



PROMOTING COOPERATIVE SOLUTIONS FOR SPACE SUSTAINABILITY



GROUP ON
EARTH OBSERVATIONS

Disaster Mitigation and Earth Observations: a GEOSS perspective

13 January 2014, 9.00 – 17.00

Centre International de Conférences Genève

Room 15 (level -1)

17 rue de Varembe, CH - 1211 Geneva, Switzerland

8:30	9:00	REGISTRATION/ WELCOMING COFFEE		
Introductory Session				
<i>Moderator: Francesco Gaetani</i>				
9:00	9:20	Michael Simpson & Barbara Ryan	SWF & GEO Sec	Introduction
Session 1: Global and regional infrastructures for data acquisition and delivery				
<i>Moderator: Victoria Samson</i>				
9:20	9:40	Stuart Frye for Francis Lindsay	NASA	GEO Disaster task progress assessment toward target

9:40	10:00	Stephen Briggs & Yana Gevorgyan	ESA & NOAA	International Charter 'Space and Major Disasters'
10:00	10:20	Haris Kontoes	NOA, Greece	The BEYOND project: Building a Center of Excellence for EO based Monitoring of Natural Disasters
10:20	10:40	Ivan Petiteville	CEOS WG Disasters	Greater use of EO satellite data in DRM and Closer cooperation between space agencies and DRM community
10:40	11:00	Pedro Basabe	UNISDR	Towards post-2015 Disaster Risk Reduction Framework
11:00	11:20	Massimo Cocco	European Plate Observing System (EPOS)	GEO Geohazard Supersites and Natural Laboratories (GSNL) - Building data infrastructures for science
11:20	12:00	Discussion		
12:00	13:00	LUNCH SPONSORED BY SWF		
Session 2: Methodology and Knowledge				
<i>Moderator: Massimo Cocco</i>				
13:00	13:20	Einar Bjorgo	UNOSAT	UN satellite image analysis – continuity is key to success
13:20	13:40	Pascal Peduzzi	UNEP/DEWA/GRID	Data access and interoperability - GAR and PREVIEW Global Risk Data Platform
13:40	14:00	Fang Chen	CAS-TWAS CoE SDIM	Capacity Development for Disaster Mitigation in Developing Countries: CAS-TWAS SDIM initiative
14:00	14:20	Kuo-Yu Slayer Chuang	GeoThings	Crowdsourcing and ICT for Disaster Information Management and Response
14:20	14:40	Hans Peter-Plag	GHCP - GEO Geohazards Community of Practice	White Paper on extreme geohazards
14:40	15:00	Discussion		

15:00	15:20	COFFEE BREAK		
Session 3: A User Perspective. What is the Value Added by EO to DRRM				
<i>Moderator: Ivan Petiteville</i>				
15:20	15:40	David Farrell	Caribbean Institute for Meteorology and Hydrology	Using Earth Observations for Disaster Risk Reduction: A Caribbean User Experience
15:40	16:00	Yusuke Muraki	Asian Development Bank	Lessons learned from Typhoon Yolanda Response for EO applications in Asian Development Bank
16:00	16:20	Daniel Kull, David Rogers	Global Facility for Disaster Reduction and Recovery (GFDRR) - The World Bank	Examples of Earth Observation Needs for World Bank Disaster Risk Management Operations
16:20	16:40	Stuart Frye	NASA	The Caribbean and Southern Africa Disaster Pilots: Lesson Learned and Challenges
16:40	17:00	Discussion & Conclusions		

List of speakers & biographies

Pedro BASABE is geologist, MSc. and Dr. ès Sc. in hydrogeology, has vast experience in applied geology, natural hazard identification, mapping, monitoring systems, research and project management since 1979. During the nineties, he formulated and implemented several international projects on risk identification and management in Latin America for the Swiss Agency for Development and Cooperation, Humanitarian Aid (SHA) in coordination with the UN. He is also UNDAC and SHA member since 1995 participating in number of disaster preparedness, evaluation and coordination missions. He joined the UN Office for Disaster Risk Reduction (UNISDR) in November 2001, where he has increased responsibilities, contributing to disaster risk reduction expertise, knowledge and capacity development as well as to publications, partnership development, drought risk reduction practices and linkages with humanitarian sector to promote holistic and integrated disaster risk management. The last five years he has been heading the UNISDR Regional Office for Africa in Nairobi, actively developing collaboration with the Africa Union Commission, Regional Economic Communities, 38 countries, UN partners, donors and scientific-technical community. As result, Africa has a continental Programme for Disaster Risk Reduction, mechanisms for coordination, Sub-regional policies and/or programmes, now under implementation. Mr. Basabe is currently back at the UNISDR headquarters, in charge of science, technology and expertise for disaster risk management, water and disasters and partnership development to translate policies into practices.

Einar BJORGO received his PhD in Geophysics from the University of Bergen, Norway, in 1999 on humanitarian applications of very high resolution satellite imagery. He holds a Master of Science in Meteorology (Climate Science) and a Bachelor in Mechanical Engineering from the University of California San Diego. He joined the UN High Commissioner for Refugees (UNHCR) in 1999 working on integrating new technological solutions into its operations, including the use of GIS, GPS and satellite imagery. In 2002 he joined the United Nations Institute for Training and Research (UNITAR) Operational Satellite Applications Programme (UNOSAT), where he was in charge of operational activities, including humanitarian relief, disaster risk reduction, human rights, human security and climate change. In that position he ensured satellite imagery derived maps and analyses are available to the international community, as well as Governments, during natural disasters and complex emergencies. Einar Bjorgo is since 2013 the Manager of UNOSAT.

Stephen BRIGGS is currently Head of Earth Observation Programme Planning and Coordination, based at ESA's headquarters in Paris. In this role he is responsible for the overall coordination of EO programmes and their internal and external interfaces. Previous to this post he was for many years Head of the Department of Earth Observation Science, Applications & Future Technologies of ESA where he was responsible for the exploitation of ESA EO missions (for science, public sector, including Copernicus, and commercial applications), future EO technologies programme, studies relating to future missions, interface between ESA's EO missions with user communities (including consultation, managing requirements and providing scientific advice to the Agency), and ensuring scientific support and providing application expertise in the development and exploitation phase of all missions and programmes. He remains also ad personam adviser to DG on strategy, science and policy. Before joining ESA in 2000, Stephen worked as Director, Earth Observation British National Space Centre & Head, Earth Observation NERC, UK (1994-1999); Head, Remote Sensing Applications Development Unit, NERC/BNSC (1986-1994); Senior Scientist, NERC Thematic Information Systems (1983-1986); and Lecturer,

Dept of Physics, Queen Mary College London (1982-1983). Stephen has a B.Sc (First Class Honours) in Astronomy, and a Ph.D. in Astrophysics from the University College London. He is an Elected Fellow of University College London (2006). He has 70+ papers in journals, proceedings and books.

Fang CHEN is Executive Deputy Director of the CAS-TWAS Centre of Excellence on Space Technology for Disaster Mitigation (SDIM), a professor at the Institute of Remote Sensing and Digital Earth (RADI), Chinese Academy of Sciences (CAS), and a member of GEO Post-2015 Working Group. Fang's background is in disaster risk reduction and Earth observation and he holds a PhD in GIS & Remote Sensing. He has expertise in global fire mapping, estimation of land surface variables from satellite observations, and digital Earth for disaster management.

Kuo-Yu Slayer CHUANG is CEO of GeoThings, a public benefit company that focuses on the coordination of disaster information with ICT. He is working on Location-based services (LBS), Disaster Management, Internet of Things (IoT) and very active in Open Geospatial Consortium (OGC) for Open GeoSMS, KML, Sensor Web Enablement (SWE), and SWE4IoT standard. He is also the delegate of Open Geospatial Consortium to ITU-T, currently works with ITU-T SG11 on Q.ProGeoSMS. He is also one of the trusted developers of Ushahidi and involves a lot in community.

Massimo COCCO is a Director of Research at the Istituto Nazionale di Geofisica e Vulcanologia, sezione Seismology and Tectonophysics, Rome. His research interests are focused on the physics of earthquakes and faults. More specifically, his work deals with earthquake dynamics and fault interaction, seismicity patterns and fault frictional properties. He is interested in both theoretical studies and observational researches. He has interests in all aspects of the mechanics of earthquake and faulting from observations of natural faults through geophysical and geological measurements to experimental faults at the laboratory scale. His expertise also covers the management of seismic networks and monitoring research infrastructures. He is presently coordinating the Preparatory Phase of a European Project named EPOS: European Plate Observing System. Its mission is the long-term integration of research infrastructures for solid Earth Science (www.epos-eu.org).

STU FRYE is a satellite systems engineer working at the NASA Goddard Space Flight Center (GSFC). He is Principal Investigator on Sensor Web technologies that link Earth Observation satellites, aerial systems, in-situ sensors, and forecast models into an interoperable set of disaster management components and services. He is the project lead for Group on Earth Observations (GEO) disaster management tasks for implementation of Regional End-to-End Disaster Systems. He is a charter member of the Committee on Earth Observation Satellites (CEOS) Disaster Working Group and leads the CEOS Disaster Risk Management Flood Thematic Team to coordinate DRM activities across all civilian satellite agencies world-wide. He is a lead science research and advanced technology grant investigator working to improve delivery of satellite data and products for societal benefit on a global scale. He serves as technical liaison with various agencies within the UN, World Bank, International Red Cross, regional remote sensing centers, national disaster management departments, and other aid and relief organizations to infuse standardized web services that provide open access to critical disaster management information, data, and maps via the internet using common desktop tools. He leads the Global Earth Observation System of Systems (GEOSS) Disaster Management Working Group for the Architecture Implementation Pilot and participates in the Open Geospatial Consortium (OGC) Web Services Testbeds to demonstrate interoperability of emerging disaster technologies. He also leads a hyperspectral remote sensing research testbed at GSFC for developing Sensor Webs and autonomous systems. He was co-winner of the R&D 100 Award in 2008 for the Sensor Web 2.0 technology development and won the 2005 NASA Software of the Year award for his role in the Autonomous Sciencecraft Experiment on-board the Earth Observing One (EO-1) satellite. Stu has a Bachelors Degree in Mathematics from the University of California and an Masters Degree in Operations Research from the George Washington University.

Yana GEVORGYAN is a Senior International Relations Specialist at the U.S. NOAA Satellite and Information Service. Yana coordinates NOAA's collaboration with the international civil remote sensing community in the area of disaster management and is NOAA's representative on the Board of the International Charter "Space and Major Disasters". She is the global point of contact for GEONETCast – near-global data disseminations system being developed by NOAA, EUMETSAT and CMA under the auspices of the intergovernmental Group on Earth Observations (GEO) to serve the needs of many user communities, including disaster managers, for environmental data and information. Yana manages the overall participation of the United States government in the implementation of the Global Earth Observations System of Systems (GEOSS).

Charalabos (Haris) KONTOES obtained his Diploma in Land Surveying and Rural Engineering at the National Technical University of Athens in 1985, BSc in Informatics from the University Paris VI Jussieu (France) in 1986, his MSc in Geography from the University Paris VI Jussieu (France) in 1986 and his PhD in Remote Sensing from the National Technical University of Athens in 1992. In 1991-1992, he was visiting scientist in the Marine Environment Group/JRC-EC-ISPRA (Italy). During 1993-1997, he worked as Surveyor Engineer. Since 1997, he works at the National Observatory of Athens as Assistant Researcher (1997-2000), Associate Researcher (2000-2003), Senior Researcher (2003-2010) and currently as Research Director at the Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing (IAASARS/NOA). Dr. Charalabos (Haris) Kontoes holds a PhD in Remote Sensing of the Environment. He has a wide range of expertise in managing EC and ESA projects integrating advanced image processing techniques for the exploitation of high and very high spatial resolution satellite data. He leads the FP7 Capacity Building project BEYOND "Building a Center of Excellence for Space based Monitoring of Natural Disasters". He has acted as national delegate in international Space fora and organisations (e.g. EC, ESA). As delegate he participated in, a) the Steering Committee of the common EU and ESA Space Program for Environment and Security, namely GMES, b) the ESA's Program Board on Earth Observation (2002-2004), and c) acted as deputy delegate in the Joint Space Strategy Advisory Group (JSSAG). The last two years he assumed responsibilities as National Delegate of the Space Committee of the FP7 Program and the H2020 Shadow Space Program Committee. He leads/coordinates all actions foreseen in the common Greece-ESA project towards establishing in Greece (at IAASARS/NOA premises) one of the Sentinels' Mirror Site as part of the ESA's Collaborative Ground Segment. He is author of over than 100 scientific papers presented in peer-reviewed journals and international conferences. He and his team has been Nominated GMES (Copernicus) Value Added Product/Information Provider in the area of Disaster Management, and has been also Nominated Principal Investigator of ESA in SAR data Interferometric Processing.

Daniel KULL represents the World Bank/GFDRR in Geneva and provides technical support for hydrometeorological operations. Before joining GFDRR, Mr. Kull was the global coordinator for disaster risk reduction (DRR) at the International Federation of Red Cross and Red Crescent Societies, a research scholar with the International Institute for Applied Systems Analysis, Senior Disaster Risk Reduction Advisor for the Swiss Agency for Development and Cooperation in Tajikistan and Technical Advisor for UNISDR Africa in Kenya. He also served as a hazard specialist for the Swiss Reinsurance Company, having started as a hydraulic engineer for both the Swiss Federal Institute of Technology and the Hydrologic Engineering Center of the US Army Corps of Engineers.

Yusuke MURAKI holds a Master degree in Mechanical Engineering from Hokkaido University in Japan. He has been working in ADB since 2011 to promote space technology applications in ADB and its member countries in Asia and Pacific. He has been managing technical assistance projects in ADB such as (i) improvement of flood forecasting applying satellite rainfall data in Bangladesh, Philippines and Viet Nam, (ii) development of drought monitoring system for food security using satellite-based drought index in Greater Mekong Subregion, (iii) rice crop monitoring using satellite radar data in Lao P.D.R, Philippines, Thailand and Viet Nam. He also supported the damage assessment using the remote sensing data for the Typhoon Yolanda that hit the Philippines in November 2013, as the team member of the Typhoon Yolanda Response team in ADB.

Pascal PEDUZZI is head of the Global Change & Vulnerability Unit at the United Nations Environment Programme (UNEP/GRID-Europe) for which he is working since 1998. He holds a PhD and a MSc in Environmental Sciences. The main role of the unit is to quantify the effects of environmental degradations on populations and ecosystems. He was the coordinator of the Global Risk Analysis for the 2009 Global Assessment Report on Disaster Risk Reduction and is currently one of the lead Author of the next IPCC report on extreme events. He is the author of various scientific publications and provided numerous conferences to governments and the general public to raise awareness on the consequences of human impacts on the environment.

Ivan PETITEVILLE is graduated from the Ecole Polytechnique (Paris, France). After having worked in scientific institutes such as the "Institut de Physique du Globe" (Paris, France) or the "National Research Council of Canada" (Ottawa, Canada), he joined the European Space Agency (ESA) in 1988 as system engineer and then project manager of several satellite ground segments, in the field of Earth Observation. Ivan has been involved in the Committee for Earth Observation Satellites (CEOS) since 2000. Chair of the CEOS Working Group in Information Systems and Services (WGISS) from 2005 to 2007, he has then fulfilled the functions of CEOS Executive Officer (CEO) from January 2008 until December 2010, insuring a proper interface between CEOS and GEO. He has been also co-Chair of the GEO Architecture and Data Committee, representing CEOS, between 2006 and 2012. Eventually, at the last CEOS Plenary in November 2013, he has been nominated Chair of the new CEOS Working Group on Disasters after having lead the CEOS DRM initiative during the last two years.

Hans-Peter PLAG studied mathematics and geophysics in Berlin and obtained his PhD in Natural Sciences in 1988 from the Free University of Berlin. From 1988 to 1997 he was head of a research group in geodynamics at the University of Kiel, Germany. In 1995, he worked for five months at the Proudman Oceanographic Laboratory, Bidston, United Kingdom. From 1997 to 2004 he was the head of a department at the Geodetic Institute of the Norwegian Mapping Authority in Norway, where he also was professor (mathematical models in geodesy) at the University of Oslo. From 2004 to 2012, he was a research professor at the University of Nevada, Reno, and affiliated with the Nevada Geodetic Laboratory and the Nevada Seismological Laboratory. From 2012 to 2013, he held the Chair on Global Change and Sustainability and was the Director of the Global Change and Sustainability Research Institute (GCSRI), University of the Witwatersrand, Johannesburg, South Africa. In June 2013, he joined ODU as the Co-Director of the Climate Change and Sea Level Rise Initiative (CCSLRI) and Professor in the Department of Ocean, Earth and Atmospheric Science. He also is a Visiting Professor at the Stevens Institute of Technology, Hoboken, NJ, USA. His main fields of expertise are in sustainability, global and climate change, local to global sea level changes, Earth system dynamics, solid Earth geophysics, the rheology of the Earth's mantle and continuum mechanics, deformation of the solid Earth, space geodesy and geodetic reference frames. He has provided scientific advise to private companies and governmental committees, particularly with respect to future sea level rise. Current main professional activities are related to the Group on Earth Observations (GEO), which is implementing the Global Earth Observation System of Systems (GEOSS). In his career, he has led more than fifteen large international projects, chaired international programs and committees, organized numerous international workshops and conferences, often as chair of the program and/or organizing committees, edited many special issues and proceedings, and coordinated and edited two international and interdisciplinary community reports with up to 40 participating authors. Since 1994, he is a member of the Editorial Board of the Journal of Geodynamics and since 1996 Editor-in-Chief for geodesy for Physics and Chemistry of the Earth.

David ROGERS is President of the Health and Climate Foundation (HCF), an international non-profit organization dedicated to finding solutions to climate related health problems and supporting partnerships between health and climate practitioners. Prior to founding HCF, Dr. Rogers held various appointments in government, the private sector and academia. These include Chief Executive of the UK Met Office; Vice President, Science Applications International Corporation; Director of the Office of Weather and Air Quality at the US National Oceanic and Atmospheric Administration; Director of Physical Oceanography at Scripps Institution of Oceanography, and Associate Director of the California Space Institute, University of California, San Diego, USA. Currently, Dr. Rogers is a senior advisor to the World Bank on modernizing National Meteorological and Hydrological Services. Dr. Rogers has a Ph.D. (1983) from the University of Southampton and Bachelor of Science degree (1980) from

the University of East Anglia, UK. He has published extensively in the fields of oceanography, meteorology, climate, environment and organizational development.

Barbara J. RYAN is Secretariat Director of the intergovernmental Group on Earth Observations (GEO) located in Geneva, Switzerland. In this capacity, she leads the Secretariat in coordinating the activities of nearly 90 Member States and 67 Participating Organizations who are striving to integrate Earth observations so that informed decisions can be made across nine Societal Benefit Areas including agriculture, biodiversity, climate, ecosystems, energy, disasters, health, water and weather. Before assuming this position in July 2012, she was the Director of the World Meteorological Organization (WMO) Space Programme. She had responsibility for the space-based component of the WMO Global Observing System (GOS), coordinated space-based assets to meet the needs of WMO Members in the topical areas of weather, water, climate and related natural disasters, and also served as the technical focal point for WMO's activities with GEO. Before joining WMO in October 2008, she was the Associate Director for Geography at the U.S. Geological Survey (USGS) in Reston, Virginia where she had responsibility for the Landsat, remote sensing, geography and civilian mapping programs of the agency. It was under her leadership that implementation of the Landsat data policy was reformed to release all data over the internet at no additional cost to the user -- an action that has resulted in the release of more than 12 million Landsat scenes to date. As the 2007 Chair of the international Committee on Earth Observation Satellites (CEOS) she led the spaceagency response to the Global Climate Observing System (GCOS) satellite requirements for sustained measurement of the GCOS Essential Climate Variables (ECVs). She holds a Bachelor's degree in Geology from the State University of New York at Cortland, a Master's degree in Geography from the University of Denver, and a Master's degree in Civil Engineering from Stanford University.

Victoria SAMSON is the Washington Office Director for Secure World Foundation and has more than fifteen years of experience in military space and security issues. Before joining SWF, Samson served as a Senior Analyst for the Center for Defense Information (CDI), where she leveraged her expertise in missile defense, nuclear reductions, and space security issues to conduct in-depth analysis and medial commentary. Prior to her time at CDI, Samson was the Senior Policy Associate at the Coalition to Reduce Nuclear Dangers, a consortium of arms control groups in the Washington, D.C. area where she worked to share information quickly and efficiently between Congressional staffers, members of the media, embassy officials, citizens and think-tanks dealing with national missile defense and nuclear weapons reductions. Before that, she was a researcher at Riverside Research Institute, where she worked on war-gaming scenarios for the Missile Defense Agency's Directorate of Intelligence. Known throughout the space and security arena as a thought leader on policy and budgetary issues, Samson is often interviewed by multinational media outlets, including the New York Times, Space News, and NPR. She is also a prolific author of numerous op-eds, analytical pieces, journal articles, and electronic updates on missile defense and space security matters. Victoria Samson holds a Bachelor's of Art (B.A.) degree in political science with a specialization in international relations from UCLA and a Masters of Art (M.A.) in international relations from the Johns Hopkins School of Advanced International Studies.

Michael SIMPSON is the Executive Director of Secure World Foundation, after joining SWF as the Senior Program Officer in September 2011 following seven and a half years as President of the International Space University (ISU). Simpson holds a post as Professor of Space Policy and International Law at ISU. He is a corresponding member of the International Academy of Astronautics. After 23 years of service, Simpson retired from the Naval Reserve in 1993 with the rank of Commander. He is the author of numerous scholarly papers, presentations, articles and book contributions and his practical experience includes service as a Political Military Action Officer, observer representative to the UN Committee on the Peaceful Uses of Outer Space, and member of the Association of Space Explorers International Panel on Asteroid Threat Mitigation. He currently serves on the Commercial Spaceflight Safety Committee of the IAF. He received his Bachelors Degree magna cum laude from Fordham University in 1970 where he was elected to Phi Beta Kappa. He has also been elected to academic honor societies in the fields of political science and business management. He completed his Ph.D. at Tufts University, The Fletcher School of Law and Diplomacy, holds the Master of Business Administration from Syracuse University; and two Master of Arts degrees from The Fletcher School. He has also completed two prestigious one year courses in Europe: the French advanced defense institute (Institut des Hautes Études de Défense Nationale) and the General Course of the London School of Economics.