

Program: Geology, Water and Climate

Speaker: Robert Barr, BA, geologist and research scientist – hydrology specialist, Center for Earth and Environmental Science (CEES), IUPUI

Introduced By: Rick Whitener

Attendance: NESC: 85, Zoom: 29

Guest(s): Scott Bowers, Ted Damilson

Scribe: Hank Wolfla

Editor: Carl Warner

View a recording of today's Zoom presentation at: www.scientechclub.org/zoom/722.mp4

Robert Barr, Department of Earth Sciences, Center for Earth, and Environment Science at Indiana University reviewed how Landscape Modification, Climate Change, and Water Resources affect the Eastern Corn Belt. Mr. Barr is a member of the Indiana Silver Jackets, a group of all the significant organizations in Indiana that have control or can affect the environment of the state of Indiana.

He reviewed the historical Indiana wetland loss due to deforestation. This wetland loss has been largely due to the installation of agricultural drainage systems for crop growth. There are more miles of agricultural drainage pipe in Indiana than there are miles of roads. These drains function much like urban storm water drains affecting both peak and base flows. Seventy to eighty percent of all agricultural areas have tile drains.

Analyzing the effects of climate change has now shown that the number of days of very heavy precipitation has increased from 29% in 1958 to 42% in 2016. The Purdue Climate Change Research Center in 2019 also showed that the frequency of extreme precipitation events in Indiana has also increased. Dr. Dukes of the Purdue Research Center says, "We now get an average of five to six more inches of rain each year than we used to and more and more of that rain is coming in really large events." This has caused a significant increase in flood magnitude in Indiana and the other Corn Belt states.

Then speaker then showed many examples of how these rainstorms have affected the channels of our streams and rivers. These channel changes are being seen with rivers and streams of all sizes, washing away the landscape of many homes in Indiana and moving the river bank in Metamora 200 feet in a single event.

The problem today is that we are using science to make decisions on policies that were developed before the change in the climate and the landscape, and it not always well received. Examples showed how floodplain areas have been made smaller over the years and are now inadequate. This also goes for the size of bridges and drainage. A good and expensive example is the "Big Dig" in Indianapolis which was designed on older projections.

While many argue about climate change, his talk showed the effects that the climate has had on our land. The land environment of Indiana is changing and will need to be addressed in the near future. We can no longer use the old data on floods over 100 years; these extreme floods are now coming far more often. The increase in floods is now greatly affecting the need for and the cost of flood insurance.

In summary, Mr. Barr did an excellent job of showing the effect of climate change on the geography of Indiana.



Robert Barr