Invitation
LEARNING EVENT: Technology & DRR

8th September 2016, 9h00 – 16h30
Location: Swiss Red Cross, Werkstrasse 18, Bern

Background

Technology is advancing rapidly; some of today's accomplishments were not considered possible only a few months ago. Methodologies and tools for linking technology and disaster risk reduction programming are increasingly sought after. Using in-situ data collection and Geographic Information Systems (GIS) tools for risk visualisation is fairly widespread. Many agencies have used remote sensing technologies such as Unmanned Aerial Vehicles (UAV) and satellite imagery for purposes such as agriculture, surveying and humanitarian aid. However, a better understanding of these applications is needed to optimize the use of new technologies, and ensure they result in actionable information for field-based users at the operational level.

Objective

The purpose of this learning event is to explore connections between remote sensing and the data collection, analysis and decision making process within the DRR cycle.

The 'DRR & Remote Sensing Technology' Learning Event will introduce remote sensing applications from theoretical and practical perspectives as well as provide a forum of exchange between the DRR community of practice and technology experts with the aim of clarifying areas where such technology could enhance risk management in the field.

Contact

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Preparation

The learning event will present remote sensing technology to assist participants in choosing/ envisioning applications to enhance their risk management activities. Case studies and discussions will present both NGO and Technical Expert perspectives, focusing on state of the art data processing software and methodologies to increase efficiency and accuracy. Practical examples will help to demystify how data processing algorithms enable additional dimensions of analysis beyond "looking at images"; such as temporal change and detection, identification and characterization of objects. Analysis may also bring either new or more accurate information—impartial, science-based information that might also be of an interest for development and humanitarian agencies.

Programme Outline

Time	Duration	Session	Responsible
9h	30 min	Meet & Greet, Coffee	Swiss Red Cross
9h30	45 min	NGO DRR Platform Intro Tuning-in: Introducing Speakers and Background of the learning event Participant introductions and experience using technologies in DRR	John Brogan, Terre des hommes
10h15	45 min	Technical Brief: Concepts, access and applications for DRR; Introducing a *Feasibility Checklist* for DRR & Remote Sensing	Pierrick Poulenas, Picterra Joel Kaiser, Medair
11h	15min	Coffee break	
11h15	45 min	Case Study 1: Remote sensing in **drought** risk reduction (including 15 minutes for Q&A)	Christoph Haemmig & Daniel Tobler, GEOTEST AG
12h	45 min	Case Study 2: UAVs in support of urban planning—focus on **flood** risk (including 15 minutes for Q&A)	David Rovira, senseFly/ Drone Adventures
12h45	60 min	Lunch with interactive UAV demonstration with different models of UAV and imaging capacities	SenseFly/Drone Adventures and Medair
13h45	60 min	Case Study 3: Application of UAVs/ technologies in **landslide** risk reduction (including 15 min for Q&A)	Medair & Geotest AG
14h30	60 min	Group Exercise: Reviewing the draft *Feasibility Checklist* in specific hazard groups: drought, flood, and/or landslide	Geotest AG, Picterra, Participants
15h30	30 min	Feedback from the individual groups on the Checklist and group discussions	Participants
16h	30 min	Open discussion on *Feasibility Checklist* next steps & Wrap-up /evaluation	Terre des hommes & Medair

Abstracts below

Abstracts

Technical Brief: Opportunities & challenges using new technologies in DRR (Pierrick Poulenas, Picterra)
With more than 200 earth observation satellites already in orbit and an increasing number of UAV solutions, thousands of terabyte of data are acquired each year. The purpose of this briefing is to unpack *remote sensing data*: concepts, access and application as a support to DRR managers in taking timely and well-informed decisions along the prevention, mitigation, preparedness, response and rehabilitation cycle.

**Case Study 1: DROUGHT - Use and Modelling of Groundwater Cycles in the
Area of Heihe River, China** (Christoph Haemmig or Lorenz Meier, Geotest AG)
The project entitled "Rehabilitation and management strategy for over-pumped aquifers under a changing climate" is a Sino-Swiss research project. It tackles the challenges posed by groundwater over-pumping in arid regions in the context of climate change. The core element of the project is the implementation of a realtime groundwater monitoring, modelling and controlling system. The key notion is to explore the potential and the application of modern scientific knowledge and technology in the field of water resources on two real-world case studies. http://www.ifu.ethz.ch/projects/china-groundwater-managementproject.html

Case Study 2: UAVs in support of Urban Planning (David Rovira, senseFly/Drone Adventures)
With support from the World Bank, Comission of Science and Technology of Tanzania and Humanitarian Open Street Map, Drone Adventures produced ten orthophotos from over 20,000 aerial images to generate accurate 3D elevation models to run flood simulations that helped to identify at-risk flood areas in Dar es Salaam. Further uses included: urban transportation projects, flood mitigation schemes, and other preparedness and assessment projects. https://www.sensefly.com/fileadmin/user_upload/sensefly/user-cases/2016/senseFly-Case-Study-Dar-es-Salaam.pdf

Case Study 3: Application of UAVs in landslide risk reduction (Joel Kaiser, Medair; Daniel Tobler or Christoph Haemmig, Geotest AG)
As part of a reconstruction programme following the 2015 Nepal earthquake, Medair aims to deploy UAVs to map mountain slopes in order to understand the risk of landslides on nearby communities. Medair plans team-up with several partners in this project, including Kathmandu University and GEO-Test. Examples of other state of the art technologies in landslide (i.e. landslides, rockfall and debris flow) modelling will be presented.