The Conveyor Belt

Atlantic Circulation

Conveyor Belt & Climate

Abrupt climate shifts

Ice Cover Last Glacial

Laurentide Ice Sheet
• Large input of fresh water into the North Atlantic

• Freshwater >> Lower surface salinity & density

• If the density of the North Atlantic becomes too low >> Shutdown of NADW

• Laurentide Icesheet covered Hudson Bay until its collapse 8200 years ago. Discharge was 15x larger than the Amazon River.

Ice Core Data

Flooding of the North Atlantic

• It is believed in both events would have considerably increased the influx of freshwater into the North Atlantic through the melting of ice.

• Such a freshwater flux could have lowered the surface water density below a particular threshold value, thus preventing the formation of North Atlantic Deep Water.

• Without formation of NADW, the Gulf Stream and Norwegian Current can not carry heat to high latitudes as they do today.