

Overview on Namibian Flood SensorWeb Pilot Project

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Fly To Find Businesses Directions

Fly to e.g., New York, NY

Places Add Content

- gery
 - Image © 2008 GeoEye/CRISP-Singapor
 - TerraSAR-X Imagery
 - Images © DLR/Infoterra GmbH 2008
 - May 8, 2008 - Terra
 - May 8, 2008 - Terra
 - May 8, 2008 TerraSAR-X Imagery
 - SPOT Image Imager
 - Image © 2008 Cnes/Spot Image
 - None
 - May 6, 2008 Black &
 - May 6, 2008 Near Inf

Layers

View: Core

- Primary Database
- Geographic Web
- Roads
- 3D Buildings
- Borders and Labels
- Traffic
- Weather
- Gallery
- Global Awareness
- Places of Interest
- More
- Terrain

Goal is to visualize available satellite data and possible future satellite data in an area of interest and a desired time span on Google Earth.

May 8, 2008

TerraSAR-X Imagery

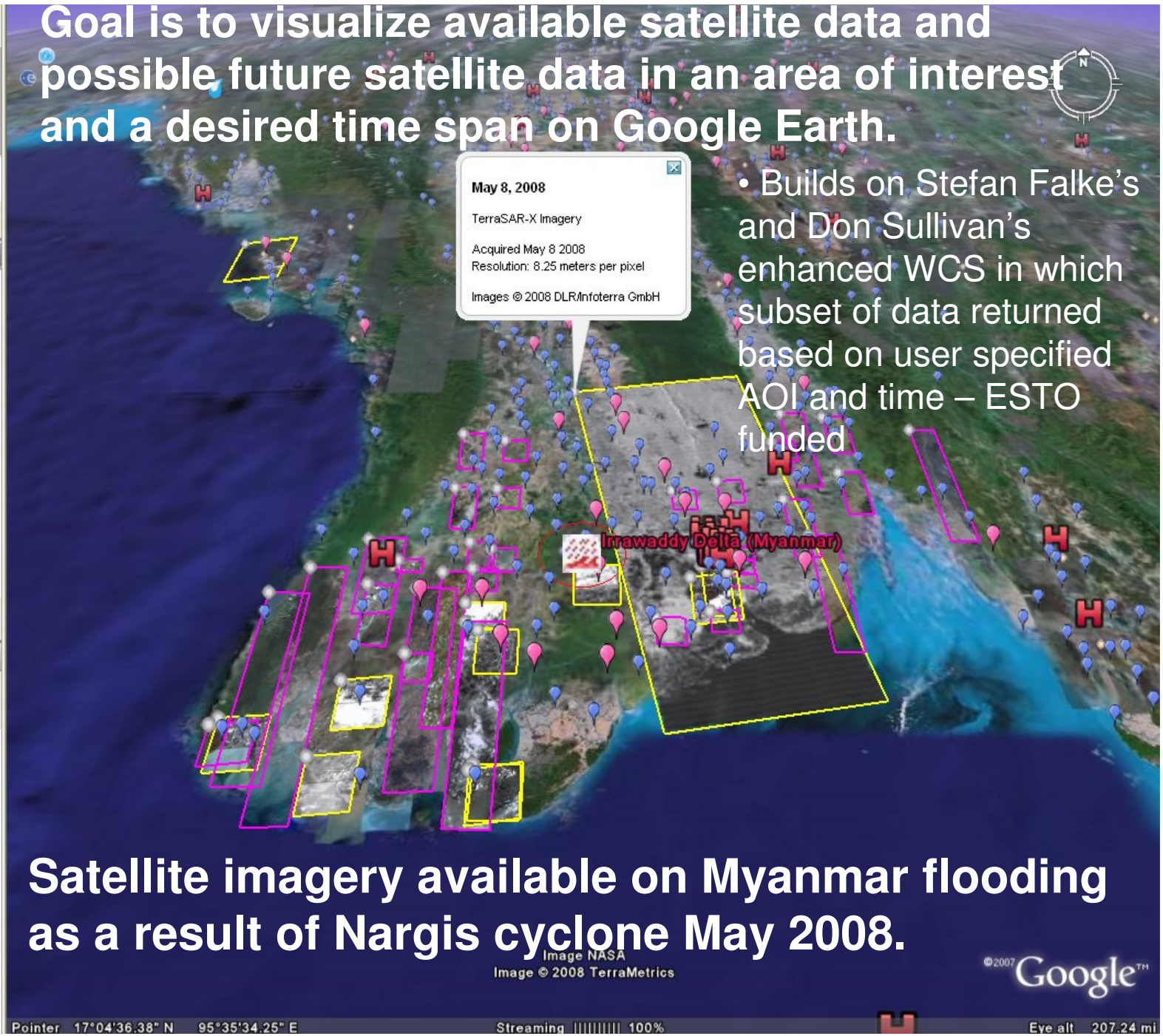
Acquired May 8 2008

Resolution: 8.25 meters per pixel

Images © 2008 DLR/Infoterra GmbH

- Builds on Stefan Falke's and Don Sullivan's enhanced WCS in which subset of data returned based on user specified AOI and time – ESTO funded

Satellite imagery available on Myanmar flooding as a result of Nargis cyclone May 2008.

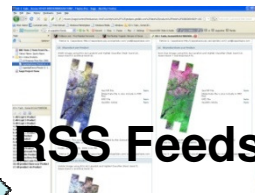
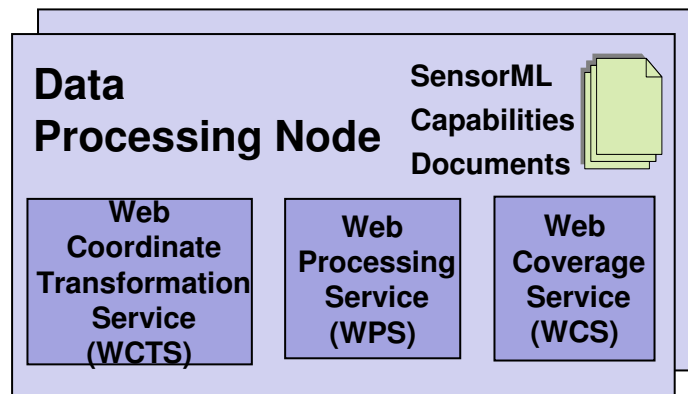


Overview

© 2007 Google™

SensorWeb High Level Architecture

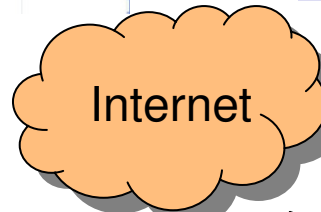
floods, fires, volcanoes etc



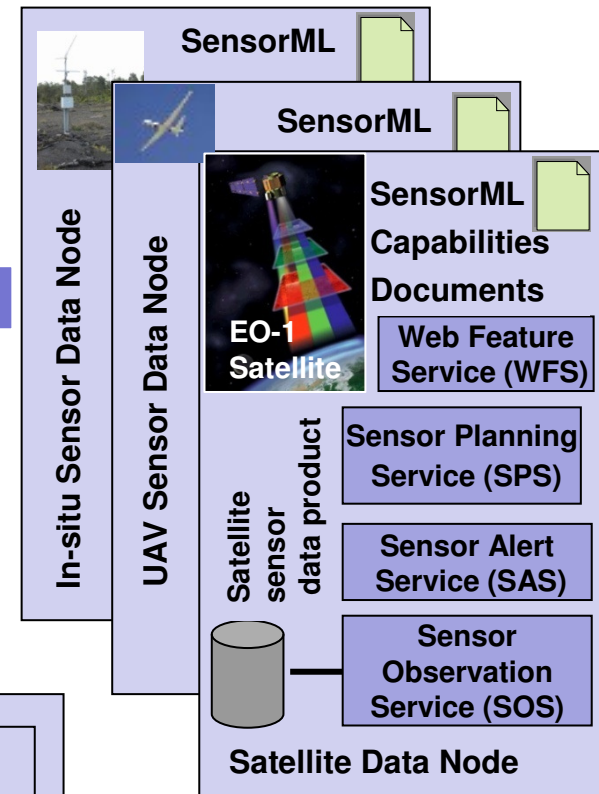
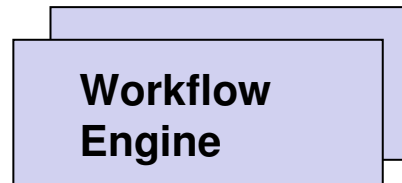
RSS Feeds



OpenID 2.0



Sensor Data Products



Namibian Flood-Disease SensorWeb Emergency Response Pilot Project

- Sponsored under the auspices of the Committee on Earth Observing Satellites (CEOS) Working Group on Information Systems and Services (WGISS) and the United Nations Office of Outer Space Affairs (UNOOSA) , specifically the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) office.
- Effort consists of identifying and prototyping technology which enables the rapid gathering and dissemination of both space-based and ground sensor data and data products for the purpose of flood disaster management and waterborne disease management.
- CEOS input to a subtask under the Group on Earth Observation (GEO) Societal Benefit Area (SBA) task DI-06-09 entitled Use of “Satellite Data for Risk Management” and headed by Guy Seguin of the Canadian Space Agency(CSA)
 - Subtask 1: Disaster Management System Capabilities task with a task number TBS and headed by Lorant Czaran of the UN-SPIDER
 - Subtask 2: “Flood SensorWeb Emergency Response Prototype” with a task number AR-09-02c_2 and headed by Terrance Van Zyl of the South African
 - Subtask 3: “Regional Disaster Management Pilots” with a task number of DI-09-02b_1 and headed by Stuart Frye of SGT Inc./Goddard Space Flight Center

Namibian Flood-Disease SensorWeb Emergency Response Pilot Project

- Flood potential model – 10 satellites
- Riverwatch
- Rapid flood imaging
 - EO-1
 - Radarsat
 - MODIS
 - Formosat
- Upgrades in near term
 - Customize River Watch - calibrate sites, filling gaps (time/area), coordinate with desired Namibian locations
 - Improve flood model early warning
 - Global higher resolution nowcast
 - Global higher resolution
 - Attempting to calibrate model for Zambezi and related river basins using historical river gauge data
 - Begin to gather low-resolution mapping on user specified interval for early warning
 - User defined trigger to gather intensified high-resolution mapping during flood events to archive for flood mapping

Namibian Floods 2009



Namibian Flood-Disease SensorWeb Emergency Response Pilot Project

- Extensive flooding in Namibia in 2009
- Worked with Guido Van Langenhove, head of Hydrological Services in Namibia, to identify flood sensorweb pilot scenario
- Collected satellite imagery for months in the Lake Liambezi area
- Collected the following:
 - Ground measurements (Guido Langenhove)
 - Rainfall estimates, and predictions for first three months of 2009 (Policelli/Adler)
 - Flood predictions for 1st three months of year (TRMM – Policelli/Adler)
 - Assets:
 - EO-1 30 meter/10 meter 1 -2 times per week(Frye)
 - Formosat 2 meter data, once per week for 4-6 weeks (requested from Cheng-Chien Liu)
 - MODIS flood map , once per week 4-6- weeks (Requested from Bob Brakenridge)
 - Radarsat about once per week

Namibian Flood-Disease SensorWeb Emergency Response Pilot Project



- Namibian Dept of Hydrology installing flood gauges and rain gauges
- Will correlate ground measurements with satellite imagery to calibrate imagery and thus improve flood forecast models
- NASA will improve our flood forecast model and assist in improving Riverwatch system (Dartmouth Flood Observatory)


Campaign Manager (GeoBPMS 1.0) Triggering EO-1 Flood Image and Possible Other Satellites to Use

Tasking Request:

Title: Lake Liambezi test1
Description: Namibia flood campaign requested by Guido Van Langenhove
Category:
Latitude: -17.9108028411865
Longitude: 24.21120262146
Day/Night: day time
Country Code:
Country Name:
Zone Number: 576
Zone Name: Zambia
Region Number: 37
Region Name: Africa
Admin Code:
Admin Name:
Nearby:
Created At: Thu, 23 Apr 2009 02:37:14 -0000
Updated At: 2009-04-23
[Show Map](#)

Feasibilities

Potential Feasibility	Asset: EO-1, Date: 2009-04-24T08:09:00Z
Potential Feasibility	Asset: ALOS, Date: 2009-04-24T23:24:50Z
Potential Feasibility	Asset: FORMOSAT-2, Date: 2009-04-25T00:45:28Z
Potential Feasibility	Asset: QB-2, Date: 2009-04-25T08:00:21Z
Potential Feasibility	Asset: SPOT-5, Date: 2009-04-25T21:15:14Z
Potential Feasibility	Asset: EO-1, Date: 2009-04-27T08:25:00Z
Potential Feasibility	Asset: FORMOSAT-2, Date: 2009-04-27T12:24:02Z
Potential Feasibility	Asset: SPOT-5, Date: 2009-04-28T06:24:02Z
Potential Feasibility	Asset: QB-2, Date: 2009-04-28T19:10:07Z
Potential Feasibility	Asset: ALOS, Date: 2009-04-29T00:35:33Z
Potential Feasibility	Asset: EO-1, Date: 2009-04-29T08:04:00Z
Potential Feasibility	Asset: ALOS, Date: 2009-04-29T20:38:33Z
Potential Feasibility	Asset: FORMOSAT-2, Date: 2009-04-29T23:19:50Z
Potential Feasibility	Asset: QB-2, Date: 2009-04-30T02:52:57Z
Potential Feasibility	Asset: SPOT-5, Date: 2009-04-30T11:02:33Z
Potential Feasibility	Asset: EO-1, Date: 2009-05-02T08:21:00Z
Potential Feasibility	Asset: ALOS, Date: 2009-05-02T14:09:28Z
Potential Feasibility	Asset: QB-2, Date: 2009-05-02T14:38:16Z
Potential Feasibility	Asset: SPOT-5, Date: 2009-05-03T01:43:33Z
Potential Feasibility	Asset: FORMOSAT-2, Date: 2009-05-03T09:47:24Z



The map displays the continent of Africa with a red location pin placed in Namibia. The map interface includes navigation controls (directional arrows, zoom in/out) and a 'Show Map' button. The map is powered by Google and includes a copyright notice for Europa Technologies. The map shows the South Atlantic Ocean to the west and the Indian Ocean to the east. Various African countries are labeled, including Algeria, Libya, Egypt, Mauritania, Mali, Niger, Chad, Sudan, Ethiopia, Nigeria, DR Congo, Kenya, Tanzania, Angola, Namibia, Botswana, Madagascar, and South Africa. The map also shows parts of South America (Brazil) and Asia (India, Thailand).

Lake Liambezi Flood in Namibia



Landsat Image Oct 18, 2002



EO-1 Image March 27, 2009

Lake Liambezi: EO-1 ALI Image 4-9-09 Overlaid on Formosat Image 4-5-09 on Google Earth Both images Geo-tiled

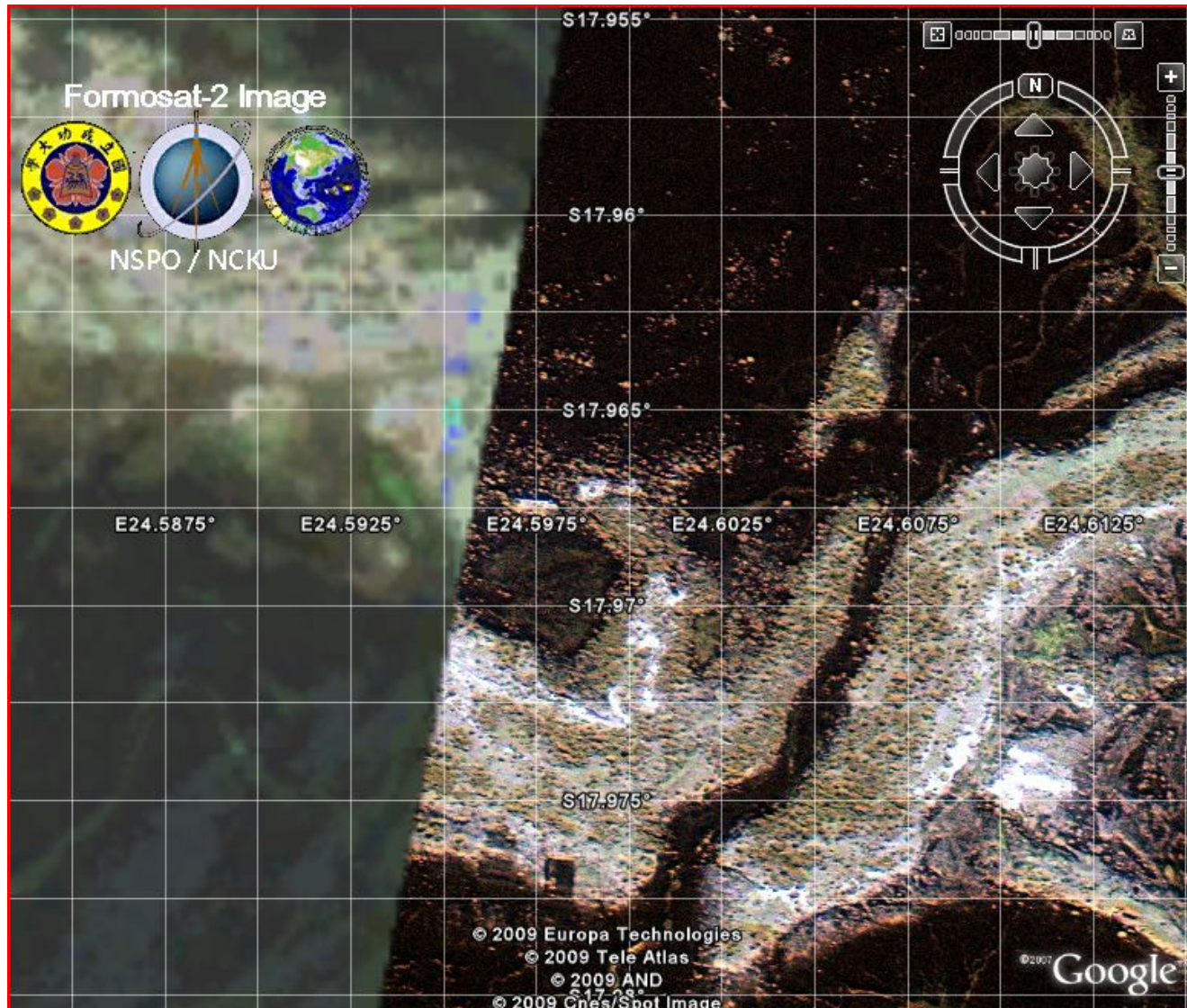


Zoom 1 – Note Misalignment Problem

Exa



Zoom 2 – Note increased detail of Formosat



SERVIR Experimental/Standard Flood Products Page – Policelli/GSFC (password protected)

File Edit View History Bookmarks Tools Help

http://aspires.gsfc.nasa.gov/SERVIR_Africa/test.html

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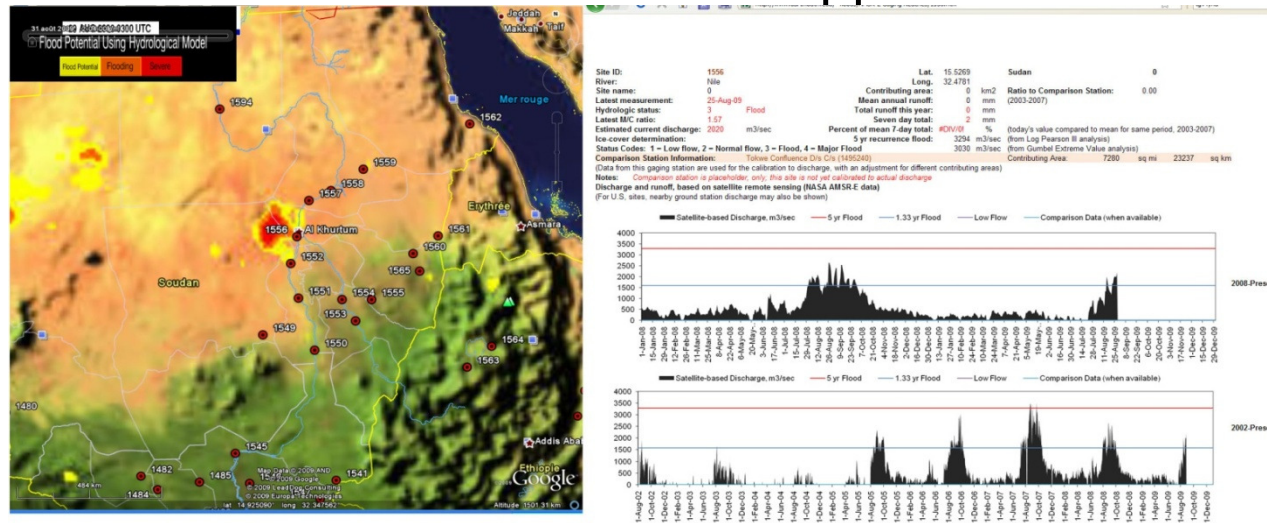
NATURAL HAZARDS
Earthquakes
Volcanoes
Fires

Low Level Flood Potential (25mm-75mm)
Moderate Flood Potential (75mm-125mm)
Severe Flood Potential (125mm+)

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Clouds/Rain Meteosat Clouds Rain Accumulation Forecast Precip	Current Flood Potential Flood Potential 7Day Animation Severe Flood Report River Discharge	Forecast Flood Potential Flood Forecast 5Day Animation Severe Flood Report	Field Reports/Flood Maps Field Reports Quick Look Flood Maps
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Red Cross Used Flood Potential Model and Relevant Info to Launch Appeal



From: Frederic Zanetta [mailto:Frederic.Zanetta@ifrc.org]
Sent: Monday, August 31, 2009 11:05 AM
To: Policelli, Frederick S. (GSFC-6104)
Subject: Use of NASA product

Hi Fritz,

How are you ?

I just want to let you know that we have been using today the TRMM product (see attached) to confirm information from the field about floods near Kartoum and we will probably be launching an Emergency Appeal.

Have a nice day

Frederic

Frédéric Zanetta

Operations Support Department

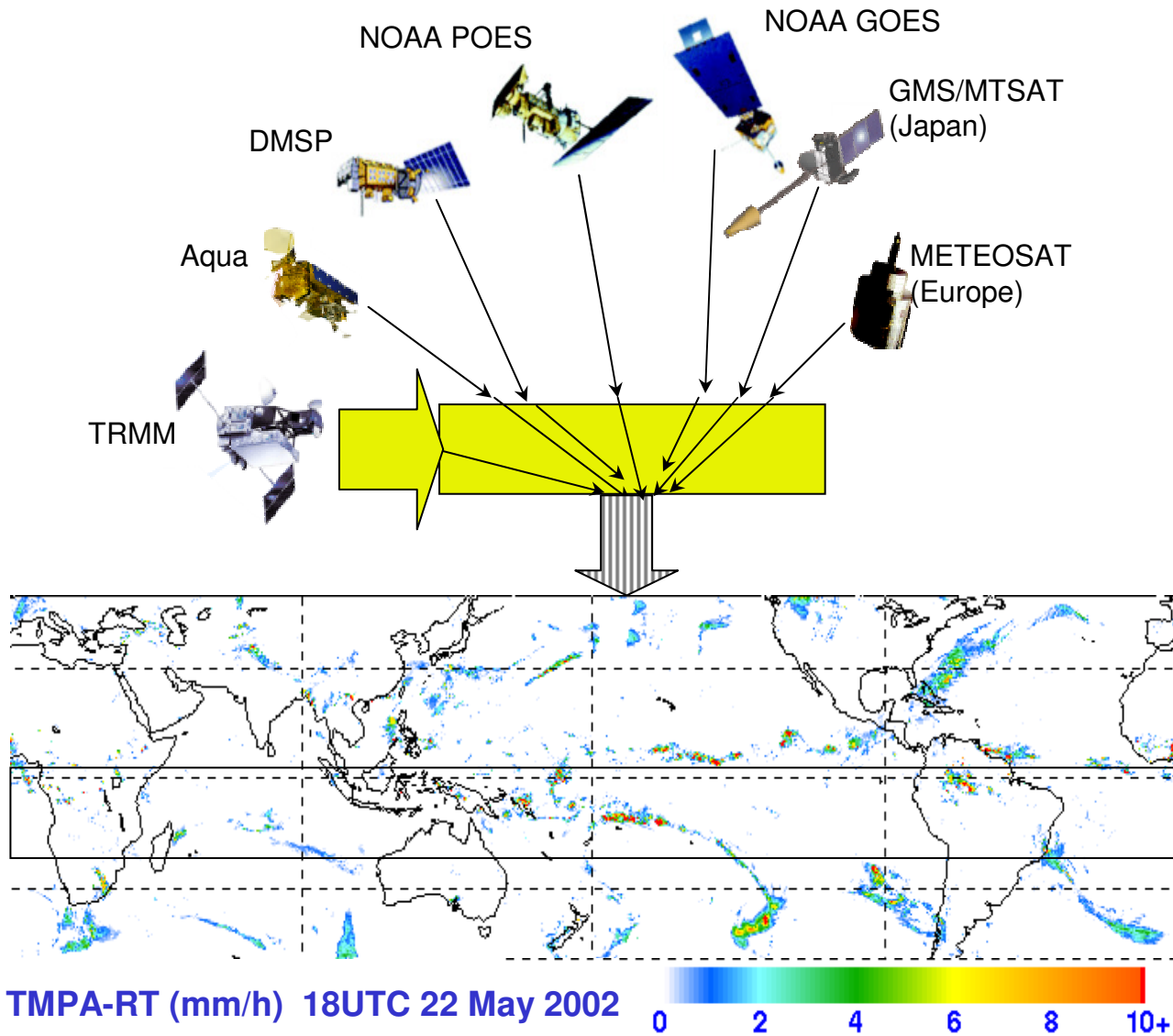
Disaster information senior officer

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Phone: +41 22 730 4291 | Fax: +41 22 730 4480

E-mail: frederic.zanetta@ifrc.org | Skype: fzanetta

Near Real Time Rainfall Measurements



1. TRMM used to calibrated all other satellites
2. 25-km grid precipitation, every 3 hours, 1998-present;
3. <http://trmm.gsfc.nasa.gov>

From: Hong, Adler

