

Castle Mountain Report Brief

January 10 and 12 2015

Jan 10

NOTE: The resort was unexpectedly busy >>>1500 people. Brad preferred no tower climbing or lodge roof access. This made for a short day.

- ❖ Scheduled noon meeting with Marie to discuss remote access issues
 - Castle mountain has had several unauthorized access attempts (ie they were hacked)
 - No access from outside firewall for now
 - Static IP has not yet been assigned but will be when the network issues get worked out.
 - No date on this yet

- ❖ Unscheduled meeting with Brad
 - He brought up two points
 1. Ham tower owner drama
 - Person whom Brad and Jock thought owned the tower (and still claims he owns it) OK'ed the install.
 - Another Castle stakeholder wondered what all the stuff on "his" tower was
 - Brad explained the situation to him and he has decided to let us keep the sensors on it, even though he may not even have the authority to say yes or no.
 - There is no negative feelings towards UofL here. It is an extension of the animosity between the two men who claim to own the tower
 - I reiterated that this was a temporary install and we would hopefully be relocating in the summer
 - Note that Brad was laughing about the "drama" and is not concerned nor upset. At least with us
 2. New Tough Country tower install
 - Recently installed a new tower because the ham was unsafe and unstable
 - Located a few meters west of the ham tower
 - More occlusion yay!
 - Taller and more robust

Jan 12

- ❖ KIRA (Valley)
 - Replaced high attenuation coax with re-terminated low attenuation cable
 - Installed serial loopback for RF401 testing
 - Checked HMP45 as per Campbell Scientific rep's suggestions
 - Ie) many different models of HMP45 that all look the same ☺
 - Removed the unit due to either missing circuitry or damaged sensor

- Lab testing needed
- We have one more HMP45 to use here but it was in the repair drawer so I need to check it over
 - ◆ Did not install
- ❖ Unscheduled meeting with Shane from Tough Country
 - Said we could mount sensors on their tower if we wanted
 - Would like to add an RGB camera and has suggested we collaborate on this
 - I mentioned the need for a static IP
 - He is going to discuss things with his team and arrange a meeting with you and I
 - He now officially has my contact info
- ❖ Tested RF connection to KIRA
 - No success
 - Removed all high attenuation cable
 - Tried to connect to KIRA from a short cable on the roof
 - 2 people are definitely needed to align the antenna as we expected but I thought I would make an attempt anyway
- ❖ RIKER (mid mountain)
 - Collected data via the enclosures external serial connection
 - This proved to be a good addition considering the enclosure was partially buried and could not be opened with out digging it out
 - RH & T are still incorrect
 - Removed HMP45 as per CS rep's suggestions
 - Installed new (lab tested) HMP45C
 - Did not wire because we need to dig enclosure out and drill new holes for direct connection.
 - ◆ It was dusk and lifts were closing
 - Did not want to be up there alone. Well I didn't really care but I figured the Uni might ;)
 - Good news? The power has been fairly consistant @ 13 VDC
 - ◆ Fluctuating to as low as 10 VDC but never for too long
 - ◆ The internal battery has dropped to 1.3VDC though
 - Maybe too cold for it??? Not sure what to do about this yet.
 - If this dies we lose all data when/if we lose main powe
 - Snow depth and CMP3 data seems accurate
 - Although we are sitting in a massive drift
 - Net radiometer wiring needs to be checked
 - Checked RF
 - Was able to ping SPOCK (Ham) with packets ranging from 60 bytes to 256 without error. 512 was ok but had the occasional drop, anything above that failed
 - Still could not connect! Only ping but 512 bytes is a lot of data so we are being blocked by CS protocol
 - Was able to ping T-REX (repeater) with up to 1024 bytes no problem
 - Multiple pings without error
 - This was not a surprise because there was never an issue with connection

- ◆ I did this because I recently figured out how to increase and decrease the ping packet size
- ❖ Did not go to Ham tower
 - No time
 - Lower in priority
 - Pinging at least means it is operating to some degree

Conclusion

Telemetry still not functioning

We need to determine whether the problem exists in/with:

1. Antenna alignment between lodge and valley
2. Valley coax interconnects
3. Coax-antenna connection
4. Signal de-sensing
5. Valley tower faulty coax

To begin isolating parameters I will need another person to help. Preferably this person would be you. It is not time/cost beneficial to continue to send students with me at this point.

Problems I faced with trying to align the antenna by sending a signal, waiting for the response and then calculating the RX power is that if I do not receive anything back I

- A) Has the signal hit the antenna but due to cabling or hardware the signal is not returned
- B) Has the signal missing the antenna all together
- C) Is the signal being attenuated on the TX or the RX

Solutions:

- A) Check coax integrity and continuity
 - Climb tower
 - Measure the resistance
- B) Scope mounted on antenna? Laser sent from yagi antenna to sensor on valley antenna?
- C) Need two laptops running my program
 - a. We can check signal strength at both ends
 - b.