

12.001  
December 10, 2012 – Earth Science & Society  
Climate Debate

This in-class exercise will not be graded, but will earn you participation points like the other ungraded exercises. Your assignment is to research the questions below, and be prepared to argue either side of each issue. The class will be divided into groups, one for each issue, and each issue group will be divided in half: one half will argue in the affirmative, the other in the negative. You will not know which argument you will be making until you arrive in class, so research both sides of the issues! At the beginning of class, you will be given time to prepare your statements. We will then stage a debate for each issue, in which groups respond to questions posed by a moderator.

Questions:

1. Is Earth currently warming, and if so, is this warming caused by humans?

*Issues to consider:*

- *What has the overall temperature trend been for the past 60 Myr? The past 10 kyr? The past 100 yr? The past 10 yr?*
- *What are the mechanisms by which humans could cause warming? Is there evidence for these mechanisms?*
- *How would we distinguish between human-induced warming and natural variability?*

2. Should greenhouse gas emissions be internationally regulated?

*Issues to consider:*

- *How do anthropogenic GHG emissions compare with natural emissions?*
- *How would the impacts of such regulation differ among nations?*
- *What sort of system would be used to implement and enforce the regulations?*

Online resources:

<http://www.grist.org/article/series/skeptics>  
<http://www.realclimate.org>  
<http://www.cru.uea.ac.uk/cru/info>  
<http://data.giss.nasa.gov/gistemp/>  
[http://www.ipcc.ch/publications\\_and\\_data/publications\\_and\\_data\\_reports.shtml](http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml)

References:

Broecker, W. (2000), Abrupt climate change: causal constraints provided by the paleoclimate record, *Earth-Science Reviews*, 51, 137–154.

Zachos, J. et al. (2001), Trends, Rhythms, and Aberrations in Global Climate 65 Ma to Present, *Science*, 292, 686-693.

Class outline:

1:05-1:15: Divide class into 4 groups by issue, and then for & against. If not enough people for 4 groups, make one side for, and the other against, for both issues. Post questions that will be asked in the debates on the board/screen.

1:15-1:55: Groups prepare arguments, coached by TAs and instructor. Groups should designate a different speaker for each of the questions that will be asked.

1:55-2:00: Load images onto laptop if desired.

2:00-2:25: Debate 1: Warming

1. Is Earth currently warming?
  - Yes: 2min opening statement
  - No: 2min opening statement
  - Yes: 1min reply
  - No: 1min reply
2. Can humans influence climate?
  - No: 2min opening statement
  - Yes: 2min opening statement
  - No: 1min reply
  - Yes: 1min reply
3. How important is this question? (What are the implications if we answer it incorrectly?)
  - Yes: 2min opening statement
  - No: 2min opening statement
  - Yes: 1min reply
  - No: 1min reply

2:25-2:50: Debate 2: Greenhouse gas regulations

1. Do we need to regulate greenhouse gas emissions?
  - No: 2min opening statement
  - Yes: 2min opening statement
  - No: 1min reply
  - Yes: 1min reply
2. What would the effects of regulation be, both domestically and abroad?
  - Yes: 2min opening statement
  - No: 2min opening statement
  - Yes: 1min reply
  - No: 1min reply
3. Is this an issue that nations should address individually, or together?
  - No: 2min opening statement
  - Yes: 2min opening statement
  - No: 1min reply
  - Yes: 1min reply

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