Forest Hydrology

Contents

This course will provide an introduction to physical hydrology and geomorphology of forested watersheds with an emphasis on managing forest resources and the effects of land use, climate topography on hydrological processes.

Management will focus on forested watersheds for the control of the amount and timing of water yield, stormflow and sedimentation through the examination of water and sediment budgets, riparian systems, and hillslope/watershed hydrological processes.

Course format

- Lectures from Monday to Thursday
- PDF copy of the lectures will be available 2 days before the day.
  - Read the material before lecture
  - Make your print and take notes
  - Problems and questions (use of calculator during lectures!)
- Sections on Tuesday & Wednesday
  - Discussion of lectures and readings

Course organisation

- 22 Oct – 1 Nov SUFONAMA/MEDFOR
- 22 Oct – 15 Nov: FES
- Technical field visit: Friday Oct 26, afternoon

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Web site


Materiale didattico - Microsoft Internet Explorer
File Modifica Visualizza Preferiti Strumenti ?
Indietro Cerca Preferiti
Indirizzo http://www.agraria.unipd.it/it/Didattica/materialedidattico.asp?idi=1284
Vai Collegamenti
FACOLTÀ DI AGRARIA
Università degli Studi di Padova
Campus di Agripolis - viale dell'Università, 16 - 35020 Legnaro (Pd)
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lunedì 24 novembre 2008
<< TORNA AL CORSO DI LAUREA
Lauree magistrali - Scienze forestali e ambientali
Classe LM-73 Anno Accademico 2008/2009
Insegnamento Codice Anno Sem. Crediti Ore Tipologia SSD Docente
Forest hydrology 47200b3 I I 8 64 Caratterizzante AGR/08 Borga Marco
Appelli d'esame
Altre liste (esercitaz., visite)
Orario
Materiale didattico
Commissione d'esame
Test autovalutazione
Forum
Avvisi
Pos Nome cartella
2 Forest Hydrology
tipo descrizione del collegamento Protez.
risorsa-1
risorsa-2
3 Additional Materials Forest Hydrology
tipo descrizione del collegamento Protez.
risorsa-1
risorsa-2
risorsa-3
risorsa-4
risorsa-5
Internet

Availability of help

- Ask questions in class. A favor to classmates
- Participate in lab discussions. Practice professional problem-solving roles.
- Office hours
  - Marco Borga: Tues & Thurs 4-5 pm;
  - By e-mail.

- Marco Borga: marco.borga@unipd.it
- Daniele Penna: daniele.penna@unipd.it

Assessment: the grad

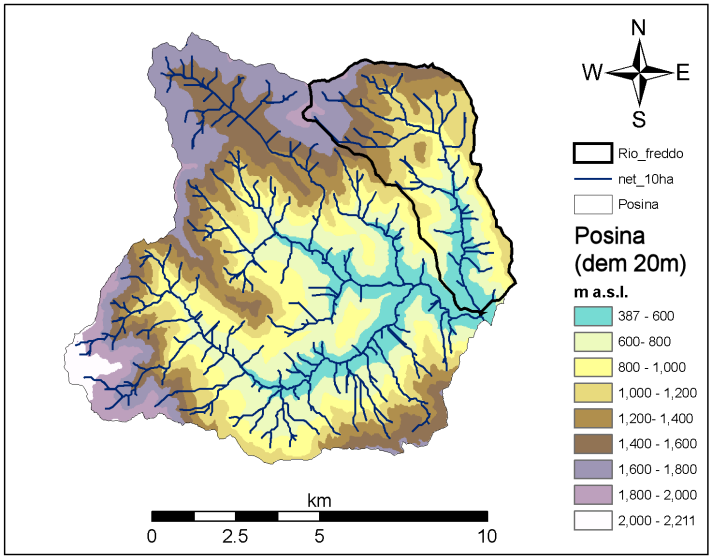
Three steps:

- Report (Posina flood simulation with two land use scenarios)
- Written Examination
- Oral Examination

The course will provide:

- Examples of written exams;
- Check list of oral questions.

The problem:
Estimate the flood peak corresponding to NOV01 2010 extreme storm over the Posina river basin.



Posina river basin

For this basin (headwater) we have rainfall data, collected on different raingauges. Then, we have to transform the rainfall data into discharge data (we have to use a rainfall-runoff model). This will be done accordingly with two land use scenarios.

Forest Hydrology: Examen

Contents

- Examples of written ex.
- Check list.

Exercises

1. Given the area of a basin, the mean annual rainfall values and real evapotranspiration (in mm), compute the average mean runoff in m3/s.
2. Given values of basin area, rainfall, Curve Number and Ia, compute the value of runoff.
3. Given values of basin area, of mean annual rainfall at a number of raingauges, and the corresponding Thiessen coefficients, compute the mean basin rainfall.
4. Application of mass conservation law for hydrological balance analysis in various climates.
5. Effect of forest canopy on rainfall interception during flood events.

Check list

1. Basics of climate patterns and energy balance.
2. Basics of measurements of rainfall and discharges.
3. Basics of application of the mass conservation rule in hydrology.
4. Basics of soil hydrology
5. Impact of topography, vegetation and climate on runoff generation
6. Flood modelling.

Supplementary Text

Bras, R.L., Hydrology: An Introduction to Hydrologic Science, Addison Wesley, Reading, Mass., 1990.

Eagleson, P.S., Dynamic Hydrology, McGraw-Hill, Inc., New York, 1970.

Hornberger, G.M, Raffensperger, J.P, Wilberg, P.L., and Eshleman, K.N., 1998, Elements of Physical Hydrology, John Hopkins Univ. Press, Baltimore, Maryland, 302 p.

Viessman, Jr., W., G.L. Lewis, and J.W. Knapp, Introduction to Hydrology, Harper and Row, New York, 1989.

Gleick, P.H., Water in crisis. A guide to the world's freshwater resources. New York/London, Oxford University Press. 474 pp. 1993.

Dingman, S.L. 1993. Physical Hydrology. Prentice-Hall Inc. 575 p.