

The Namibia Flood Dashboard



Global Flood Working Group

Matthew Handy

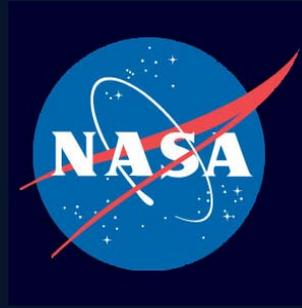
NASA/Goddard Space Flight Center
Software Engineering Division
03/04/13

Overview



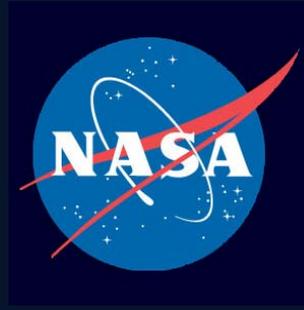
- Motivation / Objectives
- Tool Overview
- Tool Capabilities
- Future Plans
- Wrap Up

Motivation / Objectives



- Aggregate information sources → better situational awareness and decision making
- Integrate and compare data feeds → enhanced analysis capability
- Disseminate information → wider availability of data products and analysis
- Rapid configuration and deployment → software can be rapidly applied to diverse situations

Tool Overview



- Bulletin System (current and archive)
- Google Maps/Earth powered geospatial data display
- River gauge station graphing and comparison

Main Page



Namibia Flood Dashboard

SensorWeb enabled for early flood warning

[Daily Report](#)

Janua
31

Daily Bulletin:

HYDROLOGICAL SERVICES NAMIBIA – DAILY FLOOD BULLETIN 30 JANUARY 2013

Rains returned to central northern Namibia. NMS reported 25.4 mm for Okahao and 15.4 mm for Oshikango, and Ms Nancy Robson gave 7 mm for Odibo. Satellite images showed also good rains in the headwater of Kavango and Kunene rivers, and higher flows may be building up to reach Namibia next week. The Zambezi River is further rising at Katima Mulilo, but more slowly now. The forecast is still for 5.50 m by 10 February, which would be the normal seasonal floodlevel that is usually reached by the beginning of April.

[View Complete Current Bulletin](#)

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[Configure Layers](#)
[Upload Layer](#)

▼ River Stations

▼ SensorWeb Layers

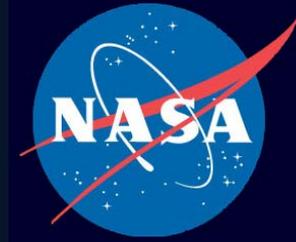
▼ Water Lines and Areas

Google Maps

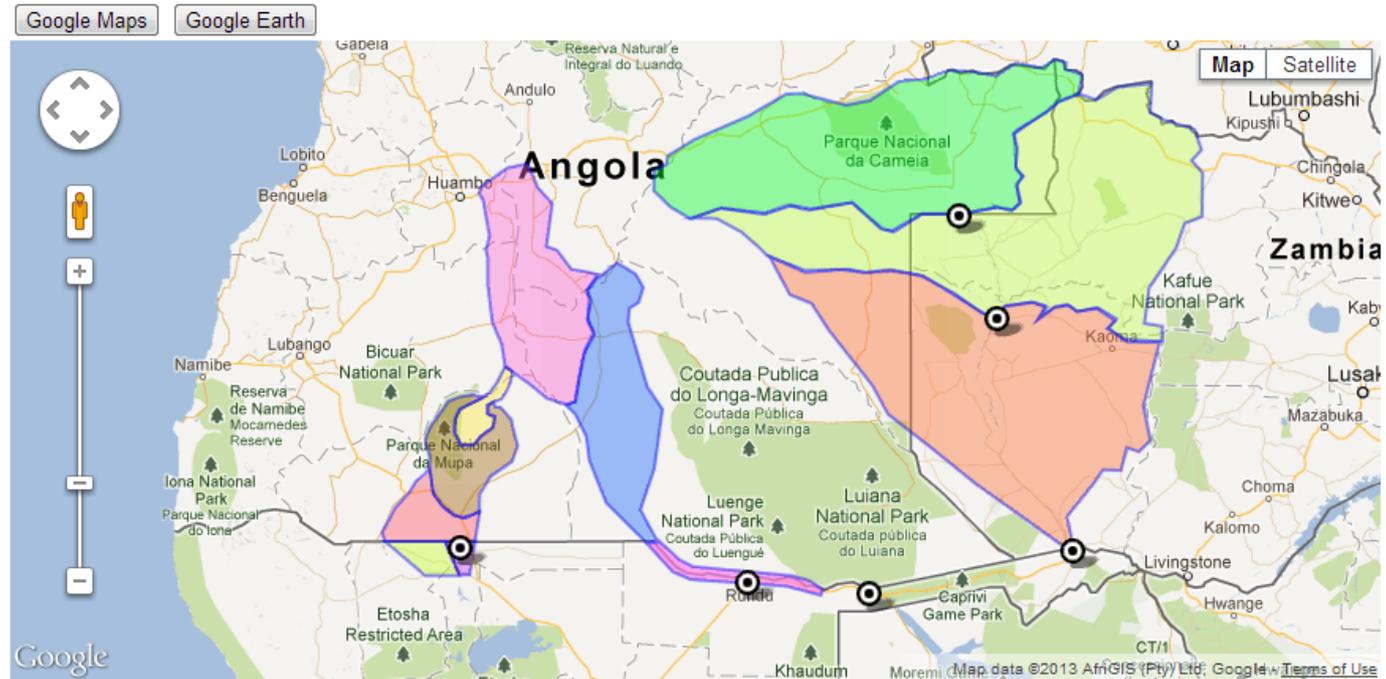
Google Earth



Geospatial Display (The Big Map)



- River Stations
- SensorWeb Layers
- Water Lines and Areas
- Satellite Overlays
- Ground Pics
- Kavango Radarsat Data
- Cuvelai Radarsat Data
- TRMM Rainfall Accumulation and Flood Forecast
- Global Scene Counts
- MODIS Floodmaps
- Infrastructure
- ALI Flood Classification



Legend:

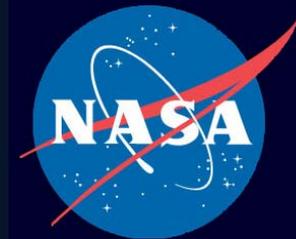
ALI Flood Classification	Class 1 - Background:	Class 2 - Opaque Clouds:	Class 3 - Cloud Shadow:	Class 4 - Haze and Thin Clouds:	Class 5 - Clear Water:	Class 6 - Turbid Water:	Class 7 - Dry Land:
	■	■	■	■	■	■	■

Tool Capabilities



- Bulletin system
- Historical river level display & graphing
- TRMM rainfall history/projections
- MODIS flood classification
- WCPS image retrieval / ALI Flood Classification
- Infrastructure mapping / correlation
- GDACS Triggering

Bulletins



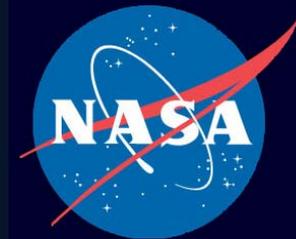
Current Bulletin

HYDROLOGICAL SERVICES NAMIBIA – DAILY FLOOD BULLETIN 30 JANUARY 2013

Rains returned to central northern Namibia. NMS reported 25.4 mm for Okahao and 15.4 mm for Oshikango, and Ms Nancy Robson gave 7 mm for Odibo. Satellite images showed also good rains in the headwater of Kavango and Kunene rivers, and higher flows may be building up to reach Namibia next week. The Zambezi River is further rising at Katima Mulilo, but more slowly now. The forecast is still for 5.50 m by 10 February, which would be the normal seasonal floodlevel that is usually reached by the beginning of April.

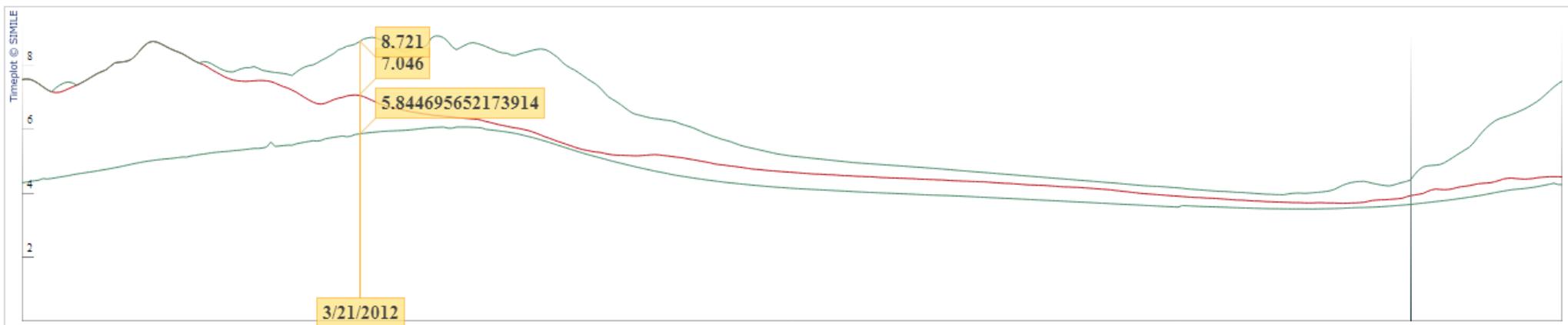
This morning's river flow readings:

River	Site	One week ago (23 Jan 2013)	Yesterday (30 Jan 2013)	Today (30 Jan 2013)	One year ago (30 Jan 2012)	Normal for 30 Jan
Zambezi	Katima Mulilo	2.86 m	4.55 m	4.73 m	2.43 m	1.52 m
Kwando		estimated:	estimated:	Estimated:	3.23 m	2.39 m
	Kongola	3.09 m	3.03 m	2.99 m		
	Camp Kwando (+)	-	0.65 m	9.64 m	-	-
Linyanti Swamps	Nkasa Luapala Camp (++)	1.95 m	1.85 m (note correction)	-	-	-
Kavango	Nkurenkuru	1.71 m	1.52 m	1.51 m	3.14 m	-
Rundu	5.72 m	5.40 m	5.36 m	6.81 m	4.87 m	
Andara	1.80 m	1.80 m	1.79 m	1.99 m	1.44 m	



River Gauge Stations

Rundu



Select Station: Rundu Select Year: 1969 Select Series Color: Red

Select Station: Rundu Select Year: Select Select Series Color: Blue

Select Station: Rundu Select Year: Select Select Series Color: Green

Select Station: Rundu Select Year: Select Select Series Color: Gold

Select Station: Rundu Select Year: Select Select Series Color: Light Green

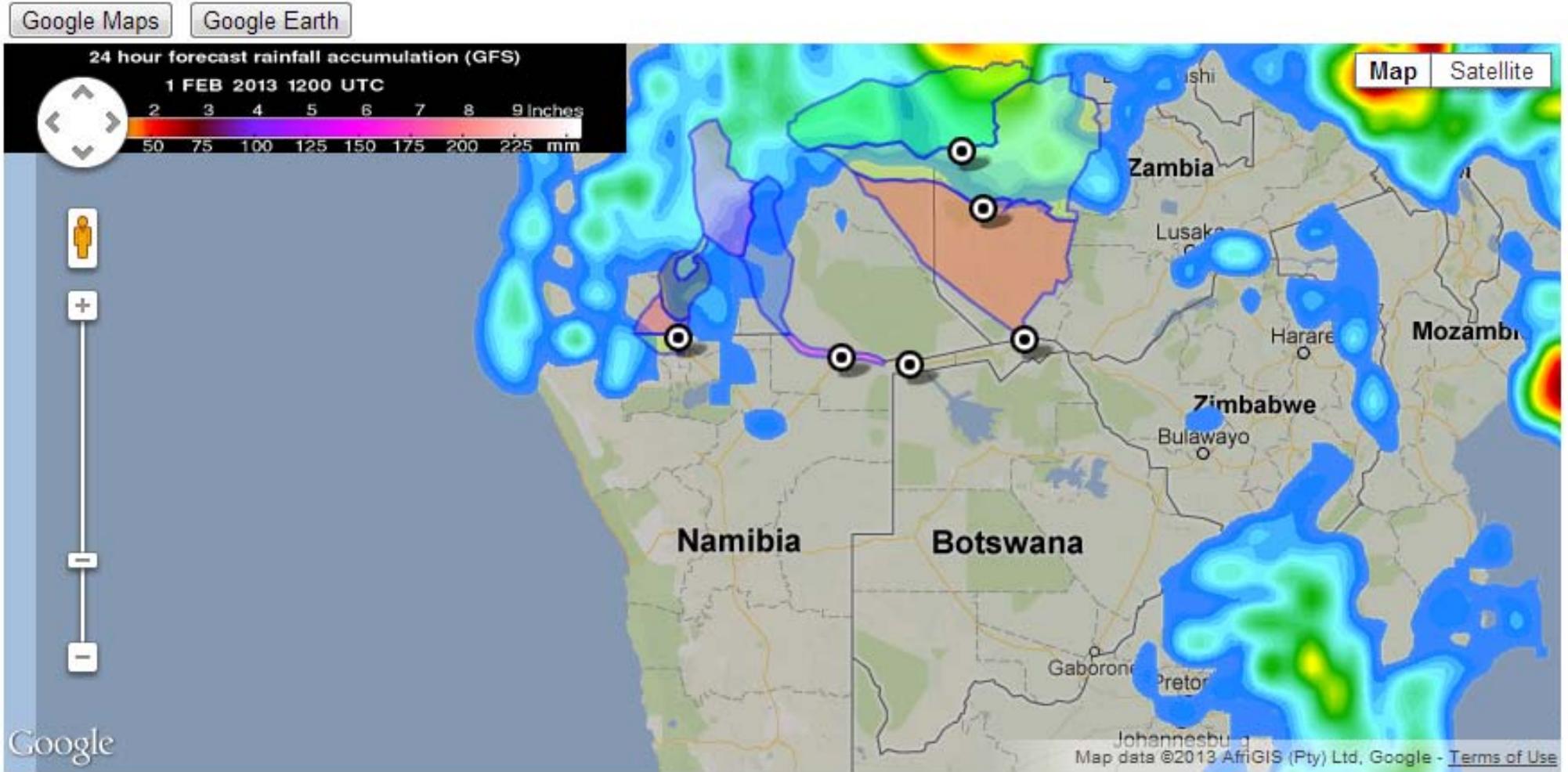
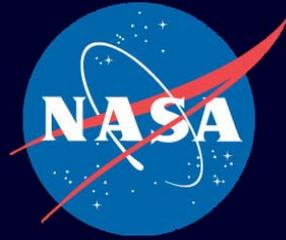
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Display Minimum: Select Minimum Color: Blue

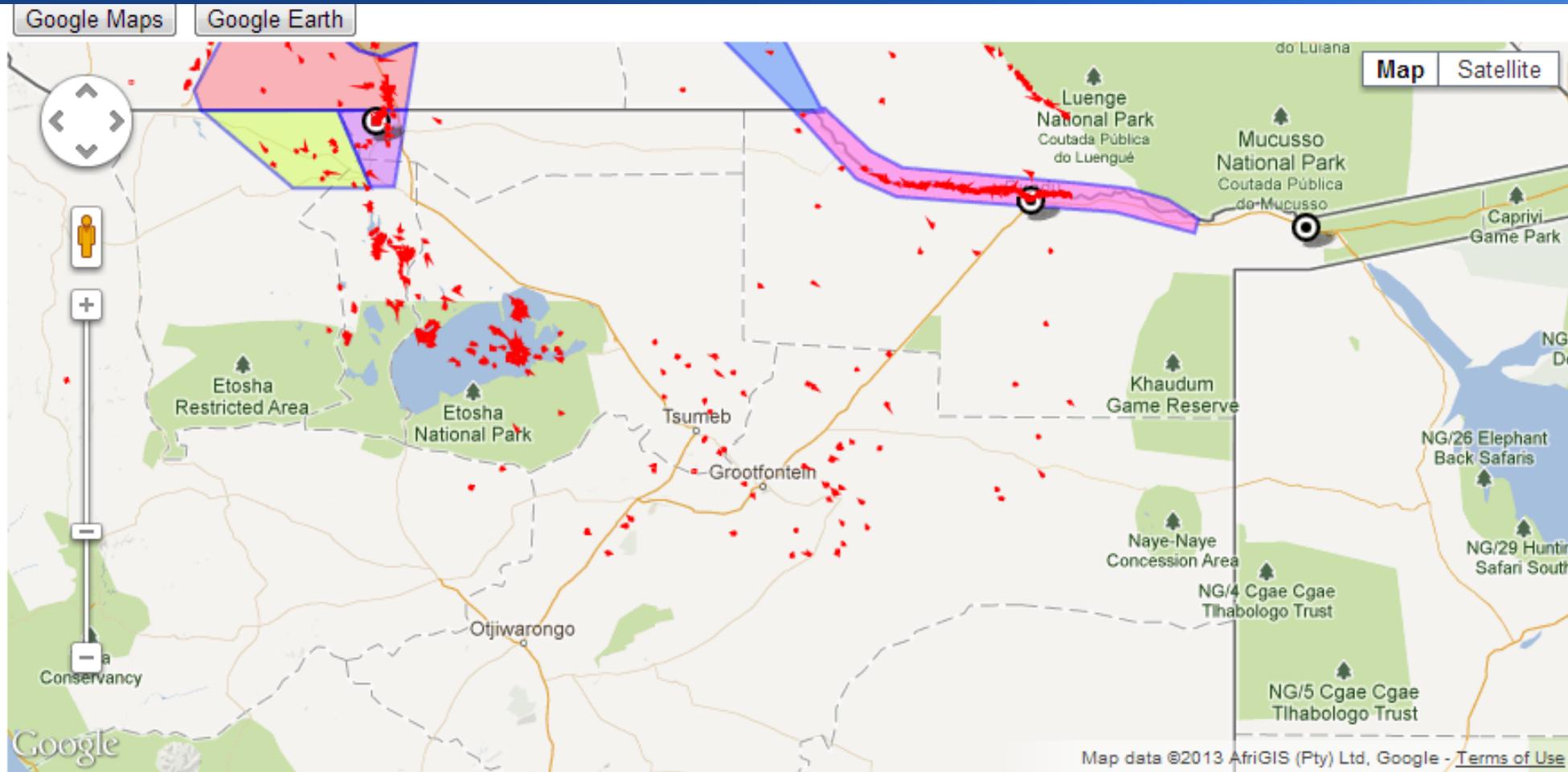
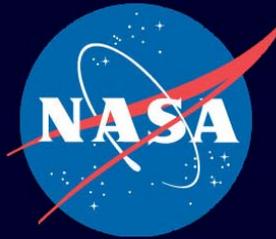
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Lower Date Bound: 01/01/2012 Upper Date Bound: 12/31/2012

TRMM Rainfall

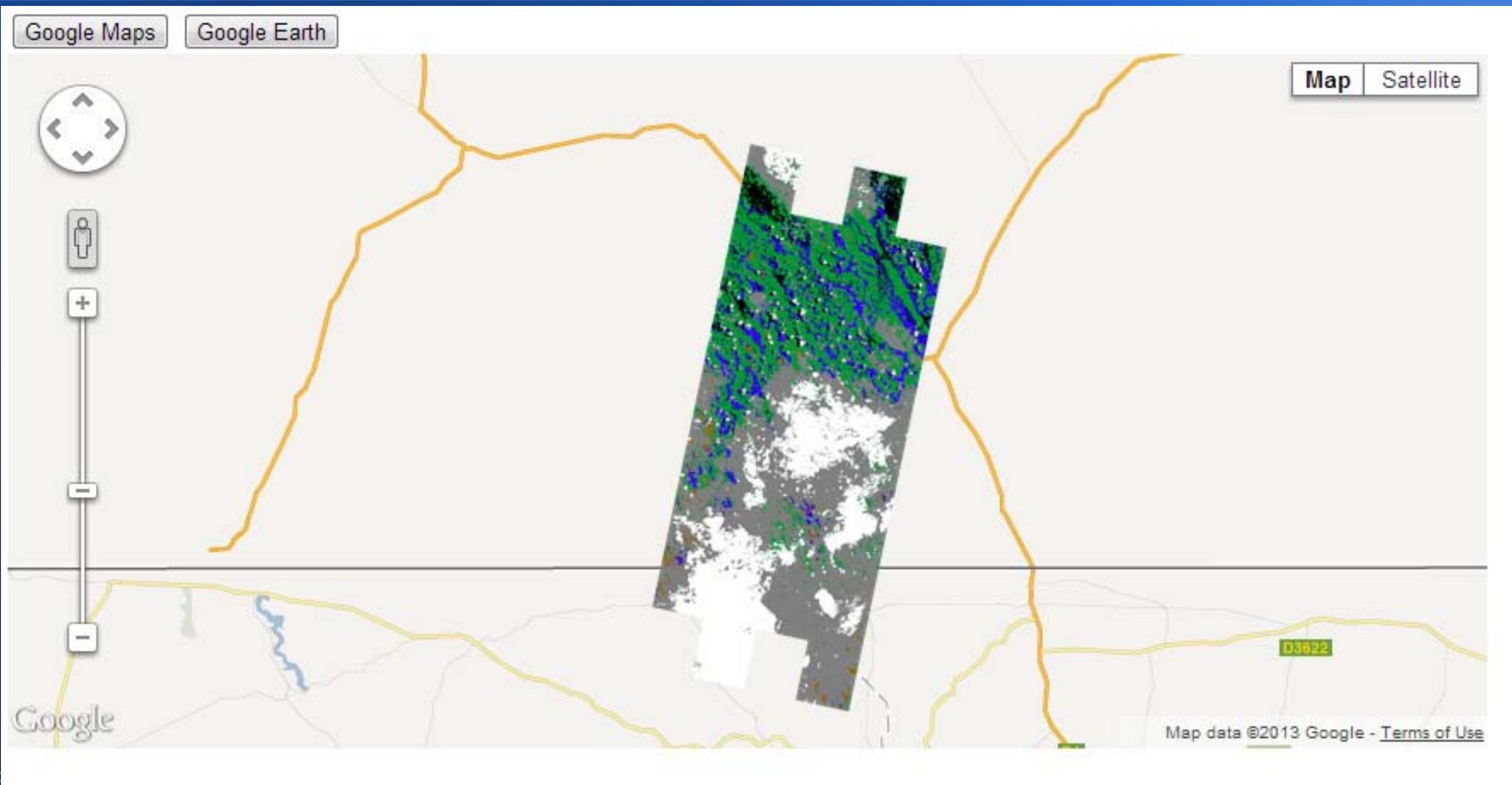
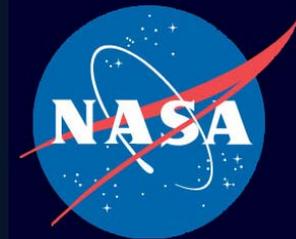


MODIS Flood Classification

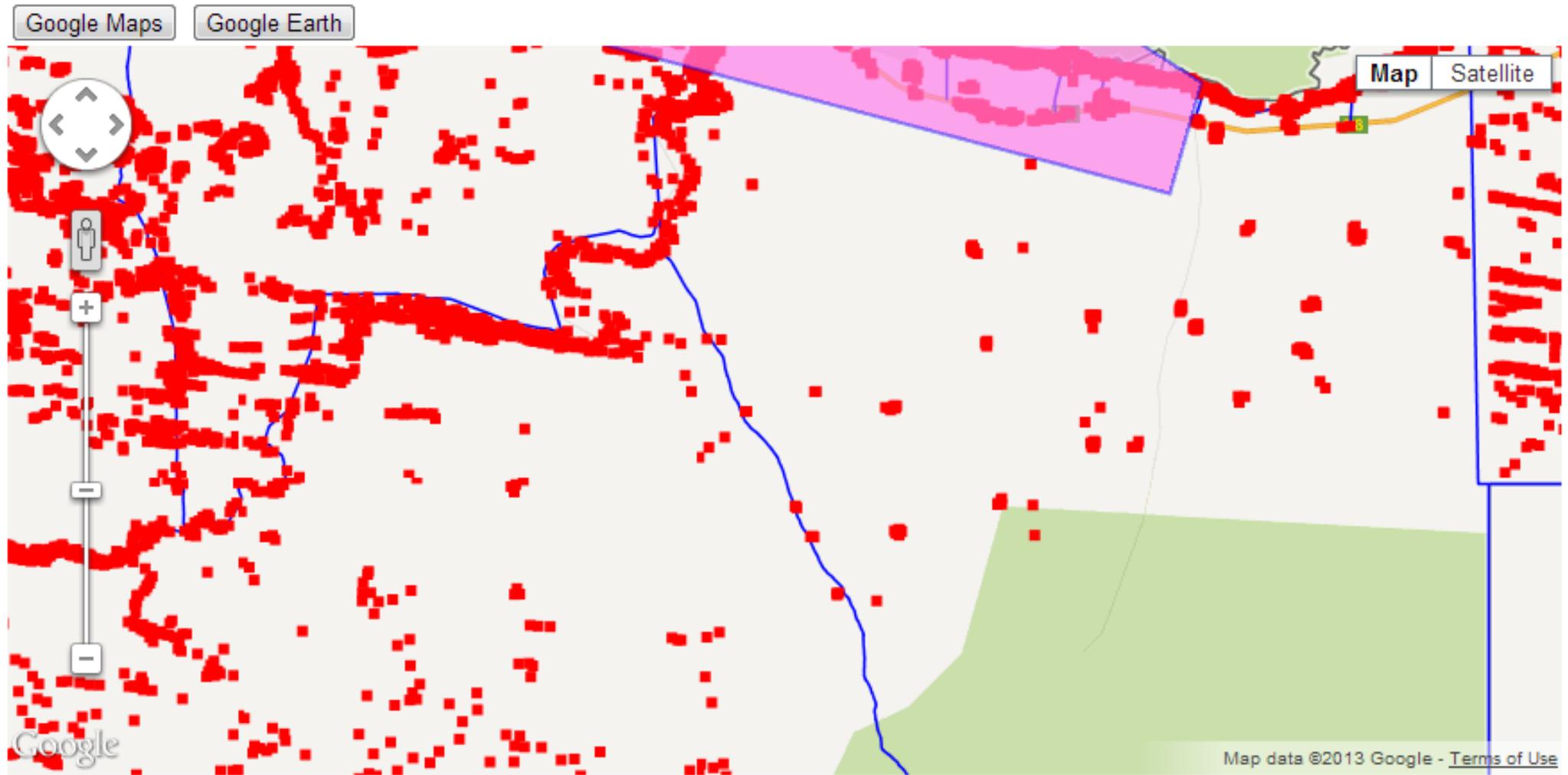
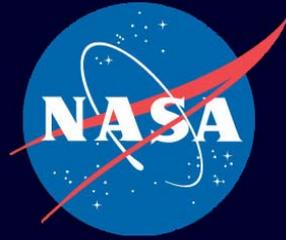


Legend:

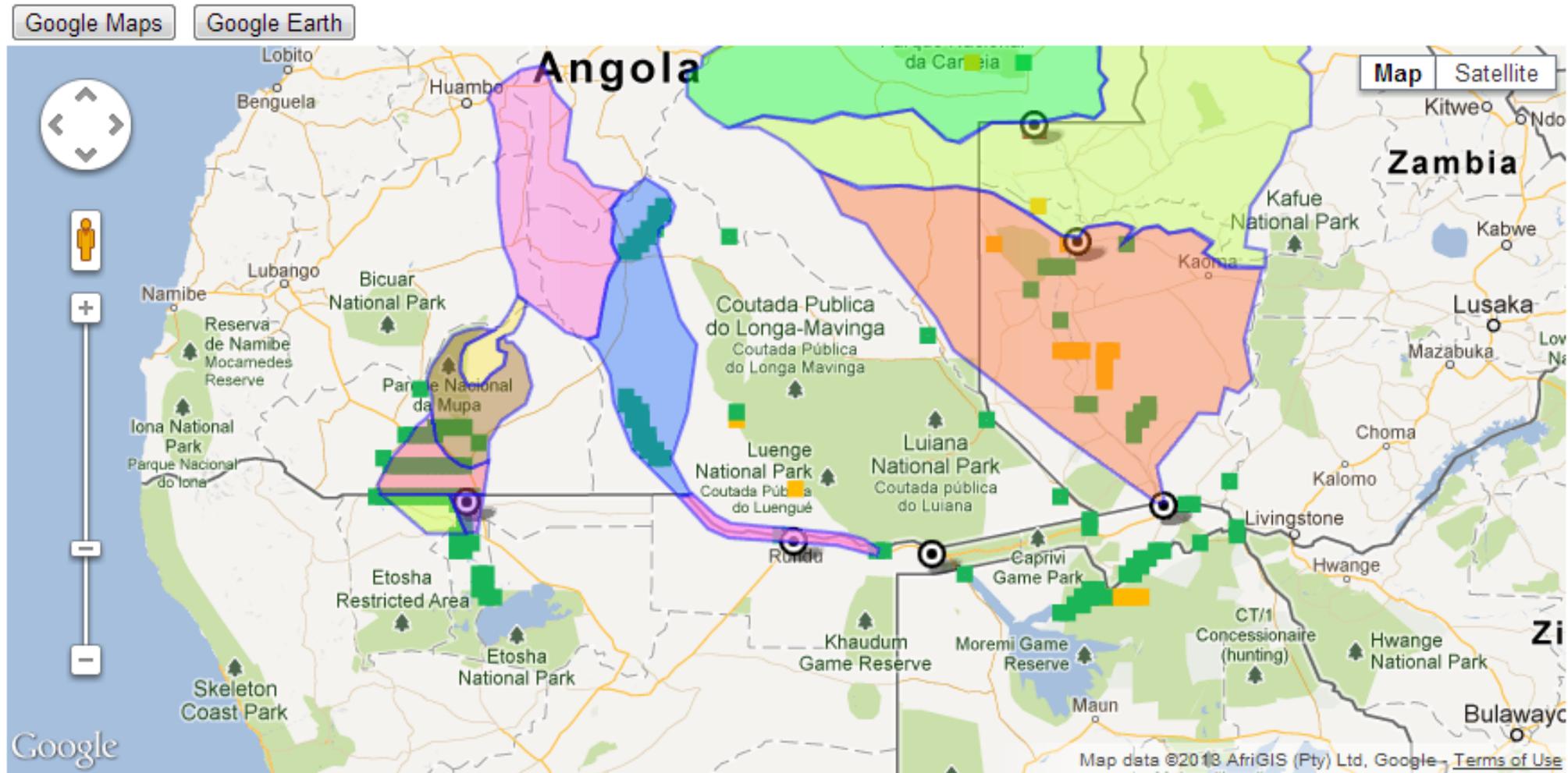
ALI Flood Classification

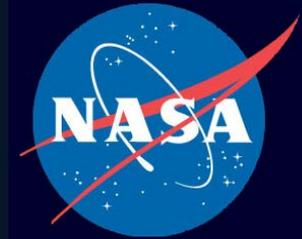


Infrastructure Mapping



GDACS Triggering

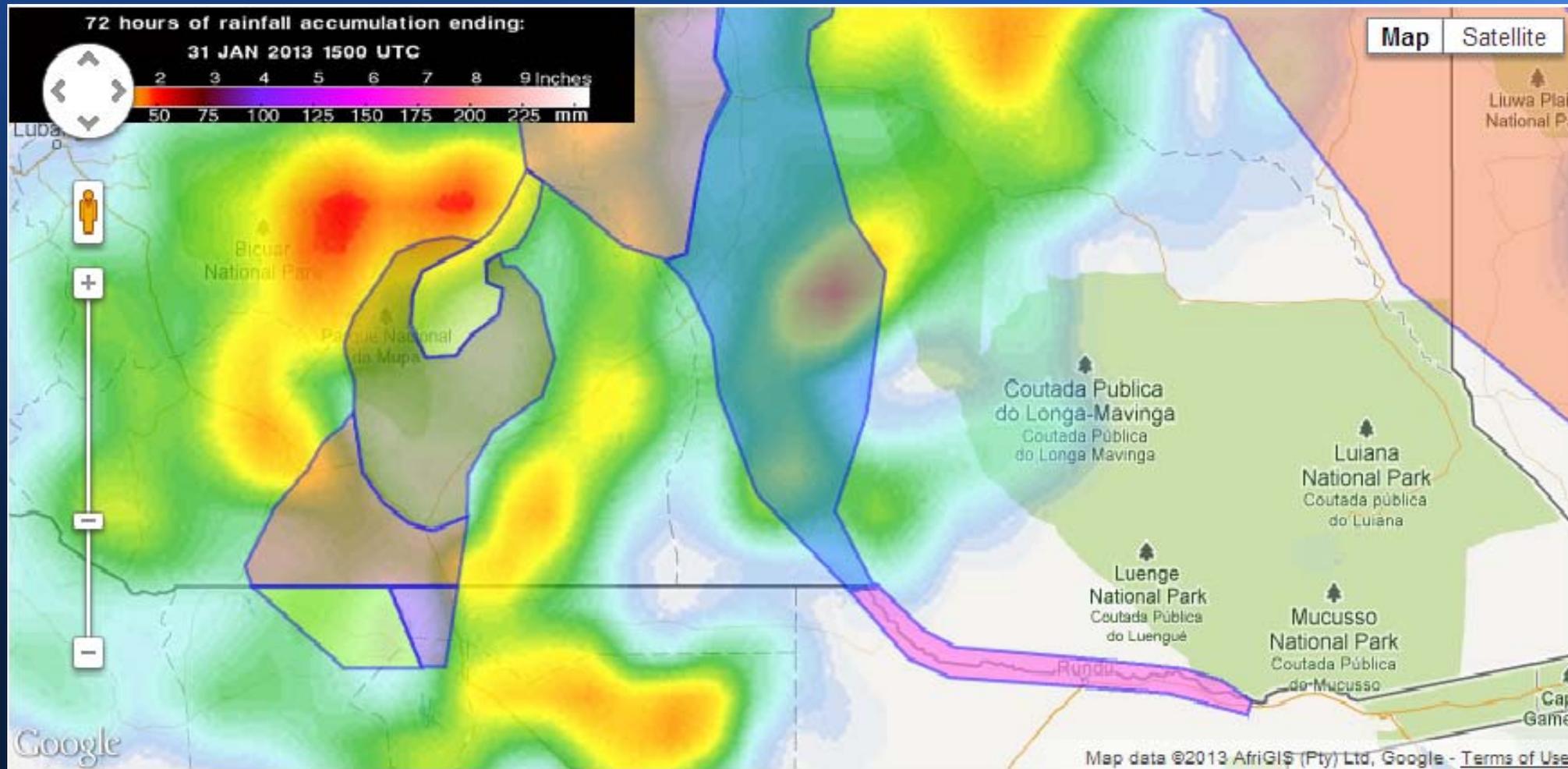
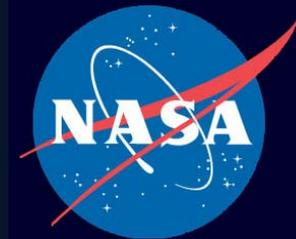


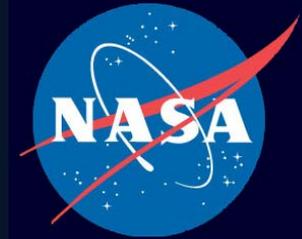


Future Plans

- Re-enable daily uplink of river levels
- Add hydrograph to satellite cross-indexing of data products
- Add Open Street Map (OSM) layer display to supplement Google Maps / Earth
- Add TRMM Precipitation Accumulation Calculator

TRMM Precipitation Accumulation Calculator (PAC)





Wrap Up

- Rapid delivery of technical information through bulletins
- Access to EO-1 ALI data products
- Access to MODIS flood classification, TRMM prediction
- Correlation with infrastructure details
- Graphing and comparison of river levels
- Plans to allow even more powerful comparisons, such as retrieval of satellite products based on ground data comparison