New ways of looking at methane emissions from Arctic systems
Ruth K. Varner, Associate Professor, University of New Hampshire

At high latitudes, climate warming drives thawing in previously frozen soils. Thawing manifests itself in hydrologic and ecological evolution, both of which impact the production and emission of methane, an important greenhouse gas. Understanding the pathways of emission - ebullition, plant transport and diffusion - and their relative contributions of methane to the atmosphere during the thaw process is critical to predicting future climate. We deploy a variety of newly developed techniques to measure the magnitude and timing of methane release from permafrost, thaw features and lakes to understand the controls across these changing high latitude landscapes.