Defining and developing geoscience expertise at the introductory level

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Oct. 19, 2009
GSA Annual Meeting

Some general principles we can probably agree on

Principle #1:
Geoscientists are different

Principle #2:

Geoscience introductory courses are different

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- Structure and Reactivity
- Mechanics
- Magnetism and Electricity
- Light and Heat
- Genetics, Biochemistry, and Molecular Biology

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- Dynamic Earth
- Evolution and Extinction
- Energy and the Environment
- Earthquakes and Volcanoes
- The Oceans
- The Water Course

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- Learning to be an expert really means learning the process of science, how we know what we know
- For many students, how geoscientists know things is very different from their experiences in other science courses
- Introductory geoscience courses are therefore critical places to emphasize real geoscience expertise

How does these grand ideas translate to reality?

(at least in this case)

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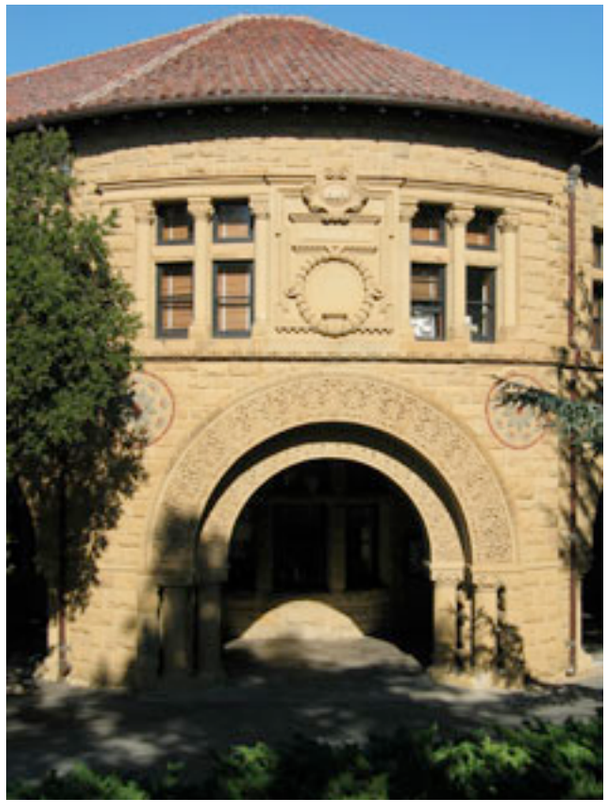

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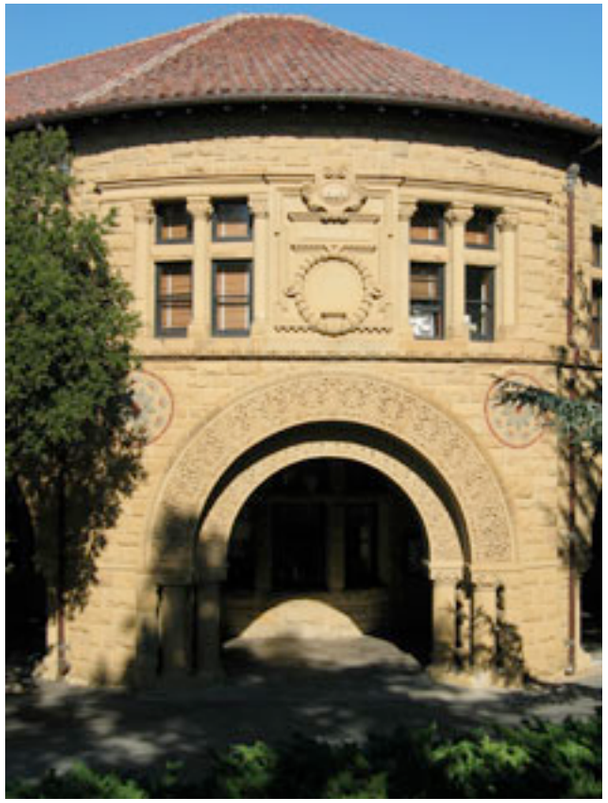
  Earth Systems

  Energy Resources Engineering

  Geological and Environmental Sciences

  Geophysics



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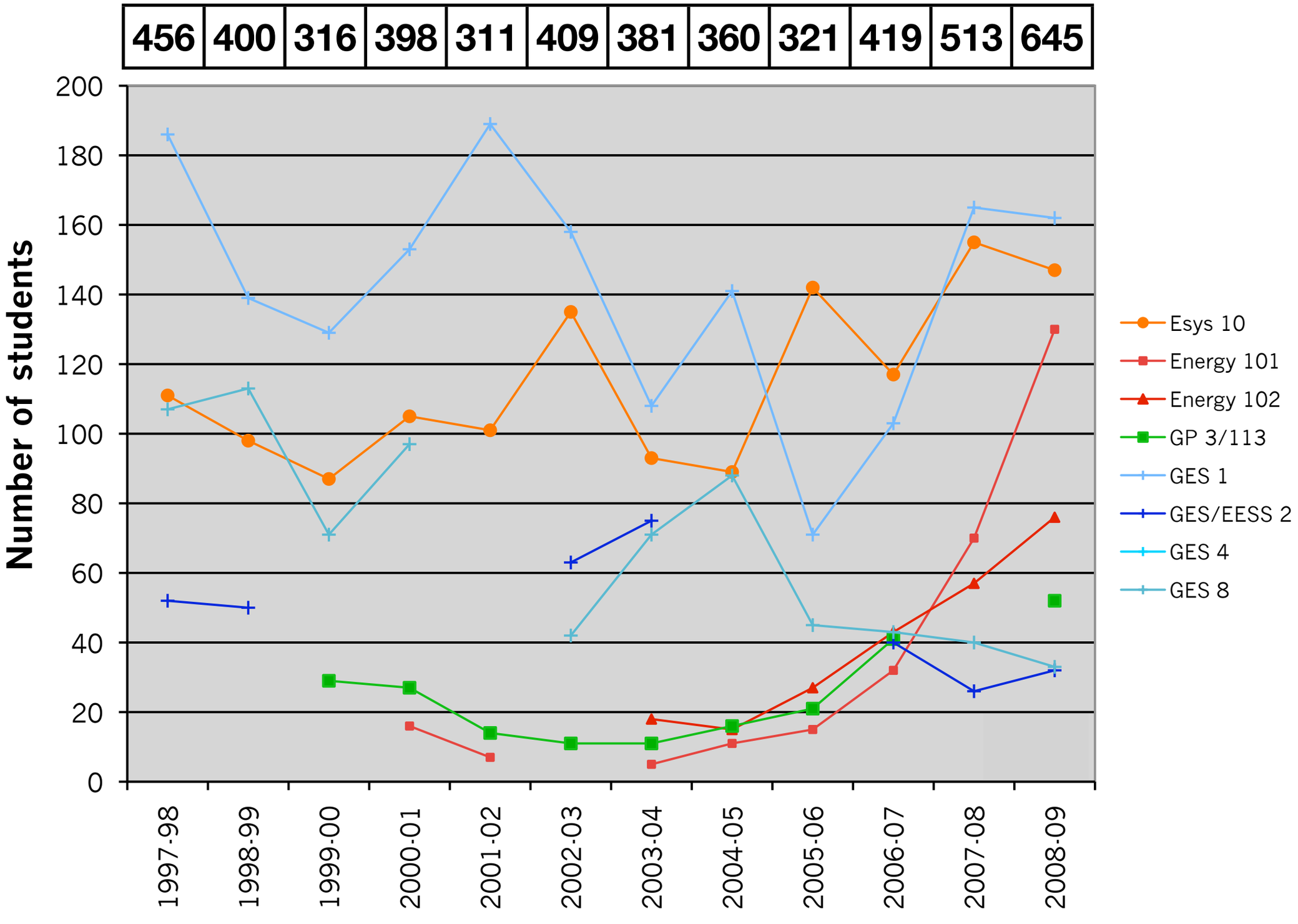

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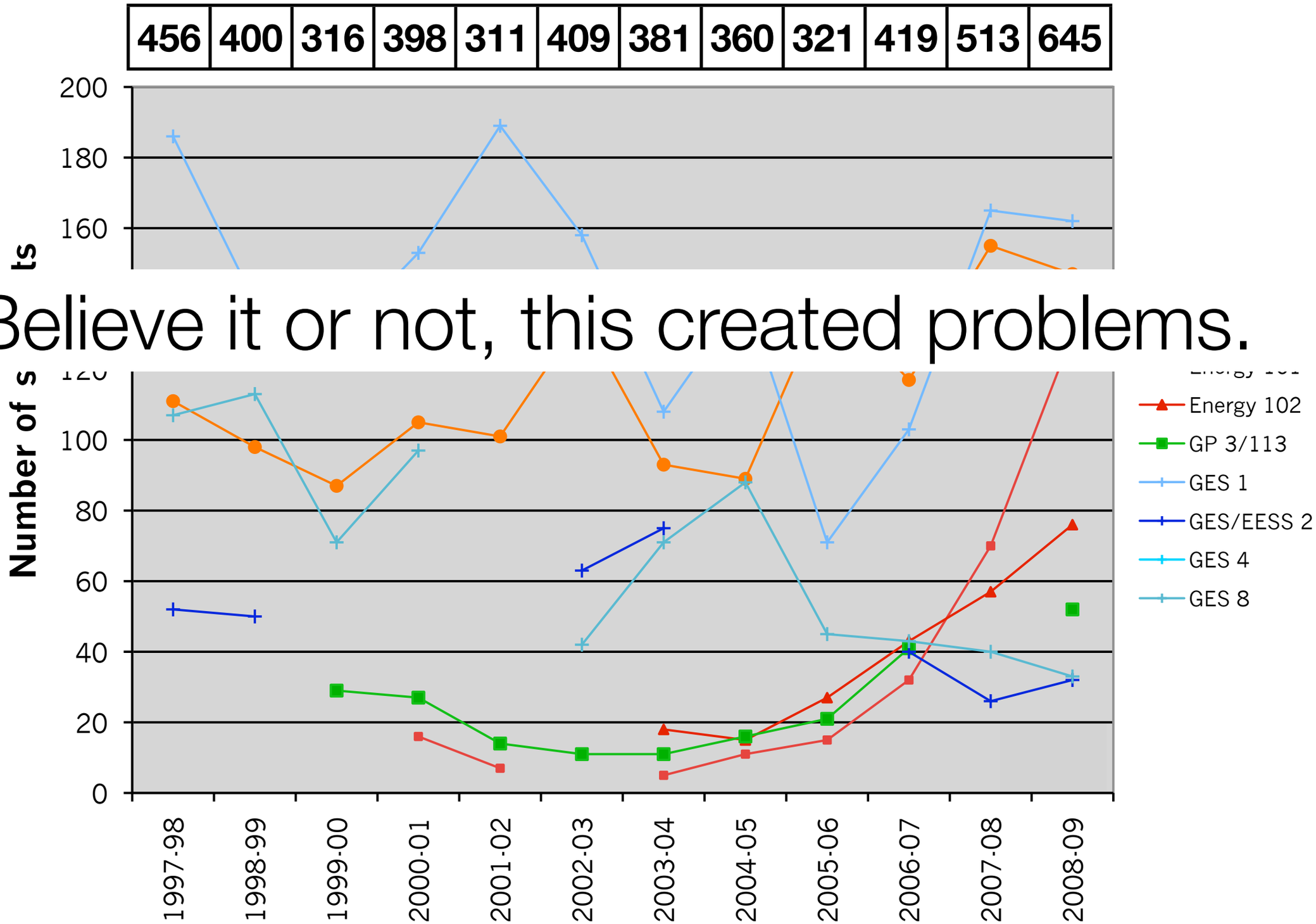

Believe it or not, this created problems.

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How it worked

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- Selection of course development assistants (CDAs)
- Workshop with faculty teaching intro courses to launch the project
- Development of broad learning outcomes for intro courses

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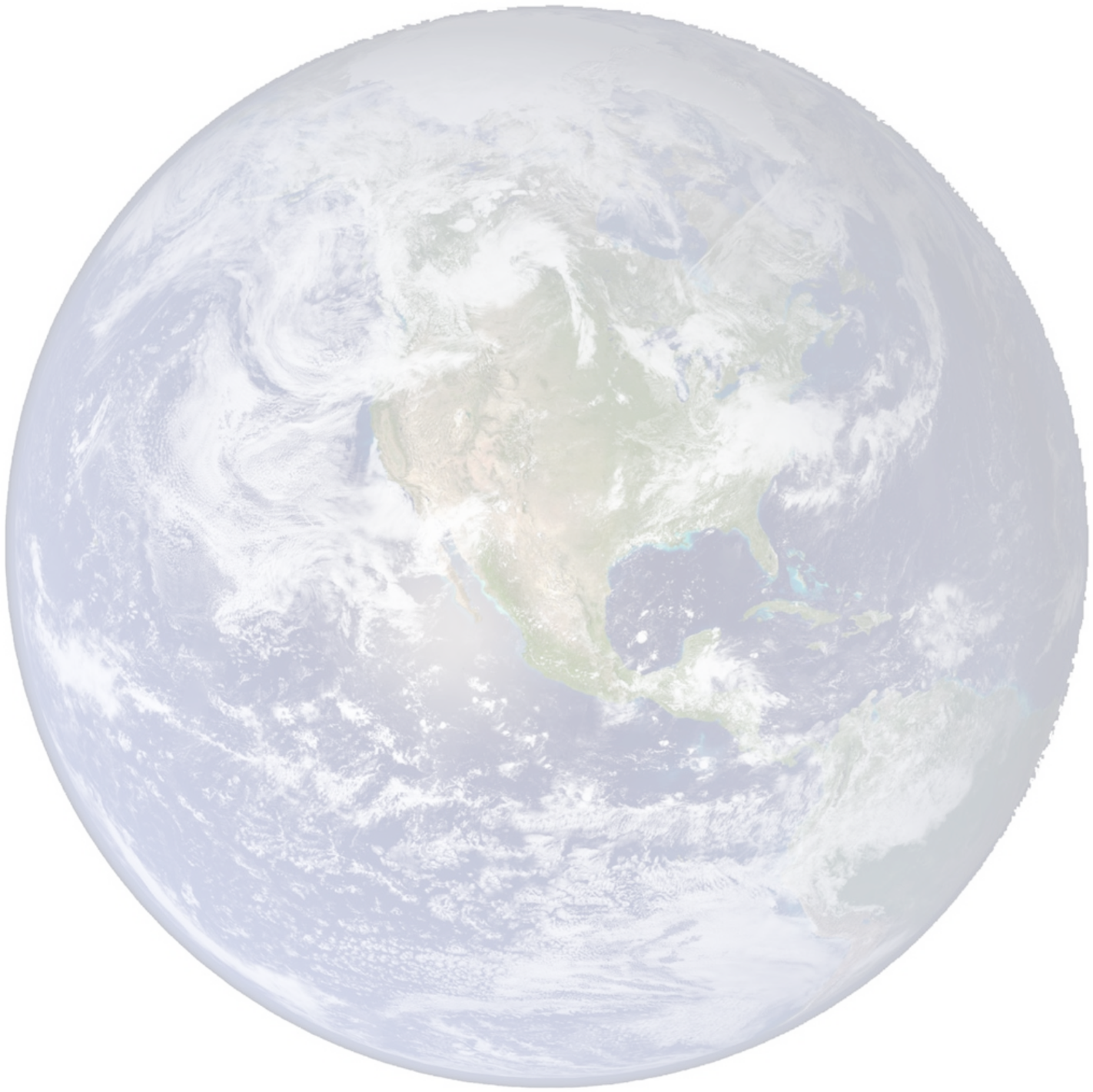
- Allowed everyone to voice their opinions, and generalized out to...

Broad learning outcomes *(there are 6)*



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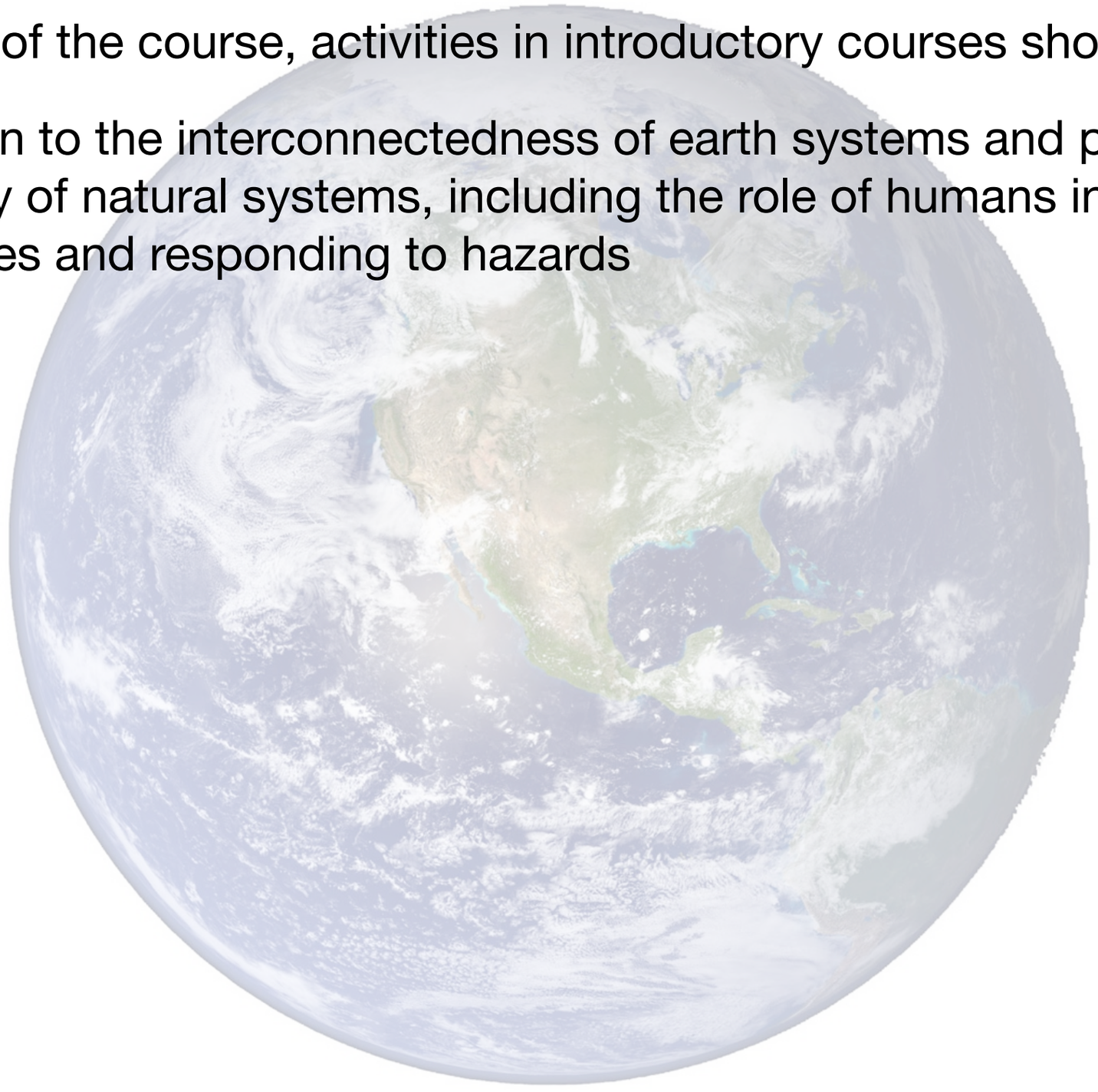

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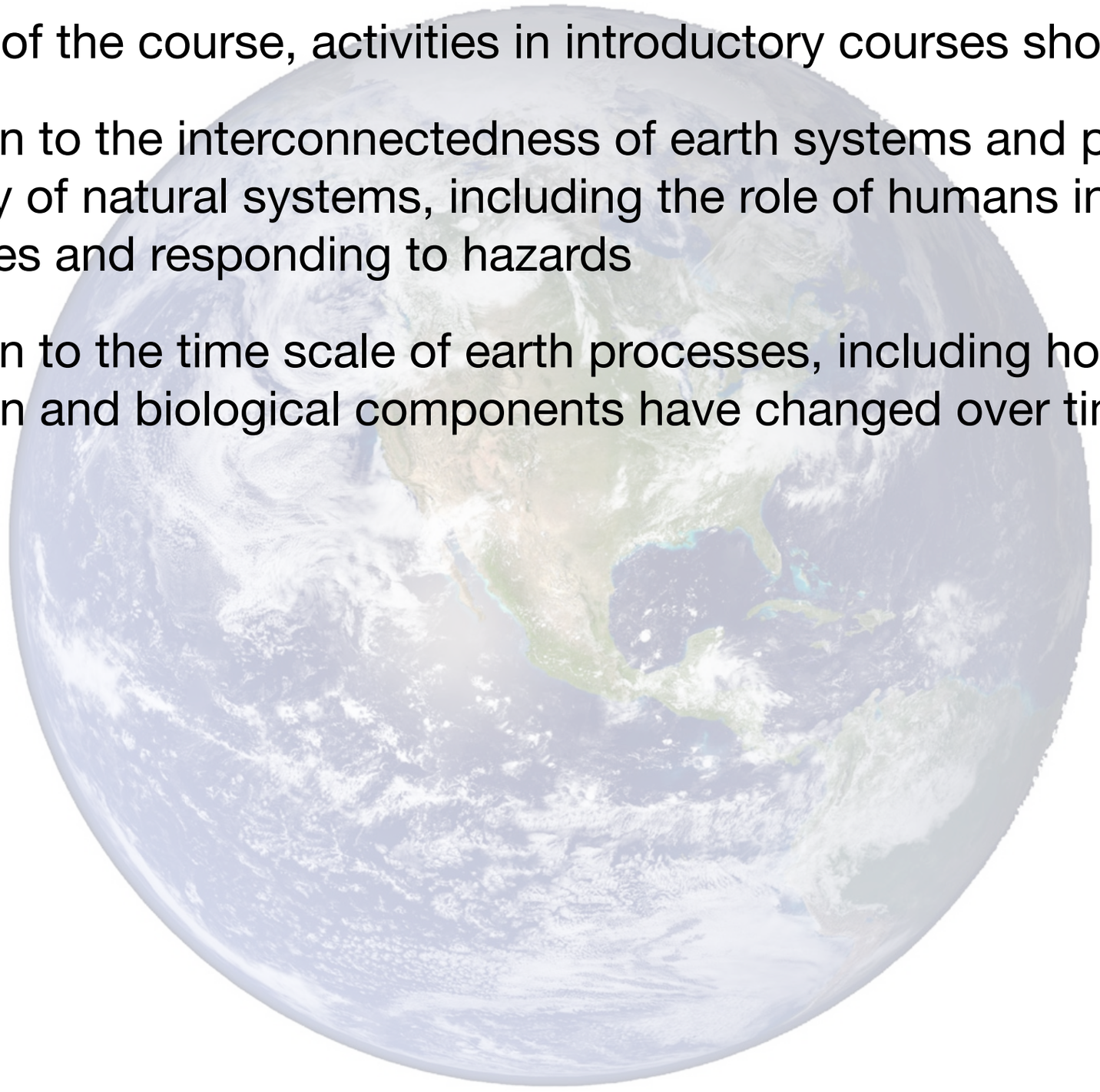

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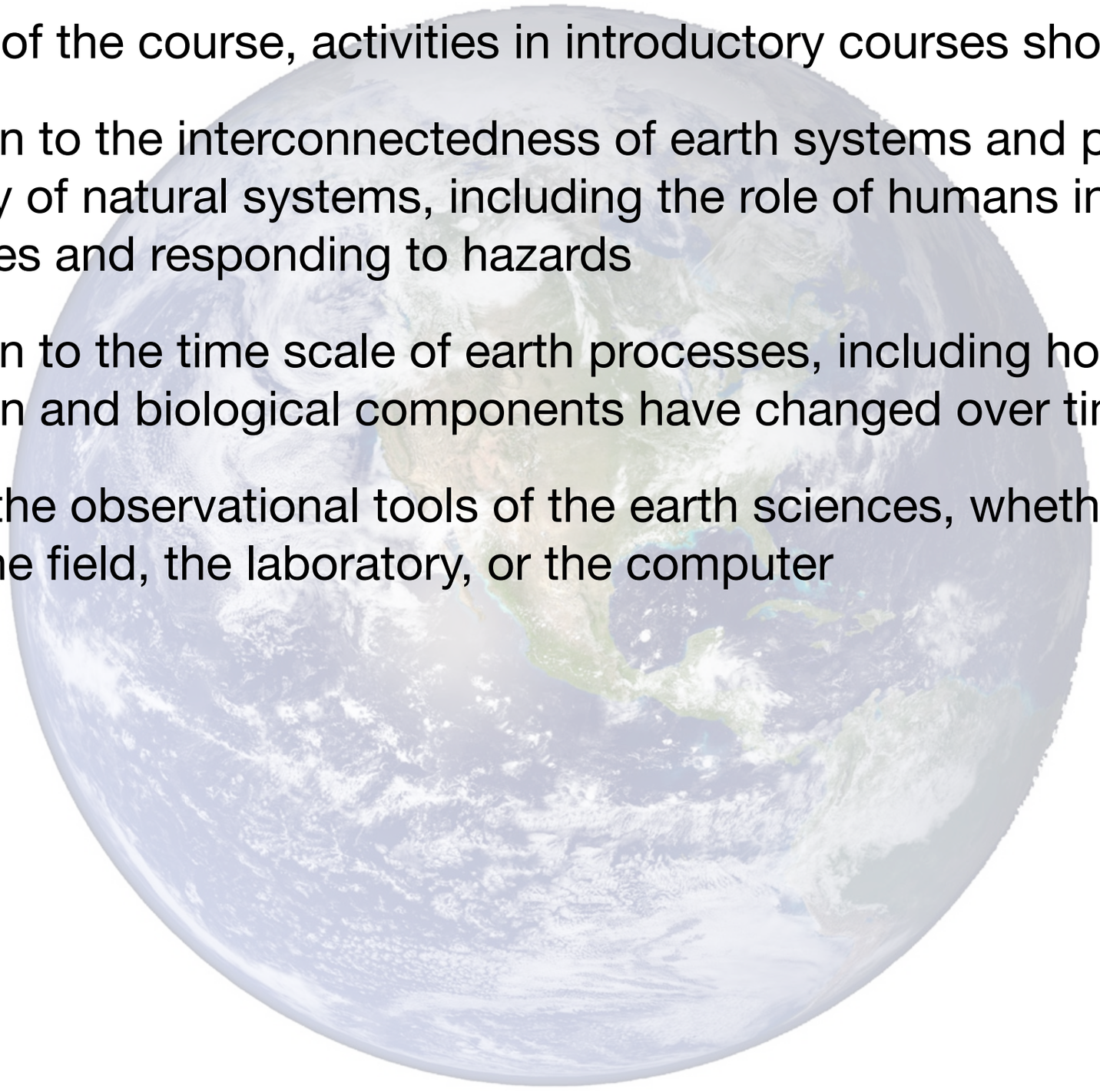

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- Communication of Earth science concepts, from fundamental knowledge to complex relationships between research and issues of societal concern

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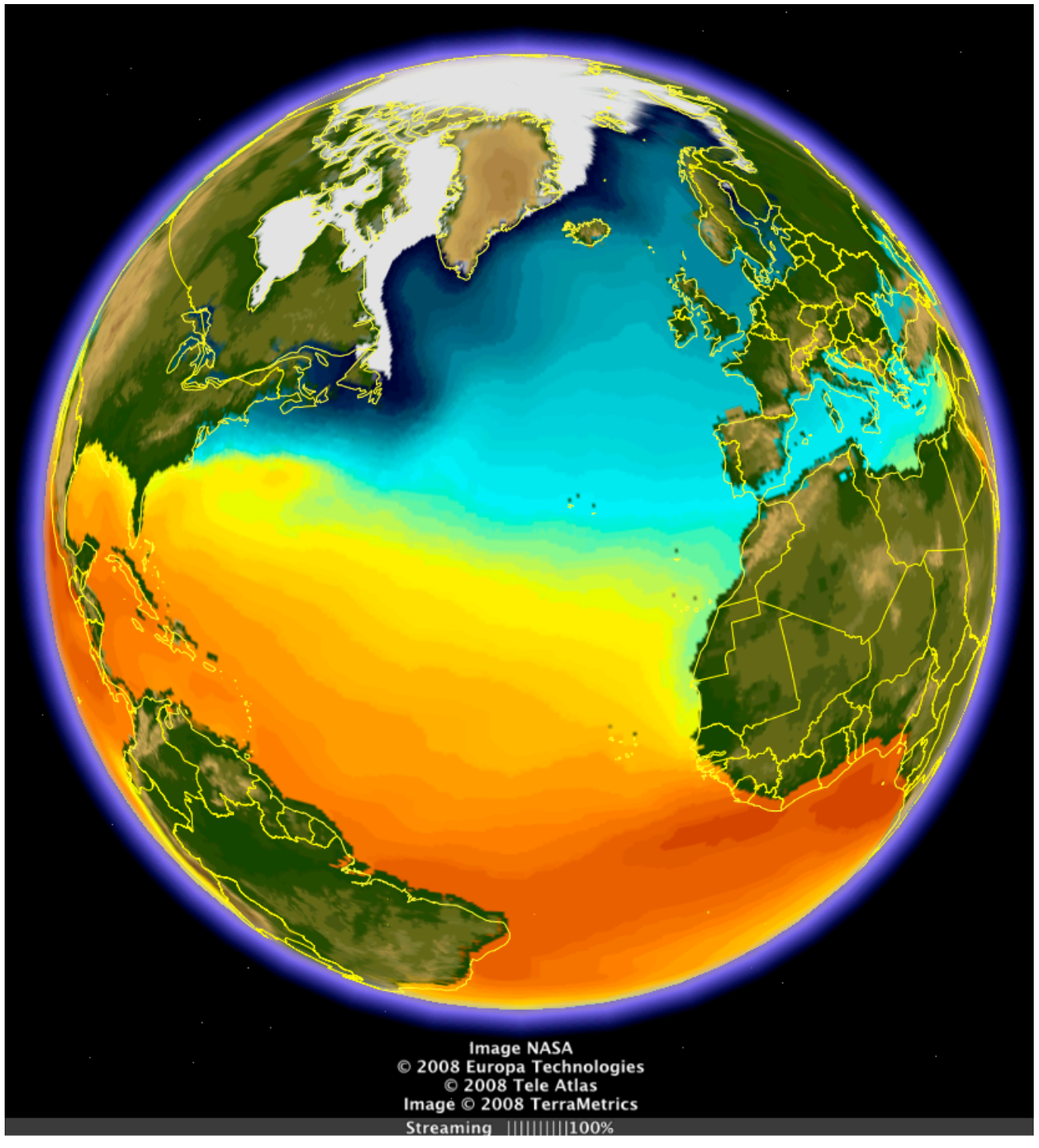

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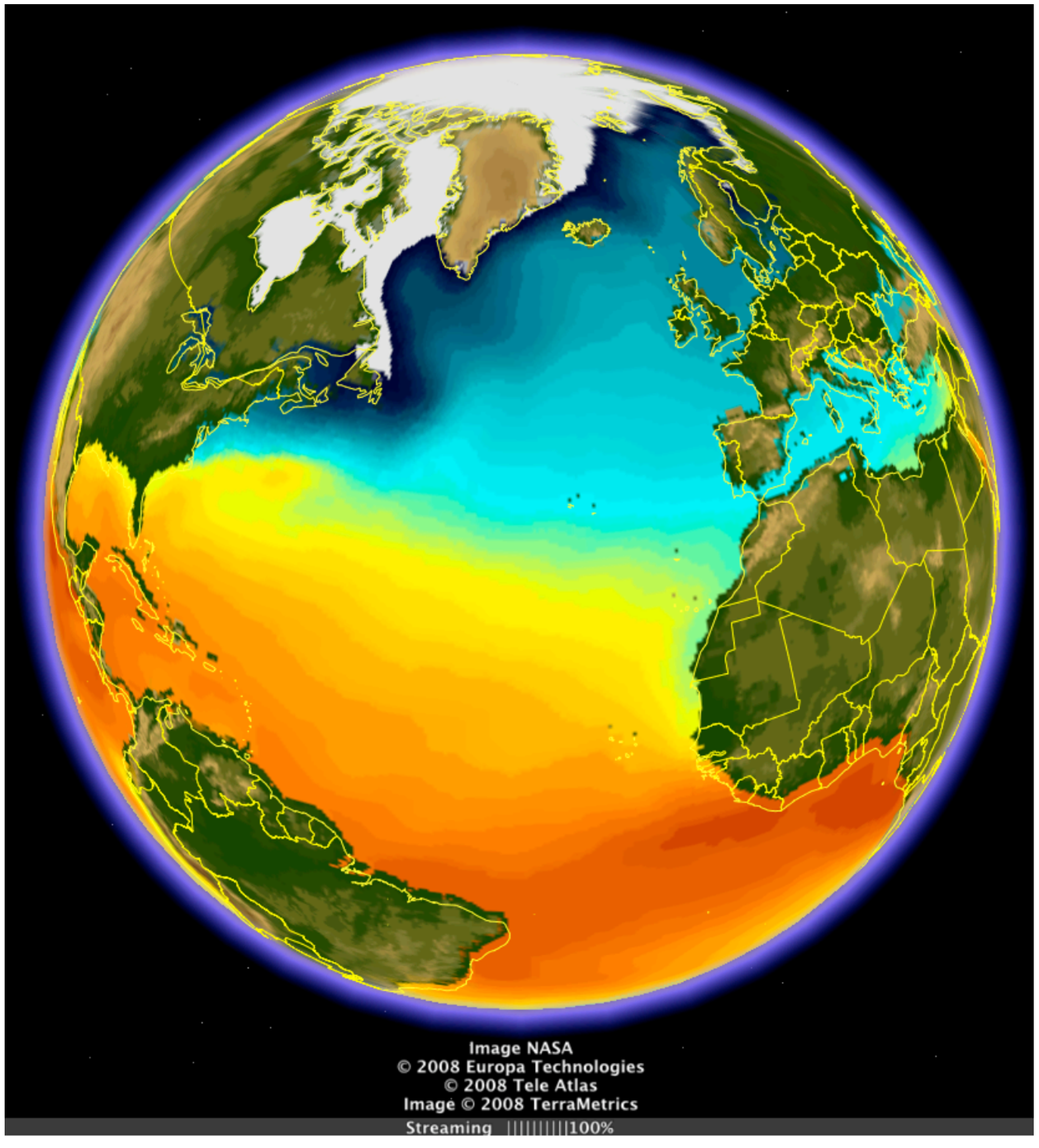

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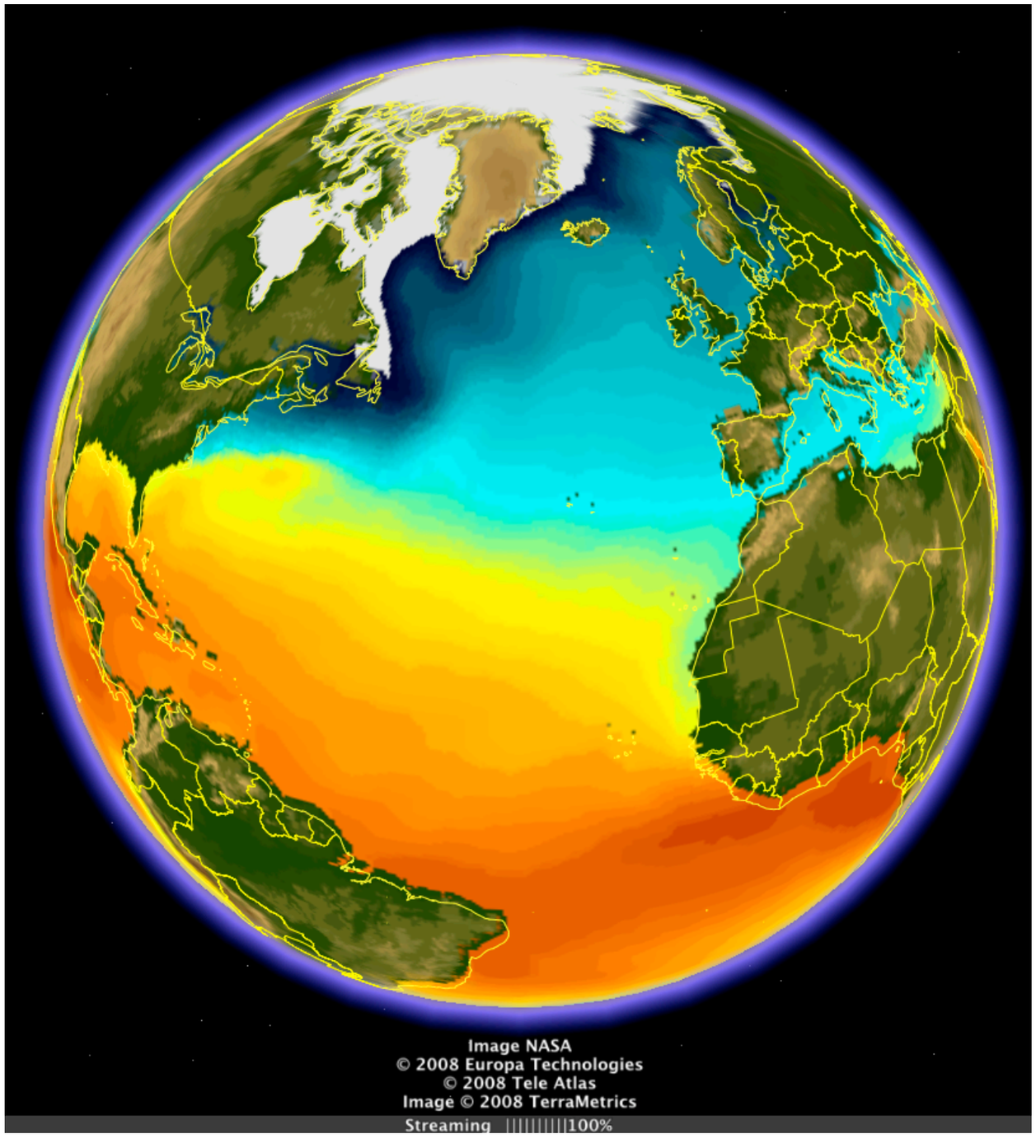

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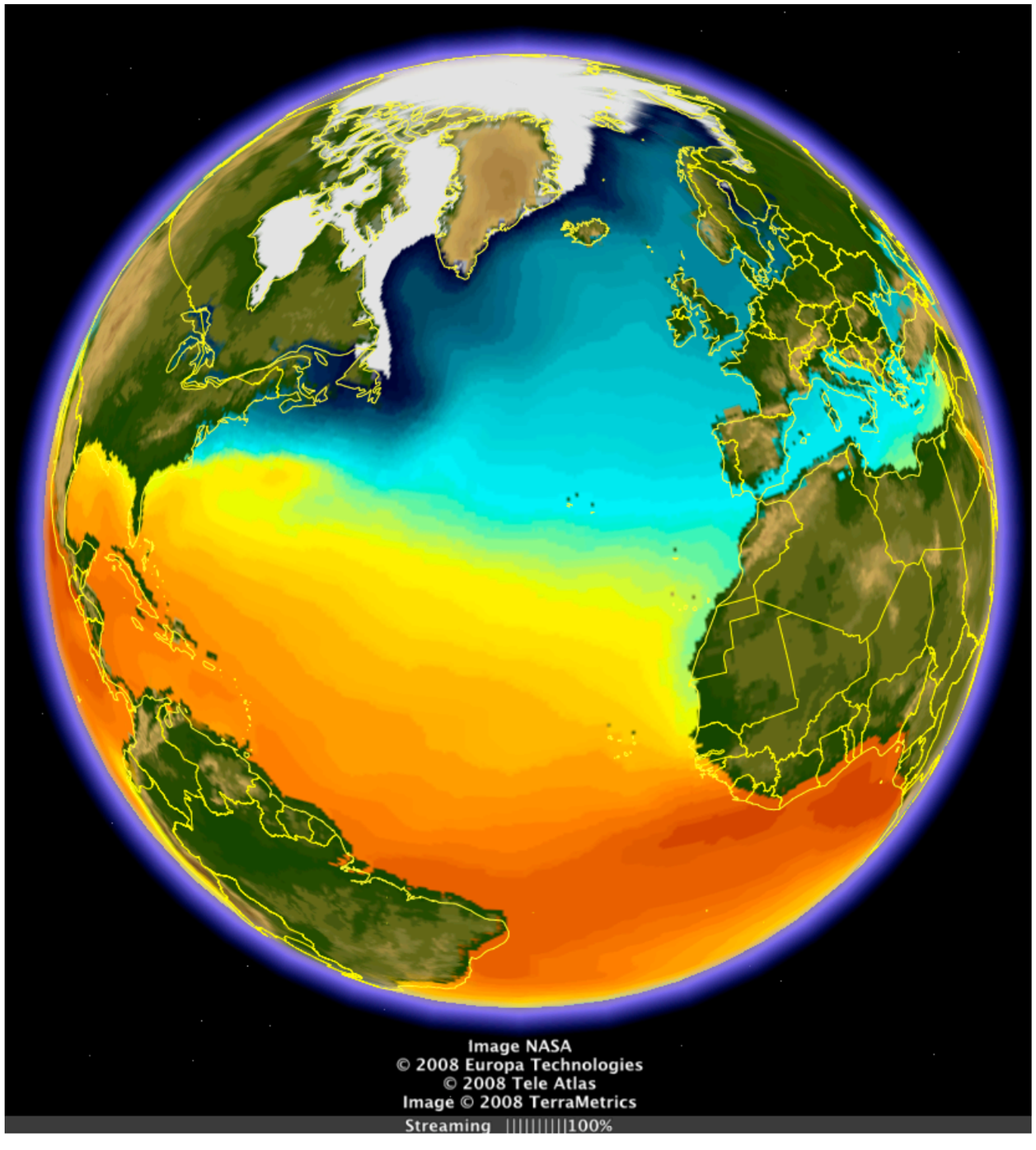

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- Created multidisciplinary community around introductory courses