Moss-associated N₂ fixation is the largest source of new N to nutrient-limited high-latitude ecosystems. Identifying where and why hotspots occur can improve modeling and understanding of process rate variation.

We measured N₂ fixation associated with a high diversity of host mosses across three geographic areas of Alaska (right) using ¹⁵N₂ gas incubations in an airtight syringe over 24 hours (left).

1. Host moss identity was the most important predictor of associated N₂ fixation rates, but environmental and climatic factors also played an important role.

2. Multiple hotspots were observed across Alaska, which are potentially linked to moss identity and abiotic drivers.

- **Model R²=0.34**
- **Hotspots=total N₂ fixation rate > median rate + 3 standard errors (SE)**
- **Hotspots denoted by bars in top panel that cross red line (highlighted in red, intense hotspots > median+10 SE with blue flame)**
- **Non-significant but positive relationships were observed for total N₂ fixation and pH, gravimetric moss water content**
- **Both intense hot spots contained high-N₂ fixing T.nitens**