


Space-Based Disaster Management in Nigeria: The Role of the International Charter “Space and Major Disasters”.

Godstime JAMES, Halilu SHABA, Opeyemi ZUBAIR, Alade TESLIM, Gabriel YUSUF, Alhassan NUHU-

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Presentation Outline

- Introduction.
- Disasters in Nigeria.
- International Disaster Management Initiatives.
- Activation of the International Charter “Space and Major Disasters” in Nigeria.
- Conclusion.

INTRODUCTION





UNISDR DISASTER IMPACTS / 2000-2012

\$1.7 TRILLION DAMAGE (USD)
2.9 BILLION AFFECTED
1.2 MILLION KILLED

The infographic features three line graphs showing trends from 2000 to 2012. The top graph (green) shows economic damage in USD, the middle graph (black) shows the number of people affected, and the bottom graph (red) shows the number of people killed. A photograph on the right shows a multi-story apartment building that has partially collapsed, with a yellow excavator working on the debris.

DISASTERS IN NIGERIA

Oil Spill in the Niger Delta



Source: sdnigeria's photostream

The photograph shows three individuals at the edge of a stream. They are using large, shallow bowls to wash dishes. The water in the stream is dark and appears to be contaminated with oil, reflecting the surrounding greenery and the people.

DISASTERS IN NIGERIA

Floods




Source: Daily Nation

The image shows two cars, a silver hatchback and a grey Mercedes-Benz sedan, partially submerged in muddy floodwaters. The water level is high, reaching up to the windows of the cars. The background shows lush green vegetation, including banana trees, suggesting a rural or semi-rural setting. The cars are facing away from the camera, and their license plates are visible. The overall scene depicts a significant flooding event.

DISASTERS IN NIGERIA

Gully Erosion



Source: http://www.kwenu.com/publications/orabuchi/2006/erosion_home.jpg

The image shows a deep, vertical gully eroded into a bright red soil bank. The gully is several meters deep and has a jagged, uneven edge. In the background, there are several small, simple houses with corrugated metal roofs, indicating a residential area affected by the erosion. The surrounding area appears to be a mix of natural vegetation and human-made structures. The erosion is a clear sign of significant soil loss and land degradation.

DISASTERS IN NIGERIA

Fire Disaster and Bush Burning


Pipeline Fire in Lagos



Source: http://newsimg.bbc.co.uk/media/images/44662000/jpg/_44662252_ap.jpg

DISASTERS IN NIGERIA

Drought and Land degradation



Source: http://www.trechugger.com/_41435182_drought416.jpg

DISASTERS IN NIGERIA


Desertification



Source: http://www.nhrc-qa.org/en/images/newspost_images/desertification.jpg

INTERNATIONAL DISASTER MANAGEMENT INITIATIVES

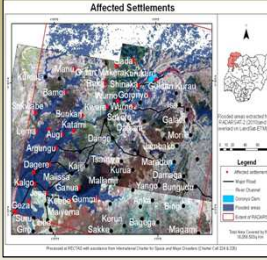
- **International Charter “Space and Major Disaster”.**
- **Disaster Monitoring Constellation.**
- **United Nations Platform for Space Based Information for Disaster Management and Emergency Response (UN-SPIDER) Programme.**
- **United Nations International Strategy for Disaster Reduction.**



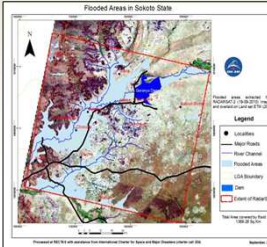
ACTIVATION OF THE INTERNATIONAL CHARTER "SPACE AND MAJOR DISASTERS" IN NIGERIA (ICSMD)

Sokoto Flooding (Charter Call 324 and 326)


- The flood disaster occurred on the 9th of September, 2010 .
- Affecting Sokoto and Kebbi States in North-West Nigeria.
- The ICSMD was activated on the 13th of September, 2010 as Charter Call 324 and 326 to help identify affected settlements in Sokoto State.
- The following satellites: RADARSAT-2 and Envisat.
- Map forwarded to NEMA.



Affected Settlements



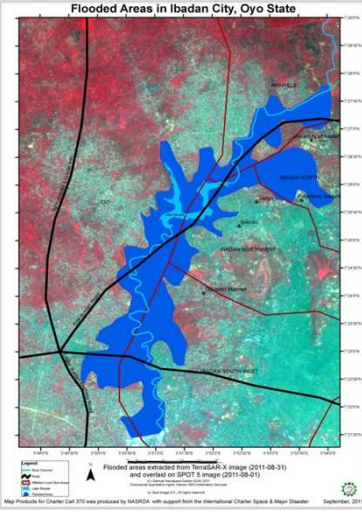
Flooded Areas in Sokoto State



ACTIVATION OF THE INTERNATIONAL CHARTER "SPACE AND MAJOR DISASTERS" IN NIGERIA (ICSMD)

Ibadan Activation: Charter Call 370

- On Friday, 26th of August 2011, torrential rain resulted in severe flooding in Ibadan, the Oyo State capital in South Western Nigeria.
- ICSMD on the 29th of August 2011 (Charter Call 370).
- The data provided by the Charter included: TerraSAR radar imagery ,RadarSat-1 and RadarSat-2 imagery, Spot Image, Envisat and NigeriaSat-1.
- Final Map product forwarded to NEMA.



Flooded Areas in Ibadan City, Oyo State

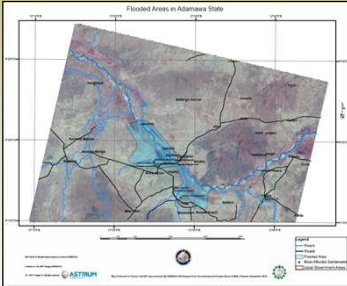
Flooded areas extracted from TerraSAR-X image (2011-08-31) and overlaid on SPOT 5 image (2011-08-21)

Map Products for Charter Call 370 was produced by NAFRIDA with support from the International Charter Space & Major Disasters September, 2011

ACTIVATION OF THE INTERNATIONAL CHARTER "SPACE AND MAJOR DISASTERS" IN NIGERIA (ICSMD)

Adamawa Activation: (Charter Call 407)

- The Lagdo dam was opened on the 24th of August 2012 due to excess rain.
- This resulted in the flooding of major towns in the downstream along the River Benue tributaries, Adamawa and Taraba states.
- ICSMD was activated on the 29th of August 2012.
- Images were received from both optical and non-optical satellites.
- Final Map sent to NEMA.




Flooded Areas in Adamawa State

ACTIVATION OF THE INTERNATIONAL CHARTER "SPACE AND MAJOR DISASTERS" IN NIGERIA (ICSMD)

Kogi State Flood Event: Charter Call 415

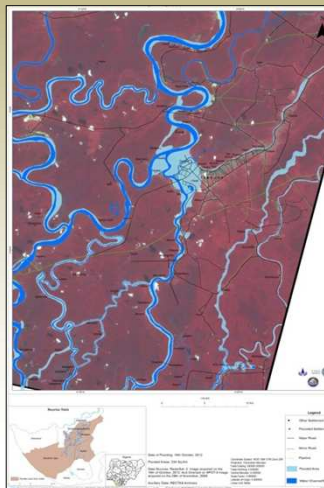
- The Kogi state flood event took place on the 25th of September, 2012.
- This was as a result of rising water levels in both Rivers Niger and Benue.
- The ICSMD was activated by NEMA on the 25th of September, 2012.
- TerraSAR-X/TanDEM, RADARSAT-2, SPOT5, Komposat-2, Envisat and NigeriaSat-2.
- This affected major road networks in Kogi State, including Abuja-Lokoja expressway and Ajaokuta-Lokoja highway. In addition, some of the settlements affected include: Lokoja, Mimi, Banda, Shikaku, Ajaokuta, Idah, and Ibaji.



ACTIVATION OF THE INTERNATIONAL CHARTER "SPACE AND MAJOR DISASTERS" IN NIGERIA (ICSMD)

Bayelsa State Flooding: Charter Call 416

- ICSMD 10th of October 2012.
- The activation covered communities affected by flooding in Yenagoa and adjoining communities.
- The following satellites were tasked for image acquisition: SPOT5, RADARSAT-2, TerraSAR-X/TanDEM, Landsat ETM, IKONOS, Worldview, and FORMOSAT-2, NigeriaSat-2.



CONCLUSION

- Disaster management is on the recurrent list.
- Impacts are contingent on preparedness as well as efficient response.
- The capacity for effective response to disasters within Nigeria has greatly improved following the access to the ICSMD.
- The Charter is an attestation to the notion that disaster management is a global phenomenon.
- No individual country has all it takes to respond to disasters.
- For example, during the Hurricane Katrina in the United States in 2005.
- Space-based approach has proven efficacious given that access to disaster areas is hindered.
- Inter-Agency Cooperation in Nigeria has been further strengthened through the charter.

