! A big thank you to Scott KL1PF and Jerry KL7EDK along with Ann (Scott's XYL) Bill KE4ITP and Wade the AC man with DOT. They mounted a 10ft mast section on the air shaft with the antenna on top, so it tops out at about 14.5 ft above the roof and is clear of all the metal objects around it. As you drive by the Health Dept on Airport Way, you can clearly see the antenna. Hopefully, we will not need to address this subject again any time soon!
Thanks to everyone who helped with this project.....now onto the next one. DE AD4BL

Building a Modest Contest Station — Part I

By Larry Ledlow, Jr. N1TX

The contest bug nipped at my ankles after my first Field Day with the Carroll County (Maryland) ARC in 1982. Most folks who know me in everyday life would probably agree I am not by nature an overt competitor, but a ham radio contest can really get me excited. Since that first taste of competition, my ability to participate in contests has waxed and waned with various moves around the world as well as the solar cycle. However, the dream to have a "decent", effective contest station I can operate by myself or with a few others has persisted for nearly a quarter century. I assume others reading this newsletter must have similar thoughts. Now that I am making some important strides towards my goal, I thought I would share with you my various experiences by documenting the building of the N1TX HF contest station. It will be an ongoing series.

My primary objective is modest by HF contesting standards. I want my station to be easily configurable as single-op, two-radio (SO2R) or multi-operator, single-radio (M/S). The work to construct a multi-operator, multi-radio contest station is simply beyond my interests and means, at least at this point in my life. My rationale for SO2R is pretty simple: I want to be able to operate the station effectively by myself. M/S simply means inviting some friends over for

the weekend and sharing one transmitter. It's an easy change between the two. A multi-multi effort gets far more complicated, because you typically have one radio per band and/or mode. Aside from just the sheer number of radios and antennas needed, you have to have complex antenna switching and filtering schemes, networked logging workstations, and so on. Moreover, there appears to be not enough interest in the local area to drive a serious multi-multi effort. Even world-famous KL7RA had to recruit operators occasionally from Outside for his multi-multi superstation.

The first thing I needed to establish was the category of operators against whom I wanted to compete. Single operator is obvious based on what I have said so far, but also low-power operation (100 watts or less) suits my interests. While 1.5 kW has many advantages, I personally believe you can get more bang for the buck by investing in a good antenna system. Only when I am satisfied my antennas are suitable will I consider upgrading to high power. In addition, beefy amplifiers demand beefy cables, switches, tuners, and other heavy-duty equipment, which naturally drives up the budget. So maintaining the 100-watt design requirement is good for both my pocketbook and matrimonial harmony.

I won't belabor radio selection, which could be an entire book in itself. However, I do insist

any contesting radio should have excellent selectivity to help reduce interference in crowded band conditions. In terms of radio features, that means solid IF filtering using crystal or mechanical filters or digital signal processing. In my opinion, audio frequency filtering or DSP is not suitable for anything other than casual operating. A feature very nice to have is computer control of the radio, but it is not essential. Thus, the radio budget itself can be quite modest, since even old tube rigs can fit the bill as long as they have a decent front ends and good filtering.

Computer logging and operations is a given. A computer can obviously ease the workload in logging and checking for duplicates. Just as importantly, though, is that using a computer to send (not to receive) CW and having a "voice keyer" (using recorded messages to call CQ and to send exchange information) can significantly boost the contact rate. When the bands are open, running 100-200 contacts per hour is not unusual. Without a computer, sustaining your voice or avoiding writers cramp after a few hours is impossible. Remember, most contests run 24-48 hours!

In the coming months, I'll take you through antenna considerations and installation, software and accessory selection, product reviews, and a lot more. 73 for now! #

While 1.5 kW has many advantages, I personally believe you can get more bang for the buck by investing in a good antenna system.

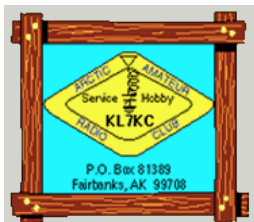


Arctic Amateur Radio Club

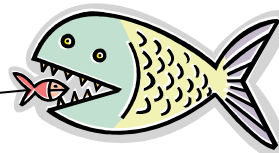
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E-mail: bennie@acri.net

Visit www.kl7kc.com for the
latest club news and events!

Service to Interior Alaska: We can, we will, we do.



FROM THE BOARD: August club meeting will feature Eric Nichols KL7AJ discussing care and repair of linear amplifiers. Learn the basics of their design, common problems, and where to go for help. # Board meeting this month will be a potluck hosted by AD4BL and KE4ITP. Watch your inbox!



Calendar of Events

Aug 4: Club meeting UAF IARC @ 7 PM. Pre-meeting starts at 6 PM.

Aug 5: License exams, Noel Wien Library 1 PM. Contact NL7XH.

Aug 19-20: International Lighthouse and Lightship Weekend. <http://illw.net/index.html>.

Sep 1: Club meeting UAF IARC @ 7 PM. Pre-meeting starts at 6 PM.

Sep 2: License exams, Noel Wien Library 1 PM. Contact NL7XH.

Sep 2: Russian RTTY WW Contest -- sponsored by Radio Magazine from 0000Z-2400Z.

Sep 2: Russian RTTY WW Contest -- sponsored by Radio Magazine from 0000Z-2400Z.

Sep 15-18: Get Your Feet Wet Weekend -- CW, sponsored by FISTS CW Club from 0000Z Sep 15-0000Z Sep 18. www.fists.org

Sep 30: HAMFEST. Elk's Lodge. STAY TUNED!

ASTRONAUT N4BQW SK

NEWINGTON, CT, Jul 27, 2006--Retired space shuttle astronaut and DXer Chuck Brady, N4BQW, of Oak Harbor, Washington, died July 23 following a lengthy illness. He was 54. During his years as an active astronaut in the 1990s, Brady was among the pioneers of SAREX (Shuttle Amateur Radio EXperiment). He was active on ham radio during the 16-day STS-78 shuttle mission in 1996, then the longest ever. Brady was a radio amateur long before he took part in SAREX. Following his career as an active astronaut, Brady went on to take part in several popular DXpeditions.

Don't forget elections!

Board member and officer nominations are due now! Please vote with your actions by volunteering. Contact n1tx@amsat.org.

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