Geo-AI Platform for Groundwater & Surface Water Resources

Summary

In response to the escalating global demand for pure water, exacerbated by the strain on groundwater and surface water bodies in urban areas due to overexploitation and contamination, ARMS 4 AI has developed an innovative One-Click GEO AI platform. This advanced system integrates data from satellites and ground-level sources, utilizing Artificial Intelligence (AI) and machine learning (ML) to detect and map groundwater and monitor the real-time quality of surface water bodies. The platform provides decision-makers with swift and informed insights, empowering them to make effective decisions in addressing water-related challenges. Committed to revolutionizing water management, ARMS 4 AI Pvt Ltd aims to contribute to sustainable solutions amid the ever-growing need for clean water.

Description of the initiative

ARMS 4 AI's One-Click Geo AI, a web-based monitoring platform, is designed to address the challenge of monitoring and assessing groundwater and surface water. Our technology utilizes multiple high-resolution satellite data sources integrated with advanced AI and ML models. The platform has the capability to monitor and assess groundwater and surface water in real-time, providing valuable insights. These insights can be utilized by city administrations to make data-backed decisions, visualized in map formats, enabling targeted interventions in areas where groundwater and surface water-related problems persist.

Our technology does not require any physical hardware in the field and can provide valuable insights throughout the year. The platform delivers near-
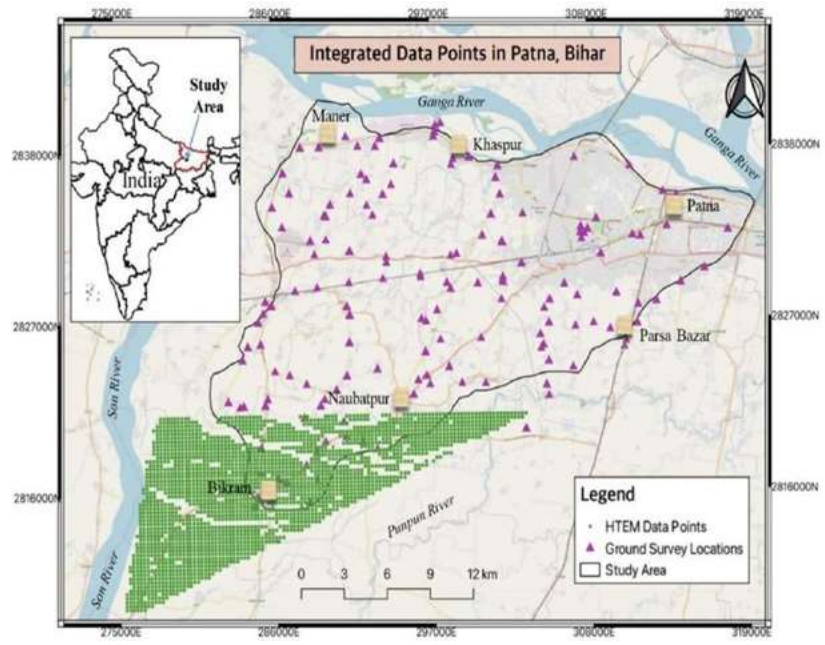
real-time insights with 90% accuracy, reducing dependency on manpower in the field by 70%.
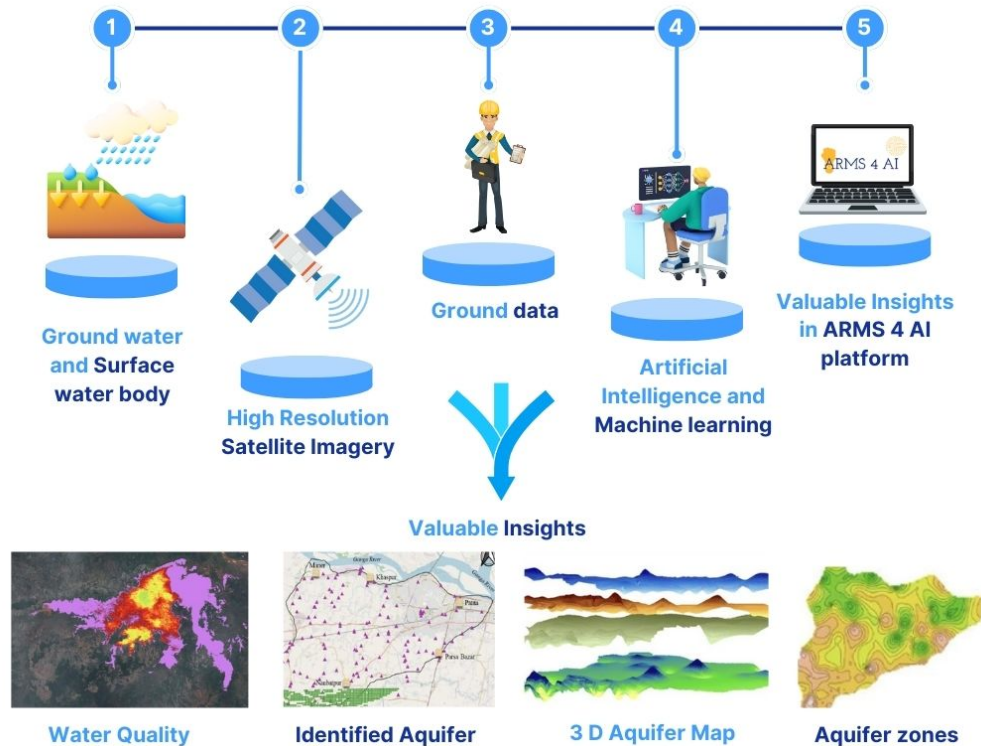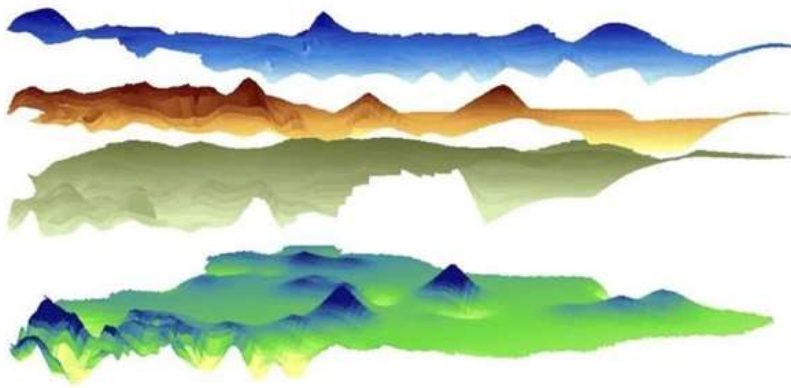

Process followed by ARMS 4 AI Technology

Implementation and Impact

The technology has been used to identify and map groundwater in Patna, Bihar. The project involved the use of Heliborne transient electromagnetic (HTEM) survey, integrating it with satellite data, and applying AI and ML. As a result, the technology successfully mapped the aquifers in high resolution in 3D, and the depth up to the second aquifer was accurately mapped. The project played a crucial role in identifying aquifers without manual interventions and field boring, which typically consumes a significant amount of time and cost.

Project area – Patna Bihar

Legend

Second aquifer	Base	Clay	First Aquifer
High : -25.0863	High : -58.1879	High : 10.8403	High : 49.4543
Low : -82.2627	Low : -252.357	Low : -36.5336	Low : 5.81078

3D Map of Below Ground Aquifer Layers