



NORDRESS Kick-off meeting Reykjavik 28-30 January 2015

Task 4.3 Participatory early warning and monitoring systems for natural hazards

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Task 4.3 Participatory early warning and monitoring systems

“The problem”

- Early warning and monitoring systems are sparse in many hazardous areas, making it difficult to issue timely public warnings or follow the process of hazardous events.
- The public can provide in-situ photographs of water levels, snow banks, forest fires, or other phenomena (use or test existing APPs, crowdsourcing methods etc.).
- Critical infrastructure stakeholders can also upload local time series of e.g. water levels.



Mobile Water Tracker involves citizens in (ground-) water management

<http://delta.tudelft.nl/article/watermanagement-by-crowdsourcing/28376>

<http://mobilewatermanagement.com/>



Task 4.3 Participatory early warning and monitoring systems

“The study and the goal”

- **The study:** The study will investigate novel ways of expanding various *monitoring and early warning* techniques with *network-based public participation*.
- **The goal:** is to incorporate public observations into existing monitoring networks and real time modelling and forecasting systems so that:
 - (i) more timely and accurate warnings can be issued;
 - (ii) more comprehensive compilations of damage effects targeting various critical infrastructure are received; and
 - (iii) public risk perception and hazard awareness are improved.



Task 4.3 Participatory early warning and monitoring systems

Expected work and outcomes



:

- Adapt and refine existing web interfaces to collect, analyse and disseminate flood-related data.
- The new interface will enable better monitoring and assessment of floods, especially in remote regions.
- Outcomes:
 - (i) improved timely warnings;
 - (ii) heightened involvement and awareness of local communities; and
 - (iii) better model verification and calibration.



FINNISH METEOROLOGICAL INSTITUTE

:

- Development of FMI's flood warning services/ national flood warning center ("Tulvakeskus")
 - New two-way mobile application under development
 - Analysis of economic and behavioral impact of such new technologies and processes of the system
1. State of the art (systems and techniques)
 2. Nordic case studies
 3. User needs <-> web interface
 4. Community resilience (test)

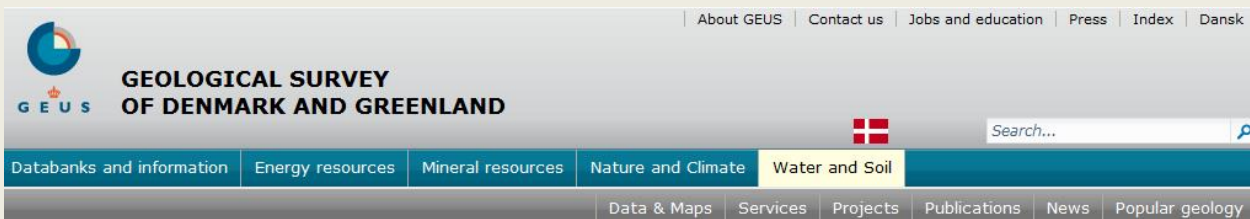


GEUS

:

- User needs for real time monitoring and early warning systems (national – local coupled systems)
- Workshop on use of smart phones in participatory early warning of floods (TU Delft etc. / NL)
- Local participatory early warning and monitoring systems (Odense case: SMS/GPS tracking, monitoring and early warning)
- Publication(s) about community resilience and participatory early warning and monitoring systems

Thank you for your attention!



[Home](#) > Water and Soil

WATER AND SOIL

- capacity-building
- mapping
- monitoring
- water-cycle
- water-management
- water-quality
- water-technology



Water and soil

Knowledge to optimise the management of Danish water resources

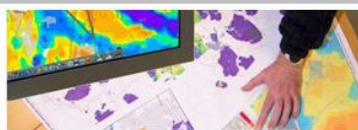
Knowledge to optimise the management of Danish water resources. Activities are directed at the water cycle, the amount and quality of water resources, and transport and decomposition of xenobiotic substances in the aquatic environment, focusing mainly on the groundwater. The activities also form the basis for advisory services to authorities, regions and municipalities in Denmark and abroad

Monitoring programmes



National monitoring of Danish groundwater resources, operation of the Danish Pesticide Leaching Assessment Programme and national water resources modelling.

Mapping



Groundwater surveying and mapping of areas vulnerable to nitrate and pesticide leaching and runoff to the groundwater.

Water cycle



Water quality



The Geological Survey of Denmark and Greenland (GEUS) is a **research and advisory institution** in the Ministry of Climate, Energy and Building.

The work field of GEUS - **geoscientific studies, research, consultancy and geological mapping** - primarily covers Denmark and Greenland.

GEUS works with **hydrological modeling (DK model)** to quantify the impacts of climate change on the water cycle.

Staff: 330

