



# JANUARY 2016 UPDATES

### **UN-SPIDER** at a glance

#### **UN-SPIDER** present at the UNISDR S&T Conference in Geneva

From 27 to 29 January 2016, the United Nations Office for Disaster Risk Reduction (UNISDR) conducted the UNISDR Science and Technology Conference on the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030. UNISDR used this Conference to launch the UNISDR Science and Technology Partnership for the implementation of the Sendai Framework and to outline how science and technology efforts should be incorporated in the four priority areas of action included in the Sendai framework.

Mr. Luc St Pierre, Coordinator of the UN-SPIDER Programme, was one of the panellists in the panel on Local, National, Regional and International Partnerships. Other organizations invited to participate in this panel included the International Council for Science (ICSU), the Integrated Risk Governance Project for Future Earth (IRG-Project), and the International Research Disaster Reduction programme (IRDR).

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#### **Recommended Practice developed by IGAC uploaded** in the UN-SPIDER Knowledge Portal

A new Recommended Practice has been uploaded to the UN-SPIDER Knowledge Portal. It provides detailed, stepby-step procedures, on how to derive changes in the extent of water bodies during El Niño and La Niña events based on optical Spot5 and RapidEye satellite imagery and it was developed by the Agustin Codazzi Geographic Institute of Colombia (IGAC).

The test site where this practice was implemented is located in the Caribbean part of Colombia. This region exposed to extreme weather events. The study concludes that the land can be classified as degraded or in the process of erosion, which leads to a lack of water retention capacity of the soils during summer provoking agricultural droughts; on the other hand in winter the terrain cannot regulate the large amounts of water provoking severe flooding.

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#### UN-SPIDER and several partners continue efforts to strengthen drought early warning systems in Central America

UN-SPIDER and several partners are continuing their efforts to contribute to the institutionalization and the improvement of drought early warning systems through the incorporation of the routine use of space-based information, including the use of FAO's Agricultural Stress Index System (ASIS) and indexes such as the NDVI, the EVI and the VCI which are generated using MODIS satellite imagery. Such indexes can be used to assess the impacts of droughts on the vegetation and complement Standardized Precipitation Index measurements which are already used for drought monitoring on a continuous basis. The project is a followup to the High-level Meeting on National Drought Policies (HMNDP) held in Geneva in March 2013 and aims to support countries in the strengthening of national drought policies. Partners in this effort include the FAO, UNCCD, CIIFEN, CRECTEALC, CAC, CEPREDENAC, IGAC, AEM, UFSM, UN-SPIDER and ministries and government agencies of the Dominican Republic, Honduras, El Salvador and Guatemala. The project is currently implemented in these four countries.

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### ASAL: Monitoring desert locust manifestations in Western Sahara and the North-West of Mauritania

The Algerian Space Agency (ASAL), one of UN-SPIDER's Regional Support Offices (RSO), is tracking the manifestation of locusts in potential reproduction zones by analyzing the ecological conditions of the migratory locust. For this purpose, ASAL is using medium resolution (30m) Landsat-8 satellite imagery. The results of the analysis conducted by ASAL indicate the presence of four geographic areas displaying very favourable conditions for the reproduction of the desert locust: Western Sahara and the North-West of Mauritania, coastal zones of Western Sahara, the North of Mali (Kidal), and North of Niger (Assamaka). These four areas display high chlorophyll levels which are ideal for the reproduction of the desert locust.

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### IGAC: Remote sensing course on object-oriented image analysis

While there have been enormous advances in remote sensing in recent years, a vast majority of applications still rely on basic image processing concepts developed in the early 70s: classification of single pixels in a multi-dimensional feature space. Although the techniques are well developed and sophisticated variations include soft classifiers, sub-pixel classifiers and spectral un-mixing techniques, it is argued that they do not make use of spatial concepts. Looking at high-resolution images it is very likely that a neighbouring pixel belongs to the same land cover class as the pixel under consideration. For this reason, IGAC scheduled on 3 and 4 February, a training course on the topic of "Sorting images of high resolution based on objects." Such techniques allow users to extract thematic vectors with different approaches (features basic mapping, surveying, coverage and use soil, etc...) from satellite imagery, airborne cameras or remotely manned platforms (UAV-Drones). For more information visit: http://www.igac.gov.co.

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### News from our Community

#### Ministry of Agriculture, Livestock and Fisheries of Uruguay implements a pilot insurance programme based on the NDVI

The Ministry of Agriculture, Livestock and Fisheries of Uruguay (MGAP) launched in December 2015 a three-year long pilot project to test the viability of a drought insurance scheme based on the Normalized Difference Vegetation Index (NDVI). The pilot project will benefit individual cattle farmers and is being implemented by the Agriculture Policy and Planning Office (OPYPA) of MGAP. The pilot project is one of the efforts carried out by MGAP in the context of adaptation to climate change and benefited from the conclusions and recommendations of a feasibility study conducted by the World Bank on this topic between 2011 and 2013.

The NDVI-based insurance pilot project is being tested in the Basalto and the East Hills regions of the country. The procedure to assess the manifestation of a drought makes use of two thresholds established on the basis of the deviation of the NDVI from its average value. These triggers are used to define severe and very severe droughts. Read more: Knowledge Portal

#### ICHARM develops an Integrated Flood Analysis System (IFAS) to forecast floods

The International Centre for Water Hazard and Risk Management (ICHARM), operated under the auspices of UNESCO and the Public Works Research Institute of Japan (PWRI), has developed a concise flood-runoff analysis system as a toolkit for more effective and efficient flood forecasting in developing countries. This Integrated Flood Analysis System (IFAS) integrates data on rainfall gathered from satellites and ground stations as a way to estimate runoff conditions which can be used to forecast floods. Runoff conditions are estimated combining rainfall data, the digital elevation model and the corresponding land-use data for the basin. The hydrological analysis model was developed by PWRI and is based on a kinematic wave hydraulic model.



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The graphical interface used in IFAS was developed through a collaborative effort involving researchers from ICHARM, PWRI and several private companies.

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## International Charter activated for floods in the United States

The International Charter Space and Major Disasters has been activated to provide satellite-based emergency maps in response to widespread flooding in the United States, stretching from Illinois down to Mississippi. The states which have suffered flooding include: Illinois, Missouri, Oklahoma, Arkansas and Mississippi, and flood warnings are in place for the neighbouring states of Louisiana and Tennessee.

Floods were triggered by major storms, and major flooding has occurred along the Ohio, Mississippi, Meramec and Arkansas Rivers.

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### Upcoming events

#### 4-9 July 2016, Budapest Hungary: Workshop on Geospatial Technologies and Remote Sensing for Monitoring Sustainable Development Goals (SDGs)

The Central European University (CEU) in Budapest, Hungary is organizing a workshop in July 2016 in cooperation with the United Nations Development Programme's (UNDP) Bureau for Policy and Programme Support and the United Nations Office for Outer Space Affairs (UNOOSA). The workshop focuses on Geospatial Technologies and Remote Sensing for Monitoring Sustainable Development Goals (SDGs). This workshop provides a timely opportunity to get updated on the latest advances in geospatial technologies and remote sensing, and their application to the monitoring of SDGs. These technologies can be applied to many of the 17 SDGs. Read more: Knowledge Portal

### 11-15 July 2016, Budapest Hungary: Workshop on Innovations in Disaster Risk Reduction

The Central European University (CEU) in Budapest, Hungary is organizing a workshop in July 2016 in cooperation with the United Nations Development Programme's (UNDP) Bureau for Policy and Programme Support and the United Nations Office for Outer Space Affairs (UNOOSA). The workshop focuses on Innovations in Disaster Risk Reduction.

The workshop will highlight recent advances in information and communication technologies (ICTs) and how they are empowering both decision-makers and citizens to play a proactive role in managing disaster risks and providing more effective disaster response. This joint UNDP and Central European University (CEU) workshop will combine regional UNDP experience, ICT industry expertise, and accumulated first-hand knowledge from a global network of organizations, offering both theoretical and practical skills in disaster risk reduction, monitoring, and recovery.

# 5 to 7 April 2016, Cologne, Germany: DLR Conference on Climate Change 2016

The German Aerospace Center (DLR) will be conducting the "DLR Conference on Climate Change - Challenges for Atmospheric Research" from 5 to 7 April 2016 in cooperation with the United Nations Office for Outer Space Affairs (UNOOSA). The DLR Conference aims to facilitate the discussion on the use of space-based platforms such as the International Space Station (ISS) and spacebased applications to support the requirements of climate protection and to identify tools and methods for a continuous monitoring process to ensure adherence to climate change agreements. The DLR Conference will bring together experts from space agencies, experts with UN entities such as UNOOSA, UNSPIDER, UNFCCC, and WMO; as well as scientists from international and regional organizations such as the Global Climate Observing System (GCOS). These experts and scientists will address the considerable challenges in atmospheric climate research, and identify ways in which space-based platforms such as the ISS can contribute to the provision of long-term data to be used in atmospheric models that can be used to model changes in the climate worldwide.

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### 24-26 August 2016, Bonn, Germany: FOSS4G Conference – Call for papers

The Local Organising Committee of FOSS4G 2016 is announcing the Call for Submissions for FOSS4G 2016. This year's FOSS4G theme, "Building bridges", will be enhanced with four key streams: Land Information, Disaster Management, Remote Sensing and Open Data.

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