ATM S 101: Weather

Winter Quarter 2011

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- Grading Policy & Exam Schedule
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- Homework
- Quizzes/Exams
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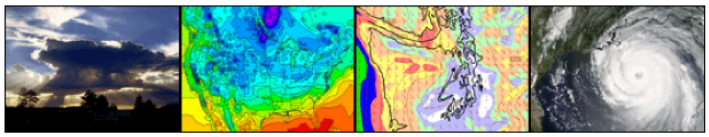
- Forecast Contest



Announcements

General Description

This course deals with the science of the Earth's atmosphere and its goal is to provide you with a better understanding of the processes occurring in the atmosphere that are responsible for the weather and climate we experience. The class will focus on why and how things happen, rather than on memorization of climate classifications and statistics. You will also learn how to read the sky and weather maps, and we will discuss the cause of selected natural and human-induced climate variations. Such topics will include El Niño, greenhouse warming, acid rain, and possibly the ozone hole.

Instructor: Prof. David Battisti
TAs: Matt Brewer and Maria Zatko

Web Page: www.atmos.washington.edu/academics/classes/2011Q1/101
Here, you will find the course outline, homework, syllabus, and handouts. You will also find some interesting weather and climate links.

Instructor:
Professor David S. Battisti
battisti@washington.edu
Office Hours: M, T, W, Th, 1:30-2:30, Atmospheic Sciences Geophysics (ATG) #304

TAs:	Office Hours	TA Office	CLUE Hours
Maria Zatko mzatko@atmos.washington.edu	M 12:30 - 1:30 Th 11:30 - 12:30	ATG 420 543-6627	See CLUE schedule
Matthew Brewer mcbrewer@atmos.washington.edu	M 1:30 - 2:30 Th 12:30 - 1:30		

Lecture:

M, T, W, Th	10:30-11:20	KNE 220

Sections:

AA	F	10:30-11:20	MGH 254	Maria
AB	F	10:30-11:20	SAV 138	Matthew
AC	F	9:30-10:20	MGH 389	Maria
AD	F	12:30-1:20	MGH 234	Maria
AE	F	12:30-1:20	SAV 139	Matthew
AF	Th	1:30-2:20	SMI 304	Maria
AG	Th	2:30-3:20	MOR 234	Matthew

"Sections" may include a quiz, a laboratory demonstration, a discussion about the lecture material, or a de-briefing on the homework questions.

Required Text (available at University Book Store)

Weather by C. Donald Ahrens, 2009, Cengage Learning. Fifth Edition

Books on Reserve at the Undergraduate Library

Ahrens, C. Donald: Essentials of Meteorology: An Invitation to the Atmosphere.

Ahrens, C. Donald: Meteorology Today: An Introduction to Weather, Climate and the Environment.

Lutgens, Frederick K. and Edward J. Tarbuck: The Atmosphere.

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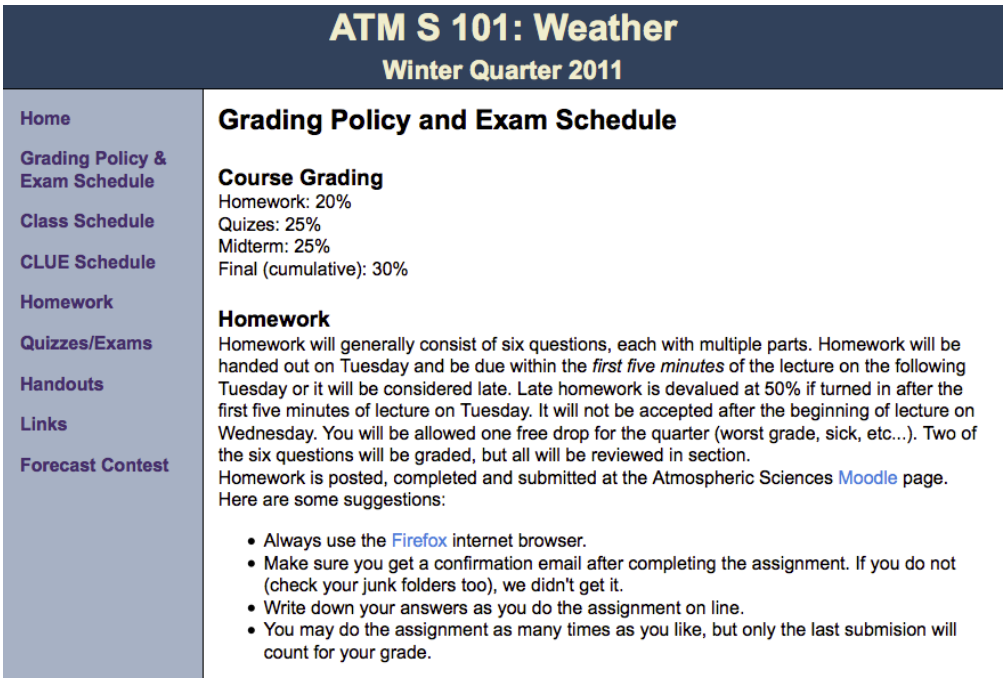

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Grading Policy and Exam Schedule

Course Grading

Homework: 20%
Quizes: 25%
Midterm: 25%
Final (cumulative): 30%

Homework

Homework will generally consist of six questions, each with multiple parts. Homework will be handed out on Tuesday and be due within the *first five minutes* of the lecture on the following Tuesday or it will be considered late. Late homework is devalued at 50% if turned in after the first five minutes of lecture on Tuesday. It will not be accepted after the beginning of lecture on Wednesday. You will be allowed one free drop for the quarter (worst grade, sick, etc...). Two of the six questions will be graded, but all will be reviewed in section.
Homework is posted, completed and submitted at the Atmospheric Sciences Moodle page. Here are some suggestions:

- Always use the Firefox internet browser.
- Make sure you get a confirmation email after completing the assignment. If you do not (check your junk folders too), we didn't get it.
- Write down your answers as you do the assignment on line.
- You may do the assignment as many times as you like, but only the last submision will count for your grade.

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Grading Policy and Exam Schedule

Quizes

We will have a brief quiz on that week's reading. The goal of this quiz is to encourage everyone to keep up with the assigned reading. Each student's lowest quiz will be dropped to allow for sickness or unavoidable absence. Some quiz sections will include a laboratory demonstration designed to allow everyone to participate in scientific investigation and discovery.

Exams

The content of the exams will be based on lectures, class discussions, section discussions and activities, reading assignments, and homework. The final exam will cover the entire course. All exams are closed book and consist of short answer and multiple choice questions. *Bring a Scantron form to class* on the day of the test.

Under very unusual circumstances, a makeup exam will be offered; arrangements must be made in advance of the day of the exam. Makeup exams will be in two parts: a selection of essays and an oral exam administered by Prof. Battisti.

MIDTERM EXAM: To be announced; 10:30-11:20 am (KNE 220).

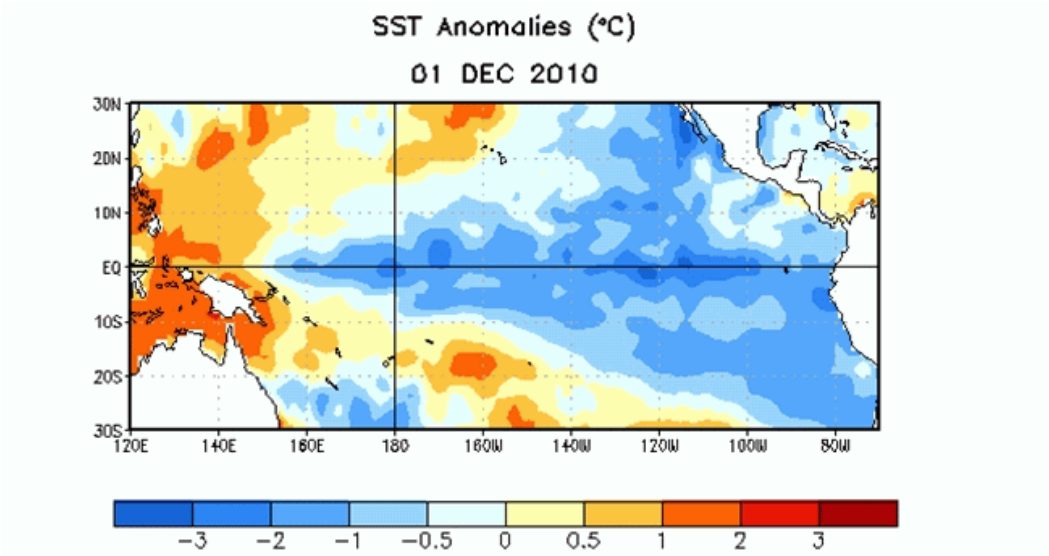
FINAL EXAM: Monday March 14, 8:30--10:20 am (KNE 220).

Forecasting Contest:

An opportunity for extra credit

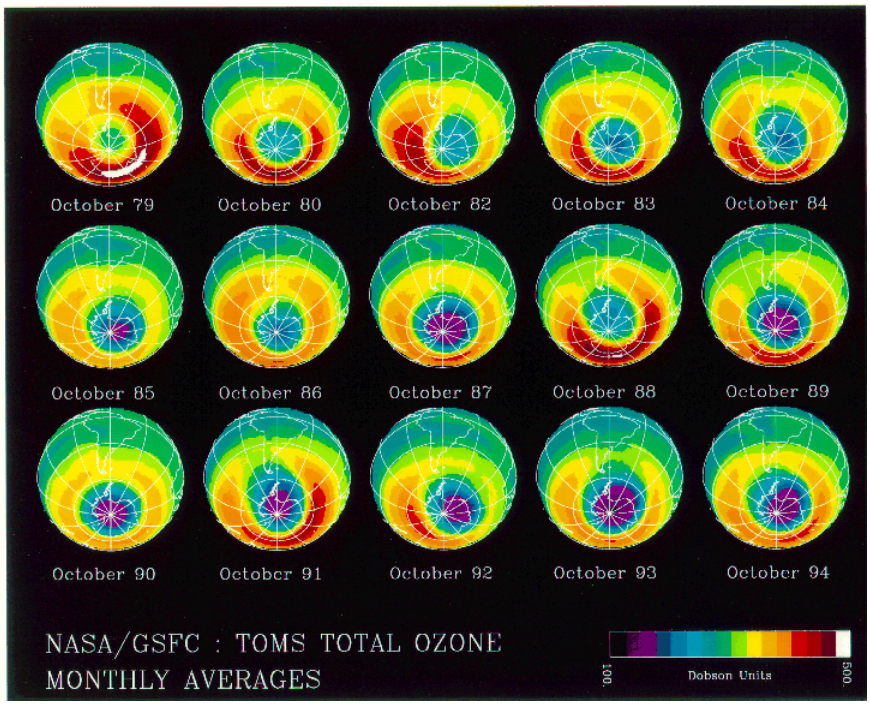
Forecasting will begin the third week of the quarter. Students who submit a minimum of 30 forecasts will receive 5 extra credit points on the final. Students who do well on their forecasts and submit at least 30 forecasts, are eligible for up to 5 additional points of extra credit on the final. Total possible extra credit is 10 points added to a 100-point final. More information will be provided before the contest begins.

What is this?

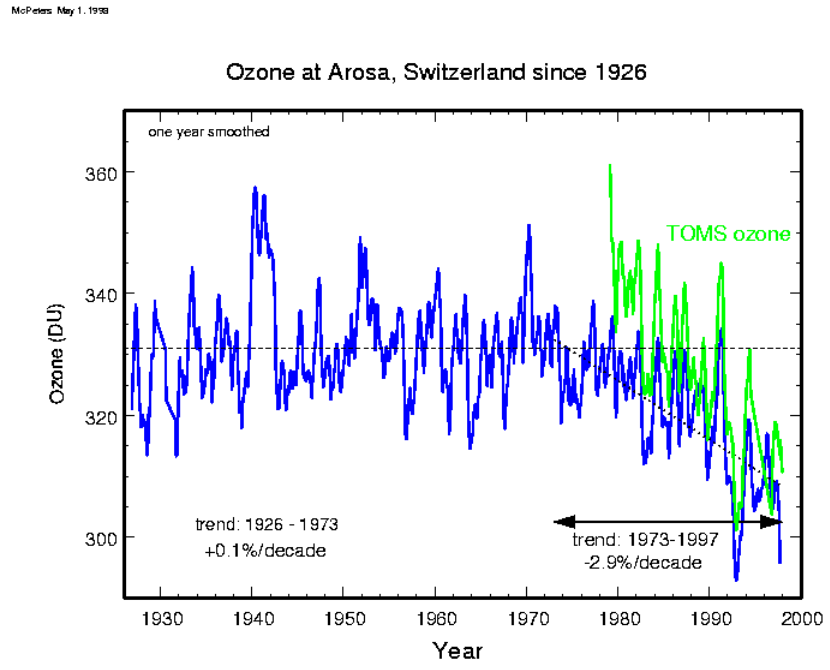


Sea Surface Temperature Anomaly (°C)
December 2010

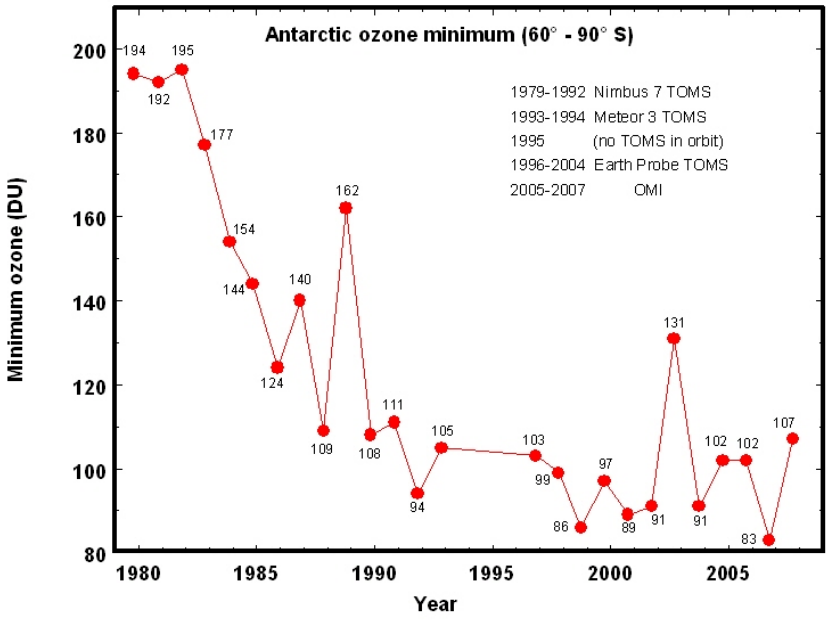
The Ozone Hole



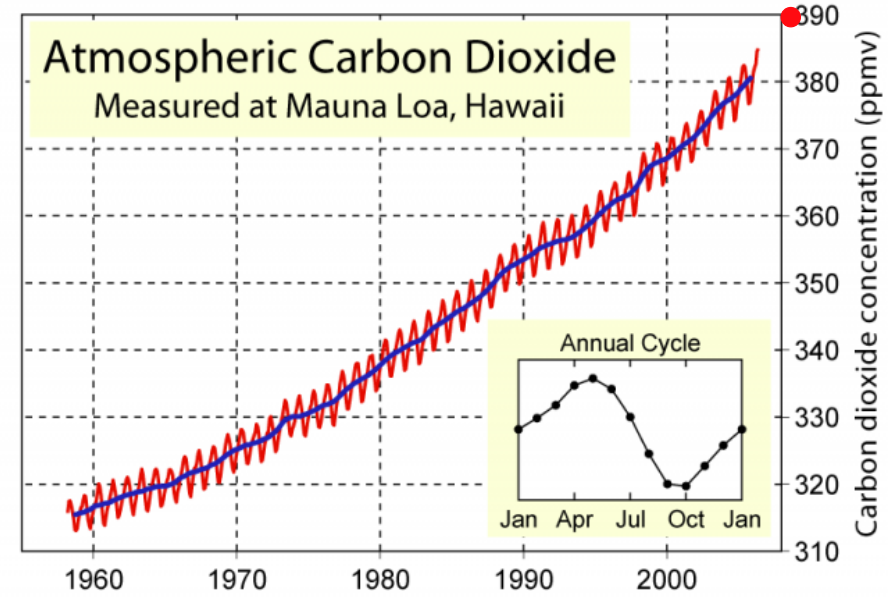
Ozone In the Northern Hemisphere



The Ozone Hole

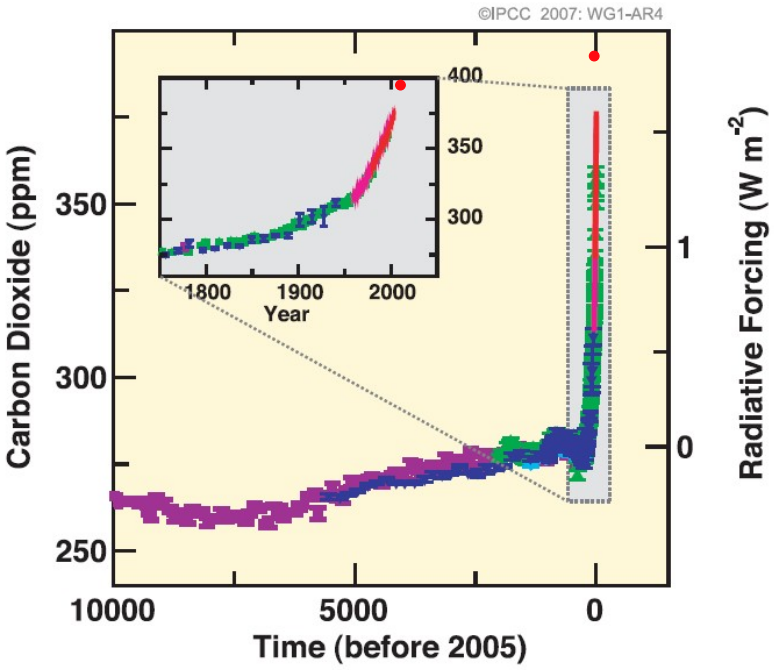


Carbon Dioxide in the Atmosphere



Today 389 ppm

Carbon Dioxide in the Atmosphere



IPCC 2007

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Class Schedule (TENTATIVE)

Date	Topic	Readings*
Jan 3 - 7	Introduction; Origin of Earth's Atmosphere; Heat and Temperature; Composition and Changes; Heat Forms and Transport; Radiation; Concepts in EM Radiation; Solar Radiation and the Earth	pg 1-8, 13-42, class notes, Appendix A and B
Jan 10 - 14	Greenhouse Effect; Vertical Structure of the Atmosphere; Seasonal Temperature Cycles	pg 8-13, 43-51
Jan 17 - 21	Daily Temperature Cycles (cont.); Temperature definitions, effects & measurements; Density and Pressure; Humidity and Water Vapor	pg 55-91, 141- 148 Appendix B
Jan 24 - 28	Condensation: Clouds, Dew, Fog; Atmospheric Stability; Cloud Development and Classification;	pg 91-120
Jan 31 - Feb 4	Precipitation Processes, types, measurements; Acid Rain; Atmospheric Optics	pg 121-137, 347-350, 415-433; readings

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Class Schedule (TENTATIVE)

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Feb 7 - 11	Forces and Winds; Ideal Gas Law; Local Circulations; Geostrophic Wind; Jet Streams	pg 148-165, 170-183; Appendix B
Feb 14 - 18	General (Global) Circulation; Air Masses and Fronts	pg 184-221, Appendix C
Feb 21 - 25	Mid latitude Cyclones	pg 222-230
Feb 28 - Mar 4	Tornadoes; Hurricanes; Thunderstorms	pg 263-324
Mar 7 - 11	Weather Forecasting; Puget Sound Weather	pg 235-260, class notes
If Time...	El Nino/climate change/Greenhouse Gases	pg 194-198, 383-412

* Readings in Ahrens' *Weather*, unless otherwise indicated

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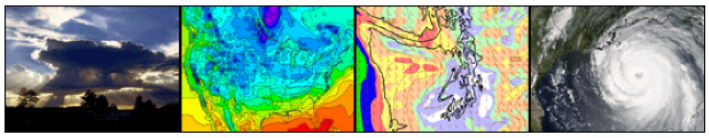

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