

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)	<input checked="" type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify)
	Other field:
Stakeholders	Ministry of Agriculture, Food and Agriculture company, Research on Environment, GEOGLAM (GEO Global Agriculture Monitoring), Asia-Rice (component of GEOGLAM)
Abstract <100 words	<p>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.</p>
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

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)	<input checked="" type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify)
	Other field:
Stakeholders	Agri-Business, Public Administration, Agricultural Policy
Abstract <100 words	<p>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.</p>
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

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input checked="" type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input checked="" type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	Volcanoes observatories
Abstract <100 words	<p>Radar images can be acquired at night and in cloudy conditions, which represents a significant 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.</p>
Point of Contact	
Name	Pinel Virginie
Organisation	ISTerre IRD
E-mail	Virginie.Pinel@univ-savoie.fr
Possible Co-Authors	Akhmad Solikhin (CVGHM)

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input checked="" type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	INPE, IBAMA
Abstract <100 words	<p>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 loses 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.</p>
Point of Contact	
Name	TBD
Organisation	JAXA, RESTEC
E-mail	
Possible Co-Authors	INPE, IBAMA, DPF

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	Environmental Agencies responsible for monitoring within the European Water Framework Directive
Abstract <100 words	<p>Mapping status information of the huge number of water bodies from space meets a wide range of global governmental and water industries needs.</p> <p>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.</p>
Point of Contact	
Name	Oppelt, Natascha
Organisation	Kiel University
E-mail	oppelt@geographie.uni-kiel.de
Co-Authors	Heege, Thomas (EOMAP)

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input checked="" type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	Government agencies, insurance, mining and construction sector
Abstract <100 words	<p>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).</p>
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

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input checked="" type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify)
	Other field:
Stakeholders	Ministries of environment, REDD+, UNREDD, FAO
Abstract <100 words	<p>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.</p>
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)

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. <input type="checkbox"/> 7. Forest <input checked="" type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other field:
Stakeholders	Veterinary services, public health policy makers
Abstract <100 words	<p>Linkages between infectious diseases and environment and climate variability do not have to be spelled out 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.</p> <p>The Directorate of veterinary services is then able to integrate those information into its adaptation strategy.</p>
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 Observatory)

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input checked="" type="checkbox"/> 12. Other (specify) Other field: Transportation
Stakeholders	Japan Coast Guard
Abstract <100 words	<p>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.</p> <p>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.</p> <p>End user such as fisher man, merchant service and tourist service can take their safe route by the Sea ice Condition Chart.</p>
Point of Contact	
Name	JAXA
Organisation	
E-mail	
Possible Co-Authors	

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	Institut de Recherche pour le Développement (IRD), Brazilian Water Agency (ANA)
Abstract <100 words	<p>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 .</p>
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)

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input checked="" type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	ADB, JAXA, DM related entities in participating countries(Bangladesh, Philippines, VietNam)
Abstract <100 words	<p>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.</p>
Point of Contact	
Name	Rio Tanabe
Organisation	JAXA
E-mail	tanabe.rvo@jaxa.jp
Possible Co-Authors	Yusuke Muraki, ADB

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input checked="" type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	JAXA, PHIVOLCS, NAMRIA, PAGASA, MGB, ASTI, PCIEERD, OCD
Abstract <100 words	<p>JAXA has been implementing Sentinel Asia Success Story project 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.</p>
Point of Contact	
Name	Rio Tanabe
Organisation	Disaster Management Support Systems Office, JAXA
E-mail	tanabe.rvo@jaxa.jp
Possible Co-Authors	Dr. Arturo Daag, PHIVOLCS

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)	<input type="checkbox"/> 1. Agriculture <input checked="" type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input checked="" type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input checked="" type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	Energy producing companies, agencies / entities generating emission inventories, environmental agencies, researchers
Abstract <100 words	<p>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 emissions 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 NO_x emissions from coal fired power plants in the US. Recent work based on SCIAMACHY 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.</p>
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

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input checked="" type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	Civil Protection, Citizens
Abstract <100 words	<p>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.</p>
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)

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input checked="" type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 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, fused 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 Far`a (Instituto Nacional de Meteorologia e Geofisica, Cape Verde), Barbara Hirn (IES Consulting, Italy), Stuart Fry

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input checked="" type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	Australian and Regional public and users of weather forecasting data
Abstract <100 words	<p>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 hemisphere, 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.</p>
Point of Contact	
Name	John Le Marshall
Organisation	Australian Bureau of Meteorology
E-mail	J.LeMarshall@bom.gov.au
Possible Co-Authors	tbd

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)	<input checked="" type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input checked="" type="checkbox"/> 3. Disaster <input checked="" type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> <input checked="" type="checkbox"/> 7. Forest <input checked="" type="checkbox"/> 8. Health <input checked="" type="checkbox"/> 9. Insurance <input checked="" type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> Other field:
Stakeholders	Australian governments; Research community; Insurance industry; Agriculture industry; Mining and gas industries; Civil protection agencies; Environment NGOs; Regulators
Abstract <100 words	<p>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 perennality. 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.</p>
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

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input checked="" type="checkbox"/> 3. Disaster <input checked="" type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Fore: <input checked="" type="checkbox"/> 8. Health <input checked="" type="checkbox"/> 9. Insurance <input checked="" type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field: Disasters, Environment
Stakeholders	Australian governments; Insurance industry; Agriculture industry; Mining and gas industries; Civil protection agencies;
Abstract <100 words	<p>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.</p>
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)

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)	<input type="checkbox"/> 1. Agriculture <input checked="" type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> Other field:
Stakeholders	Australian Government; Users of greenhouse gas accounts from private and public sector agencies, NGOs and the UNFCCC; GFOI
Abstract <100 words	<p>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.</p>
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)

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input checked="" type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input checked="" type="checkbox"/> 6. <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input checked="" type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 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	<p>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.</p>
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, Guy¹, LÉGARÉ, S.², AUGER, C.³, FRYE, S.⁴, BENOIT, M.⁵, HABBANE, M.⁶

guy.aube@asc-csa.gc.ca

¹Canadian Space Agency, Earth Observation Applications and Utilizations, St-Hubert, Quebec, Canada

²Ministère de la Sécurité publique du Québec, Centre des Opérations, Montréal, Quebec, Canada

³Public Safety Canada, Emergency Management and Regional Operations, Montréal, Quebec, Canada

⁴NASA Goddard Space Flight Center, Greenbelt, MD, USA

⁵Effigis Geo-Solutions, Montreal, Quebec, Canada

⁶Natural 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 panchromatic 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, Guy¹, SINGHROY, Vern², FROESE Corey³

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.

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input checked="" type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input checked="" type="checkbox"/> 11. Weather <input type="checkbox"/> 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	<p>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.</p>
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

Abstract Form for CEOS Data Application Report

Title	The Copernicus Sentinels Benefitting Society and Environment
Application Type	
Application Field(s)	<input checked="" type="checkbox"/> 1. Agriculture <input checked="" type="checkbox"/> 2. Climate <input checked="" type="checkbox"/> 3. Disaster <input checked="" type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input checked="" type="checkbox"/> 6. <input checked="" type="checkbox"/> 7. Forest <input checked="" type="checkbox"/> 8. Health <input checked="" type="checkbox"/> 9. Insurance <input checked="" type="checkbox"/> 10. Mapping <input checked="" type="checkbox"/> 11. Weather <input type="checkbox"/> 12.
	Other field:
Stakeholders	European Space Agency, others ?
Abstract <100 words	<p>Europe's Copernicus programme provides key information services to improve environment management, help mitigate the effects of climate change and safeguard everyday lives. The Programme is based on a new family of Sentinel satellites. The first, Sentinel-1, routinely provides all-weather, day-and-night radar imagery in support to ice monitoring, maritime surveillance, terrain motion risk assessment, environment management and humanitarian aid operations.</p> <p>Copernicus ensures sustained, operational availability of high-quality data under an open and free data policy. This is expected to stimulate the take-up of EO for commercial use and to play an important role in European research, thereby boosting innovation and economic growth.</p>
Point of Contact	
Name	Ivan Petiteville
Organisation	European Space Agency
E-mail	Ivan.Petiteville@esa.int
Possible Co-Authors	Simon Jutz (ESA), Ivan Petiteville (ESA), Alessandra Tassa (ESA)

Abstract Form for CEOS Data Application Report

Title	EUMETSAT Geostationary Systems
Application Type	
Application Field(s)	<input type="checkbox"/> 1. Agriculture <input checked="" type="checkbox"/> 2. Climate <input checked="" type="checkbox"/> 3. Disaster <input checked="" type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input checked="" type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input checked="" type="checkbox"/> 11. Weather <input checked="" type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	EUMETSAT and others
Abstract <100 words	<p>EUMETSAT Geostationary Systems EUMETSAT is providing operational services from geostationary orbit with a fleet of three generations of Meteosat satellites, the prime service currently being covered by the first and second generation. Key applications are related to Nowcasting and very short range forecasting and include high quality imagery, and derived products like instability indices, volcanic ash parameters etc. The long term continuity is assured by the Meteosat Third Generation which will introduce Hyperspectral Sounding and UVVIS spectrometry into geostationary orbit and extend the key applications to high quality soundings for Nowcasting and air quality monitoring.</p>
Point of Contact	
Name	Dieter Klaes, Paul Counet
Organisation	EUMETSAT
E-mail	dieter.klaes@eumetsat.int ; paul.counet@eumetsat.int
Possible Co-Authors	Dieter Klaes, Rolf Stuhlmann, Kenneth Holmlund, Johannes Schmetz

Abstract Form for CEOS Data Application Report

Title	EUMETSAT Low Earth Observation Systems
Application Type	
Application Field(s)	<input checked="" type="checkbox"/> 1. Agriculture <input checked="" type="checkbox"/> 2. Climate <input checked="" type="checkbox"/> 3. Disaster <input checked="" type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input checked="" type="checkbox"/> 6. Fishery <input checked="" type="checkbox"/> 7. Forest <input checked="" type="checkbox"/> 8. Health <input checked="" type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input checked="" type="checkbox"/> 11. Weather <input checked="" type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	EUMETSAT and Global Users
Abstract <100 words	<p>EUMETSAT Low Earth Observation Systems</p> <p>The EUMETSAT Polar System (EPS) contributes to the global polar orbiting weather satellite observing system. Detailed observations are provided of atmospheric conditions like temperature and humidity profiles from a polar sun-synchronous orbit from the mid-morning orbit. The payload provides in addition to the meteorological observations also key information on the atmospheric composition and ocean parameters. The focus is global Numerical Weather Prediction where Metop data are an indispensable part of the global space-based observing system. Continuity will be assured by the EPS Second Generation, which will improve and extend the current EPS services (using two series of three satellites each) and additional application areas. The EPS second generation will ensure continuity until approximately 2040.</p>
Point of Contact	
Name	Dieter Klaes, Paul Counet
Organisation	EUMETSAT
E-mail	dieter.klaes@eumetsat.int ; paul.counet@eumetsat.int
Possible Co-Authors	Dieter Klaes, Peter Schlüssel, Kenneth Holmlund, Johannes Schmetz

Abstract Form for CEOS Data Application Report

Title	Mapping and Forecasting Frost with Satellite Observations
Application Type	1. Public use: Supporting an informed and secure society
Application Field(s)	<input checked="" type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	Kenya Meteorological Service, Tea Research Foundation of Kenya, insurance providers
Abstract <100 words	<p>Kenya is ranked third in annual world tea production, and it has the highest tea productivity (yield per hectare) worldwide. The industry provides for the livelihoods of an estimated 4 million Kenyans, or about 10 percent of the total population. Public and private sector organizations in Kenya now use an automated frost mapping system that incorporates Terra and Aqua satellite-derived land surface temperature data. Stakeholders use the maps to identify areas of potential frost, improve crop yields and avoid losses, and assess claimed losses on insurance policies. The frost maps have potential for practical use in other countries.</p>
Point of Contact	
Name	Lawrence Friedl
Organisation	NASA Earth Science Division, Applied Sciences Program
E-mail	lfriedl@nasa.gov
Possible Co-Authors	

Abstract Form for CEOS Data Application Report

Title	Augmenting Management and Monitoring of Coral Reefs
Application Type	1. Public use: Supporting an informed and secure society
Application Field(s)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	Florida Keys National Marine Sanctuary, Florida Department of Environmental Protection, conservationists, National Oceanic and Atmospheric Administration (NOAA)
Abstract <100 words	<p>Climate change has contributed to rising ocean temperatures and growing ocean acidification, which affect coral reef health. Incorporating data from U.S. and foreign satellites, NOAA Coral Reef Watch is an online tool that provides near real-time and long-term monitoring, forecasting, and reporting of environmental conditions of coral reef ecosystems. Coral reef managers, conservation program managers, and others use Coral Reef Watch to reduce further human impacts on reefs—and the broader ecosystems and local economies they support. The online tool includes global, 5-km sea surface temperature products to depict thermal stress.</p>
Point of Contact	
Name	Lawrence Friedl
Organisation	NASA Earth Science Division, Applied Sciences Program
E-mail	lfriedl@nasa.gov
Possible Co-Authors	

Abstract Form for CEOS Data Application Report

Title	Advancing Marine Mammal and Protected Species Management
Application Type	1. Public use: Supporting an informed and secure society
Application Field(s)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	U.S. Navy, U.S. Bureau of Ocean Energy Management, National Oceanic and Atmospheric Administration
Abstract <100 words	Whales, porpoises, and dolphins are endangered by seismic surveys, oil drilling noise, naval exercises, and other human activities. Earth observations improved cetacean population density estimates in the Spatial Decision Support System (SDSS), which several entities use to further marine mammal conservation. SDSS allows users to visualize and explore predicted habitats for marine mammals around U.S. waters. Model results yield predictive maps for the likelihood of encounter from parameters such as depth, distance to shore, sea surface temperature, and chlorophyll concentration.
Point of Contact	
Name	Lawrence Friedl
Organisation	NASA Earth Science Division, Applied Sciences Program
E-mail	lfriedl@nasa.gov
Possible Co-Authors	

Abstract Form for CEOS Data Application Report

Title	Furthering Wildlife Habitat Conservation and Management
Application Type	1. Public use: Supporting an informed and secure society
Application Field(s)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	U.S. Fish and Wildlife Service, National Park Service, conservation organizations
Abstract <100 words	<p>The U.S. Fish and Wildlife Service manages the 150-million acre National Wildlife Refuge System and initiatives by states, territories, and tribes for fish and wildlife monitoring and conservation. To support ecological forecasting for fish and wildlife management, a system of tools integrates satellite data products such as solar radiation, snow, vegetation, and elevation. The system allows users to better understand the effects of climate and other environmental factors on species populations. It also provides analysis and visualization of data sets for ecosystem assessments.</p>
Point of Contact	
Name	Lawrence Friedl
Organisation	NASA Earth Science Division, Applied Sciences Program
E-mail	lfriedl@nasa.gov
Possible Co-Authors	

Abstract Form for CEOS Data Application Report

Title	Improving Air Quality Information with Satellite Data
Application Type	1. Public use: Supporting an informed and secure society
Application Field(s)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input checked="" type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	U.S. Environmental Protection Agency, state agencies for environmental protection and pollution control
Abstract <100 words	Awareness of local air quality conditions informs choices and actions for many people, from parents of asthmatic children, to athletes and outdoor enthusiasts, to elder care providers, to air quality managers. Applying satellite data, the U.S. Environmental Protection Agency increased the accuracy of fine particulate matter information in its online decision support system, which health officials use to alert the public about hazardous pollution. The satellite data expanded the coverage of the system to reach millions of people not adequately covered by a network of ground-based air quality monitors.
Point of Contact	
Name	Lawrence Friedl
Organisation	NASA Earth Science Division, Applied Sciences Program
E-mail	lfriedl@nasa.gov
Possible Co-Authors	

Abstract Form for CEOS Data Application Report

Title	Supporting Early Warnings of Infectious Diseases with New Global Risk Maps
Application Type	1. Public use: Supporting an informed and secure society
Application Field(s)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input checked="" type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	World Health Organization, U.S. Department of Agriculture, U.S. Department of Defense, country ministries of health and agriculture
Abstract <100 words	Viral hemorrhagic fevers—such as Rift Valley fever, Marburg hemorrhagic fever, and Ebola— affect humans and are especially deadly for livestock. Earth-observing satellites collect data on surface temperature, precipitation, vegetation, and other environmental parameters associated with the diseases' hosts and vectors. The World Health Organization and nations' health officials now have access to global risk maps of infectious diseases associated with viral hemorrhagic fevers on a biweekly basis. Applying data on environmental conditions derived from satellites, the risk maps support early warnings of outbreaks and aid health officials' preparedness.
Point of Contact	
Name	Lawrence Friedl
Organisation	NASA Earth Science Division, Applied Sciences Program
E-mail	lfriedl@nasa.gov
Possible Co-Authors	

Abstract Form for CEOS Data Application Report

Title	Enhancing Drought Monitoring in North America
Application Type	1. Public use: Supporting an informed and secure society
Application Field(s)	<input checked="" type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input checked="" type="checkbox"/> 12. Other (specify) Water
Stakeholders	U.S. National Drought Mitigation Center, U.S. Department of Agriculture, National Oceanic and Atmospheric Administration
Abstract <100 words	<p>The National Drought Mitigation Center produces official drought maps and products. Applications of satellite data facilitate the determination of changes in the total amount of water stored both on top of and below the land surface, including snow, surface water, soil moisture, and groundwater. Using the satellite data to augment meteorological observations, the officials who generate the weekly U.S. Drought Monitor can gauge the impact of long episodes of wet and dry weather. Enhanced drought monitoring could improve drought planning on the national, state, local, and tribal level.</p>
Point of Contact	
Name	Lawrence Friedl
Organisation	NASA Earth Science Division, Applied Sciences Program
E-mail	lfriedl@nasa.gov
Possible Co-Authors	

Abstract Form for CEOS Data Application Report

Title	Tracking Global Crop Conditions for Improved Production Assessments
Application Type	1. Public use: Supporting an informed and secure society
Application Field(s)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify)
Stakeholders	GEO Global Agricultural Monitoring (GEOGLAM), Food and Agriculture Organization, main producer countries, European Commission, Agricultural Market Information System
Abstract <100 words	The GEOGLAM initiative enhances international capacity to monitor crop production with Earth observations for improving food security and market stability. GEOGLAM merges satellite data with crop condition reports to produce credible information on monthly crop conditions for maize, rice, soybeans, and wheat. The Agricultural Market Information System includes GEOGLAM crop health estimates in its monthly Market Monitor for agricultural traders, economists, and policy makers. The monitor assesses conditions in both the Northern Hemisphere and Southern Hemisphere.
Point of Contact	
Name	Lawrence Friedl
Organisation	NASA Earth Science Division, Applied Sciences Program
E-mail	lfriedl@nasa.gov
Possible Co-Authors	

Abstract Form for CEOS Data Application Report

Title	Collaborative EO Application Development for Understanding and Managing Australia's Environment
Application Type	1. Public use: Supporting an informed and secure society
Application Field(s)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other field:
Stakeholders	All Australian national, state and local government agencies responsible for monitoring and managing the environment, research institutions and universities, private agencies and non-government organisations. Foreign national EO, space and science agencies requiring calibration and validation of their EO sensors and products. EO and earth systems science scientists.
Abstract <100 words	<p>Australia's Terrestrial Ecosystem Research Network (www.tern.org.au), and its remote sensing facility Auscover (www.auscover.org.au) has developed and implemented a unique program that has enabled collaboration across multiple levels of government and research institutions to deliver new, continentally consistent, validated time series of satellite EO based biophysical property maps. The mapping products are all based on a combination of field calibration-validation data and validated algorithms. The mapped products include vegetation (cover, height, phenology), vegetation indices, burnt area and history, and meteorological parameters. The algorithm and product development and delivery was only possible due to the multi-jurisdictional "level playing field" approach provided by TERN Auscover, where the agencies could share their data collection infrastructure, staff, data and algorithms. As a result algorithm were built and validated across all major ecosystems, from sandy deserts, through shrubland, savannah, eucalypt woodlands and forests, to dense tropical and temperate rainforests. All of the field data, algorithms and time-series are published through the TERN Auscover portal.</p>
Point of Contact	
Name	Professor Stuart Phinn
Organisation	The University of Queensland
E-mail	s.phinn@ug.edu.au
Possible Co-Authors	Dr Alex Held, Dr Peter Scarth, Dr Kasper Johansen

Abstract Form for CEOS Data Application Report

Title	Monitoring changes in Australia’s ecosystems to support government monitoring and management					
Application Type	1. Public use: Supporting an informed and secure society					
Application Field(s)	<input checked="" type="checkbox"/> 1. Agriculture	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
	<input type="checkbox"/> 7. Forest	<input type="checkbox"/> 8	<input type="checkbox"/> 9	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
	Other field: Environment					
Stakeholders	All Australian national, state and local government agencies responsible for monitoring and managing the environment, research institutions and universities, private agencies and non-government organisations. Foreign national EO, space and science agencies requiring calibration and validation of their EO sensors and products. EO and earth systems science scientists.					
Abstract <100 words	The legislated monitoring and on-ground management of Australia’s environmental resources, atmospheric, vegetation, soils , water bodies and benthos , is conducted by state government agencies. State agencies are Australia’s largest and longest term users of satellite EO data, as well as our largest employers of EO specialists. This paper outlines the range of legislated activities in Australia that are fully supported by EO data, for baseline mapping, monitoring and modelling. Specific details are provided on the operational use of the Landsat Archive for vegetation cover mapping. Development, delivery and maintenance of these capabilities and their products requires significant research and development on calibration/validation, the algorithms and the products. Details are provided on how new approaches for operational monitoring of vegetation structure using lidar and imaging radar are being developed and applied.					
Point of Contact						
Name	Professor Stuart Phinn					
Organisation	The University of Queensland					
E-mail	s.phinn@uq.edu.au					
Possible Co-Authors	Dr Peter Scarth, Christian Witte, Tim Danaher, Jason Barnes, Andrew Mellor, Mathew Adams					

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)	<input checked="" type="checkbox"/> 1. Agriculture <input checked="" type="checkbox"/> 2. Climate <input checked="" type="checkbox"/> 3. Disaster <input checked="" type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input checked="" type="checkbox"/> 6. Fishery <input checked="" type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input checked="" type="checkbox"/> 9. Insurance <input checked="" type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input checked="" type="checkbox"/> 12. Other (spec) Other field: Maritime surveillance
Stakeholders	
Abstract <100 words	<p>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.</p> <p>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.</p> <p>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.</p>
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

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field: Mineral Exploration and Mining, Monitoring Mining by public and state entities
Stakeholders	Society and Industry
Abstract <100 words	<p>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.</p>
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.

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input checked="" type="checkbox"/> 12. Other field: Maritime surveillance
Stakeholders	Ship operators, ocean freight industry, offshore supply industry
Abstract <100 words	<p>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.</p>
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

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input checked="" type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input checked="" type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	Oil & gas, ship routing, fisheries, public administrations...
Abstract <100 words	<p>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.</p>
Point of Contact	
Name	Fabien Lefèvre
Organisation	CLS
E-mail	flefevre@cls.fr
Possible Co-Authors	Sophie Baudel , Laurent Guerlou, Stéphanie Limouzin

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input checked="" type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify)
	Other field:
Stakeholders	Japan Fisheries Information Service Center (JAFIC) Prefecture Fisheries Research Institute
Abstract <100 words	<p>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.</p> <p>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.</p>
Point of Contact	
Name	
Organisation	JAXA
E-mail	
Possible Co-Authors	JAFIC

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)	<input type="checkbox"/> 1. Agriculture <input checked="" type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input checked="" type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input checked="" type="checkbox"/> 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)

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)	<input checked="" type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	Airbus Defence and Space, Serbian Republic Geodetic Authority (RGA)
Abstract <100 words	<p>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...)</p> <p>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.</p> <p>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.</p>
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

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)	<input checked="" type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	Airbus Defence and Space, Cocamar
Abstract <100 words	<p>With over 50 years of experience, Cocamar (Maringa, Brazil) is an agro-industrial cooperative with over 11.800 associated farmers.</p> <p>The challenge of this project was to monitor evolution of crops (sugar cane, soybean) in various parcels.</p> <p>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.</p>
Point of Contact	
Name	Jérôme Soubirane
Organisation	Airbus Defence and Space
E-mail	jerome.soubirane@astrium.eads.net
Possible Co-Authors	Michael Daamen

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input checked="" type="checkbox"/> 12. Other (specify) Other field: Land-Use management
Stakeholders	Airbus Defence and Space, CEREMA
Abstract <100 words	<p>Cerema is a resource and technical expertise centre for the benefit of the French public authorities.</p> <p>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.</p> <p>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.</p> <p>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.</p>
Point of Contact	
Name	Jérôme Soubirane
Organisation	Airbus Defence and Space
E-mail	jerome.soubirane@astrium.eads.net
Possible Co-Authors	

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input checked="" type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify) Other field:
Stakeholders	Airbus Defence and Space, ILF Consulting
Abstract <100 words	<p>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.</p>
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

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input checked="" type="checkbox"/> 12. Other (specify) Other field: Mining
Stakeholders	Ministry of Trade, Economy and industry
Abstract <100 words	<p>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.</p> <p>ASTER VNIR/SWIR composite image can visualize the existence of alteration rocks such as Kaolinite and Montmorillonite. 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.</p>
Point of Contact	
Name	Masaru Fujita
Organisation	Japan Space Systems
E-mail	Fujita-Masaru@jspacesystems.or.jp
Possible Co-Authors	Osamu Kashimura

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input checked="" type="checkbox"/> 6. <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input checked="" type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 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	<p>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.</p>
Point of Contact	
Name	Dr Peter Miller
Organisation	Plymouth Marine Laboratory
E-mail	pim@pml.ac.uk
Possible Co-Authors	Dr Andrey Kurekin

Abstract Form for GEOS Data Application Report

Title	Using AW3D within Mineral Exploration Operations
Application Type	2. Industrial use: Stimulating new services and employment
Application Field(s)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input checked="" type="checkbox"/> 12. Other (specify)
	Other field: Mining, Mineral exploration
Stakeholders	Minera Antares Peru S.A.C.
Abstract <100 words	<p>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.</p>
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.

Abstract Form for CEOS Data Application Report

Title	GLOBAL MAPPING OF THE EARTH' S LAND SURFACE COMPOSITION
Application Type	2. Industrial use: Stimulating new services and employment
Application Field(s)	<input checked="" type="checkbox"/> 1. Agriculture <input checked="" type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input checked="" type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input checked="" type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> Other field:
Stakeholders	Federal and state geological surveys, mining and extractive industry, federal and state agricultural departments, federal and state natural resources managers and environmental departments
Abstract <100 words	<p>The ASTER geoscience maps of Australia represent the world' s first continental scale mineral maps. Derived from ASTER, the first "geoscience-tuned" remote sensing satellite, these maps have relevance across a range of domains from non-renewable resources to agriculture and natural resources management. Since its launch in August 2012, downloads of the ASTER geoscience maps amount to 40,000 in the first 4 months from approximately 40 countries. The use of the maps has led to successes such as the discovery of the Chubko prospect.</p> <p>The ASTER geosciences maps are seeing uptake in other continents such as Chile, China, New Zealand, Africa.</p>
Point of Contact	
Name	Dr Thomas Cudahy
Organisation	CSIRO
E-mail	thomas.cudahy@csiro.au
Possible Co-Authors	Mike Caccetta, Cindy Ong, Carsten Laukamp, Ian Lau, Matilda Thomas, Simon Collings

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input checked="" type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fish <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input checked="" type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other Other field:
Stakeholders	CNRS, CNES
Abstract <100 words	<p>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.</p>
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)

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify)
	Other field:
Stakeholders	Environmental Agency, Meteorological agency, Atmospheric research institute
Abstract <100 words	<p>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.</p>
Point of Contact	
Name	Akihiko KUZE
Organization	Earth Observation Research Center Japan Aerospace Exploration Agency
E-mail	kuze.akhiko@jaxa.jp
Possible Co-Authors	

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)	<input type="checkbox"/> 1. Agriculture <input checked="" type="checkbox"/> 2. Climate <input type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input checked="" type="checkbox"/> 5. Environment <input checked="" type="checkbox"/> 6. <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input checked="" type="checkbox"/> 11. Weather <input type="checkbox"/> 12.
	Other field:
Stakeholders	Environmental scientists (esp. marine/atmospheric), UK government, general public, education
Abstract <100 words	<p>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.</p>
Point of Contact	
Name	Mr. Ben Taylor
Organisation	Plymouth Marine Laboratory (PML), Plymouth, UK
E-mail	beni@pml.ac.uk
Possible Co-Authors	Steve Groom (PML), Peter Miller (PML), Neil Lonie (University of Dundee)

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)	<input type="checkbox"/> 1. Agriculture <input type="checkbox"/> 2. Climate <input checked="" type="checkbox"/> 3. Disaster <input type="checkbox"/> 4. Energy <input type="checkbox"/> 5. Environment <input type="checkbox"/> 6. Fishery <input type="checkbox"/> 7. Forest <input type="checkbox"/> 8. Health <input type="checkbox"/> 9. Insurance <input type="checkbox"/> 10. Mapping <input type="checkbox"/> 11. Weather <input type="checkbox"/> 12. Other (specify)
	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).