

## Science Question

We presented a carbon budget for North American ecosystems over the last two decades (2000–2019) for the whole region and four subdivisions (Canada, United States, Mexico, and Central America + the Caribbean). We compared our results against the literature for each subregion to identify consistencies and missing gaps in our current understanding of the carbon cycling in the region.

## Analysis

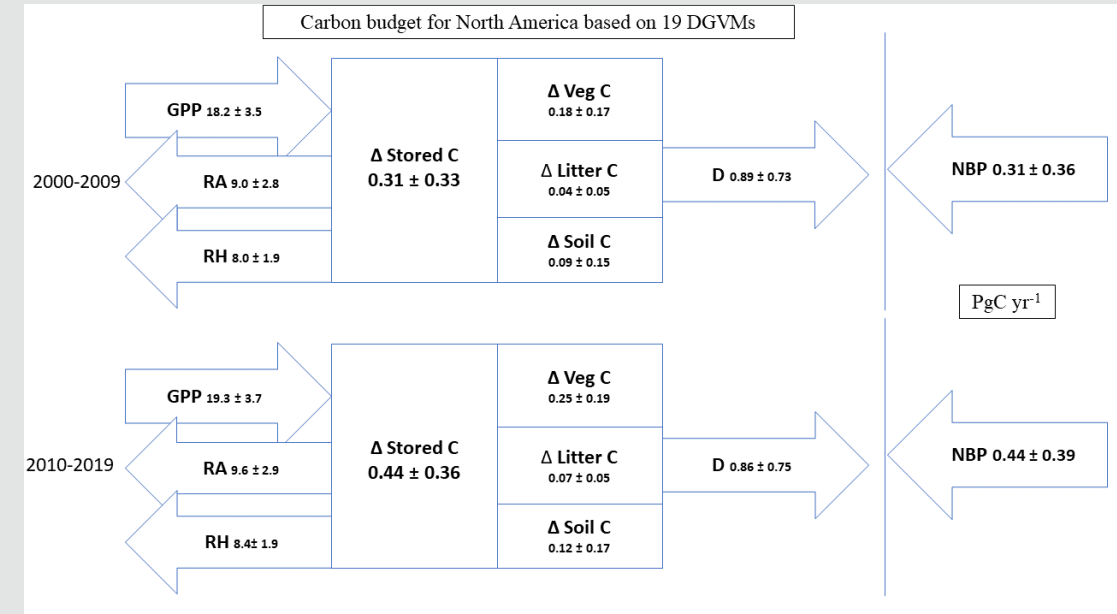
We analyzed output from 19 Dynamic Global Vegetation Models from TRENDYv9.

## Results

- 1) North American ecosystems have been carbon sinks the last two decades
- 2) The largest carbon sink is in Canada, followed closely by the US.
- 3) Land ecosystems Mexico and Central America + Caribbean countries were carbon neutral (sources and sinks balanced out).
- 4) The interannual variability of the carbon cycle is highly correlated to variations in drought and fire.
- 5) In particular, drought has the potential to shift the region into a carbon source.

## Significance

Our results highlight the importance performing multiscale (spatial and temporal) carbon budgets, and the need to apply and reproduce these efforts from regions to sub-regions and individual countries to help guide science questions and policy efforts.



## Figure Caption

Land C cycle for North America during 2000–2019 by decade in PgC per year. Boxes indicate changes in C stocks and arrows indicate net fluxes. All errors represent 1 standard deviation based on model spread. A positive NBP indicates a net land C sink from the atmosphere.

\*GPP stands for gross primary productivity, RA for autotrophic respiration, RH for heterotrophic respiration, Veg for vegetation, D for disturbance fluxes and NBP for net biome productivity.