P 1.22 IMPLEMENTING AMS ONLINE WEATHER INTO THE QUARTER SYSTEM USING ARCHIVE FILES

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Introduction

The AMS Online Weather course was offered for the first time at CSULA during the fall quarter of 2006 and then again in the fall of 2007. The course meets once a week for a scheduled laboratory period on campus, The regular online part of the course is loaded onto the university server with a unique Internet address. To make the semester-long, 12-week Online Weather course compatible with our 10-week quarter schedule, the instructor relies on archiving most of the weekly files and squeezing 12 weekly assignments into ten weeks. Also, because of the shorter schedule, it was necessary to cover two chapters on some weeks. Since the fall AMS offering of Online Weather begins the first week in September and the CSULA fall quarter begins in late September, it is necessary to either save weekly files and upload them onto our course webpage for use three weeks later or use available archived files. The course syllabus is available at: http://instructional1.calstatela.edu/sladoch/geog170_files/G170SKD.doc

The first time the online course was offered, errors in the printed list of University courses resulted in only 17 students enrolling in the course. The second course offering, which was scheduled in the early afternoon, had 25 students participating. Previously, the Department of Geography and Urban Analysis offered a traditional lecture with lab meteorology course. The lecture was three hours per week as was the laboratory. Enrollments were modest. The online course was introduced to stimulate enrollments and increase the number of majors. The meteorology course fulfills the University general education requirement for a science course with a laboratory. Typically, students enrolling in the course are non-majors with little science background.

Course Webpage

The CSULA Instructional1 server houses the online course. Class web pages are mounted on the server and are easily accessed by students. The website for the course does not have the interactivity of WebCT or Blackboard, but is convenient when shifting files quickly from the Online Weather website to the course homepage. Additionally, the course web site does not have the privacy protections that WebCT or Blackboard offer. Any person accessing the website may view all class pages. Consequently, items such as grades are not posted on the class site. Because assignments are only active for one week on the AMS Online Weather course site, each week's assignments had to be saved by each Sunday night and loaded onto the course webpage with links to the Datastreme homepage. Files from the AMS course were archived during the initial offering of the CSULA online meteorology course and these files were used during the second year of our university course. A course link to the AMS Datastreme Atmosphere homepage allows students to read the Daily Summary of weather in real time and view current weather maps and data.

Other links, such as to the NWS, are also available on the course homepage and are recommended to students. The course homepage, http://instructional1.calstatela.edu/sladoch/geog170.htm (Figure 1), also shows links to archived Online Weather assignments, the Datastreme Atmosphere homepage, syllabus, other useful weather links and the instructor's webpage. Because of space limitations, previously posted assignments are removed, although they remain active for several weeks. Included among the assignments are additional exercises such as the Hurricane Katrina activity referenced below.

In-person Laboratory

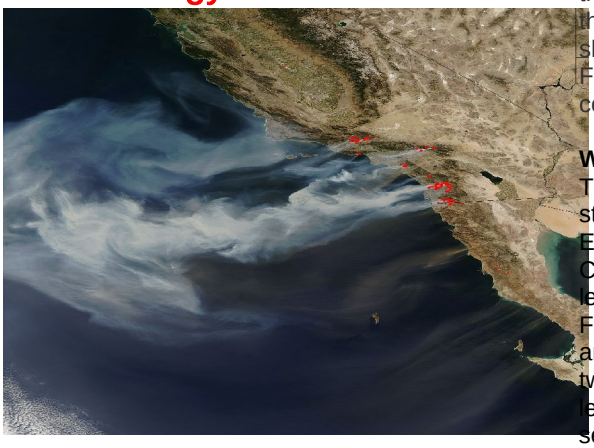
Students meet once a week in a campus computer lab to review assignments and any new material assigned for the week. This in-person lab allowed students to get help, ask questions, and to discuss questions from previous weeks' assignments. For students that have never taken an online or correspondence course, the laboratory time helps instill more confidence in completing assignments on their own. The in-person laboratory also provides the social interaction in a university classroom that is missing in a completely online course.

Another difference between the CSULA online meteorology course and the AMS Online Weather is the workload. In the first year, exercises in the Investigations (lab) Manual were not assignment. Instead, the instructor substituted their own meteorology exercises, such as Hurricane Katrina case study. The textbook for the course was the Moran, Weather Studies paperback. Student evaluations were overall quite positive for the first online course. In the second year, students needed the combined textbook (now hardbound) and Investigations Manual (Moran 2007).

Course News

Upon accessing the course website, students are greeted with important information about purchasing the course text and Investigations Manual. Students are advised to review the course website and to start developing the weekly routine of accessing the homepage each week and reading over the Daily Summary on the Datastreme Atmosphere homepage.

Geog. 170: Meteorology



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http://instructional1.calstatela.edu/sladoch/sladoch-spring05.htm (Instructor's website)
Course News-Welcome to Online Meteorology. By now you should have picked up your text and Investigations Manual and have looked at the course homepage (this one). Get into a routine of looking at the homepage each day, reading over the Daily Summary on the Datastreme Atmosphere homepage, then working on the assignments for each week. While the Datastreme Atmosphere homepage is in real-time, your assignments below have been archived and will be 3 weeks behind (since our quarter started 3 weeks after their semester course). Then email or fax (323-343-6494) your work to me.

Weather Resources

Surface Weather Map	24-hr Min Temps	24-hr Max Temperatures	24-hr Precipitation
500-mb Map	300-mb Map	Lightning Map	

Other useful weather links:
National Weather Service-LA
American Meteorological Society-LA Chapter
California Regional Weather Server-SFSU
Datastreme Weather Project

Assignments:

Wk7-Image1a	Image 2a	Wk7-Img 1b 2b	Wk7-Answers
Suppl Info Tu	Suppl Info W	Suppl Info Th	
Wk 12-Hurr Katrina	In class exercise	Hurr Katrina Lab Hurr SSTs	Hurr K. Track Saffir-Simpson Scale

Figure 1. Course homepage

Students are also advised to work on assignments each week. To avoid confusion, Information about the real time Datastreme Atmosphere homepage and the three week lag in the archived assignments shown below is also available on the home page. Furthermore, students are advised to email or fax course assignments.

Weekly Assignments
The weekly assignments are structured such that students make the most use of AMS course materials. Each week, students were assigned the online Current Weather Studies (CWS), which are two lessons associated with the chapters in the textbook. For example, Chapter 1 corresponds with CWS 1A and 1B). Students would then answer questions in the two related lessons of the Investigations Manual. The lessons in the manual also contain an Applications section that uses recent weather maps and satellite images to illustrate concepts and which student complete. Finally, students would also answer two questions from the Tuesday and Thursday Concept of the Day section from the Datastreme Daily Weather Summary. These questions usually reinforce concepts covered in the weekly exercises. Students e-mail their assignments to the instructor at the end of the week, or on the weekend, and assignments were returned during the succeeding laboratory. In the laboratory, the previous assignments were reviewed.

In the first year, two assignments were added to the weekly laboratory. One of the supplementary exercises was for students to evaluate the accuracy of a local weather forecast or forecaster. It is quite revealing how often a 1-day forecast was off the mark. By comparing different forecasters, students also discovered that each forecast source provided a different 1-day forecast. The second assignment was a Hurricane Katrina case study, developed by Dr. Pedro Ramirez and myself for a workshop we did. This lab activity had students plot the storm track of Katrina on a NOAA Hurricane Tracking chart (Figure 2 and 3) from a data table showing latitude/longitude coordinates and wind speeds (Table 1). An attached figure showing sea surface temperatures also helped reinforce the relationship between hurricane intensity to sea surface temperatures. The Hurricane Katrina activity and accompanying questions for the students is found on the following websites:
http://instructional1.calstatela.edu/sladoch/geog170_files/Hurricane%20Katherine.doc
http://instructional1.calstatela.edu/sladoch/geog170_files/Hurricane%20Katrina-track.doc
http://instructional1.calstatela.edu/sladoch/geog170_files/Hurr-Katrina-sst.jpg

To complement the course, field trips to the local National Weather Service Forecast Office were arranged. These field trips have been very popular with past meteorology classes, as well as highly educational. On other occasions, NWS forecasters are invited to the classroom. Another activity popular

with the students is local AMS Chapter meetings. Students enjoy these especially when there is one hosted by a TV broadcaster.

Assessments

Results from student evaluations of both the 2006 and 2007 meteorology course will be used to make adjustments to the next course offered. From comments made on the 2006 evaluations, the fall 2007 class used both the Moran Weather Studies textbook and the Investigations Manual. The lessons from the Investigations Manual follow the chapters in the text much more than the labs that I originally used for the course.

Student evaluations from 2006 showed that a majority found the instructor's overall teaching ability at either excellent or very good. Similarly, a majority of students would recommend the instructor to others. As there were no questions dealing with the course as such, more was learned from some of the comments made in the optional comments section. Several students stated that they liked the online course and as structured, allowed more time for studying class materials and reading the textbook. One student thought the tests were too hard. In retrospect, the 2006 class did as well as the traditionally taught meteorology classes on their assignments and examinations, except one student who didn't attend very often.

In this year's online course, links are provided to the Online Weather Self-Test Chapter Reviews, which were helpful for the first mid-term examination. The 2007 class is scheduled for two mid-terms and a final.

Conclusion

This fall is the second time that the online meteorology course has been offered. The use of the AMS Online Weather course has been very successful and is increasing enrollments. Using archived files instead of the real-time weather examples is unfortunate, but still provides students with near-real time examples. The students appreciate using recent weather examples.

The in-person lab makes the course not a true distance-learning course, nor a traditional in-person course using online resources. The advantages of the fewer hours on campus may benefit many of our commuter, full-time working students. Computer-literate students seem to be more comfortable now with online courses, as this mode of instruction becomes more common on our campus. However, the in-person laboratory does provide several benefits. Attendance has been very good and many students stay for the full laboratory period or longer to finish assignments. Our department will continue offering online meteorology classes, with another scheduled for the winter 2008 quarter.

References

Moran, J. (2007). Weather Studies, 2nd ed. Wash., DC: American Meteorological Society.
Moran, J. (2007). Investigations Manual, 2nd ed. Wash., DC: American Meteorological Society.

Acknowledgements

We thank the AMS Datastreme Project Atmosphere and California State University, Los Angeles for their support.

Figure 2. Instructor discussing the Hurricane Katrina lab with students.

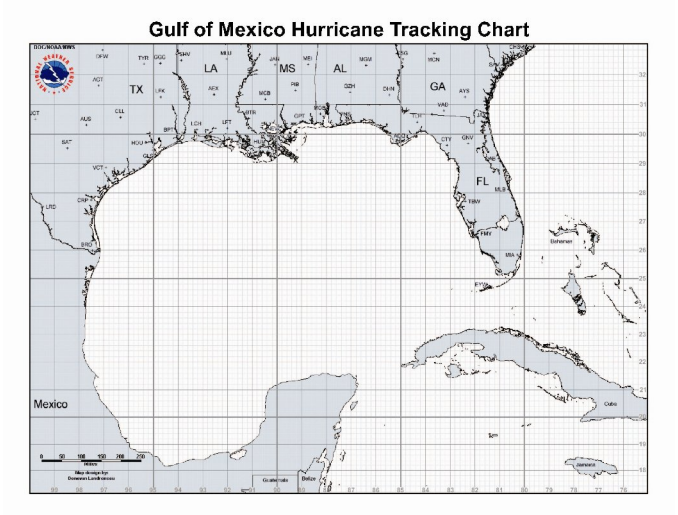

Figure 3. Hurricane Tracking Chart (NOAA).

Table 1
Hurricane Katrina's Storm Track August 25-31

Date	Latitude	Longitude	Wind speed
	N	W	mph
Wed 5 am	24.0	76.4	35
11 am	24.7	76.7	40
5 pm	25.6	77.2	45
11 pm	26.0	78.0	50
Thurs 5 am	26.2	78.7	50
11 am	26.2	79.3	60
5 pm	26.1	79.9	75
11 pm	25.5	80.7	75
Fri 5 am	25.3	81.5	75
11 am	25.1	82.2	80
5 pm	24.8	82.9	100
11 pm	24.6	83.6	105
Sat. 5 am	24.4	84.4	115
10 am	24.5	85.0	115
4 pm	24.6	85.6	115
10 pm	25.0	86.2	115
Sun 1 am	25.1	86.8	145
4 am	25.4	87.4	145
7 am	25.7	87.7	160
10 am	26.0	88.1	175
4 pm	26.9	89.0	165
10 pm	27.6	89.4	160
Mon 4 am	28.8	89.6	150
10 am	30.2	89.6	125
4 pm	31.9	89.6	75
10 pm	33.5	88.5	60
Tues 4 am	34.7	88.4	50

Table 1. Hurricane Katrina storm track and winds.