



Exploring the Unseen  
Engineering the Future

# FOURTH DOMAIN

## FOR GEOPHYSICAL SERVICES

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At Fourth Domain, we don't just collect data — we translate it into actionable insights. Whether you're seeking water resources, assessing seismic risks, or planning a major infrastructure project, we're here to help you make informed, confident decisions.

# Table Of Content

- 1 Company Overview
- 2 Vision, Mission, Values
- 3 Fields & Services
- 4 Techniques & Methodology
- 5 Track Record & Case Studies
- 6 Our Team
- 7 Clients & Compliance
- 8 Sustainability & Responsibility
- 9 Why Choose Us & Contact Us



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# Company Overview



## FOURTH DOMAIN FOR GEOPHYSICAL SERVICES

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**Fourth Domain** LLC is a leading Omani geophysical company, established in 2017 by a team of skilled engineers with strong academic and field backgrounds in geophysics, earth sciences, and physics. Recognizing the critical need for efficient, data-driven subsurface exploration, the company was founded to deliver high-quality geophysical services tailored to the region's unique geological conditions.

With a commitment to innovation, precision, and environmental stewardship, Fourth Domain leverages cutting-edge technologies and experienced professionals to provide fast, accurate subsurface imaging and analysis. From groundwater discovery and mineral exploration to environmental assessments and geotechnical studies, our solutions empower clients to make informed decisions while minimizing operational risks and costs.

Over the years, Fourth Domain has completed over 150 successful projects across Oman, building a reputation for reliability, technical excellence, and customer-focused service.



# Vision | Mission | Values



## Our Vision

- ✓ To become Oman's leading provider of geophysical solutions by delivering innovative, data-driven services that build trust, support sustainable development, and enrich our communities.

## Our Mission

- ✓ To provide high-quality geophysical and environmental services through the use of advanced technologies and industry best practices — ensuring customer satisfaction, employee development, and value creation for our stakeholders.

## Our Core Values

- ✓ **Reliability** – We deliver consistent and dependable results.
- ✓ **Integrity** – We operate with honesty, transparency, and ethics.
- ✓ **Accuracy** – We ensure precise data collection, processing, and interpretation.
- ✓ **Customer Commitment** – We prioritize our clients' needs and strive for their long-term success.



## Fields of Application

“ At **Fourth Domain**, we offer geophysical solutions tailored to a wide range of industries and project types. Our expertise is applied in:

- ✓ **Groundwater exploration** – Locating water reservoirs for agriculture, communities, and development projects.
- ✓ **Subsurface cavity and landfill detection** – Identifying voids that pose risks to infrastructure and safety.
- ✓ **Environmental investigations** – Detecting contamination zones and tracking chemical seepage.
- ✓ **Geotechnical and soil testing** – Supporting roadworks, bridges, harbor platforms, and runway construction.
- ✓ **Seismic risk assessment** – Evaluating site suitability for urban planning and construction.
- ✓ **Archaeological prospecting** – Non-invasive detection of heritage and historical sites.
- ✓ **Mineral exploration** – Locating metallic and non-metallic resources with precision.

## Our Core Services

“ We provide advanced subsurface investigations using a wide range of geophysical techniques. Our main services include:

- ✓ **Groundwater Mapping** – Utilizing resistivity and electromagnetic methods, we accurately identify the depth, volume, and orientation of groundwater reservoirs, reducing uncertainty in water resource development.
- ✓ **Cavity & Void Detection** – We identify underground cavities and unstable zones that could threaten existing or future structures. This helps mitigate risks and supports safe engineering decisions.
- ✓ **Environmental Contamination Studies** – We detect and assess the spread of chemical leakage from industrial sources. Our methods map both vertical and horizontal contaminant movement, helping prevent further environmental damage.
- ✓ **Site Characterization for Construction** – By analyzing shear-wave velocity, seismic response, and subsurface layering, we determine the suitability of land for construction, ensuring safety and compliance with engineering standards.
- ✓ **Mineral and Metal Detection** – We provide exploration services for minerals, metals, and buried objects using integrated geophysical surveys — helping our clients maximize discovery while minimizing costs.
- ✓ **Archaeological and Heritage Surveys** – We support archaeologists and developers with non-destructive geophysical surveys to locate hidden structures or artifacts of historical significance.



## Geophysical Techniques We Use

“ At **Fourth Domain**, we deploy a range of industry-standard and cutting-edge geophysical technologies, tailored to the specific needs of each project. Our capabilities include:

- ✓ **2D & 3D Ground Penetrating Radar (GPR)**  
High-resolution imaging of shallow subsurface features — ideal for detecting utilities, voids, and archaeological targets.
- ✓ **Electrical Resistivity Tomography (ERT) & 2D Resistivity Imaging (RI) & Vertical Electrical Sounding (VES)**  
Effective for mapping groundwater, soil layers, contamination zones, and voids through electrical resistance variations.
- ✓ **Induced Polarization (IP) & Self-Potential (SP)**  
Used to detect mineralization zones and track fluid movement by measuring the electrical chargeability of subsurface materials.
- ✓ **Time Domain & Frequency Domain Electromagnetic Induction (TD/FD-EMI)**  
Rapid, non-invasive surveys to map conductivity contrasts — ideal for locating groundwater, pollutants, or metallic objects.
- ✓ **Seismic Refraction (SRR) & Seismic Reflection (SRL)**  
Crucial for understanding subsurface layering, soil stiffness, and fault lines — key for foundation and site analysis.
- ✓ **Refraction Microtremor (ReMi) & Seismic Hazard Analysis**  
Non-invasive techniques to assess shear-wave velocity profiles and perform seismic microzonation for construction and hazard evaluation.



## Our Methodology: A Streamlined Process

“ We follow a structured, client-focused approach to ensure accuracy, efficiency, and actionable results:



- ✓ **Needs Assessment**  
Understand the client's goals, site conditions, and investigation scope.
- ✓ **Site Definition & Data Collection Planning**  
Identify the area of interest and determine the appropriate survey design.
- ✓ **Baseline Data Gathering**  
Compile available maps, borehole logs, geological data, and previous studies.
- ✓ **Selection of Geophysical Technique & Equipment**  
Choose the most effective method(s) based on site conditions and objectives.
- ✓ **Field Survey Execution**  
Perform data acquisition using calibrated instruments and certified procedures.
- ✓ **Data Processing & Interpretation**  
Analyze collected data using advanced software for modeling and visualization (2D & 3D outputs).
- ✓ **Reporting & Recommendations**  
Deliver a detailed technical report with interpretations, maps, and practical recommendations for decision-making.

# Our Team

“ At **Fourth Domain**, our strength lies in the deep knowledge and diverse experience of our team. With advanced academic qualifications and a proven track record in international and regional projects, our experts bring both scientific rigor and practical insight to every project.

## Dr. Abdullatif Younis

Ph.D. in Applied Geophysics – Ain Shams University, Egypt

Dr. Abdellatif Younis is a certified geophysicist, project strategist, and academic leader with over 19 years of multidisciplinary experience in academia, consulting, and applied geophysical sciences. He is currently an Associate Professor at NRIAG (Egypt), Technical Head of Geophysics at ACES (Saudi Arabia), Founder & CEO of ROGEC (Egypt), and a Senior Consultant with Fourth Domain (Oman). Dr. Younis has led over 150 projects across the MENA region and Southeast Asia, specializing in engineering, environmental, and groundwater geophysics. His expertise includes GPR, ERT, TEM, MASW, and AMT. A postdoctoral alumnus of Universiti Sains Malaysia and a Certified Consultant in Applied Geophysics, he bridges scientific research with real-world impact, delivering integrated solutions for infrastructure, hydrogeological, archaeological, and geotechnical challenges.

## Dr. Mohamed Ezzelarab

Ph.D. in Geophysics – Ain Shams University, Egypt

Dr. Mohamed Ezzelarab has more than 16 years of experience in geophysical exploration, with a focus on seismic methods for subsurface characterization. His work includes seismic microzoning, site classification, and geotechnical integration for large-scale infrastructure and urban development projects.

## Eng. Majid Al Ruziqi

Geophysicist

Eng. Majid Ali Al Ruzaiqi is a field geophysicist with over 6 years of practical experience in seismic refraction, MASW, H/V microtremor analysis, VES and electrical resistivity tomography. He has been actively involved in geophysical investigations for environmental, hydrological, and landfill studies.

## Eng. Omar Saif Al Alawi

Senior Geophysicist and HSE

Eng. Omar Saif Mohsin Al-Alawi combines over 8 years of experience in geophysics and HSE practices. His geophysical background includes survey execution, data acquisition, equipment maintenance, and interpretation for various environmental and engineering applications. He also brings expertise in field safety and regulatory compliance.

## Nasser Al Ghafri

Geophysicist and HSE

Nasser Al Ghafri is a geophysicist and certified HSE specialist with over 8 years of experience in field-based geophysical surveys and health & safety operations. His technical skills include conducting seismic and resistivity surveys, site inspections, and risk assessments. He is trained in NEBOSH, IOSH, and emergency response protocols, bringing added value to geophysical field operations.

### Collective Strength

Together, our team combines local knowledge with international best practices, ensuring that every project is handled with technical excellence, cultural awareness, and environmental responsibility.

# Track Record | Case Studies

## Track Record of Excellence

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Since its establishment, Fourth Domain has successfully completed more than 150 geophysical projects across Oman. Our work spans diverse sectors including water resource development, infrastructure, environmental protection, and cultural heritage preservation.

We've proudly collaborated with government agencies, private developers, environmental consultants, and academic institutions to provide reliable subsurface data for informed decision-making.



## Selected Case Studies

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Here are a few sample case studies to showcase your expertise.

1

### Waste Backfill Distribution Study – South Al Batinah Region, Oman

#### Overview

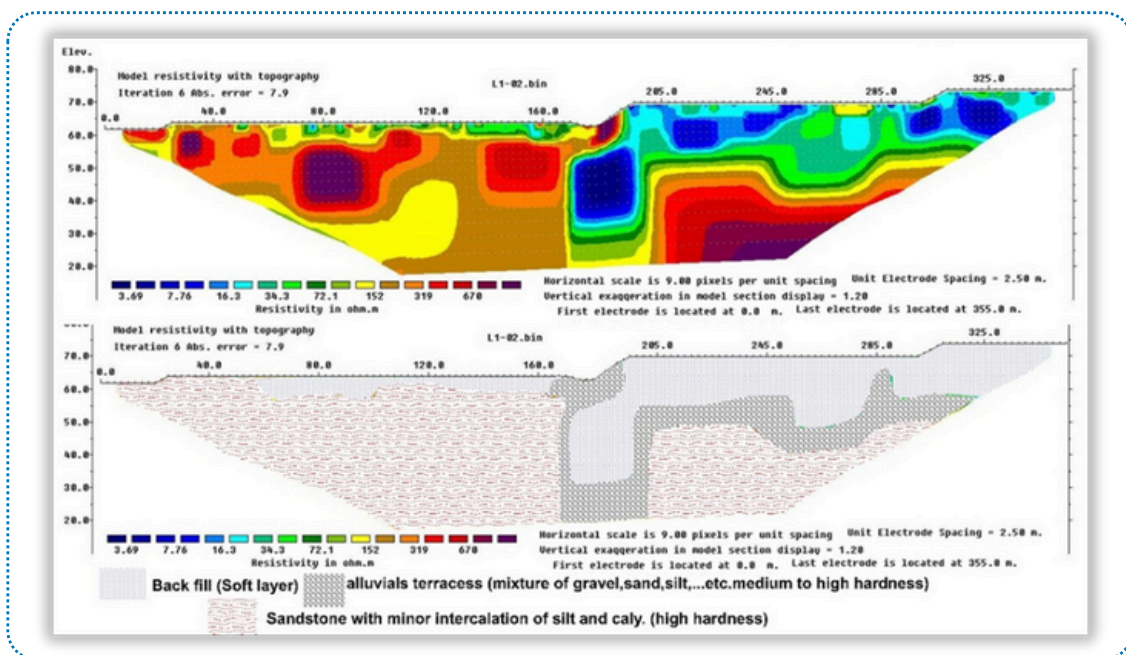
Our team conducted a geophysical investigation in the South Al Batinah region to assess subsurface conditions and detect the presence of waste backfill. The study aimed to support environmental monitoring and land-use planning.

#### Methodology

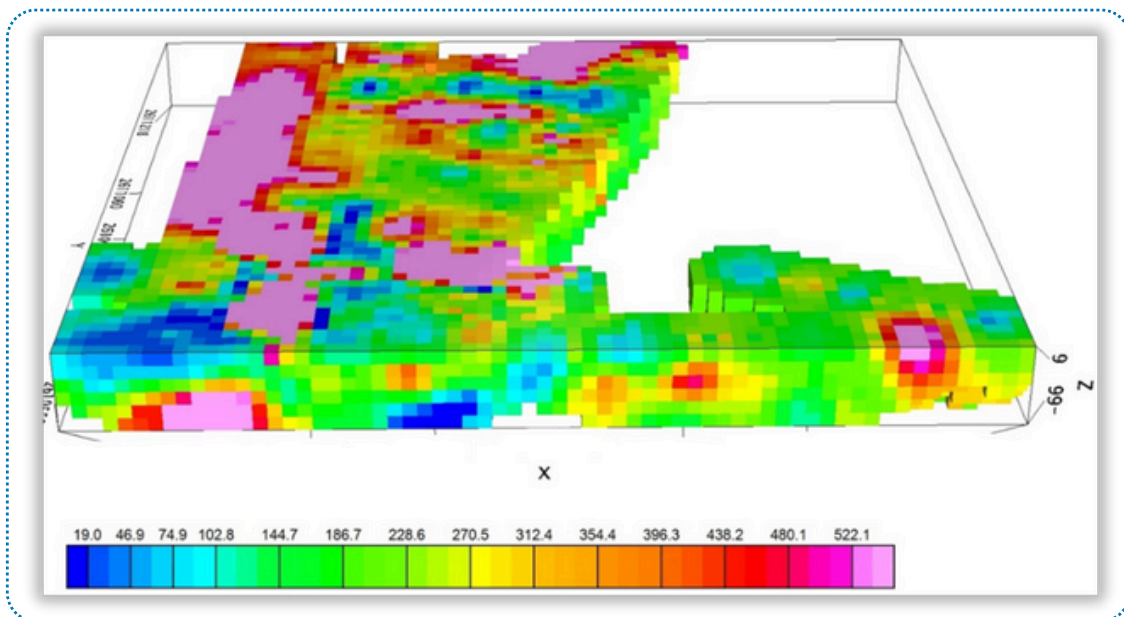
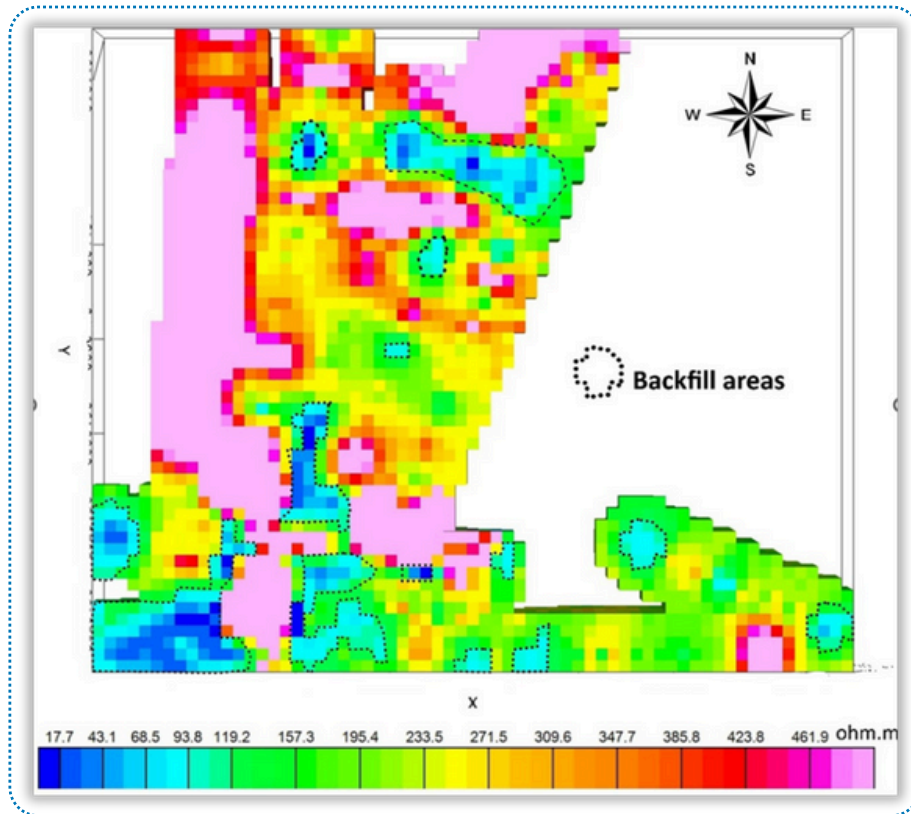
We employed Electrical Resistivity Tomography (ERT) — a non-invasive geophysical technique — to image the subsurface. This method provides high-resolution insights into geological layering and variations in material composition.

#### Key Outcomes

- Developed detailed 2D and 3D resistivity models of the subsurface.
- Identified and mapped the presence, distribution, and depth of buried waste backfill.
- Provided valuable data to support environmental risk assessment and future development planning.



# Track Record | Case Studies



# Track Record | Case Studies



# Track Record | Case Studies

2

## Groundwater Exploration for Agricultural Development – Salalah, Oman

### Overview

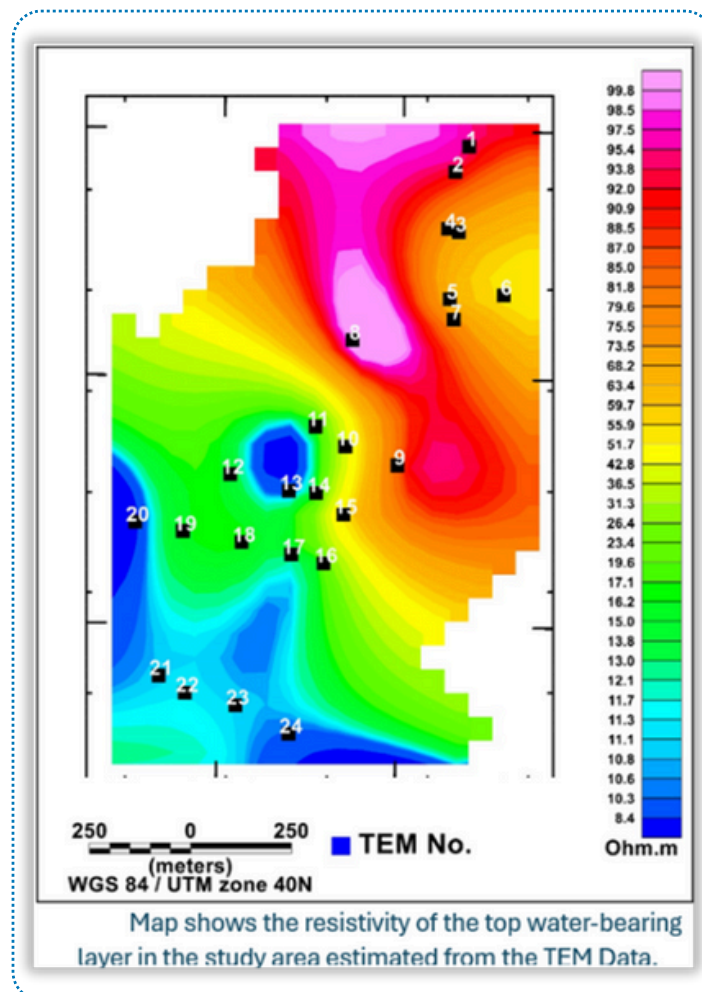
To support sustainable agricultural development in Salalah, Oman, our team carried out a detailed geophysical investigation aimed at identifying reliable groundwater resources.

### Methodology

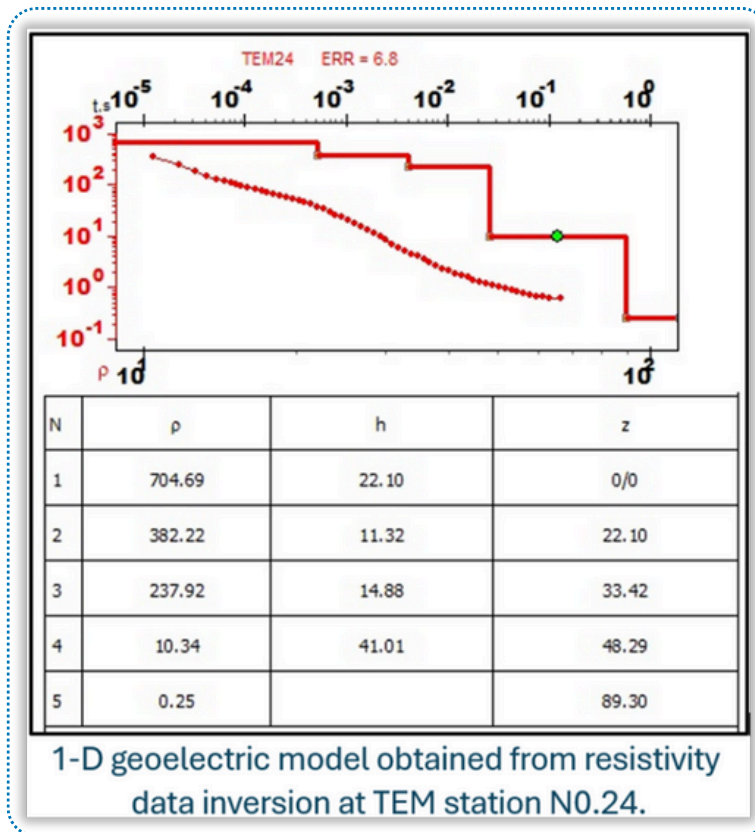
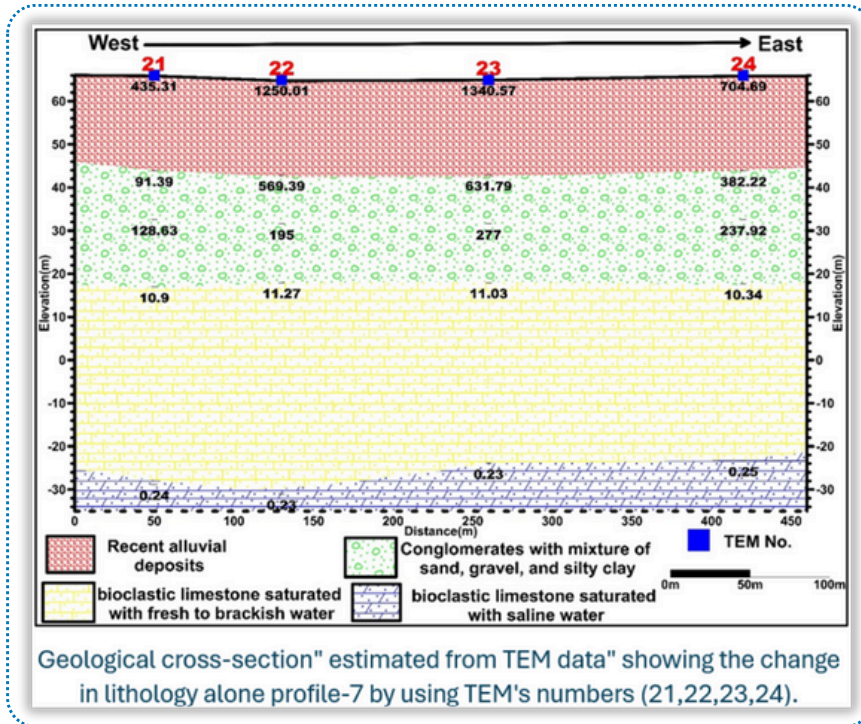
We employed the Time Domain Electromagnetic (TEM) method, a non-invasive geophysical technique that measures the electrical resistivity of subsurface materials by inducing a transient electromagnetic field and monitoring the decaying voltage response over time.

### Key Outcomes

- Generated 1D and 2D resistivity models of the subsurface, identifying potential aquifer zones.
- Determined the depth of the groundwater table and inferred the groundwater flow direction.
- Identified freshwater and saline water zones by analyzing resistivity values.
- Provided a preliminary assessment of seawater intrusion risk in the area.



# Track Record | Case Studies



# Track Record | Case Studies



3

## Groundwater Table Identification Using Electrical Resistivity Tomography (ERT) and Vertical Electrical Sounding (VES), Mahout, Oman

### Overview

This case study focuses on identifying and mapping the groundwater table in an oil and gas field located in Mahout, Oman. Two geophysical methods were employed:

- Electrical Resistivity Tomography (ERT): Used to investigate subsurface features up to a depth of 100 meters.
- Vertical Electrical Sounding (VES): Applied at each point to explore depths up to 250 meters.

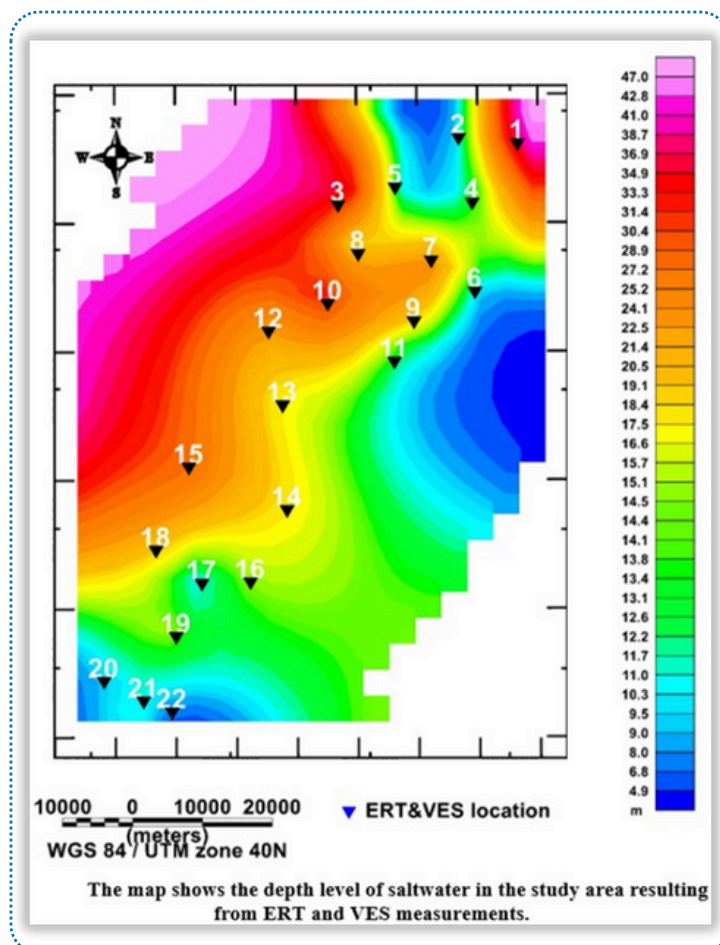
These methods provided valuable insights into the subsurface resistivity distribution, helping to delineate groundwater levels across the study area.

### Methodology

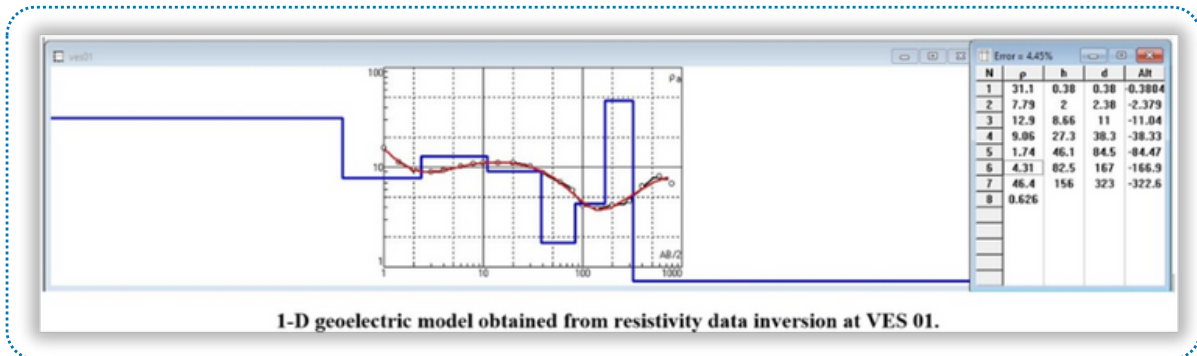
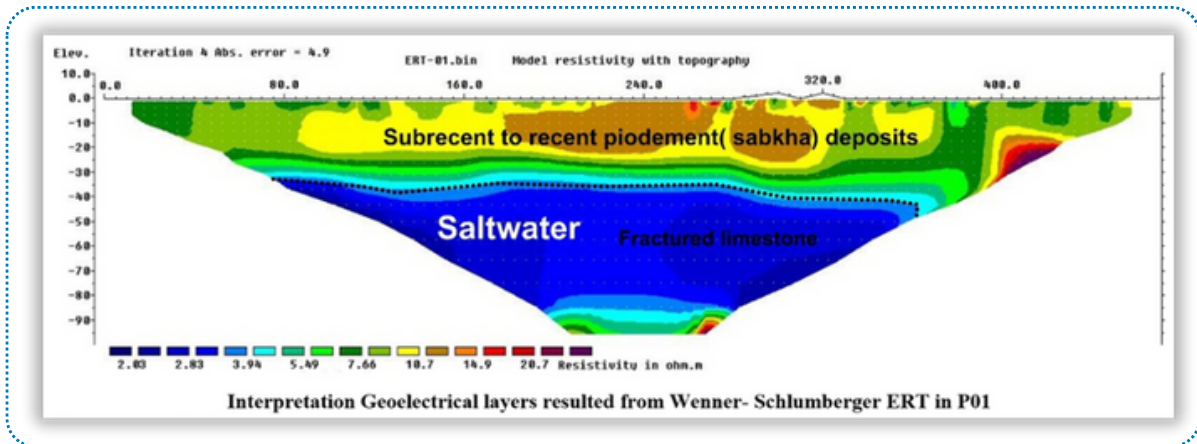
- Electrical Resistivity Tomography (ERT)
- Vertical Electrical Sounding (VES)

### Key Outcomes

- 1D and 2D Resistivity Models – Detailed subsurface resistivity profiles were generated.
- Groundwater Level Mapping – Identification and mapping of groundwater levels



# Track Record | Case Studies



# Track Record | Case Studies







# Clients | Compliance

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Over the years, **Fourth Domain** has proudly served a wide range of clients across government, industry, and the private sector. Our solutions have supported infrastructure development, environmental compliance, heritage preservation, and resource exploration across Oman.

## Our key clients include





## Certifications & Compliance

At **Fourth Domain**, we are committed to operating in full alignment with local and international standards of quality, safety, and environmental responsibility.

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### We ensure

- ✓ Compliance with Oman's Ministry of Commerce and Industry regulations.
- ✓ Approved vendor status with relevant government bodies.
- ✓ Strict health, safety, and environmental (HSE) procedures in all field operations.
- ✓ Regular calibration and certification of equipment.

# Sustainability | Responsibility



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At **Fourth Domain**, we believe responsible geophysical exploration must go hand-in-hand with environmental protection and community well-being. Our approach is guided by a strong commitment to sustainability, safety, and ethical operations.

## Environmental Stewardship

- ✓ We prioritize non-invasive survey methods to minimize environmental disturbance.
- ✓ We help clients identify and mitigate contamination risks, protecting groundwater and ecosystems.
- ✓ Our recommendations promote sustainable resource management, particularly in groundwater extraction and land use planning.

## Health | Safety First

- ✓ All field operations follow strict Health, Safety, and Environment (HSE) protocols.
- ✓ Our team is trained and equipped to work in challenging terrains and sensitive areas safely.
- ✓ We comply with all local and international safety regulations, ensuring zero-harm operations.

## Social Responsibility

- ✓ We provide local training and knowledge transfer, empowering communities and client teams.
- ✓ Our work supports national goals in infrastructure resilience, water security, and environmental preservation.
- ✓ We are committed to ethical business practices in all aspects of our operations.

# Why Choose Us





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At **Fourth Domain**, we don't just collect data — we translate it into actionable insights. Whether you're seeking water resources, assessing seismic risks, or planning a major infrastructure project, we're here to help you make informed, confident decisions.

With our scientific expertise, advanced technology, and deep local knowledge, we stand ready to support the sustainable growth of Oman and the region.

## Contact Us

“ Let our experience and innovation work for you. Get in touch to discuss your project or request a consultation

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Website