
My NASA Data - Maps, Graphs, and Data

Cause and Effect: Secret Life of Forests (1984-2011)

Identifying cause and effect relationships can help us make predictions about the function of natural systems and their impact on the world. These relationships, whether simple or complex, are vital for forecasting weather and predicting Earth events in new contexts.

Forests are constantly changing. The Landsat satellite program, operated jointly by NASA and the U.S. Geological Survey, has monitored those changes from space for over four decades. Scientists are turning yearly Landsat data sets into a powerful time series that show the evolution of the landscape. This visualization of the Pacific Northwest from 1984 to 2011 reveals many cause and effect relationships. Some are obvious, like the patchwork of logged land that flickers from mature trees (blue) to clear-cut (red) to regrown shrubs (yellow). Some are subtle, like the bark beetle or western spruce budworm infestations (dark red) that pulse across mountainsides. Watch as these and other changes come to life in the video.

Credit: NASA Scientific Visualization Studio

Mini Lesson

Example Questions for Students:

1. Describe the phenomenon you observe.
2. What patterns do you see in this model?
3. How do Data Visualizers make this video? Where do these ideas come from?
4. What are the limits of this model?
5. How is this model precise? What benefits are there in using this model?
6. What scientific principles are guiding this phenomenon?
7. Predict the future of the phenomenon based on the model you've observed.
8. What evidence of Earth System interaction (among Atmosphere, Hydrosphere, Biosphere, Cryosphere, Geosphere) do you see?
9. What question would you like to research based on this model?

Sphere(s)

- [Biosphere](#)
- [Earth as a System](#)

Phenomenon

- [Plant Growth Patterns](#)

Crosscutting Concepts

- [Cause and Effect](#)

Tags

- [Landsat](#)
- [forest](#)

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