

GE2219 – Climate, Water and Environment
Part I: Climate (6 lectures)
Semester 2, 2003/04

Instructor: A/P Matthias Roth (AS2/0408)
Office Hours: Tuesday 11:00-12:00
Lectures: Thursday 16:00-18:00 (LT8)
Practicals: Tuesday 14:00-16:00 (D1) and 16:00-18:00 (D2) (AS2/0203)

Objectives:

To provide an introduction to the physical processes underlying climate and weather.

Course Assessment:

CA: 60% (6 practicals @ 10%; 3 in each part, climate and water)
Final Exam: 40% (April 14, 2004 @ 09:00)

Textbook and other resources:

- Required text: Aguado, E. and Burt, J.E. (2004): *Understanding Weather and Climate* (3rd ed.), Pearson Education, Inc., 560 pages + CD-ROM
Available in Forum bookstore, CL Loan Counter and CLRBR: QC861.2 Agu 2004. Older editions of the book available in the library are also acceptable.
- Book website: http://wps.prenhall.com/esm_aguado_uwac_3
Each chapter has links to chapter-related information, quizzes, weblinks, etc.
- Course website: <http://courses.nus.edu.sg/course/geomr/front/teaching/GE2219/GE2219.htm>
- Lecture notes: Available on the course website the evening before the lecture. It is your responsibility to download and print the pdf-files (if desired).
- Course IVLE

General on-line resources:

- Generate maps of the climatic/meteorologic variables we will study in this course using the **electronic climatic atlas**. Follow the screens and select a statistic (monthly, annual, etc.), a variable (temperature, radiation flux, etc.), the location (latitude and longitude range), the time period, and type of output (the range/shade option will create the clearest maps): <http://www.cdc.noaa.gov:80/cgi-bin/DataMenus.pl?dataset=NCEP>
- Use the **climate visualization system** of the National Climate Data Center (NCDC) to generate a graph or map of climate data for over 8000 stations world-wide: <http://www.ncdc.noaa.gov/onlineprod/drought/xmgr.html>

Quizzes

Each student is requested to solve the on-line quizzes which correspond to the particular lectures and chapter(s) in the textbook. They are accessible on-line at the book website. For each chapter in the textbook there are usually 2 quizzes, *Review* and *Quantitative Exercises*. They provide an excellent opportunity for you to review the material from the lectures and the book. Some questions deal with topics not covered in the lecture but contained in the book. The quizzes will not be marked but I will check if everyone has submitted them.

To solve the quizzes go to the corresponding chapter and select the headings *Review* and *Quantitative Exercises* in the left frame. Solve the questions and then click on "Submit Answers for Grading" at the bottom of the page. Fill in the "Routing Information" at the bottom of the following page: Your name, check "Instructor" and use cosmr@nus.edu.sg (!!!!) as the e-mail address.

The quizzes (Q) are due 1 week after the corresponding lecture (L):

L1 – Q for Chapters 1 and 2; L 2 – Q for Ch 3; L 3 – Q for Ch 4; L 4 – Q for Ch 5 + 6 ; L 5 – Q for Ch 7; L 6 - Q for Ch 8.

Additional readings:

This section contains links to additional readings (pdf files) which are of general interest and in one way or another related to the topics covered in class. They are short, non-scientific and intended to give an introduction and overview of weather and climate monitoring systems in various applications. Most readings are from the VAISALA News. VAISALA is a Finnish manufacturer of meteorological sensors and large, integrated weather monitoring and analysis systems. I am in no way connected with this company but find their articles in the newsletters very informative. The readings are not mandatory but I hope you will find time to browse through the material.

- Weather monitoring on Yakushima, Japan ([VN_156_p1617.pdf](#))
- Automated weather observing system (AWOS) at Changi airport, Singapore ([VN_156_p1822.pdf](#))
- Real-time weather info to support European gliding championship ([VN_156_p2627.pdf](#))
- Dewpoint measurements by national weather service ([VN_160_p26_27.pdf](#))
- Flood alert system in Vietnam ([VN_158_p18_19.pdf](#))
- Measuring hurricanes ([VN_153_p10_13.pdf](#))

This section contains further references to readings of general interest. They are also non-technical but very educational. You may have to look them up in the Central Library:

- Strangeways, I., 2000: Back to basics: The 'met. enclosure': Part 5 - Humidity. *Weather*, **55**, 346-352 (CL QC851 W). This reading gives an introduction to humidity and its measurement - helpful for Practical 2.

FAQ:

Summary of student questions + my answers: [FAQ.doc](#)