

Flood Monitoring using Envisat/ASAR Imagery and In-situ Observations within Namibian Sensor Web Project

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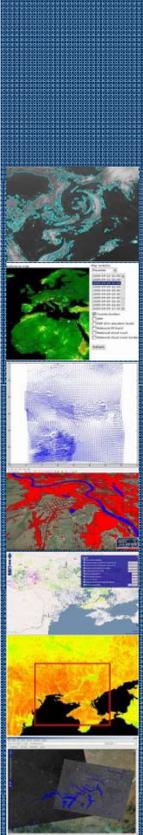
WGISS-30 Meeting
13-17 September, 2010
Saint-Hubert, Montreal, Quebec, Canada



Activities



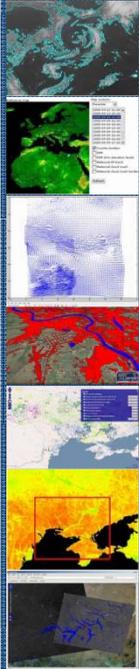
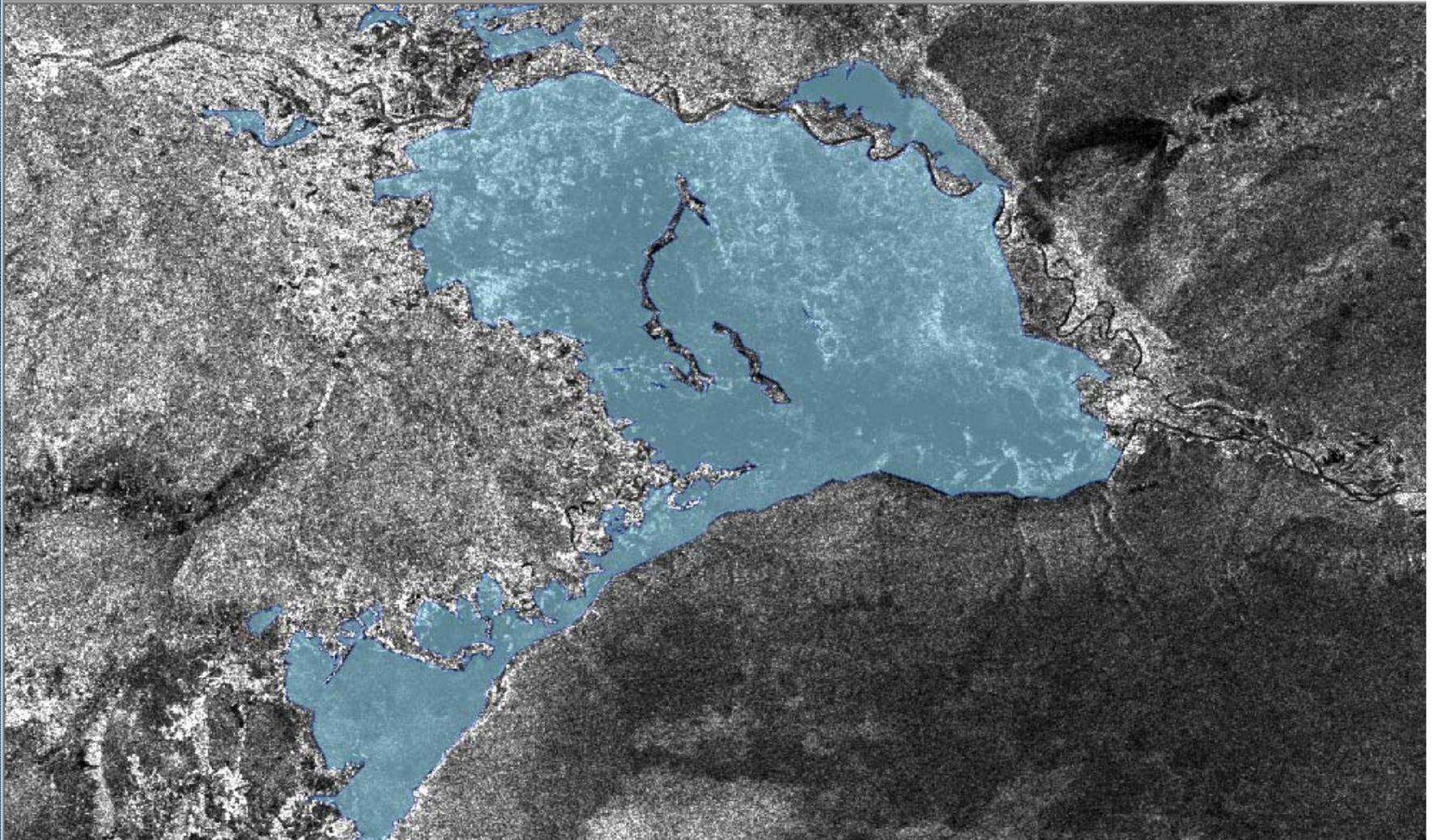
- Processing is carried out in the Grid
 - Establishment of operational infrastructure to deliver flood maps
 - UN-SPIDER Regional Support Office in Ukraine activities
 - International Charter “Space and Major Disaster”
 - Workflow management
 - Templates for data processing
 - Karajan engine based on XML
- Namibian Flood Sensor Web
 - Flood maps generation for 30 May 2010
 - Integration and analysis of ground and satellite data (optical & SAR)



Flood mapping



- Envisat/ASAR WSM, 30 May 2010

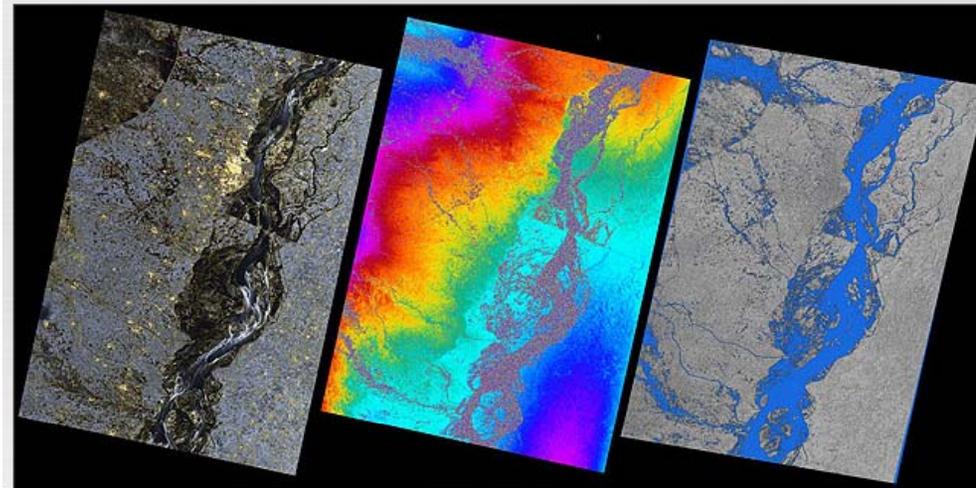


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Flood mapping - cont



- Still vegetation is one of the main concern in flood mapping
- Latest approaches
 - InSAR approach to measure coherence/incoherence



Left: image brightness data. Centre: interferometric phase. Right: incoherent areas marked in blue. Credit: DLR.

- Ensemble approach [Schumann et al. 2009]
 - To integrate flood maps produced by different algorithms
 - Still lacks mathematical foundation

Integration and analysis of ground and satellite data

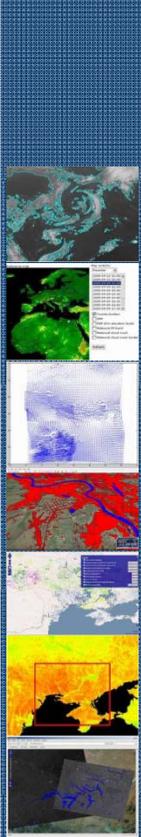
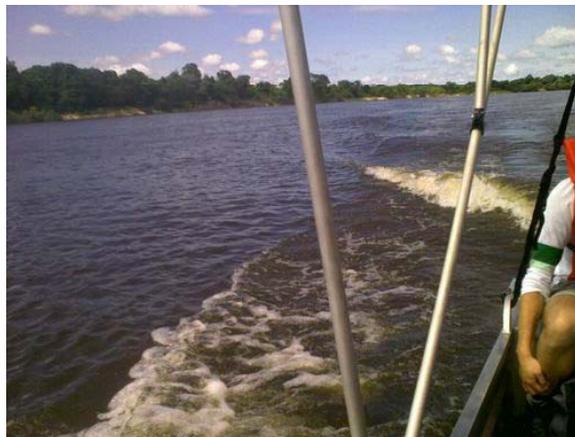


- Location: Namibia
- Ground data
 - 25-27 January 2010
 - UN Technical Advisory Meeting in Namibia
 - Nataliia Kussul & Andrii Shelestov participated from WGISS and SRI side
 - Collected with GPS and camera using

• Car

Boat

Air

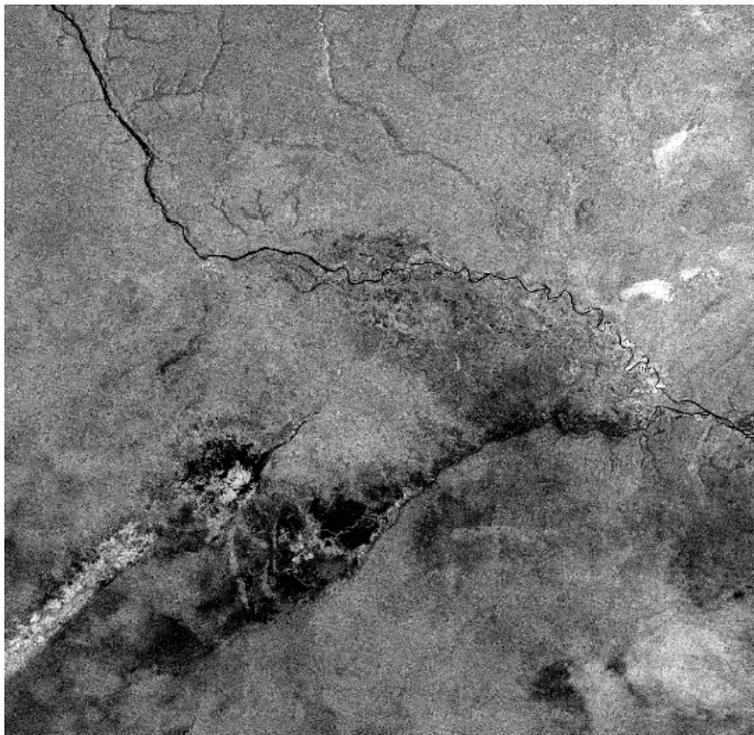


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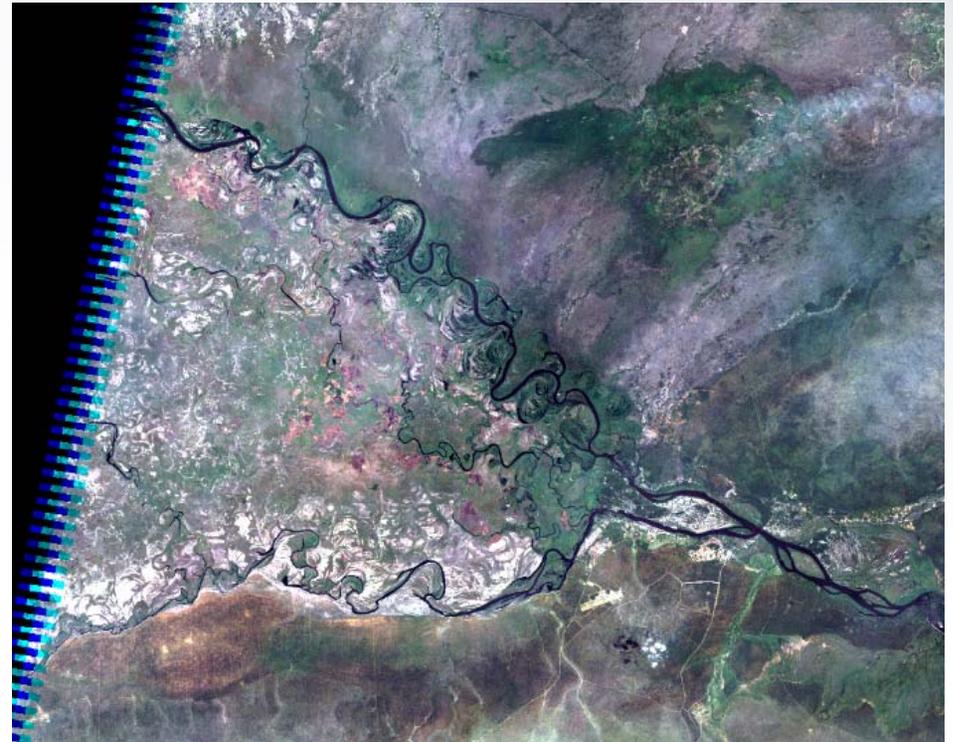
Integration and analysis of ground and satellite data - cont.



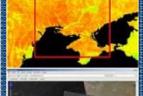
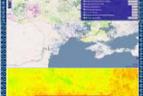
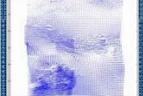
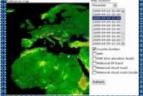
- Satellite data
 - Envisat/ASAR, 30 January 2010
 - Landsat-5/TM, 26 January 2010



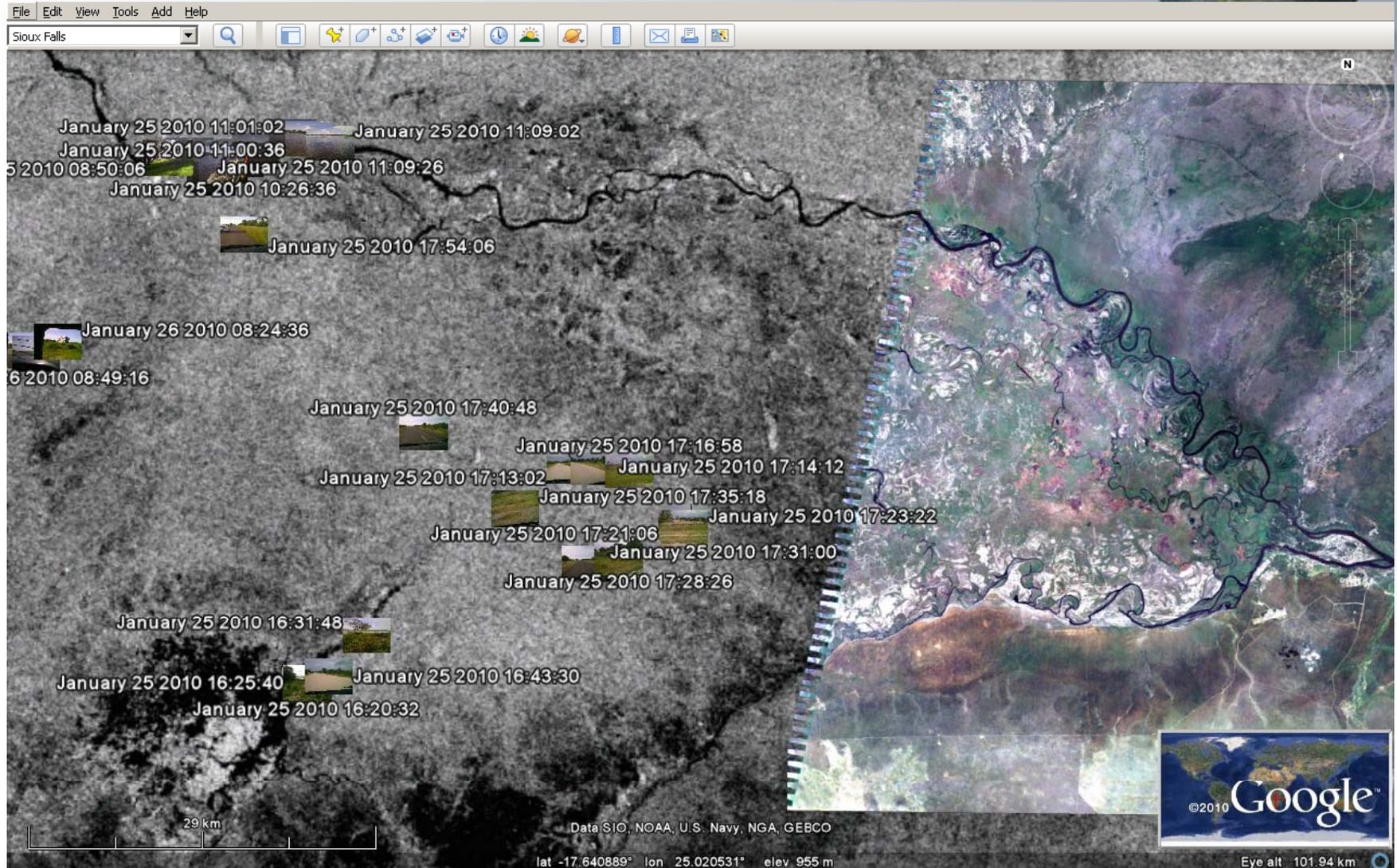
Envisat/ASAR



Landsat-5/TM

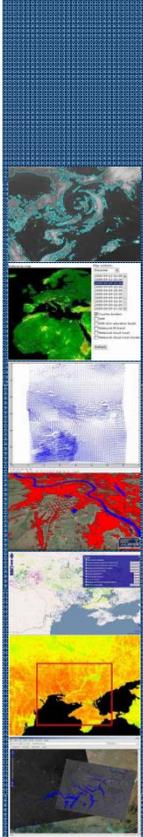


Integration in Google Earth



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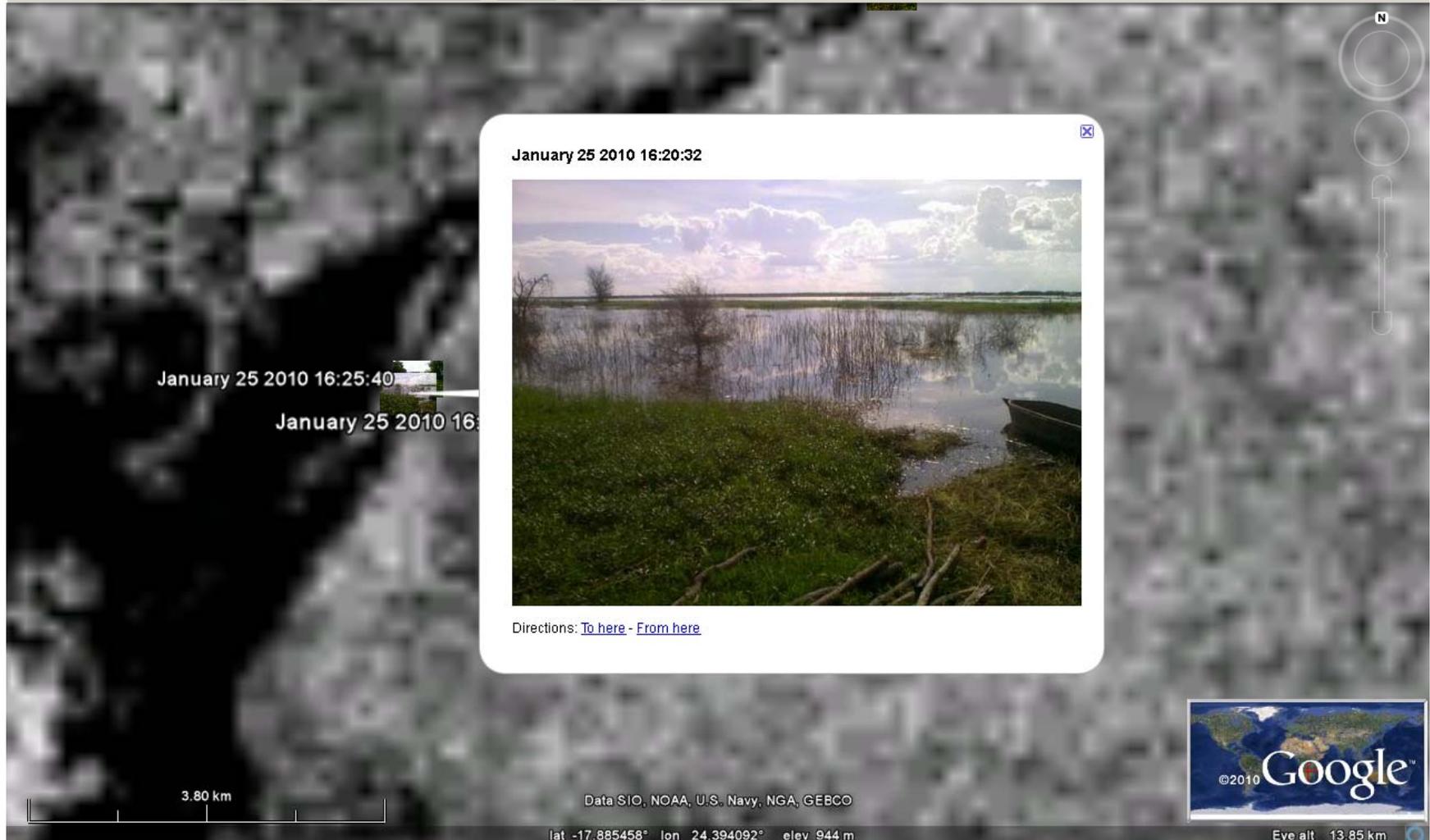
Integration in Google Earth



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File Edit View Tools Add Help

Sioux Falls



January 25 2010 16:20:32



Directions: [To here](#) - [From here](#)

January 25 2010 16:25:40

January 25 2010 16:

3.80 km

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

lat -17.885458° lon 24.394092° elev 944 m



Eye alt 13.85 km

Integration in Google Earth



File Edit View Tools Add Help

Sioux Falls

January 25 2010 09:17:24 January 25 2010 09:30:52 January 25 2010 10:14:56
January 25 2010 09:10:14 January 25 2010 09:10:48 January 25 2010 10:34:32
January 25 2010 10:33:00 January 25 2010 10:33:30
January 25 2010 10:22:18
January 25 2010 10:26:36 January 25 2010 10:24:12
January 25 2010 17:58:06

January 25 2010 09:30:52



Directions: [To here](#) - [From here](#)

2882 m

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

lat -17.487331° lon 24.289976° elev 995 m

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Eye alt 10.83 km

Integration in Google Earth



File Edit View Tools Add Help

Sioux Falls

January 25 2010 10:54:26 January 25 2010 10:54:56
January 25 2010 11:01:02 January 25 2010 11:09:02
January 25 2010 11:09:26

January 25 2010 10:43:22

January 25 2010 10:34:32 January 25 2010
January 25 2010 10:22:18 January 25 2010 10:33:30
January 25 2010 10:26:36 January 25 2010 10:24:12

January 25 2010 17:58:06

January 25 2010 10:54:26

Directions: [To here](#) - [From here](#)

3276 m

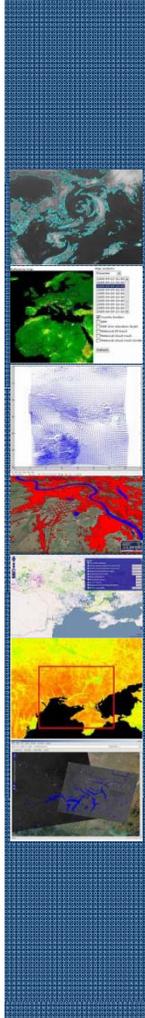
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

lat -17.475426° lon 24.387879° elev 985 m

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Eye alt 12.18 km

Integration in Google Earth



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Sioux Falls

7.17 km

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

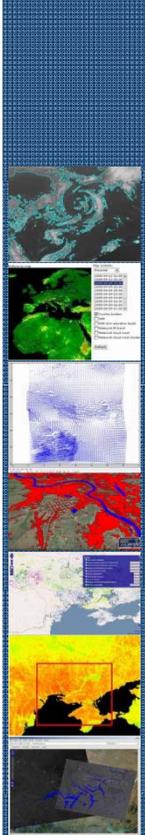
lat -17.790612° lon 25.046260° elev 979 m

©2010 Google

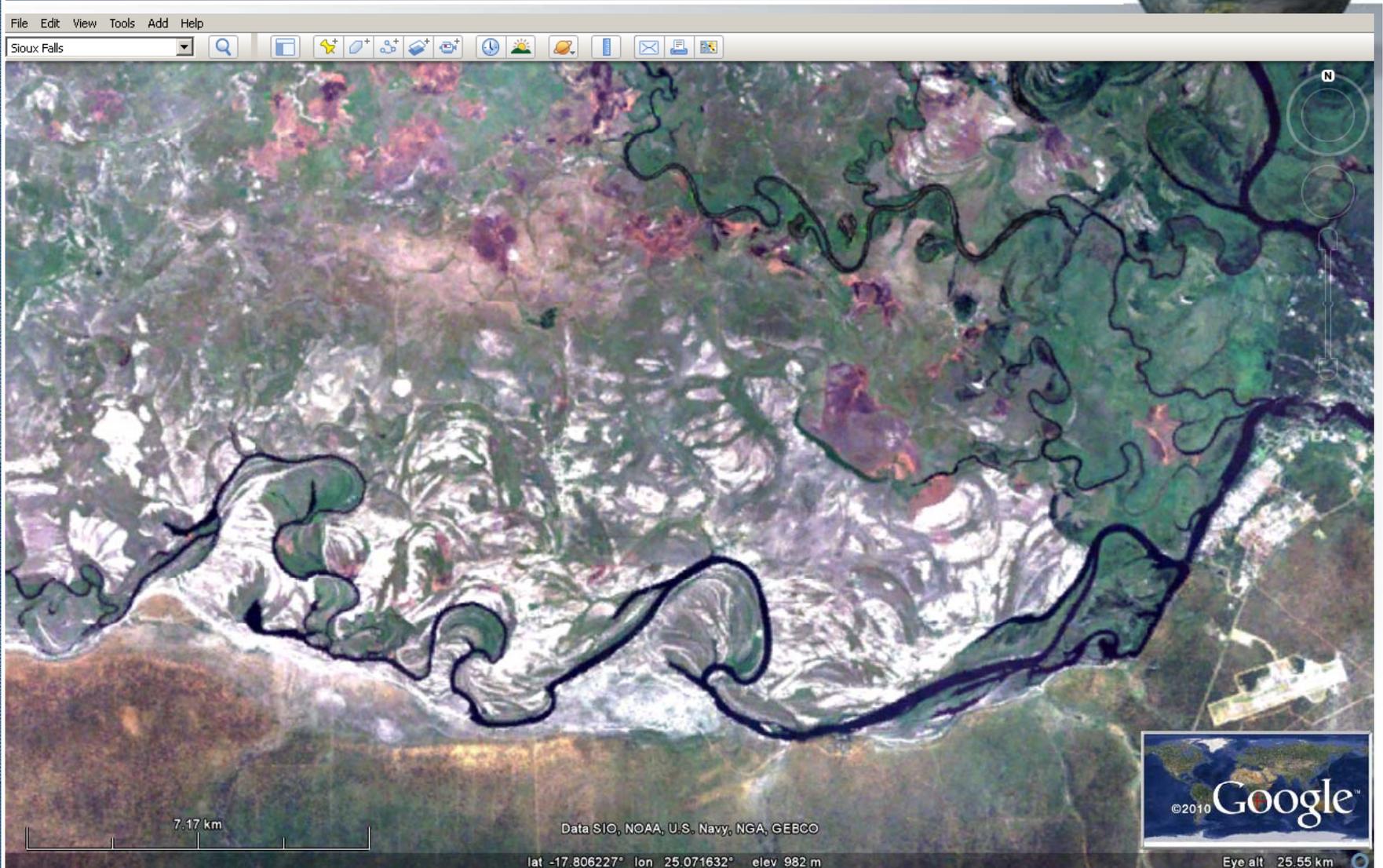
Eye alt 25.55 km

Envisat/ASAR 30-Jan-2010

Integration in Google Earth



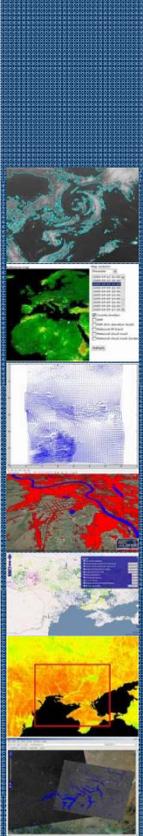
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Landsat-5/TM 26-Jan-2010



Thank You!



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