#101

Abstract Form for CEOS Data Application Report

Title	**Rice monitoring using EO data**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☑ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☑ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Ministery of Agriculture, Food and Agriculture company, Research on Environment, GEOGLAM (GEO Global Agriculture Monitoring), Asia-Rice (component of GEOGLAM)**
Abstract <100 words	Rice is among the agricultural crops, the most critical staple food for more than half of humanity, with the majority of the world crop grown and consumed in the developing world. Efficient rice mapping and monitoring methods, using optical and SAR data leading to production estimation and forecast have been evaluated and used at local scale. As a component of the GEOGLAM initiative, the Asia rice Crop Estimation and Monitoring (Asia-RiCE) aims to enhance rice production estimates across Asia through the use of Earth Observation. In this context, large scale operational applications are foreseen with current and forthcoming EO data.

Point of Contact	
Name	Thuy Le Toan
Organisation	CESBIO, Toulouse, France
E-mail	Thuy.Letoan@cesbio.cnes.fr
Possible Co-Authors	Alexandre Bouvet, CESBIO, France, Lam Dao Nguyen, VAST, Vietnam,Shin Ichi Sobue, RESTEC, Japan, Michel Deshayes, GEOGLAM, Switzerland

#102

Abstract Form for CEOS Data Application Report

Title	**EnMAP for food security and sustainable agriculture**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☑ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Agri-Business, Public Administration, Agricultural Policy**
Abstract <100 words	Sustainable efficiency gains in agriculture are essential to meet today's as well as future growing food demands. Site specific monitoring of crop development increases agricultural efficiency by optimizing the use of energy, fertilizer and plant protection agents and at the same time increases yields. Earth Observation through remote sensing from space is the most feasible way to acquire site specific crop properties. The ESA-sponsored and DLR-supported project TalkingFields (www.talkingfields.de) demonstrates how a close combination of agro-ecological crop growth and management models with data from existing and future remote sensing sources (Sentinel, LANDSAT, RapidEye, TerraSAR-X, EnMAP) can be used to support farmers in increasing efficiency of farm management.

Point of Contact	
Name	Prof. Dr. Wolfram Mauser, Dr. Tobias Hank
Organisation	Dept. of Geography, Ludwig-Maximilians University Munich
E-mail	w.mauser@lmu.de; tobias.hank@lmu.de
Possible Co-Authors	Dr. Heike Bach, VISTA GmbH Munich, Germany

#103

Abstract Form for CEOS Data Application Report

Title	**Use of SAR data to map and quantify eruptive deposits**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☑ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☑ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Volcanoes observatories**
Abstract <100 words	Radar images can be acquired at night and in cloudy conditions, which represents a significative advantage when using SAR data for volcano monitoring rather than optical and infrared sensors. Variation in InSAR coherence and amplitude evolution can be used to map eruptive deposits, which is a key information for assessing volcanic hazards. Based on the 2010 Merapi volcano eruption case, we developed a supervised classification method applied to dual-polarization ALOS data in order to map the pyroclastic deposits. This method will be used by the Center for Volcanology and Geological Hazard Mitigation (CVGHM) for lahar assessment in Indonesia.

Point of Contact	
Name	Pinel Virginie
Organisation	ISTerre IRD
E-mail	Virginie.Pinel@univ-savoie.fr
Possible Co-Authors	Akhmad Solikhin (CVGHM)

#104

Abstract Form for CEOS Data Application Report

Title	**Spaced-Based EO solutions for the Canadian public sectors**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☑ 3. Disaster ☑ 4. Energy ☑ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☑ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☑ 12. Other (specify) Other field: Land Resources, Climate Change adaptation, Water, Security, Transport
Stakeholders	**Government organizations Industry and Academia**
Abstract <100 words	For several decades ¬– especially since the launch of its first Earth observation satellite RADARSAT-1 in 1995, we have come to rely on EO data for a diverse range of applications that benefit Canada and Canadians. There is a growing operational, economic and scientific reliance on EO technology and data at major Federal government departments, within Canadian industry, and research institutions. EO applications in Canada typically contribute to a variety of vital activities. They include weather forecasting and climate modeling, monitoring water resources and quality, marine and ice surveillance, land-use monitoring, habitat monitoring, forest mapping, estimating agricultural production, mitigating environmental hazards, responding to disasters, assessing urban expansion, analyzing mineral and energy resources, as well as maintaining national security and protecting our borders. Development of these applications is driven by the multidisciplinary resources workforce in government departments, the industrial sector and research institutions to stimulate the development and use of EO applications linked to governmental priorities and their specific mandates.

Point of Contact	
Name	Paul Briand
Organisation	Canadian Space Agency
E-mail	Paul.briand@asc-csa.gc.ca
Possible Co-Authors	

#105

Abstract Form for CEOS Data Application Report

Title	**Prevention of Illegal Deforestation in Amazon Forest using the ALOS/PALSAR**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☑ 5. Environment ☐ 6. Fishery ☑ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**INPE, IBAMA**
Abstract <100 words	It is a well known fact monitored by satellite observations that Amazon forest is decreasing for a long time due to the human activities in the area. The Brazilian Space Research Institute(INPE) started monitoring the area from 2004, using optical space borne sensors and provided the results to the Brazilian environmental agency (IBAMA) to enforce law on illegal deforestations. The system has a problem that, in the rainy season, the system almost looses the power due to the cloud cover in the region. In response to the request from IBAMA and Federal Police Department (DPF) of Brazil to solve the problem, RESTEC had started a technology transfer project funded by JICA to realize a cloud free deforestation monitoring system using Japanese ALOS/PALSAR data and establish a good system operation to detect illegal deforestation in the region.

Point of Contact	
Name	TBD
Organisation	JAXA, RESTEC
E-mail	
Possible Co-Authors	INPE、IBAMA、DPF

#106

Abstract Form for CEOS Data Application Report

Title	**Monitoring of inland and coastal water bodies**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☑ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Environmental Agencies responsible for monitoring within the European Water Framework Directive**
Abstract <100 words	Mapping status information of the huge number of water bodies from space meets a wide range of global governmental and water industries needs. For economic sustainable services, independent information products are required, consistent spatially and temporally on a wide range of spatial and temporal resolutions. Operational state of the art services meeting these requirements exist nowadays, including portals to aggregate, access and utilize the EO products user friendly. An increasing number of water agencies and industries are going to profit from these services from commercial services providers, and still are also supported in various public funded pilot services.

Point of Contact	
Name	Oppelt, Natascha
Organisation	Kiel University
E-mail	oppelt@geographie.uni-kie.de
Co-Authors	Heege, Thomas (EOMAP)

#107

Abstract Form for CEOS Data Application Report

Title	**Persistent Scatterer Interferometry: Evolution of the Technique on Different Scales**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☑ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☑ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Government agencies, insurance, mining and construction sector**
Abstract <100 words	In the recent decade, the Persistent Scatterer Interferometry (PSI) technique evolved into an outstanding operational satellite Earth observation technique attracting not only scientists but also users in governments, insurances as well as in the mining and construction sector. The uniqueness of this technique is the capability to map subtle deformations with Millimeter precision on different scales from space. The paper provides an overview on applications ranging from small scale (large area) subsidence mapping based on medium resolution SAR sensors (ERS, ALOS, Sentinel-1) and on large scale (small area) deformation mapping of infrastructure using high resolution spotlight SAR data (e.g. TerraSAR-X).

Point of Contact	
Name	Nico Adam
Organisation	DLR, Remote Sensing Technology Institute
E-mail	Nico.Adam@dlr.de
Possible Co-Authors	Richard Bamler, Michael Eineder, Stefan Gernhardt (TUM), Xiao Xiang Zhu

#108

Abstract Form for CEOS Data Application Report

Title	**Forest biomass and change in forest cover using EO data**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☑ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Ministries of environment, REDD+, UNREDD, FAO**
Abstract <100 words	Efforts to monitor and map changes in the forest using EO has been increasing in the past decade. This has gained momentum in the United Nations Convention on Climate Change (UNFCCC) policy process related to countries reducing emissions from deforestation and degradation (REDD).To reduce uncertainties Forest mapping and monitoring methods have been developed and assessed in various countries. In particular, the map of forest cover change and of biomass of woody savanna using EO data (ALOS-PALSAR) in Cameroon has been used by country organisations for REDD+. A large scale map of Africa has been provided to modellers working on carbon flux and in global biosphere management.

Point of Contact	
Name	Thuy Le Toan
Organisation	CESBIO, Toulouse, France
E-mail	Thuy.Letoan@cesbio.cnes.fr
Possible Co-Authors	Stephane Mermoz, Alexandre Bouvet (CESBIO)

#109

Abstract Form for CEOS Data Application Report

Title	**Entomological Rift valley fever risk in Senegal: a high spatio-temporal resolution risk mapping from remote sensing**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. ☐ 7. Forest ☑ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other field:
Stakeholders	Veterinary services, public health policy makers
Abstract <100 words	Linkages between infectious diseases and environment and climate variability do not have to be spelledout anymore. Nevertheless releasing forecasting data and maps on "where and when" a risk for the emergence of given diseases vectors still remains quite a challenge. Such risk maps will contribute to key adaptative control strategies. Remotely-sensed environmental data (Spot-5 images) and in-situ meteorological information were used to fit a model in order to produce dynamic high resolution maps to predict the entomological risk for Rift Valley fever in the Ferlo region of Senegal. The integration of dynamic modelling on mosquitoes proliferation and the positioning of the livestock parks into a geographic information system, allows to provide every week the Directorate of veterinary services of Senegal with forecasting bulletins of the zones under risks for the following 10 days. The Directorate of veterinary services is then able to integrate those information into its adaptation strategy.

Point of Contact	
Name	Murielle Lafaye
Organisation	CNES
E-mail	murielle.lafaye@cnes.fr
Possible Co-Authors	Baba Sall (Directorate of veterinary services of Senegal), Mawlouth Diallo (Dakar Pasteur Institute), Jacques-André Ndione (Centre de suivi écologique de Dakar), Jean-Pierre Lacaux (Laboratory of Aerology of Midi-Pyrénées Obervatory)

#110

Abstract Form for CEOS Data Application Report

Title	**Monitoring Sea Ice to Provide Support for the Safe Travel of Ships**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☑ 12. Other (specify) Other field: Transportation
Stakeholders	**Japan Coast Guard**
Abstract <100 words	The Japan Coast Guard used ALOS observation data to provide updates on the status of sea ice. The coast guard released maps indicating the locations of sea ice to ensure safe navigation in the Sea of Okhotsk in winter. In particular, the Okhotsk Sea suffers from a large number of stormy days in winter and is clouded over almost every day so SAR imagery without any effect by clouds makes it very effective. JAXA provides sea ice data on a regular basis every year from December to May, using observations from the ALOS-2/PALSAR-2. The Ice Information Center, run by the 1st Regional Coast Guard Headquarters, transmits sea ice information daily to avoid marine accidents during the winter season, based on data from multiple organizations. End user such as fisher man, merchant service and tourist service can take their safe route by the Sea ice Condition Chart.

Point of Contact	
Name	JAXA
Organisation	
E-mail	
Possible Co-Authors	

#111

Abstract Form for CEOS Data Application Report

Title	**Monitoring of water quality and water level of rivers and lakes in Brazil. Towards a remote sensing-based operational monitoring application at the Brazilian Water Agency**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☑ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Institut de Recherche pour le Développement (IRD), Brazilian Water Agency (ANA)**
Abstract <100 words	We have developed a remote-sensing based application to assess water quality parameters and water level in rivers and lakes in Brazil. Water quality is assessed using water color techniques (MODIS imagery) to retrieved parameters such as suspended sediment concentration, chlorophyll-a concentration or water turbidity. Water level is assessed using radar altimetry (Jason-2). The application has been developed in the framework of an IRD-ANA partnership and consider the collection of field measurements (radiometry, hydrologic data), the development of unsupervised processing chains and the conception of a web site : hidrosat.ana.gov.br .

Point of Contact	
Name	Jean-Michel Martinez
Organisation	IRD
E-mail	martinez@ird.fr
Possible Co-Authors	Eurides de Oliveira (ANA), Rita Cerqueira (ANA), Dhalton Ventura (ANA)

#112

Abstract Form for CEOS Data Application Report

Title	**Applying Remote Sensing Technology in River Basin Management**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☑ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**ADB, JAXA, DM related entities in participating countries(Bangladesh, Philippines, VietNam)**
Abstract <100 words	In this ADB's technical assistant project, the target river basins of Bangladesh, the Philippines and VietNam have been hepled by improvement of their flood monitoring and management system by applying spaced based technologies such as GSMaP, GIS, ALOS based digital elevation model(DEM). Target agencies are assisted with advisory services and financial support in formulating and implementing the following: 1) extending flood warning lead times by 1-2 days by collecting ground and satellite based precipitation data, 2) developing existing flood analysis models by collecting satellite precipitation data, 3) developing flood warning dissemination and disaster monitoring systems using web-based GIS and cellular phones and so on.

Point of Contact	
Name	Rio Tanabe
Organisation	JAXA
E-mail	tanabe.ryo@jaxa.jp
Possible Co-Authors	Yusuke Muraki, ADB

#113

Abstract Form for CEOS Data Application Report

Title	**Sentinel Asia Philippines Success Story Project**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☑ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**JAXA, PHIVOLCS, NAMRIA, PAGASA, MGB, ASTI, PCIEERD, OCD**
Abstract <100 words	JAXA has been implementing Sentinel Asia Success Story projct in the Philippines since 2009. ALOS pan-sharpened imagery and a Digital Surface Model (DSM) are used to map hazards related to lahars near Mt. Mayon, floods in Iloilo city and landslides in Antique province. These products were created by the Philippine Institute of Volcanology and Seismology (PHIVOLCS), the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), and the Mines and Geoscience Bureau (MGB), respectively. This first phase of mapping occurred from the beginning of 2009 to March 2010. In the second phase from April 2010, Global Satellite Mapping of Precipitation (GSMaP) data has been used to produce landslide warnings in Albay; interferometry has likewise been used to monitor land subsidence in the Manila area and earthquake/volcanic eruptions at Mt. Mayon, Mt. Taal, and the Valley Fault. Volcanic activity was recorded at Mt. Mayon in Luzon from the 14th of December 2009, and lava was confirmed to be flowing from the crater on the 20th of December. PHIVOLCS created a lava deposit map of the eruption which was used to inform decision-makers at the National Disaster Coordinating Council (NDCC). Lava flow and lahar hazard maps were prepared beforehand using ALOS DSM in a cooperative effort between JAXA and PHIVOLCS, and these were supplemented by updated lava deposit data collected during the eruption.

Point of Contact	
Name	Rio Tanabe
Organisation	Disaster Management Support Systems Office, JAXA
E-mail	tanabe.ryo@jaxa.jp
Possible Co-Authors	Dr. Arturo Daag, PHIVOLCS

#114

Abstract Form for CEOS Data Application Report

Title	**Can Earth Observation contribute to determine how "green" the energy sector produces energy from fossil fuels?**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☑ 2. Climate ☐ 3. Disaster ☑ 4. Energy ☑ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☑ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Energy producing companies, agencies / entities generating emission inventories, environmental agencies, researchers**
Abstract <100 words	Besides the direct emissions of pollutants and greenhouse gases when burning fossil fuel (gas, oil, coal) to produce electric energy and/or heat, another important area of emissions related to energy production are fugitive emissions during fossil fuel production. For example, if or if not gas powered power plants are preferable over coal fired power plants in terms of their global warming contributions depends strongly on their emissions during the full lifecycle from the gas/coal production, through transport and final burning of coal or gas in the power plant. During the last years substantial progress has been made in detecting and quantifying emssions from fossil fuel burning as well as from fossil fuel production related emissions using EO data. This started with the observations made by SCIAMACHY and OMI on the decrease in NOx emissions from coal fired power plants in the US. Recent work based on SCIAMCHY data has highlighted the potential of EO to constrain emissions of greenhouse gases from the fossil fuel production sector (oil, gas, coal). In addition airborne remote sensing of atmospheric CO2 and Methane on fine scales allows the quantification of emissions from power plants and fugitive emissions from oil, gas and coal production. Cooperations with stakeholders in this emerging application area have just started and achievements and perspective will be summarised.

Point of Contact	
Name	Heinrich Bovensmann
Organisation	University of Bremen, Institute of Environmental Physics (IUP)
E-mail	Heinrich.Bovensmann@iup.physik.uni-bremen.de
Possible Co-Authors	Michael Buchwitz, Konstantin Gerilowski, Thomas Krings, Maximilian Reuter, Oliver Schneising, John P. Burrows

#115

Abstract Form for CEOS Data Application Report

Title	**Earth Observation for seismic applications**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☑ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Civil Protection, Citiziens**
Abstract <100 words	Earth observation products, integrated with ground-based data , can effectively support the seismic risk management community in their activities. In the inter-seismic phase, satellite SAR data allow to measure the subtle ground deformation signals which represent the accumulation of tectonic stress over active faults. This information is used, together with CGPS data, to improve the assessment of seismic hazard in a region. Through the co-seismic phase, the ground deformation caused by the fault dislocation at depth, and the various surface effects of the earthquake on the built and natural environments, can be identified and measured using satellite data. During emergency response the mapping of areal extent, entity and type of surface deformation, as the presence of fractures and fault scarps, supports the generation of the situational awareness needed to scale the response and perform an effective emergency management. We will show some real use cases with reference to the Italian region, showing the contribution of scientific products, generated during the L'Aquila and Emilia earthquakes, to emergencies management of the Italian Civil Protection Department.

Point of Contact	
Name	Anna Rita Pisani
Organisation	Italian Space Agency
E-mail	annarita.pisani@est.asi.it
Possible Co-Authors	Stefano Salvi (INGV), Roberta Giuliani (DPC), Laura Candela (ASI), Simona Zoffoli (ASI)

#116

Abstract Form for CEOS Data Application Report

Title	Spaceborne Monitoring and Evaluation of the 2014 Eruption of Fogo, Cape Verde
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☑ 3. Disaster ☐ 4. Energy ☑ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Instituto Nacional de Meteorologia e Geofisica, Cape Verde**
Abstract <100 words	The 2014 eruption of Pico do Fogo (Cape Verde), started on November 23rd. Upon request of INGM, the CEOS Pilot on Volcanoes and the creator team of EVOSS, fusioned data from 5 different multispectral payloads onboard 9 platforms, with best spatial resolution of 2m and best temporal resolution of 15 minutes. Over 2,800 images were processed in 36 days of 24/7 monitoring, stating that flow propagation down the outer slopes the volcanic edifice, populated by ~37,000, was unlikely after November 30, and forerunning by a few days every following phase of declining effusion rate and lava invasion risk

Point of Contact	
Name	Simona Zoffoli
Organisation	Italian Space Agency
E-mail	simona.zoffoli@asi.it
Possible Co-Authors	Fabrizio Ferrucci (The Open University, UK), Bruno Farì a (Instituto Nacional de Meteorologìa e Geofìsica, Cape Verde), Barbara Hirn (IES Consulting, Italy), Stuart Fry (NASA Goddard Space Flight Center, USA), Simon Day (University College London

#117

Abstract Form for CEOS Data Application Report

Title	Impact of earth observations from space (EOS) on southern hemisphere numerical weather prediction
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☑ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Australian and Regional public and users of weather forecasing data**
Abstract <100 words	The considerable impact of EOS on weather forecasting has been quantified, demonstrating that satellite data increases the forecast duration by a factor of four for the same accuracy forecast. Examination of two different operational weather forecast models shows that in the southern hemi-sphere, the accuracy of a “no-satellite data 24-hour (one day) forecast” is the same, on average, as a 96 hour (four day) “with-satellite data forecast”, when forecasts were verified against the control (all data used) analysis. This gain in forecast skill results in significant societal benefits from improved forecasts, improved warn-ings and more appropriate time being available to prepare for extreme weather events.

Point of Contact	
Name	John Le Marshall
Organisation	Australian Bureau of Meteorology
E-mail	J.LeMarshall@bom.gov.au
Possible Co-Authors	tbd

#118

Abstract Form for CEOS Data Application Report

Title	**Supporting management of water resources at continental scale**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☑ 1. Agriculture ☐ 2. Climate ☑ 3. Disaster ☑ 4. Energy ☑ 5. Environment ☐ ☑ 7. Forest ☑ 8. Health ☑ 9. Insurance ☑ 10. Mapping ☐ 11. Weather ☐ Other field:
Stakeholders	**Australian governments; Research community; Insurance industry; Agriculture industry; Mining and gas industries; Civil protection agencies; Environment NGOs; Regulators**
Abstract <100 words	Water is increasingly a significant political issue, at the nexus of conversations about food, energy, industrial development and the environment. Effective management is critical to economic development and community safety. Satellite imagery gives us unique insight into the behaviour of water in the landscape, enabling us to track changes over very large areas over long periods. Decades of imagery from the United States' Landsat series have recently been utilised to analyse surface water dynamics over the entire Australian continent over a 27 year period. This world-first water product has demonstrated application to disaster management, wetland behaviour, river system mapping, groundwater/surface water interaction, and water body perenniality. The ability to do such a broad range of studies across a continent helps position societies to have the required discussions about water management.emissions from the forestry and agriculture sectors.

Point of Contact	
Name	Norman Mueller
Organisation	Geoscience Australia
E-mail	norman.mueller@ga.gov.au
Possible Co-Authors	Attorney-General's Department; Department of the Environment; Insurance Industry; Environment NGOs

#119

Abstract Form for CEOS Data Application Report

Title	**Living in a land prone to fire: supporting early response, and the coordination of firefighting assets, across a continent**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☑ 3. Disaster ☑ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Fores ☑ 8. Health ☑ 9. Insurance ☑ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify Other field: Disasters, Environment
Stakeholders	**Australian governments; Insurance industry; Agriculture industry; Mining and gas industries; Civil protection agencies;**
Abstract <100 words	The Sentinel hotspots monitoring system is a key input into the spatial tools used by government and private agencies managing fires in Australia. Sentinel provides an important overview for management of fires across the country, and has been used as an information source by emergency management organisations, particularly in remote areas where other sources of information are not easily available. Sentinel has recently been redeveloped: from the infrastructure that supports the system through to the spatial technology and user-interface. These changes allow easier integration of data from different platforms, harnessing the exciting new capabilities of current and next generation satellites, and integration of other sources of data to provide a decision support system.

Point of Contact	
Name	Andreia Sequiera
Organisation	Geoscience Australia
E-mail	andreia.sequiera@ga.gov.au
Possible Co-Authors	Attorney-General's Department; Civil protection agencies; Industries interested in monitoring fire (mining, agriculture, forestry)

#120

Abstract Form for CEOS Data Application Report

Title	**Enhancing the national carbon accounting and reporting capability using data from the latest EO missions**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☑ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☑ 5. Environment ☐ ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ Other field:
Stakeholders	**Australian Government; Users of greenhouse gas accounts from private and public sector agencies, NGOs and the UNFCCC; GFOI**
Abstract <100 words	The Full Carbon Accounting Model (FullCAM) developed by the Australian Department of the Environment, is an innovative operational system to estimate greenhouse gas emissions from the forestry and agriculture sectors. The land cover change program, which underpins the FullCAM, has undergone significant improvements in 2014 incorporating – (a) the latest data from Landsat 8, (b) extending the forest monitoring capability (from 1972) into the future, and (c) enhanced capability to support the 2nd Kyoto Protocol commitment period. Increased automation using surface reflectance data, combined with time series data analysis, has led to significant efficiency gains and additional capability to implement new UNFCCC rules and accounting consistent with the IPCC guidelines for international reporting.

Point of Contact	
Name	Shanti Reddy
Organisation	Department of the Environment
E-mail	shanti.reddy@environment.gov.au
Possible Co-Authors	Shanti Reddy, Elizabeth Farmer, Katherine Green, Zulfiquar Khwaja, Mark Bradley (DoE), Peter Caccetta, Suzanne Furby and Drew Devereux (CSIRO)

#121

Abstract Form for CEOS Data Application Report

Title	**Ocean fronts helping to define marine protected areas**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☑ 4. Energy ☑ 5. Environment ☑ 6. ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☑ 10. Mapping ☐ 11. Weather ☐ 12. Other field:
Stakeholders	**Defra (UK Gov dept); Scottish Natural Heritage; Marine Conservation Zones regional projects; Wildlife Trusts; Convention on Biological Diversity (CBD); UK National Centre for Earth Observation (NCEO)**
Abstract <100 words	A front is the interface between contrasting water masses, often a hotspot for marine animals such as fish, seabirds and basking sharks. Satellite tools for mapping ocean fronts have been developed and applied as a proxy for the abundance and diversity of marine animals, to assist the planning of UK marine protected areas, and delineation of significant areas in the high seas. This has generated impact in the implementation of conservation policy, which will lead to societal benefit; and could also expedite the planning of marine renewable energy installations. These novel algorithms are applied to EO data from NOAA, NASA and ESA.

Point of Contact	
Name	Dr Peter Miller
Organisation	Plymouth Marine Laboratory
E-mail	pim@pml.ac.uk
Possible Co-Authors	

Abstract for CEOS Data Applications Report
"Applications of Earth Observations from Space: Serving Humanity, Society, and Industry"

Disasters and Earth Observation Applications: The Richelieu River Flood Management

AUBÉ, Guy[1], LÉGARÉ, S.[2], AUGER, C.[3], FRYE, S.[4], BENOIT, M.[5], HABBANE, M.[6]

guy.aube@asc-csa.gc.ca

[1]Canadian Space Agency, Earth Observation Applications and Utilizations, St-Hubert, Quebec, Canada
[2]Ministère de la Sécurité publique du Québec, Centre des Opérations, Montréal, Quebec, Canada
[3]Public Safety Canada, Emergency Management and Regional Operations, Montréal, Quebec, Canada
[4]NASA Goddard Space Flight Center, Greenbelt, MD, USA
[5]Effigis Geo-Solutions, Montreal, Quebec, Canada
[6]Natural Resources Canada, Emergency Geomatics Service, Ottawa, Ontario, Canada

Application type: Rapid flood mapping and monitoring

Application field: Disasters

Stakeholders: Canadian Space Agency, Ministère de la Sécurité publique du Québec, Public Safety Canada, NASA, Effigis Geo-Solutions, Natural Resources Canada.

ABSTRACT

Reducing loss of life and property from natural and human-induced disasters is a priority in Canada. Disaster losses can be reduced through observations relating to hazards such as floods. The Richelieu River (Quebec, Canada) flood of 2011 was extraordinary, as it lasted for more than one month and caused severe infrastructure and housing damage. Within the framework of the international Committee on Earth Observation Satellite (CEOS), the Canadian Space Agency (CSA) is collaborating with NASA on various projects helping to prevent, manage and respond to natural disasters. This partnership offers the opportunity for CSA and NASA to share satellite data acquired by several Canadian and American satellites for scientific and operational purposes. These including the development of models, systems and procedures geared toward flood forecasting and response. During a recent spring flood along the Richelieu River in Quebec (Canada), multiple governments and non-governmental organizations have worked in partnership on the development of flood information and products derived from RADARSAT-2 and EO-1/ALI data. The ALI images complemented an entire time series of RADARSAT-2 images acquired by the Canadian Government over the affected region, providing additional detail thanks to the multispectral and pan-chromatic imaging capabilities of ALI. The satellite imagery gives the opportunity to monitor the spatial extent of the flooded areas and assist authorities on the ground with their flood response measures. A time series animation of 16 RADARSAT-2 SAR images of the most severely flooded areas along the Richelieu River was also developed and provided to civil authorities. The information derived from EO data served geospatial information requirements by federal as well as provincial stakeholder organizations, notably Public Safety Canada and the Quebec Ministry of Public Safety. This work has been conducted under the CSA's Rapid Information Products and Services (RIPS) and its presently evolving, under the CSA Government Related Initiatives Program (GRIP), into a national operational flood geospatial information system with Natural Resources Canada and other governmental and industrial partners.

Abstract for CEOS Data Applications Report
"Applications of Earth Observations from Space: Serving Humanity, Society, and Industry"

FROM PREPAREDNESS TO RESPONSE: RADARSAT-2 CONTRIBUTIONS TO THE CARIBBEAN SATELLITE DISASTER PILOT (CSDP) DURING THE HURRICANE SEASON IN 2010, 2011 & 2012

Guy Aubé (Earth Observation Applications and Utilizations, Canadian Space Agency), Dirk Werle (Aerde Environmental Research), Stuart Frye (NASA Goddard), Nicole Alleyne (Caribbean Disaster and Emergency Management Agency, CDEMA), Francesco Gaetani (Disasters Societal Benefit Areas , Group on Earth Observations (GEO) Secretariat

guy.aube@asc-csa.gc.ca

Application type: Rapid change detection products (before & after the passage of hurricanes)

Application field: Disaster

Stakeholders: Canadian Space Agency, CEOS, GEO, NASA, CDEMA

ABSTRACT

During the 2010 – 2012 period the Canadian Space Agency supported the Caribbean Satellite Disaster Project as part of the CEOS-led regional disaster pilots of GEOSS, taking a coordinated and highly event-focused RADARSAT-2 SAR data acquisition and utilization approach for detailed mapping of hurricane impacts on local populations, disaster mitigation and response. Over the course of more than 20 hurricanes, some 250 high resolution RADARSAT-2 image acquisitions targeted those small island states in the Caribbean and parts of Central America that were in very close spatial and temporal vicinity of the passing storms. In each instance a series of fast response disaster maps based on satellite imagery were provided to local and regional authorities. A key element consisted in the pre-planning of SAR data acquisition for anticipated hurricane impact areas to capture destructive forces and spatial distribution of flooding, land slides, and infrastructure damage in aid of local relief efforts.

Abstract for CEOS Data Applications Report
"Applications of Earth Observations from Space: Serving Humanity, Society, and Industry"

Energy and Earth Observation Applications: Assessment and Mitigation of Geohazard Sites Along Strategic Transportation and Energy Corridors in Canada

AUBÉ, Guy[1], SINGHROY, Vern[2], FROESE Corey[3]

[1] Canadian Space Agency, Earth Observation Applications and Utilizations, St-Hubert, Québec, Canada,
[2] Natural Resources Canada, Canada Centre for Remote Sensing, Ottawa, Ontario, Canada
[3] Alberta Energy Regulators, Edmonton, Alberta, Canada

guy.aube@asc-csa.gc.ca

Application type: Assessment and mitigation of geohazard sites along transportation and energy corridors

Application field: Energy

Stakeholders: Alberta Energy Regulator, Natural Resources Canada, Canadian Space Agency

ABSTRACT

The assessment of active geohazards sites along strategic transportation and energy corridors (i.e. pipelines) is a priority in Canada. The Canadian Space Agency (CSA), through the Government Related Initiatives Program (GRIP), has worked with the Natural Resources Canada (NRCAN) on a project involving the application of InSAR technology to map and characterize ground hazards in Western Canada. The project involves characterizing subsidence over abandoned coal mine workings, movements along active faults and slope movement for landslides in the Rocky Mountains, Alberta Plains and in Canada's Arctic. All sites chosen for this study are located along strategic transportation and energy corridors. This project has not only meant to demonstrate the application of InSAR monitoring along Canada strategic energy and transportation corridors but also has build InSAR monitoring capacity within NRCAN's Earth sciences sector and the Alberta Geological Survey. A large archive of RADARSAT-1 and 2 data for these sites is now available, and will be used by governments and the industry for future long term integrated planning and monitoring of these unstable slopes that are affecting our transportation routes.

Abstract for CEOS Data Applications Report
"Applications of Earth Observations from Space: Serving Humanity, Society, and Industry"

Public Health and Earth Observation Applications: Risk Assessment of Recreational Waters Contamination in Canada

BRAZEAU, Stéphanie, AUBÉ, Guy
Earth Observation Applications and Utilizations
Canadian Space Agency, 6767 Route de l'Aéroport,
St-Hubert, Québec, J3Y 3Y9, Canada

guy.aube@asc-csa.gc.ca

Application type: Infectious disease prevention and control of recreational waters

Application field: Public Health

Stakeholders: Public Health Agency of Canada, Canadian Space Agency

ABSTRACT

The understanding of inherent mechanisms of infectious diseases transmission is challenged by global and environmental changes. Governments and the public have a need of a better understanding of ecosystems and their health. Satellite Earth Observation (EO) images can contribute to the monitoring of terrestrial ecosystems, land use, and changes in order to prevent and control health risks over large regions in a timely manner. Evidence-based knowledge is required for the management of key public health issues. As there is a large territory to cover, the access to the environmental health determinants is a challenge. An unreasonable amount of resources would be necessary to access field campaigns data. EO images can be a key contribution. As an example, to assess the benefit and usefulness of satellite EO image for monitoring and managing foodborne pathogens linked with recreational waters, the Public Health Agency of Canada (PHAC) has recently completed a project via the Canadian Space Agency (CSA) Government Related Initiatives Program (GRIP). To assess the average contamination level of recreational beaches in southern Quebec, EO-based methodologies and measures were introduced into statistical models. The initiatives allowed PHAC and their partners to identify farming and urban activities as having a major influence on the microbiological quality of recreational waters in terms of fecal contamination levels from foodborne pathogens and were able to identify beaches at high risk of contamination. The public health experts in Canada are starting to use EO images in a systematic way. Linked within the One Health approach promoted internationally, CSA's EO applications programs have focused on user needs and helped facilitate the development and implementation of tele-epidemiology activities at PHAC.

#126

Abstract Form for CEOS Data Application Report

Title	**Use of Satellites for Disasters in Southern Africa**
Application Type	**1. Public use: Supporting an informed and secure society**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☑ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☑ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Namibian Department of Water Affairs and Forestry, Regional Centre for Mapping of Resources for Development / Nairobi, United Nations World Food Programme**
Abstract <100 words	Alongside research partners, CEOS is implementing disaster monitoring capabilities and working closely with end-users to build and sustain capacity for optimal flood and water management using satellite imagery. For example, the Namibian Department of Water Affairs and Forestry and the National Water Resources Authorities are using satellite-derived products and services to warn the public of impending floods, monitor algal blooms in reservoirs, and track drought and health-related events as they unfold. The Regional Centre for Mapping of Resources for Development (RCMRD) provides disaster risk management support to their constituent countries using these capabilities. These and other projects in Southern Africa are contributing to risk reduction from disaster events as well as reducing the cost for assessments and recovery.

Point of Contact	
Name	Robert J. Kuligowski and Stuart Frye
Organisation	NOAA, NASA
E-mail	
Possible Co-Authors	Pauline Mufeti, Victoria Shafidi – Namibian Department of Water Affairs and Forestry Denis Macharia, Eric Kubuchanga, Faith Mitheu – Regional Centre for Mapping of Resources for Development/Nairobi

#201

Abstract Form for CEOS Data Application Report

Title	**EarthLab Galaxy: towards a worldwide cluster of environment monitoring centers**
Application Type	**2. Industrial use: Stimulating new services and employment**
Application Field(s)	☑ 1. Agriculture ☑ 2. Climate ☑ 3. Disaster ☑ 4. Energy ☑ 5. Environment ☑ 6. Fishery ☑ 7. Forest ☐ 8. Health ☑ 9. Insurance ☑ 10. Mapping ☐ 11. Weather ☑ 12. Other (spec Other field: Maritime surveillance
Stakeholders	
Abstract <100 words	The program EarthLab has been initiated by Telespazio France in 2013 aiming to deploy a network of remote sensing centers in various parts of the globe through partnerships with local institutions and governments. The EarthLab galaxy ecosystem pools a Community of partners that is raising citizens awareness of geo-information issues. Starting from end user needs and observation data collected by in situ fixed or mobile beacons, UAV, air or satellite borne sensors, a new range of end to end services are fully designed, customized and commercialized in full partnership with actors of the environmental domains, such as vineyard, maritime surveillance, water management, etc. The first EarthLab center is based in Bordeaux working on smart agriculture (vineyard in a first step), forestry and coastal management. A second center, to be deployed in Gabon by early 2015, aims to offer maritime surveillance services for the Guinea gulf first and then forestry management and land use monitoring. Other centers will follow from mid-2015 in Europe, Asia, North and South America.

Point of Contact	
Name	D. RIGAL
Organisation	Telespazio France
E-mail	didier.rigal@telespazio.com
Possible Co-Authors	Olivier Balard, Christelle Barbey, Pierre Bayle and Joël Angles

#202

Abstract Form for CEOS Data Application Report

Title	**Earth Observation for Mine Waste and Mineral Deposit, Characterization from multispectral and hyperspectral spaceborne sensors.**
Application Type	**2. Industrial use: Stimulating new services and employment**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field: Mineral Exploration and Mining, Monitoring Mining by public and state entities
Stakeholders	**Society and Industry**
Abstract <100 words	The mapping of industrial minerals, elements and raw materials is a key task in the mineral exploration sector, the mining industry and in the environmental monitoring by the public sector. The mapping of minerals that characterize important exploration anomalies or mine waste material indicating e.g. characteristic iron and copper minerals via imaging spectroscopy, enables a cost-effective exploration, sustainable extraction and monitoring activities. Mapping the spatial distribution of mine waste or high grade ore zones by spaceborne sensors, such as EO-1 Hyperion, ALI, Landsat-8 OLI and ASTER, using characteristic absorption features also reduces the environmental pressures caused by mining operations and, henceforth, benefits socioeconomic development. Future spaceborne missions such as EnMAP and Sentinel-2 will help to refine those applications and reveal new insights into the earth system with their high quality data.

Point of Contact	
Name	Christian Mielke
Organisation	Helmholtz Centre Potsdam, Deutsches Geo-Forschungszentrum (GFZ), Section 1.4 Remote Sensing
E-mail	christian.mielke@gfz-potsdam.de
Possible Co-Authors	Boesche N.K., Rogass C., Kaufmann H., Guanter L.

#203

Abstract Form for CEOS Data Application Report

Title	Satellite based maritime surveillance to increase safety, security and efficiency of ship traffic
Application Type	**2. Industrial use: Stimulating new services and employment**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☑ 5. Environment ☐ 6. ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☑ 12. Other field: Maritime surveillance
Stakeholders	**Ship operators, ocean freight industry, offshore supply industry**
Abstract <100 words	For an export-oriented country such as Germany an efficient, internationally competitive maritime industry is of high overall economic significance. The global exchange of goods is rising steadily causing an increase of ship traffic. New fuel efficient and safe routes are being discussed. In addition, tourism plays an increasingly important economic role at sea. To increase safety, security and efficiency of shipping and to protect the oceans, global data that provide reliable information about storms and sea state, sea ice cover, environmental pollution and ship locations are of paramount importance. This article demonstrates the use of the two German high resolution X-band radar satellites TerraSAR-X and TanDEM-X to develop maritime surveillance products, including ship detection and traffic monitoring or wind and sea-state information. The products are generated independently of weather conditions and in near-real-time and are delivered to operational users.

Point of Contact	
Name	Michael Nyenhuis
Organisation	German Aerospace Center, Space Administration
E-mail	michael.nyenhuis@dlr.de
Possible Co-Authors	Susanne Lehner, Egbert Schwarz

#204

Abstract Form for CEOS Data Application Report

Title	**Earth Observation satellites for maritime and hydrologic downstream applications**
Application Type	**2. Industrial use: Stimulating new services and employment**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☑ 4. Energy ☑ 5. Environment ☑ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Oil & gas, ship routing, fisheries, public administrations…**
Abstract <100 words	Ocean-observing satellites are entering a new operational era and naturally occupy a major place in programs designed to manage and predict ocean and climate change. A long experience in the processing, validation, distribution and exploitation of these satellites data can enhance oceanographic and hydrological applications. Earth Observations (EO) remote sensing products are now distributed in near real time and have been shown to be extremely valuable for different industrial applications such as oil and gas, ship routing, fisheries and management of pelagic and coastal areas.

Point of Contact	
Name	Fabien Lefèvre
Organisation	CLS
E-mail	flefevre@cls.fr
Possible Co-Authors	Sophie Baudel , Laurent Guerlou, Stéphanie Limouzin

#205

Abstract Form for CEOS Data Application Report

Title	**Application of Sea Surface Temperature for Fisheries**
Application Type	**2. Industrial use: Stimulating new services and employment**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☑ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Japan Fisheries Information Service Center (JAFIC)** **Prefecture Fisheries Research Institute**
Abstract <100 words	The Advanced Microwave Scanning Radiometer 2 (AMSR2) onboard the GCOM-W satellite is a remote sensing instrument for measuring weak microwave emission from the surface and the atmosphere of the Earth. AMSR-2 provide the capability of observing sea surface temperature(SST) under clouds and quickly acquiring complete SST distribution without missing values. The JAFIC uses SST data by AMSR-2 for analysis of fishing conditions and distributes fishing and marine condition diagrams that are prepared using this data to fishermen's cooperative associations. It is expected to improve the fishing efficiency. End user such as fisher man can reduce the fuel for ships.

Point of Contact	
Name	
Organisation	JAXA
E-mail	
Possible Co-Authors	JAFIC

#206

Abstract Form for CEOS Data Application Report

Title	Satellite based sea ice and iceberg monitoring
Application Type	**2. Industrial use: Stimulating new services and employment**
Application Field(s)	☐ 1. Agriculture ☑ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☑ 5. Environment ☐ 6. ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☑ 10. Mapping ☐ 11. Weather ☑ 12. Other field: Maritime surveillance
Stakeholders	**Ship operators, ocean freight industry, offshore supply and exploitation industry**
Abstract <100 words	As a consequence of climate change the sea ice conditions in the Arctic become increasingly attractive during the summer months for commercial shipping. However, shipping routes in the arctic north remain endangered by ice and icebergs. Timely variable ice conditions require continuous and frequent monitoring to ensure safe and economic routing of vessels. This article describes the use of X-Band synthetic aperture radar (SAR) Earth observation data for the derivation of tactical iceberg and sea-ice information. It is shown that high resolution SAR data can substantially enhance the situational awareness of the local sea-ice conditions. Particular emphasis is placed on-semi-automatic creation of iceberg- and ship-detection products.

Point of Contact	
Name	Dr. Oliver Lang
Organisation	Airbus Defence and Space
E-mail	oliver.lang@astrium.eads.net
Possible Co-Authors	Roland Christmann (Airbus DS), Markus Jochum (Airbus DS), Anja Frost (DLR)

#207

Abstract Form for CEOS Data Application Report

Title	**SPOT monitors evolution of the Serbian territory**
Application Type	**2. Industrial use: Stimulating new services and employment**
Application Field(s)	☑ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Airbus Defence and Space, Serbian Republic Geodetic Authority (RGA)**
Abstract <100 words	Creating a map with land coverage on a regional/national scale without prior information and ground measurements is a big challenge for both civil institutions (water management agencies…) as well as private companies (insurance…) Within the frame of this project in Serbia, SPOT has been triggered to demonstrate its capacity to face this challenge, and provide an in-depth agricultural land cover. This paper will describe how the multi-temporal images, acquired at crucial stages of the growing season, thanks to daily acquisition opportunity, were processed to extract biophysical parameters analysis. The results obtained allowed accurate characterization of the cultural conditions.

Point of Contact	
Name	Jérôme Soubirane
Organisation	Airbus Defence and Space
E-mail	jerome.soubirane@astrium.eads.net
Possible Co-Authors	Claire Brushini, Patrice Bicheron

#208

Abstract Form for CEOS Data Application Report

Title	**SPOT imagery to monitor crops in Brazil**
Application Type	**2. Industrial use: Stimulating new services and employment**
Application Field(s)	☑ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Airbus Defence and Space, Cocamar**
Abstract <100 words	With over 50 years of experience, Cocamar (Maringa, Brazil) is an agro-industrial cooperative with over 11.800 associated farmers. The challenge of this project was to monitor evolution of crops (sugar cane, soybean) in various parcels. The paper will describe the technical solution, based on SPOT imagery and show how the reactive tasking capacity of the SPOT systems allowed to acquire images at the crucial stage of the cultural cycle, the accurate geo-localisation of the parcels versus cadastral maps and the quality achieved in the NDVI processing as improved resolution is perfectly adapted for the detection of intra-parcel heterogeneities.

Point of Contact	
Name	Jérôme Soubirane
Organisation	Airbus Defence and Space
E-mail	jerome.soubirane@astrium.eads.net
Possible Co-Authors	Michael Daamen

#209

Abstract Form for CEOS Data Application Report

Title	**SPOT imagery to support Land Management policy**
Application Type	**2. Industrial use: Stimulating new services and employment**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☑ 12. Other (specify) Other field: Land-Use management
Stakeholders	**Airbus Defence and Space, CEREMA**
Abstract <100 words	Cerema is a resource and technical expertise centre for the benefit of the French public authorities. In France, the consistency local development plans is managed at the scale of groups of municipalities. It contributes in fighting against suburbanization, preserve agricultural/forestry surfaces, protect and restore ecological continuities. The challenge was to extract relevant 4-class land-cover to support an administrative unit management. The approach should be afterward able to be expanded for the national territory. The paper describes the technical solution, based on SPOT imagery and show the improved accuracy of the resulting cartography and the reduced confusions versus previous methodology.

Point of Contact	
Name	Jérôme Soubirane
Organisation	Airbus Defence and Space
E-mail	jerome.soubirane@astrium.eads.net
Possible Co-Authors	

#210

Abstract Form for CEOS Data Application Report

Title	**Planning a Pipeline Routing with Satellite Imagery**
Application Type	**2. Industrial use: Stimulating new services and employment**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☑ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Airbus Defence and Space, ILF Consulting**
Abstract <100 words	ILF Consulting Engineers is an engineering and consulting company specialised in helping customers to successfully execute complex industrial and infrastructure projects. In the frame of the SCPFX project (South Caspian Pipeline), the company needed a set of geospatial data to assess the best routing options for a pipeline corridor in Azerbaijan and Georgia. The challenge was to get data immediately at the start of the project and to reach a final accuracy of 1m RMS. The paper will describe the technical solution, based on the combination of imagery from multiple sensors (SPOT and Pléiades), and will provide quotes of feedback from the user.

Point of Contact	
Name	Charlotte Gabriel-Robez
Organisation	Airbus Defence and Space
E-mail	charlotte.gabriel-robez@astrium.eads.net
Possible Co-Authors	George Vozikis, Airbus Defence and Space; Santi Costa, Airbus Defence and Space

#211

Abstract Form for CEOS Data Application Report

Title	**Mineral Exploration using Satellite Data**
Application Type	**2. Industrial use: Stimulating new services and employment**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☑ 12. Other (specify) Other field: Mining
Stakeholders	**Minstry of Trade,Economy and industry**
Abstract <100 words	ASTER SWIR images can be used for extraction of alteration zones associated with mineralization. Target areas for ore exploration are derived from the distribution of alteration zones and mineral deposit models. Porphyry copper deposits are formed as the result of hydrothermal alteration of minerals due to volcanic activities millions of years ago. ASTER VNIR/SWIR composite image can visualize the existence of alteration rocks such as Kaolinite and Montmorilonite. Furthermore, Spectral analysis of ASTER SWIR data can delineate specific mineral alteration zones in its deposit model and identify a region with high copper potential. Such analysis provides valuable information for porphyry copper deposit exploration.

Point of Contact	
Name	Masaru Fujita
Organisation	Japan Space Systems
E-mail	Fujita-Masaru@jspacesystems.or.jp
Possible Co-Authors	Osamu Kashimura

#212

Abstract Form for CEOS Data Application Report

Title	**Satellite monitoring of harmful algal blooms (HABs) to protect the aquaculture industry**
Application Type	**2. Industrial use: Stimulating new services and employment**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☑ 5. Environment ☑ 6. ☐ 7. Forest ☐ 8. Health ☑ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other field:
Stakeholders	**Scottish Salmon Producers' Organisation; Marine Insurance industry; UK National Centre for Earth Observation (NCEO); Crown Estate; EC AQUA-USERS project.**
Abstract <100 words	Harmful algal blooms (HABs) can cause sudden and considerable losses to fish farms, for example 500,000 salmon during one bloom in Shetland, and also present a threat to human health. Early warning allows the industry to take protective measures. PML's satellite monitoring of HABs is now funded by the Scottish aquaculture industry. The service involves processing EO ocean colour data from NASA and ESA in near-real time, and applying novel techniques for discriminating certain harmful blooms from harmless algae. Within the AQUA-USERS project we are extending this capability to further HAB species within several European countries.

Point of Contact	
Name	Dr Peter Miller
Organisation	Plymouth Marine Laboratory
E-mail	pim@pml.ac.uk
Possible Co-Authors	Dr Andrey Kurekin

#213

Abstract Form for CEOS Data Application Report

Title	**Using AW3D within Mineral Exploration Operations**
Application Type	**2. Industrial use: Stimulating new services and employment**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☐ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☑ 12. Other (specify Other field: Mining, Mineral exploration
Stakeholders	Minera Antares Peru S.A.C.
Abstract <100 words	Performing mineral exploration operations within remote, mountainous areas is always difficult, expensive and time consuming. This case study highlights an example where a high quality Digital Elevation Model (DEM), derived from satellite imagery, is an extremely effective tool to use within these operations. The study area is located in the Andes Mountains in Southern Peru. The large elevation range and the remoteness of the area justified the use of a high resolution DEM as part of the exploration process. The 5-metre resolution ALOS World 3D (AW3D) topographic data was identified as a superior solution to off-the-shelf medium resolution DEMs. The use of AW3D within the exploration process has resulted in significant time savings in the crucial interpretation and planning stages, improving the ability of field teams to access the highest priority targets first. This data will continue to add value throughout the exploration stages of the projects including accurate siting of drill pads and 3D modelling of other datasets. This case study provides a good example of how a high quality satellite derived dataset, such as AW3D, can be employed within the mineral exploration phase of a mining operation.

Point of Contact	
Name	Greg Madden
Organisation	Geoimage Pty Ltd
E-mail	greg@geoimage.com.au
Possible Co-Authors	Minera Antares Peru S.A.C.

#301

Abstract Form for CEOS Data Application Report

Title	**GDM: the Ground deformation monitoring French infrastructure for scientific applications**
Application Type	**3. Science and research: Providing unique and sustained insights into the Earth system**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☑ 3. Disaster ☐ 4. Energy ☑ 5. Environment ☐ 6. Fish ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☑ 10. Mapping ☐ 11. Weather ☐ 12. Oth Other field:
Stakeholders	**CNRS, CNES**
Abstract <100 words	As part of a national solid Earth thematic center deployment, CNRS and other institutions are implementing a scientific service dedicated to ground deformation monitoring. This service will be based on a CNES computing infrastructure hosting Sentinels products, and will offer catalogue access, HPC facilities and thematic computation services on inSAR and optical imagery. Computation services will give scientists access to DTM, displacement map times series, quality indicators and modelling tools. GDM is aimed at serving a wide panel of scientific fields, such as earthquake cycle studies, tectonics, volcanism, erosion dynamics, or anthropogenic deformations. It will contribute to the ESFRI EPOS research infrastructure implementation.

Point of Contact	
Name	Emilie Ostanciaux
Organisation	CNRS
E-mail	ostanciaux@ipgp.fr
Possible Co-Authors	Michel Diament (IPGP), Mioara Mandea (CNES), Cécile Lasserre (CNRS), Olivier Jamet (IGN)

#302

Abstract Form for CEOS Data Application Report

Title	**GOSAT data since 2009 and its application**
Application Type	**3. Science and research: Providing unique and sustained insights into the Earth system**
Application Field(s)	☐ 1. Agriculture ☐ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☑ 5. Environment ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☐ 11. Weather ☐ 12. Other (specify) Other field:
Stakeholders	**Environmental Agency, Meteorological agency, Atmospheric research institute**
Abstract <100 words	Japan's GOSAT by JAXA, MOE and NIES is the world's first mission to monitor CO2 and CH4. The dataset since 2009 has been radiometrically and geometrically calibrated. Multiple teams from more than 10 countries have been working on independent CO2 retrievals with errors < 2 ppm over much of the globe. These dataset not only reduced uncertainty of global CO2-flux, but also demonstrated regional emission monitoring such as CO2 from mega-cities and CH4 from oil fields. Furthermore, the first high resolution spectra of plant fluorescence presented patterns of gross primary productivity and opened a new viewpoint on the carbon cycle.

Point of Contact	
Name	Akihiko KUZE
Organization	Earth Observation Research Center Japan Aerospace Exploration Agency
E-mail	kuze.akihiko@jaxa.jp
Possible Co-Authors	

#303

Abstract Form for CEOS Data Application Report

Title	**The NERC Earth Observation Data Acquisition and Analysis Service (NEODAAS)**
Application Type	**3. Science and research: Providing unique and sustained insights into the Earth system**
Application Field(s)	☐ 1. Agriculture ☑ 2. Climate ☐ 3. Disaster ☐ 4. Energy ☑ 5. Environment ☑ 6. ☐ 7. Forest ☐ 8. Health ☐ 9. Insurance ☐ 10. Mapping ☑ 11. Weather ☐ 12. Other field:
Stakeholders	**Environmental scientists (esp. marine/atmospheric), UK government, general public, education**
Abstract <100 words	The NERC Earth Observation Data Acquisition and Analysis Service (NEODAAS) undertakes satellite EO data reception, processing & archiving and user support for UK researchers and international collaborators. NEODAAS data are provided in near-real-time for rapid response such as research vessel and aircraft campaigns, permitting scientists to target dynamic oceanographic or atmospheric features of interest. NEODAAS data are provided via the internet to researchers and the general public, with approx. 0.3 million registered users and 4.3 million image downloads in 2013-14. Images have appeared on front pages of UK national newspapers and been used in courses up to degree-level.

Point of Contact	
Name	Mr. Ben Taylor
Organisation	Plymouth Marine Laboratory (PML), Plymouth, UK
E-mail	benj@pml.ac.uk
Possible Co-Authors	Steve Groom (PML), Peter Miller (PML), Neil Lonie (University of Dundee)

#304

Abstract Form for CEOS Data Application Report

Title	**The crucial and unique role of Earth Observation data within the 2014 Cephalonia (Greece) seismic crisis**
Application Type	**3. Science and research: Providing unique and sustained insights into the Earth system**
Application Field(s)	☐ 1. Agricult ☐ 2. Climat ☑ 3. Disaste ☐ 4. Energy ☐ 5. Environm ☐ 6. Fishery ☐ 7. Forest ☐ 8. Health ☐ 9. Insuran ☐ 10. Mappi ☐ 11. Weather ☐ 12. Other (sp
	Other field:
Stakeholders	Earthquake Planning and Protection Organization of Greece (EPPO) http://www.oasp.gr National Observatory of Athens (NOA) http://www.noa.gr
Abstract <100 words	A magnitude 6 earthquake in January 2014, followed a week later by a magnitude 5.9 event, caused extensive damage on the Greek island of Cephalonia. The timely acquisition of satellite radar imagery by the Italian COSMO-SkyMed and the German TerraSAR-X satellite constellations, provided a unique tool to map the 3D surface displacement associated with the second event and model its causative faults. These were located onshore Cephalonia, rather than off its western coast, as expected from seismogenic fault catalogs. This exemplifies the crucial role of Earth Observation data in improving our understanding of regional tectonics and the assessment of seismic hazard.

Point of Contact	
Name	John Peter Merryman Boncori
Organisation	Istituto Nazionale di Geofisica e Vulcanologia (INGV)
E-mail	john.merryman@ingv.it
Possible Co-Authors	I. Papoutsis (National Observatory of Athens, NOA), G. Pezzo (INGV), C. Tolomei (INGV), S. Atzori (INGV), A. Ganas (NOA), V. Karastathis (NOA), S. Salvi (INGV), C. Kontoes (NOA), A. Antonioli (INGV).