



GlobeDrought

A global-scale tool for characterizing droughts and quantifying their impact on water resources

Summary

The GlobeDrought project is a three year project (08/2017–07/2020) funded by the German Federal Ministry of Research and Education (BMBF) and aims to develop a web-based drought (risk) information system for comprehensively characterising drought risk, focusing on meteorological, hydrological and agricultural droughts and considering three components: drought hazard, exposure and vulnerability. It will investigate how droughts impact water resources, agricultural systems and crop productivity, trade in food products and the need for international food aid.

The project links satellite-based remote sensing (vegetation, GRACE gravity data, etc.) and analyses of precipitation data with hydrological modelling and yield modelling. Analyses of socioeconomic and environmental data will provide the basis for quantifying exposure and vulnerability.

In the framework of the project several capacity building activities are foreseen to strengthen the competencies of different target groups, such as: practitioners of all level, including people involved in NGOs or international organizations working on disaster risk reduction and the world of academia.



GlobeDrought

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Webinar Series

Drought, which occurs in nearly all regions, has affected more people worldwide in the last 40 years than any other natural hazard. It is a complex natural phenomenon with varying levels of intensity, duration, spatial extent and impacts. Severe drought episodes have drastic socio-economic and environmental impacts, including, for example, loss of crops, massive famines and migration, natural resource degradation, and weak economic performance.

Drought cannot be stopped and is difficult to forecast. Its impacts can, however, be mitigated through the adoption of a proactive, risk-based management approach aimed at increasing the resilience of communities and societies and their capacity to cope with drought.

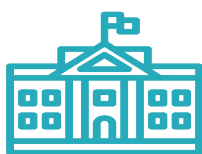
UNU-EHS in collaboration with other UN agencies and relevant organizations is launching a series of webinars focusing on Drought impacts and human security. As part of the capacity building components of the GlobeDrought project the webinars explore drought as a whole phenomenon: from drought risk reduction and management to drought impacts.

The series includes two types of webinars:

- 1. Technical webinar:** covering different topics related to Drought risk reduction and management, such as indicators, remote sensing and risk assessment.
- 2. Thematic webinar:** covering different topics related to Drought impacts, such as migration, women empowerment and food security.

The webinars are designed as a platform for information exchange where external stakeholders and relevant organizations will provide insights to the role that innovative approaches can play in addressing droughts impacts at all scales.

Target



POLICY MAKER,
PRACTITIONERS



WORLD OF ACADEMIA



PEOPLE INVOLVED
IN NGOs

Why GlobeDrought

The first introductory webinar provides a general overview of what is drought and how it can be characterized. It will explore drought risk and its impact on human condition and environment. The webinar will also presents mitigation actions that can be adopted to tackle this natural hazard, such as: early warning and monitoring systems and vulnerability and risk assessment.

Speakers: UNU – UNCCD - University of Göttingen

Drought impacts on the agricultural system and food availability

Agriculture is the first sector affected when drought hits and also the most affected sector, absorbing up to 80 percent of all direct impacts, with multiple effects on agricultural production, food security and rural livelihoods. Drought is among the most devastating of natural hazards – crippling food production, depleting pastures, disrupting markets, and, at its most extreme, causing widespread human and animal deaths.

The webinar investigates the implication of drought in agriculture through a food security lens, presenting best practices on adaptive capacity of farmers and exploring the use of innovative approach in drought tolerant farming.

Speakers: FAO - IFAD – ZEF - Welthungerhilfe

Drought impacts on Migration

Land degradation and drought are challenges that are intimately linked to food insecurity and migration. In just 15 years, the number of international migrants worldwide has risen, some of which are a result of environmental challenges. Recent trends appear to support the position that drought conditions increase population movements due to land degradation, and the loss of arable land.

The webinar investigates the interlinkage between drought and migration, exploring how drought affect vulnerability and the ability of community to cope with the impacts of drought.

Speakers: IOM – GIZ - MMC - OXFAM

Drought impacts Gender, Women and health

Drought can have economic, social, health, and environmental effects on women in developing countries. Unequal power relations, gender inequalities and discrimination mean that women and girls are often hardest hit during a crisis and will take longer to recover. Women and girls experience vulnerability different to men. During times of crisis women`s access to, or control over, critical resources worsens, and can lead to exclusion from claiming basic services and rights. As a result women`s and girl`s vulnerability can increase and under-mine their ability to cope with the impacts of droughts and other disasters.

The webinar explore how women are affected by drought impacts and how they can develop coping strategy to tackle drought.

Speakers: WHO – UN Women - Eldis

Drought – Financial tools

Drought may present a range of direct and indirect risks to financial institutions, impacting the long-term sustainability of their investment and lending.

The use of financial tools allows institutions to see how incorporating drought scenarios changes the perception of risk in their own loan portfolios. This webinar provides an overview on the different financial tools that can be adopted to minimize drought impacts.

Speakers: UNEP – UNU MCII - OECD

Drought – Energy production

Electricity generation relies heavily on water resources and their availability and over the past decade the concerns about the risks to the electric grid from severe drought have grown resulting in tight electricity supplies and high prices. The webinar explore the interdependence of energy and water in the electricity context and the impacts of a severe drought to electricity generation. It provides a technical point of view on how to manage energy and water resources in drought context.

Speakers: UNU-EHS - ITT

Drought – Water supply

Drought impacts have highlighted the need for a systematic and comprehensive approach for the proper and effective management of the water resources in drought context.

This webinar will provide a technical point of view on how to manage water supply in drought context and how to tackle drought impacts on water supply.

Speakers: UNU-EHS - ZEF

Drought – Remote sensing

Prolonged drought can result in economic, environmental, and health-related impacts.

This webinar explores the use of remote sensing tools for drought monitoring and visualization with a special focus on: precipitation, soil moisture, and vegetation data.

Speakers: Remote Sensing Solutions GmbH - UNSPIDER - ZFL

Drought – Supplementing qualitative data with quantitative data (“humans as sensors”)

Based on the research of Dr. Kelly Carolyn Smith this webinar discusses the innovative use of qualitative DATA in drought characterization. The webinar focuses on how to gather and analyze DATA coming from informal channel such as: twitter, social media and newspaper articles.

Speakers: Kelly Helm Smith

Drought – Risk reduction and Management

Drought is a slow-onset hazard, which provides time to consider and address its complex root causes, such as understanding people's vulnerabilities and identifying unsafe conditions related to poverty, fragile local economy, livelihoods at risk, lack of strategies and plans, limited institutional capacities and resources. Understanding these issues allows government authorities and the public to undertake effective drought mitigation and preparedness measures. This webinar presents the Drought Risk Reduction framework and practices that can be adopted by national governments and local communities, as well as international, regional and donor communities, to address the root causes of drought-related disasters, and to reduce drought impacts and the consequences for human welfare.

Speakers: UNCCD – UNISDR/UNFCCC - UNU VARMAP

Drought – Indicators

This webinar aims to present and discuss data and indicators used to characterize drought. Drought characterization Meteorological and hydrological drought indicators – soil moisture indicators and vulnerability indicators

Speakers: UNU-EHS - ZFL - IGG - University of Frankfurt

Drought – The GlobeDrought framework

This webinar aims to present and discuss the GlobeDrought framework for drought risk assessment (hazard – vulnerability – exposure and drought risk)

Speakers: UNU - University of Göttingen

Drought – GlobeDrought information system

This webinar aims to present the information portal developed in the framework of the GlobeDrought project.

Speakers: UNU - University of Göttingen - Remote Sensing Solutions GmbH

Project partners and tools to be used



Prof. Dr. Stefan Siebert

Department of Crop Sciences

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Coordination; Drought impact on crop production and agricultural water demand

Global: GCWM (Siebert and Döll, 2010)

Regional: SIMPLACE <LINTUL5, DRUNIR, CanopyT> (Zhao et al., 2015)



Prof. Dr. Jürgen Kusche

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Drought impact on total water storage change;

Analysis of GRACE - gravity data, assimilation of total water storage changes from GRACE into WGHM (Kusche et al., 2016; Schumacher et al., 2016)



Dr. Olena Dubovyk

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Drought impact on vegetation health;

Remote sensing of vegetation condition, assimilation of remotely sensed crop parameters into crop models (Dubovyk et al., 2015; Parplies et al., 2016)



Prof. Dr. Petra Döll

Institute of Physical Geography

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Drought impact on terrestrial hydrology;

Hydrological modeling using WaterGAP and WGHM (Döll et al., 2018; Döll et al., 2012), coupling of WGHM with the crop model SIMPLACE <LINTUL5, DRUNIR, CanopyT>



Dr. Michael Hagenlocher

Institute for Environment and Human Security (UNU-EHS)

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Indicator-based approaches for spatial vulnerability assessment (agricultural systems, water supply) and integration of drought hazards, exposure and vulnerability into drought risk (Hagenlocher et al., 2018; BEH & UNU-EHS, 2016) at global level and within the case study regions.



Dr. Jonas Franke

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Development, hosting and marketing of the web-based drought information system, remote sensing-based analysis of land use and vegetation anomalies



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Vulnerability and risk assessment Zimbabwe and other regions; analysis of trade flows and emergency food aid; assessment of information from own project network

GlobeDrought is sponsored by the German Federal Ministry of Education and Research (BMBF) through its funding measure Global Resource Water (GRoW) which is part of the Sustainable Water Management (NaWaM) funding priority within the Research for Sustainable Development (FONA) framework.

