1. Did you measure velocity and Tair profiles at any of the sites? How were z0 values chosen at each site?

Yes, we have velocity and Tair profiles at C1. I'll look back at the analysis and incorporate it. I believe z0 is a generic "meadow" estimate. I will look back at Joseph's notes for this and the other parameterizations.

2. 'The measured' air temperatures are at what height? Was soil temperature measured with a thermistor probe? If so how was it placed?

Air temperatures at 0.75m. Yes, soil temperature was measured with the thermistor probe placed just below the surface.

3. Some of the measured values seem weird. At Eldorado, measured soil temperature almost never exceed air temperature, barely reaching 40 C even though vegetation is short (was it really windy?). Conversely at C1, measured soil temp exceeds air temp by 25-30C, reaching >50C. Tsoil-Tair should be greater at higher altitudes at mid day due to high radiation, but not that much.

I'll look back at the Eldorado and C1 data. Vegetation is much more dense at Eldorado and the soil is fairly exposed at C1, so I think the difference could be reasonable.

4. surface roughness z0 = 0.05 seems really low; even tilled bare dirt and closely cropped grass have z0 ~0.2- 0.6. You might increase this. Also is there a displacement height d at A1?

Will look back at z0 and d using our data

5. It's possible that the sites have different soil thermal properties (affecting the phase) and albedos... but we can't really deal with that.

An alternative suggestion: what if we use climate (air temperature at 2m) data for B1 and C1 similar to what we have been using for the simulations, with some wind speed values, and full-sun radiation. Use this to compute soil temperature, as well as air temperature at height z=10\*z0 (roughly the height of vegetation, where a butterfly might bask). Also compute wind velocity at z = 10\*z0. Do this for z0 = 0.5cm and for z0=5cm at each site. Then we can look at the results. The main reason for including microclimate is that we expect at butterfly basking height, Tair is greater and vel is lower than at 2m, increasing body temperature. This should give us a pretty good sense how big the effect is, whether it changes with elevation, and how well the model captures this.