|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Forest autotrophic carbon fluxes | | | | | | | | | | |
| Review questions and hypothesized relationships | | Overall | GPP | NPP | ANPP | ANPP*stem* | ANPP*foliage* | BNPP | BNPP*fine.root* | R*auto* | R*root* | Support |
| **Q1. How do C fluxes vary with latitude?** | |  |  |  |  |  |  |  |  |  |  |  |
|  | continuous increase with decreasing latitude | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | Fig. 2 |
|  | signficantly decelerating increase with decreasing latitude | 🗙 | 🗙 | 🗙 | 🗙 | 🗙 | 🗙 | 🗙 | 🗙 | 🗙 | 🗙 | Fig. 2 |
| **Q2. How do C fluxes vary with mean annual temperature (MAT) and precipitation (MAP)?** | | | | | | | | | | | | |
|  | continuous increase with MAT | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | Figs. 3, 4, S4, S5 |
|  | increase with MAP up to ≥ 2000 mm | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | Figs. 4, S4, S5 |
|  | increase with MAT x MAP | - | - | 🗙 | - | ✔ | - | - | - | - | - | Fig. 3, Table S3 |
| **Q3. How are C fluxes related to other climate variables?** | | | | | | | | | | | | |
|  | decelerating increase or unimodal relationship with PET | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | Figs. 4, S4, S5 |
|  | decelerating increase or unimodal relationship with VPD | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | Figs. 4, S4, S5 |
|  | increase with solar radiation | (✔) | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | - | Figs. S4, S5 |
| **Q4. How does seasonality influence annual C fluxes?** | | | | | | | | | | | | |
|  | decrease with temperature seasonality | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | Figs. 4, S6, S7 |
|  | decrease with precipitation seasonality | - | - | - | - | 🗙 | - | - | - | - | - | Figs. S6, S7 |
|  | increase with growing season length | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | Figs. 4, S6, S7 |
|  | stronger relationship to growing season length than MAT | (🗙) | 🗙 | 🗙 | 🗙 | - | 🗙 | 🗙 | 🗙 | 🗙 | 🗙 | Table S4 |
| **Q5. When standardised by growing season length, how do annual C fluxes vary with climate?** | | | | | | | | | | | | |
|  | increase with growing season temperature | (✔) | - | - | ✔ | - | ✔ | - | - | - | - | Figs. S8, S9 |
|  | increase with growing season PET | (✔) | ✔ | ✔ | - | ✔ | - | ✔ | ✔ | - | - | Figs. S8, S9 |
|  | increase with growing season precipitation | (✔) | - | - | ✔ | - | ✔ | - | - | - | - | Figs. S8, S9 |
|  | increase with growing season solar radiation | (✔) | - | - | - | - | - | ✔ | ✔ | - | - | Figs. S8, S9 |