The cryosphere collectively describes elements of the earth system containing water in its frozen state and includes sea ice, lake and river ice, snow cover, solid precipitation, glaciers, ice caps, ice sheets, permafrost, and seasonally frozen ground. The first part of this presentation provides a brief overview of the main elements of the Arctic cryosphere and their status and change.

The second and main part of the presentation concentrates on the arctic sea ice and the impact of its rapid reduction on the arctic environment. Recent observations and models of sea ice distribution, concentration and thickness are provided and potential ecological and socio-economic implications are highlighted.

The outline of the presentation is given below.