



Tools and Techniques in Climate Change Studies

Location and date

NTNU, Trondheim, 15 – 19 June 2015

Instructors

Professor Stephen R. J. Sheppard, University of British Columbia
Professor Jan Ketil Rød, NTNU

Credits: 7.5
Price: NOK 5000,-
Students (phd/master)
can apply for
economic support.

Overview

The negative consequences of climate change are by many conceived as something abstract that have consequences for someone else being far away. With GIS (Geographical Information Systems) and other visual methodologies, climate change effects become real and easier to relate to one's own life. The course provides an introduction to GIS and other visual tools and techniques relevant for climate change adaptation and mitigation.

Course outline

Monday. GIS and geovisualization. Mapping exposure to environmental hazards. **Tuesday.** Climate Change Visualization: Future visioning of local climate change. **Wednesday.** Research and Practice: Paper presentations or lab work (e.g. urban flood modelling). **Thursday.** Wind and solar energy: Visual impact analysis and measure of solar irradiance. **Friday.** From Vulnerability to Resilience

**Course outline**

The course consist of self-contained lectures, lab-exercises, workshop and optional paper presentations. Attendees interested in discussing strategies to apply GIS and/or visual methodologies for their own projects may present their ideas during a paper session arranged Wednesday 17 June.

Monday 15th June: GIS and geovisualisation

Introduction to GIS and geovisualisation

Mapping exposure to environmental hazards such as flood, landslide and storm

Geovisualization tools: ViewExposed

Tuesday 16th June: Climate Change Visualization

Future visioning of local climate change: A framework for community engagement and planning with scenarios and visualization

Geovisualization tool: VisAdapt

Workshop: How to use (geo)visualization to assist participatory methodologies?

Tentative issues:

- how can visualization tools be used when interviewing people about their preparedness for a possible intensification of hazard events due to climate change?
- how to collect (and map) local perceptions on climate change effects, adaptive capacities, community resilience, ... ?
- how to use feedbacks from relevant stakeholders and/or the general public to take decisions on how to further develop web-based visualization tools?
- how can top-down vulnerability assessment be mediated by bottom-up assessments using participatory visualization tools?

Wednesday 17th June: Climate Change Studies - Research and Practice

Participatory GIS (PGIS)

Geovisualization tool: ClimRes tool

Paper presentations

(Optional lab work)

Thursday 18th June: Climate Change Mitigation

Terrain representation and 3D derivatives (visual impact analysis and measure of solar irradiance)

GIS-based Multiple-criteria decision analysis

Friday 19th June: From Vulnerability to Resilience

Prospect and problem with measuring vulnerability and resilience

Integrated Hazard Mapping

Communicating Risk using Maps