

Fatema Sheikh

All about Carbon: An Overview of the State of Carbon Cycle Report

Melanie Mayes is the senior staff scientist at the Oak Ridge National Laboratory. She presents the topic of the carbon cycle during this webinar. There is a simplified carbon cycle. Combustion from the industry and fossil fuels from power plants emit CO<sub>2</sub> trees pull out that CO<sub>2</sub> from the atmosphere. There is another carbon cycle diagram which shows carbon storage in a great lakes forest. It measures how much carbon is in the leaves, trunks, branches, and soil.

The North American Carbon Budget in SOCCR-2 measures how much carbon is in different ecosystem compartments. This shows how much carbon is being emitted and how much net carbon uptake there is from the land and coastal water. Fossil Fuel Emission trends in North America show that fossil fuel emissions have decreased over time. GDP is continuing to increase while Energy CO<sub>2</sub> is decreasing in North America. The reason for that is the transition from coal to natural gas, increases in renewables and alternative fuels, replaced aging infrastructure including pipelines and power plants. What else can we do? Decrease emissions by decreasing use, increasing efficiency and renewables, carbon capture, and negative emissions. There have also been observed temperature increases in the past decade. Permafrost soils are becoming carbon sinks. Northern latitudes store substantial soil carbon. Sea Ice has dramatically increased from 1984 to 2016. This webinar has showed me how climate and environmental changes are directly impacted by the carbon cycle. We must do all we can to reduce

Fatema Sheikh

our carbon emissions if we want to protect Earth for ourselves and future generations.