

# Marian Court College Weather and Climate

SC120  
Spring 2015

Brian Cacchiotti  
4 Credits

## Course Information

### Section 01:

Meeting Times: Thursday 6:00 pm – 9:20 pm

Class time will consist of lecture, class activities, research (independent and groups) and laboratory activities. Lab components will include in-class, take home and on-line activities and projects.

### Instructor

Name: Brian Cacchiotti Phone: *Please email me!*  
Office: Adjunct Offices Office Hours: By appointment  
Email: [brianc@primemail.com](mailto:brianc@primemail.com) or [bcacchiotti@mariancourt.edu](mailto:bcacchiotti@mariancourt.edu)  
Class Website: <http://www.itsallgeography.com/> Then click on MCC logo!

## I. COURSE DESCRIPTION

This course will examine the elements and controls of weather on the earth's surface including the extent and composition of the atmosphere; atmospheric heating and cooling; pressure and winds; and moisture and precipitation. An introduction to weather forecasting techniques and a descriptive analysis of world climate regions and an introduction to maps and basic topics in physical geography will also be provided. Required laboratory.

## II. COURSE OUTCOMES

Upon completion of this course, students will be able to:

### **Connect the course material to broader aspects of human experience, including:**

- Existing or increased curiosity about the physical world, and in particular, the atmosphere and its related weather and climate;
- How geographers study the physical environment;
- Improved understanding of weather forecasts on TV, radio, internet, or in newspapers;
- The influence of pollution on the atmosphere and our environment; and
- Global climates and how the Earth's climate is changing;

### **Employ the technical skills and analytical tools of physical geography, including:**

- Use of the scientific method in problem solving and inquiry;
- Analysis of maps in order to understand current weather and climate conditions and to predict future events;
- Analysis and creation of tables and graphs to organize scientific data and to determine trends;
- Calculation of atmospheric moisture, relative humidity, and intensity of incoming solar radiation;
- Determination of climates, given temperature and moisture data; and
- Explanation/ prediction of storm activity, i.e. thunderstorms, tornadoes and hurricanes.

### Explain the following scientific processes and principles:

- The composition and function of the atmosphere in influencing weather and climate;
- The hydrological cycle (in the context of weather and climate);
- The relationships between temperature, pressure, wind, and frontal activity, in helping to understand and predict weather activity;
- Varying cloud and fog patterns and their associated precipitation; and
- The relationship between solar energy and weather, climate, and most physical cycles on Earth.

### III. INSTRUCTIONAL MATERIALS

We will be using the following textbook as well as handouts for lab activities.

***The Atmosphere***, 13<sup>th</sup> ed., Lutgens and Tarbuck, Pearson Prentice Hall

***Please note that using either the 12<sup>th</sup> or 11<sup>th</sup> edition is perfectly acceptable for our class. I saw the 12<sup>th</sup> on Amazon for under \$30 used.***

It might also be helpful for you to have a **College World Atlas** in order to better know where in the world we are talking about! I believe it is every student's duty to have an atlas on your shelf even in the age of Google Maps! ***While it is not required***, it is a good idea to have an atlas handy if while I am talking about **Austria** you are picturing **kangaroos** in your head!

### IV. TEACHING STRATEGIES

I will be using multiple teaching strategies in this course. Primarily our class time together will be spent in a lecture format, using Powerpoint slides and short animations. There will be ample time for questions and discussion of the topics we are exploring. Students should ALWAYS feel free to ask questions if they are unsure of the material or need to clarify any points during the lecture.

We will also be having a **laboratory component** to this course. Lab materials will be provided (when applicable) and each student will be expected to complete the lab exercise(s) assigned. I will give a brief overview of the coming lab during class and collect the previous labs at the start of the next lecture class. I will also make time to be available to discuss any issues you may have with the labs and to assist you in any way.

I encourage students to work together in the completion of the labs. I believe that learning how to work effectively in a team environment is very important in most professional environments. Your future employers will need smart, effective team players and these skills will help you succeed in the modern global economy.

In addition to the labs, there will be several written assignments as well as a short research assignment for this course. I will present an overview here, but the actual detailed assignments will be handed out in class.

**Weather and Climate in the News:** Twice during the semester students will present a short report to the class and turn in a short (1 page) synopsis of a national or international news story related to the weather and climate topics we will be discussing in class. You will then need to review other students' reports and respond to at least two others.

**Weather-related Film Review:** You will choose a weather event related film, from an approved list, and write a review based on its adherence to the realities of weather and climate (or not.) You will be expected to point out where it does, and does not, reflect a proper

scientific understanding of how the atmosphere works as we have been studying in our class. The review will be between 2-3 pages (700-1000 words) in length.

### **Chapter Summaries:**

You will be required to keep and submit a chapter summaries notebook (I actually require these to be type written, but collected into a notebook.) **Note: No hand written work will be accepted unless prior authorization is obtained.** These will be between 1-3 pages for each chapter and will concentrate on the important themes of each chapter. They are NOT to be 'copied' from the book, but rather these should be your own words describing and explaining the important definitions, concepts and mechanisms discussed in the chapters. This is to be your own work. You are not required to do any outside research on these topics, but if you do you must follow standard rules for citing your sources – please do not plagiarize.

## **V. OUTLINE OF THE COURSE**

**Overview:** Weather and Climate are similar but different ideas concerning the state of the atmosphere and the expectations for a certain place on the earth. We will be exploring the major factors that are used to determine both weather and climate, as well as learning the techniques of those scientists whose job it is to understand the atmosphere and its impacts upon all the inhabitants of earth.

After an introduction into the basics of earth systems science and the idea of the interconnected nature of our earth's systems, we will begin to explore the atmosphere as the main area where weather and climate are produced.

We will explore the relationship between the earth and the sun – the driving force behind all weather systems on the planet -- and we will see how 'differential heating' upon the earth, and its major elements, is what brings the vast differences of weather and climate to diverse areas of the world.

Temperature is the most prominent of the weather and climate factors that we will explore and a basic review of states of matter and exo- and endothermic reactions will ensue.

Moisture and humidity are the main paths used by the planet to move large quantities of heat from one place to another. We will look at how and why this occurs and see at multiple scales how these movements affect our lives on a daily basis.

The most noticeable form of moisture is precipitation in its many forms. We will look at how clouds form and how precipitation within them forms and eventually makes its way back to earth's surface.

Wind is a major force of nature and one that has a huge impact on weather and climate prediction and outcome. We will look at where wind comes from and how and why it behaves the way it does.

This will lead us directly into the major circulation patterns within the atmosphere, and at the surface as well in the form of ocean currents. These global pathways move both hot and cold water and air around to achieve a global temperature balance which is vital to the long term stability of our world.

These circulation patterns create climatic patterns that bring consistent yearly patterns of temperature and precipitation to every place on the earth. These climates are classified to better allow scientists and laypeople to understand the behavior of the atmosphere for any place on the planet.

Air masses and weather patterns create the more local weather conditions we are all familiar with in our daily lives. We will look at the formation of these air masses and how and when they will combine into weather patterns.

The most severe of these weather patterns are thunderstorms, tornadoes and hurricanes. We will

spend the remainder of the class discussing these most dangerous and destructive storms – how they form, how we can best confront them, and how scientists are working to better understand and predict these terrible events.

**VI. Schedule: *subject to change as course progress dictates***

| Week         | Reading/Topic/Activity                   | Lab         | Important       |
|--------------|--|-------------|-----------------|
| 1 (April 23) | Introduction and Chapter 1               |             | Email Me!       |
| 2 (April 30) | Chapter 1                                | Lab 1       | Summary 1       |
| 3 (May 07)   | Chapter 2                                | Lab 2       | Summary 2       |
| 4 (May 14)   | Chapter 3                                | Lab 3       | Summary (3 & 4) |
| 5 (May 21)   | Chapter 4 & Review                       | Lab 4       |                 |
| 6 (May 28)   | <b>Quiz 1 (chpts 1-4, Lab 1-4)</b>       |             |                 |
| 7 (June 04)  | Chapter 5                                | Lab 5       | Summary (5 & 6) |
| 8 (June 11)  | Chapter 6                                | Film Review | Summary 7       |
| 9 (June 18)  | Chapters 7 & 8                           | Lab 6       | Summary 8       |
| 10 (June 25) | Chapter 9 & Review                       |             |                 |
|              | <b>Quiz 2 (chpts 5-9, Film, Lab 5-6)</b> |             |                 |

**VII. REQUIREMENTS**

**1. Attendance policy**

Regular attendance is vital to your success in this class. Being in class will help you to better understand the material in the textbook and outside readings; it will help you complete the assignments; and it will prepare you for the quizzes. I will be checking attendance throughout the semester and **it is expected that students will not miss any classes except for serious emergencies** and other college approved absences. If for some reason you must miss a class, it is your responsibility to discover what you missed and to be prepared for the next class session(s). Missing class is not an excuse for not knowing what has taken place in that class. You are responsible for ALL material and information covered during class. I strongly suggest that you find someone to share this information with if either of you should unexpectedly miss class.

**2. Responsibilities for missed work**

Students are required to be in class and turn in work on time. If you miss class, you are still responsible for all class activities and announcements. If an in-class assignment is missed it is not possible to make up this work. I will need to decide on a case by case basis (but only for a college approved absence) if an in-class assignment can be completed after the fact.

**3. Assignments and due date policy**

**Late work will receive a large penalty and in no case will work be accepted after one week's time.** It is VITAL that you learn to complete your work on time as this will prove invaluable in your professional careers. In no case will work be accepted more than one week after it is due.

#### 4. **Quizzes/tests**

I will post a study sheet (not a “guide” per se) that will help you to better see the scope of the quiz. This study sheet will be posted one week before the quiz. **There will be two quizzes**, each covering both class and lab material. The first will cover the material to that date, while the second will cover the entire course, but concentrate on the final half of the class. The second quiz will take place during the final exam period. You will be permitted to bring in one 4x6 card with anything written on it you like (both sides may be filled.) This will be collected with your quiz at the conclusion of the quiz. I will supply you with all formulae you will need for the quiz and students are permitted to use calculators.

*The Final will be given on the final day of class..*

**No other electronic devices may be used during any testing. You may not use your cell phone as a calculator. The use of translators will be considered on a case by case basis and ONLY permitted if permission has been received in advance of the test date.**

I will provide a short time in class for questions concerning the quiz material during the class before the quiz. I encourage you to come see me during office hours if you have more than a quick question concerning the quiz materials. Quizzes will be a combination of many types of questions, including, but not limited to, true/false, multiple choice, matching, definitions, short answers, and essay. Material from both lab and lecture will be included in the quizzes.

#### 5. **Progress in Course:**

*All students will be issued a Mid-term grade in March, the purpose of which, is to inform students of their progress and help students assess their effort in the course. Students with midterm grades below a C- are especially encouraged to meet with the professor regarding how to improve in the course.*

#### 6. **Course Withdrawal Process:**

**\*\*Please note a change in the course withdrawal process\*\***

*If, after speaking with the instructor, a student wishes to withdraw from the course, he/she is responsible for obtaining the course withdrawal form from the Registrar or Academic Counselor, signing it, and returning it to the Registrar. All course withdrawals will be reviewed by the Dean for final approval. **The deadline for completed forms is published by the registrar.***

#### 7. **Make-up policy for announced and unannounced quizzes/tests**

It is expected that you will attend all announced quizzes. Dire emergencies and college approved absences will be taken into consideration when determining whether to allow a student to take a make-up quiz. Unannounced activities will not be available for make-up.

#### 8. **Standards for written assignments**

Communicating in standard English is expected: use of standard written English is one of the evaluation criteria for written work in this course. If your written work has significant errors in usage, it will be returned, ungraded, for revisions and resubmission, and late penalties will accrue. I might suggest *The Elements of Style* by Strunk and White. An early version (1972) is available free online at <http://books.google.com/books?id=Hd5o74lehyoC&lpg=PA1>

#### 9. **Classroom etiquette – cell phones, punctuality, etc.**

My number one rule is RESPECT! I believe that classrooms, like all other parts of our lives, must be a place where everyone is made to feel welcomed and valued. The best way we can achieve this is through treating each other with respect! I will insist that you

treat me, your fellow students, and most importantly YOURSELF with respect... at least while in this class!

Being punctual is yet another life skill that will serve you well both personally and professionally. It is also one way to show respect to all the members of our classroom community. I too will always strive to be punctual in my dealings with our class. However, at times we all fail to live up to our high expectations and in this case, **I strongly urge you to still COME TO CLASS LATE.** I will still welcome you and you will gain much more from attending a partial class than from hearing about it afterwards from a classmate.

Cell phone use is an interesting issue. I understand that cell phones are ubiquitous in our modern society. I have one and probably you have one as well. However, when we are in our classroom setting it is only proper that we all remember to turn off our ringers during class time (and if someone's phone does go off... that is a great reminder to the rest of us to silence our own phone.) Now, if your phone does vibrate to tell you of an extremely urgent call, I would expect you to get up and take it in the hall.

**Texting during class is not permitted. It shows a serious lack of respect to the teacher as well as the rest of your classmates.**

**When in the lab room (with computers) students MAY NOT use the computers except during specifically authorized times. It is extremely rude for students to be checking mail or Facebook during class time. It will not be permitted and may lead to the removal of the student from the lab and/or the class if this behavior continues.**

#### A few other points:

- ▶ All assignments handed in late will lose substantial points. No work will be accepted after 1 week and a grade of ZERO will be submitted. Extraordinary circumstances will be considered.
- ▶ Students are responsible for ALL material found in the required readings, exercises, labs and lectures.
- ▶ PLEASE ask questions if something is unclear. You may do so during class (within reason) and outside class.
- ▶ Be respectful! Disruptive behavior will not be tolerated.
- ▶ My primary method of contact (outside of the classroom) is via email. It is VITAL that I have your current email address on file.
- ▶ **This syllabus is tentative and is subject to change.** Another good reason to come to class!

#### VIII. EVALUATION A summary of grading for this course is below.

|  |             |
|--|-------------|
| <b>Mid-term Exam (Quiz 1)</b> .....                | <b>25%</b>  |
| <b>Final Exam (Quiz 2)</b> .....                   | <b>25%</b>  |
| <b>Lab (total of all labs)</b> .....               | <b>10%</b>  |
| <i>Cities Reports</i>                              |             |
| <i>News Accounts</i>                               |             |
| <b>Chapter Summaries</b> .....                     | <b>20%</b>  |
| <b>Film Assignment</b> .....                       | <b>10%</b>  |
| <b><u>Class Activities/Participation</u></b> ..... | <b>10%</b>  |
| <b>Total Score:</b>                                | <b>100%</b> |

## **IX. Academic Advising:**

The Registrar has assigned you an Academic Advisor to help you with your courses at Marian Court College. It is to your advantage to set up an appointment early in the semester to meet with your Advisor and discuss how he or she can assist you while you are attending Marian Court College. Another resource for you is the Academic Counselor who advises all students on general College policies and procedures, techniques to help you succeed as a student, and who can assist you in other personal matters that may affect your academics. Please talk with me or the Advisor if you are having difficulty with this class or any other class at the College.

## **X. RESOURCES AVAILABLE IN THE LIBRARY:**

Marian Court College is a member of NECCUM (Northeast Consortium of Colleges and Universities in Massachusetts). The purpose of NECCUM is to enhance the experience of students, faculty, and staff through cooperative programs. As a current student, you have opportunities to take courses and use the libraries at nine other colleges in your area as part of your academic program. All you will need to take out books from these libraries is your current Marion Court ID card.

NECCUM Member Institutions: Endicott College, Gordon College, Marian Court College, Merrimack College, Middlesex Community College, Montserrat College of Art, North Shore CC, Northern Essex CC, Salem State College, University of Massachusetts at Lowell

## **XI. HONOR CODE VIOLATIONS**

Marian Court College considers academic integrity to be the foundation of a quality education. The college expects that students will produce and submit their own work in all academic situations. Honor code violations are a serious threat to the academic integrity of the institution.

An honor code violation occurs if a student knowingly gives, receives, uses or attempts to use unauthorized assistance in any academic situation. These situations include, but are not limited to examinations, tests, quizzes, homework, papers, projects, presentations and computer assignments.

Plagiarism is defined in Webster's Dictionary as the appropriation or imitation of the language, ideas, and thoughts of another author, and representation of them as one's original work. Any student who has knowingly offered his or her own work for the purpose of plagiarizing has also committed an honor code violation.

At Marian Court College, an instructor who suspects that an honor code violation has occurred will inform the student and the chairperson of the Academic Review Committee. The Committee will hold a hearing to determine if an honor code violation has occurred. The student may bring to the hearing a member of the faculty, administration or staff to serve as an advocate or support person.

If it is determined that the student has committed an honor code violation, the committee will dispense disciplinary action. The student has the right to appeal the decision of the committee and/ or disciplinary action to the President of the college. If the committee votes to expel a student from the college, the President will review the case before the student is dismissed.

Note: To avoid the possibility of an honor code violation, the proper use of specific course citations should be used when quoting or paraphrasing another author's work.

## **XII. ADDITIONAL WEATHER AND CLIMATE RESOURCES**

### **Bibliography for further reading and exploration**

***Atmosphere, Weather and Climate***, Roger Barry and Richard Chorley, 2009, Taylor & Francis

***Weather Studies: Introduction to Atmospheric Science***, Third Edition, by Joseph M. Moran, 2006, AMS

***Understanding Weather & Climate***, Second Edition, by Edward Aguardo and James E. Burt, 2000, Prentice-Hall

***Meteorology for Scientists and Engineers***, Second Edition, by Roland B. Stull, 2000, Brooks/Cole

### **Websites of Interest:**

#### **Online textbooks and publisher websites**

**The Physical Environment: An Introduction to Physical Geography**, Second Edition, by Michael Ritter (2006)

[http://www.uwsp.edu/geo/faculty/ritter/geog101/textbook/title\\_page.html](http://www.uwsp.edu/geo/faculty/ritter/geog101/textbook/title_page.html)

**Prentice Hall website to accompany our textbook** (log in page)

[http://wps.prenhall.com/wps/media/access/Pearson\\_Default/6761/6924211/login.html](http://wps.prenhall.com/wps/media/access/Pearson_Default/6761/6924211/login.html)

**Prentice Hall website for the 10th edition** – no registration required

[http://wps.prenhall.com/esm\\_lutgens\\_atmosphere\\_10/](http://wps.prenhall.com/esm_lutgens_atmosphere_10/)

#### **University sites:**

**Lyndon State College**, Lyndonville, VT

Interesting collection of **New England specific** weather resources

<http://meteorology.lyndonstate.edu/main/index.php/weather-data>

**University of Illinois**

[http://ww2010.atmos.uiuc.edu/\(Gh\)/wx/home.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/wx/home.rxml)

**Ohio State University: Twister Wx Pages**

<http://asp1.sbs.ohio-state.edu/>

**San Francisco State University, California Regional Weather Server**

<http://virga.sfsu.edu/>

**UM Weather at University of Michigan**

<http://cirrus.sprl.umich.edu/wxnet/>

#### **Federal Government Sites:**

**National Weather Service:** This is a very comprehensive access to NWS functions including the Severe Storms Lab (NSSL), Climate Prediction Center (CPC), National Hurricane Center (NHC) etc.

<http://www.nws.noaa.gov/>

## **National Weather Service: Boston Regional Forecast Offices**

<http://www.erh.noaa.gov/er/box>

## **Commercial Sites:**

### **Weather Underground**

<http://www.wunderground.com/>

### **Weather Underground for Swampscott, MA**

<http://www.wunderground.com/cgi-bin/findweather/getForecast?query=swampscott%20ma&wuSelect=WEATHER>

### **The Weather Channel**

<http://www.weather.com/twc/homepage.twc>

### **The Weather Channel for Swampscott, MA**

[http://www.weather.com/weather/local/USMA0416?lswe=swampscott%20ma&from=searchbox\\_localwx](http://www.weather.com/weather/local/USMA0416?lswe=swampscott%20ma&from=searchbox_localwx)

### **Unisys** (formerly the Purdue University WXP site)

<http://weather.unisys.com/>

### **Unisys conditions for Swampscott, MA**

<http://weather.unisys.com/forecast.pl?Name=01907&Go.x=0&Go.y=0>

### **Intellicast**

<http://www.intellicast.com/>

### **Intellicast for Swampscott, MA**

<http://www.intellicast.com/Local/Weather.aspx?location=USMA0416>

## **Weather Tutorials:**

### **Encyclopedia of the Atmospheric Environment**

<http://www.ace.mmu.ac.uk/eae/english.html>

### **WW2010 at University of Illinois**

[http://ww2010.atmos.uiuc.edu/\(Gh\)/guides/home.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/guides/home.rxml)

### **Weather Equipment:**

<http://www.weatherconnect.com>

## **Other Resources:**

### **Basic US Surface Weather Maps:**

<http://www.weather.com/twc/homepage.twc>

[http://weather.unisys.com/surface/sfc\\_map.html](http://weather.unisys.com/surface/sfc_map.html)

[http://weather.unisys.com/satellite/sat\\_sfc\\_map.html](http://weather.unisys.com/satellite/sat_sfc_map.html)

### **Surface Map Animated Loop:**

[http://weather.unisys.com/images/sat\\_sfc\\_map\\_loop.html](http://weather.unisys.com/images/sat_sfc_map_loop.html)

### **Upper Air Balloon Soundings (Stuve or SkewT plots):**

[http://weather.unisys.com/upper\\_air/skew/index.html](http://weather.unisys.com/upper_air/skew/index.html)

<http://asp1.sbs.ohio-state.edu/main.php?pageloc=upperair>

### **Upper Air Maps:**

<http://asp1.sbs.ohio-state.edu/main.php?pageloc=upperair>

[http://weather.unisys.com/upper\\_air/index.html](http://weather.unisys.com/upper_air/index.html)

### **Jet Stream Maps:**

<http://www.weatherimages.org/data/imag192.html>

<http://www.nckcn.com/homepage/mhennes/Jetstream.htm>

[http://virga.sfsu.edu/gif/jetstream\\_init\\_00.gif](http://virga.sfsu.edu/gif/jetstream_init_00.gif)

### **Satellite Image Products (stills):**

[http://weather.unisys.com/satellite/sat\\_ir\\_west.html](http://weather.unisys.com/satellite/sat_ir_west.html)

[http://weather.unisys.com/satellite/sat\\_ir\\_east.html](http://weather.unisys.com/satellite/sat_ir_east.html)

[http://weather.unisys.com/satellite/sat\\_wv\\_west.html](http://weather.unisys.com/satellite/sat_wv_west.html)

[http://weather.unisys.com/satellite/sat\\_wv\\_east.html](http://weather.unisys.com/satellite/sat_wv_east.html)

[http://weather.unisys.com/satellite/sat\\_ir\\_us.html](http://weather.unisys.com/satellite/sat_ir_us.html)

[http://weather.unisys.com/satellite/sat\\_wv\\_us.html](http://weather.unisys.com/satellite/sat_wv_us.html)

### **Satellite Image Products (loops):**

[http://weather.unisys.com/satellite/sat\\_ir\\_west\\_loop-12.html](http://weather.unisys.com/satellite/sat_ir_west_loop-12.html)

[http://weather.unisys.com/satellite/sat\\_ir\\_east\\_loop-12.html](http://weather.unisys.com/satellite/sat_ir_east_loop-12.html)

[http://weather.unisys.com/satellite/sat\\_wv\\_west\\_loop-12.html](http://weather.unisys.com/satellite/sat_wv_west_loop-12.html)

[http://weather.unisys.com/satellite/sat\\_wv\\_east\\_loop-12.html](http://weather.unisys.com/satellite/sat_wv_east_loop-12.html)

[http://weather.unisys.com/satellite/sat\\_ir\\_us\\_loop-12.html](http://weather.unisys.com/satellite/sat_ir_us_loop-12.html)

[http://weather.unisys.com/satellite/sat\\_wv\\_us\\_loop-12.html](http://weather.unisys.com/satellite/sat_wv_us_loop-12.html)

### **Forecast Models:**

<http://weather.unisys.com/mos/index.html>

<http://weather.unisys.com/nam/index.html>

<http://weather.unisys.com/gfs/index.html>

<http://weather.unisys.com/gfsx/index.html>

<http://weather.unisys.com/ruc/index.html>

<http://weather.unisys.com/ecmwf/index.html>

<http://asp1.sbs.ohio-state.edu/main.php?pageloc=model>

**Weather & Climate  
Contact Information**

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Email: \_\_\_\_\_

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**<http://www.itsallgeography.com>**