



1st
RIVER
GLOBAL CITY
FORUM
2015
MONTERÍA - COLOMBIA
16 A 18 DE ABRIL
AGUA MEJOR GESTIONADA.
DISTRIBUIDA MAS SOSTENIBLE.



Panelista / Panelist: Angélica Gutiérrez-Magness
Montería, Córdoba
Abril 2015



GROUP ON
EARTH OBSERVATIONS



NOAA y GEO en la toma de decisiones frente a desastres hidrológicos y climáticos

Contenido / Content

- National Oceanic and Atmospheric Administration (NOAA) – Centro Nacional del Agua (NWC)
- Group on Earth Observations (GEO)



National Water Center

Vision:

- * Scientific excellence and innovation driving water prediction and decisions for a water-resilient nation.

Mission:

- * The National Water Center collaboratively researches, develops and delivers state-of-the science National hydrologic analyses, forecast information, data, decision-support services and guidance to support and inform essential emergency services and water management decisions.
- * Through partnerships it integrates and supports consistent water prediction activities from global to local levels.

Initial Operating Capability

May, 2015



NATIONAL WATER CENTER



Stakeholder Priorities



Flooding



Water Quality



Water Availability



Drought



Climate Change

Need integrated understanding of near- and long-term outlook and risks

Actionable Water Intelligence



Water Prediction

HYDROLOGY

COASTAL

Environmental Intelligence: Comprehensive Water Prediction

*The National Water Center and the
Transformation of NOAA's Water Prediction Services*

- Precipitation
- Evaporation
- Snowmelt
- Runoff
- Channel Flow
- River Flooding
- Flash Flooding
- Drought
- Storm Surge
- Tides
- Sea Level Rise





GROUP ON EARTH OBSERVATIONS



GEO, Grupo de Observaciones de la Tierra

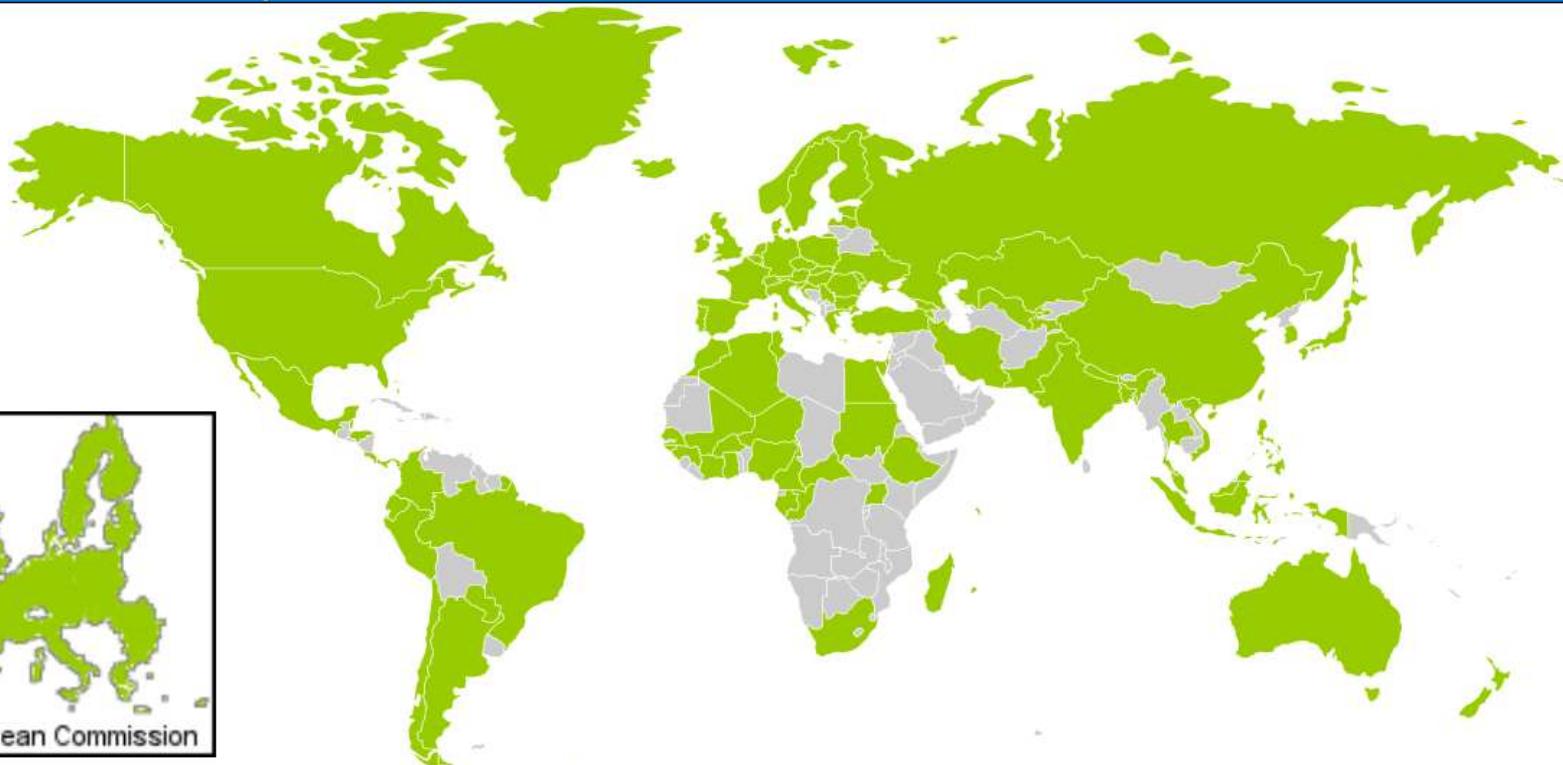
Organización Intergubernamental



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16 a 18 de abril

97 PAISES MIEMBROS DEL GRUPO DE OBSERVACION DE LA TIERRA

GEO Member's Map



77 ORGANIZACIONES PARTICIPANTES EN EL GRUPO DE OBSERVACION DE LA TIERRA

Participating Organizations				
 International Union of Geodesy and Geophysics (IUGG)	 IUGS Earth Science for the Global Community	 marine technology SOCIETY Opportunity runs deep™	 OGC™ Open Geospatial Consortium, Inc.	
	 RCMRD	 SICA Central American Integration System	 SPC Secretariat of the Pacific Community Applied Geoscience and Technology Division (SOPAC)	
 SECURE WORLD FOUNDATION	Convention on Biological Diversity	 UNCCD	 UNECA	
 UNEP	 UNITED NATIONS Economic and Social Commission for Asia and the Pacific	 UNESCO	 United Nations Framework Convention on Climate Change	
 UNISDR The United Nations Office for Disaster Risk Reduction	 unitar United Nations Institute for Training and Research	 UNITED NATIONS Office for Outer Space Affairs	 UNITED NATIONS UNIVERSITY UNU-EHS Institute for Environment and Human Security	
 WCRP World Climate Research Programme	 ICSU WORLD DATA SYSTEM	 World Federation of Public Health Associations Fédération mondiale des associations de santé publique Federación mundial de las asociaciones de salud pública	 WMO	

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OBJETIVOS DE GEO

- Mejorar y coordinar sistemas de Observación - interoperabilidad
- Avanzar en las políticas de expansión de datos abiertos.
- Propiciar el incremento del uso de datos de observación de la tierra y la información
- Construir capacidades



Observación de la tierra para Toma de decisiones



Un Sistema de Sistemas de observacion Global, Coordinado, e Integral





**2nd GEO-CIEHLYC
Water Cycle Capacity-
Building Workshop
Cartagena - Colombia
Mayo 19 - 22, 2015**



Water!Task!-!Component!5!

Comunidad para la Informacion Espacial e Hydrografica en Latinoamerica y el Caribe (CIEHLYC)!

Authors: "Angélica Gutiérrez-Magness – National Oceanic and Atmospheric Administration(NOAA)
Ricardo Cabezas Cartes – Centro de Información de Recursos Naturales" (CIREN)
Richard Lawford – Morgan State University

CIEHLYC, a working group of GEOSS in the Americas, is an international network of water and remote-sensing experts from governments and academia in the Americas and in the Caribbean. It was formed in 2009 to promote and support GEOSS implementation activities in the Societal Benefit Area for Water (including Oceans) through fostering partnerships and collaborations among members, and through providing capacity building in the use of earth observations across Latin America and the Caribbean. CIEHLYC is managed by three regional coordinators from Canada, U.S./Colombia, and Chile.



- 2011- Colombia is welcomed as a GEO member. Collaboration: GEO Secretariat – IDEAM – CIEHLYC.
- 2011 - Water Cycle Capacity-Building Workshop (hands-on training). Cartagena, Colombia. Collaboration: Escuela Naval de Colombia-NOAA- GEO Secretariat – CIEHLYC.

**2014 – Monthly webinars on Earth-
Observations projects and applications by
Latin-American managers and scientists.
Collaboration: GEO-Secretariat – CI EHYLC.
http://earthobservations.org/webinar_ch.shtml**

The presentations will cover a wide range of Earth-Observations applications, including remote sensing and in-situ monitoring of fresh water and Oceans. The objectives of the webinars are to:

- Share information stressing the importance of open access to information and data for the benefit of the Latin and Caribbean American Region,
- Find potential applications and collaborations among scientists and decision makers,
- Expand and strengthen the network of research and applications as it relates to the water cycle.

January'17, 2014-'First'Webinar. !

Pais: Mexico - Universidad Autónoma de Baja California
Propiedades López, castillos oceánicos y sus aplicaciones a la percepción remota del color del océano.

Hora: 16:00 – 17:00 UTC (9 am in Baja California)
Presentadora: Adriana González Silvera

Pocs: rcabezas@ciren.cl Angelica.gutierrez@noaa.gov
Richard.Lawford@morgan.edu

**2013- Application of NASA
Earth Observations for
Assessing Potential Water
Availability from Andean
Snowpack for Use in
Agricultural Water
Allocation Planning in the
Coquimbo Region of Chile.**



Collaboration: NASA-CIREN-CIEHLYC. This project was presented to GEOSS in the Americas by the Chilean delegation during their visit to Washington. The meeting was organized by CIEHLYC and hosted by the Smithsonian Institute on June 2013. The project's lead, Dr. Ricardo Cabezas Cartes is Co-chair of CIEHLYC and the director of geomatic at the "Centro de Información de Recursos Naturales" (CIREN).

Building capacity for sustained use through methodological and technical hand-off training is ongoing between DEVELOP and Chile's Centro de Información de Recursos Naturales (CIREN). CIREN is enhancing its capability to collect all needed data, run the hydrological model, and improve regional water management. Interest continues to grow, and more Chilean regions and Latin American countries are expressing interest in applying GEOSS's integrated approaches to their river basins.



Chárter Internacional del Espacio y Desastres Mayores

The screenshot shows the homepage of the International Charter Space and Major Disasters. At the top, there's a banner with a satellite view of Earth and a map of South America. Below the banner, there are links for "contáctenos" (Contact us), English, Español, Français, 中文, and 日文. The main content area has sections for "Acerca de la Carta" (About the Charter), "Última Activación de la Carta" (Last Activation of the Charter), and "Activaciones recientes" (Recent activations). The "Activaciones recientes" section lists several events: "Flood in north region of Brazil", "Heavy rain in the northern regions of Brazil have resulted in flooding along the Madeira River since February 2014. Thousands of people have been evacuated, and the flooding is gradually growing worse as the water levels rise.", "Morne Pele Volcano Activity", "Mount Kalug volcano erupting in Indonesia", "Flood in Bolivia", and "Flood and landslides in Ecuador". There's also a link to "Archivo de activaciones" (Activation archive).



Miembro



[Agencia Espacial Europea \(ESA\)](#)



[Centro Nacional de Estudios Espaciales \(CNES\)](#)



[ASTRIUM GEO-Information Services](#)



[NSPO](#)



[Agencia Espacial Canadiense \(CSA\)](#)



[Organización para la Investigación Espacial de la India \(ISRO\)](#)



[National Oceanic and Atmospheric Administration \(NOAA\)](#)



[Argentina's Comisión Nacional de Actividades Espaciales \(CONAE\)](#)

Recursos Es

EROS, ENVISAT

SPOT, Pléiades

Formosat

RADARSAT

IRS

POES, GOES

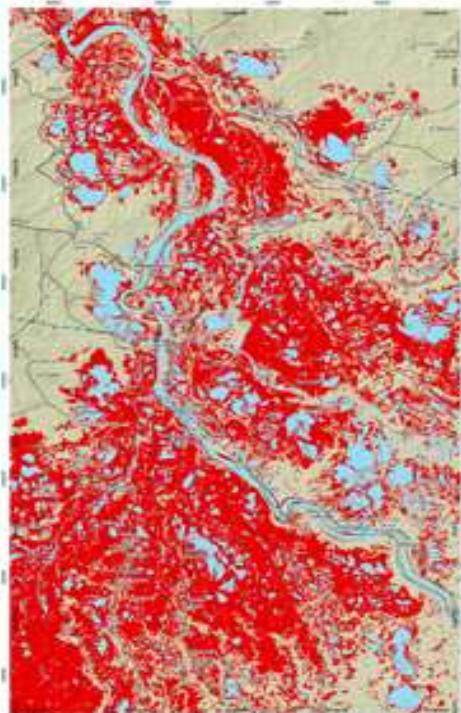
SAC-C



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Imágenes y/o Producto de Imagen Entregado en el marco de la Carta

INUNDACIONES EN LA PROVINCIA DE BOLÍVAR, COLOMBIA (23 MAYO 2011)



Inundaciones en la provincia de Bolívar, Colombia - 23 mayo 2011

Fuente: RADARSAT-2

Adquirido: 23/05/2011

Copyright: RADARSAT-2 de datos y productos
© MacDonald, Dettwiler y Asociados SA (2011)
- Todos los derechos reservados. RADARSAT
es una marca oficial de la Agencia Espacial
Canadiense.
Mapa producido por UNITAR/UNOSAT

[Higher resolution version](#)

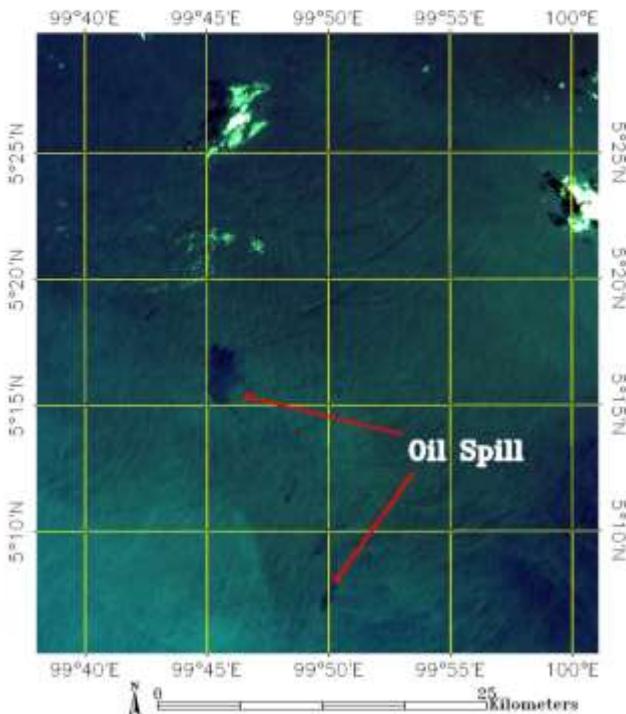
Activación del Chárter en Colombia en 2011

Suspected oil spill of missing aircraft

2014-03-15

Oil spill found at Strait of Malacca

Charter Call ID: 482 Date: March 11, 2014



Area Location



Legend

- Satellite image credit
- Lakes
- Lakes

Description

The Landsat-8 images acquired at March 15, 2014 in RGB composit (R: band 4, B: band 3, G: band 2) show the suspected oil spill of the missing aircraft (MH370) found at the Strait of Malacca.

Copyright

Landsat-8 Data and Products © USGS (2014) - All Rights Reserved.

Cartographic Information

Map Projection: UTM

Datum: WGS-84

Units: Meters

Map Production



Map was generated on March 2014
by the National Satellite Meteorological Center (NSMC),
China Meteorological Administration (CMA).
<http://www.nsmc.cma.gov.cn/>

The satellite data in this map were provided under the International Charter "Space and Major Disasters".

Estrecho de Malacca en 2014

Charter Internacional del Espacio y los Desastres Mayores



Filipinas en el 2013

ER CITY
BAL FORUM 2015
ERIA - COLOMBIA
de abril

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What is GEONETCast Americas?

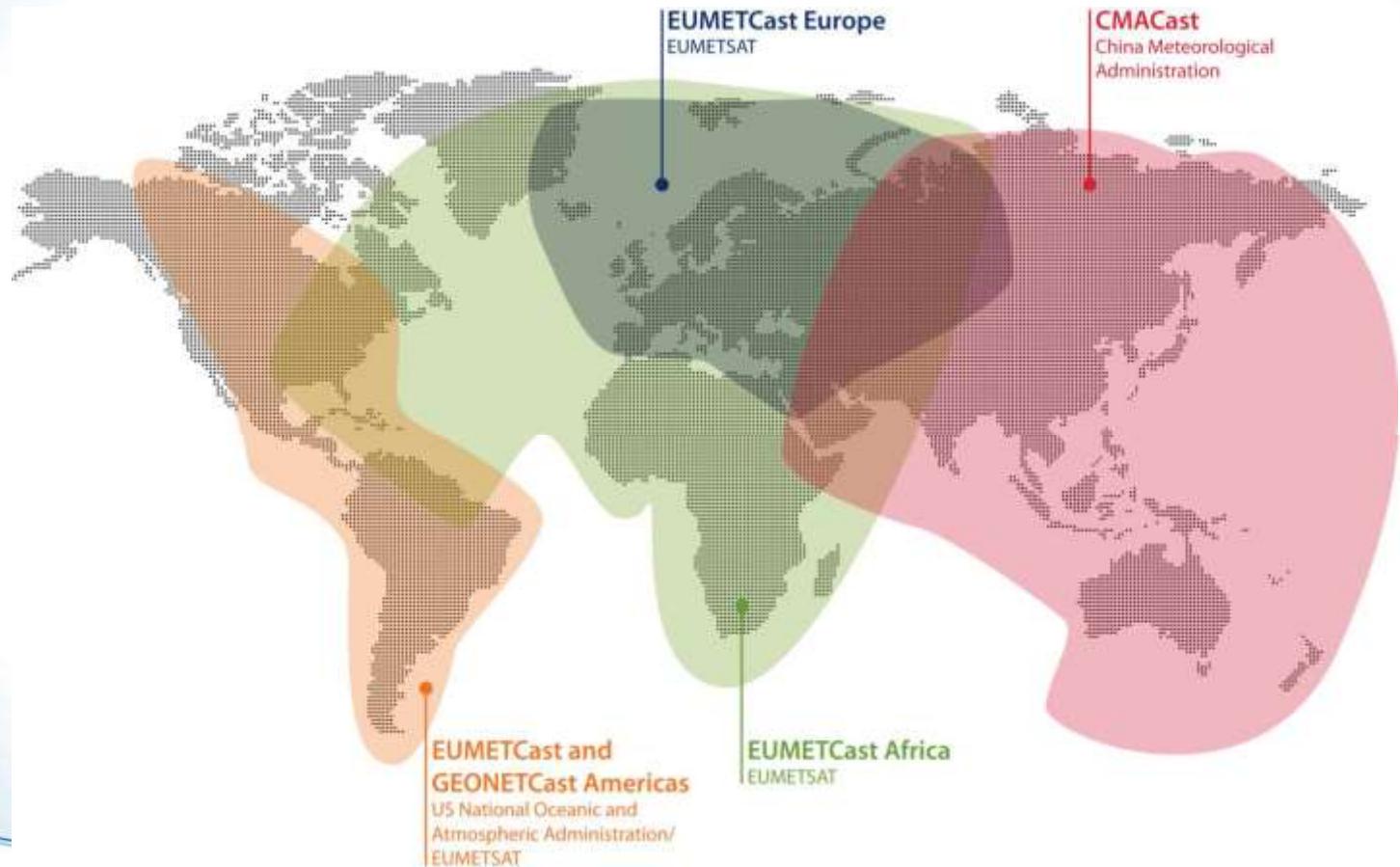
GEONETCast Americas is the Western Hemisphere component of GEONETCast, a near real time, global network of satellite-based data dissemination systems designed to distribute space-based, air-borne and in situ data, metadata and products to diverse communities.

This user-driven, user-friendly and low-cost information dissemination service aims to provide global information as a basis for sound decision-making in a number of critical areas, including public health, energy, agriculture, weather, water, climate, natural disasters and eco-systems. Accessing and sharing such a range of vital data will yield societal

GEONETCast Americas is a contribution from the United States National Oceanic and Atmospheric Administration whose goal is to enable enhanced dissemination, application, and exploitation of environmental data and products for the diverse societal benefits defined by the Group on Earth Observations (GEO), including agriculture, energy, health, climate, weather, disaster mitigation, biodiversity, water resources, and ecosystems.

[GEONETCast Americas Announcement of Opportunity for Providers and Users](#)

Sistema GEONETCast Global



Category: Oceanography

Product name: Sea Surface chlorophyll - South America

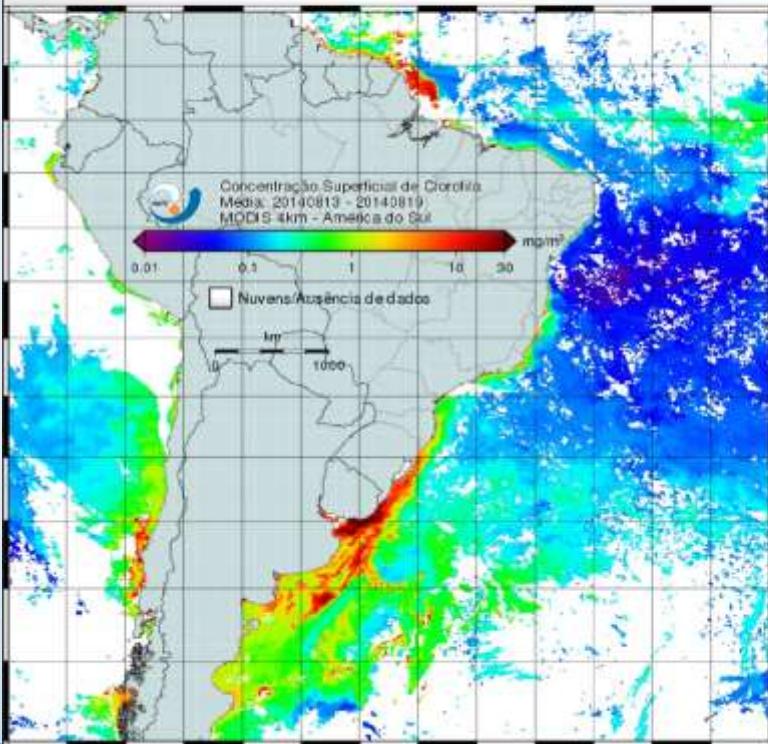
SDR ID#: 45

Provider: INPE - National Institute for Space Research (Brazil)

Format: PNG | Average Size: 500 KB | Frequency: 24 Hours | Max n° of received files a day: 1

Satellite: AQUA | Instrument: MODIS | Channels / Bands used: Channels 8 to 16 (412 nm to 869 nm)

Type: Image | Projection: Rectangular | Resolution: 1x1 km | Naming Convention: INPE_SSC_YYYYMMDDHHMN



- General Description:

According to Kampel (2003), the color of the ocean in natural environments results from solar energy backscattered from the surface and volume of the body of water. The dark blue of the open ocean and oligotrophic waters is the result of selective absorption and scattering of pure water with low concentration (or absence) of phytoplankton and other optically active substances. With a higher entry of nutrients in the aquatic system, usually near the coast, a natural development of higher concentrations of fitoplankton with consequent change from the blue color to green occurs. The greater the amount of sediments or dissolved material in the aquatic environment, ocean color changes to yellow-brown, reaching red in certain circumstances. These colors perceived by the human eye can be quantified by measurements of the spectral distribution of the ascending radiance by sensors placed aboard satellites. This product data is estimated from the MODIS sensor aboard the AQUA satellite. Nine bands of that sensor, in the visible and near infrared range (between 412 nm and 869 nm) have high sensitivity for ocean color studies (Barnes et al., 2003). The raw data from the sensor is calibrated radiometrically to generate normalized radiance values related to sea surface. The SSC is obtained by applying the standard NASA OC3M algorithm (O'Reilly et al. 2000) which relates ratios of bands to the SST through a fourth degree polynomial function.

- Applications and Considerations:

Detection of mesoscale features, ocean fronts, numerical models input (oceanic and atmospheric), analysis of climate variability and quantification of primary productivity (associated with phytoplankton).

- GEOSS Societal Benefit Areas:

Biodiversity | Climate | Water | Weather



Entrenamiento sobre el **procesamiento y interpretación**
de imágenes de satélite en el formato **GeoTIFF** recibidas en GNC-A - 11/09/2014



Recursos (personal, formación, herramientas, etc)
Análisis e Interpretación de los datos



moodle



GEONETCast

Proporcionando datos ambientales
para usuarios en todo el mundo

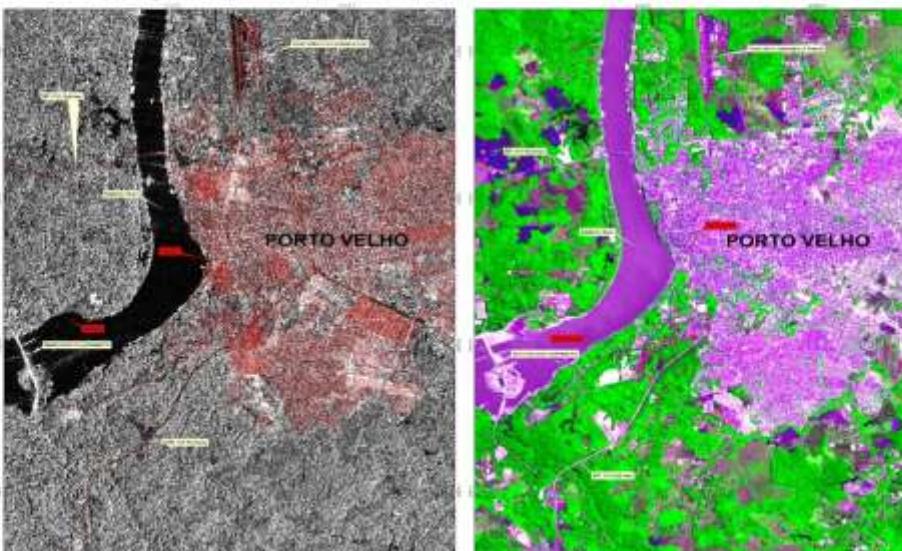


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- Tipo de evento:
Inundación
- Local del evento:
Región Norte de Brasil
- Fecha de activación:
21 de marzo de 2014
- Solicitante:
Centro Nacional de Gestión de Riesgos y Desastres (CENAD)
- Gestor del proyecto:
INPE
- Imágenes recibidas en GNC-A:
Landsat-8 18/08/2013
Landsat-8 27/08/2013
Landsat-7 22/03/2014

BRAZIL - Porto Velho / RO - FLOOD - 25/MAR/2014 RISAT-1 IMAGE

RISAT-1 25/MAR/2014 LANDSAT 8 - Archive 27/AUG/2013



The figure displays two side-by-side satellite images of the same area in Porto Velho, Brazil, taken on different dates. The left image is from the RISAT-1 satellite on March 25, 2014, showing a grayscale view with a large black area representing floodwater and red areas representing buildings. The right image is from the Landsat 8 archive on August 27, 2013, showing a color-coded view where green represents land, purple represents water, and pink represents buildings. Both images show the city of Porto Velho and its surrounding floodwaters. A legend on the right side of the figure identifies various colors and symbols used in the imagery.

PORTO VELHO

PORTO VELHO

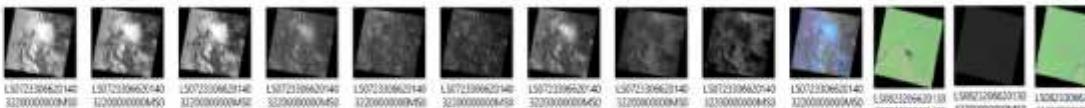


Imagen	Fecha										
L8072308621140	18/08/2013	L8072308621140	27/08/2013	L8072308621140	22/03/2014	L8072308621140	23/08/2013	L8072308621140	23/08/2013	L8072308621140	23/08/2013
0,801	1,801	0,801	0,801	0,801	0,801	0,801	0,801	0,801	0,801	0,801	0,801

Acceso a los datos en general



**3.7 GB de datos Landsat recibidos en
GEONETCast-Américas en formato GeoTIFF**



GEONETCast

Proporcionando datos ambientales
para usuarios en todo el mundo



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NOAA y GEO en la toma de decisiones frente a desastres hidrológicos y climáticos

Angelica.gutierrez@noaa.gov

NOAA/National Water Center

Muchas Gracias!

