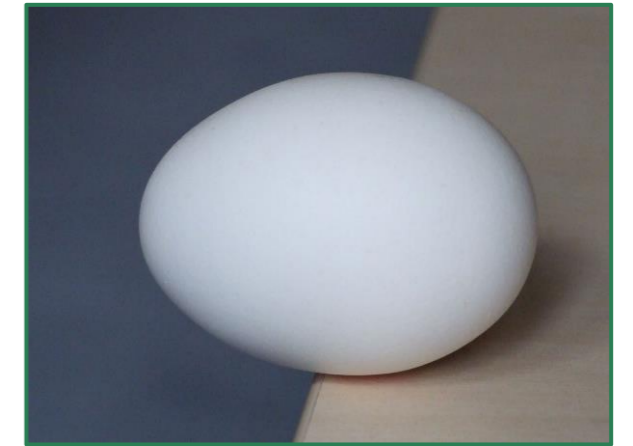


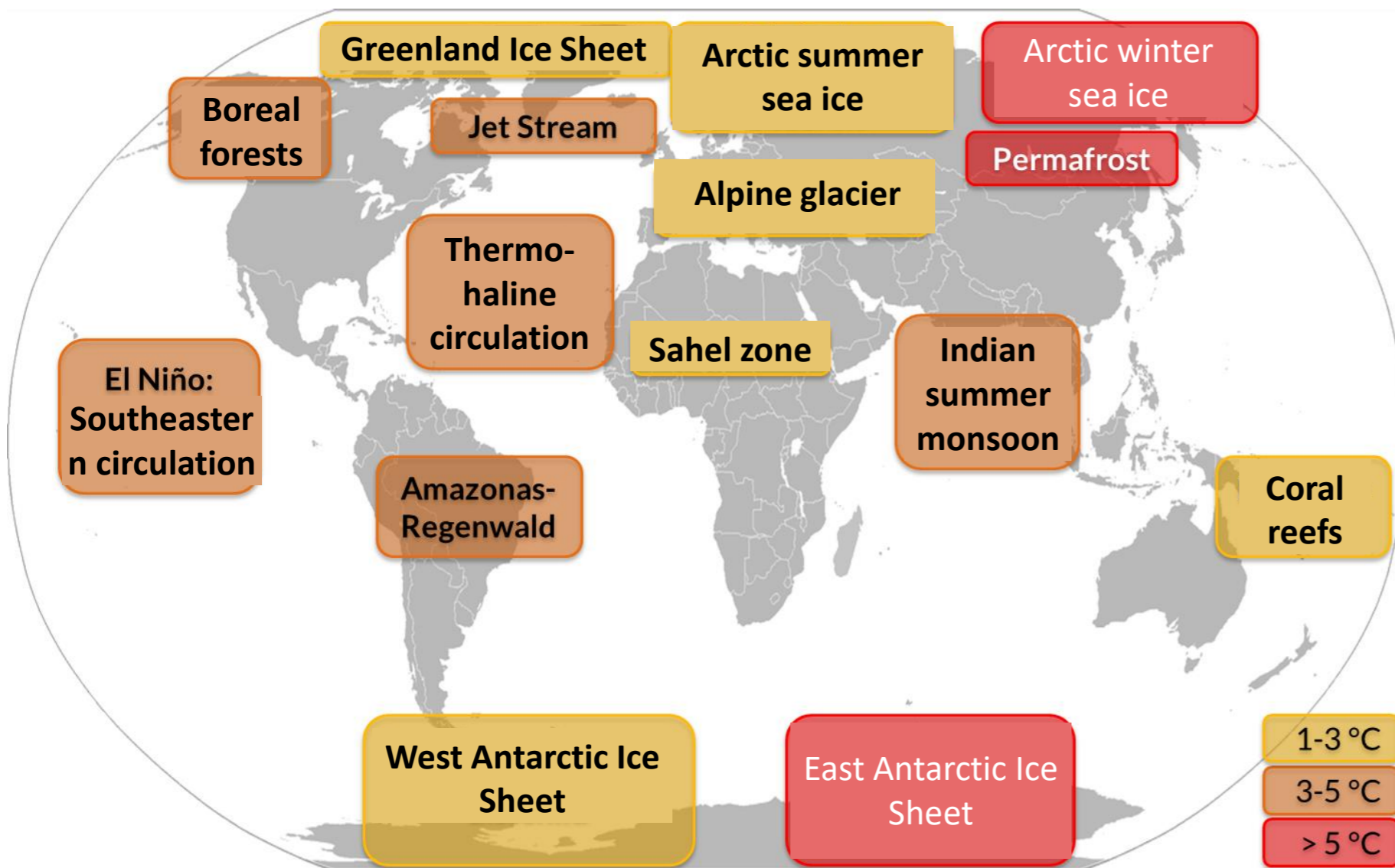
12. Tipping Points: Achilles' Heel in the Climate System

Background:

The Earth's global climate system is determined by the interaction between the main components of the climate system: hydrosphere (water), atmosphere (air), cryosphere (ice and snow), pedosphere and lithosphere (soil and rock) and the biosphere (living organisms). Global warming sets processes in motion that influence and change these different elements in different ways. Some of these processes are self-reinforcing: For example, global warming leads to increased evaporation of water; and since water vapour is a greenhouse gas, it increases the temperature of the atmosphere, which in turn leads to increased evaporation of water.



If an egg rolls on a table, nothing will happen until it reaches the edge. But then a little nudge is enough and the egg falls irreversibly to the floor!



Because of these self-reinforcing feedback processes, when a certain threshold is exceeded, the Earth's climate system can enter the uncontrollable state of a hot period. This is known as a tipping point. "Tipping" means that these changes, as they become more and more self-reinforcing, will then be unstoppable or irreversible. The environmental effects of tipping points are far-reaching and could endanger the livelihoods of many millions of people.