



Higher temperatures and increased moisture from reduced sea ice and longer open water period

(later snow cover onset, more snowfall in early winter, feedback to Arctic Oscillation)



Shrub expansion

(increased snow trapping, changes in snow properties and surface energy budget)

Enhanced albedo feedbacks from earlier snow melt, changing vegetation, light absorbing particles

Increased incoming longwave radiation from greenhouse gases, water vapor, clouds

Meridional heat and moisture transfer
(increased precipitation, decreased solid fraction of total precipitation, increased frequency of winter thaw and rain-on-snow events)