

Aeronaut

Volume 18 Issue 1 June 2012

Tripoli Rocketry Association, Inc. Prefecture no. 23



President's Pad

A new year and a new season.

With Mudroc being less than a week away, I need to start thinking about what I want to fly. Now that all of Aero-Pac's launches are being held as TRA Research launches I need to think even more about what I want to fly. To confuse me even more, Aero-Pac will have it's very own test stand thanks to Curt von Delius. It will be able to handle motors from 38mm to 6". The test stand will make it's appearance at a launch later this year.

If anyone has been avoiding flying that 'special project' of theirs because of our rather limiting 100k waiver...we've got some good news! Jim Green in his first year as Aero-Pac's 'waiver guy' has pulled a 200K waiver out of thin air! The playa looked to be in great condition when I was out there for Black Rock Rendezvous. Aero-Pac is short on a couple of items, and those being people to step up and help out. We are in need of an Equipment manager.

2012 Schedule

Mudroc June 14-17

Aeronaut August 2-5

ARLISS September 10-13

XPRS September 14-16

Richard Hagen is wanting to retire and I don't blame him. He's been our 'go to guy' for many years now and deserves a break. We are also in need of a Launch Director for our launches. You can even be the launch director for a single event!

Equipment Manager: To organize getting the equipment trailer from Empire out to the launch site on Thursday afternoon/evening and to organize setting up the range. To return the trailer back to Empire after the launch.

Launch Director: To check with vendors prior to event and assist as needed. To run the fliers meeting and handle any issues that come up during the launch.

-Tony Alcocer



AERO-PAC Officers

President / Prefect - Tony Alcocer

Vice President - Richard Hagen

Secretary/Social Outreach Director - Peter Clay

Chief Financial Officer - Eric Kleinschmidt

FAA Liaison Officer - Jim Green

Education Director - Ken Biba

Launch Director - OPEN

Assistant Launch Director - OPEN

Equipment Manager—OPEN

Webmaster - Jamie Clay / Patrick Wagner

Contest Director - Darryl Paris

Membership - Don Duncan

Newsletter - Ken Adams Contact: officers@aeropac.org



K Adams

AERO-PAC Board Of Directors

Chairman — Ken Biba

Tony Alcocer

Jim Green

Peter Clay

Gary Rosenfield

Seth Wallace

Karl Baumann

Ken Adams

Contact: bod@aeropac.org



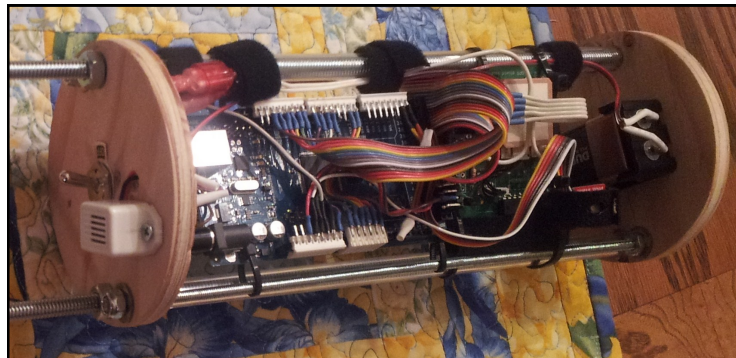
Patrick Wagner



Small Satellites for Secondary Students

Kevin Zack
TRA # 13853 Level 1
NASA E/PO
Sonoma State University

Sonoma State University's NASA Education and Public Outreach (E/PO) group and AeroPac have teamed up to bridge the gap in STEM education for secondary-school students by creating a program that will provide educational resources needed to support a small scientific payload curriculum. Funded by a three-year grant from NASA, and under the direction of Prof. Lynn Cominsky, the education program will teach the hands-on design and experiment-building skills needed to construct, fly and analyze data from small scientific payloads. Once the student-built payloads are completed, they will be flown by members of Aero-Pac and other Tripoli Rocketry and NAR clubs. Students will view the flights through the Virtual Classroom, developed by Aero-PAC Education Director Ken Biba, which allows live video streaming over the Internet. With this resource, students will have immediate access to data. This enables them to analyze and report on the data the same day, allowing for a flexible classroom curriculum. The curriculum also incorporates balloon-flown payloads, for experiments where more time is needed at altitude.



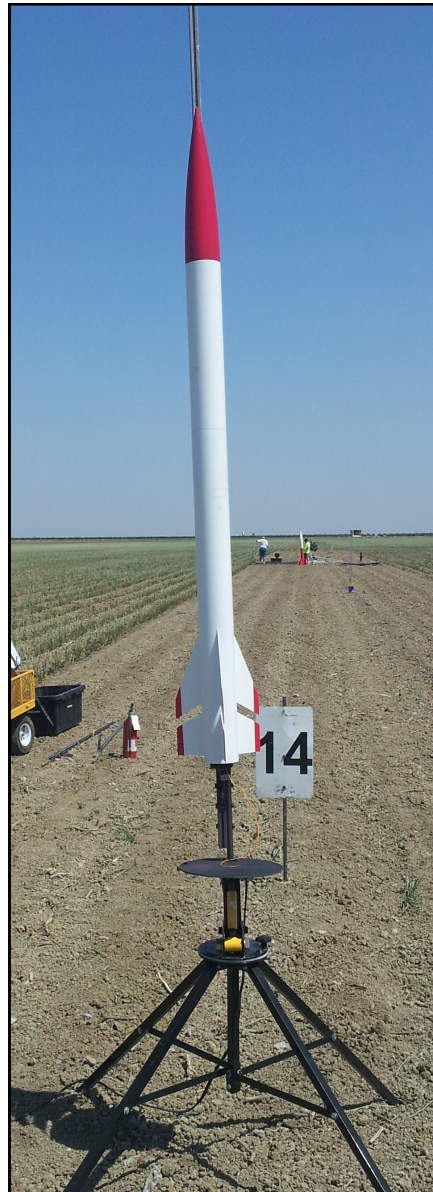
This is the prototype payload that was successfully flown at Dairy Aire.

Currently the program is in its design and testing phase. The goal is to create a versatile platform, so that the students will have many sensor combinations for creating their scientific payload. All of the payloads have a base platform with GPS that logs the data on a SD card, and exploration of the possible use of Wi-Fi connections for real-time telemetry is also underway. Most of the

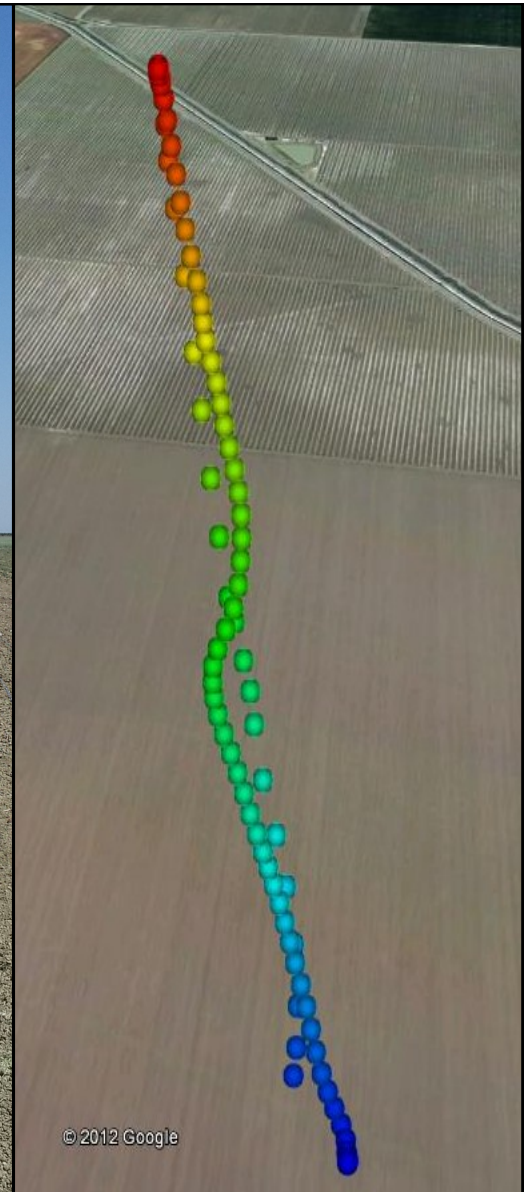
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code for the payloads will have been pre-written, so that minimal coding is needed from the students to add sensors to the base platform. So far this year, Prof. Cominsky, Kevin John and I attended a LUNAR launch at Snow Ranch in April, where we had a successful test of the base payload, but an unsuccessful parachute deployment. In May, Logan Hill and I tested the payload for the other part of the program, a balloon launch at the Endeavour Institute's 2012 Balloon Fest in Paso Robles. The balloon launch went off without a hitch. The latest test came during Tripoli Central Coast's Dairy Aire launch, where the payload had sensors and a new configuration for holding the electronics. The launch was successful with a 1400 feet top altitude and only a 90 foot walk from the launch pad for retrieval. I also got my Level 1 certification with the rocket that I built for this test. The next test launch scheduled will be at ARLISS/XPRS at Black Rock, where we hope to test the payload at much higher altitudes, so look for us there.



PML Endeavour level one attempt at Dairy Aire with prototype payload.



The GPS readout from the payload for the launch at Dairy Aire.

AERO-PAC TEST STAND

Aero-Pac thru Curt von Delius is in the process of acquiring a test stand.

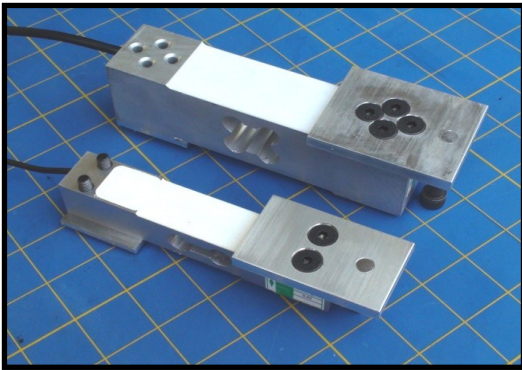
A two channel test fixture with the capabilities to record internal case pressure and thrust output.

Specifications:

Load Cells x 2 Maximums

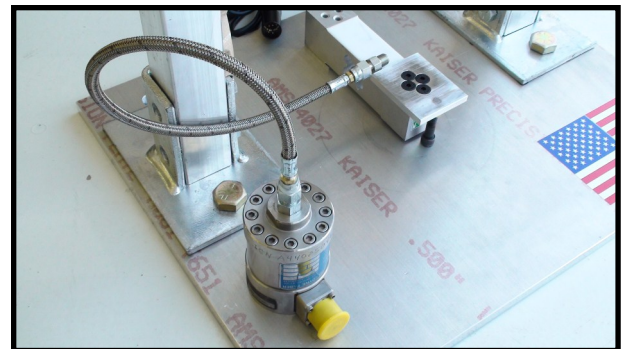
100 kilogram (220 pounds)

350 kilogram (771 pounds)



Configured to accept 54mm, 75 mm and 98 mm motor hardware it can support horizontal and vertical testing configurations.

The test stand is equipped with a Teledyne Taber S206 pressure transducer for internal case pressure measurement. It has a measurement range of 0 -2000 psi.



The heart of the data acquisition module is the Dataq DI-155 and the two MEW LCA-1 amplifiers that connect to a dedicated system laptop.

Stay tuned for more information as this moves forward.

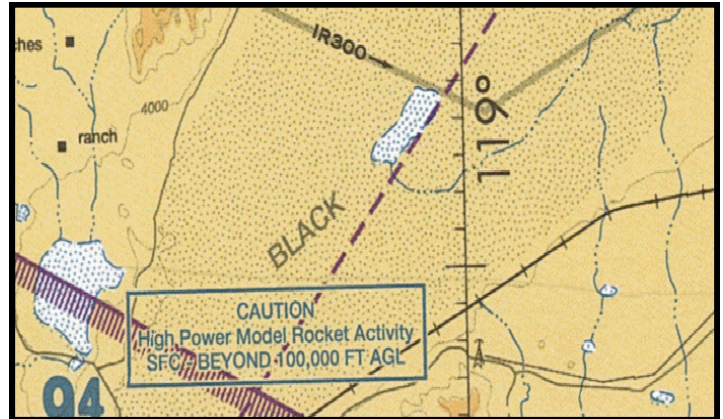


ARLISS 2012

I know the rocket season is just starting and I'm already writing about the September ARLISS launch....but since I have been working with so many of the teams during the off season I thought I would let everyone know what's in store for ARLISS 2012. As you may or may not know ARLISS teams continue to grow each year and this year it looks like it is going to do the same. So far I know of 3 new teams that are coming....Jordan, Turkey and Egypt and hope there will be even more new ones. We are also going to see 3 older teams that haven't been able to attend for a while and they are France, University Nevada, Reno and Seoul South Korea. We will also be seeing Team Hawaii and 20 teams from Japan that I know of so far. Last year we hit Bruno's max at the banquet. There were people standing the entire time so if the numbers continue to climb it looks like we will have to relocate to the Gerlach Community Center this year.

If you haven't experienced an ARLISS launch before, come out and see these fantastic student projects. There are many types of projects like rovers, plummeters, Para-foils etc. that have GPS onboard so it can autonomously come back to a predetermined coordinate on the playa. There are also some projects that are not part of the comeback competition that are also very interesting. The ARLISS launches are from 9/10 – 9/13.

-Becky Green

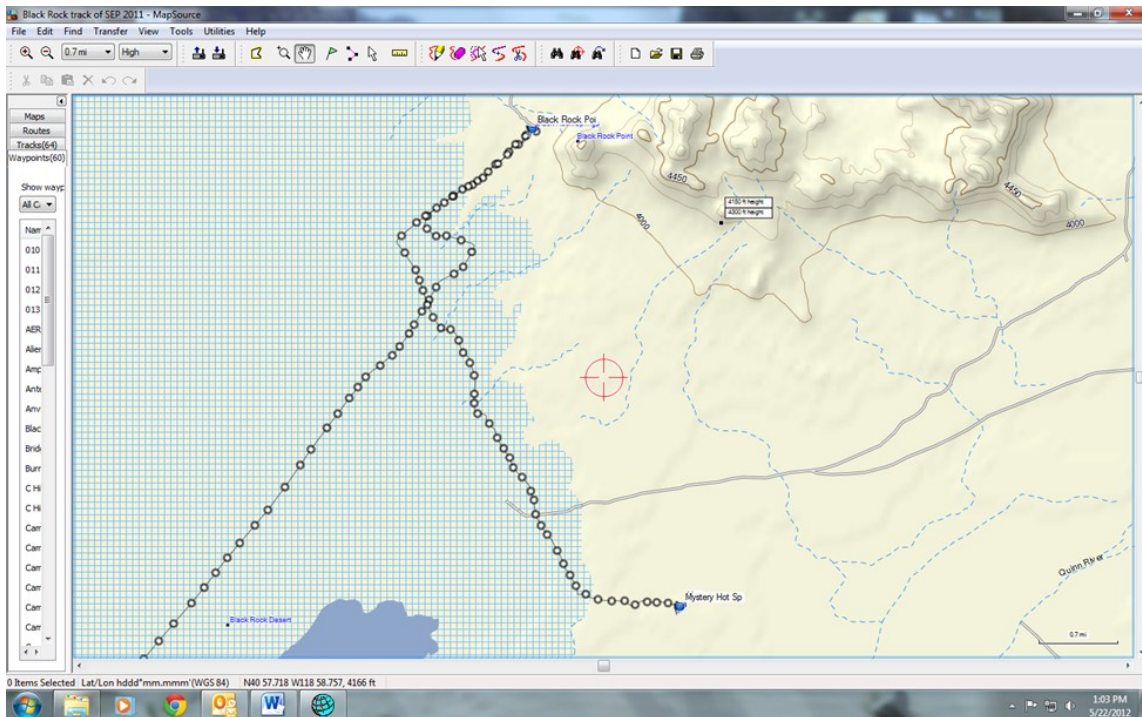


OFF ROAD ADVISORY

Beware if you do want to explore the surrounding area and travel off road. The fire danger is higher than normal this year. Current conditions are typical of Late August and September. Hot exhaust systems can ignite dry grasses.

An impact crater or what?

A few years back I was exploring the area around our launch location using Google Earth. I noted an unusual perfectly circular dark spot in the Quinn River area at DMM coordinates N40 54.764 W118 59.144. You can still Google Earth these coordinates and see the spot.



*GPS Track from XPRS Launch Site to Black Rock Point then southeast to crater at DMM
N40 54.764 W 118 59.144*

During last year's XPRS launch, I planned to take some time and venture out to see what was there. On Saturday afternoon, after informing other Aeropacers of the details of our plan in case something went wrong and we needed rescue, we headed off on our expedition. Since the 'spots' location is in an area depicted on most guides as unsafe for vehicle traffic, my plan involved using BMX bicycles to cover the last few miles to the spot.

My son Hunter, his friend Jacob and I headed out to backtrack from Black Rock Point following existing vehicle tracks to as close to the location on the eastern edge of the playa as we dared. Then we broke out the bicycles and my GPS to cover the last few miles separating us from the spot.



An impact crater or what? (Continued from page 7)

We parked the truck about 100 yards from the Quinn River Delta berm which makes the 15 or 20' eastern boundary of the Black Rock Playa and unloaded the bikes and GPS. An unexpectedly exhilarating half hour or so BMX bike ride across the Quinn River delta brought us to our goal, a spot elevated 5 or 10 feet above the surroundings. Below is what we found. It is a depression (crater) about forty feet across and filled with coolish temperature water, probably Quinn River ground water. This does not present itself like a typical Black Rock spring and it is in a somewhat thick sedimentary deposit of the Quinn River. Perhaps it's a meteor or bomb crater? Check it out yourselves and let me know what you think. - Jeff Rauh



Looking north with Black Rock Point in the upper center of the photo for reference



Looking south



Ham Radio Information



147.150, +600 kHz offset, PL 123.0, this is the Mt Rose repeater located above Lake Tahoe at 10,200.

Reno area, at the state line, 147.210, + offset, PL 100.0, this is the Peavine Peak 8,200.

147.030, + offset, PL 123.0, this is the Virginia Peak 8,290. repeater and will carry you all the way to Black Rock. All of the above repeaters' are linked.

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

The KD7YIM Repeater Wide coverage of the Playa

145.23 MHz, PL 123.0

APRS Digipeaters GERLCH and RAZOR

144.39 MHz simplex. Gateway to the Internet (APRS-IS)

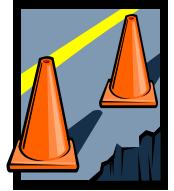
Road Report:

California interactive map :

<http://quickmap.dot.ca.gov/>

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 again this season. 395 North through Reno is also still under significant constriction. Interactive map can be accessed at:

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



Annular Solar Eclipse 2012 "Ring of Fire" K. Adams

Wanted: Your pictures, product reviews, projects complex or basic. Interesting construction techniques and designs. Submissions are greatly appreciated. Newsletter@aeropac.org

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>

