Below is a list of potential measurements ABoVE researchers could be making, organized by Measurement Theme. This list can be updated as the needs of ABoVE projects change.

**Wildlife**
Position (robin)
Position (golden eagle)
Population (caribou)
Position data (caribou)
age structure (caribou)
health (caribou)
harvest (caribou)
Population (Dall Sheep)
Position (Dall Sheep)
age structure (Dall Sheep)
health (Dall Sheep)
harvest (Dall Sheep)
Population data (moose)
Position data (moose)
age structure (moose)
health (moose)
harvest (moose)
Population data (wolf)
Position data (wolf)
age structure (wolf)
health (wolf)
harvest (wolf)
Population data (brown bear)
Position data (brown bear)
age structure (brown bear)
health (brown bear)
harvest (brown bear)
Population (other)
Position (other)
age structure (other)
health (other)
harvest (other)

**Vegetation**
Ground Lidar
FIA plots [details in USFS]
Aboveground biomass
Canopy height & structure
Leaf area index
NDVI- from ground sensor
fPAR
PAR
PYR
PRI
Light use efficiency
Phenology
Vegetation cover
Vegetation type
Soil Organic Matter Amount
Soil Organic Layer Thickness
Dendrochronologies
Tree health
Standing dead
stand age
tree density
tussock density
Surface temperature
Soil temperature
Tussock diameter
P, K, Fe concentrations of organic soil profiles
C, N, P, K and Fe concentrations of tree components (boles, bark, branches, needles/leaves)

Disturbance
Vegetation type identification
Composite burn index, AK amendment to reflect ground layer burning
Tundra burn classes
Slope, aspect
Soil texture
Drainage class
Adventitious root depth to burned organic layer surface (black spruce)
Tussock meristem to burned organic layer surface (moist acidic tundra)
Shrub burn scar to burned organic layer surface (shrub tundra)
Tree inventory (DBH, density, species, live or dead)
Tree combustion estimates (based on allometric classes)
Shrub inventory (basal diameter, density, species)
Shrub combustion estimates (based on allometric classes)
Residual moss and lichen inventory
Thaw depth (depth from ground surface to frozen ground)
Depth of residual soil organic layer (depth from burned surface to mineral soil)
Depth of active layer (time series or late-season thaw depth)
Diversity and or density of resprouting plant species
Density and diversity of seeding understory species
Density and diversity of tree seedlings
Seed rain
Coarse woody debris using standardized methodology (id pre-fire standing and downed woody debris)
Depth to water table
Soil texture
Soil organic layer profile description
Soil organic layer bulk density, carbon and nitrogen concentration
Age of burned soil organic layer surface
Basal age of soil organic layer
Soil organic layer coarse organic debris density and carbon concentration
Index of soil moisture
electrical resistivity tomography (ERT)
Insect outbreak extent and severity
Anthropogenic disturbance
Distance to road or structure
Distance to unburned patch
Burn Severity Index
Adventitious root depth to burned organic layer surface (non-black spruce)

**Carbon Dynamics**
Carbon dioxide (CO2) concentration
Carbon dioxide (CO2) flux
Methane (CH4) concentration
Methane (CH4) flux
Carbon monoxide (CO) concentration
Carbon monoxide (CO) flux
14C
13C
12C
Water Vapor
Eddy Covariance Flux Tower Data [details from AmeriFlux]
GPP
NPP
NEE
Ra
ET
Rh
Respiration (tower)
Respiration (chamber)
Soil respiration
Ecosystem respiration
Tall Tower Carbon Species
Flask Air Samples
Surface Energy Budget
DOC, POC, DIC, PIC
14C of Black Carbon
C, N, P, K and Fe concentrations of Organic Carbon and Black Carbon
Ebullition bubble surveys

**Hydrology**
Stream flow
Inundation
Water level
pH
Salinity
Ice Thickness
Ice Jam Characteristics
Bathymetric Survey
Freeze/thaw
Lake Ice presence/absence
Water temperature

Weather
Wind speed
Wind direction
Precipitation amount
Precipitation type
Air temperature
Radiation (four component)
Web Cam Ground View
Web Cam Sky View

Snow
Snow Depth
Snow Water Equivalent
Snow Percent Cover
Surface Albedo
Surface temperature
Snow stratigraphy
Snow course survey (ground-based)
Snow depth (aerial-based)

Permafrost
Active Layer Thickness
Borehole Temperature Profile
Resistivity
soil moisture content
ground ice content
thaw subsidence
thaw-related vegetation and soil disturbances
lateral erosion
talik dimensions
surface deformation
surface nuclear magnetic resonance (NMR)

Ecosystem Services
Quality, Availability, Dynamics, and Use of Natural Resources
Subsistence Harvest Data
Economic Indicators (income distribution, labor force participation)
Incidence of Disease and Injury
Cultural Vitality (e.g., indigenous language use)
Road Location/Age/Status (including winter roads)
Length of Season for Winter Transportation and Exploration
Mineral, Oil, and Gas Exploration and Extraction Activities
Drinking Water Sources
Location and Use of Wastewater Treatment Facilities
Heating and Electricity Sources
Building Location/Age/Status
Historically Important Places
Climate Mitigation Activities

**Airborne Remote Sensing**
Airborne Lidar
AirMOSS
AEM (Airborne Electromagnetic)
UAVSAR

**Miscellaneous**
Site Visit