

The logo for the NOVA Study Group features the word "NOVA" in a bold, metallic, sans-serif font. The letter "O" is replaced by a glowing purple and blue sphere with a bright white center, resembling a nova or a star. The letters are set against a dark blue and purple nebula background with numerous small white stars.

NOVA

OLLI at Illinois
***NOVA* Study Group**
Roy Campbell

NOVA Study Group

Roy Campbell

Thursdays, 10:00 a.m. – 11:30 p.m.
6 sessions: May 2, 9, 16, 23, 30; June 6

Format: In-person

- The group will select, view, and discuss selected NOVA Science programs broadcast on PBS. Depending upon the length of the NOVA program, we may view clips from the program or the whole show, but we will leave time to discuss the science presented in more detail.

Example Nova Programs include:

Polar Extremes (Today's video)

A. I. Revolution (May 9th)

Great American Eclipse

Ancient Maya Metropolis

Reading materials: <https://www.pbs.org/wgbh/nova/schedule/>

Nova Awards

- [Peabody Awards](#) and [Emmy Awards](#).
- "[The Miracle of Life](#)" (1983) was cited as a "fascinating and informative documentary of the human reproductive process," which used "revolutionary [microphotographic](#) techniques." This episode also won an Emmy.^[11]
- "Spy Machines" (1987) was cited for "neatly recount[ing] the key events of the [Cold War](#) and look[ing] into the future of American/[Soviet SDI](#) competition."^[12]
- "[The Elegant Universe](#)" (2003) was lauded for exploring "science's most elaborate and ambitious theory, the [string theory](#)" while making "the abstract concrete, the complicated clear, and the improbable understandable" by "blending factual story telling with animation, [special effects](#), and trick photography." The episode also won an Emmy for editing.^{[13][14]}
- Complete List of Nova Episodes
https://en.wikipedia.org/wiki/List_of_Nova_episodes

Emmy Awards

- 1982 "Here's Looking at You, Kid"
- 1983 "The Miracle of Life" (also won a Peabody)
- 1985 "AIDS: Chapter One", "[Acid Rain](#): New Bad News"
- 1992 "Suicide Mission to [Chernobyl](#)", "The Russian Right Stuff"
- 1994 "Secret of the [Wild Child](#)"
- 1995 "[Siamese Twins](#)", "Secret of the Wild Child"
- 1999 "Decoding Nazi Secrets"
- 2001 "[Bioterror](#)"
- 2002 "[Galileo's](#) Battle for the Heavens", "[Mountain of Ice](#)", "[Shackleton's](#) Voyage of [Endurance](#)", "Why the [Towers Fell](#)"
- 2003 "Battle of the [X-planes](#)", "[The Elegant Universe](#)" (also won a Peabody)
- 2005 "Rx for Survival: A Global Health Challenge"

Nova

- <https://www.pbs.org/wgbh/nova/videos/episodes/>

Upcoming Episodes:

- Making North America: Life, How did massive volcanic eruptions, inland seas, and land bridges pave the way for life?
- Making North America: Human How has the land shaped our lives, from the arrival of the first Americans to today?
- Secrets in Your Data Find out who's using your data and what you can do about it.

Recent Episodes

- Making North America: Origins Experience the colossal geologic forces that shaped our continent over billions of years.
- Ancient Maya Metropolis Explore ancient Maya cities and learn why their inhabitants abandoned them
- Secrets of the Forbidden City How has China's magnificent Forbidden City withstood centuries of earthquakes?

Forests on Antarctica

- The last forests on Antarctica: Reconstructing flora and temperature from the Neogene Sirius Group, Transantarctic Mountains
<https://www.sciencedirect.com/science/article/pii/S014663801730219X/pdf?md5=149855b0a737664ff6a1de58efc762a2&pid=1-s2.0-S014663801730219X-main.pdf>
- Using the brGDGT based proxy MBT'/CBT palaeothermometer, our results suggest a MAAT for the strata at Oliver Bluffs of 5 °C, with a possible range of 3–12 °C. As the majority of the samples (11 of 15) showed temperature values in the range 3–5 °C, we speculate that this is the temperature range that mainly characterised this interval.

FINAL RESEARCH REPORT NOVA's Polar Extremes

- <https://www.informalscience.org/sites/default/files/FINAL%20POLAR%20EXTREMES%20RESEARCH%20REPORT%209-30-2020.pdf>
- We found that while older audiences can make connections between what they see and its significance, younger audiences benefit from facilitators to connect learning with deeper understanding. We also found that discussing science with others enhances the learning experience. Many women who opted not to pursue a STEM-career could identify a time when they felt not good enough, or unwelcome in a male-dominated field (controlling for ethnicity/race). Thus science media producers should continue to normalize the presence of women in STEM.
- Finally, younger audiences felt depressed or helpless after viewing upsetting content such as climate change; older audiences tended to be more inspired and hopeful, however. To help, media makers can focus on solutions—highlight what people are doing to try to fix the problems.

Polar Extremes

- [PBS https://www.pbs.org/video/polar-extremes-mfaum5/](https://www.pbs.org/video/polar-extremes-mfaum5/)
- [YouTube https://youtu.be/XDddNhljc28](https://youtu.be/XDddNhljc28)

The topics I think we will want to discuss include the following clips offered by PBS:

- <https://www.pbs.org/video/polar-extremes-mfaum5/extras/>

On Line Nova Clips

1. A Bird's-Eye View of Carbon Emissions Clip: S47 Ep1 | 1m 56s

2. Fifty Million Years Ago, the Arctic Was a Warm Swamp Clip: S47 Ep1 | 2m 7s

3. How Carbon Dioxide Warms Planet Earth Clip: S47 Ep1 | 2m 32s

4. How Climate Has Shifted Over Millions of Years Clip: S47 Ep1 | 2m 44s

5. How Earth's Climate Changed Over the Past 500 Million Years Clip: S47 Ep1 | 3m 25s

6. How Humans Could Make Icehouse Earth into a Hothouse Clip: S47 Ep1 | 4m 21s

7. Plant Fossils Hint at Arctic's Swampy Past Clip: S47 Ep1 | 3m 2s

8. Polar Extremes Preview Preview: S47 Ep1 | 3m 19s

9. This Alaska Community is Losing Sea Ice to Climate Change Clip: S47 Ep1 | 4m 47s

10. This Canadian Cave Has Been Frozen Since the Last Ice Age Clip: S47 Ep1 | 3m 11s

11. What did the East Coast Look Like 3 Million Years Ago? Clip: S47 Ep1 | 3m 21s

12. What if Carbon Left Your Tailpipe as Solid Chunks? Clip: S47 Ep1 | 2m 12s

13. What's Causing Greenland's Biggest Glacier to Melt? Clip: S47 Ep1 | 2m 4s

14. Why Trees Are Living Climate Records Clip: S47 Ep1 | 1m 29s

My clipped presentation (just the titles)

- Sorry, the video is over 17 gigabytes so the actual clips are removed!
- (Nova's discussion of the Carbon Cycle is in video between 8. Ice Planet Venus and 9. Ginkgo if anyone missed it badly. I omitted it because I think the audience has seen lots of carbon cycle presentations.)

1. Arctic Forest

- Evidence that lush Forests used to grow in the Arctic

- What about the winter sun?

https://en.wikipedia.org/wiki/Ellesmere_Island

1. Arctic Animals

- Evidence that Herbivores and all sorts of other animals used to live on the rich forests in the Arctic

- Why are the animals so like animals further south?

3 Antarctic Forest

- If the Arctic was warm long ago, even at the North pole, was the Antarctic warm too?
- With no sun in the winter, how come the climate didn't drop below zero very often?

4 Argentina Dinosaur

- If there were plants and trees on Antarctica, where there ever any animals? Some plants and trees are the same on Antarctica as Argentina

- Are there any reasons to believe that there are fossil remains of animals on Antarctica?

5.Titanosaure

- Argentine Dinosaurs were plentiful.
- Are there any reasons to believe that there are fossil remains of animals on Antarctica?

6.Continental Drift

- Could Continental Drift have moved Antarctica to the South Pole accounting for the forest remains?

7. Death Valley Glacier

- If cold places were warm, were warm places cold at some time?
- How do glaciers get to Death Valley?

8.IcePlanetVenus.mov

- But Death Valley used to be at the Equator!
- How could the Equator have glaciers?
- Why is Venus so hot?

9. Ginko and CO2

- What happens to Stomate when CO2 levels change
- What do ancient Ginko leaves look like?
- Why are ancient CO2 levels and levels today give us worries?

10. Volcanoes and CO₂

- Do Volcanoes produce enough CO₂ to raise temperature levels to the levels observed today?

11.Start Glaciers versus Drake Passage

- South America was connected by a land bridge to Antarctica
- Continental Drift destroyed the land bridge creating a circular current around the world, trapping the cold.
- How did this create Glaciers all over the world?

12. Yukon Land Bridge

- Why wasn't there an Ice Sheet over Yukon?

13. Lake Sediment and Climate Variation

- How do we create a visualization of climate temperatures over Earth's history
- What cause these periodic patterns of temperature change?

14.Farming

- Convenience of our climate for Farming

15.Glaciers

- Melting of the Glaciers and CO₂ levels indicate climate periodic pattern is disrupted

16. Glacier Retreat

- Glaciers have retreated recently very quickly in comparison with the normal cycles

17. EGREP CO2

- A meteorite created a lake that provides a time capsule of CO₂ variation

18. Car Turds

- Humans are creating CO₂ and methane that disturbs the atmosphere

19. Icesheets and flooding

- As Icesheets over Greenland and Antartica melt, sea level rises

- How easy is it to measure past flooding?

20. Smallerhorses

- In past times, rising temperature levels seem to have made animals smaller

- Why does life get more difficult as heat rises?

21. Summary