Course organization

Water science / Vatnafræði:	25 Aug – 11 Oct 2013.
Atmospheric science / Loftslagsfræði:	14 Oct – 29 Nov 2013.

Problems sessions and projects

- **Problem sets**. Most often we will solve the problems in class, but you will hand in if not able to finish in class, or if you can not attend class. Due date is the Thursday in the week the problem set is given.
- **Projects**.
  - Global water budget.
  - Water for people, water for life (W4P-W4L).
  - News related to water. Each student should prepare at least 3 news items and post to the Google group, see *https://groups.google.com/d/forum/2013_vatna*.
- Collect the news you posted, label those that you presented, and problems in a map that you hand in at the end of the water science part.
- Final exam for each part.

Reading material

Lecture notes by Throstur Thorsteinsson, available on the course web site:
https://notendur.hi.is/thorstur/teaching/vatna/

There you will also find links to UN reports, and other reading material.

Syllabus *(draft)*

Aug 27:	Introduction.
Sep 2:	Hydrological cycle. Glacier mass balance.
Sep 3:	***Global water budget. Student presentations***. *Problems from Introduction.* *News about hydrological cycle and glaciers.*
Sep 9+10:	Glacier hydrology and Jökulhlaup. *Problems from both.*
Sep 16:	Groundwater: Aquifers, flow ....
Sep 17:	Surface water, Iceland. *Problems from Groundwater and Surface water.* *News about groundwater and surface water.*
Sep 23:	Environment. Ecosystems, pollution, flood/drought.
Sep 24:	Ocean: Tsunamis, sea ice. *News about environment, ocean, ...*
Sep 30+Oct 1:	Water use. **Water for People - Water for Life. *Student presentations*.**
Oct 7:	Review, problems, ...
Oct 8:	*Final exam*

Dates

Sep 3:	Global water budget (see below)
Sep 30/Oct 1:	Project: Water worldwide. Reading material: Water for People - Water for Life (pdf 964 kb), Report 2 – 2006 (pdf 2695 kb)
Oct 8:	Final exam from water science part

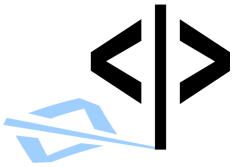
Grading

Final score will consist of (may change slightly):

Global water budget	8%,
W4P – W4L	20%,
Problems*	7%,
News	5%,
Final exam**	60%.

*There is at least 0.5 deduction per day for late hand in.
**Must pass both final exams, with a minimum grade of 5, for projects and problems to count towards the final grade.

Sincerely,
Þröstur Þorsteinsson



ThrosturTh@hi.is

GLOBAL WATER BUDGET

VERKEFNIÐ

Hver hópur ber saman að minnsta kosti 2-3 (ólíkar) heimildir sem hafa tölur um vatnsmagn og færslu vatns á milli kerfa (geyma) á jörðinni. Gott er að reyna að finna gamlar tölur og velta fyrir sér hvað hefur breyst.
Fínt að byrja á þessari grein: Trenberth and others (2007) og svo finna aðrar heimildir á netinu, í greinum og bókum.
Athugið að mismunandi er hvernig flokkað er, það er, stundum er grunnvatn bæði eiginlegt grunnvatn og jarðraki, en stundum er þetta aðgreint.
Setjið skipulega upp t.d. í töflur og sem glærur til kynningar fyrir bekkinn.
Fyrst komi gögnin eins og þau eru í upprunalegu heimildinni og síðan með því að setja upp á samræmdan hátt (þ.e. reynið að setja gögnin fram þannig að auðvelt sé að bera saman).
Berið síðan saman hvort, og þá hve miklu, hverju munar í:

- heildarvatnsmagni
- vatnsmagni í hverjum "vatnsgeymi"
- færslu á milli vatnsgeyma

Ræðið:

- Hvernig voru og eru þessar tölur metnar
- Hversu nákvæmar eru þær

PROJECT

Each group finds 2-3 different references for the global water budget, and the fluxes between water reservoirs. One approach is to find old numbers, and consider what has changed.
Ref: Trenberth and others (2007) *and other web/paper/book sources.*
Note that different classifications are used, sometimes groundwater contains both proper groundwater and soil moisture, and sometimes just groundwater.
Present the values from the original source, in that format, using Excel (or other spreadsheets), and then in a coordinated way (that is, using the same categories for all data sources) to facilitate comparison. Prepare as a slide show for presentation to the class.
Compare the differences in:

- total water on earth
- water content in each reservoir
- fluxes between reservoirs

Discuss:

- How were and how are these numbers estimated
- How accurate are they

Water use assignment

Read "Water4People - Water4Life" and "Water a shared responsibility".

Start with W4PW4L article and use the other one (and more recent) to find updates and more recent information.

Work in 5 groups:

Group 1: Food/Industry - Challenges 4+5+6.
Group 2: Health - Challenges 1+10+11
Group 3: Ecosystems - Challenges 2+7+9
Group 4: Water use - Challenges: 3 + 8
Group 5: Pilot cases

Each group explains the challenges, possible solutions, changes and prospect.

Use examples and pictures/graphs.

The presentations should be 30 min.

Students will rank the other 3 groups, and write a short summary of strengths and weaknesses of their presentation.

Groups

Student	Group #
Andri Örn Jakobsson	*5*
Antonio Santos Parrado	*1*
Arna Dögg Tómasdóttir	*3*
Aron Geir Eggertsson	*2*
Axel Tamzok	*3*
Ásta Margrét Jónsdóttir	*5*
Bjarki Þór Hauksson	*3*
Daníel Freyr Jónsson	*4*
Elvar Ingþórsson	*3*
Erla Þórdís Traustadóttir	*2*
Guðrún Björg Gunnarsdóttir	*5*
Gunnar Snær Hermannsson	*3*
Helena Björk Valtýsdóttir	*4*
Hrefna Hjartardóttir	*1*
Kári Pálsson	*4*
Kári Úlfsson	*1*
Kristján Egill Karlsson	*2*
María Pétursdóttir	*4*
Rebekka Hlín Rúnarsdóttir	*2*
Sara Sigurðardóttir	*3*
Sigmundur Grétar Hermannsson	*2*
Sigurður Jón Björgvinsson	*1*
Snjólaug Tinna Hansdóttir	*5*
Snorri Sveinsson	*4*
Stefán Ármann Þórðarson	*5*
Sævar Gíslason	*1*
Þórarinn Hauksson	*5*
Þórhallur Ragnarsson	*1*
Þórhildur Heimisdóttir	*4*