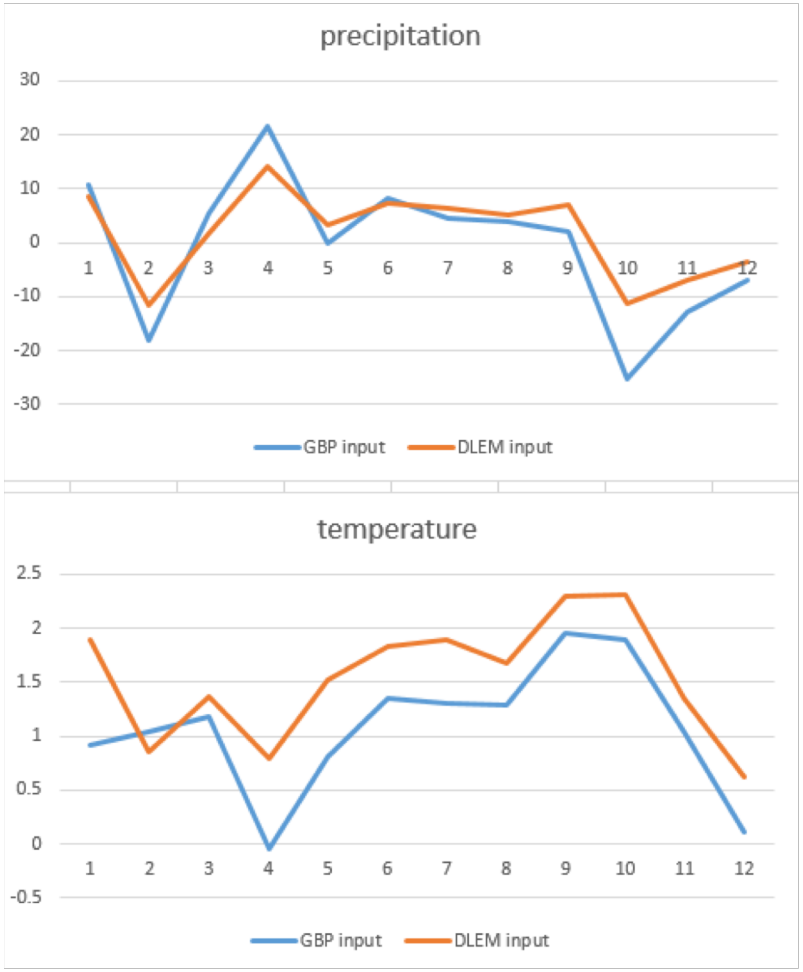
Updates on Riverine C N Exports of CBW Simulated by DLEM

Yuanzhi Yao, Hanqin Tian and Zihao Bian

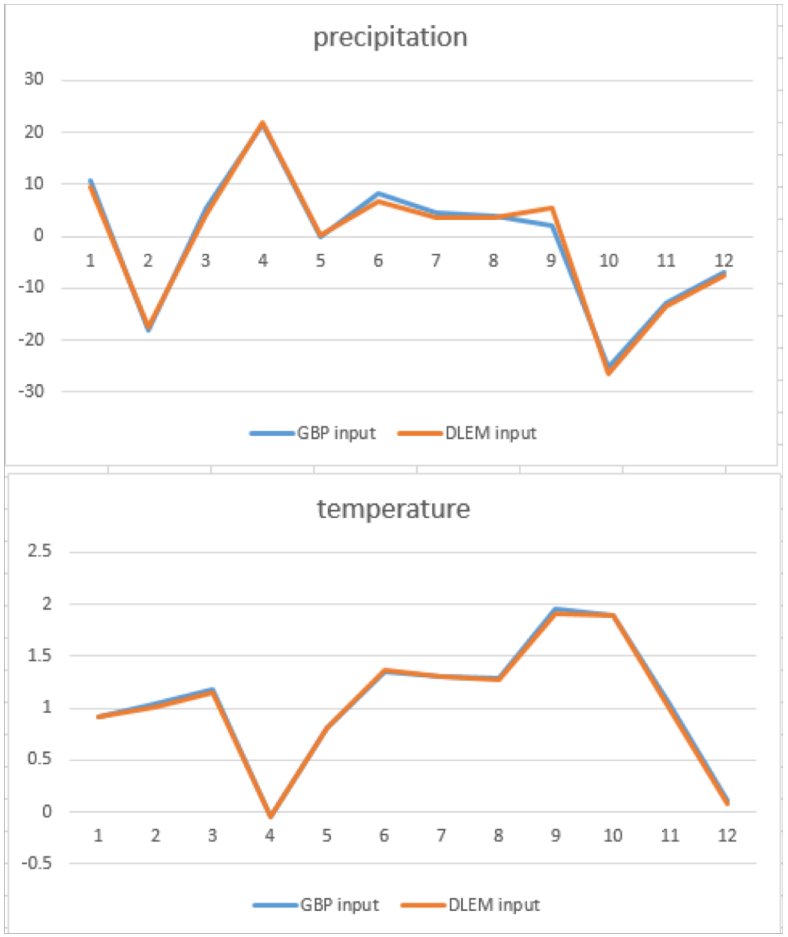
---3/14/2019

Difference in Delta change

Compare the Delta change of precipitation and temperature inputs with CBP



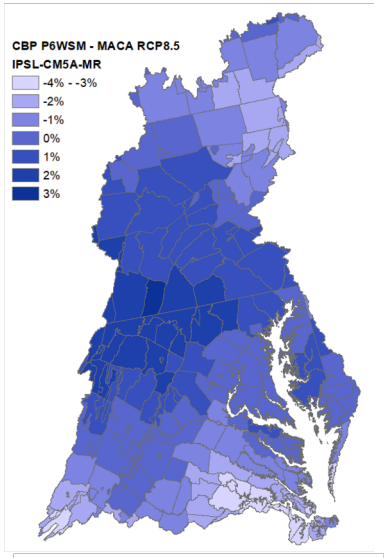
Before

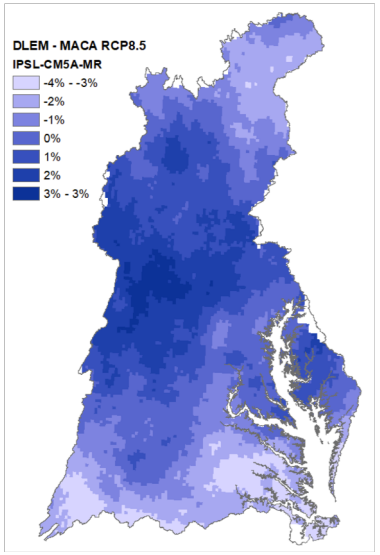


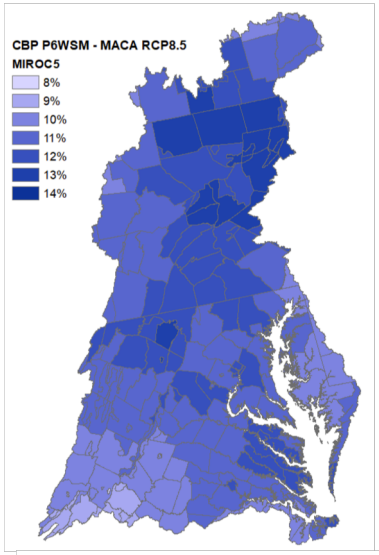
Now

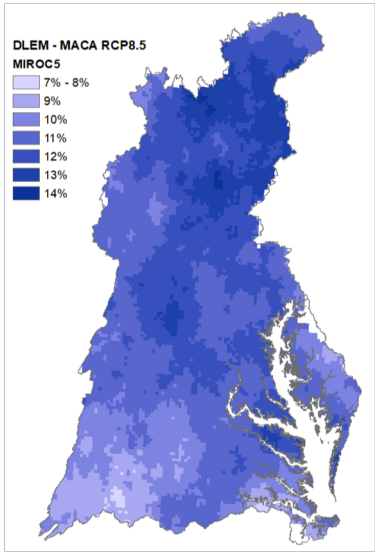
Precipitation delta change – percent
Temperature delta change – degree Celsius

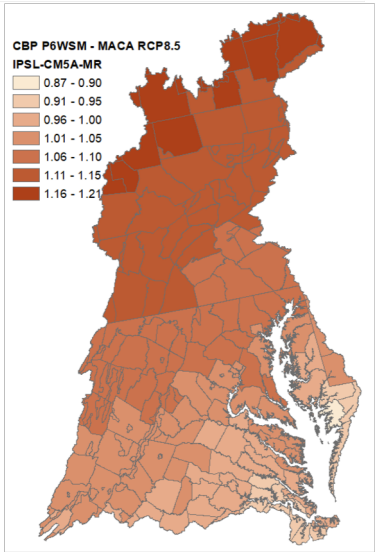
Compare the spatial pattern of Delta Change with CBP model

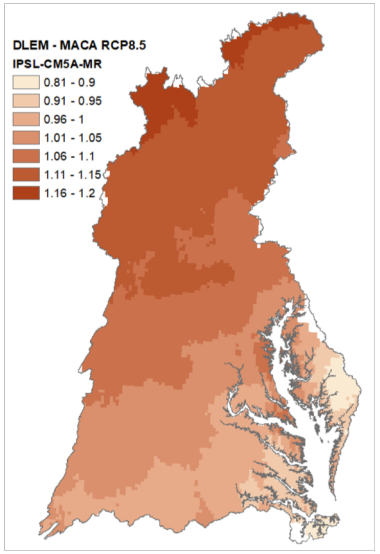


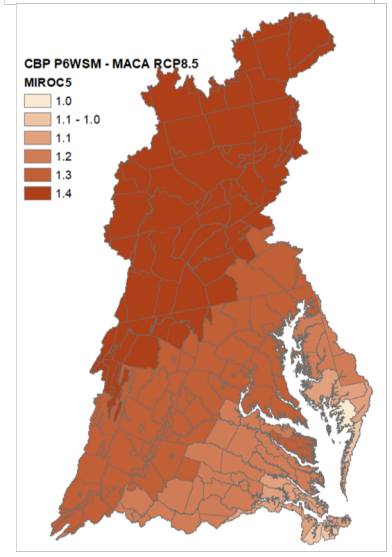


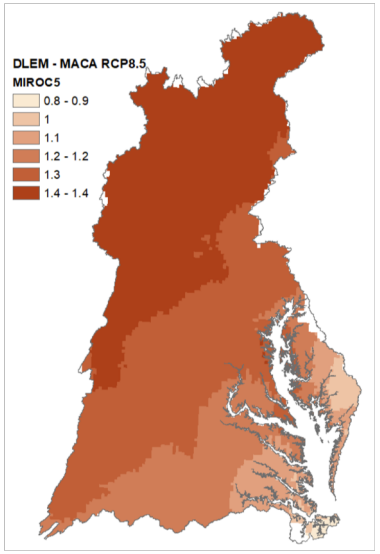






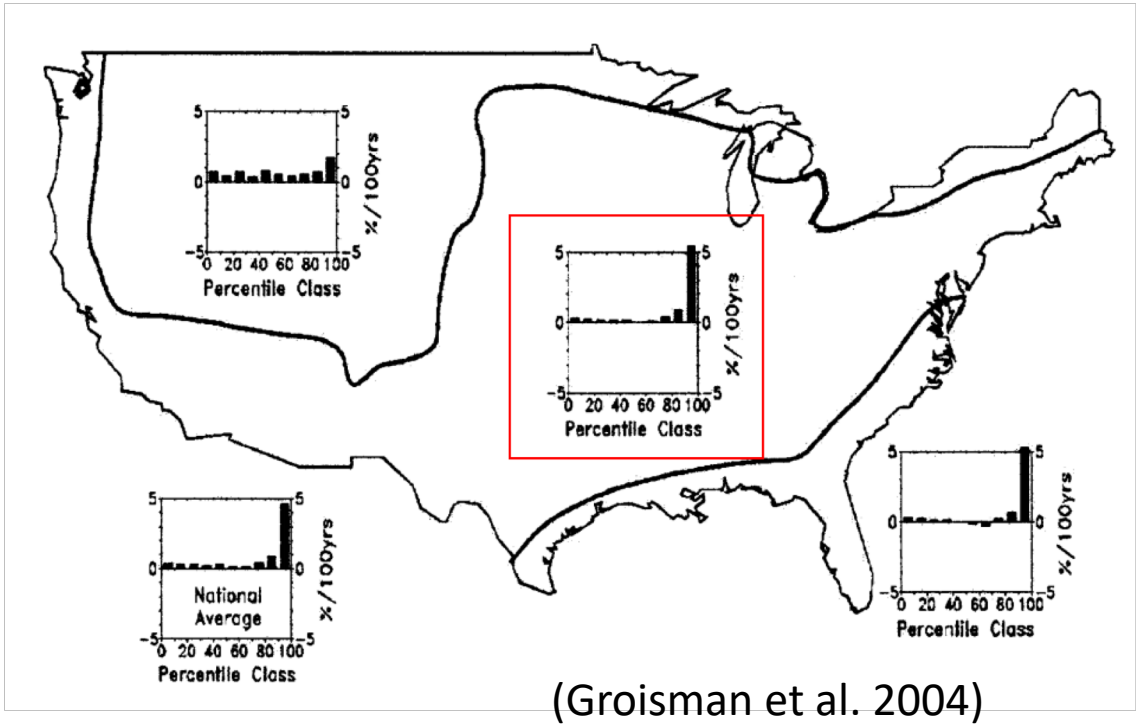






Difference in Precipitation Data Processing

Precipitation data partition

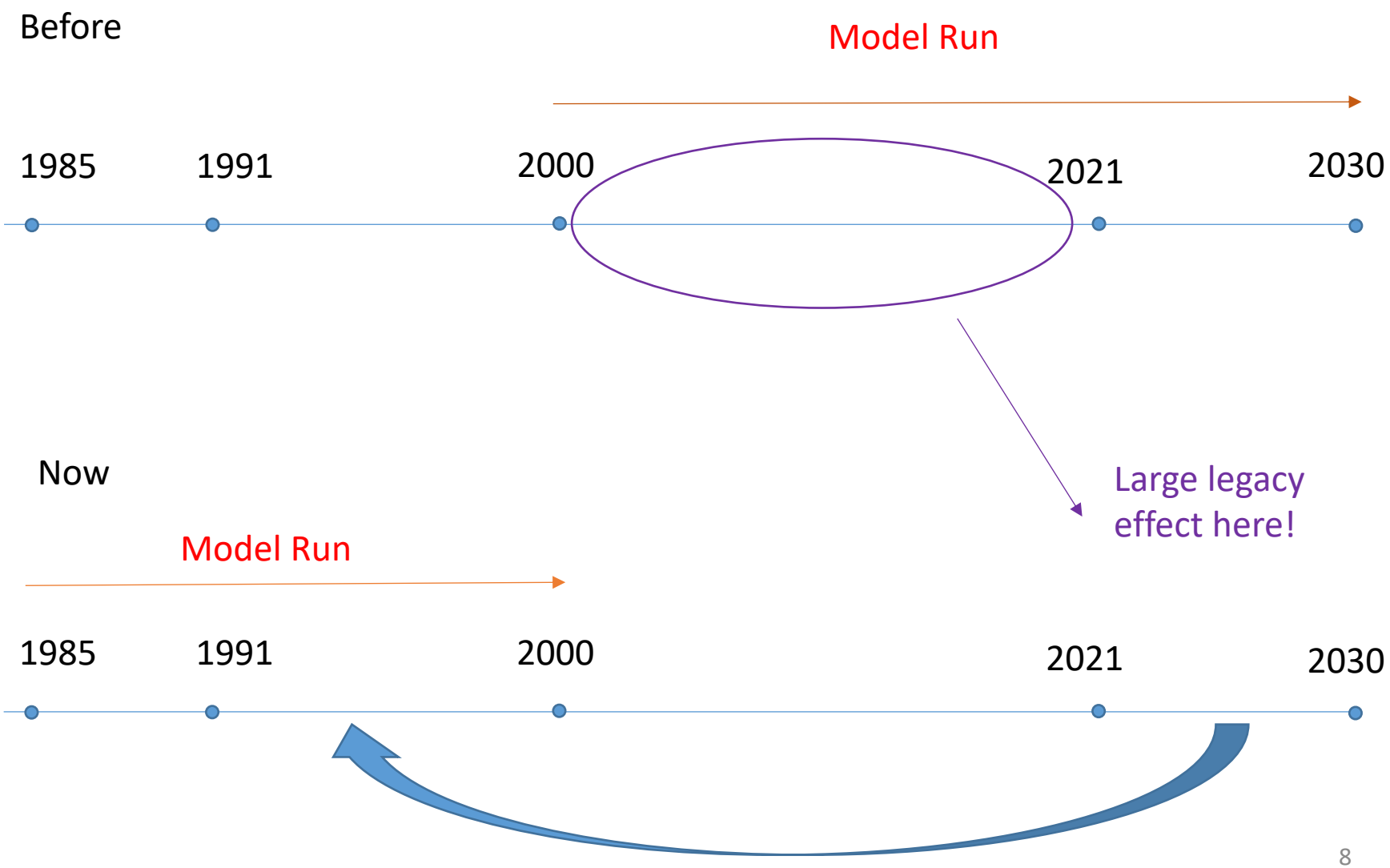


(Groisman et al. 2004)

Quantile	rainfall fraction
Q10	0.02924
Q20	0.02924
Q30	0.02924
Q40	0.02924
Q50	0.02924
Q60	0.023392
Q70	0.011696
Q80	0.05848
Q90	0.116959
Q100	0.643275

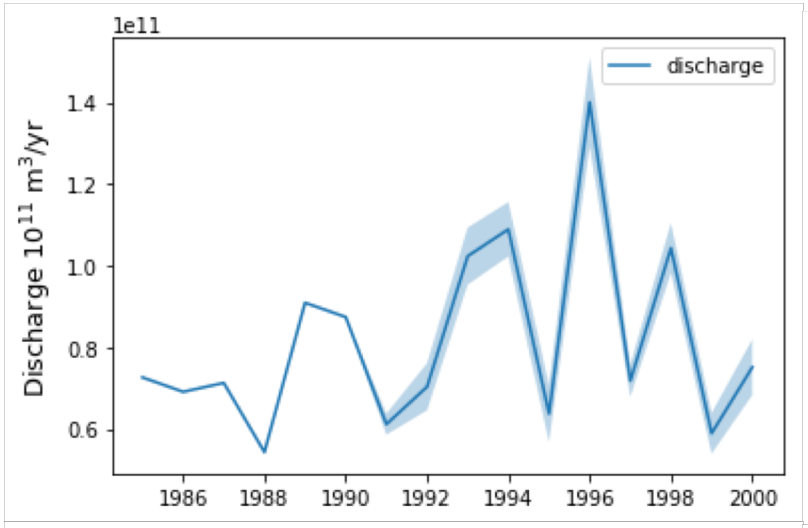
Difference in Model Set-up

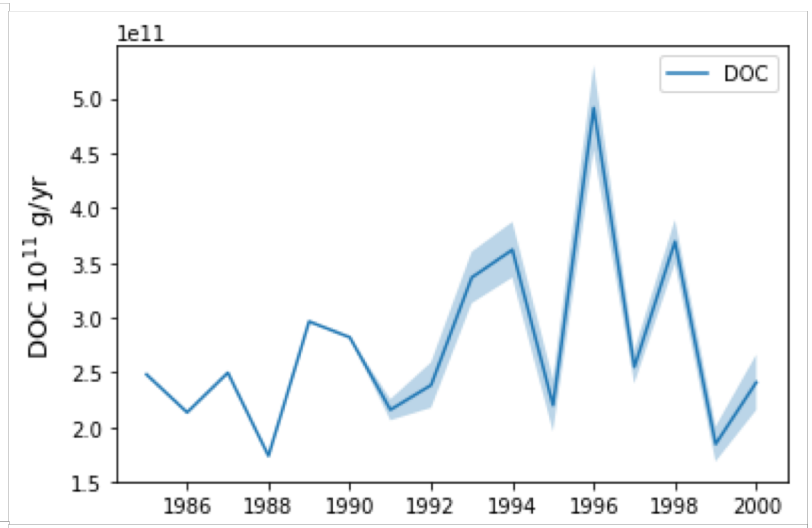
Difference in Model Set-up

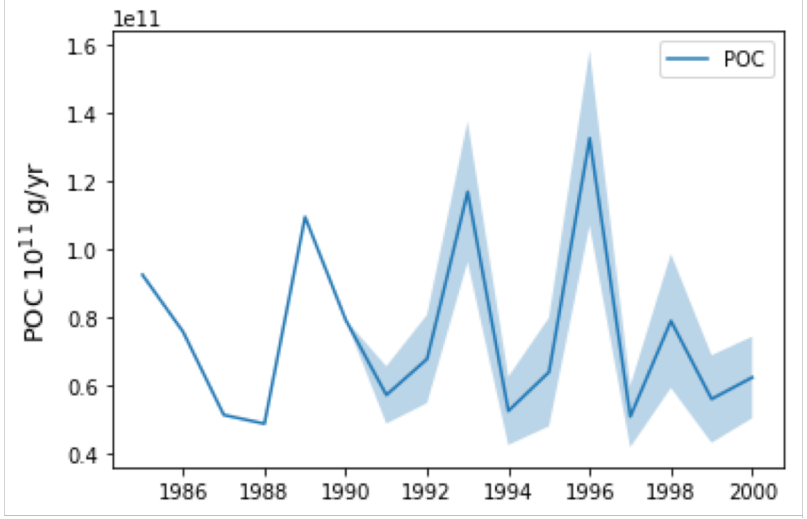


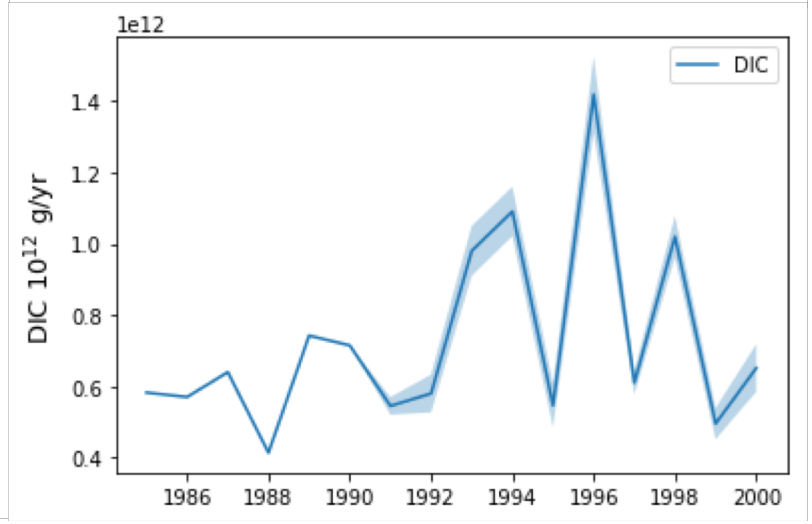
Riverine C N Exports

Total C N exports (2021 -2030)



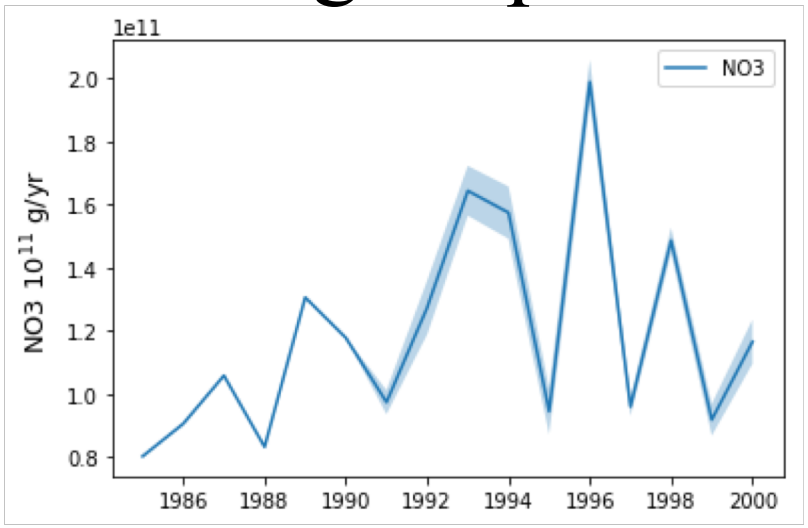


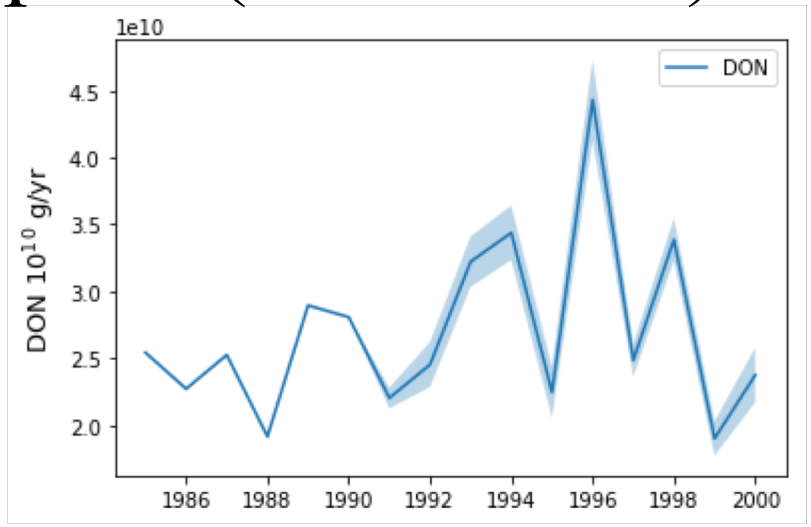


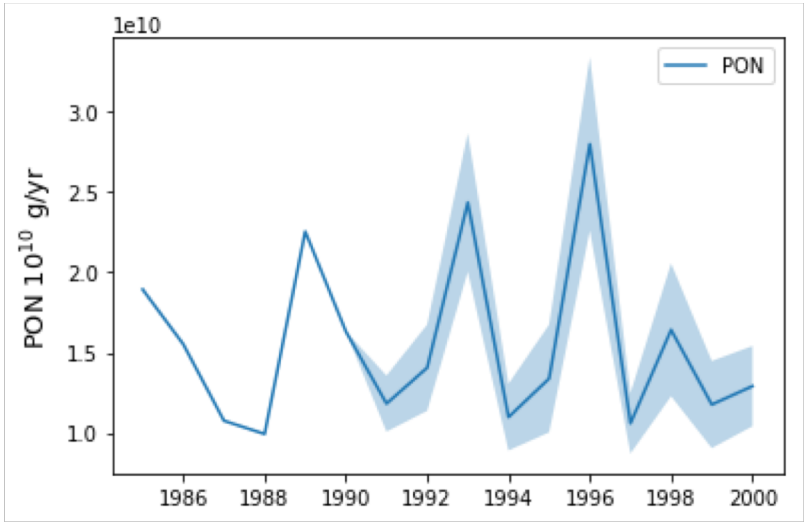


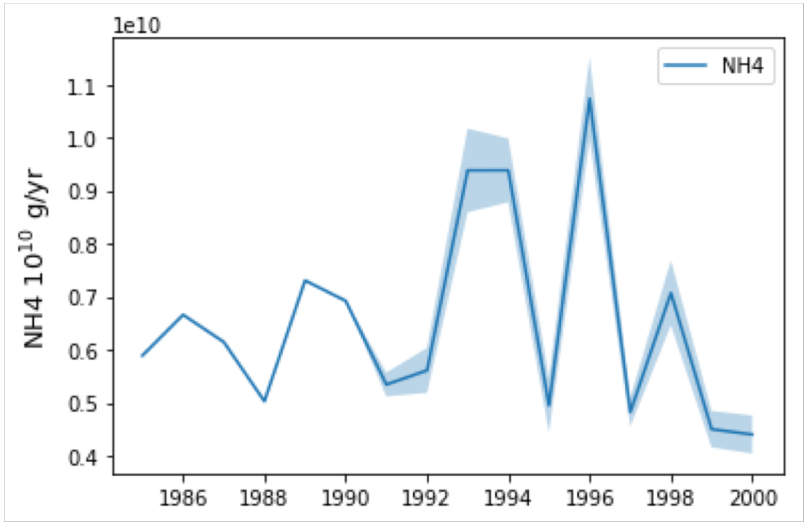
The blue line describe the average C,N Exports simulated by DLEM driven by all 20 climate models. The shaded area represent ±1 STD of 20 models as well.

Nitrogen species exports (2021 -2030)

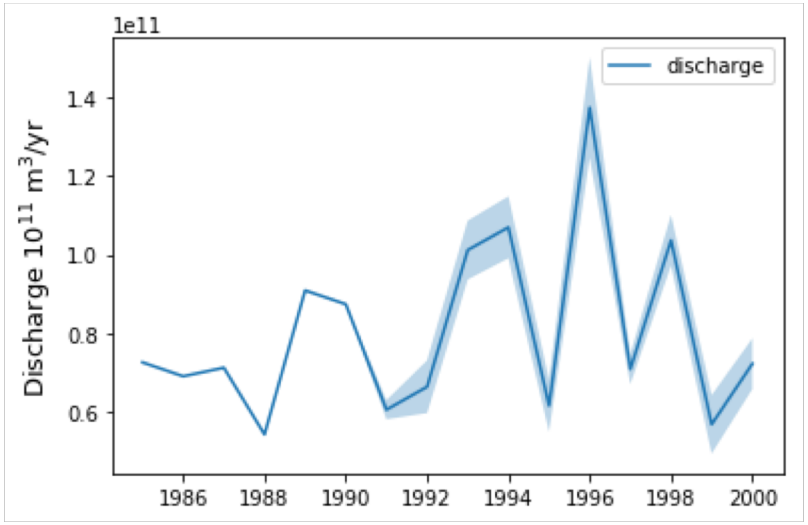


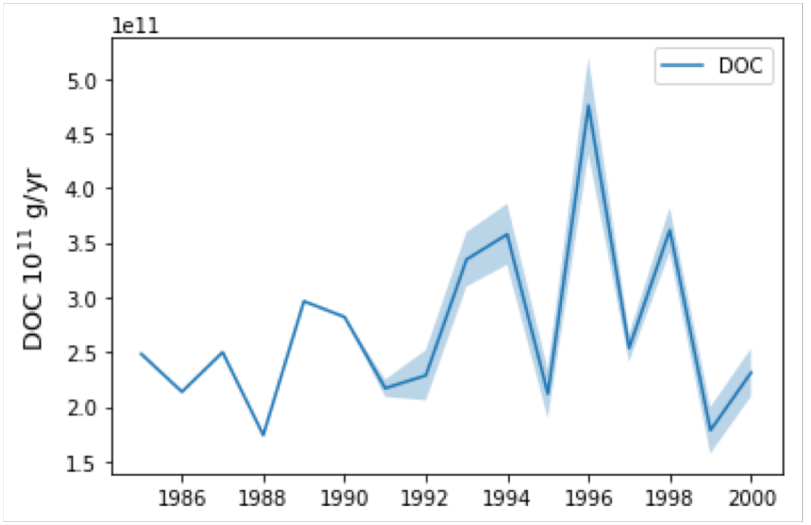


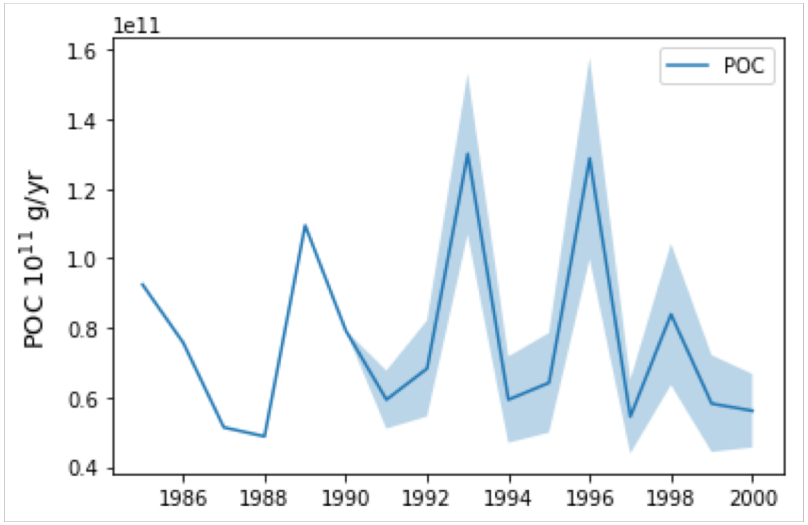


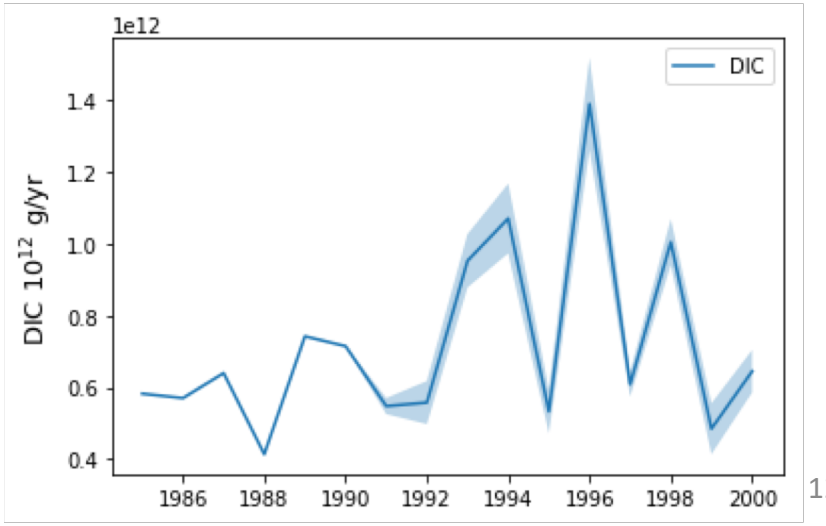


Total C N exports (2045 -2055)

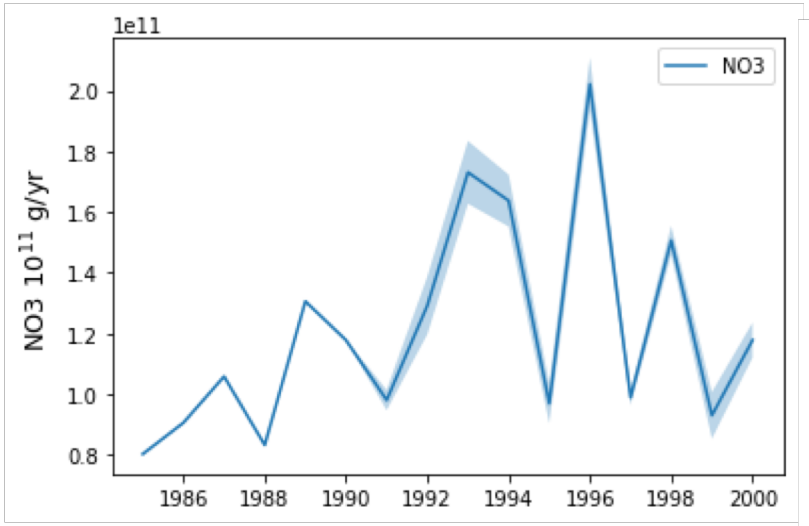


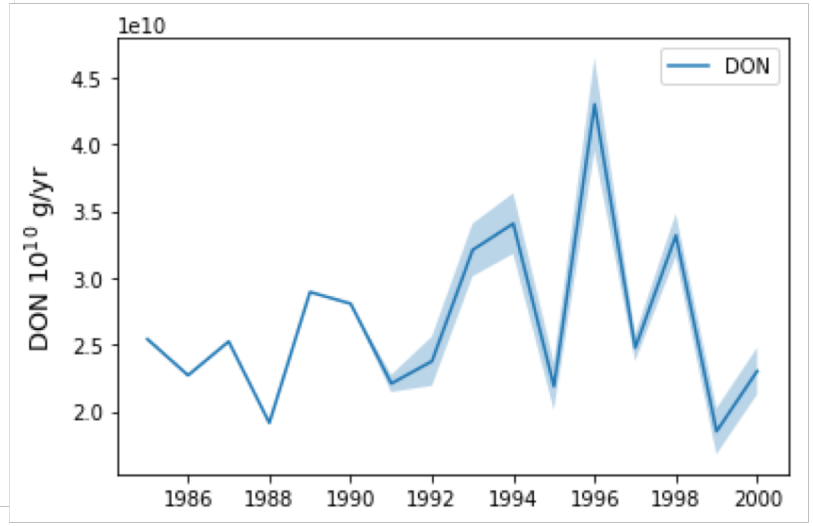


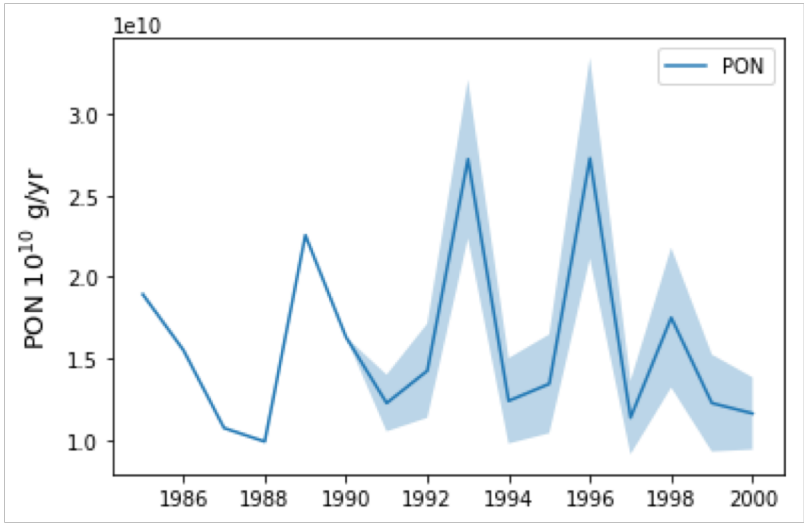


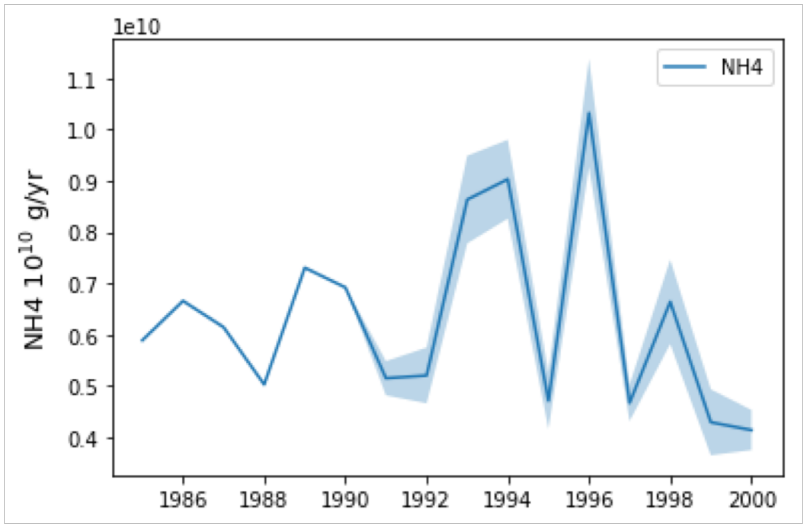


Nitrogen species (2045 -2055)

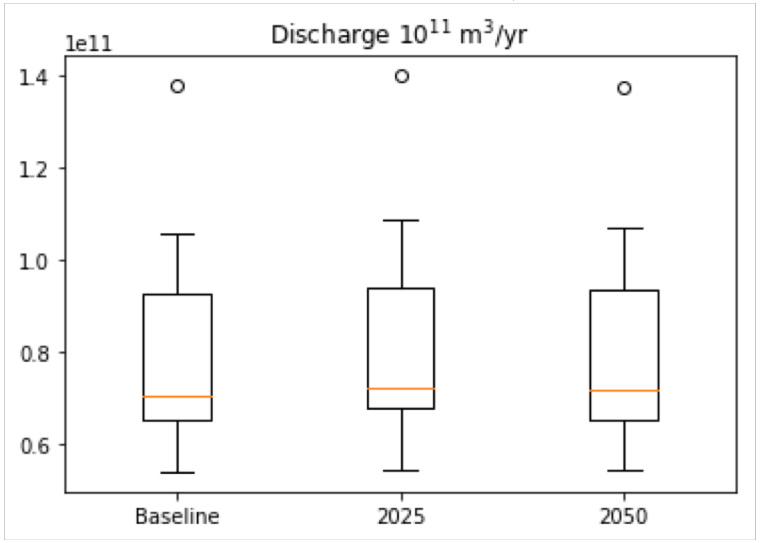




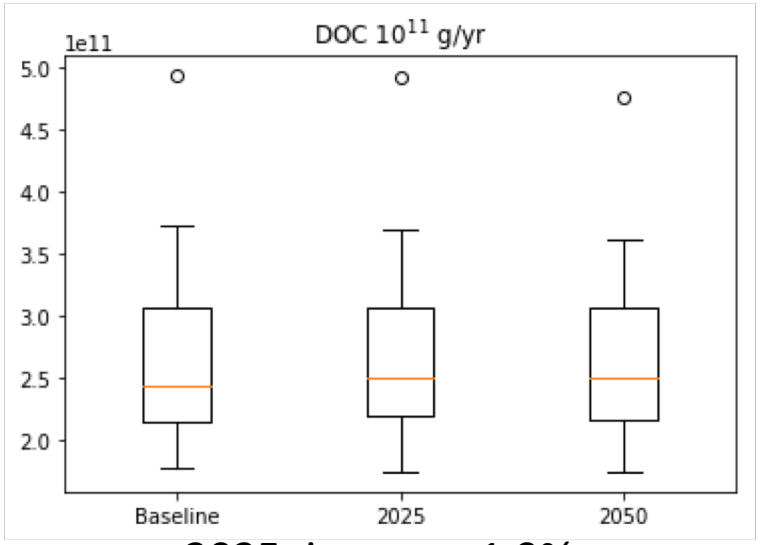




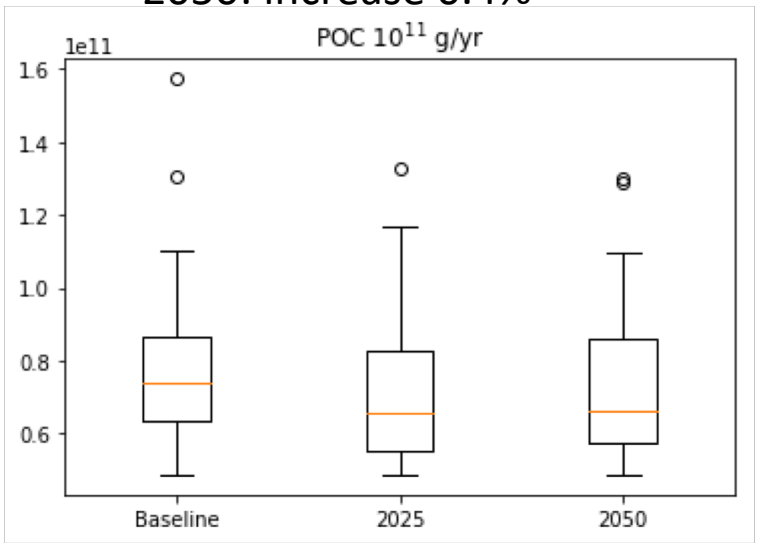
Compare the projected period (2021-2030 and 2045-2055) with baseline simulation (1991 -2000)



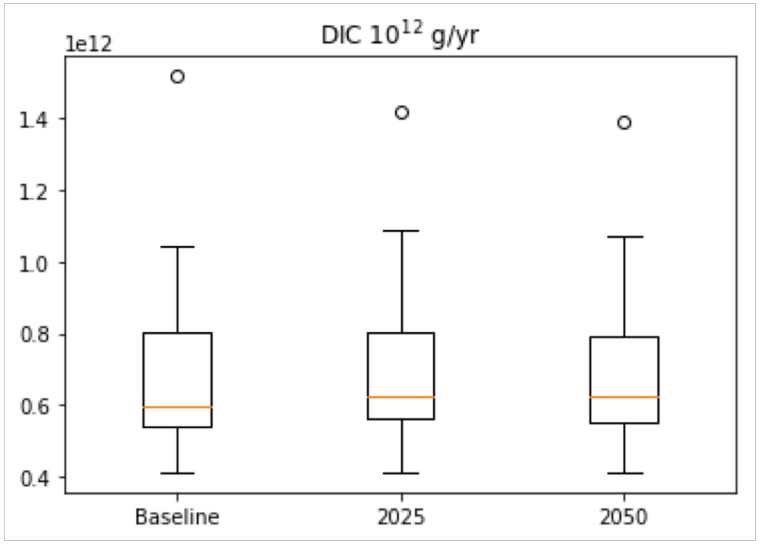
2025: increase 1.8%
2050: increase 0.4%



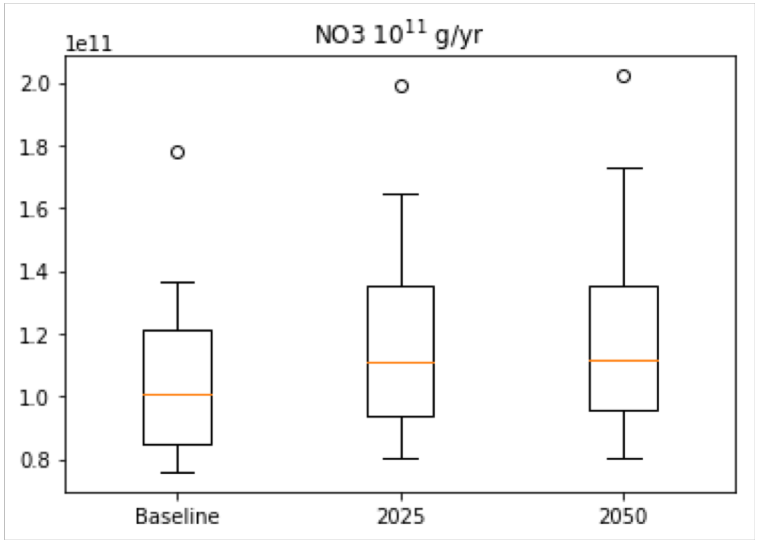
2025: increase 1.9%
2050: increase 0.4%



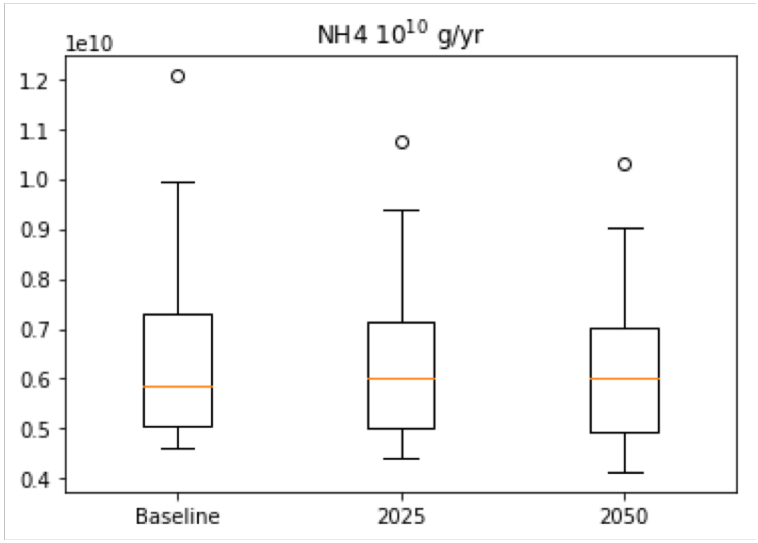
2025: decrease 8.0%
2050: decrease 6.1%



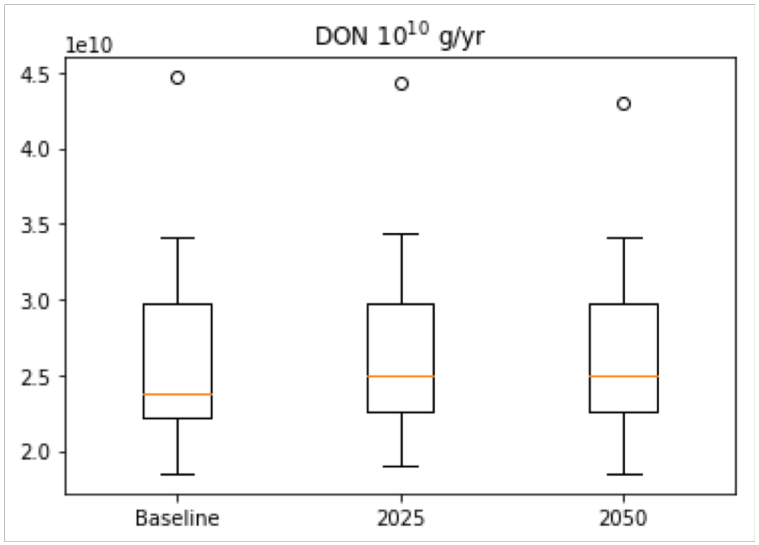
2025: increase 1.2%
2050: decrease 0.02%



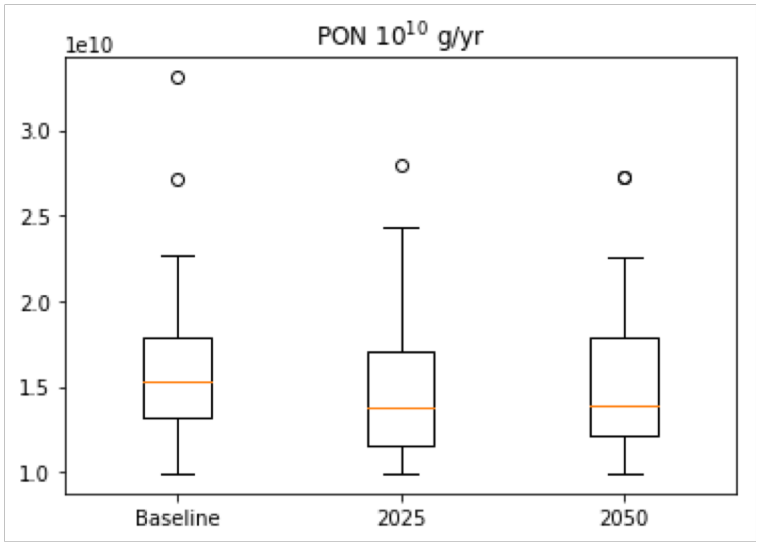
2025: increase 12.1%
2050: increase 13.9%



2025: decrease 2.4%
2050: decrease 5.6%



2025: increase 1.7%
2050: increase 0.5%



2025: decrease 7.9%
2050: decrease 5.9%