Application of Space-based Solutions to Oil Spill Response and Management in Nigeria

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NATIONAL OIL SPILL DETECTION AND RESPONSE AGENCY

Outline

- Who we are
- Current geospatial applications
- Where we are going with geospatial applications

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National Oil Spill Detection and Response Agency (NOSDRA)

- Established by a National Assembly Act of 2006.
- An institutional framework to co-ordinate the implementation of the National Oil Spill Contingency Plan (NOSCP) for Nigeria
- In accordance with the International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC 90) to which Nigeria is a signatory.

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NOSDRA: Our Vision

To create, nurture and sustain a zero – tolerance oil spill incident in the Nigerian Environment.

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NOSDRA: Our Mission

To restore and preserve our environment by ensuring best Oil field, storage and transmission practices in exploration, production and use of oil in the quest to achieve sustainable development in Nigeria.

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Current Applications: ESI Mapping

- Environmental sensitivity index maps of Nigeria shore line from Badgary to Calabar for effective oil spill response planning

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Current Applications Cont'd: Nigerian Oil Spill Monitor (https://oilspillmonitor.ng/)

- Publicly available geospatial web tool showing all oil spill incidents as responded to by the agency.
- Enables data filters based on date, operator, region, spill type, spill cause etc.
- Has both tabular and map view.

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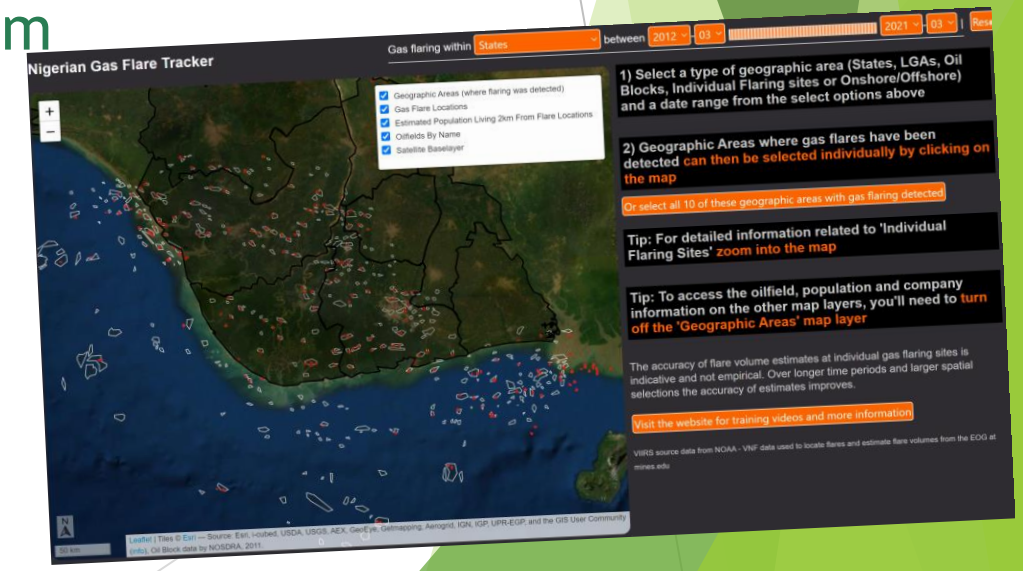
Current Applications Cont'd : Nigerian Gas Flare Tracker (https://gasflaretracker.ng/)

- Publicly available geospatial web tool tracking the estimated volume of gas flared from oil production facilities across Nigeria.
- Volume estimation is based on VIIRS source data from NOAA
- VNF data used to locate flares and estimate flare volumes from the EOG at mines.edu



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Current Applications Cont'd : Spill Site Recovery Tracking

- Periodic analysis of LandSat satellite images to remotely track vegetation recovery in large spill area.
- NDVI AND NWDI indices used for vegetation health analysis

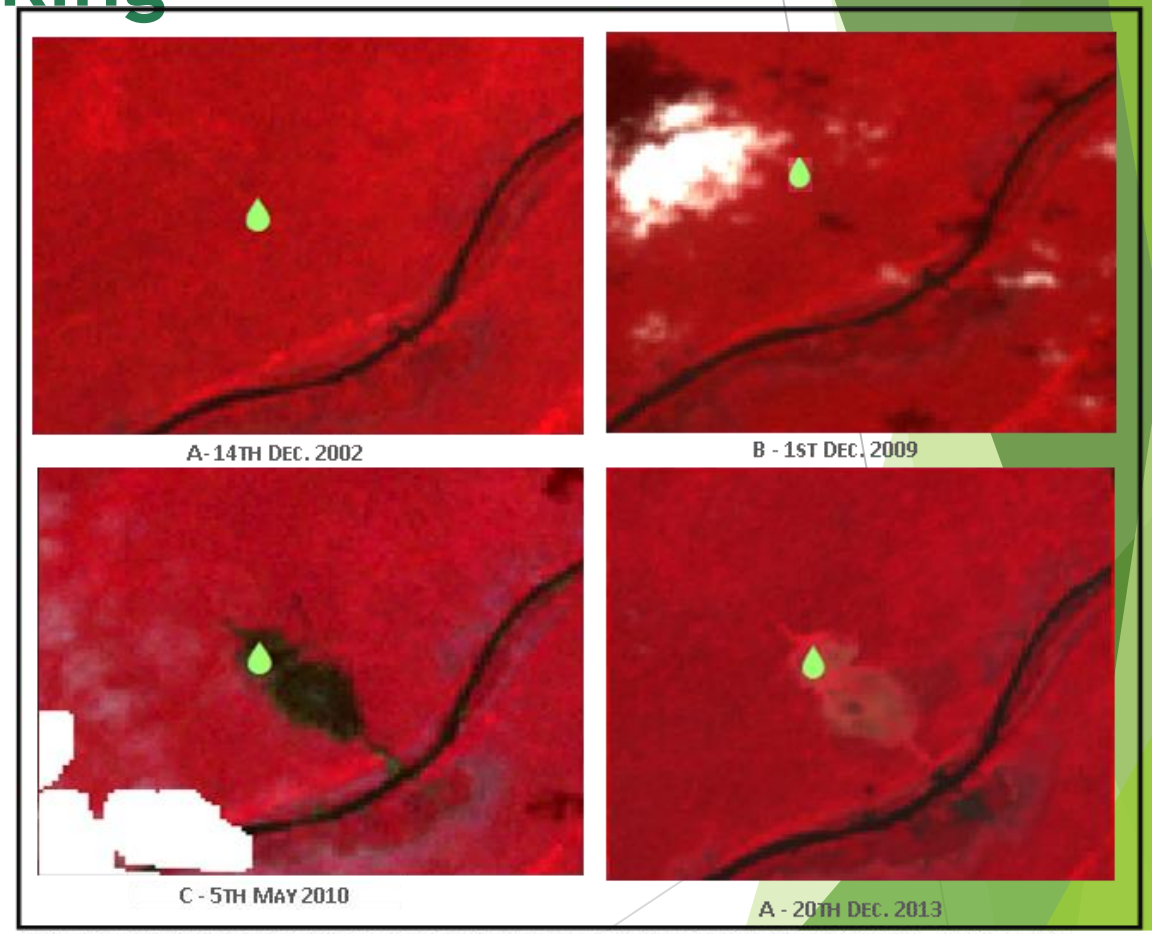

FIGURE 2: FALSE COLOUR INFRARED COMPOSITE OF SITE 1 (GREEN SPOT INDICATES THE SPILL POINT; SPILL DATE = 11/11/2009)

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Future Applications

- Deployment of drones for monitoring and evaluation
- Centralisation of historic and current spill data with all related metadata and spill site lifecycle info (Geospatial Portal)
- Advanced integration of Radar and satellite data for of-shore spill detection and modelling
- Oil spill modelling

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Thank you

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