

AN ANALYSIS OF THE CARBON BALANCE OF BOREAL ASIA FROM 1997 TO 2006

A.D.McGuire, D.J.Hayes, D.W.Kicklighter,
Q.Zhuang, M.Chen, K.R.Gurney, J.W.McClelland,
J.M.Melillo, B.J.Peterson, and R.G.Prinn

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The Boreal Land Regions

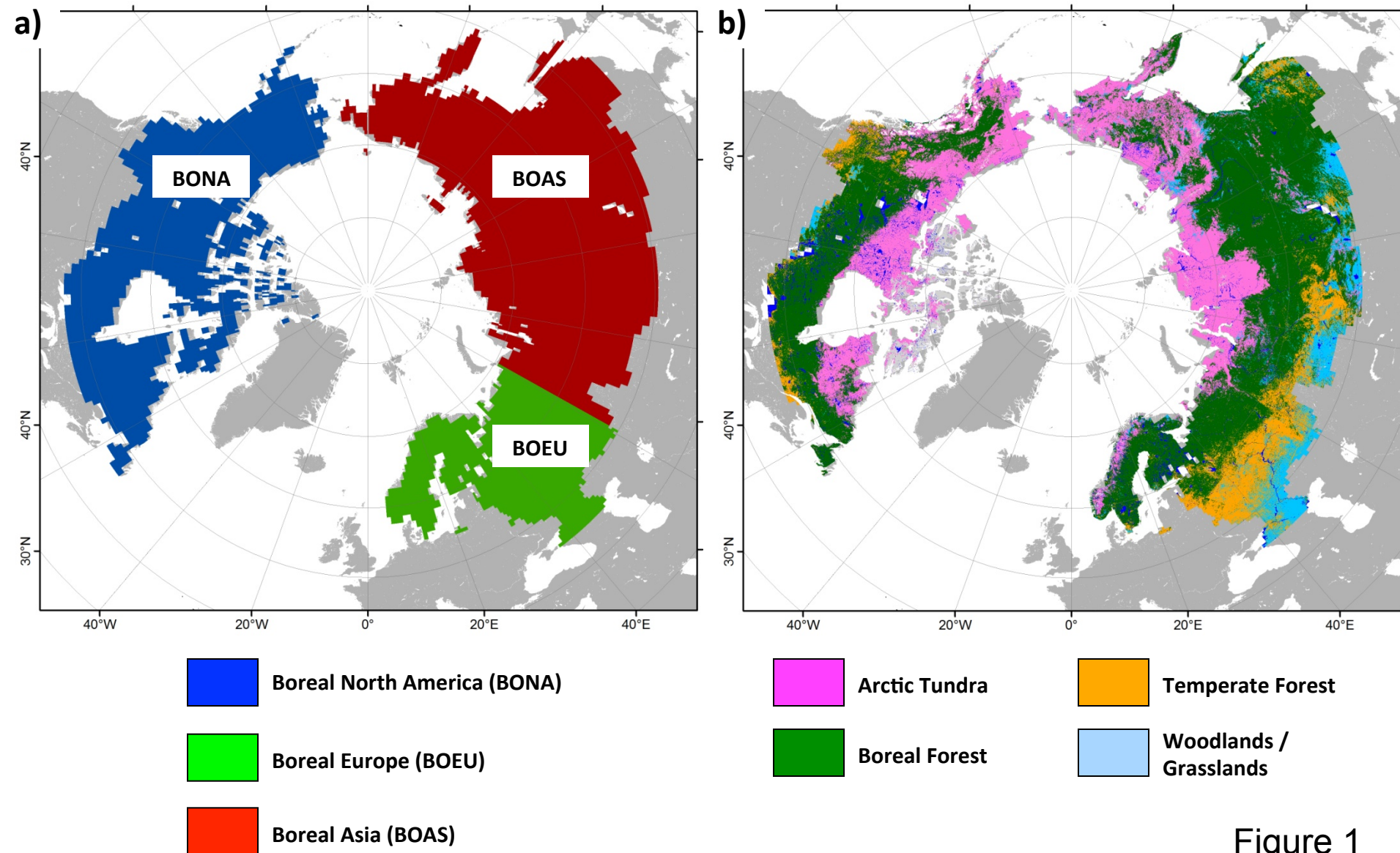


Figure 1

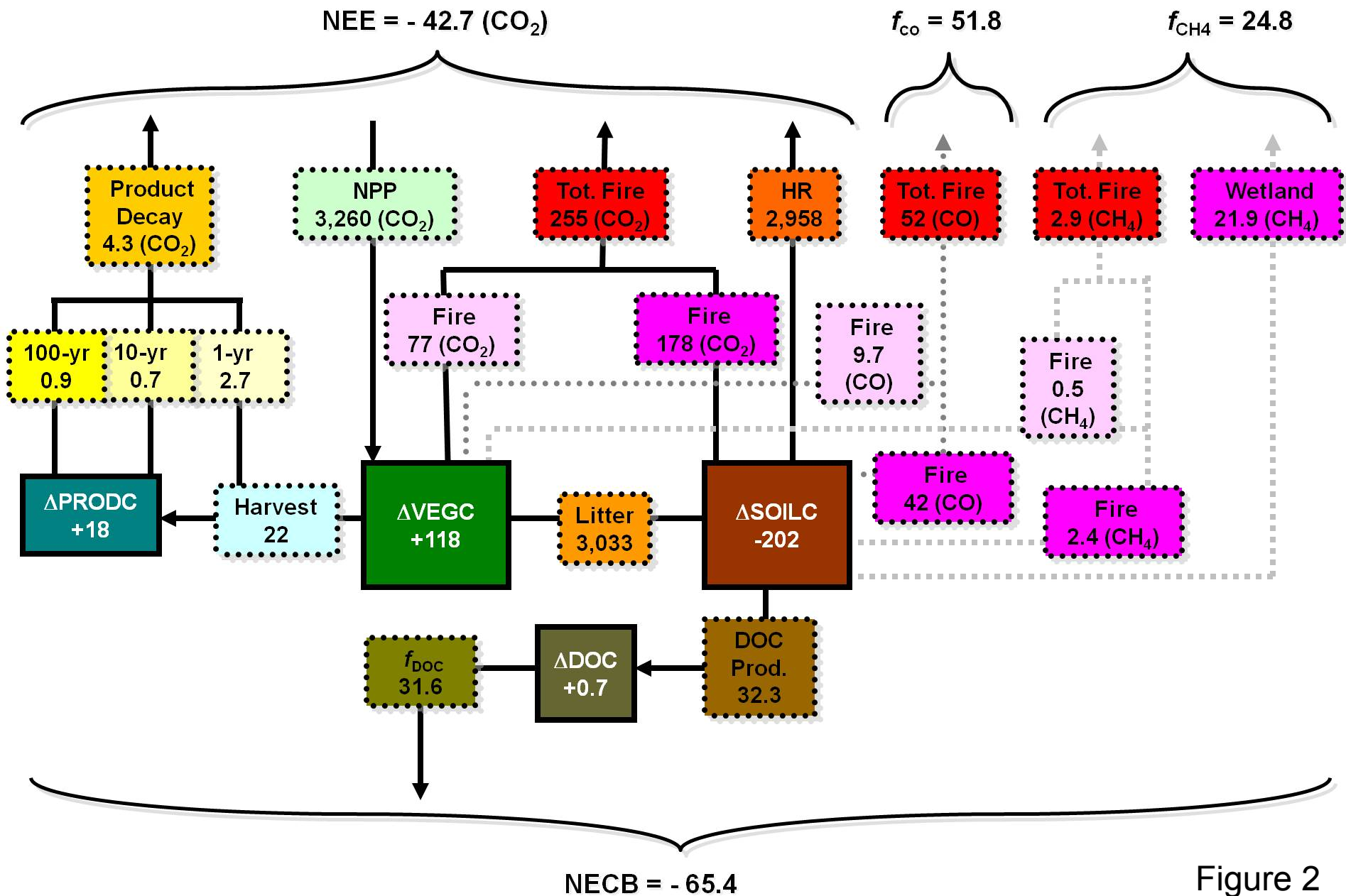
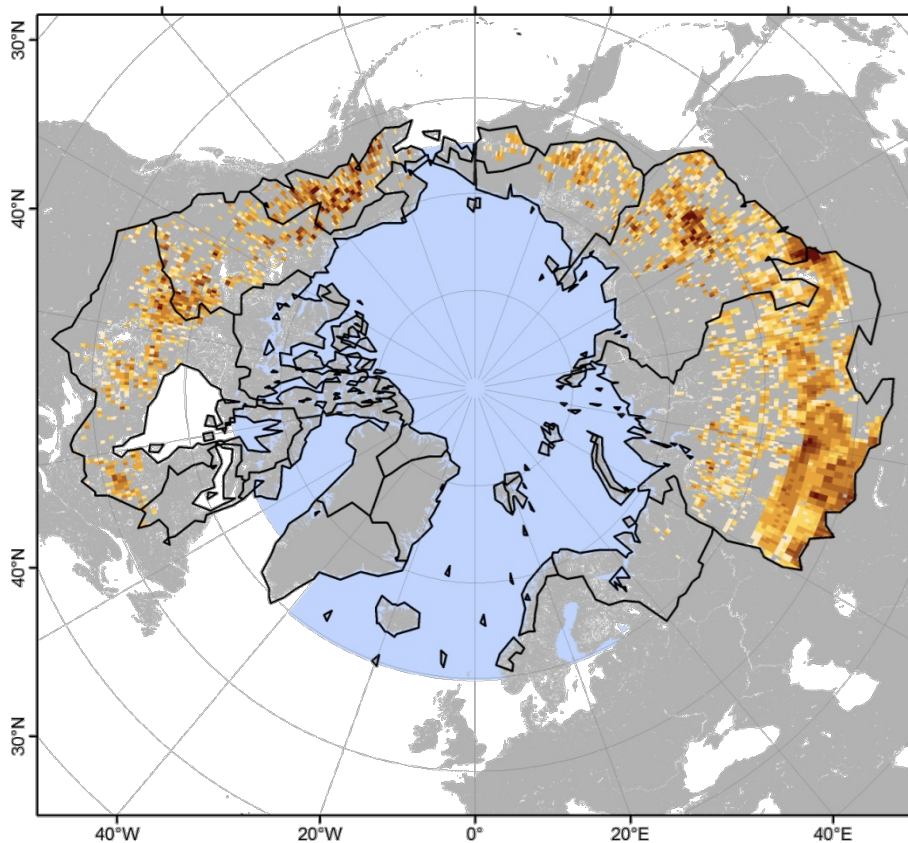
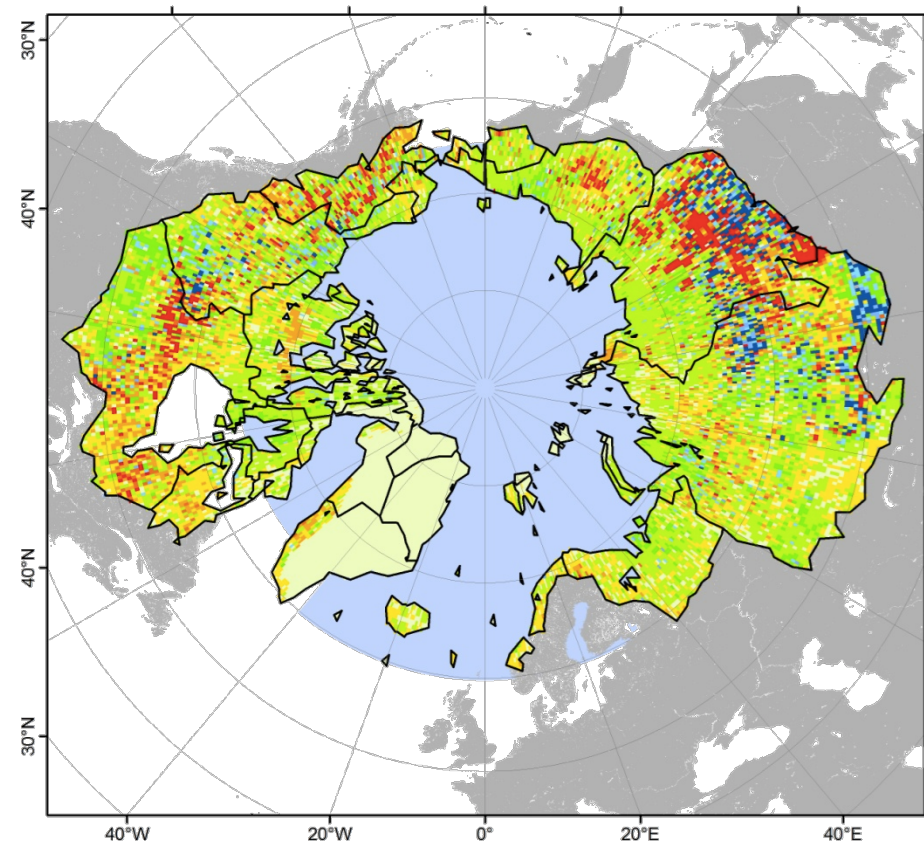
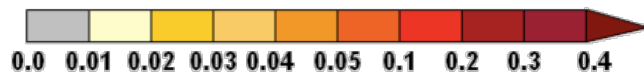


Figure 2

Results – Terrestrial CO₂ Exchange



Fraction of Grid Cell Burned, 1997 - 2006



Average Annual Net Ecosystem Exchange ($\text{gC m}^{-2} \text{ yr}^{-1}$), 1997 - 2006



Figure 3

Terrestrial CO₂ Exchange

- **NEE:** TEM vs. Transcom
- **Fire Emissions:** TEM vs. GFED

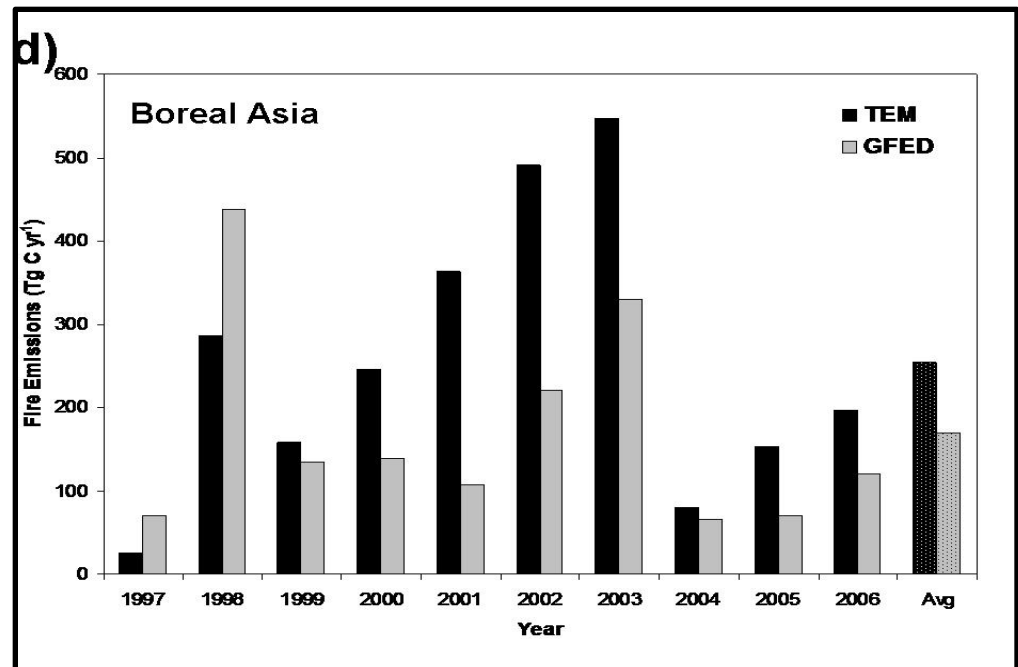
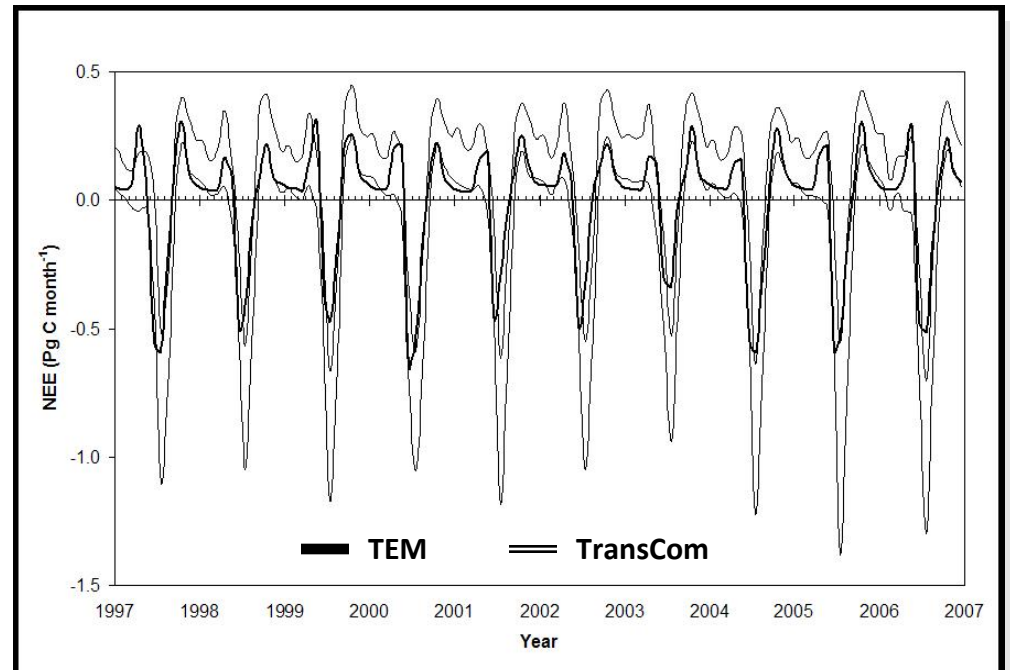


Figure 4

Results – Terrestrial CH₄ Exchange

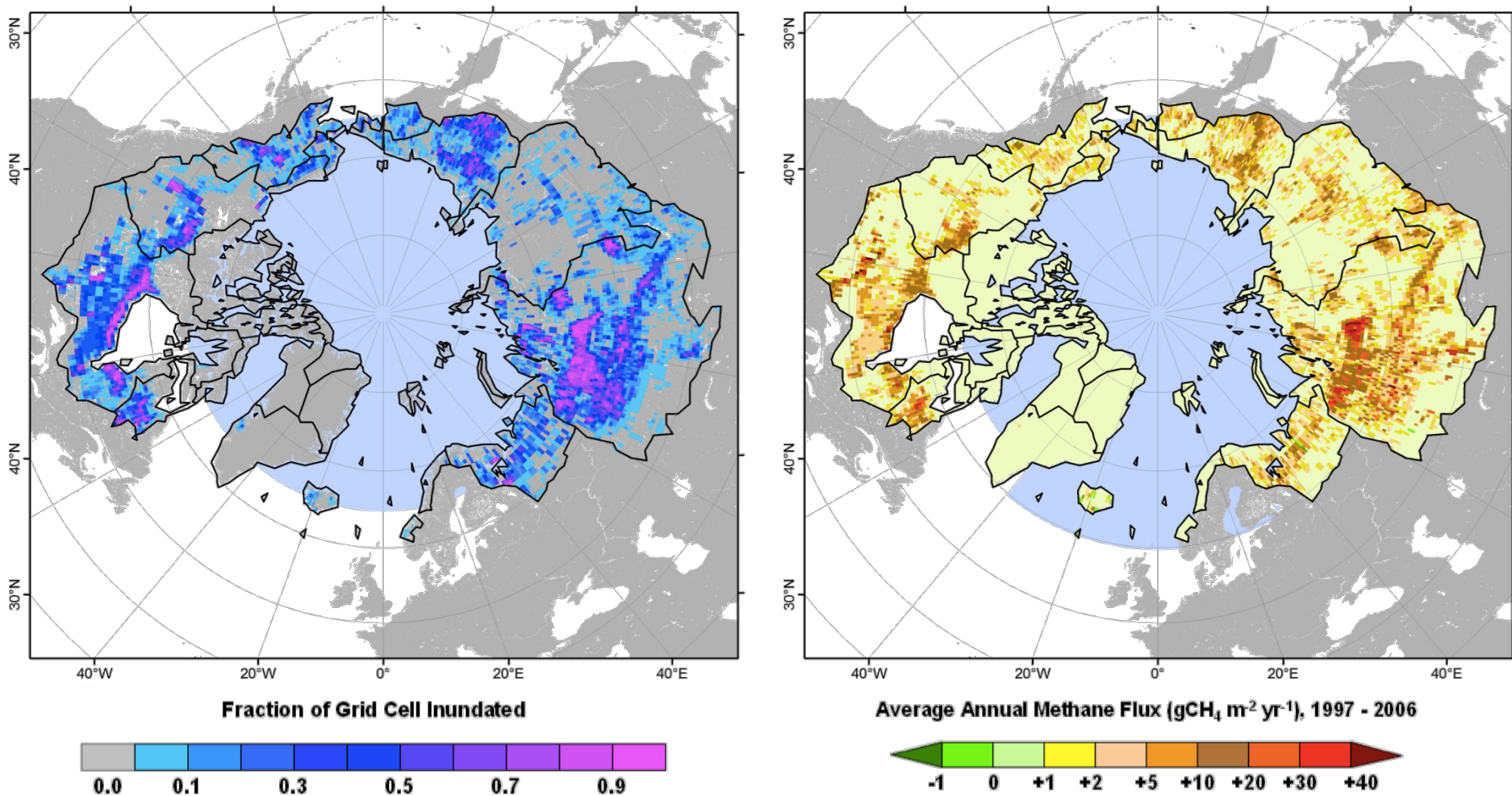


Figure 5

Terrestrial CH₄ Exchange

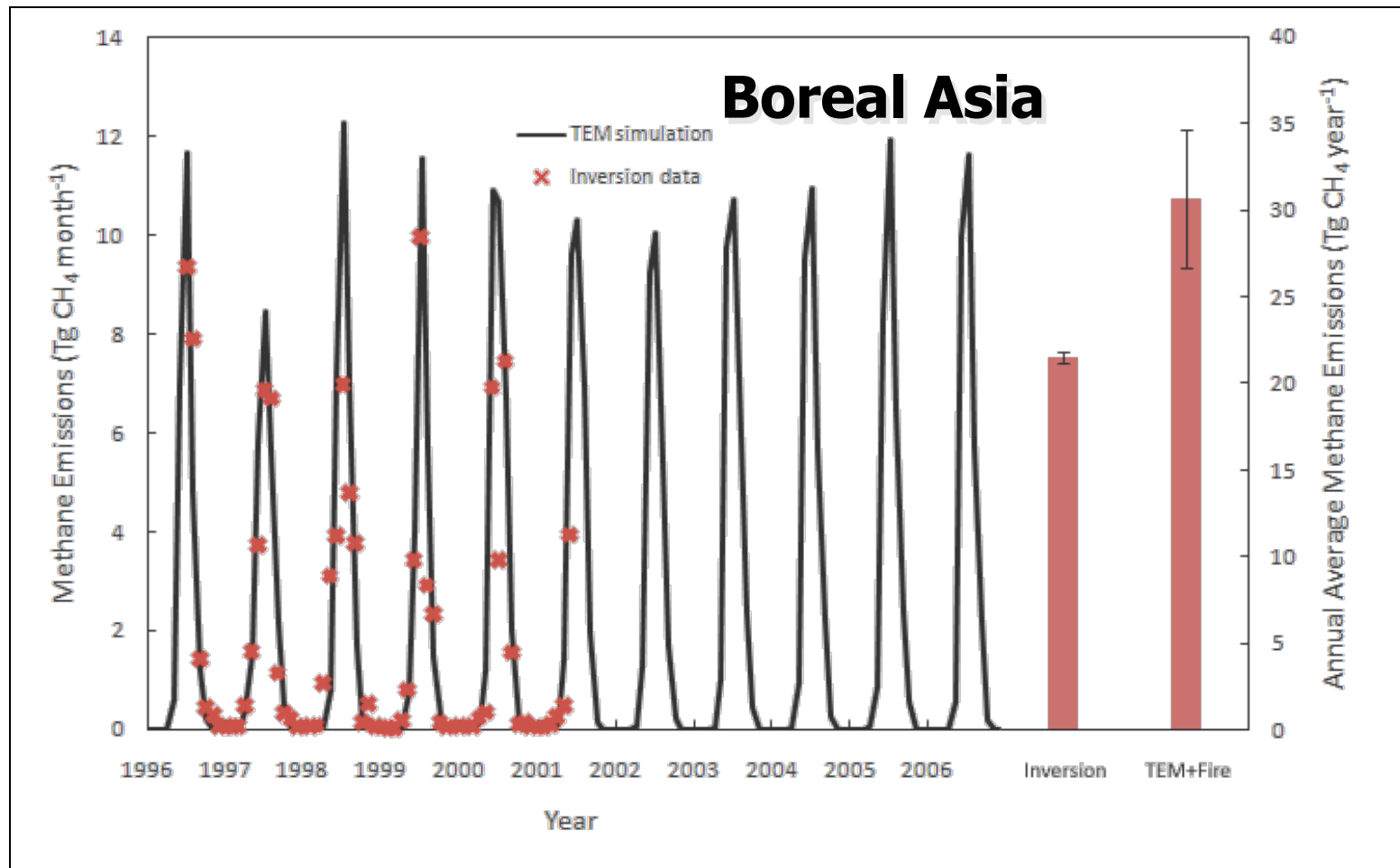


Figure 6

Land → Ocean DOC Export

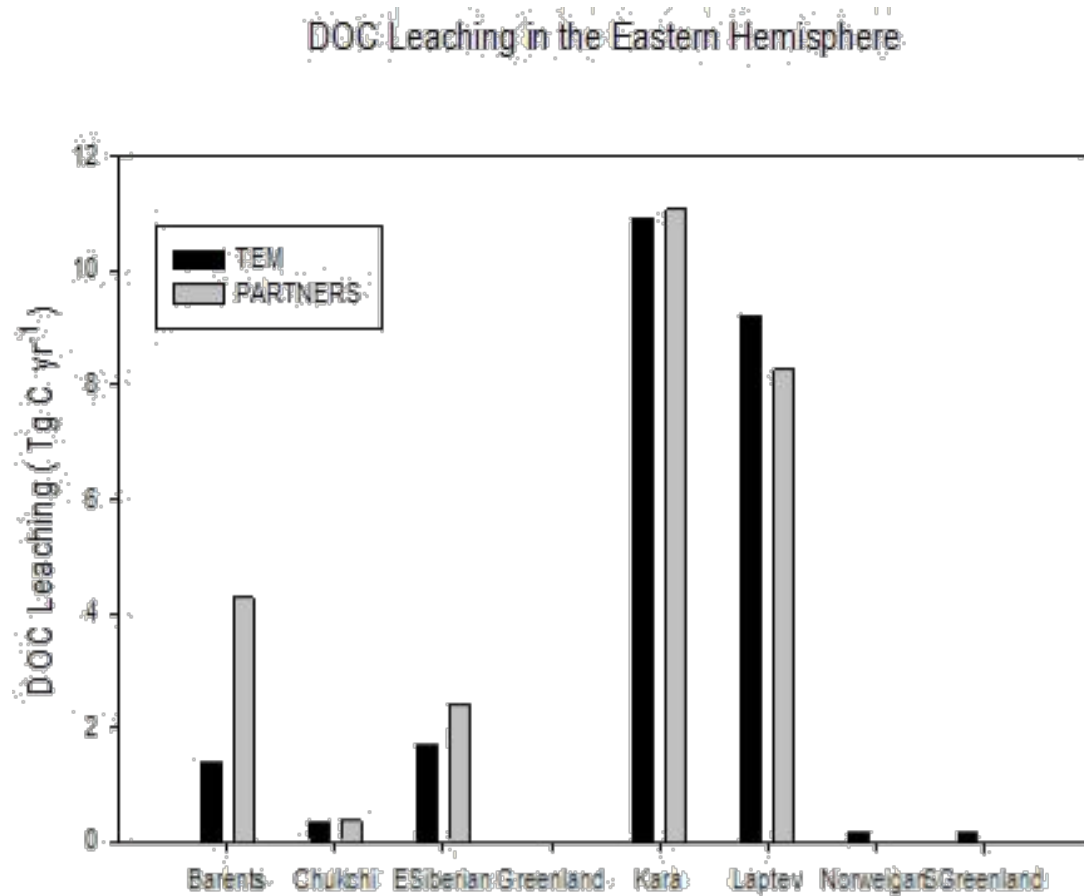
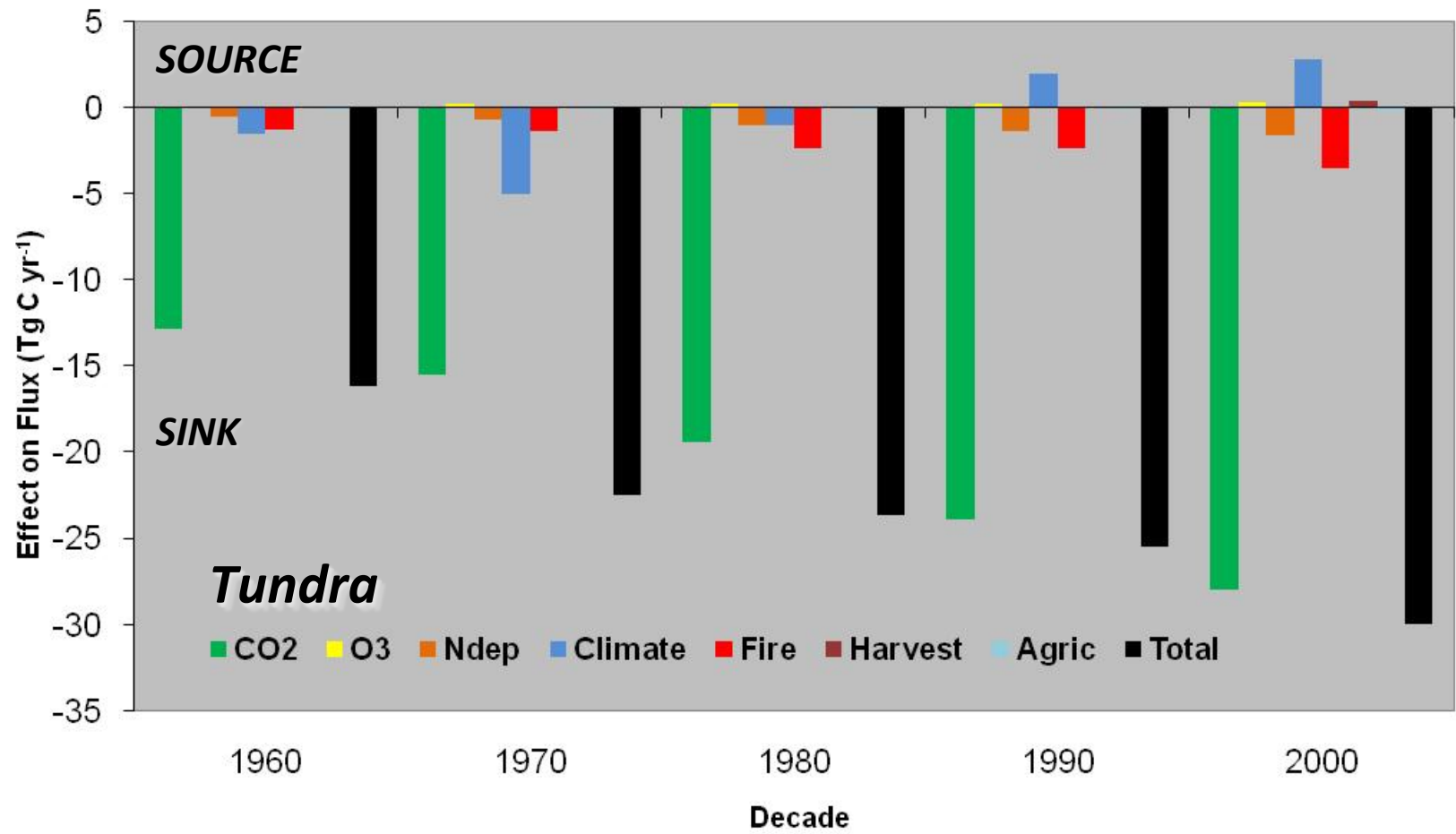


Figure 7

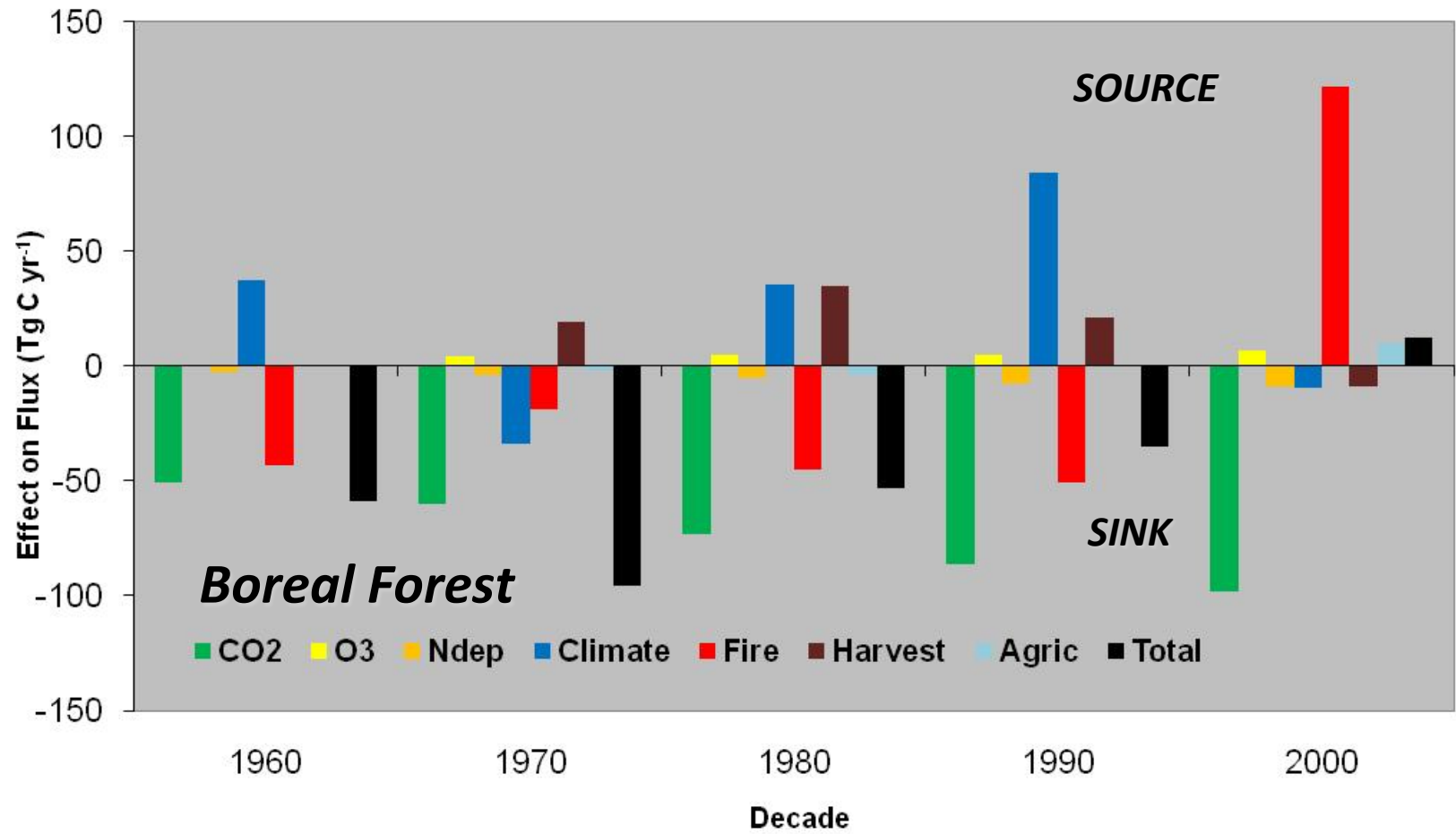
What are the roles of the controlling factors in the disappearing boreal land CO₂ sink ?



Strengthening sink: CO₂ fertilization effect > Climate effect

Figure 8

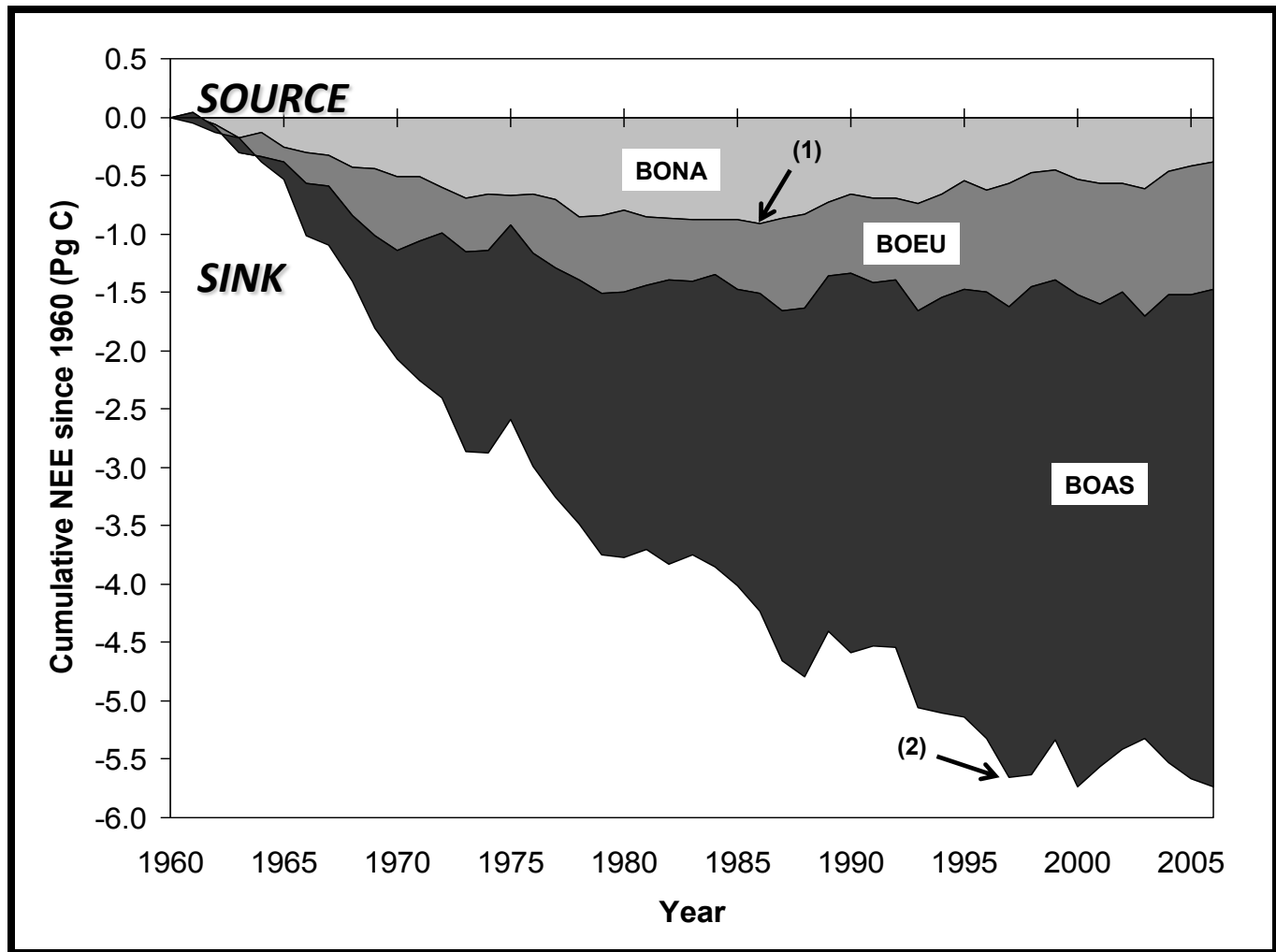
What are the roles of the controlling factors in the disappearing boreal land CO₂ sink ?



Strengthening source: Fire > CO₂ fertilization effect

Figure 9

How is CO₂ sink in Boreal Lands Changing?



Hayes et al. (in review)

Figure 10

