

Aeronaut

Volume 17 Issue 1 July 2011

Tripoli Rocketry Association, Inc. Prefecture no. 23



President's Pad

Tony Alcocer

Not much going on in the way of Prefect stuff. We did get a TRA equipment grant of \$150 that we put towards some new batteries for our launch system. TRA is also working on a new L2 written test. AeroPac is doing well. Membership is good. Attendance at Mudrock seemed to be down a bit. I'd like to blame the economy for that. I am seeing a couple of new faces out on the playa which is a good thing. Like I said not much going on, which is a good thing. Also, BOD elections are coming up. We have three seats opening with only one person running so far.

As for me personally. I did start building a new 98mm minimum diameter rocket. As I was getting ready to start laying up the body tube, I got to thinking. There's a bunch of rocket videos but not many showing how to build a rocket. So, I video taped a lot of the steps in scratch building a fiberglass rocket. I think there are 10 videos on building this rocket. You can search You Tube for Tfish38 to see the videos or follow the link on page 12 of this newsletter.

I also gave a class of sorts on making Research motors on The Rocketry Forum.

<http://www.rocketryforum.com>

The Research section is restricted to:

- 1) NAR or TRA senior member
- 2) US Citizen
- 3) High Power Certification Level 1, 2 or 3 and you need to sign up to gain access to that area of the forum. If you've been thinking about getting into Research you might sign up and go take a look.

2011 Schedule

Aeronaut August 4-7

ARLISS September 12-15

XPRS Research September 12-15

XPRS September 15-18

End Of the Year Party December 4th

Aeronaut Setup on Thursday the 4th **Research Day** on Friday the 5th with flying Saturday and Sunday.

ARLISS setup day Sunday September 12 with ARLISS student activities thru Thursday the 15th and the student presentation banquet on Friday the 17th.

XPRS Research runs concurrent with ARLISS wrapping up on Friday the 15th.

XPRS Setup on Thursday September 15th XPRS flight operations begin on Friday the 16th.

End of the Year Party Sunday December 4th Time 2:00pm – 5:00pm

Location: Mt. View Masonic Hall 890 Church St, Mountain View, CA 94041





AEROPAC Officers

President / Prefect - Tony Alcocer

Vice President / Equipment Manager - Richard Hagen

Secretary - Mike Brest

Chief Financial Officer - Eric Kleinschmidt / Becky Green

FAA Liaison Officer - Steve Wigfield

Education Director - Ken Biba

Social Outreach Director - Peter Clay

Launch Director - Peter Clay

Assistant Launch Director - Seth Wallace

Webmaster - Jamie Clay / Patrick Wagner

Contest Director - Darryl Paris

Newsletter - Ken Adams

Contact: officers@aeropac.org



Photo Kevin McGrath

AEROPAC Board Of Directors

Chairman — Ken Biba

Tony Alcocer

Seth Wallace

Steve Wigfield

Gary Rosenfield

Mike Brest

Eric Kleinschmidt

Karl Baumann

Ken Adams

Contact: bod@aeropac.org



Photo Patrick Wagner



MUDROCK WRAP-UP

Peter Clay

Well 2011 started off with a bang!! Quite literally, I blew two tires on my motorhome just getting to the Black Rock Rendezvous. This year's Rendezvous, while it was beautiful as always on the Playa, was kind of a bust. With wind, on and off rain and extreme cold it kept the flights to a minimum with nothing bigger flown than an I. The Friends of the Black Rock (hosts of the rendezvous) were still grateful that we made it out there and besides my brief presentation and talk to the huddled masses in their camp the visitors did manage to see a couple of flights. There was a light rain into the evening Saturday and we were greeted with snow covered mountains all around us Sunday morning. With the sky threatening more rain we packed up and left early, all hoping for a warmer and drier Mudrock in just a few weeks.

Photo P. Wagner

Mudrock did not disappoint, it was much warmer and no rain though we did have the largest lake that I have ever seen out there during a launch. It made for some amazing views and photos as I am sure many if not all of you have seen Ken Adams's and Patrick and George Wagner's wonderful images and videos on YouTube and the web. The lake of course moved with the wind and was amazing to watch. Saturday the wind blew most of the day and by Sunday morning's sunrise the wind had died off and the lake was gone, only to return by late morning, just amazing stuff. Friday was our best flying day and we managed to get off quite a few flights with some of us landing in the mud or directly in the lake, what an interesting and challenging retrieval that was. Sunday morning was calm enough that we got off a few more flights and even had two rocketeers get certified.

Here are the launch stats: Total Flights....123

Motor Class	Flights
A	6
B	8
C	29
D	10
E	11
F	4
G	16
H	6
I	10
J	5
K	9
L	2
M	7

Special congratulations go out to the folks that certified at Mudrock 2011

Donald Duncan successfully achieved Level 1 and 2 on Sunday and Mark Matthes successfully achieved his Level 1. Welcome to High Power gentlemen.

Some of you may not know but there was another first at Mudrock, no vendor!!!!

Jack Garibaldi (What's Up Hobbies) was scheduled to be at Mudrock but broke down just outside of Sparks, NV. We heard this report from folks arriving in on Friday that Jack had sent an email to the list but was hopeful that he might still make it out there.

By mid-day Friday it was not looking too good.

Mike Mota came up to me and let me know that he had spoken with Jack and was going to drive off the playa to get cell reception at 5pm for the latest update.

When Mike returned it was clear that Jack was not going to make it but they had come up with a plan. Everyone could write down their order on a piece of paper with their name and phone number and if someone was willing to make the four hour round trip drive to Sparks to pick it up we could still have motors and such for the launch.

We made the announcement and the orders started coming in. Now we just needed someone to pick up the order. When the call went out, things got pretty silent and it started to look like we might not find someone but then Jim Beaver stepped up!

So with the help of Mike and Becky Green they organized the orders and Jim and Jamie Beaver made the long trek to Sparks.

They left the Playa around 5:30pm and did not get back to their home in Gerlach until after 1am. Then shortly there after Jim had an emergency call (he is an EMT) and did not get to bed till after 4am.

Despite all that, he and Jamie were back out on the Playa bright and early with all our stuff and with the help of Becky they held off all the eager rocketeers, sorted through all the items and put the orders together with names and then everyone got their stuff.

This was a huge effort on the part of Mike, Becky, Jim and Jamie and the club owes them (especially the Beavers) a big THANK YOU, I know it was greatly appreciated by all and especially What's Up Hobbies for helping to save Jack's weekend from being a total loss.





Reflections

Jeff Rauh

For over ten years my two boys and I have been enjoying a summer tradition of coming out to AeroPac launches in the Black Rock Desert. Our original interest was of course ROCKETS!

I still remember our first launch vividly. We were there just to observe this AeroPac XPRS thing I had read about in the Reno paper. We were awe struck! I remember the Gate's brothers enormous trailer with the roll up sides loaded with huge rockets! Way over the top! We loved it. And everyone was so friendly and willing to answer all our neophytific questions.

Though intimidated, we vowed to come back next summer and complete at least one high power launch. That winter I built a rocket kit for my level one certification attempt. The next summer we experienced "JOY" and I received my level 1 certification and level 2 soon thereafter. I had the bug! My boys have become pretty skilled at tracking and locating my stray rockets and now they too launch their own model rockets. We've even progressed to performing Launch Control Officer duties during some launches. Who would even believe how many rockets you get to launch as the LCO? Rocket heaven is ours!

Last year, Geraet (13) and Hunter (11) along with two friends they brought along, made a video of the 99K rocketry team's impressive launch. This was their first attempt at such a documentary and they were pretty excited. The 99K launch team members were overly accommodating of our movie crew and granted them several exclusive interviews (thanks to Ross O. and Dave R.). The video turned out fine but the video making team ended up firing their technical advisor who failed to conduct sound checks to ensure the audio was operating correctly!

Although we really look forwards to all things rocketry, we also look forwards to reconnecting with the desert. Somehow the Black Rock seems to grow into and become a part of you. I'm not sure what it is: that vast flat unspoiled white pallet; the other worldliness; the simplicity of the playa; the heat shimmer at mid-day; watching the mid-afternoon white outs from the frog ponds; a side trip out to Black Rock Point; the kids flying kites; navigating to the launch site in a white out using the GPS; a soccer game with the other kids; hanging around the burn barrels in the evening (the boys anxiously awaiting the next powder burn); the evenings with the tricked out bicycles; the unmatched night sky; the excitement of the night launches; the spectacular flights and the even more exciting crashes! It's all of it.



I am always impressed with how much knowledge is being transferred in this environment and throughout the club online. I am hopeful that some small measure of that immense collective mind that is AeroPac will spill over into my boy's and turn on their latent engineering genes. If so, cool. If not, we've still got the fun and the vivid memories.

Thanks to everyone in AeroPac who make rocketry such a great experience and a family friendly event!



FROM THE LAUNCH DIRECTOR

Peter Clay

Greetings,

I have emailed with Bob Grossfeld of SunRiver Rocketry and they will be attending Aeronaut. They are the only vendor that I know will be attending as Jack has other commitments. Bob says that they may have to leave Saturday night so buy all your supplies early! I would also suggest that people might think of a contingency plan in case something goes wrong as it did for Jack (let's hope not). For several reasons I will not be attending Aeronaut this year but know the launch is in great hands.

I have been launch director for almost a decade, a couple of years off to do other things like be prefect, etc. and I would like to retire, wait did I not get a golden parachute already??. With that said I would very much welcome "candidates" to reach out to me that would be interested in picking up the reins in 2012, it is time for new blood. There are many folks that have been at the helm for several years and I know a few of them are ready to hand off as well, having some new people step up would be grand. Don't worry as us old timers would be there to help you as you take on a new role.

I will continue on securing the club BLM permit and working special events, but having a new voice barking out over the PA would be something I think everyone would appreciate.

I know we have BOD elections coming up at XPRS, start thinking about your candidacy now!!!!

Roles:

Secure vendors for the launch

Map out flight line (vendors on one side, treasurer and reserved spots on the other)

Lead Morning fliers meeting

Solve "issues" that attendees might have

Halt launch if there is a valid reason (important announcement, need volunteers)

You should be available for set up and tear down

Preferably Attend all launches

Work closely with equipment manager to ensure launch equipment runs smoothly

Collect flight cards after the launch and generate a report of the launch to the membership





In case you missed it

Board of Directors Elections

Seth Wallace

- Board of Directors terms are 3 years in length.
- Directors are responsible for monitoring and supervising the business. As such the Board must address legal issues and appoint the major officers such as the President, Vice President, CFO, Secretary. The Board also approves the President's list of Officers, and various other business and budget related issues that may surface.
- We have three BOD seats up for election this year. The BOD members whose terms are up are Tony Alcocer, Steve Wigfield and Mike Brest. Steve Wigfield and Mike Brest have already stated they will not be running this year due to other obligations, so at least two seats are wide open. If anyone is considering running for one of those seats or if any of those current directors are re-running for their seat, the deadline to make your desire to run known to me via email is Saturday August 13th. The field of Candidates will be announced to the list Sunday August 14th, the ballots will be created as soon as possible after that and mailed like they were last year to be mailed back or handed in at XPRS.
- Once the field of Candidates is announced on Aug. 15th (or before if you wish) Candidates should post to the members list a short bio and short statement of issues you feel are important.
- If you choose to run for Director but fail to make your intentions known by Saturday Aug 14th, you may run as a write-in candidate. 3 or fewer candidates wouldn't be much of an election. It would be nice to have at least 5 candidates and some debate.
- To vote, or to run, you must be a member in good standing.
- The election closes as of 6:00 PM on Saturday of XPRS (that is September 17th). Ballots not received by then will not be counted. Ballots will be accepted on the playa prior to the 6:00PM deadline.

One more thought ... we now carry Director's and Officer's insurance. Coupled with the Volunteer Protection Act of 1997 (Google it) there is minimal personal liability for serving as either a board member or an officer. And the club needs your help. There is no downside.



FROM THE SECRETARY

Aero-Pac has been good for me and I have tried to be good for it. I've been to nearly every launch since I first heard of Aero-Pac. I've been the equipment guy for a period, and I know that that is the hardest job in the club, so be good to Richard! I've assisted in getting the club incorporated, and tried to be a good secretary while serving on the Board. Right now, other priorities in life must unfortunately take precedence over rocketry, and I'll be lucky to make it to one event a year until these other issues are resolved, so I'll be stepping aside and hoping that several of you quality folks out there will compete in this year's election for Board of Directors. Please think it over and give it a shot if you can spare a few hours a month for the club. Maintaining a quality Board is essential to maintaining the club both legally and literally. Take care, I hope to see you all in September, but if I don't:

Fly High and Land Softly.

Mike Brest



FROM THE FAA GUY

I have also decided not to run for re election. Business and family have made it difficult for me to get to any launches lately.

I would like to start training someone to take over the waiver process in the future. I will take care of next year's waiver, but if we find an interested volunteer, it would be helpful for them to observe the process.

-Steve Wigfield



A Virtual Classroom Overview

Ken Biba

As many of you know (and some of you have contributed time and skill), AeroPac is the proud owner of a "Virtual Classroom". The Virtual Classroom began as an idea of Professor Bob Twiggs (inventor of the CanSat and instigator of ARLISS) to extend the science and engineering experience of ARLISS across the Internet to create a "virtual classroom". Through a grant from the California Space Authority, contributions from Sonoma State University and the hard work of AeroPac members - we are about to have a fully realized capability.

I thought I would give a 2011 update on what it is and what it can do. It will be operational at 2011 Aeronaut, XPRS and ARLISS.

The Virtual Classroom is a mobile communications tool, based on former mobile TV van, that can deliver telemetry tracking, video streaming, mobile Internet to track and share stratospheric balloon flights, rocket flights, satellites and other science and engineering experiments that do not take place in a standard laboratory with a wide audience and collaborators on the Internet.



Let' see what it can do. BTW - you should see the comments I get asking me what I am doing as I work on this in San Francisco.

And remember - the VC is asset for the entire Club and for ARLISS and our students - please make use of it.

Internet Service

The foundation of the VC is a core Internet service. The VC provides a dual IP backbone to the Internet - either a 1.2m VSAT or a 4G cellular modem. Both provide about 2 Mbps downstream and 1 Mbps upstream (the VSAT a bit less and the cellular modem a bit more). The Internet backbone is streaming video and VoIP capable, though the sat link has much longer end-to-end delay of 500+ msec roundtrip. The satellite link has a limitation of about 400 kbps for the streaming video uplink - the VC is not HD capable today. The VSAT dish has the uber cool geek feature of "one button" deploy - internal GPS, compass and tilt sensors automatically point the dish and acquire Internet service - in about a minute.

The VC creates a "bubble" of WiFi service around it to access its services from an 2.4 GHz 802.11 g/n WiFi device. The foundation is a 100 Mbps 5 GHz 802.11n backbone that can extend the VC service for many kilometers is desired.

The core user WiFi service is 2.4 GHz 802.11n covering the VC van, AeroPac's camp (out to about .75 km) and extended further through remote repeaters. At AeroPac launches this will include coverage at the away cell. Access to local servers is many Mbps, however Internet access is limited by the relatively narrow Internet backbone pipe.

Telemetry and Tracking

Tracking and communication with rockets, balloons, and payloads is one of the key capabilities of the VC. Mounted on the mast is an array of antennas feeding van configured radios providing telemetry and communications service in four bands:

(Continued on page 8)



Ham 2m 140-148 MHz	Voice and APRS via Kenwood D700 transceiver using a 4 dBi circularly polarized quadrifilar helix antenna
Ham 70 cm 435-440 MHz	Voice and APRS via Kenwood D700 transceiver using a 4 dBi circularly polarized quadrifilar helix antenna
APRS 70 cm 435-440 MHz	APRS RX via Kenwood D7 receiver with 15 dB mast mounted LNA fed from 4 dBi circularly polarized QFH antenna
xStream 902-928 MHz	Digi (formerly Maxstream) xStream mast mounted transceiver with circularly polarized 8 dBi antenna
WiFiinSky 2.4 GHz	A experimental 2x2 multiply polarized MIMO WiFi radio and antenna suite designed for high performance data in the sky

These antennas are particularly designed to communicate with spaceborne and airborne objects, tumbling, rotating and to compensate for the substantial signal loss of polarization and antenna pattern mismatch. The antenna coverage patterns and polarization are optimized for this application and can easily double to triple coverage from more conventional systems.

These radios systems feed a dedicated Windows 7 server in the van dedicated to telemetry collection and forwarding to the Internet. The VC is an APRS IGate and forwards (and receives) APRS tracking data to the world-wide APRS-IS database.

Tracking telemetry forwarded to the APRS-IS is visible on the aprs.fi website - and a window to this website is accessible from the AeroPac web page - tracking projects equipped with compatible telemetry (2m and 70cm APRS - Beeline, and GPRSflight) in near real time world wide.

The architecture of the VC telemetry system permits the straightforward addition of new radios (for example Zigbee).

Video Streaming

The VC has four H.264 streaming video cameras for capturing events: one mast mounted with 10x electronic zoom, two remote battery operated (intended for covering away pads and LCO) and a van cabin mounted webcam. These video sources, as well as a wireless remote to the LCO microphone, are streamed to a Windows 7 video server for mixing, transcoding and streaming to a uStream video server.

Links to the uStream video feed can be embedded in web pages - as on the AeroPac.org web site.

"Roving reporter" capabilities are supported by the uStream on iPhone 4s - using VC WiFi to connect back to the uStream video distribution server.

Collaborative meetings are supported via GoToMeeting - which works surprisingly well across the satellite link.



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Social Networking

AeroPac has Twitter and Facebook accounts that are linked into a social network feed tied to the video stream.

Weather

The VC has a weather station and offers a local web site with current weather. Winds aloft data and weather forecasts can be retrieved across the Internet connection.

GPS

The VC has a central GPS server for its internal services. A Bluetooth GPS service is provided for wireless access to GPS from VC operators (front seat operators during balloon recovery for example).

Voice

The VC has 2m and 70cm base station voice capability as well and 5 W handhelds for Ham (2m and 70cm) as well as GMRS service.

Printing

The VC has wireless print server with a color bubble jet printer.

Platform

2000 Ford van - donated ABC TV Los Angeles - extensively modified for internal electronics, V-10 engine, air conditioning, power distribution, 40' hydraulic antenna mast, 3.5 KW generator.

With current electronics suite, VC can operate off motor alternator power, internal 3.5 KW generator (loud), external 2 KW Honda generator (quiet) or internal batteries for a short time (30 minutes). When using 4G as Internet backbone access (so VSAT dish not deployed) the van can be used in fully mobile mode for balloon and payload tracking.

The VC van can support three people in mobile operation - a driver and two operators.



Photo by Patrick Wagner



Photo Ken Adams



NOTICE: Changes in the contests this year. These are AeroPac contests and we wanted to make a special note that the Extreme Altitude is NOT associated with the TRA Altitude records. These are for fun and AeroPac bragging rights.

Contests

* LOC Precision's "Dude Where's My Rocket" - Parachute time duration for A, B, C, D, E and F motor powered rockets. This contest is for juniors (under 18 years). Very generous and thank you Barry & LOC Precision.

* What's Up Hobbies' Extreme Altitude - best altitude for the motor class, from G to O motors. This one is the most competitive, with heavy action in I, J, and K motor classes. We'll accept barometric altitude from any production altimeter.

Rules for all events:

1. Rockets must be entered in contest prior to flight.
2. Flyers must designate the specific event on their flight card to be an official entry.
3. Only one event per flight.
4. Official flights are from 8:00 am Friday to 6:00 pm Saturday.
5. Awards presented at Saturday night's gathering.
6. There will be awards for 1st, 2nd, and 3rd place in all motor classes, in all contests.
7. Certified motors only.
8. Motor classes: G,H, I, J, K, L, M, N, O
9. Kids Class, A through F.
10. All rockets must be recovered in good condition to be considered a successful flight.
11. The class of Clusters and Staged flights will be based on total installed impulse.
12. TRA or NAR Certified Motors Only. Please observe the TRA 40K Ns limit.
13. Any disputes or ties will be handled by the contest directors.
14. No contest flights during the night launch.





DID YOU KNOW?

About an alternative non Ham radio tracking device from MEW it's called Balloon Boy (BB) is the project name for the GPS tracker and telemetry system targeted for use with high altitude balloon and rocket flights. Below is the data collected from an exceptional lake dodging end of launch flight at Mudrock.

High power rocket flight profile on the Black Rock desert playa near Gerlach Nevada during the AeroPac Mudroc 2011 launch on Sunday 19 June 2011. Apogee is at 9931 feet AGL per the GPS receiver and Apogee per the on board barometric altimeter is 9771 feet

Flight summary follows:

Rocket name: Diablo Deal

Make: Giant Leap Firestorm 500 54mm minimum diameter rocket.

Motor: Aerotech K185W

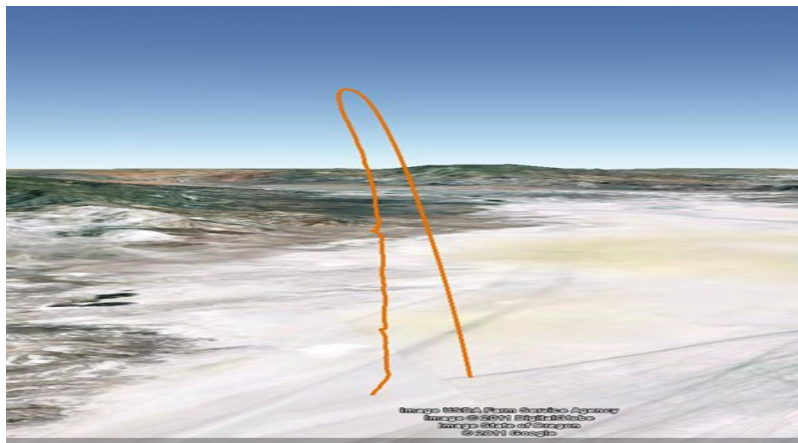
GPS telemetry transmitter: Balloon Boy Airborne package

GPS telemetry receiver: Balloon Boy Ground Station.

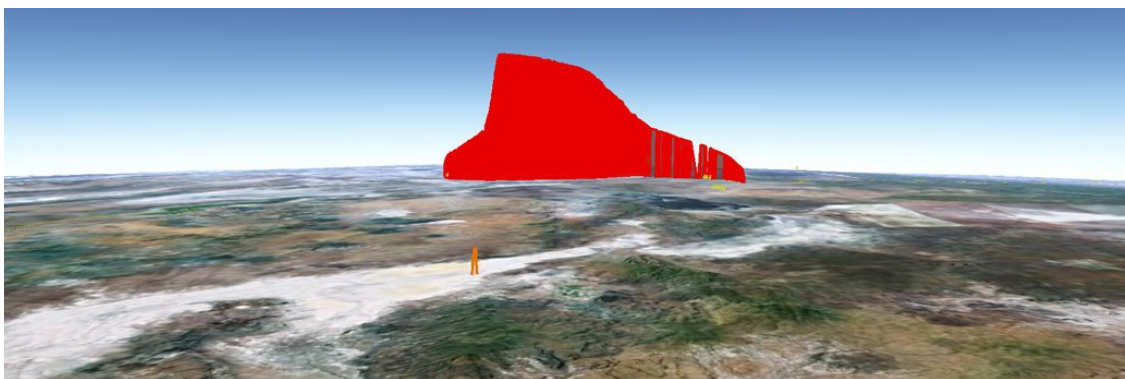
GPS telemetry characteristic: 900 MHz spread spectrum, RF power set to 200 milliwatt (1000 mW capable)

Sample Rate: 1 GPS fix per second

Altimeter: Missile Works RRC2 mini configured for dual deployment



Comparison of 113,000 foot balloon flight (red track in background) and 10,000 foot rocket flight (orange track in foreground). Viewed looking South West over the Black Rock Playa GPS data for both flights taken with Balloon Boy GPS telemetry



For more information on this device visit <http://www.mewpcb.com/balloonboy.html>



MudRock 2011 and MODIS Imagery Patrick Wagner

My brother George and I have been going up to Blackrock since 2005 with Aeropac. We have especially enjoyed Mudrock. The temperatures are usually milder, and the lakebed is less dusty. There is usually more clouds and every cloud in the sky seems spectacular when you can see from horizon to horizon. Also, though, the lakebed is damp in places and often has standing water on it somewhere. At our first Mudrock, we discovered this the hard way, while chasing down a runaway hat, George hit a dark spot and nearly sank to his axles. Fortunately, Tony Alcocer coordinated several vehicles and about 200 feet of tow strap and pulled us out. There is no better way to get to know everyone.



Figure 1 MODIS Image of Blackrock playa

While preparing for Mudrock 2011, we noticed on the Aeropac email list references to MODIS imagery. According to Wikipedia, MODIS is the Moderate Resolution Imaging Spectroradiometer onboard 2 satellites (aptly called Aqua and Terra). These satellites image the globe every day following the sunrise and sunset and are especially sensitive to water and water vapor.

Friends of Blackrock publish a small portion of the MODIS image which covers the BlackRock area. <http://blackrockdesert.org/friends/current/playa-modis-viewer?year=2011&doy=170&sat=terra&chan=721>

The image (Figure 1) showed a bright blue section which is intended to show water. There was some question on the list whether that really was water, or just wet ground. Some suggested that the light blue was wet ground, and the dark blue was water.

So while we were busy with rocket prep, chatting with everyone, and enjoying the playa, George and I took a little time to perform a little experiment. George took the GPS out and drove alongside the water about a mile, while recording the track, and came back. Figure 2 shows our GPS tracks for the weekend with 3 "lakeside" waypoints tagged along with camp, MUDROC11.

When we returned home, I went to the MODIS website that supplies the data for the Friends of Blackrock image, and found that they provide KML files (images that can be overlaid on Google earth. I took the data for the day of George's ride, and dropped it into Google Earth

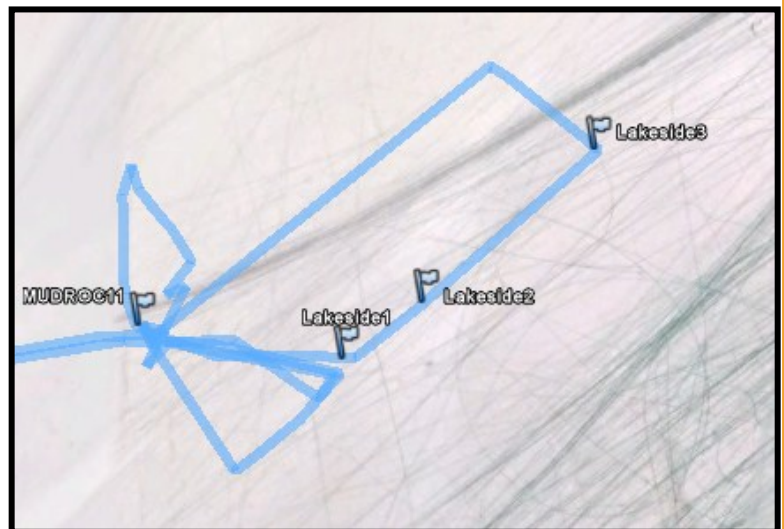


Figure 2 GPS tracks on a "dry" Google Earth

Here is the link:

http://rapidfire.sci.gsfc.nasa.gov/imagery/subsets/?subet=AERONET_Railroad_Valley.2011170.terra.721.250m

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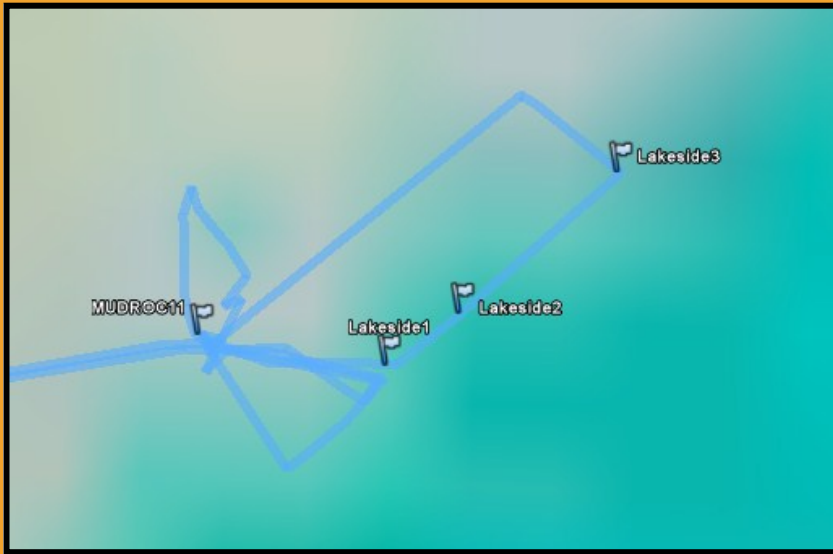


Figure 3 GPS track on MODIS Image

(Continued from page 12)

The resulting image (Figure 3) disappointed me at first. The scale of the NASA image is huge. When you are on the lakebed, you think you can see a lot of area. But that's really just a very small part of the playa. Given the GPS data, it looks like the solid light blue is a good indication of standing water. But don't zoom too much. It's kind of marginal at the scale we were trying to measure it.

So, the solid light blue is standing water. Looking at several days worth of MODIS data (see the 9 images below), and seeing the scale we are at, I am surprised at how fast the water moves. These small changes we see over several days on the MODIS images represent several miles of water moving.

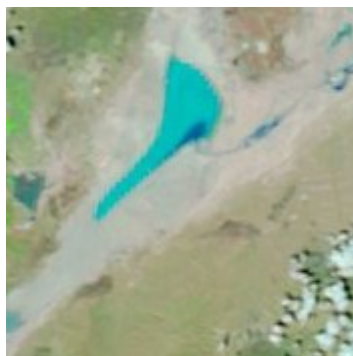
Measuring from June 12th to Jun 19th, the length of increase of the lake "finger" you can see here measures about 4.5 miles (using Google Earth). Given the speed of water motion seen here, it becomes easy to see how travellers can get surprised and stuck, even if they are sitting still. I remember Richard Hagen commenting that the camp could find itself "in" the lake overnight. I didn't believe him. I do now.



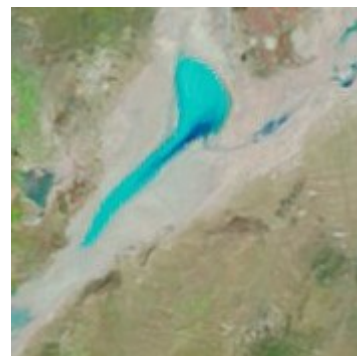
Figure 4 GPS tracks on with MODIS image 50% transparent



June 9th



June 12th



June 15th

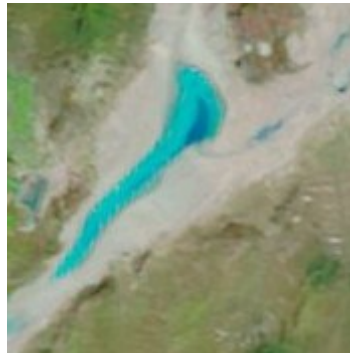
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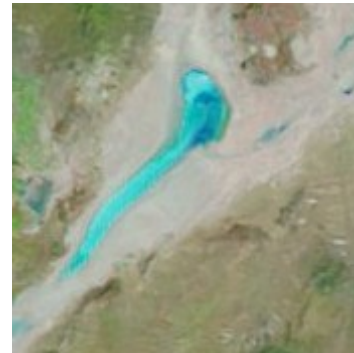
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June 19th (MudRock)



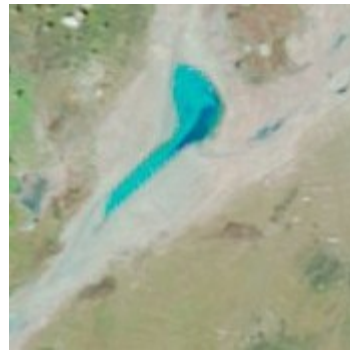
June 20th



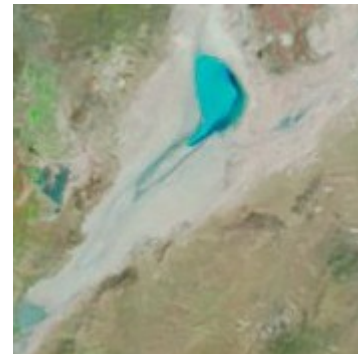
June 22nd



June 24th



June 26th



July 1st



George & Patrick Wagner



Ham Radio Information



When traveling through Reno on your way to the Black Rock Desert, one of the commonly used wide coverage repeater systems that will practically carry you all the way from Eastbay to Black Rock, is operated by the Wide Area Data Group, WA7DG. When leaving the Bay Area, program your 2 meter mobile for 147.150, +600 kHz offset, PL 123.0, this is the Mt Rose repeater located above Lake Tahoe at 10,200'; it will carry you all the way into the Reno area. There are some dead areas along the way, especially going up the west slope of the Sierras. Once you reach the Emigrant Gap area, the signal should be reasonably solid. When coming into the Reno area, at the state line, switch to 147.210, + offset, PL 100.0, this is the Peavine Peak (8,200') repeater that covers the Reno area and will carry you on I-80 through the canyon East of Reno to the Wadsworth exit. Once you reach the Wadsworth exit, switch your radio to 147.030, + offset, PL 123.0, this is the Virginia Peak (8,290') repeater and will carry you all the way to Black Rock. The wonderful thing is, all the aforementioned repeaters are linked together, providing tremendous coverage throughout northeastern California and western Nevada. The system is open to all licensed amateurs. Other Repeater frequencies in the Gerlach area are:

Black Rock Amateur Radio Association

UHF 440.175 MHz (+), PL 100.0

VHF 146.7 MHz, PL 100.0

APRS Digipeater GERLCH 144.39 MHz simplex Gatewayed to the Internet (APRS-IS) <http://aprs.fi/?call=GERLCH>

The KD7YIM Repeater Wide coverage of the Playa

145.23 MHz, PL 123.0

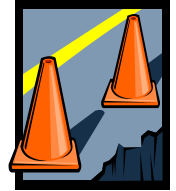
Nevada Road Report:

According to the NDOT web site various work projects will be in full swing on I-80 from Robb Drive in Reno to Vista in Sparks all season. 395 North through Reno is also under significant constriction.

You can also expect other NDOT maintenance and county road crews to be out this summer as winter did take a toll on Nevada roads.

Interactive map can be accessed at:

<http://www.safetravelusa.com/nv/>



This editions AeroPac and Member Links

Facebook URLS

The AeroPac group page: <https://www.facebook.com/groups/AeroPAC>

ARLISS Event Page : <https://www.facebook.com/event.php?eid=196019253783589>

XPRS Event Page: <https://www.facebook.com/event.php?eid=182007408521616>

Tony's YouTube Channel: <http://www.youtube.com/user/tfish38>

George Wagner's YouTube Channel: <http://www.youtube.com/user/wagner31415#p/u>

Patrick Wagner's YouTube Channel: <http://www.youtube.com/user/patrickiwagner>

Mudrock Photos : <http://www.wagnerg.com/hobbies/Mudrock2011/>

Ken A's YouTube Channel: <http://www.youtube.com/user/grvid99>
 Photos <http://gotrockets.com/PHOTOS10/>

Launch Duty Reminder

There are still plenty of holes in the Launch Duty roster. We have heard from the powers above that no launch will begin until all the slots for that day have been filled.

Get your spot today at: <http://www.aeropac.org/launchduty.html>





In Memory of



Whenever Don would mark on his flight card this is a

“Heads Up Flight”

He always commanded our attention.