post mortem issues

Planning:

- Permitting was difficult. Must be a budget line item.

- Site visit was important for comms testing.

- Need a good relationship with UCAR contracts early in project.

Pre-project testing:

- 2+ weeks of staging area testing was critical for start of ops.

- Need to pay more attention to mote comms during testing.

Training and Safety:

- must do tower training, tower rescue training. Bob Wiley has organized tower training in Dec.

- need training on motes, DSMs, base systems, XML

- AED, first aid

- Helo ops are hazardous, buy our own helicopter

- Must notify Bob Wiley on any injury.

Packing:

- In general a very good job was done in organizing equipment for each station, with color ribbons, rubbermaid tubs

- Replace gas can (cheapo Walmart can's spout broke)

Setup

- Setup was slowed each time anchors needed testing. Would have been nice to install anchors a week or two before-hand.

- Need to get prior permission from dir office when using non-ISFS staff. Use temp workers?

- should have a pow-wow of on-site staff each morning

- need additional harness, ascender

- need new winch/capstan, new rope

- need portable generator

- can we improve procedures for plumbing tower, guy wire building and tensioning? Use come-alongs?

- shorter studs on CSAT electronics boxes; suggest using lock nuts (like TRAM) instead of nylocks. Dedicate some mounting plates for sonics that are small enough to ship in the box. Could one plate work for Rohn and pump-up towers?

Sensors:

- sonics were flawless. Will do post-field zero cal in lab

- two serializers became noisy. Need to replace or get rid of. Will not filter data for PI (Tom)

- kryptons: generally OK

- barometers: problems were all power related? Was NNE on Oct 9 07:00 MST real?

- One TRH fan wired backwards. Need to check past data from this sensor and double-check all fans. Chris to do bubble tests.

- One TRH had 0.1C bias. Pretty good for all this stuff.

- Bad TRH data can be fixed by bit shifting (applies to SCP, SOAS, PCAPS?)

- downlooking PYG at far had short in wire from thermopile

- Schwartzeneggers need refurbishing

- need to check/replace radiometer desiccant prior to project

- Rsw.in.flr died for a while? Needs confirmation

- Vpile.off apparently has -1 LSB = -31uV. .xml limits should allow this.

- SPN1 isn't perfect. Floor diffuse was sometimes zero for a short period at sunrise. Sent note to manufacturer. They think it would be useful to run as a serial sensor and have the option for "TEST" mode. Needs leveling system.

- Individual levels of Tsoil at near would fail, but would return by a power cycle.

- Power to all sensors on a mote can be remotely controlled.

- Still need to take soil cores: bring oven/scales/soil install kit (buy a second oven and scales for trailer?)

- Qsoil response not normal in this soil. Need manual calibration. What should the strategy be here? I actually liked having a test plot near the base. In any case, soil quite dry during most IOPs.

- You can see core sampling in the Qsoil data! The data jump a bit due to nearby vibration while pounding in the core.

- Forgot to use Trime, need to track down its pieces

- Soil installations: need more consistency. Update guide for single temperature probe installation.

Power:

- new power monitor motes are great

- ISS was happy with the solar trailer

- Still don't understand mote diodes. Having a diode between charger board and battery caused failures. Had no failures with diode removed.

- redesign small charging systems: lithium-ion?, separate charging module?

- Some small charging systems were flooded during setup.

Mote:

- Disabling radio reset was necessary. Xbees had new firmware since PCAPS.

- Xbee radios worked loose, need to be better secured. Oxidation was present.

- Spare mote 15 wouldn't come up plugged in to console cable. (Something I've done wrong?) Labelled.

- Power motes feed power into DSM interface panel.....Not True. See 'power monitor' log entry update. Problem not reproduced.

DSM:

- One unexplained failure at flr. Seems to be related to 75mph gust at rim (though etherant later connected).

Network:

- need to test bulgin/rj45 cables that are used with AP24s.

- Verizon modems worked well, new box is good.

- Netgear WiFi needed to be reset many times. Changing channel and orientation helped, but still needed at least daily resets. Toss?

- WIFI worked great! Etherants are old and slow however. Need U-bolts that work for various diameters.

Computer:

- APS UPS batteries dead. Buy bigger UPS for base?

- Trailer AC (and even using vacuum cleaner) caused computer issues -- everyone complained that it was warm during the late afternoon. Check trailer power.

- would have been nice to have check_usb.sh/check_ap24.sh feed a Nagios display.

- Need to change cockpit RIP color from background!

- Can we force a browser to auto-reload plots? (found cache killer, but doesn't seem to work). Need html wrappers around plot images.

- xchat was good to have, though died when 4G went out (can/should we configure a local host as the chat server?)

- Could/should we have set up 4G failure to fall-back to HughesNet? Requires a better router box.

- R is great! All known bugs are now fixed.

Infrastructure:

- Bird diverters fell off

- Bigger holes in soil/pressure base plates for T-stakes

- How to keep kinks out of hauling line? (Had same issues using Jack's frame during xHATS.)

- Need more Bulgin cable splices. (Could these be printed?)

- New bolts/nuts for newer guy attachment brackets

- Check all cables from near (data, network, power).

Tear-down issues:

- unconnected serial cable to 20m.near is bad

- unconnected RJ45 cable on rim is bad.

- let's get GPS positions for flr rad stand and soils

- blown fuse on base ttyS10(?) caused by plugging in bad mote cable. (Cable labeled.)