Introducción al Dartmouth Flood Observatory - DFO

(Observatorio de Inundaciones de Dartmouth)

Objetivo

Brindar un panorama del DFO para el Mapeo de Inundaciones y el Monitoreo de Descarga Fluvial

Resumen

- Sobre el DFO
- *Global and Regional Flooding Information*
- DFO River Watch (Vigilancia Fluvial)
- Estudio de Caso: Evendo de Inundación de Colombia

Sobre el Dartmouth Flood Observatory (DFO)

DFO- Objetivos

Una Herramienta Interactiva en Línea Desarrollada Para Investigaciones y Aplicaciones Humanitarias de Recursos Hídricos

El DFO anhela:

- Llevar a cabo mediciones y mapeo de agua dulce a base de la percepción remota en tiempo casi real y documentar tal información en un archivo permanente.
- Colaborar con organizaciones humanitarias y de gestión del agua para permitir la máxima utilidad de semejante información.
- Llevar a cabo investigaciones hidrológicas en el área de variabilidad de aguas superficiales tanto usando la percepción remota y modelos como desarrollando nuevos métodos de medir el agua de la Tierra.

Supported by: NASA, the U.S. Geological Survey, the World Bank, the Development Bank of Latin America, the UNISDR, and from the European Commission's Global Disaster Alert and Coordination System (GDACS) at the Joint Research Centre
.

Datos de Percepción Remota de la NASA Usadas por el DFO

El DFO usa:

- Información del MODIS Inundation Mapping
- Observaciones del TRMM-TMI (y en el futuro del GPM GMI) junto a un modelo para derivar descarga fluvial
- Datos del terreno del Shuttle Radar Topography Mission (SRTM)

Algunos Usuarios del DFO

- Flood Control 2015
- Global Risk Information Platform
- Malawi Spatial Data Portal
- PreventionWeb
- European Environment Agency
- Humanitarian Early Warning Service
- GeoSUR

GeoSUR Usa Herramientas del DFO de Descarga Fluvial y Mapeo de Inundaciones

http://www.geosur.info/geosur/index.php/en/flood-mapping-in-near-real-time

www.geosur.info/geosur/index.php/en/flood-mapping-in-near-real-time

GeoSUR La Red Geoespacial de América Latina y el Caribe

HOME | SEARCH FOR DATA | REGIONAL MAP VIEWER | NEWS | CONTACT US

GEOSERVICES

- Map Viewers
- WMS Services
- WFS Services
- CSW Services
- Topographic Service
- Hydro-Electric Potential Assessments
- Flood mapping in near-real-time

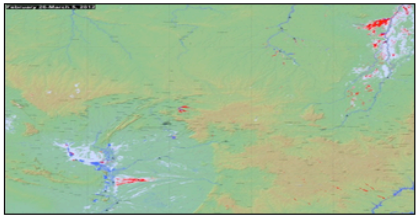
GEOSUR PROGRAM

- About the Program
- Technical Assistance
- Participants
- GeoSUR's Library
- Frequently Asked Questions
- GeoSUR Blog
- Available Data

WHO'S ONLINE

We have 212 guests and no members online

Flood Mapping in near-real-time



In 2013 CAF´s GeoSUR Program and the Dartmouth Flooding Observatory (DFO) of the University of Colorado started a project to map floods in Latin America and the Caribbean.

The new system will enable users to:

- Visualize and download a digital and regional map of current floods in near real time
- Have access to a geo-referenced registry of the historic floods in the region,
- Estimate river discharge using remote sensors in selected sites.

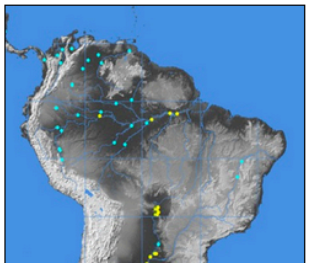
The DFO has the capacity to generate near-real-time flood maps with global coverage on a daily basis. The MODIS sensor used by this service offers global coverage twice per day, with a spatial resolution of 250 meters, and two optic bands used to map water rises.

Specialists from Latin America and the Caribbean, selected by the GeoSUR Program, will be in charge of monitoring the internet for the occurrence of floods in the region. The approximate coordinates of each event will be registered in an automatic system that will allow for the mapping of the complete cycle of floods in a specific area. The data relating to floods that are under way will be available in the DFO web site and may be accessed from the GeoSUR web site. The daily maps will be consolidated into annual and historical maps which will be available to be visualized, analyzed, and downloaded in GeoSUR's Regional Map Service.

The project will also generate daily estimates of fiver flow using remote sensing for selected sites in the Latin American and Caribbean river network. For this end, the network of measuring points of river flow, maintained by the River Watch system operated by the DFO, will be increased. Currently, River Watch monitors the flow of approximately 120 points in the region. With the project, the network will increase to cover more than 1,500 points.

River Watch can identify and display watersheds that are experiencing a river flow which is unusually low (drought) or unusually high (possible flooding), in addition to generating a daily series of flows that goes back to 1998 in each measurement site.

The whole system will continue to be operated by the DFO, and access to its data will be offered from the GeoSUR regional map viewer in order to integrate the information on near-real-time floods and river flow with the geospatial datasets maintained by GeoSUR.

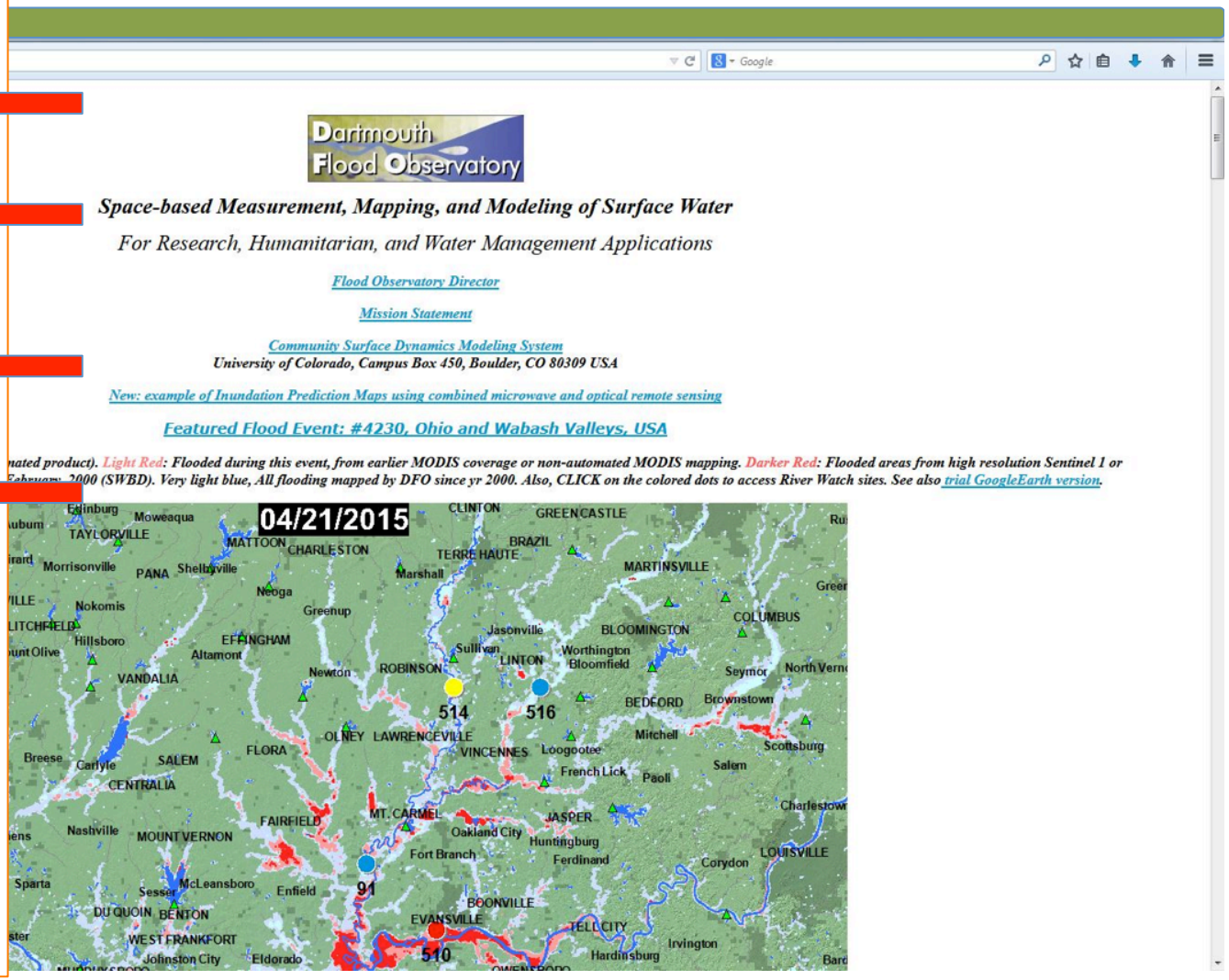


Información de Inundaciones Global y Regional del DFO

DFO- La página en línea

http://floodobservatory.colorado.edu/

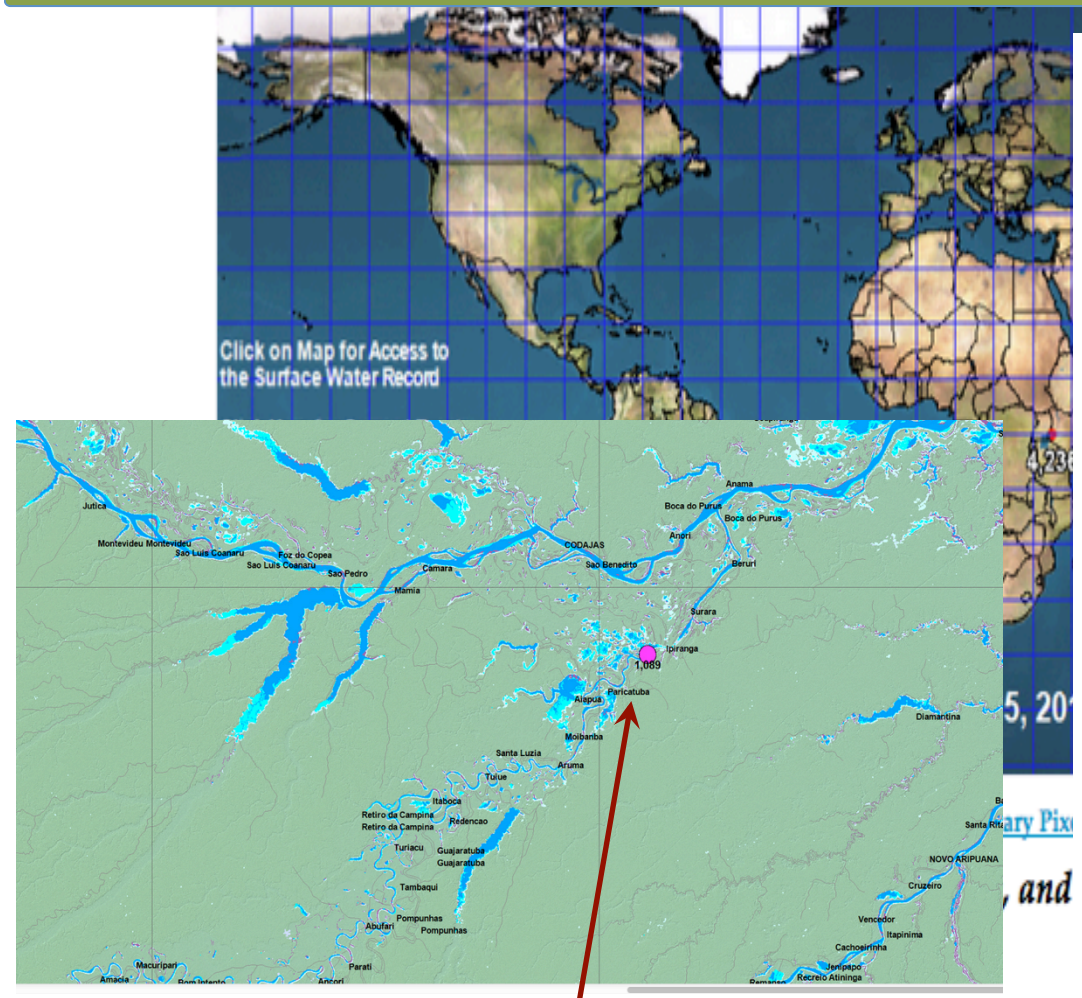
- Home
- Active Archive of Large Floods, 1985-Present
  - Global and Regional Analyses
- Master Index of Inundation Maps
- The Surface Water Record
- River Watch
- Other Flood Detection Tools
- Sample Images and Maps
- Staff
- Publications



Evento Destacado de Inundación Regional - Actualizado a Diario

Eventos de Inundación Globales Usando el “MODIS Inundation”

http://floodobservatory.colorado.edu/



Elija el Evento de Inundación

Leyenda del mapa:

A la hora de la fecha del mapa:

Grandes áreas moradas son tierra seca (anteriormente agua en febrero 2000 cuando se obtuvo la base de datos de aguas de referencia del SWBD). Por latitudes más altas, puede que tales áreas sean agua cubierta de hielo.

Pequeñas áreas moradas son aguas mapeadas por el SWBD pero muy pequeñas para ser mapeadas por el MODIS.

Azul oscubor significa agua actual, visualizada por el MODIS y por l SWBD en 2000 (agua "permanente").

Azul brillante es inundación: áreas de agua expandidas mapeadas por el MODIS comparadas con aguas de referencia. Cualquier embalse post-2000 o nueva masa de agua también es representada en azul claro.

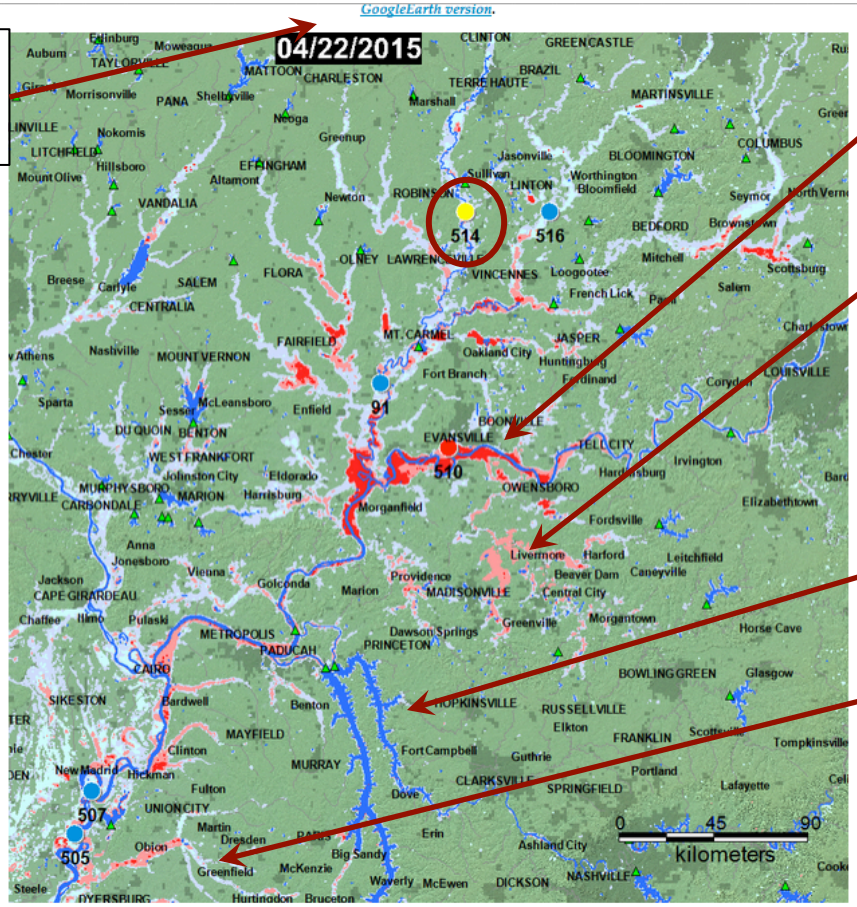
Azul-gris claro es toda inundación anterior visualizada y mapeada por el Flood Observatory (ahora tierra seca). Nota: en áreas montañosas, las sombras locales se clasifican erróneamente como agua.

Evento de Inundación Regional Usando la Herramienta "NASA MODIS Inundation Mapping" http://floodobservatory.colorado.edu/

Pulse para más información

Featured Flood Event: #4230, Ohio and Wabash Valleys, USA

Visualice en Google Earth



Rojo: Inundaciones de los últimos 14 días (producto automatizado del MODIS)
Rojo claro: Inundado durante este evento, de cobertura MODIS anterior o mapeo del MODIS no automatizado.
Rojo más oscuro: Áreas inundadas de datos de alta resolución del Sentinel 1 o Landsat 8.
Azul oscuro, Agua permanente, febrero, 2000 (SWBD).
Azul muy claro, Toda inundación mapeada por el DFO desde 2000

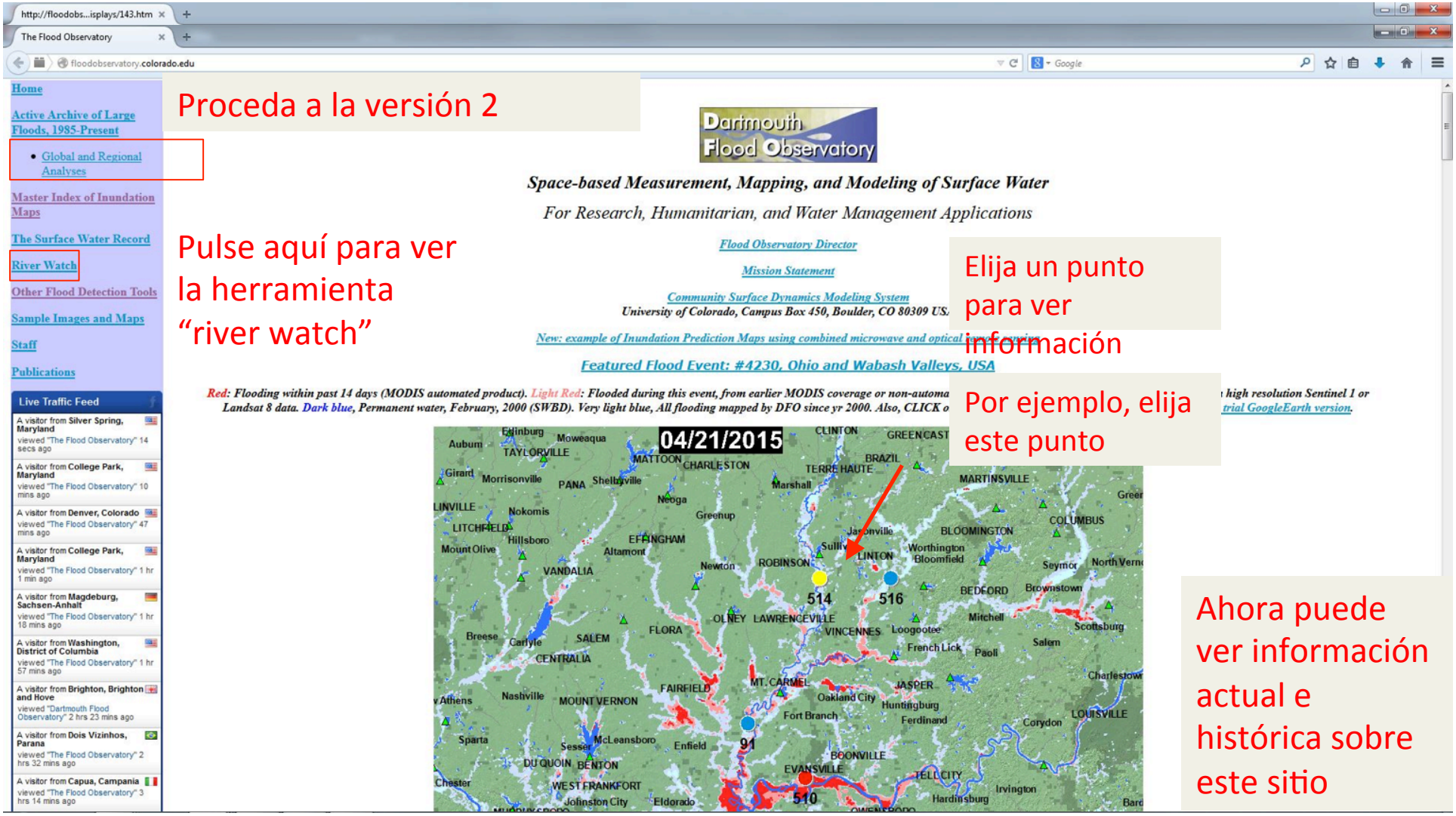
PULSE en los puntos de colores para acceder al *River Watch Site*

Evento Destacado de Inundación Regional - Actualizado a Diario

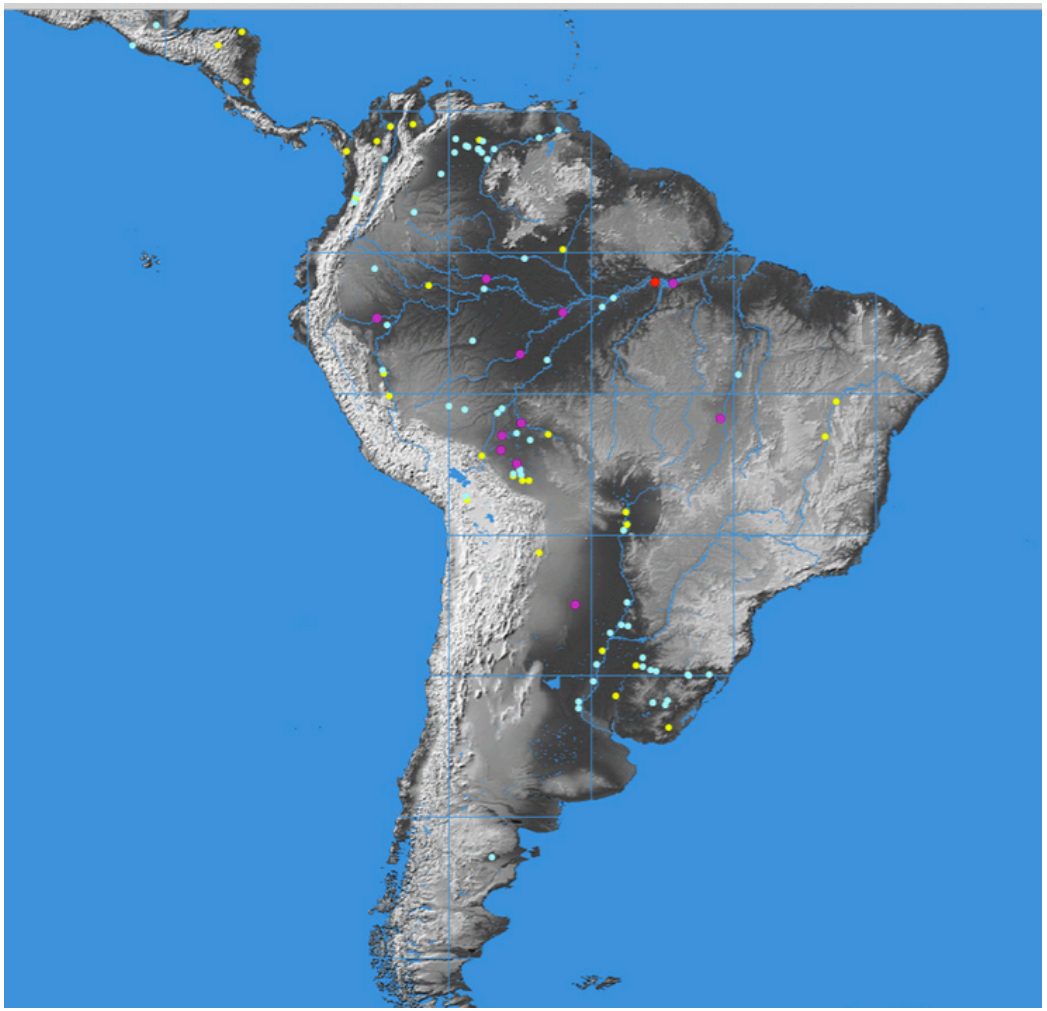
DFO: River Watch

- Observaciones del TRMM Microwave Imager, GPM Microwave Imager, y Advanced Microwave Scanning Radiometer-2 de la GCOM-W (misión de la Agencia Espacial Japonesa) son sensibles a la proporción de agua y tierra seca.
- **Estas observaciones de microondas se convierten en descarga fluvial real** (parecido al flujo torrencial, metros cúbicos de agua fluyendo por segundo) al ser combinadas con mediciones de descarga de agua superficial y después en escorrentía usando un modelo de equilibrio hídrico (Water Balance Model o WBM).
- Cálculos de escorrentía están disponibles a partir de 2003, desviación de escorrentía de siete días comienza en 2003-2007. Escorrentia media se mapea para indicar inundación baja, normal, moderada y mayor. .

DFO: River Watch para un Evento de Inundación



DFO: River Watch



Actualizado a diario a las 14:00 MDT

1) A principios de 2014, se van agregando muchos nuevos sitios para América Latina en cooperación con ministerios de agua locales y el proyecto GeoSUR.

2) Nuevos datos del AMSR-2 de la JAXA abordo del GCOM-W y del GPM de le NASA están permitiendo el re-establecimiento de mediciones de ríos en latitudes más altas.

Triángulos blancos: cubiertos de hielo.
Puntos amarillos: flujo bajo (<5to porcentaje de escorrentía para esta fecha 1998-2012)
Puntos azules: flujo normal;
Puntos morados: inundación moderada (recurrencia >1.33 año)
Puntos rojos: inundaciónajor mayor (recurrencia > 5 años)

Más Información sobre Inundaciones

Archivo Global de Inundaciones

Pulse aquí para ver los datos de archivo de inundaciones.

The Flood Observatory

floodobservatory.colorado.edu

Home

Active Archive of Large Floods, 1985-Present

- Global and Regional Analyses

Master Index of Inundation Maps

The Surface Water Record

River Watch

Other Flood Detection Tools

Sample Images and Maps

Staff

Publications

Live Traffic Feed

A visitor from Silver Spring, Maryland viewed "The Flood Observatory" 14 secs ago

A visitor from College Park, Maryland viewed "The Flood Observatory" 10 mins ago

A visitor from Denver, Colorado viewed "The Flood Observatory" 47 mins ago

A visitor from College Park, Maryland viewed "The Flood Observatory" 1 hr 1 min ago

A visitor from Magdeburg, Sachsen-Anhalt viewed "The Flood Observatory" 1 hr 18 mins ago

A visitor from Washington, District of Columbia viewed "The Flood Observatory" 1 hr 57 mins ago

A visitor from Brighton, Brighton and Hove viewed "Dartmouth Flood Observatory" 2 hrs 23 mins ago

A visitor from Dois Vizinhos, Parana viewed "The Flood Observatory" 2 hrs 32 mins ago

A visitor from Capua, Campania viewed "The Flood Observatory" 3 hrs 14 mins ago

Dartmouth Flood Observatory

Space-based Measurement, Mapping, and Modeling of Surface Water

For Research, Humanitarian, and Water Management Applications

Flood Observatory Director

Mission Statement

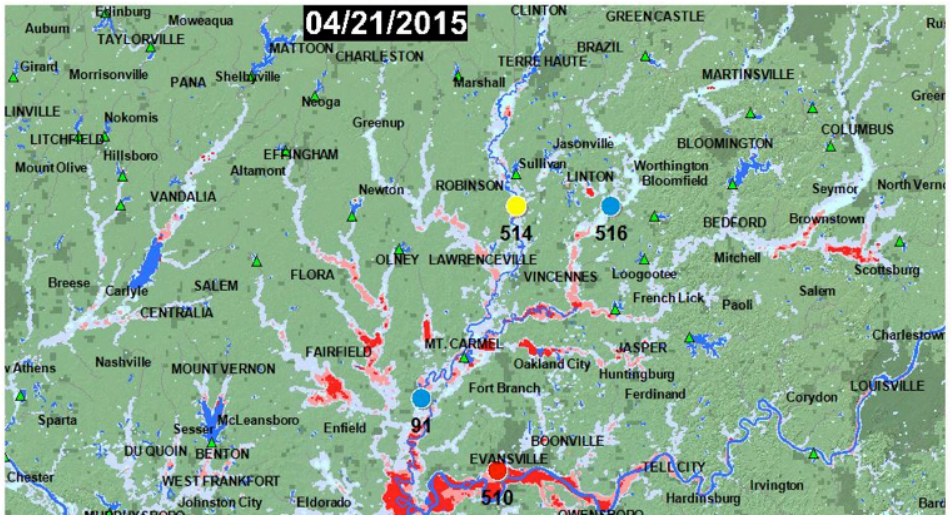
Community Surface Dynamics Modeling System

University of Colorado, Campus Box 450, Boulder, CO 80309 USA

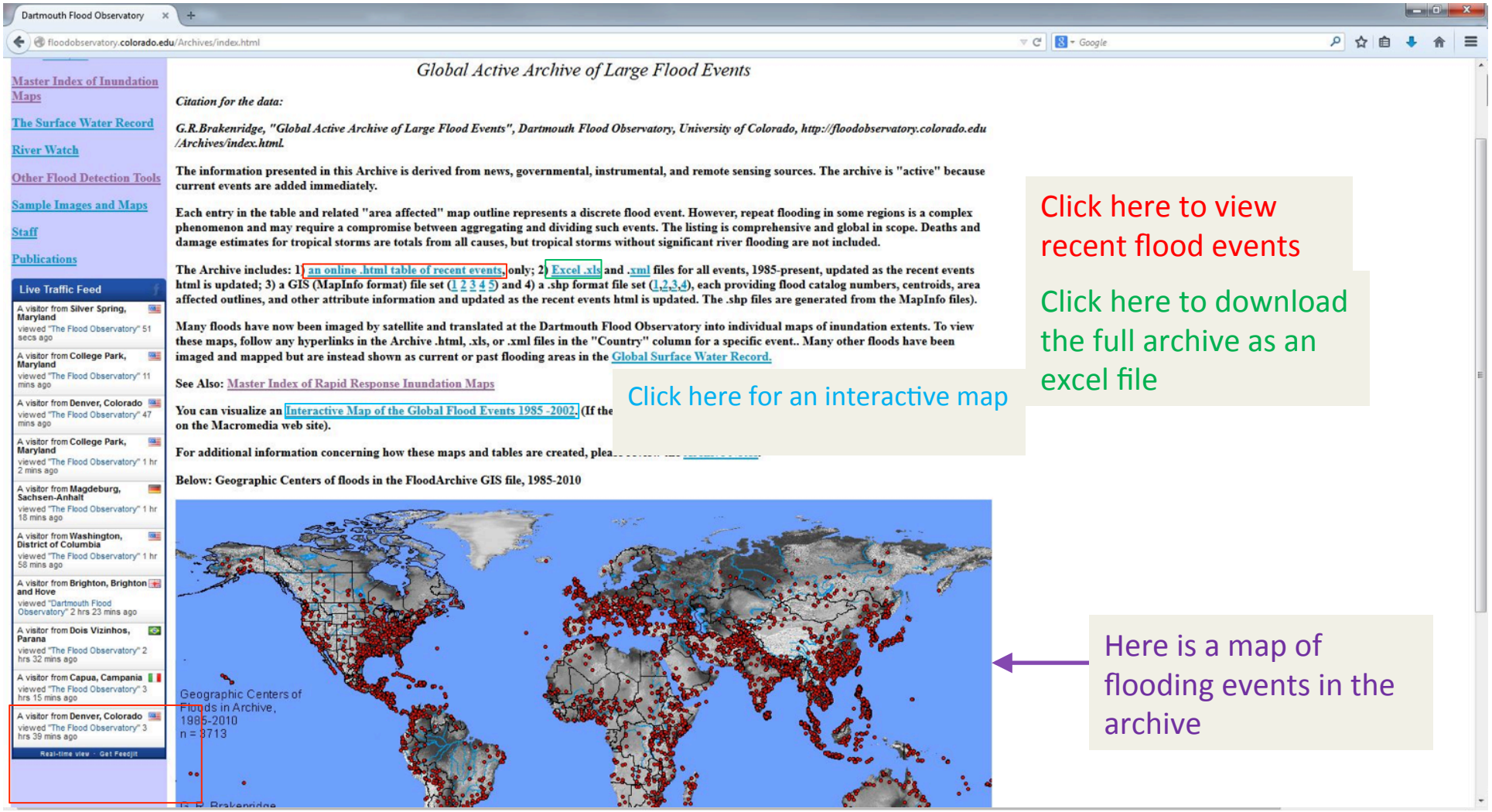
New: example of Inundation Prediction Maps using combined microwave and optical remote sensing

Featured Flood Event: #4230, Ohio and Wabash Valleys, USA

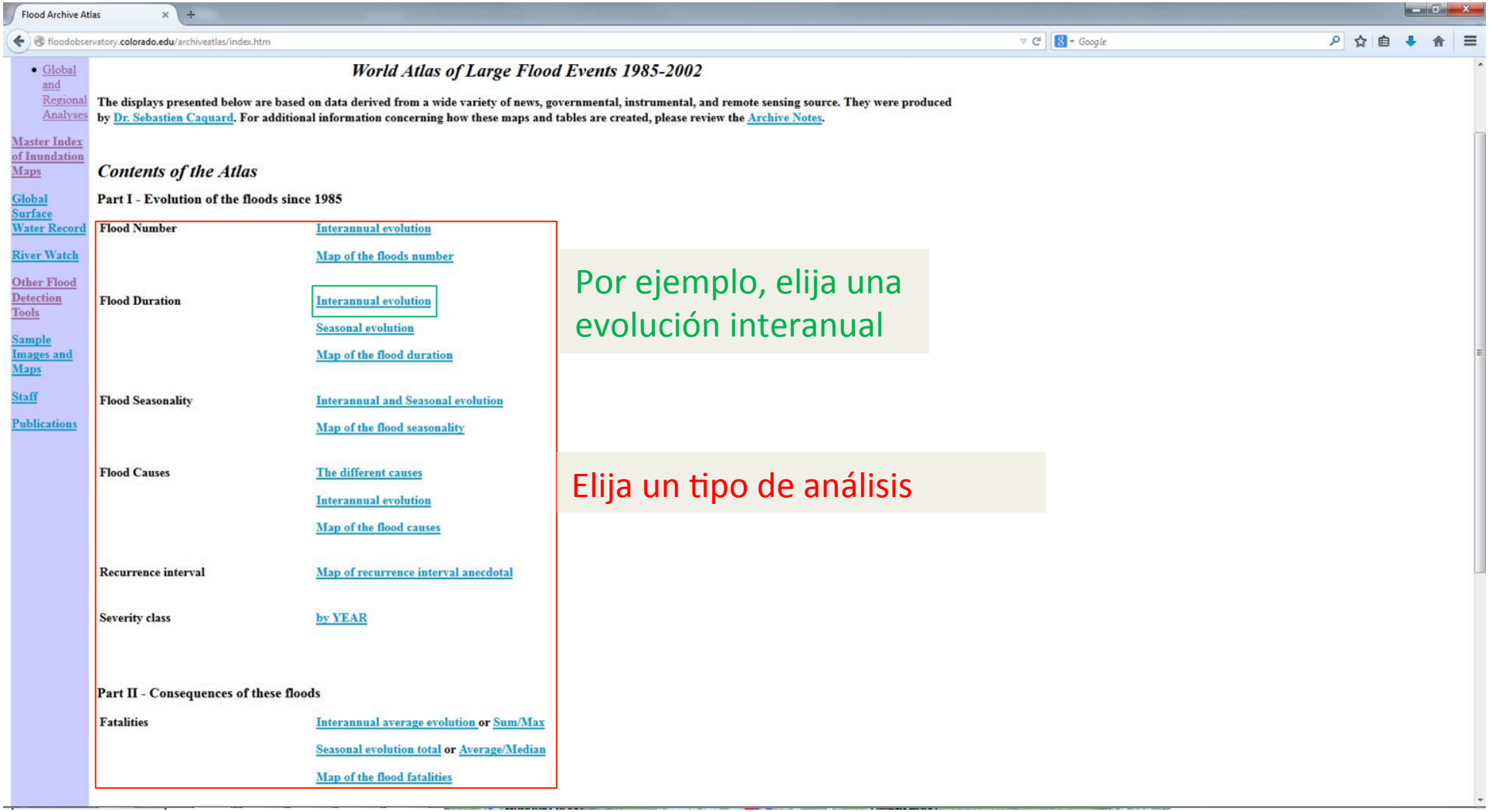
***Red**: Flooding within past 14 days (MODIS automated product). Light Red: Flooded during this event, from earlier MODIS coverage or non-automated MODIS mapping. Darker Red: Flooded areas from high resolution Sentinel 1 or Landsat 8 data. Dark blue, Permanent water, February, 2000 (SWBD). Very light blue, All flooding mapped by DFO since yr 2000. Also, CLICK on the colored dots to access River Watch sites. See also trial GoogleEarth version.*



DFO: Flood Archive Information



Análisis de Inundaciones



Por ejemplo, elija una evolución interanual

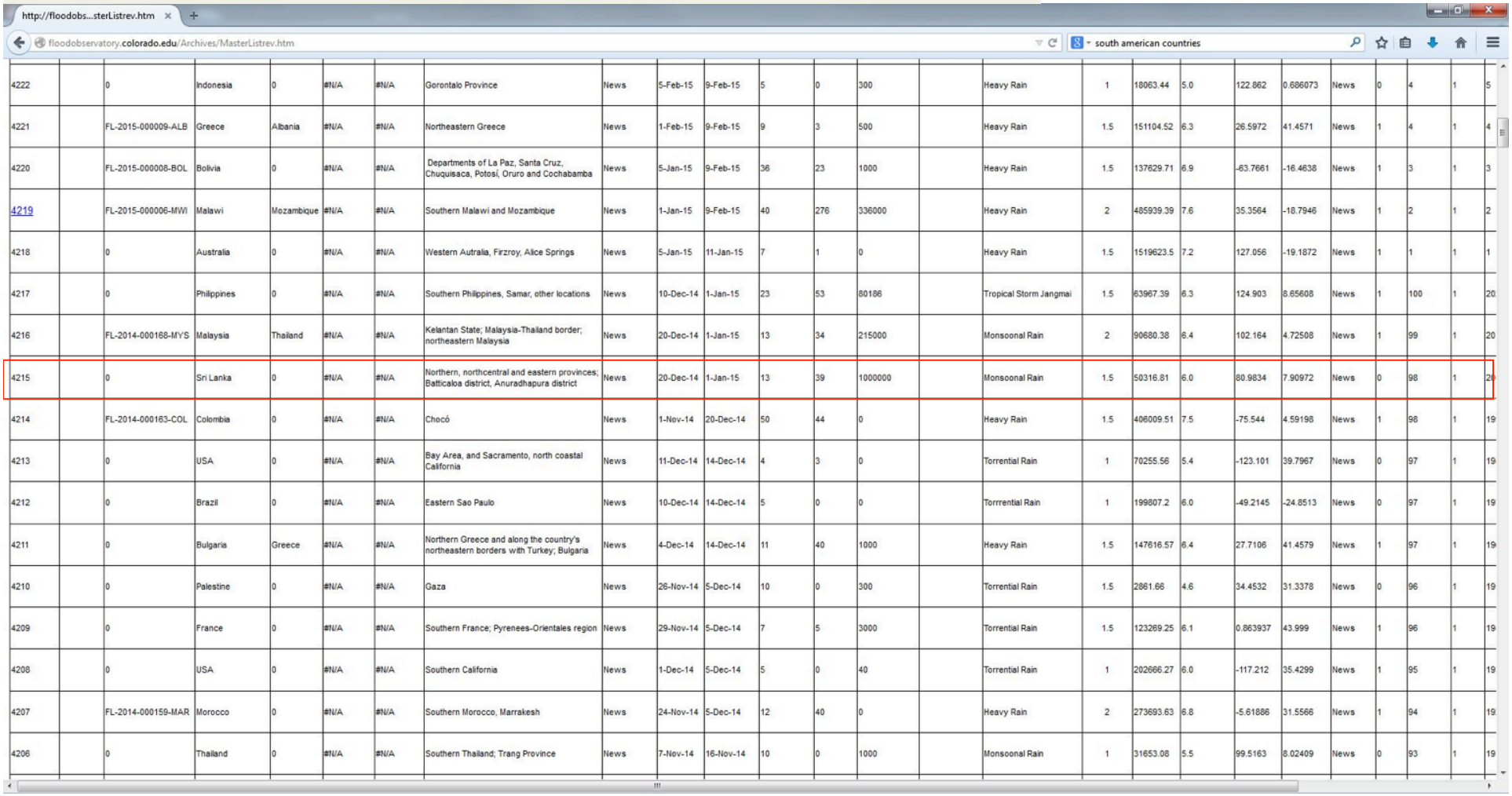
Elija un tipo de análisis

Ejemplo de Evento de Inundación

Chocó, Colombia

1/11/14-20/12/14

El Evento de inundación en el archivo de inundaciones recientes



http://floodobs...sterListrev.htm

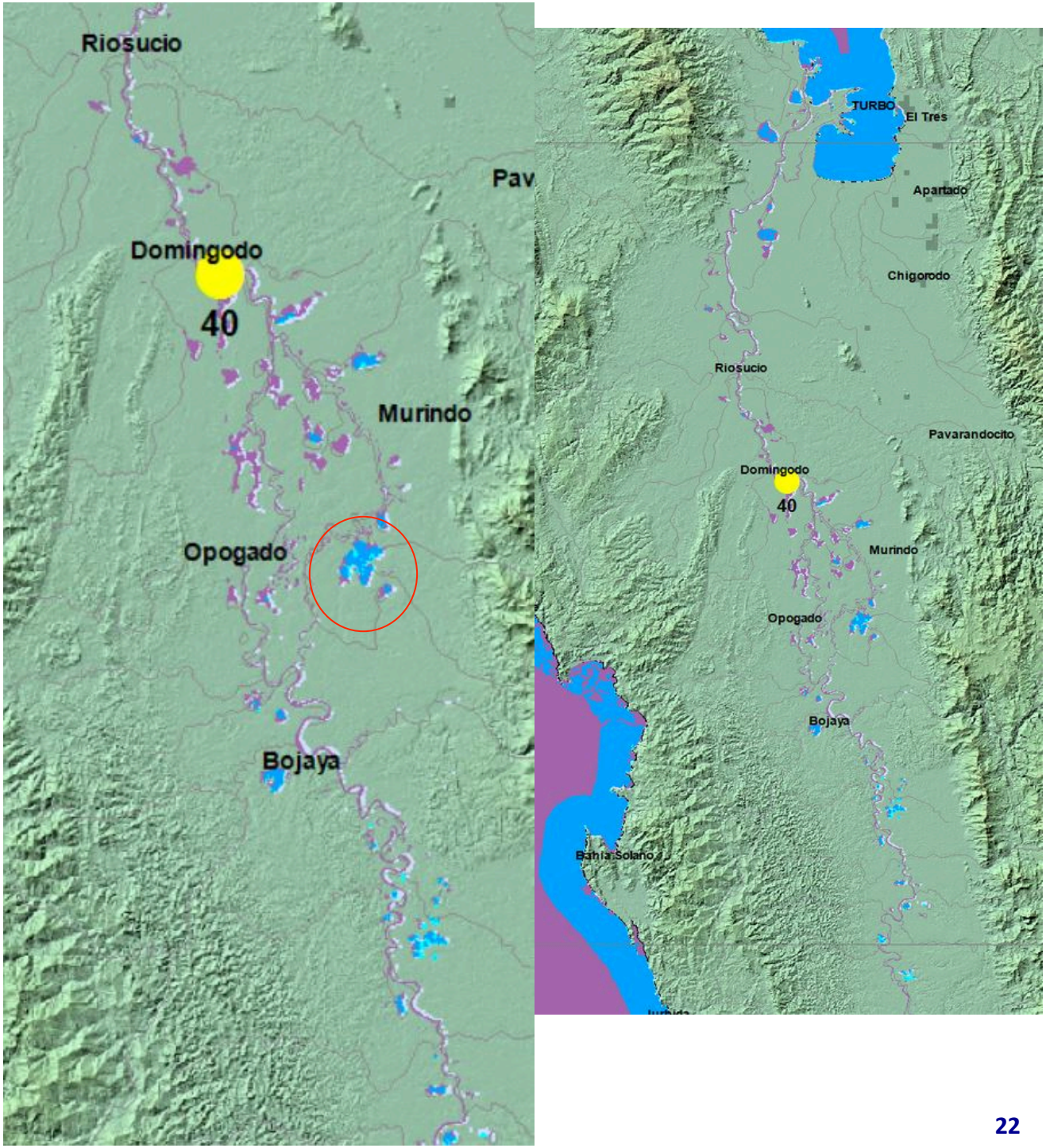
floodobservatory.colorado.edu/Archives/MasterListrev.htm

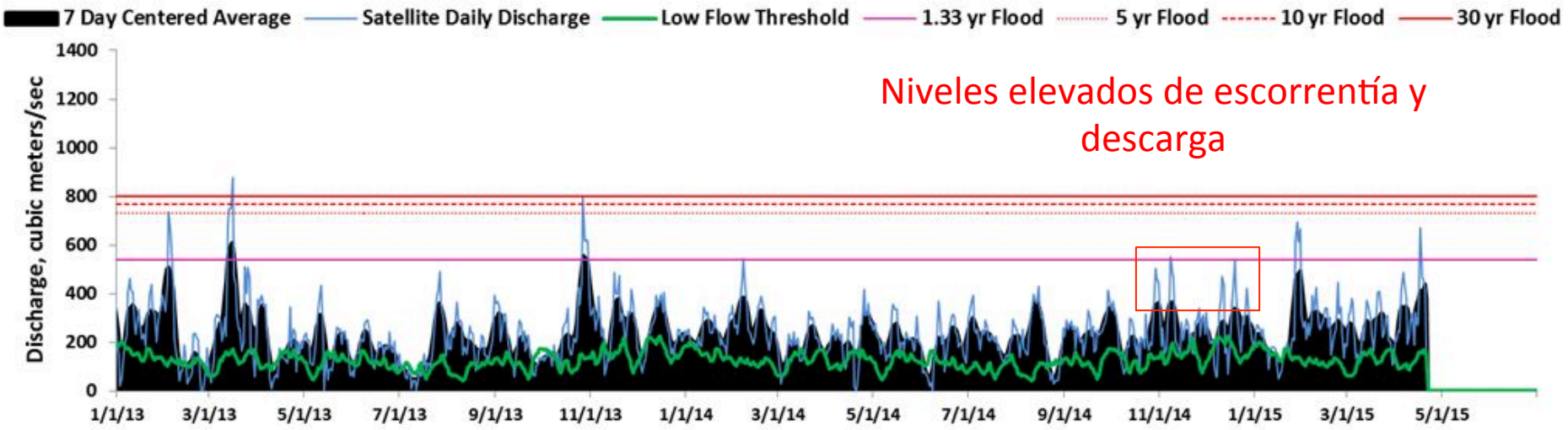
south american countries

4222		0	Indonesia	0	#N/A	#N/A	Gorontalo Province	News	5-Feb-15	9-Feb-15	5	0	300		Heavy Rain	1	18063.44	5.0	122.862	0.686073	News	0	4	1	5
4221		FL-2015-000009-ALB	Greece	Albania	#N/A	#N/A	Northeastern Greece	News	1-Feb-15	9-Feb-15	9	3	500		Heavy Rain	1.5	151104.52	6.3	26.5972	41.4571	News	1	4	1	4
4220		FL-2015-000008-BOL	Bolivia	0	#N/A	#N/A	Departments of La Paz, Santa Cruz, Chuquisaca, Potosí, Oruro and Cochabamba	News	5-Jan-15	9-Feb-15	36	23	1000		Heavy Rain	1.5	137629.71	6.9	-63.7661	-16.4638	News	1	3	1	3
4219		FL-2015-000006-MWI	Malawi	Mozambique	#N/A	#N/A	Southern Malawi and Mozambique	News	1-Jan-15	9-Feb-15	40	276	336000		Heavy Rain	2	485939.39	7.6	35.3564	-16.7946	News	1	2	1	2
4218		0	Australia	0	#N/A	#N/A	Western Autralia, Firzroy, Alice Springs	News	5-Jan-15	11-Jan-15	7	1	0		Heavy Rain	1.5	1519623.5	7.2	127.056	-19.1872	News	1	1	1	1
4217		0	Philippines	0	#N/A	#N/A	Southern Philippines, Samar, other locations	News	10-Dec-14	1-Jan-15	23	53	80186		Tropical Storm Jangmai	1.5	63967.39	6.3	124.903	8.65608	News	1	100	1	20
4216		FL-2014-000168-MYS	Malaysia	Thailand	#N/A	#N/A	Kelantan State; Malaysia-Thailand border; northeastern Malaysia	News	20-Dec-14	1-Jan-15	13	34	215000		Monsoonal Rain	2	90680.38	6.4	102.164	4.72508	News	1	99	1	20
4215		0	Sri Lanka	0	#N/A	#N/A	Northern, northcentral and eastern provinces; Batticaloa district, Anuradhapura district	News	20-Dec-14	1-Jan-15	13	39	1000000		Monsoonal Rain	1.5	50316.81	6.0	80.9834	7.90972	News	0	98	1	20
4214		FL-2014-000163-COL	Colombia	0	#N/A	#N/A	Chocó	News	1-Nov-14	20-Dec-14	50	44	0		Heavy Rain	1.5	406009.51	7.5	-75.544	4.59198	News	1	98	1	19
4213		0	USA	0	#N/A	#N/A	Bay Area, and Sacramento, north coastal California	News	11-Dec-14	14-Dec-14	4	3	0		Torrential Rain	1	70255.56	5.4	-123.101	39.7967	News	0	97	1	19
4212		0	Brazil	0	#N/A	#N/A	Eastern Sao Paulo	News	10-Dec-14	14-Dec-14	5	0	0		Torrential Rain	1	199807.2	6.0	-49.2145	-24.8513	News	0	97	1	19
4211		0	Bulgaria	Greece	#N/A	#N/A	Northern Greece and along the country's northeastern borders with Turkey; Bulgaria	News	4-Dec-14	14-Dec-14	11	40	1000		Heavy Rain	1.5	147616.57	6.4	27.7106	41.4579	News	1	97	1	19
4210		0	Palestine	0	#N/A	#N/A	Gaza	News	26-Nov-14	5-Dec-14	10	0	300		Torrential Rain	1.5	2861.66	4.6	34.4532	31.3378	News	0	96	1	19
4209		0	France	0	#N/A	#N/A	Southern France; Pyrenees-Orientales region	News	29-Nov-14	5-Dec-14	7	5	3000		Torrential Rain	1.5	123269.25	6.1	0.863937	43.999	News	1	96	1	19
4208		0	USA	0	#N/A	#N/A	Southern California	News	1-Dec-14	5-Dec-14	5	0	40		Torrential Rain	1	202666.27	6.0	-117.212	35.4299	News	1	95	1	19
4207		FL-2014-000159-MAR	Morocco	0	#N/A	#N/A	Southern Morocco, Marrakesh	News	24-Nov-14	5-Dec-14	12	40	0		Heavy Rain	2	273693.63	6.8	-5.61886	31.5566	News	1	94	1	19
4206		0	Thailand	0	#N/A	#N/A	Southern Thailand; Trang Province	News	7-Nov-14	16-Nov-14	10	0	1000		Monsoonal Rain	1	31653.08	5.5	99.5163	8.02409	News	0	93	1	19

agua superficial récord para el evento event

La inundación está indicaca en azul claro





Niveles elevados de escorrentía y descarga

Éstas son las cronologías del evento de inundación

Monthly Runoff (total of daily runoff for each month; mm)

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual Total (mm)	Comparison Station Total (mm)	Mean Discharge (m3/sec)	Annual Total % of 2002-2013	Mean Discharge 2002-2013 226
1998	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	490974.0			
1999	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	491118.0			
2000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	491262.0			
2001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	5.1	491406.0			
2002	57.0	41.1	57.2	60.2	45.6	50.6	28.6	24.3	31.3	32.7	30.2	31.7	490.4	491550.0	188	0.83	
2003	35.5	35.7	39.3	46.5	21.1	37.8	20.7	27.4	32.6	42.0	79.4	47.1	465.1	491694.0	178	0.79	
2004	53.9	32.8	26.2	19.4	18.0	29.7	19.2	32.0	20.3	30.7	23.6	23.2	329.1	491838.0	126	0.56	
2005	43.4	32.6	29.0	36.0	55.4	49.2	41.9	32.8	23.0	35.8	52.3	63.0	494.2	491982.0	190	0.84	
2006	50.9	26.3	59.0	55.1	64.8	48.9	42.8	34.3	50.5	42.9	39.3	56.9	571.7	492126.0	219	0.97	
2007	48.1	64.1	41.7	38.1	52.1	41.9	32.2	38.5	53.9	81.6	76.5	100.0	668.7	492270.0	255	1.13	
2008	75.2	57.3	81.6	66.6	93.1	88.7	53.4	33.2	35.1	53.0	56.9	101.2	795.2	492414.0	306	1.36	
2009	44.6	42.0	36.8	58.0	25.6	16.7	35.9	33.3	42.1	38.1	35.5	35.5	444.1	492558.0	167	0.74	
2010	30.8	17.4	26.4	24.8	37.9	30.1	35.2	31.7	45.9	29.0	88.8	136.9	534.9	492702.0	205	0.91	
2011	61.6	30.2	71.3	100.6	109.6	31.5	31.2	40.4	40.4	81.6	75.2	166.2	839.7	492846.0	319	1.41	
2012	128.1	137.3	90.6	83.5	101.5	62.3	43.3	25.5	35.3	46.4	61.4	55.8	870.8	492990.0	327	1.45	
2013	64.6	47.5	73.6	41.5	43.4	38.0	33.3	46.8	43.8	58.3	62.3	53.2	606.4	493134.0	228	1.01	
2014	53.4	59.1	40.7	45.7	47.9	38.0	48.2	45.5	53.6	52.0	58.5	59.0	601.7	493278.0	231	1.02	
2015	51.4	58.1	56.6	49.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	215.7	493290.0	272	1.21	

Próximamente:

Actividad práctica usando el mapeo de inundaciones del MODIS