Table 10. Flux responses from published field studies at sites across the high arctic.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Source | Place | Tundra characteristics | Year(s) | NEE | NEE response | GEP response | ER response |
| (Hobbie & Chapin, 1998) | Toolik Lake (inlet and outlet), AK | Wet sedge tundra | 1993 | Sink | ↕︎ (across sites) | ↑ | ↑ |
| (Shaver et al., 1998) | Toolik Lake (inlet and outlet), AK | Wet sedge tundra | 1994 | Sink | ↕︎ (across sites) | ↑ | ↑ |
| (Boelman et al., 2003) | Toolik Lake outlet, AK | Wet sedge tundra | 2002 | Sink | ↑ | ↑ | – |
| (Marchand et al., 2004) | Zackenberg, NW Greenland | Mesic mosaic tundra | 1999 | Sink | ↑ | ↑ | ↑ |
| (Welker et al., 2004) | Alexandra Fiord | Wet sedge meadow  Mesic meadow  Xeric heath | 2000- 2001 | Sink  Source  Sink | ↓  ↑  ↑ | ↓  ↑  ↑ | ↑  ↑  ↑ |
| (Edwards, 2012) | Alexandra Fiord | Wet sedge meadow  Mesic meadow  Xeric heath | 2011 | Sink  Sink  Sink | ↑  ↓ (slight  ↑ | ↑  –  ↑ | ↑  –  ↑ |
| (Oberbauer et al., 2007) | Toolik Lake, AK  Alexandra Fiord, NU  Utqiagvik, AK  Atqasuk, AK | Mesic tussock  Xeric heath  Wet sedge meadow  Mesic meadow  Xeric heath  Wet tundra  Dry tundra  Wet tundra  Dry tundra | 1997-1998  2000-2001 (Alex, Utqiagvik, Atqasuk) | Source  Source  Sink  Source  Sink  Sink  Source  Sink  Source | ↓  ↓  ↕︎ (across years)  ↑  ↕︎ (years)  ↑  ↓  ↑  ↓ | ↓  ↑  ↓  ↑  ↑  ↑  ↑  ↕︎  ↑ | ↓  ↑  ↑  ↑  ↕︎  ↑  ↑  ↓  ↑ |
| (Jónsdóttir et al., 2022) | Endalen Valley, Svalbard | Deep snowbed, *Cassiope* heath, *Dryas* heath (least snow). | 2018 | Source or negligible | ↑ *in magnitude*,  (↓ when NEE a source) | ↑ | ↑ |
| (Huemmrich et al., 2010) | Utqiagvik, AK | Wet sedge tundra | 1999-2001 | Sink | ↑ | ↑ | ↑ |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tundra Characteristics** | **Recording Year** | **NEE** | **NEE-warming response** | **GEP warming response** | **ER warming response** |
| MEAD  DRYAS  WILL | 2022 | Sink  Sink  Sink | ↑  Negligible  ↑ | ↑  ↑  ↑ | ↓  ↓  ↓ |
| MEAD  DRYAS  WILL | 2011 | Sink  Sink  Sink | ↑  (slight) ↓  ↑ | ↑  Negligible  ↑ | ↓  Negligible  ↓ |
| MEAD  DRYAS  WILL | 2001 | Sink  Source  Sink | ↓  ↑  ↑ | ↓  ↑  ↑ | ↓  ↓  ↑ |
| MEAD  DRYAS  WILL | 2000 | Sink  Source  Sink | Negligible  ↑  ↓ | ↑  ↑  ↑ | ↓  ↓  Negligible |