Nutrient cycling over the Gradient

**Approaches:**

* Water quality
* Forest Mgmt: How does it impact N retention (on top of water limitations, N or P should be limiting)
* Nutrient hotspots: understanding N cycling at the catchment scale; how does that feed back into limiting productivity of the ecosystem. Finally, what does that mean for modeling the landscape?
* non-linear relationship between nutrient and soil moisture
* stoichiometrically explicit accounting of nutrients; how does it vary spatially or along the climate transect

**Gaps, Resources, Opportunities**

* **linking water movement and the nutrient fluxes**
* **do this in the drilling cores (N, C, P)**
* **exploratory stage: stream N? N budget in the stream does not include ON, only Inorganic N**
* Meadows? N not presently explored in the models, not much nitrate
* LBL: Interested in nutrient questions at a process level

Deep Organic, not here

Flow parts here potentially (next year at some point)

**Cross-CZO Opportunities**

* **Less of a synergy with the other CZOs for this topic**
* **Is it possible? Should focus on exploratory measurements first before refining the "So what?" questions**
* **Forest management does not have comparable treatments at other CZOs**
* **Hot spot/Hot moment could be explored at cross-site**
* **N deposition? Sources, comparisons - potentially low-level measurement to expand; Very high deposition and based on models should be leaching N in streams but we are not. Atmospheric N deposition at SSH or Boulder; however Niwot LTER has a major focus on atm N so may not be ideal for CZO**
* **C:N ratios in soil, biomass**

**No plan yet, but initially sampling in the Catenas for C and N stocks; not yet time-series**

**Hart plan for soil transplant on a large scale across the transects**