

2013 NCAR ASP Graduate Student Colloquium

Introduction and overview

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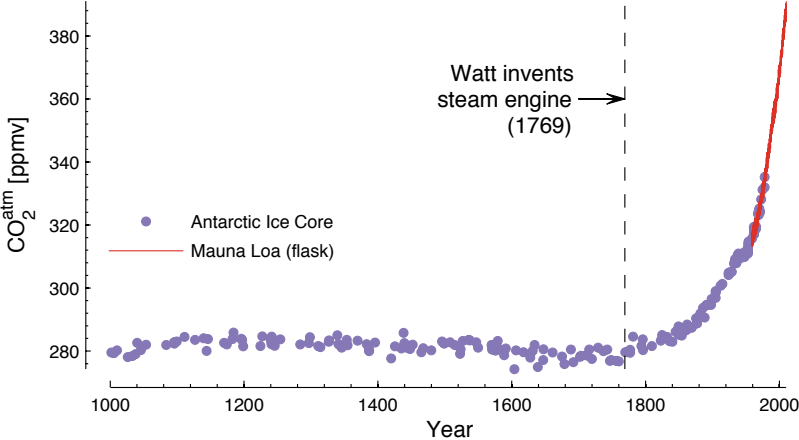
co-organizers

Annalisa Bracco (Georgia Tech.), Curtis Deutsch (UW),
Naomi Levine (USC), Galen McKinley (U. Wisc.),
R. Quinn Thomas (Virginia Tech.)

29 July 2013

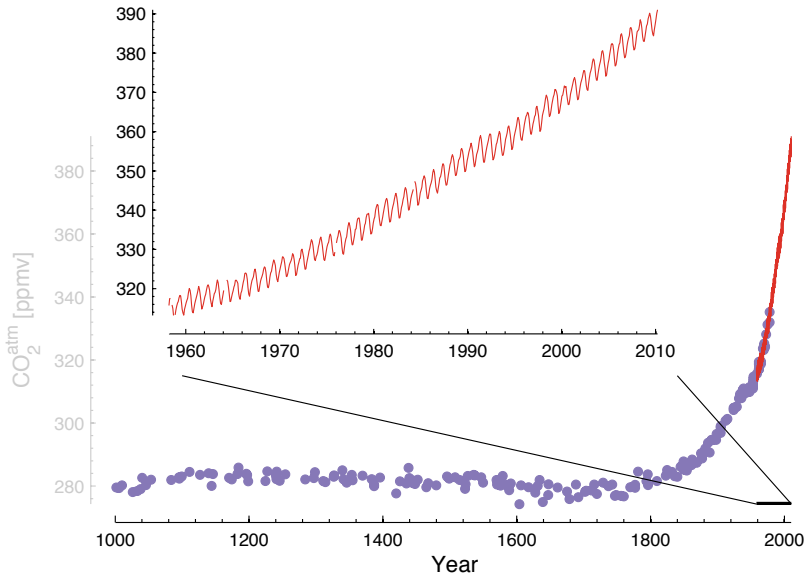
Global carbon cycle

Atmospheric CO₂



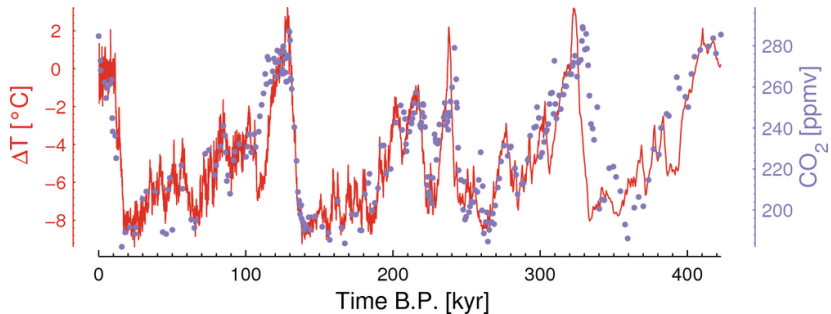
Global carbon cycle

Atmospheric CO₂



Global carbon cycle

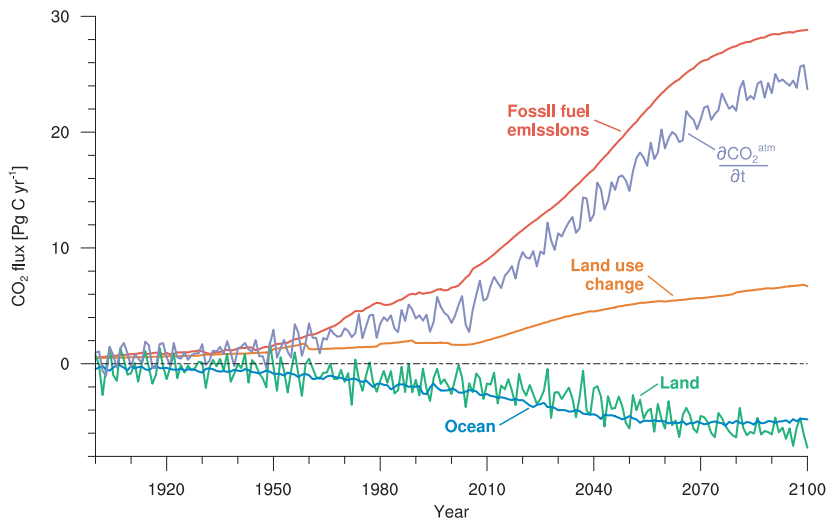
Glacial/interglacial cycles



Petit et al. 1999

Earth system models

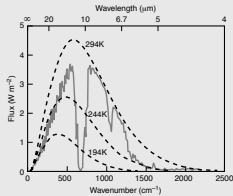
Prognostic CO₂



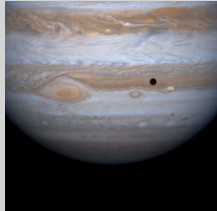
Earth system models

System taxonomy

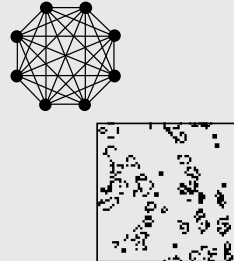
Empirically deterministic



Chaotic



Emergent



Course objectives

Lecture

Examine the fundamental physical, chemical and biological principles regulating the dynamics of the global carbon cycle.

Hands-on practicals

Apply simple modeling frameworks to develop intuition for the behavior and quantitative representation of key Earth System components regulating the global carbon cycle.

Projects

Develop and investigate an original research question using results from cutting-edge Earth System model integrations.

Big picture schedule

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|-----|---|------------------------|-----------------------|-------|---------------------|-----|
| 28 | 29 | 30 | 31 | 1 Aug | 2 | 3 |
| | Lectures, practicals, project development | | | | | |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | More lecture, projects. . . | | Researcher colloquium | | | |
| | | Proposal presentations | | | | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| | Some lectures, mostly projects | | | | Final presentations | |

Agenda and reading material:

<https://www2.cgd.ucar.edu/events/asp-colloquium-2013>