Typické aplikace DPZ

Zemědělství

Životní prostředí

Lesnictví

Geologie & pedologie

<u>Infrastruktura</u>

Land & urban management

Krizový management

Marketing

Telekomunikace

Ostatní

http://earth.esa.int/applications/ http://www.gisat.cz

http://www.usgs.gov

Typické aplikace DPZ

Applications Summary http://earth.esa.int/applications/											
	Excellent Useful			Useful in certain conditions							
					Not normally useful						
	Landsat5 TM	Landsat MSS	Landsat ETM+	ERS SAR	RADARSAT SAR	ERS ATSR	JERS-1 SAR	IRS Pan	IRS MS	NOAA/ AVHRR	Hi-Res: QuickBird
Agriculture											
Forestry											
Geology & Exploration											
Cartography											
Environment											
Risk management											
Security											
Utilities											
Telecomms											
Marine & Coastal											
Media & Consumer											

Zemědělství

Crop Yields

Overview

The forecast of crop yield is used operationally to cover continental areas such as Europe for the purposes of agricultural policy decisions. The techniques are also being implemented world-wide in more critical areas to support aid programmes.

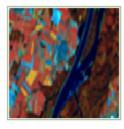


Satellite technology helps to combat locusts

06 December 2006

As plagues of locusts threaten to destroy crops in the Sahel region of Africa, CNES is proposing satellite technologies to track swarms. How can satellite technologies help to combat desert locust invasions?...

Read More



EOPI - Agricultural Monitoring Using the Canopy Reflectance Model SLC 06 December 2006

CHRIS data of the years 2003 and 2004 of two agricultural test-sites in Germany were analyzed with the goal to evaluate the notential of...

Read More

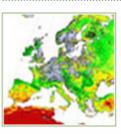


DRAGON - Rice Monitoring in China 06 December 2006

The objective of the project is to develop methodology to use remote sensing data for rice mapping, and retrieving information characterising rice fields (biomass, photosynthetic activities, water management...

- odhady úrody
- monitoring škůdců
- podpora rozhodování
- "food security"
- rozvojová pomoc

- Inventory/Statistics
- Precision farming
- Subsidy analyses
- Field variability

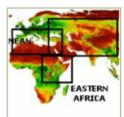


GMES – MARS FOOD Crop Monitoring for Food Security

06 December 2006

For implementation of the European Food Aid and Food Security policy, timely information is needed by DG AIDCO on the food and crop situation. To respond to this need and in the framework of...

Read More



JRC - MARS STAT 06 December 2006

The MARS (Monitoring Agriculture with Remote Sensing) - Unit (Stat Action) has been running since 1993 an operational activity on the analysis of crop growth condition assessment and crop yield...

Lesnictví

Forestry

Overview

Forestry applications cover both the mapping of forest area and health of the canopy itself. Today the extent and health of the world's forests are key indicators in the monitoring of the world's climate.



JRC - Forest Action: Forest Data and Information Systems

06 December 2006

Information of forests is essential for the implementation EU environmental policies as forests play a key role in aspects related to the protection of European ecosystems, biodiversity, the sustainable use of natural resources, carbon sequestration and climate change...

Read More >



ESA - Satellites support Kyoto Protocol through forest mapping service

06 December 2006

A prototype service utilising satellites for mapping forests to aid compliance with the Kyoto Protocol has been endorsed by end users...

Read More >



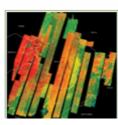
TIGER – Assessing groundwater access by trees growing above contaminated groundwarer plumes originating from gold tailings storage facilities.

06 December 2006

The Mine Woodlands Project on the Witwatersrand Basin goldfields...

Read More →

- inventarizace / mapování
- odlesňování
- nezákonná těžba
- fragmentace
- zdravotní stav



DRAGON - Forest Map Updating using ENVISAT ASAR Data

06 December 2006

The objectives of this investigation are to use ENVISAT ASAR (Advanced Synthetic Aperture Radar) data to map forest over large area and update forest map generated from ERS SAR Interferometric...

Land Use

Land Use

Overview

The monitoring of land use is used extensively in the review of change through time, in particular in the examination of the move from natural habitats to more intensive agricultural use.



GlobCover Land Cover Products Release

13 October 2008

The GlobCover Land Cover product is the highest resolution (300 meters) Global Land Cover product ever produced and independently validated. It is based on Envisat MERIS data at full resolution from January 2005 to June 2006...

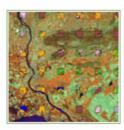
Read More →



Land use classification in the Argentinean Pampas from Meris-Envisat imagery

06 December 2006

In Argentina, the Pampa's Region concentrates the most important agricultural area of the country, Nowadays, natural grasslands...



JRC - AGRI-ENV Land Use/Land Cover Change

06 December 2006

We can look at the land cover change at least from two different points of view: collecting reliable information and interpreting this information in a meaningful way. We focus mainly on the collection of...

Read More >

- inventarizace / mapování
- detekce a analýza změn v čase (odlesňování, desertifikace, intenzifikace zem., suburbanizace, fragmentace atd.)



DRAGON - Agriculture and Land Use Monitoring: Envisat Applications in **Fujian Province**

06 December 2006

The main objective of the project is to develop, validate and apply methodology, using new features of Envisat data...

Read More



DUE - Innovator Carto Change 06 December 2006

The CARTO-CHANGE INNOVATOR project has the objective to develop a generic GIS based methodology and information services based on the methodology. The information service addresses the harmonization...

Monitoring půd

Soil

Overview

The monitoring of soil moisture on a large scale for the purposes of hydrological modelling and water management form the major element of this application. In addition research is aimed at understanding both soil chemistry and processes.



Landsat Classification Demonstrator 27 February 2007

The new SOIL MAPPER classification algorithm of MEEO (Meteorological Environmental Earth Observation) can now be run against the ESA collection of Landsat Thematic Mapper images over Europe...

Read More

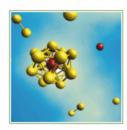


The potential of the MERIS sensor for soil organic matter estimation of arable agricultural land in Mediterranean Europe

06 December 2006

Soil organic matter (SOM) plays a central role in key soil functions. Various important soil characteristics concerning the nutrient budget...

Read More



Global partitioning of NOx sources using satellite observations: Relative roles of fossil fuel combustion, biomass burning and soil emissions 06 December 2006

Nitrogen oxides (NOx) are significant in atmospheric chemistry...

Read More >

- půdní vlhkost
- desertifikace
- kontaminace půd



TIGER - Downscaling of Scatterometer Derived Soil Moisture Data for Regional Hydrological Modelling (REGIO-MOIST)

06 December 2006

The goal of this Project is to quantify soil moisture for regional hydrological modeling and to develop a downscaling approach for...

Read More >

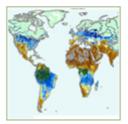


TIGER - ASAR Global Monitoring Mode as Background Mission over Africa for Monitoring Soil Moisture Dynamics at 1 km in Support of Water Resource Management (AfriScan)

06 December 2006

The aim of this proposal is to highlight the potentially large benefits...

Read More I



GMES - GEOLAND Soil Moisture

06 December 2006

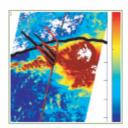
Two soil moisture parameters are derived from active microwave measurements (ERS-1/2 scatterometer):): the topsoil moisture content (surface wetness) which is the relative measure of soil...

Srážky a oblačnost

Clouds & Precipitation

Overview

The analysis of the properties of clouds is aimed at understanding their evolution and development. In particular this work hopes to improve rainfall prediction techniques.

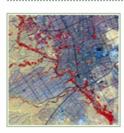


EOPI - Accurate Rain Information from ENVISAT Sensors (ARIES). Results published June 2004.

11 October 2006

Clouds and rain are an integral part of the cycle of freshwater between atmosphere and ocean, and they also affect the radiative heat ...

Read More

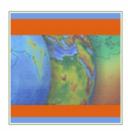


There's a Change in Rain Around Desert Cities (July 2006)

11 October 2006

A study using NASA satellite data and weather records show the urban heat island effect, pollution, irrigation and population changes alter rainfall in desert cities. Urban areas with high concentrations of ...

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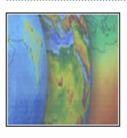


EOPI - Cloud validation for OMI 11 October 2006

The Ozone Monitoring Instrument (OMI) will measure the daily global distribution of O3, NO2, BrO, SO2, and HCHO with unprecedented ...

Read More >

predikce srážek

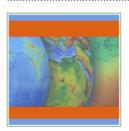


EOPI - Development and Validation of an Improved Cloud Detection Algorithm

11 October 2006

Clouds are known to have a major impact on the radiative transfer in the atmosphere and hence influence the global energy budget ...

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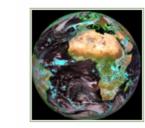


EOPI - Albedo assessment of the potential of the ESOS-MODIS Land Surface BRDF/Albedo product for MERIS cloud optical thickness and cloud albedo retrieval. (Results published April 2006)

11 October 2006

For well instrumented field sites and for aircraft underflights, the ...

Read More →



EUMETSAT – Operational Cloud Analysis Product

11 October 2006

The Cloud Analysis (CLA) product is an automatically generated product describing the total cloud amount and the cloud top temperatures for the image segments. It is derived from an internal Intermediate ...

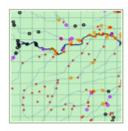
Management vodních zdrojů

Water Management

Overview

The management of land based water resources is of particular importance to the large parts of the world which still lack reliable access to water. It is crucial to understand both the hydrological cycle and distribution of these scarce resources.

Read More >

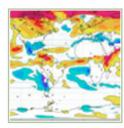


Assessment of multi-mission radar altimeter performance over the Amazon basin, Report March 2006

28 November 2006

Satellite altimetry has been used for many years to monitor selected inland water targets. To assess the performance of past and current...

Read More



DRAGON - Water Resources Assessment in the Huai River Basin : Hydrological Modelling and Remote Sensing. July 2006

28 November 2006

Water resources are becoming more and more exploited and vulnerable throughout the world. Both surface water and groundwater...

Read More &



TIGER Pre Operational -Development and demonstration of Earth observation technology for identifying natural mosquito habitats and predicting malaria risk in Africa 28 November 2006

28 November 2006

The project is part of Kenya's National Malaria Control Program that...

Read More >

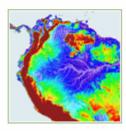
- ochrana a distribuce vodních zdrojů –
- zabezpečení přístupu k vodě
- hydrologické modelování
- predikce malárie



TIGER Pre Operational – AQUIFER 28 November 2006

Development and demonstration of EObased products and services to support national authorities and international institutions in the management of internationally shared aguifers in Africa...

Read More >



ESA - River & Lake 28 November 2006

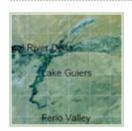
Recent research into the application of altimetry for monitoring river and lakes levels has been carried out and demonstrated the advantages of using data derived from satellite as global coverage...

Monitoring kvality vody

Water Quality

Overview

The monitoring of the quality of inland water bodies is crucial in areas of scarce hydrological resources such as Africa. In addition there is an increasing need to monitor the effects of pollution on our water cycle.

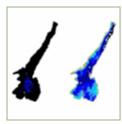


Analysis of MERIS data for assessing the water quality in Lake Guiers (SENEGAL)

22 September 2008

Main purpose is: reconnaissance on the feasibility of remote sensing as a tool for effective water quality monitoring of Lake Guiers (Senegal). Preliminary results of our investigations to test if it is possible to use the FUB algorithm [Shroeder et Schaale, 2005] are presented here.

Read More >

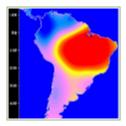


Monitoring water quality of the perialpine Italian Lake Garda through multi-temporal MERIS data

28 November 2006

The most important Italian lake district is located in northern Italy and represents more than 80% of the total Italian lacustrine volume...

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Satellites Find Balance In South America's Water Cycle

28 November 2006

For the first time, NASA scientists using space-based measurements have directly monitored and measured the complete cycle of water movement for an entire continent. "Having a better understanding of...

Read More



TIGER - Satellite Monitoring of Lake Water Quality in Egypt

28 November 2006

The main objective of this project is to design, develop and implement an Earth Observation (EO)-based capacity for the operational monitoring of water quality in Lake Manzalah, Egypt. Lakes are a...

Mokřady

Wetlands

Overview

The world's wetlands form a unique environment for natural species, but due to their fragility they are evermore under pressure. The study of the environment and the change elements which affect them are the core of this application area.



TIGER - Satellite data for monitoring flooding and vegetation changes of the Kafue Flats, Zambia, in relation to the new water management regulation at ZESCO Ltd.

04 December 2006

After construction of the Kafue Gorge and Itezhi-tezhi dams the...

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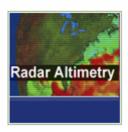


MEDWET/ CODDE – Towards a standardized methodology for inventorying and monitoring Mediterranean wetlands using Earth Observation, October 2006

04 December 2006

The aim is to demonstrate how Earth
Observation can assist the...

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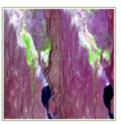


Application of Radar Altimetry in Detecting the Changes of Wetlands and Lakes in the Prairie Pothole Region, Report March 2006

28 November 2006

The influence of climate change and climate variability in the Prairie Pothole region of North America has emerged as a problem of...

- inventarizace
- monitoring (detekce změn)
- sezónní režim



Creston Valley, British Colombia, Canada

28 November 2006

The Creston Valley Wildlife Management Area (CVWMA) is responsible for the management of this internationally significant Ramsar designated wetland site for conservation and natural species diversity...

Read More >



DUE – GLOBWETLAND: African wetland managers armed with new technology, May 2006

28 November 2006

Earth's wetlands are vital to the water cycle and havens for wildlife, but they are under threat. GlobWetland, an ESA-led initiative in...

Sucho

Drought

Overview

In addition to the known desert regions of the world there are an increasing number of areas in which the risk of desertification is growing. In these areas prediction techniques are of crucial importance to planning and aid authorities.

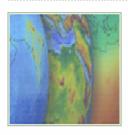


DRAGON - Drought Monitoring and Drought Prediction over China, Results published 2008

21 April 2008

The conflict between supply and demand of water resources constitutes the biggest problem for food security of a huge population in China. The distribution of water resources in China is strongly heterogeneous both in time and space...

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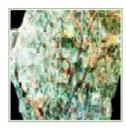


EOPI - Soil moisture content monitoring on degraded lands in arid zones of Chile, 2006

07 December 2006

This project will be part of a PhD-research related to land degradation in arid and semiarid zones of Chile. SAR images of selected test sites...

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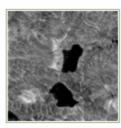
TIGER – Characterisation of West African Savannah Vegetation and their response to Short Term Droughts , Results reported TIGER Workshop October 2005

07 December 2006

This study will contribute to a modelling approach that overcomes...

Read More →

- sledování časových řad
- odezva vegetace
- predikce sucha
- anomálie



DRAGON - Drought Monitoring and Drought Prediction over China, Results published 2006

07 December 2006

The drought conditions addressed in this study are defined as land surface conditions, under which the soil moisture storage limits the...

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DUE – DesertWatch Project, Mediterranean Shores

07 December 2006

ESA's DesertWatch project involves the development of a desertification monitoring system for the northern shores of the Mediterranean Sea, in support of responsible regional and national authorities. The severe...

Crops and Drought



January 17, 2009 Drought in Southern South America



January 1, 2009 Poor Harvest in Kenya



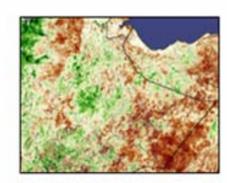
October 1, 2008 Locusts in Australia



September 29, 2008 Drought in Eastern Ethiopia



July 31, 2008 Locusts in West Africa



May 20, 2008 Drought in Ethiopia

Vulkány & Zemětřesení

Earthquake & Volcano

Overview

The tragic consequences of both earthquake and volcanic activity are obvious, their monitoring and timely mapping is essential to aid rescue efforts. While improved prediction is aimed at reducing the impact of any such an event.



Volcano Monitoring Using Infra-Red 03 May 2007

The Volcano Monitoring with Infra-Red (VOMIR) Service, using infrared data from Envisat's AATSR sensor, provides timely data for the monitoring of some 360 volcanoes. It uses thermal radiances extracted from the large AATSR product archive, acquired by the AATSR instrument during night-time Envisat passes.

Read More >



Disasters Charter – Volcanic Eruption, Comoros Islands, Indian Ocean, November 2005

07 December 2006

Nov 29 (Reuters) - Water supplies to more than 100,000 people in the Indian Ocean Comoros islands have been contaminated by the...

Read More



ESA / GMES - A year on from the Asian tsunami, satellites are aiding regional rebuilding, December 2005

07 December 2006

The deadly Indian Ocean tsunami that swept across coastlines on 26 December 2004 took the lives of more than 200 000 people...

- monitoring a predikce
- · mapování rozsahu škod

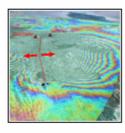


Disasters Charter – Earthquake Algeria, March 2006

07 December 2006

An earthquake measuring 5,8 on the Richter scale killed four people and wounded more than sixty others in the area of Laalam, in the North-East of Algeria. According to the Algerian Center in astronomy...

Read More N



EOPI - Magma-maintained rift segmentation at continental rupture in the 2005 Afar dyking episode, Published July 2006

07 December 2006

Between 14 September and 4 October 2005, 163 earthquakes (magnitudes greater than 3.9) and a volcanic eruption occurred within...

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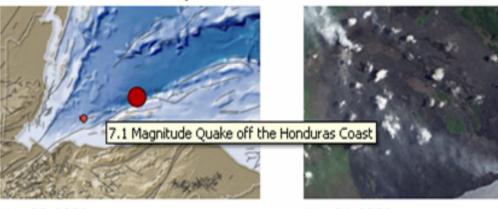


Earth Watching - Renewed volcanic activity at the Phlegrean Fields tracked by Envisat, August 2006

07 December 2006

Satellite images acquired by ESA's Envisat satellite have revealed the volcanic region of the Phlegrean Fields, located in southern Italy near...

Volcanoes and Earthquakes



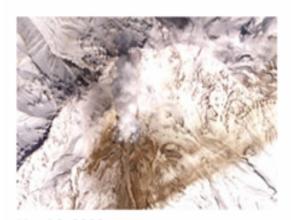
May 28, 2009 7.1 Magnitude Quake off the Honduras Coast



May 24, 2009 Volcanic Activity at Kilauea



May 18, 2009 Plume from Batu Tara



May 10, 2009 Plume from Shiveluch Volcano



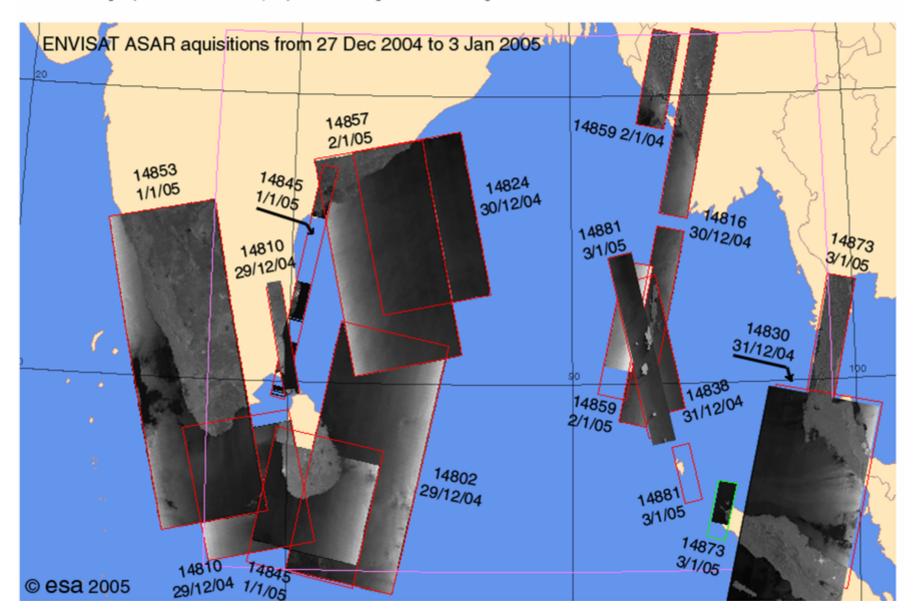
May 5, 2009 Redoubt Volcano Stirs



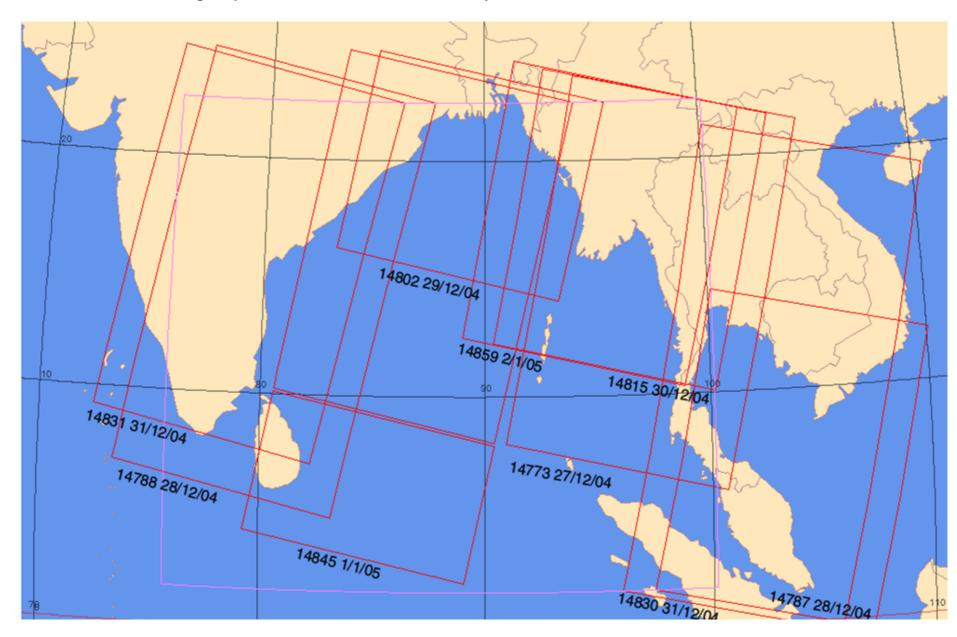
May 3, 2009 Plume from Dukono

Envisat Imagery

Click on the images (there are hidden hot spots) to access to higher resolution images



Envisat MERIS Full Resolution images acquired between 28 December 2004 to 02 January 2005





December 29, 2004

The Indonesian province of Aceh



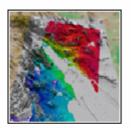
January 10, 2003

Požáry

Fire

Overview

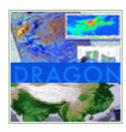
The identification of fire hot spots and the spread of fire events from satellite is used not only in the natural environment but also for fires linked to industrial disasters.



EOPI - ENVISAT multisensor data for fire monitoring and impact assessment, October 2004

06 December 2006

The European ENVISAT satellite provides both optical and radar measurements of the Earth's surface. Three ENVISAT instruments...



DRAGON - Fire Detection in China by Means of ENVISAT-AATSR Sensor , July 2006

06 December 2006

Fire detection during daylight time by means of AATSR sensor is not a easy task because a large number of false alarms can produce a....

Read More >



Tracking Nature's Contribution to Pollution, October 2006

06 December 2006

Around the world, ash and thick smoke from wildfires can choke the surrounding skies. While this visible, murky mess seems to disappear with distance from the fires. polluting gases and small particles not...

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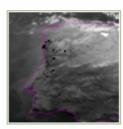
- včasná detekce
- operativní monitoring
- hodnocení dopadu (BAM)



EU JRC - European Forest Fire Information System - EFFIS

06 December 2006

The European Commission DG Joint Research Centre set up since 1999 a research group to work specifically on the development and implementation of advanced methods for the evaluation of forest fire...



EUMETSAT - Operational Active Fire Monitoring Product

06 December 2006

The Active Fire Monitoring (FIR) product is an image-based product in full pixel resolution that displays information on the presence of fire within a pixel. The underlying concept of the algorithm takes...

Fires



May 24, 2009 Fires in Russia's Far East



May 22, 2009 Fires in Russia and Mongolia



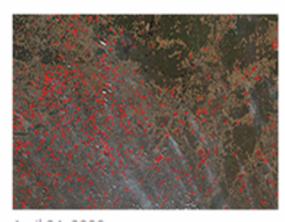
Fires Across West Siberian Plain



May 13, 2009 Jesusita Fire, California



April 29, 2009 Fires in Eastern Russia



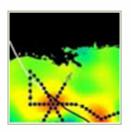
April 24, 2009 Agricultural Fires in Western Russia

Hurikány a tropické bouře

Hurricane

Overview

The timely prediction of a hurricane's path is essential to the reduction of human loss and damage of infrastructure and property. The continuity and timeliness provided by satellite meteorological data for modelling is crucial in this process.

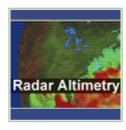


Gulf warm-water eddies intensify hurricane changes, October 2005

14 December 2006

Scientists monitoring ocean heat and circulation in the Gulf of Mexico during Hurricanes Katrina and Rita have a new understanding of how these tropical storms can gain intensity so quickly: the Gulf of Mexico...

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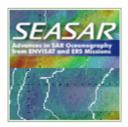


Satellite Altimetry Outreach During Hurricane Rita: Lessons Learned, July 2006

14 December 2006

Two weeks after Hurricane Katrina made landfall, the Colorado Center for Astrodynamics Research (CCAR) released a media advisory...

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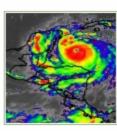
Observation of Hurricane Winds using Synthetic Aperture Radar Data, January 2006

14 December 2006

In the last five years several synthetic aperture radar (SAR) images of hurricanes have been acquired by the Canadian satellite RADARSAT-1...

Read More 🗆

- predikce dráhy a síly
- monitoring průběhu
- · hodnocení dopadu

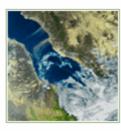


Disasters Charter - Hurricane Monitoring

11 October 2006

An example of which Hurricane Stan which made landfall on the Yucatan peninsula on 1st October 2005 causing heavy flooding and landslides over the next days in Central America. More than 40,000 people ...

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Envisat Live - Typhoon Yagi (Pacific Ocean), 21 September 2006

11 October 2006

Typhoon Yagi, heading west across the Pacific Ocean on a path toward Tokyo, continued to increase in strength and U.S. Navy forecasters expect it to turn into a Supertyphoon by tomorrow. It's forecast to be...

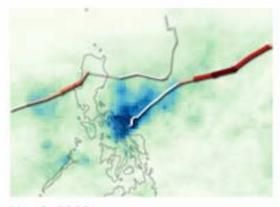
Severe Storms



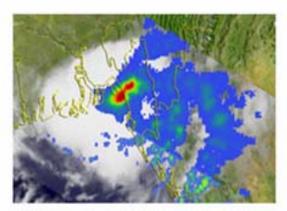
May 25, 2009 Cyclone Aila



May 21, 2009 Rare Cyclonic Storm over Nothern Argentina



May 1, 2009 Typhoons Chan Hom and Kujira soak Luzon



April 17, 2009 Tropical Storm Bijli



April 6, 2009 Tropical Storm Jade



March 27, 2009 Spring Snow Brings Moisture to Colorado Front Range

Povodně

Flood

Overview

The increasing number of intense meteorological events means that flood events are more frequent. Their monitoring is essential to rescue and civil defence authorities, whilst mapping of their extent is widely by insurance companies.

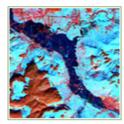


EOMD – Satellite survey of Elbe flood helps Swiss Re insure for disaster, Results Published October 2004

07 December 2006

One of the worst disasters to hit Europe in the last decade has served as a case study to investigate how satellite images can improve...

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EOMD - Satellite flood mapping service strengthens eastern France civil protection, April 2006

07 December 2006

A satellite-based rapid mapping service developed to support civil defence activities in eastern France is ready and on call 24 hours a...

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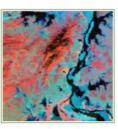
ESA/EU GMES - Flood forecasting for Newfoundland and Labrador available online, June 2006

07 December 2006

Residents of the town of Badger, located in the central region of Newfoundland and Labrador, are accessing satellite radar imagery...

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- monitoring průběhu
- mapování rozsahu (2D, 3D)
- hodnocení škod



DRAGON - ASAR and MERIS ENVISAT Low and Medium Resolution Product Time Series Exploitation for Large Flood Plain, Published July 2006

07 December 2006

Within Flood DRAGON Project, ENVISAT ASAR and MERIS, spatial and...

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Disasters Charter – Sudan, August 2006

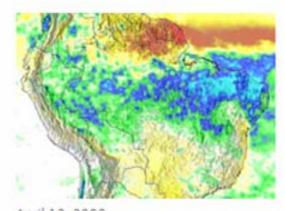
07 December 2006

Torrential rain which started in the Sudan at the beginning of August 2006 increased to a large-scale emergency by 25 August. Floods and heavy rain killed 27 people and damaged about 10,000 homes...

Floods



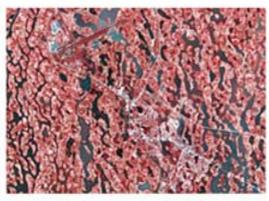
April 19, 2009 Deadly Flooding in Namibia



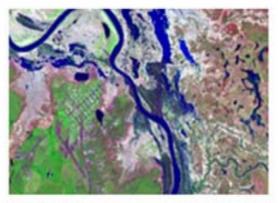
April 12, 2009 Heavy Rain Floods Brazil



April 9, 2009 Red River Floods, North Dakota and Minnesota



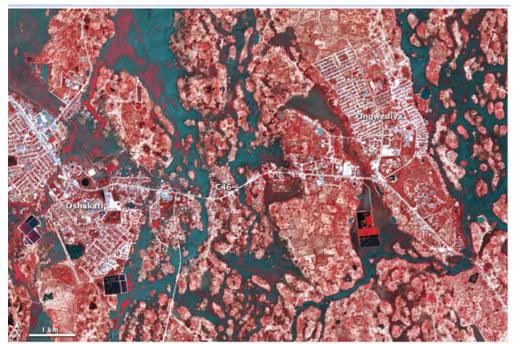
March 28, 2009 Flooding around Ondangwa, Namibia



March 25, 2009 Floods in Australia



February 27, 2009 Floods in East Java, Indonesia



download large image (5 MB, IPEG)

acquired March 28, 2009



Půdní sesuvy

Landslide

Overview

The mapping of the extent of damage caused by large landslides is crucial to the recovery services. A large amount of work is however aimed particularly at the study of prediction and prevention of such events

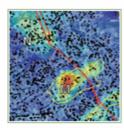


EOMD - AMEC moves forward faster with EO land motion services, April 2004

07 December 2006

AMEC's Earth & Environmental division will bring their customers earlier than planned into pre-commercial trials using EO techniques to...

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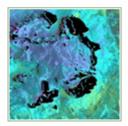


ESA-PI - Dynamics of Slow-Moving Landslides from PS, Results Published June 2005

07 December 2006

High-resolution interferometric synthetic aperture radar (InSAR) permanent scatterer data allow us to resolve the rates and variations...

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ESA-PI - Demonstration of L-Band Capabilities for Landslide Surveys, Results published December 2005

07 December 2006

The capabilities of L-band satellite SAR interferometry for the investigation of landslide displacements have been analyzed with...

- mapování rozsahu a škod
- dynamika svahových pohybů
- prevence



ESA DUE - SLAM Service for Landslide Monitoring

07 December 2006

Development and qualification of a landslide event mapping and monitoring service, that should provide support to national and local organisations involved in slope instabilities assessment and...

Road More



Disasters Charter - Philippines, February 2006

07 December 2006

A huge landslide on the Island of Leyte on the west point of the Islands of the Philippines caused at least two hundred deaths and 1,500 people to be missing, according to the Red Cross. Some 500 houses and a...