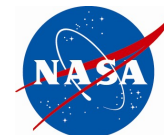
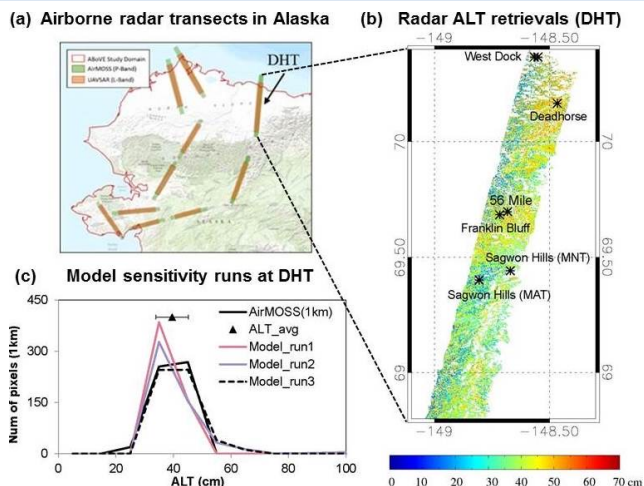


# Integrated Model and Data Assessments Confirm Widespread Alaska Permafrost Thawing



**Problem:** Effective monitoring of active layer dynamics at landscape scale ( $\leq 1$  km) are currently lacking but are needed to inform global carbon and climate models.



**Finding:** Widespread active layer thickness (ALT) deepening, affecting ~79% of near surface ( $\leq 3$  m depth) permafrost, and driven by recent warming and longer snow-free season trends;

**Impact:** Heat transfer model using SMAP soil moisture inputs, and calibrated using airborne low frequency radar (L+P-band) provides effective mapping of landscape (1-km) level permafrost extent and ALT changes across Alaska.

