

What I learned from CWSEI-EOS

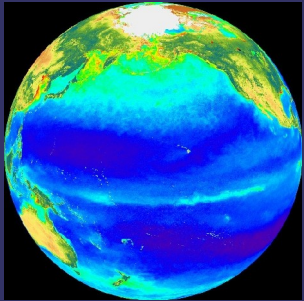
Susan Allen

Dept of Earth and Ocean Sciences

Lead instructor EOSC 372, 477

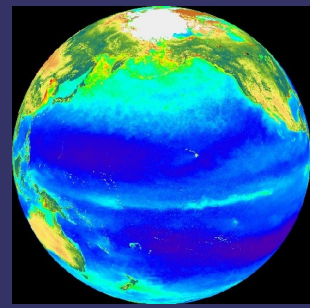
Outline

- ⇒ EOSC 372: aka the big class, formally transformed
 - About the course and the transformation
 - What worked (clickers, assignments/quizzes, bulletin board)
 - What didn't work (peerwise)
- ⇒ EOSC 477: small class
 - How the CSWEI process on one class is impacting how I think about this very different class



EOSC 372 Introductory Oceanography: Circulation and Plankton

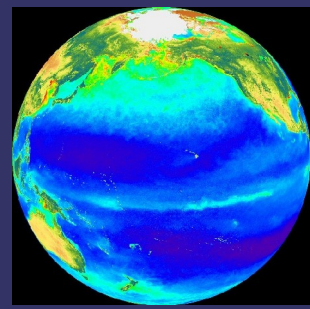
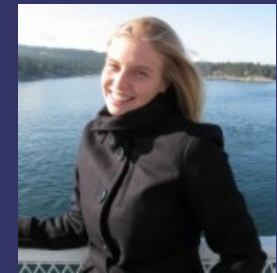
- ➔ Originally, two one term classes that taught Physical, Chemical, Geochemical and Biological Oceanography sequentially.
- ➔ Transformed into two one term classes that teach 1) snapshot of oceanography through to phytoplankton 2) longer term processes in the ocean (climate)
- ➔ Core introduction to oceanography but most of the class is taking it as an elective. 240 students: 3 instructors, 4 TA's



Course Structure

- ⇒ 45% Physics
- ⇒ 30% Biology
- ⇒ 25% Chemistry

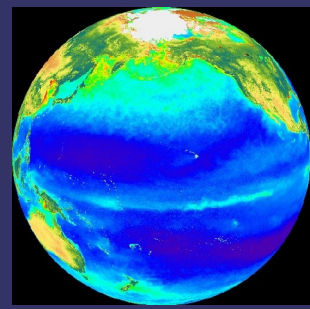
- ⇒ Course is divided into topics with each topic about 1 lecture worth
- ⇒ Most topics single instructor but only one module is



Clickers

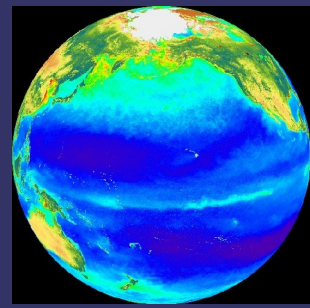
Why I like clickers:

- ➔ Breaks up monotony of lecture
- ➔ Lets me know if the students “get-it”
- ➔ Allows active participation of even the shyest student
- ➔ Lets the students know if they “get-it”
- ➔ Brings active thinking into the classroom



Clickers : Important Do's

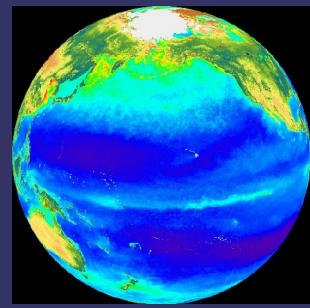
- ⇒ 20% grace policy
- ⇒ Allow students to not count their clicker marks if it doesn't help their mark : means that students that really don't want to come to class, don't.



Assignment after each Class

- ➔ A short, usually follow-up, assignment tested using a VISTA quiz
- ➔ Average 1 hr effort
- ➔ Learning Goals clearly stated

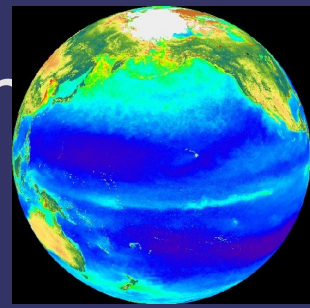
- ➔ Quiz opens after class and closes the morning before the next class
- ➔ Students bring assignments to class
- ➔ Self-quiz available after that time
- ➔ Most assignment solutions posted



Assignment after each Class

Why I like the assignments:

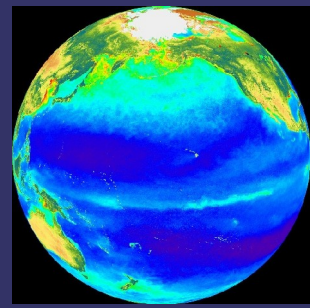
- ➔ Encourage the students to keep up with the class material... you need to understand the physics to apply it to the biology
- ➔ Well crafted assignments help the students integrate the material in the lecture and apply it
- ➔ Active learning, practise doing our multiple choice questions
- ➔ Allows more time in class for discussion and clickers



Assignments – Important Do's

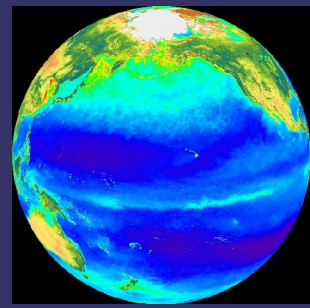


- ➔ Stick to your guns... students do not like these. The broccoli analogy helps
- ➔ Use the assignments in the lecture, refer to them, clicker question follow ups – the more important you treat them, the easier it is to get the students to buy in
- ➔ So far, directly taking up the assignments hasn't worked particularly well.



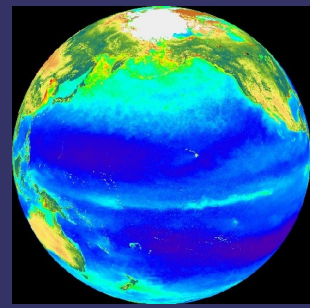
Student questions:

- ➔ We allow students to send email questions to a list that goes to all instructors and the TA's and from this generate FAQ's
- ➔ Last year we also opened a VISTA bulletin board. This was for the students by the students – we generally did not participate. The quality of the responses to some of the questions was amazing.



Peerwise

- ➔ We tried this in 2009
- ➔ Quality of the questions the students generated was poor – even the best questions were worse than instructors worst questions
- ➔ Meant that student time spent answering these questions was not helpful
- ➔ Felt we would need to spend in-class time on teaching how to write mc questions
- ➔ Felt we had enough in the course without peerwise



EOSC 477: Geophysical Fluid Dynamics

- ➔ 14 students
- ➔ Final year, integration course
- ➔ Generally highly motivated students
- ➔ Problem-solving based
- ➔ Other than learning goals, nothing directly translates from the big class



EOSC 477: Changes

- ⇒ But what has changed is that now:
 - I think and talk about how I teach all the time – how can I help the students learn?
 - I know how to try new things in my class and have the students give it chance
- ⇒ Hurdle for this class: how to solve problems
- ⇒ This year: group midterm/exam
- ⇒ Year after next: group tutorials



Summary

- ➔ Try new things! (but make it clearly a win for the students and tell them why you think its good for them)
- ➔ Use co-taught classes as a way to learn from your peers
- ➔ Engaging in the process is more important than any given pedagogical technique.

