**Brainstorm and to-do’s on lakeCAT modeling**

RESEARCH QUESTIONS

-CONUS burial rates, CO2 emissions, CH4 emissions

-climate change effects on fluxes – is there a positive feedback?

-land use effects on fluxes – what are scenarios to explore for this?

\*pre- vs. post settlement

\*moving forward?

-role of hydrology

-comps to terrestrial BGC rates

-large (spatial and temporal) scale drought effects

*Talking to Chris*:

-Look at bottom line number

-Regional differences

-Supply of carbon or “lake demand” of carbon is what drives the bus?

\*what drives variation in lakes or global rivers DOC (often this has very low variance)

\*geographic variation/pattern

-Do forecasts as another paper

-Key response variables: “all of them” – concentrations, burial, emissions (terrestrial DIC venting is good allows you to talk about carbon instead of organic carbon; methane – “sure why not”)

-Add the streams and rivers would be more impactful. Use streamCAT?

MODEL QUESTIONS

-do we double count a lot when we use lakeCAT watersheds for each lake?

-should we embrace the connectivity information amongst lakes created by lakeCAT

-does lakeCAT runoff compare well with precip-ET for catchments/watersheds?

-volume uncertainty effects

\*worth generating buffer slope data to improve this?

-what kind of BGC model (depends on question a bit)

\*sediment pools and fluxes

\*stratification

\*where does the water go

\*ice cover

\*methane – look at West et al. data to figure out fraction of CH4 produced that is released (presumably low for dissolved and high for ebullition); what does this look like at whole-lake scale? Can depth/lake area predict this?

\*CO2 and/or DIC

\*catchment supply of CO2/DIC

-get meteorological data that gives us historic and future projects at 1/8th degree res.

TO-DOs

-get EPA NLA datasets set up for validation with model

-models for load concentrations based on land cover, etc.

-look at lake connectivity tables