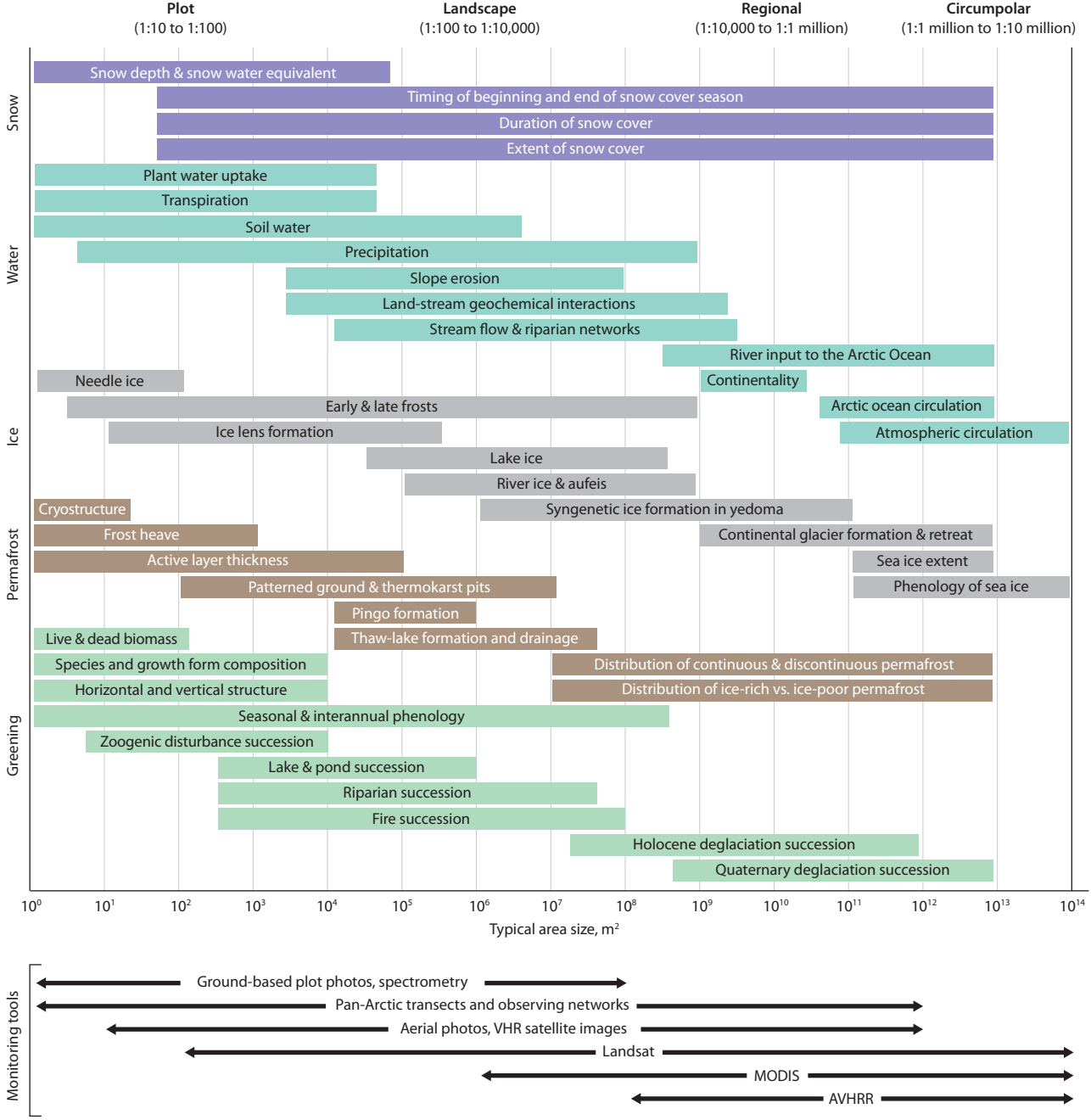
Plot
(1:10 to 1:100)
Landscape
(1:100 to 1:10,000)
Regional
(1:10,000 to 1:1 million)
Circumpolar
(1:1 million to 1:10 million)
Snow
Snow depth & snow water equivalent
Timing of beginning and end of snow cover season
Duration of snow cover
Extent of snow cover
Water
Plant water uptake
Transpiration
Soil water
Precipitation
Slope erosion
Land-stream geochemical interactions
Stream flow & riparian networks
River input to the Arctic Ocean
Ice
Needle ice
Continentality
Early & late frosts
Arctic ocean circulation
Ice lens formation
Atmospheric circulation
Lake ice
River ice & aufeis
Permafrost
Cryostructure
Syngenetic ice formation in yedoma
Frost heave
Continental glacier formation & retreat
Active layer thickness
Sea ice extent
Patterned ground & thermokarst pits
Phenology of sea ice
Pingo formation
Greening
Live & dead biomass
Thaw-lake formation and drainage
Species and growth form composition
Distribution of continuous & discontinuous permafrost
Horizontal and vertical structure
Distribution of ice-rich vs. ice-poor permafrost
Seasonal & interannual phenology
Zoogenic disturbance succession
Lake & pond succession
Riparian succession
Fire succession
Holocene deglaciation succession
Quaternary deglaciation succession
$10^0$ $10^1$ $10^2$ $10^3$ $10^4$ $10^5$ $10^6$ $10^7$ $10^8$ $10^9$ $10^{10}$ $10^{11}$ $10^{12}$ $10^{13}$ $10^{14}$
Typical area size, m²
Monitoring tools
Ground-based plot photos, spectrometry
Pan-Arctic transects and observing networks
Aerial photos, VHR satellite images
Landsat
MODIS
AVHRR