WATER AND CARBON CYCLE FEEDBACK LOOPS

Both water and carbon cycle systems can take place in a DYNAMIC EQUILIBRIUM, a balanced state. In this state INPUTS and OUTPUTS are balanced and STORES and Flows remain fairly constant.

FEEDBACK LOOPS can occur in both systems. POSITIVE FEEDBACK LOOPS gradually accelerate changes which may eventually lead to a tipping point of no return when changes run out of control. NEGATIVE FEEDBACK LOOPS are likely to retain the status quo, dampen the changes or return the system to its normal balanced state.

fossil fuel burned —— increased CO2 —— increased greenhouse effect —— global warming —— ice melt —— lower albedo (reflected radiation) —— global warming

fossil fuel burned —- increased CO2 —- increased greenhouse effect —— global warming —- permafrost melts —— CH4 (methane) emitted —— enhanced greenhouse effect

Deforestation —— less carbon stored —- less carbon captured —- enhanced greenhouse effect —-global warming

deforestation —- less interception —- less evapotranspiration — more overland flow /floods —- less rainfall —-trees don't regrow ——less carbon storage —— climate change —— global warming

retain forest / afforestation —- little overland flow — more evapotranspiration —- more cloud —- adequate rainfall — trees retained — fewer floods —more carbon storage /sequestration

global warming —- more evaporation —- more cloud —-more rainfall —- reduction/blockage of incoming solar radiation —- cooling

Look at notes on PHYSICAL and HUMAN factors affecting the flood hydrograph to see how the water can be affected to give feedback cycles