



**Figure S1:** Cumulative effect of eCO<sub>2</sub> on C (a,b) and N (c,d) storage in the Duke (a,c) and ORNL (b,d) FACE sites. *NPP*: net primary production; *N<sub>inorg</sub>*: inorganic soil N storage, *C|N<sub>veg</sub>*: vegetation storage; *C|N<sub>litter</sub>*: litter storage; *C|N<sub>soil</sub>*: soil organic matter storage.  $\Delta pool|fluxes$  denote the total ecosystem mass balance based on cumulative changes in pool, or integrated net ecosystem C and N fluxes, respectively. The error bars denote  $\pm 1$  standard error.