

# Geospatial Integration in User Workflows and Business Processes

*End user perspective*

By : Judith Ampomah Owusu

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# Hello!

## I am Judith Ampomah Owusu

I am a Senior Geoscientist with GNPC and an End-User.

You can find me at [\*\*\*ja.owusu@gnpcghana.com\*\*\*](mailto:ja.owusu@gnpcghana.com)

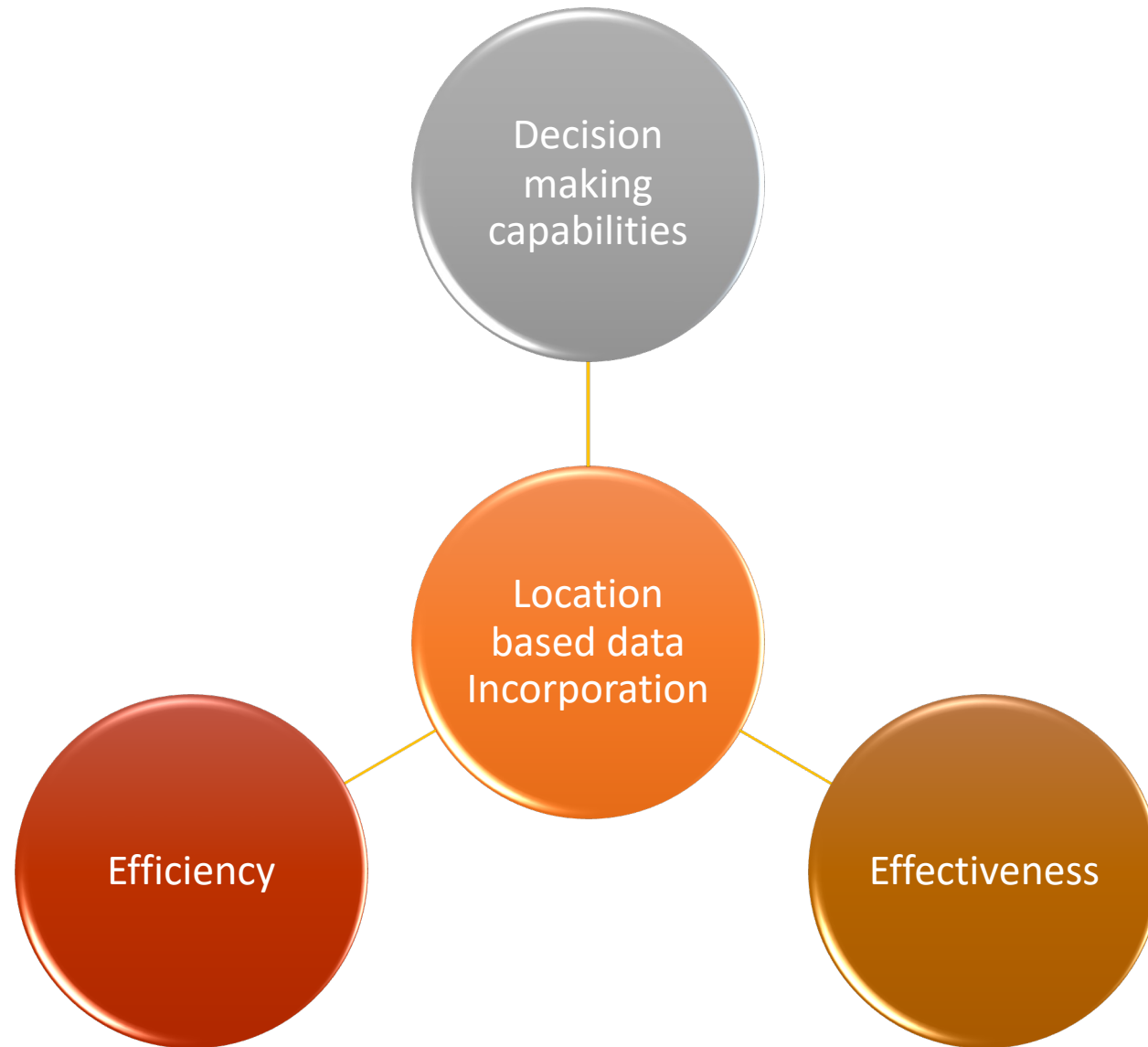


# Content Page

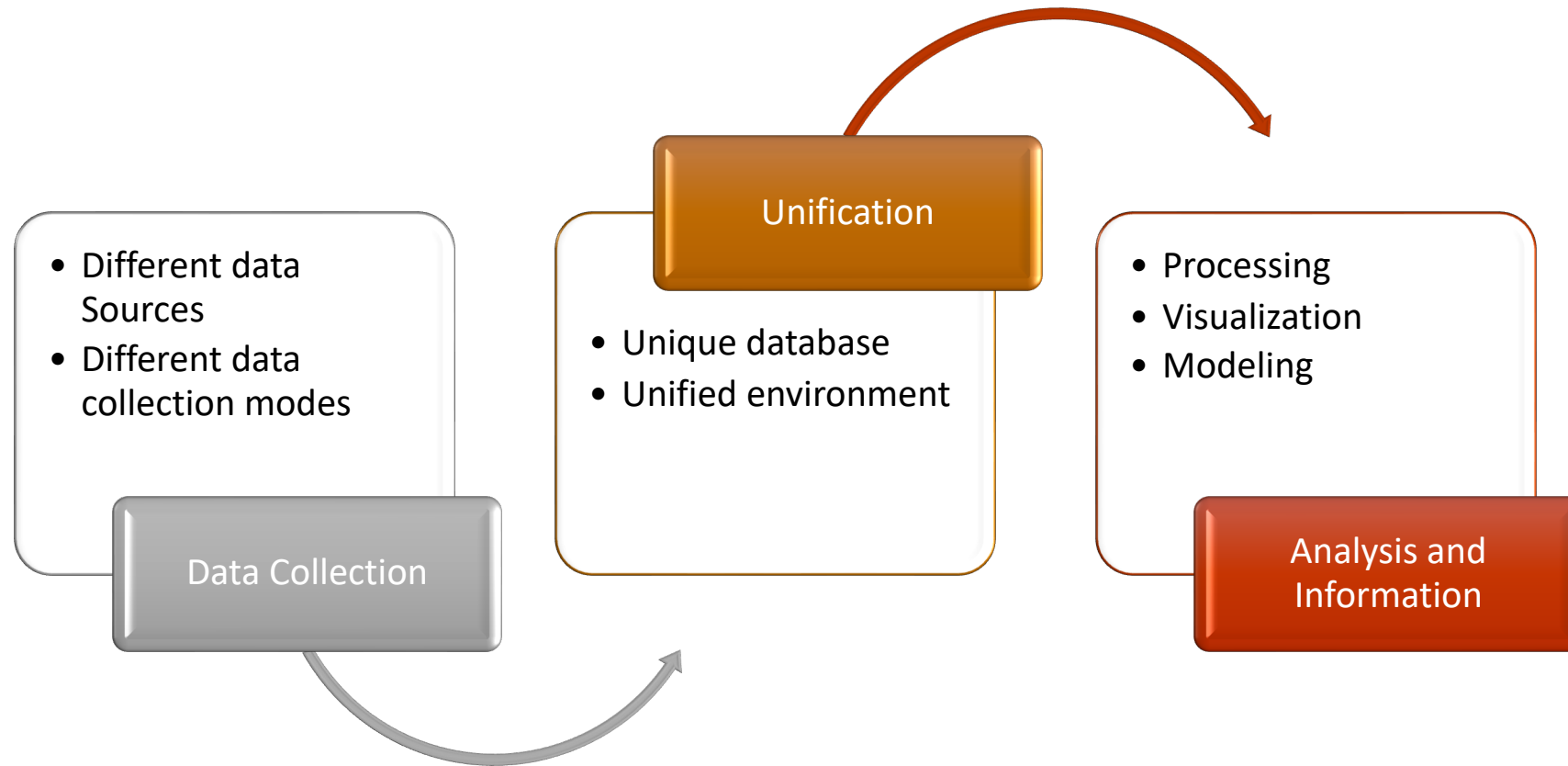
- Geospatial integration
- Integrating geospatial data into user workflows and business processes – end user scenarios
- Business processes advantages
- Conclusion



# Geospatial Integration

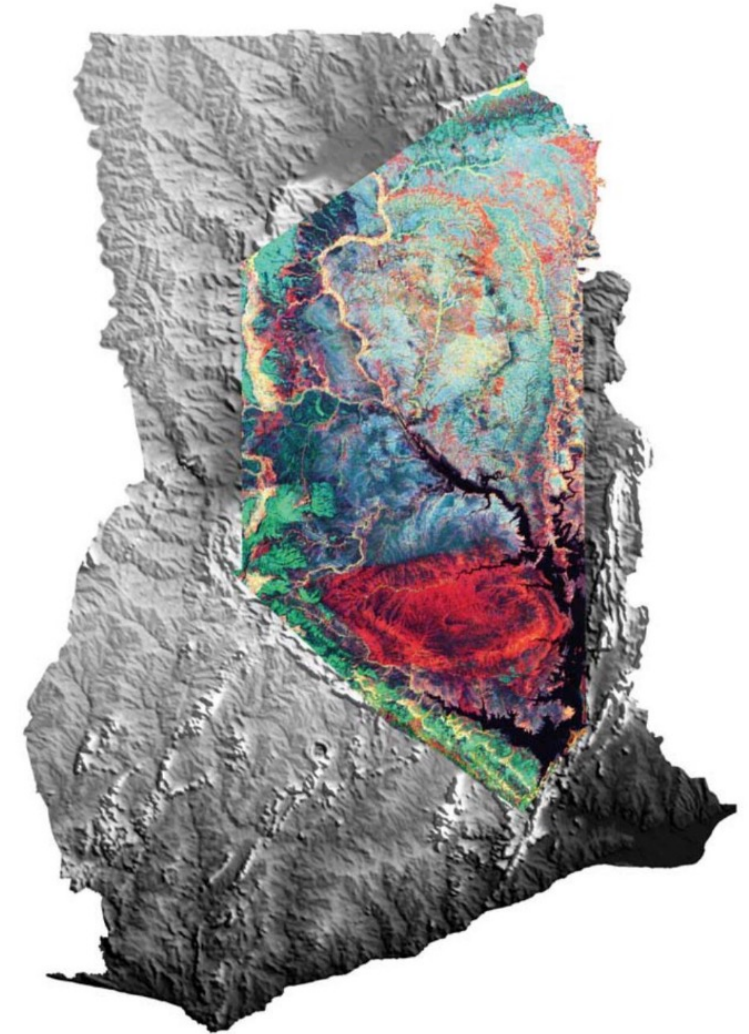


# Geospatial Integration (GI)



# Geospatial data integration into user workflows and business processes

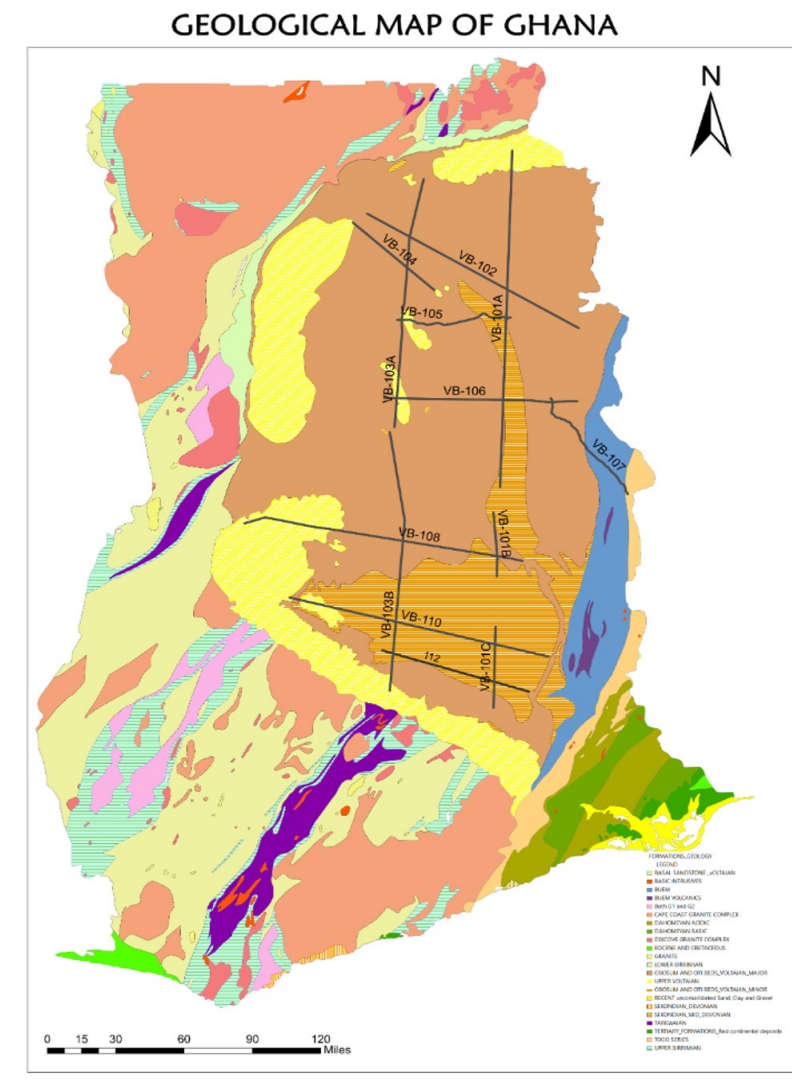
- **Geographic Information System (GIS)** - GIS is a software tool that allows users to visualize, analyze and manipulate spatial data. It can be used to create maps, perform spatial analysis, and manage geospatial data (Ongoing Exploration in Ghana biggest basin both Seismic lines and Geochemical sample points are geospatially tagged allowing for succinct, efficient, effective decision making on direction of exploration).
- **Remote Sensing** – Remotely sensed data, in this example Aeromagnetic and gravity data and associated maps which were acquired years prior, but geospatially tagged served as the guiding data at the inception of exploration work.



*The geology map of Ghana draped onto the Digital Terrain Model (DTM) enhancing the geological features of the various formation and also showing the total magnetic intensity reduced to pole for the Voltaian basin.-Carney et.al, (BGS)*

# Geospatial data integration into user workflows and business processes

- **Global Positioning System (GPS)** - GPS technology allows users to determine their precise location on the Earth's surface. In this example GPS acquired data set were used in both technical (geophysics, geotechnical data set) and Social tracking of farmers for compensation. They were employed to track all fieldwork activities and used to manage geospatial data.



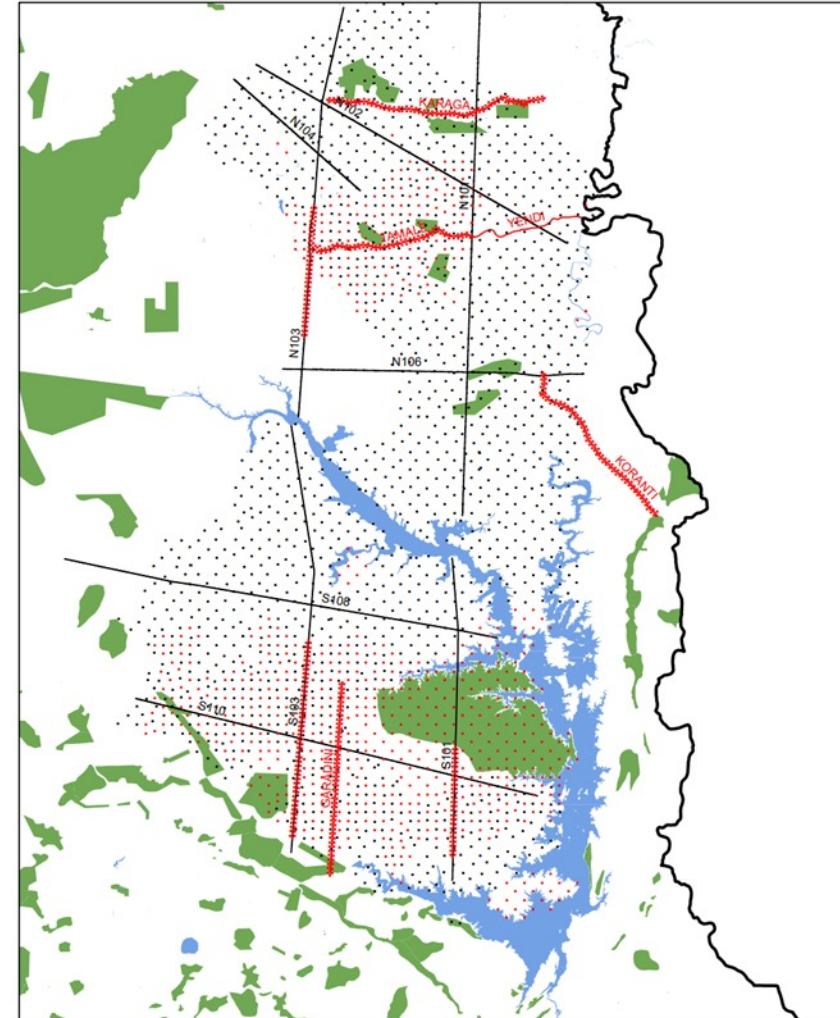
*Geological map of Ghana showing the various formations with the acquired phase-1 seismic lines- GNPC*





# Business processes advantages

- Geospatial Integration (GI) increases accuracy and efficiency of business processes in different ways ;
- It improves asset management by tracking and analyzing the location and condition of different assets in real-time. (e.g., Fly Camps, Seismic Line shot receiver locations, Geochemical sample points, Convoy movements)
- Help geoscientists to optimize the use of resources, plan maintenance schedules, and reduce operational costs.



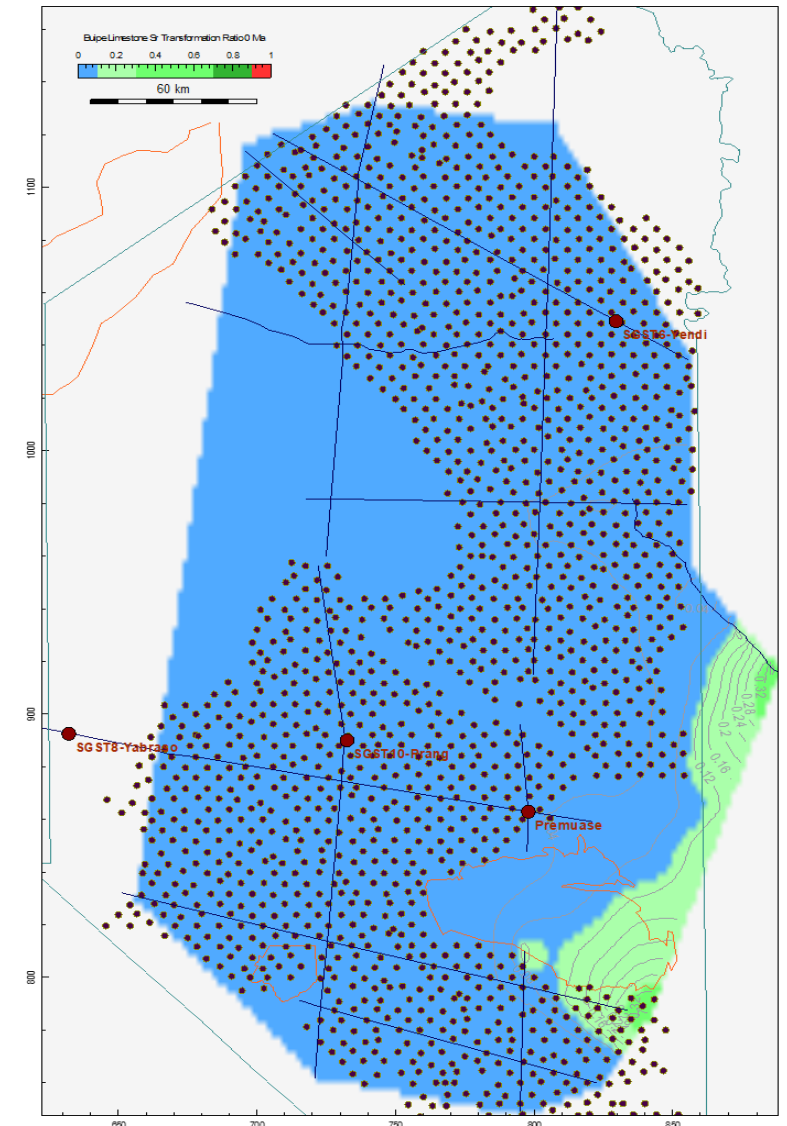
1434 proposed geochemical sample points on the Voltaian basin- GNPC/ETI





# Business processes advantages

- Enhances risk management by identifying potential hazards and analyzing the impact of different risk factors on business operations.
- Helps geoscientists to develop more effective risk mitigation strategies and ensure compliance with regulatory requirements.
- Improves customer service by providing more personalized and location-based services (farmer's and community compensation maps).
- For example, geospatial integration can be used to analyze customer data and develop targeted marketing campaigns that are based on customer location and preferences (Awareness campaigns in towns and villages of on-going geoscience data acquisition work).

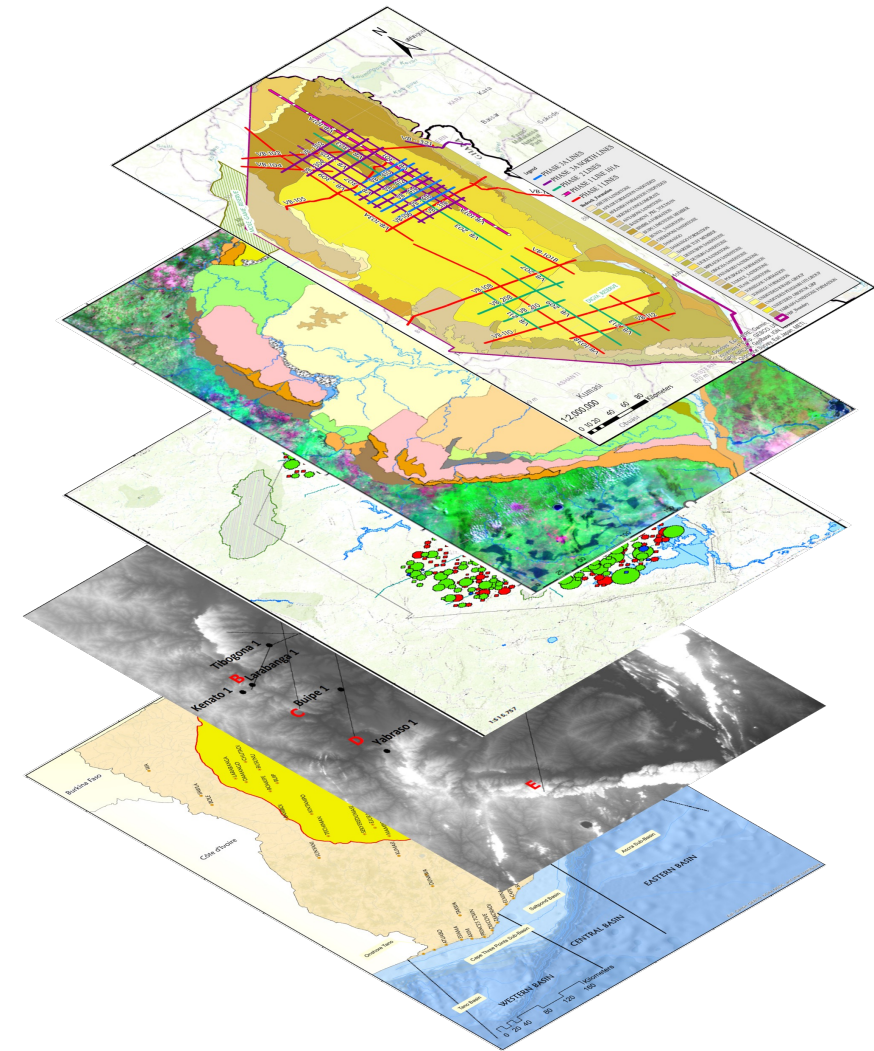


BPSM map with Geochemical sampling Map - GNPC



# Business processes advantages

- Decision-making: can be used to make informed decision ,e.g., geospatial data can be used to determine the location of a new oil well or to assess the environmental impact of a proposed development.
- Collaboration: can be used to facilitate collaboration between geoscientists and other stakeholders. E.g., geospatial data can be shared with policymakers to inform decision-making.
- Visualization: can be used to visualize data. eg, geoscientists can use 3D visualization tools to create visual representations of subsurface geology.
- Cost savings - By optimizing resource allocation and improving decision-making, geospatial integration can help to reduce costs.



GIS and layers of the Voltain Basin -GNPC

# Onshore Exploration Application

- GI made it possible to integrate maps of a geochemical survey in a frontier onshore Voltain basin and 3D Petroleum System Modeling map. The soil gas data which was collected were analyze to determine the C1-C4 anomalies. The results from the survey compared very well with the Petroleum Systems model built, confirming matured and immature source kitchens and possible hydrocarbon accumulations. Result is helping to plan future E&P activities.



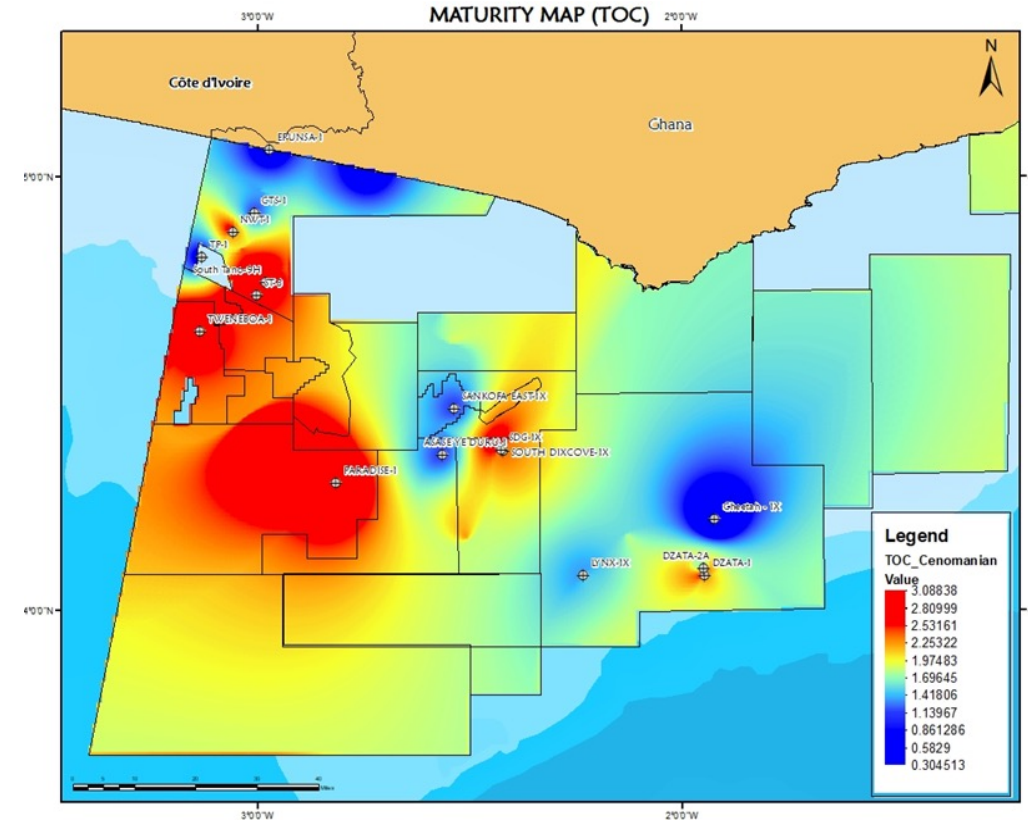
# GNPC's impact on Africa on energy sustainability.

- GNPC by 2030 seeks to part of those leading Africa to have a balanced mix of green and crude oil-based energy sources, to meet the changing energy landscape projected by 2050.
- This is crucial to avoid missing the window of opportunity to navigate the energy transition successfully.
- This vision has led to GNPC kick starting early-stage reconnaissance studies in
  - Offshore wind energy.
  - National Green energy promotion
  - Evaluate the various renewable sources we can leverage (e.g., carbon capture and storage, green hydro)
- Skills transfer

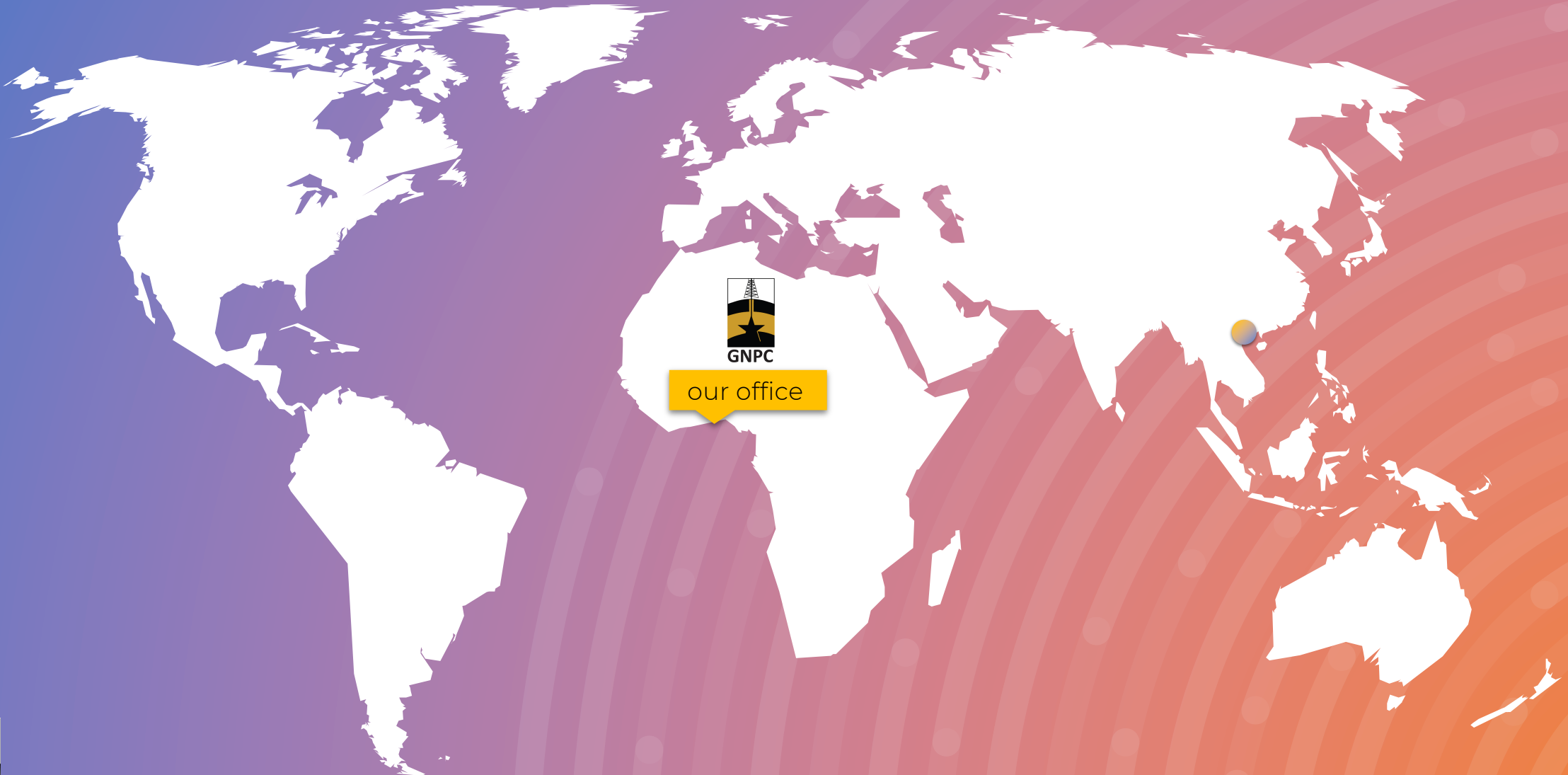


# Conclusion

- In conclusion, geospatial integration is essential for geoscientists to improve their daily workflows and business processes. By incorporating GIS, remote sensing, GPS, and WMS technologies, geoscientists can visualize and analyze spatial data more effectively, leading to better decision-making, increased efficiency, and cost savings.
- By incorporating location-based data and tools, geoscientists can gain a deeper understanding of the natural world and make informed decisions.



Organic richness map of the offshore Tano Basin- GNPC



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# Thanks!

**Any  
questions?**

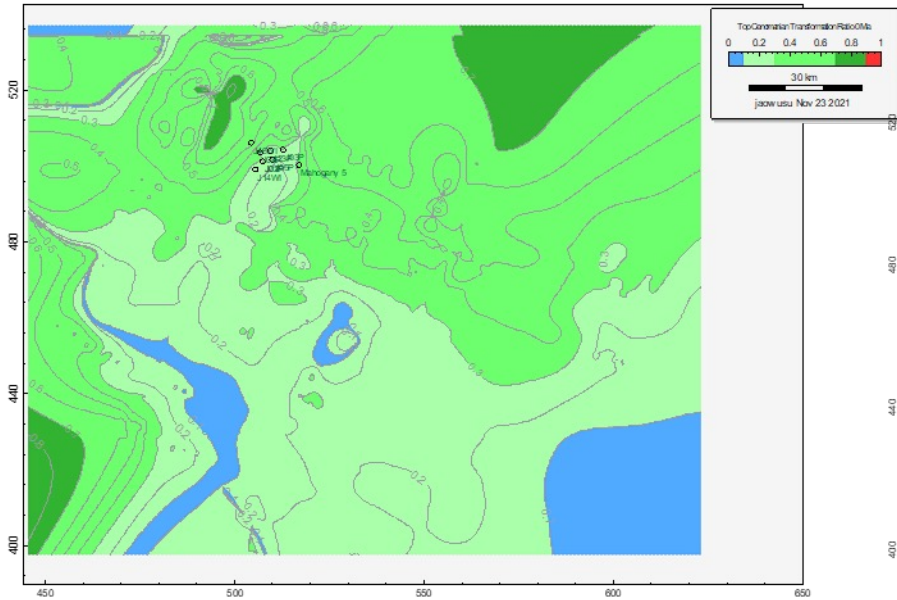
You can find me at:  
[ja.owusu@gnpcghana.com](mailto:ja.owusu@gnpcghana.com)



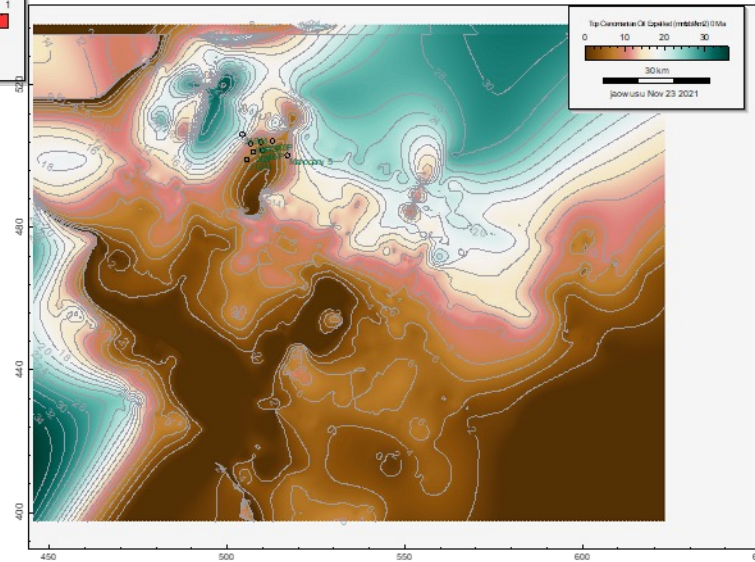


# Offshore Source Rock Maturity and Expulsion Maps

Maturity



Oil Expulsion



Gas Expulsion

