Analysis: *20120930 Water Tower to NorthBay*

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**Note:**

This is not a well structured or organized document. However, it flows chronologically through the analysis as I go through the data.

**OBSERVATIONS**

**azimuthDelta\_deg**

This plot should never go negative. By the nature of MetalDetectorMagic, and the way we calculate azimuthDelta, it should always be positive…suggesting a problem with our yaw angle being larger than 360.

**elevationDelta\_deg**

At first I thought: “This should sync to zero like with a magCal…”

And then I realized, no it shouldn’t but we need to figure out a solution to that problem of how to “cal” our pitch solution.

**magnitudeOfDeltas\_deg**

Makes sense that it would get close, but not quite to 0. The yaw angle component goes to zero, but the pitch is still off because that’s not synched, so it can’t get all the way to zero.

**Comparison of Killshot Check**

Cool f’ing plot. Although I don’t see the value added in min and max azimuth. Magnitude of deltas and the deadband seems like the most useful.

**NEU plots**

Also a cool f’ing set of plots.

My plan forward:

(yes I realize this is yet another location for a to do list, but it’s where this one is going to go since I’m currently typing here, and I just got myself fully spun back up into this stuff)

[ ] Fix the >360deg bug in the DF code.

[ ] verify this code fix

[ ] write a test card that:

* Fakes the location of DF002 via fake radioStream, and puts it at the same altitude so pitch is isolated out.
* Sets up DF001 away from metal (I know we’ll be in metal, but we won’t rotate ontop of metal, we’ll be in metal, and all of that metal will rotate with us.. I think there’s definitely a difference… so for now, let’s start away from laptops and cars.
* Does a single mag cal, and then sits still for x time.
* Has a regimented and recorded series of rotations, and still periods.

[ ] analyze that data.