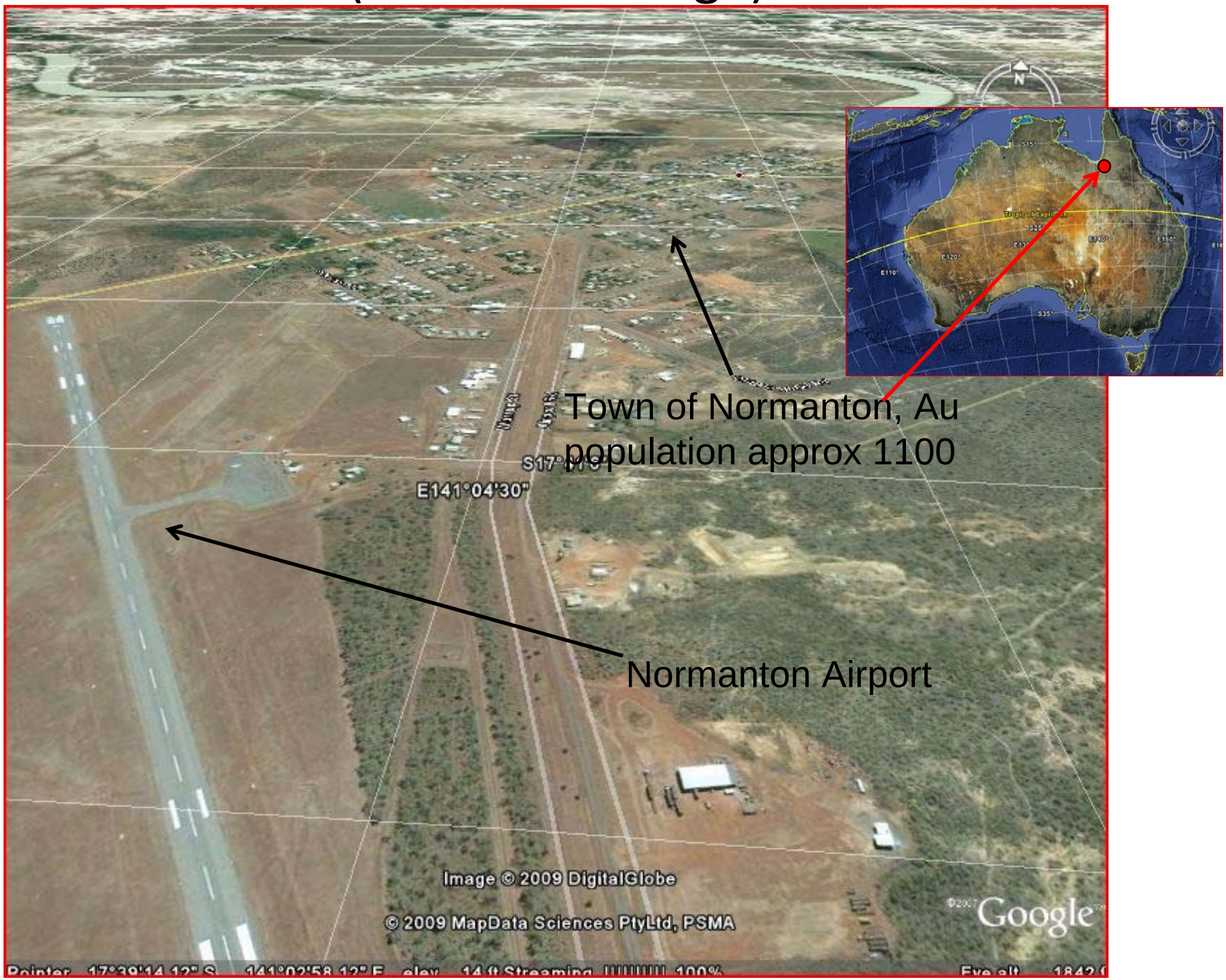
Normanton, Australian Floods & Fire SensorWeb Pilot Data Simulation February 2009

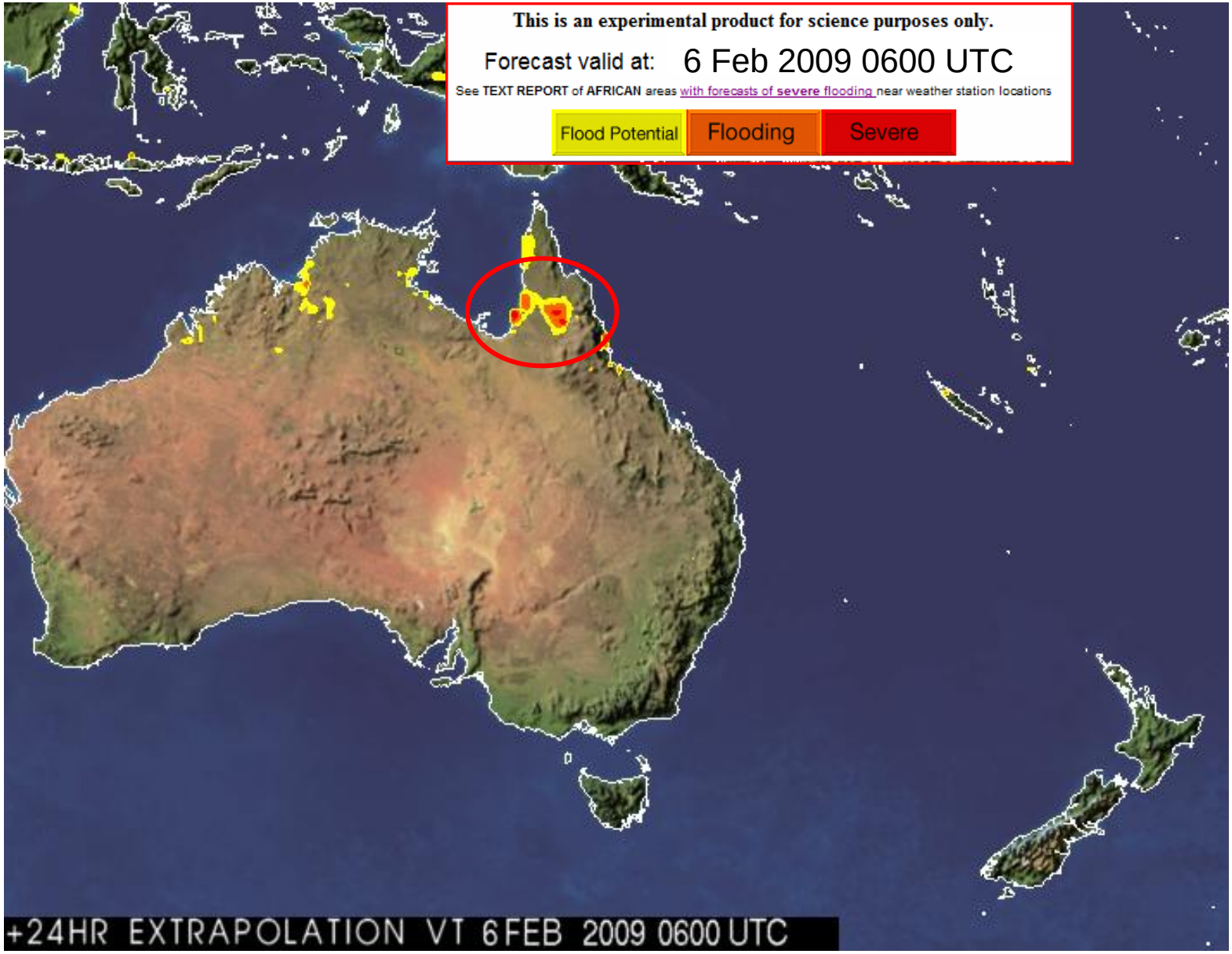
Normanton, Queensland, Australian Floods February 2009 Data Simulation

- **Prediction:** TRMM-based Predictive Flood Potential Model
  - Robert Adler/University of Maryland –NASA/GSFC
- **Survey:** MODIS Flood Map
  -Robert Brakenridge/ Dartmouth Flood Observatory
- **Details:**
  - Earth Observing 1 Advanced Land Imager and Hyperion
    -NASA/GSFC – Image acquisition, flood map, automation
      -- Mandl, Frye, Cappelaere
  - Radarsat Flood Image
    -MDA/Canadian Space Agency – Image acquisition
    -Space Research Institute NASU-NSAU, Ukraine – Flood Map Production
      - Serhiy Skakun and Natalia Kussul
  - Landsat Water Mask
    -Space Research Institute NASU-NSAU, Ukraine – Water Mask
      - Serhiy Skakun and Natalia Kussul
  - Formosat Flood Image
    -Taiwan National Program Science Office – Image acquisition
    - National Cheng-Kung University – Data processing
      - Cheng-Chien Liu

Normanton Floods- Google Earth view from before floods (Quickbird image)



TRMM-based flood potential forecast for February 6, 2009 **Prediction**



Specific Water Level and Lat/Long Projected for Normanton Area

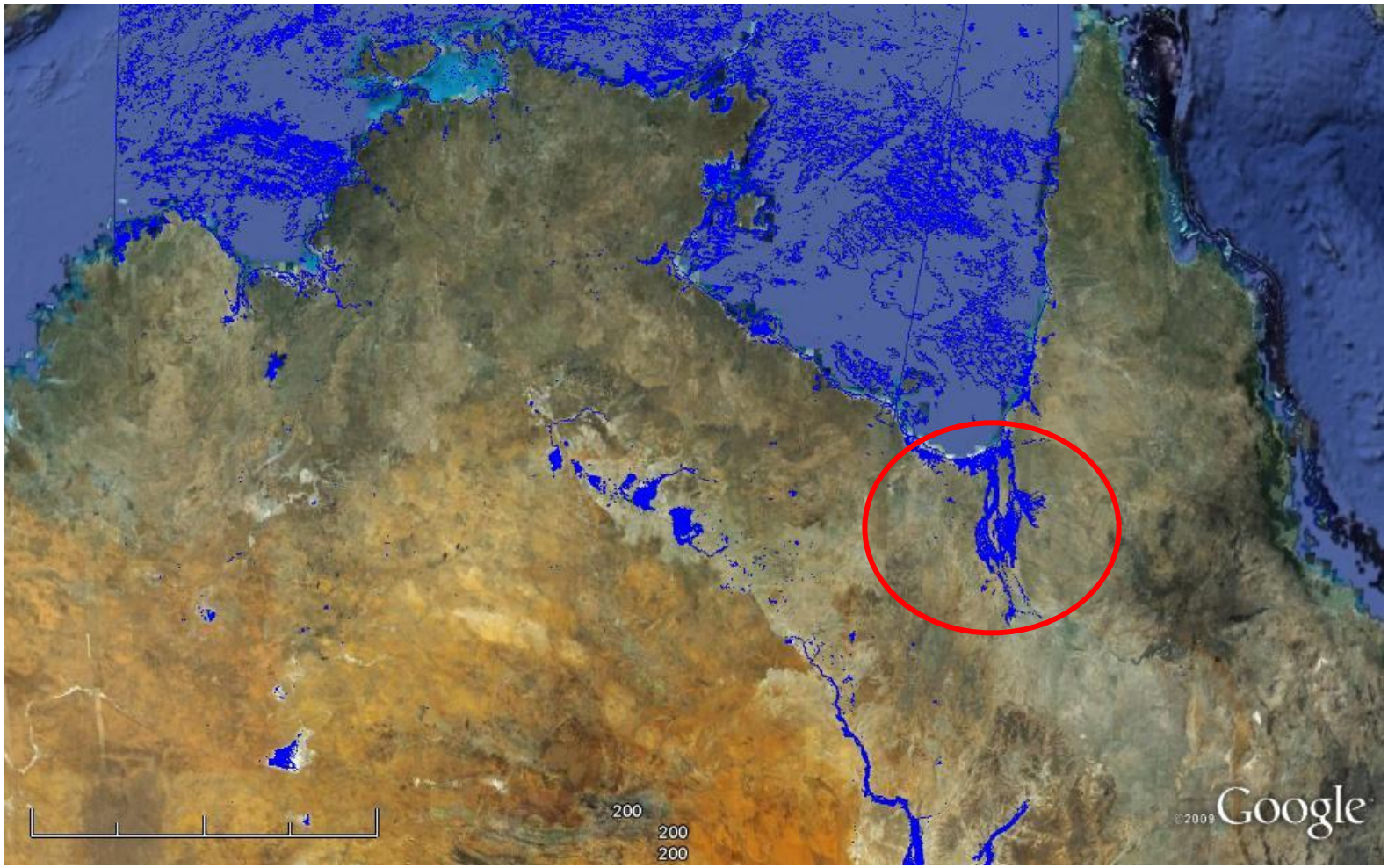
FORECASTED Flood Potential at 02/06/2009 0600Z

Forecast generated at 02/05/2009 0600Z

Use this lat/long to trigger other assets

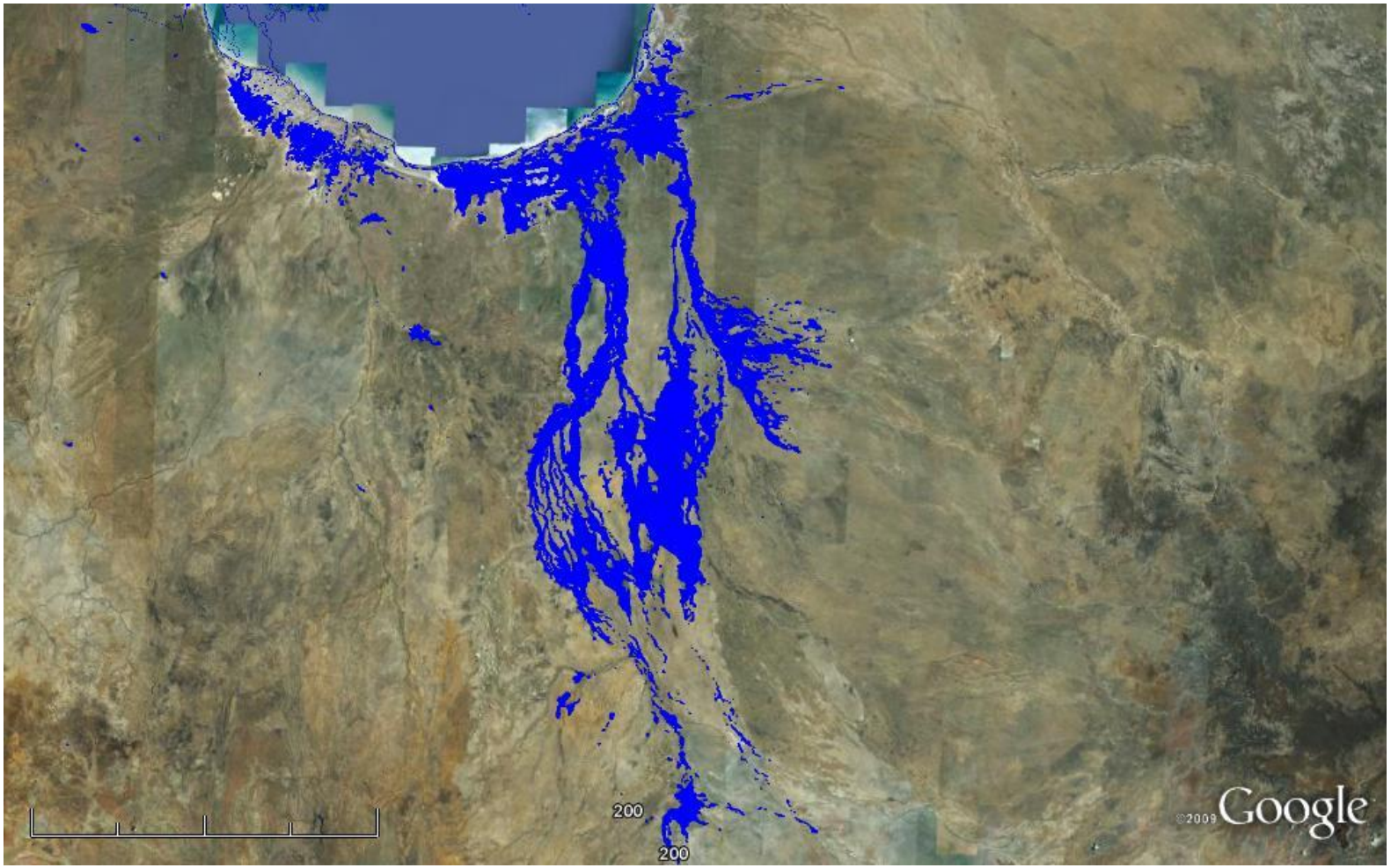
COUNTRY	WATER LEVEL & Latitude/Longitude	NEARBY LOCATION
Argentina	134mm -32.63 -60.88	~ 33.96km from ROSARIO AIRPORT -32.92 -60.78
Argentina	151mm -32.88 -61.13	~ 32.39km from ROSARIO AIRPORT -32.92 -60.78
Argentina	163mm -33.13 -60.88	~ 23.41km from ROSARIO AIRPORT -32.92 -60.78
COUNTRY	**WATER LEVEL & Latitude/Longitude**	**NEARBY LOCATION**
Australia	126mm -16.88 143.63	~ 107.79km from PALMERVILLE QU-16.00 144.07
Australia	127mm -16.88 141.13	~ 89.09km from NORMANTON QU-17.67 141.08
Australia	129mm -14.88 129.88	~ 84.91km from PORT KEATS AWS(AUT) NT-14.23 129.45
Australia	129mm -16.38 143.13	~ 109.00km from PALMERVILLE QU-16.00 144.07
Australia	131mm -15.63 141.63	~ 20.25km from KOWANYAMA QU-15.47 141.73
Australia	137mm -16.38 141.38	~ 107.91km from KOWANYAMA QU-15.47 141.73
Australia	138mm -16.38 143.38	~ 84.60km from PALMERVILLE QU-16.00 144.07
Australia	139mm -16.38 143.63	~ 62.37km from PALMERVILLE QU-16.00 144.07
Australia	148mm -18.13 146.13	~ 17.03km from CARDWELL QU-18.25 146.02
Australia	181mm -16.63 141.13	~ 116.07km from NORMANTON QU-17.67 141.08
Australia	187mm -16.88 143.88	~ 99.04km from PALMERVILLE QU-16.00 144.07
Australia	201mm -16.38 141.13	~ 119.57km from KOWANYAMA QU-15.47 141.73
Australia	216mm -17.63 146.13	~ 15.56km from INNISFAIL QU-17.52 146.02
COUNTRY	**WATER LEVEL & Latitude/Longitude**	**NEARBY LOCATION**
Indonesia	170mm -8.13 120.38	~ 154.43km from ENDEH/IPI -8.80 121.60
Indonesia	174mm -5.13 105.63	~ 51.55km from TELUKBETUNG/BRANTI -5.27 105.18
Indonesia	179mm -5.38 105.63	~ 50.22km from TELUKBETUNG/BRANTI -5.27 105.18
Indonesia	224mm -5.13 105.88	~ 78.64km from TELUKBETUNG/BRANTI -5.27 105.18
COUNTRY	**WATER LEVEL & Latitude/Longitude**	**NEARBY LOCATION**
Mozambique	169mm -25.88 32.63	~ 7.07km from MAPUTO/MAVALANE -25.92 32.57
COUNTRY	**WATER LEVEL & Latitude/Longitude**	**NEARBY LOCATION**

MODIS Flood Extent on Google Earth as KML File February 18, 2009 **Survey**



Robert Brakenridge – Dartmouth Flood Observatory

MODIS Flood Extent on Google Earth as KML File February 18, 2009 **Survey- Zoom**



Robert Brakenridge – Dartmouth Flood Observatory

MODIS Flood Extent on Google Earth as KML File February 18, 2009 **Survey- Closeup Normanton**

Robert Brakenridge – Dartmouth Flood Observatory

Article on Normanton Floods from the Northwest Star

Minister faces hazards in Gulf
TROY ROWLING
2/4/2009 9:05:00 AM
OVERFLOWING sewerage, crocodiles and mosquito-borne diseases were among the possible hazards Queensland Emergency Services Minister Neil Roberts faced when he arrived in the Gulf yesterday. Mr Roberts visited Karumba and Normanton to gauge the impact the floodwaters were having on the region.

And according to a statement released by Carpentaria Shire Council yesterday, there were quite a few issues making an impact on the isolated communities.

A spokesperson for Carpentaria Shire Council said the council was anticipating possible sewage overflows in the towns due to the inundation of pump stations.

The spokesperson also said there had been increased sightings of large crocodiles in the floodwaters surrounding Normanton and that Queensland Health had recommended the public avoid wading and playing in floodwaters due to mosquito-borne diseases.

However, despite the possible dangers, the Minister pressed on with his trip undeterred. “I’m here to be shown around the district and to talk to locals about the impact of the flooding,” Mr Roberts said. “I really need to take advice from local governments and emergency services personnel on the ground. So I’ll be waiting for their advice about what other measures need to be taken.”

The Carpentaria Shire Council spokesperson said another issue they planned to discuss with the minister was the upgrade of the Einasleigh and Gilbert crossings. They said this would enable road access for the essential re-supply of goods.
The isolated communities were currently reliant on food drops via aircraft and a fortnightly barge service from Cairns to Karumba to supply food, fuel and essential items to residents in the area.

With the Norman River continuing to rise, the communities could be cut off for a further six weeks.
Carpentaria Shire Council and Emergency Management Queensland met with local retailers and suppliers to discuss re-supply sustainability.

Article on Normanton Floods from the Northwest Star (continued)

Retailers were encouraged to monitor stocks and liaise with the Council to ensure all residents had adequate food and other essential items.

A business advisor from the Department of Tourism, Regional Development and Industry was flown into Normanton at the weekend to help the businesses manage the effects of ongoing flooding on their bottom line.

His feet firmly on dry ground, Mr Roberts took time during his brief stopover in Mount Isa to thank local emergency services leaders for their hard work.

“I’ve received very good feedback from the Mayors in the local communities about the work and support the emergency service crews are doing,” he said.

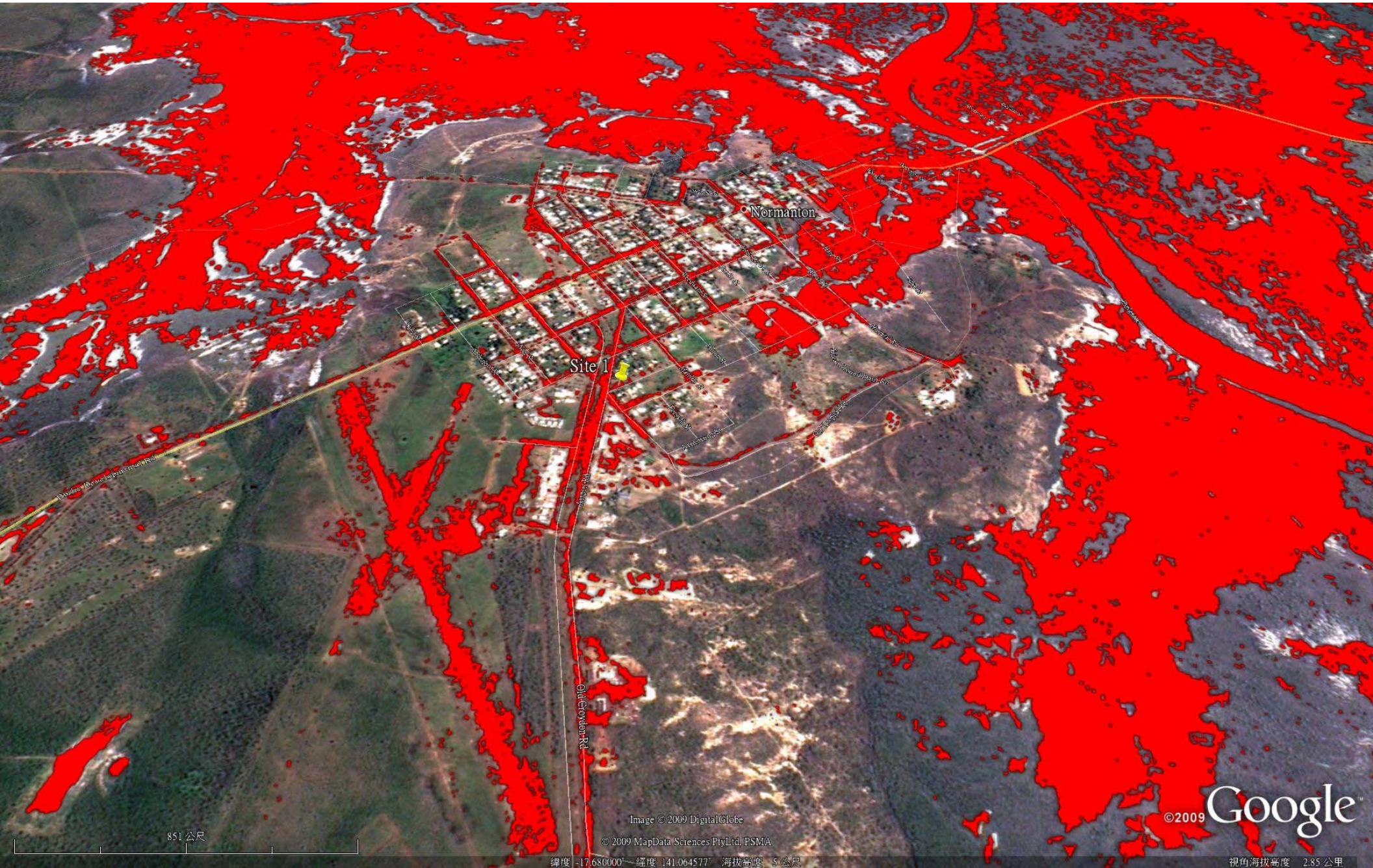
Normanton Airport Ground View 2-15-09

http://blogs.abc.net.au/.shared/image.html?/photos/uncategorized/2009/02/15/normanton.jpg

Normanton Airport View 2 2-15-09

http://blogs.abc.net.au/.shared/image.html?/photos/uncategorized/2009/02/15/normanton.jpg

Radarsat-2 Water regions 14 Feb 2009)



Formosat-2 image 18 Feb 2009

Dr. Cheng-Chien Liu
Department of Earth Sciences
Earth Dynamic System Research Center
Institute of Satellite Informatics and Earth Environment
National Cheng-Kung University

Normanton Floods - February 18, 2009 Zoom 1

Normanton Floods - February 18, 2009 Zoom 2

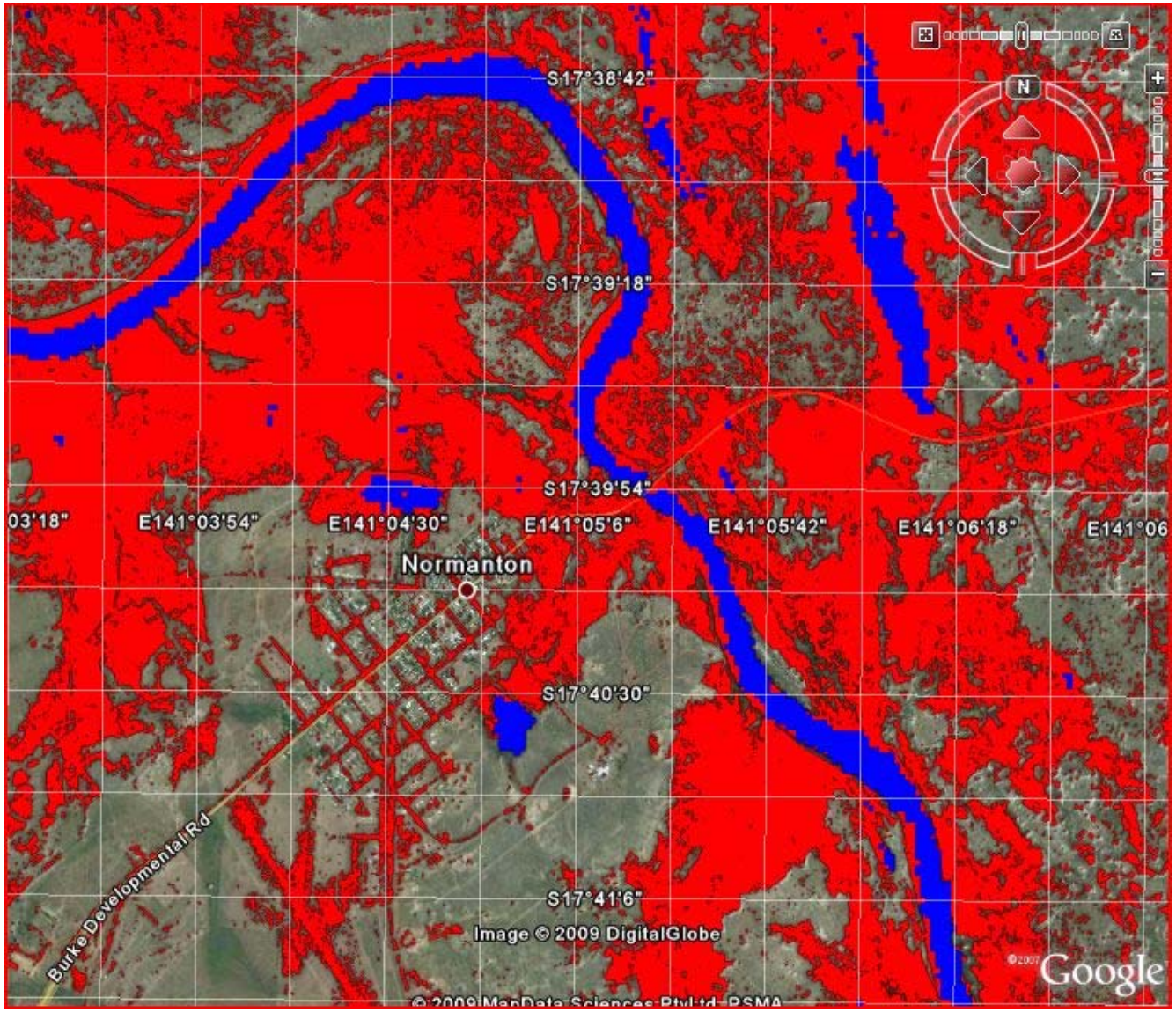
EO-1 Image March 11, 2009

Radarsat/Landsat Flood Map

Radarsat Image 2-14-09 (red), 3 meter resolution

Landsat Image pre-flood 5-6-02 (blue), 30 meter resolution

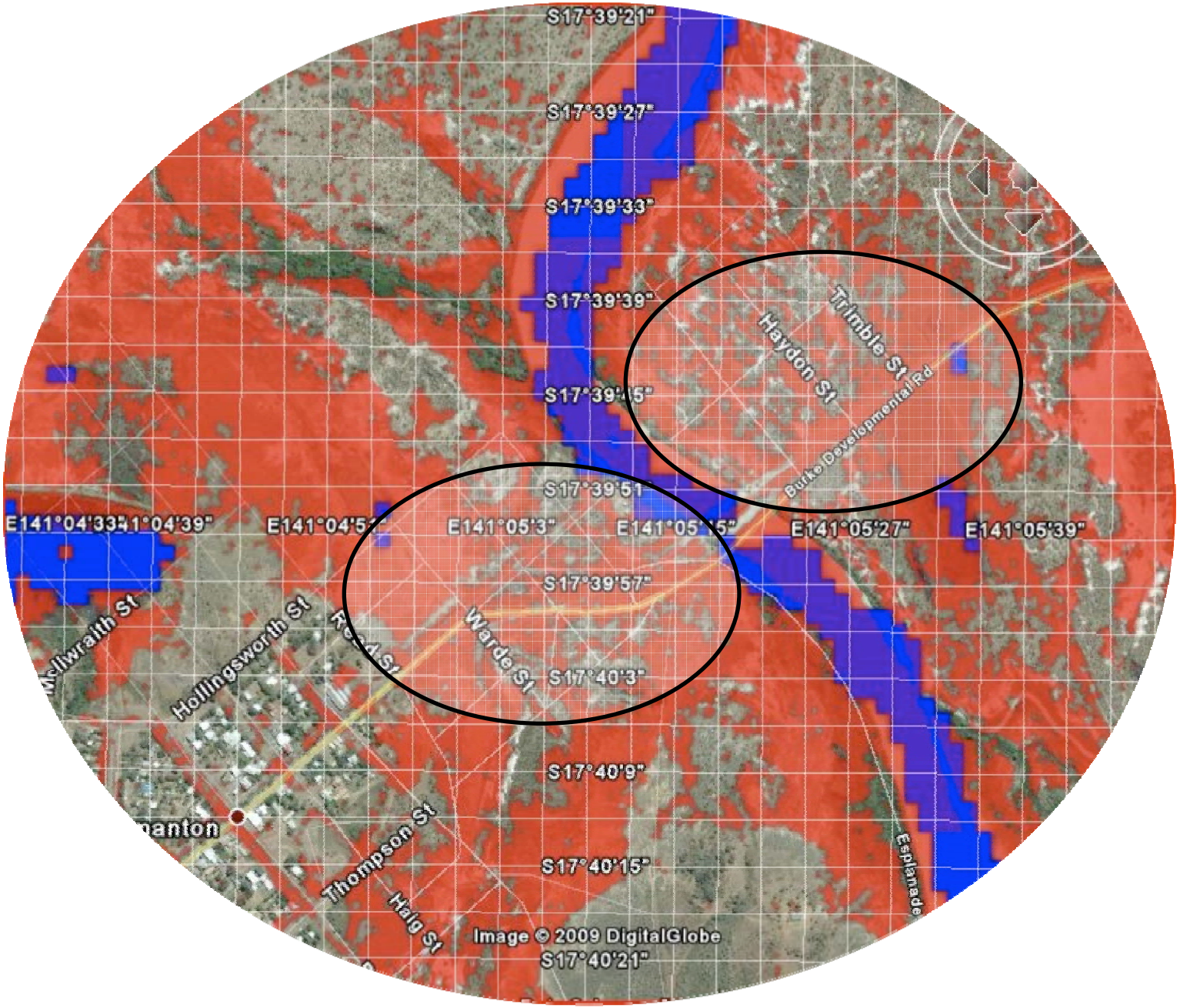
Flood maps produced by the Space Research Institute NASU-NSAU, Ukraine



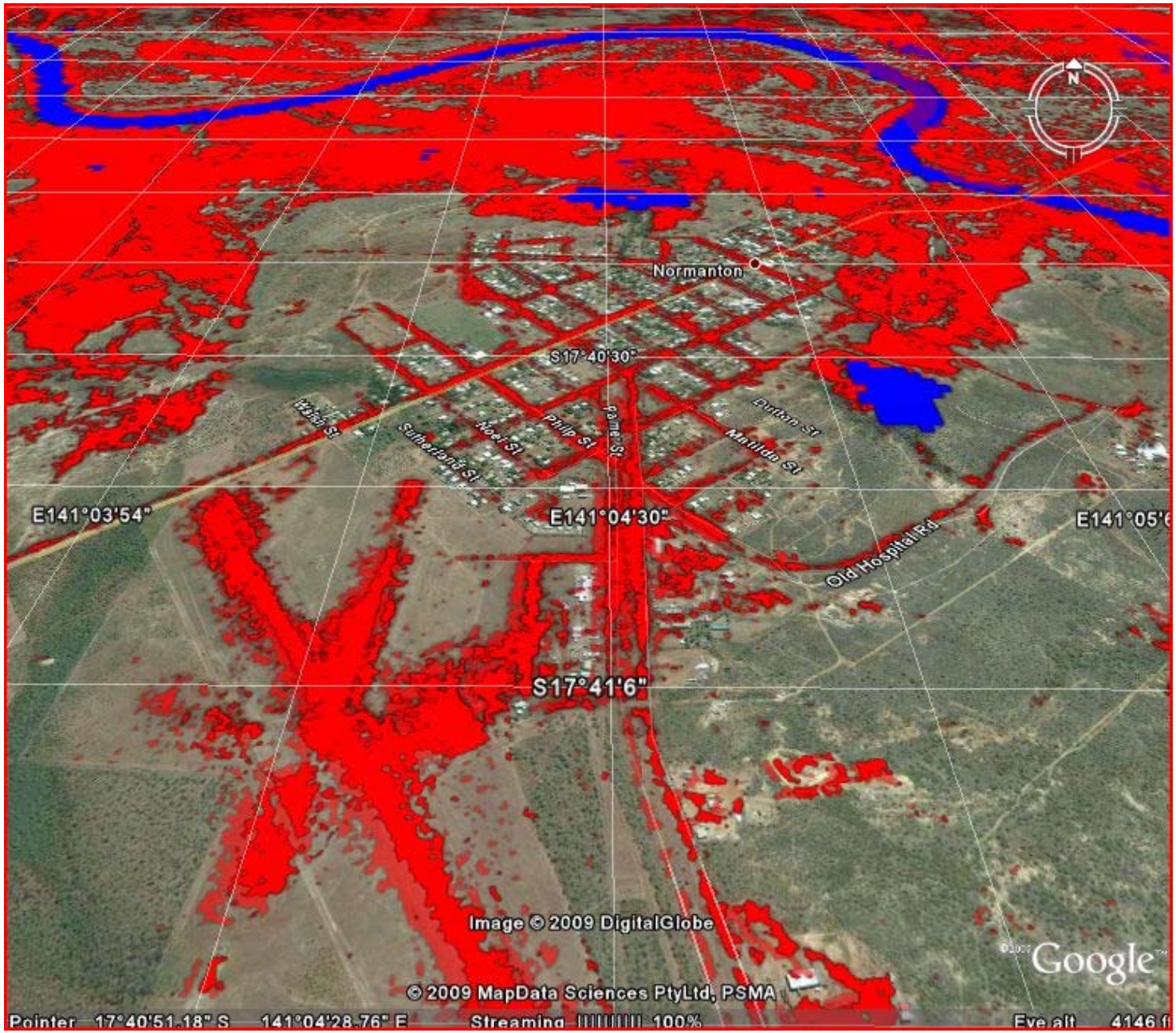
Red – flood waters

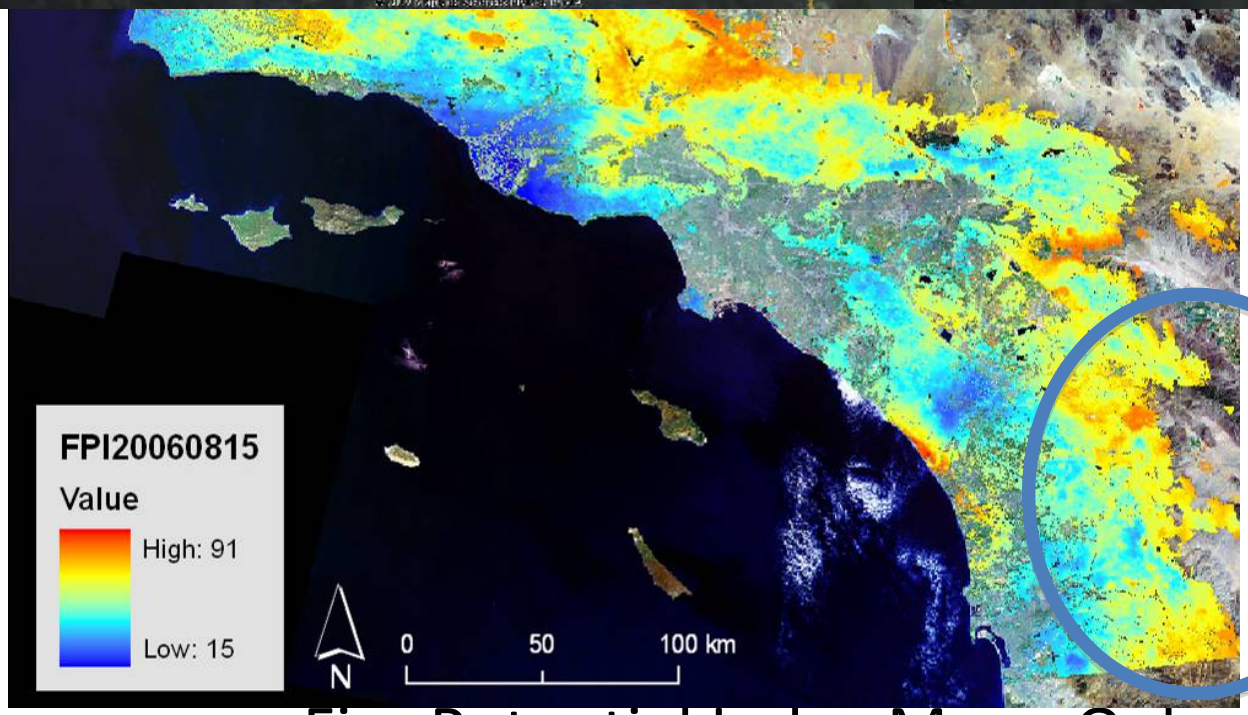
Blue – Existing waters

Find Flooded Streets

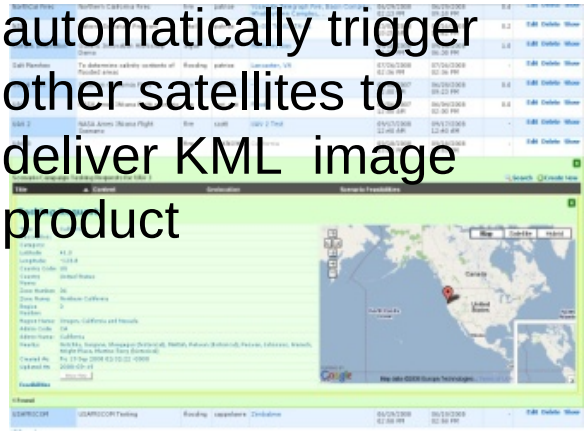


Normanton with Landsat 7 5-7-02, Radarsat 2 Flood Extent Overlay February 14, 2009 and February 17, 2009 3m resolution





Workflow script to automatically trigger other satellites to deliver KML image product



Monitor high risk areas for fire based on FPI

Fire Potential Index Map - Onboard