



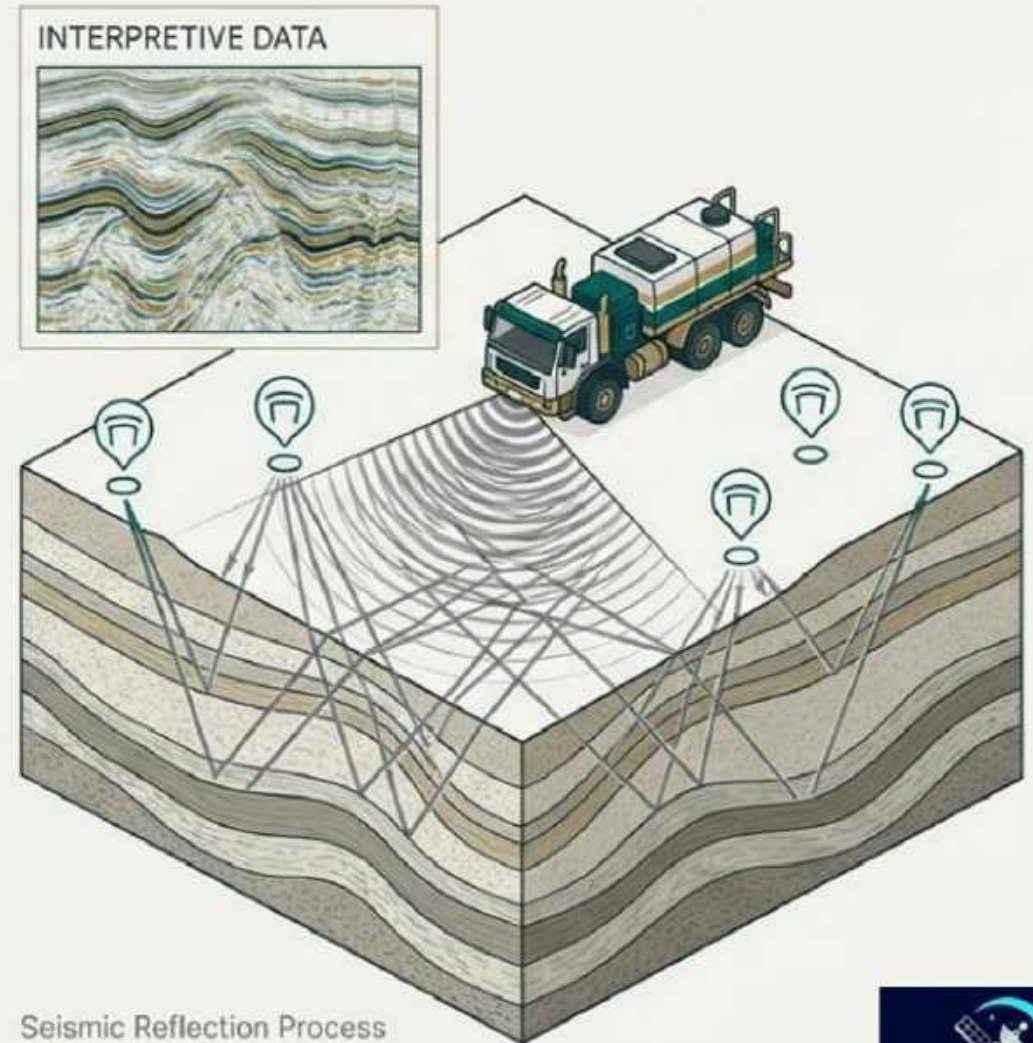
# From Inference to Intelligence: Revolutionizing Resource Exploration with Direct Detection

A new paradigm in exploration that moves beyond interpreting geological echoes to directly identifying subsurface resources with unprecedented certainty.

# For Decades, Exploration Has Relied on Indirect Methods

3D Seismography has been the industry standard, but its methodology is fundamentally based on inference. It doesn't find the resource; it finds geological structures where resources **might** be.

- Seismic technology generates a high-powered, “faceless” signal directed underground.
- The signal reflects off boundaries between different rock layers and is captured by surface receivers.
- This process identifies geological anomalies—structures favorable to oil and gas accumulation—which then require extensive **interpretation**.
- The main property of seismic is **reflection**.



Seismic Reflection Process

# THE CONSTRAINTS OF TRADITIONAL EXPLORATION



## Time-Intensive

Standard exploration cycles require 2–3 years to complete.



## Low Success Rate

Traditional methods yield an accuracy rate of only 25–45%.



## Indirect Detection

Relies on secondary physical field anomalies rather than detecting the resource itself.



## Capital Risk

High financial expenditure required for uncertain results.

# The Inherent Risks of an Indirect Approach

A methodology based on inference leads to significant inefficiencies and financial risk.



## 60-70%

### Failure Rate

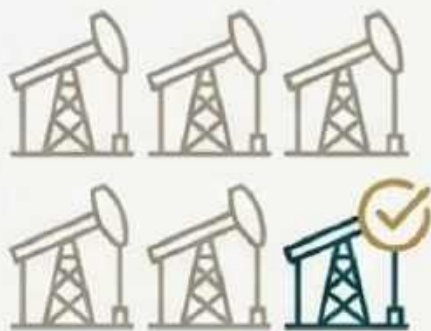
Success rate of only 30-40% in new territories, leading to costly 'dry' wells.



## >1-2 Years

### Project Timeline

Typical duration for a 1,000 sq. km project, delaying time-to-production.



## 6 to 1

### Drilling Ratio

An industry average of 6 exploratory wells are drilled for every 1 commercial discovery.



## \$50k+/km<sup>2</sup>

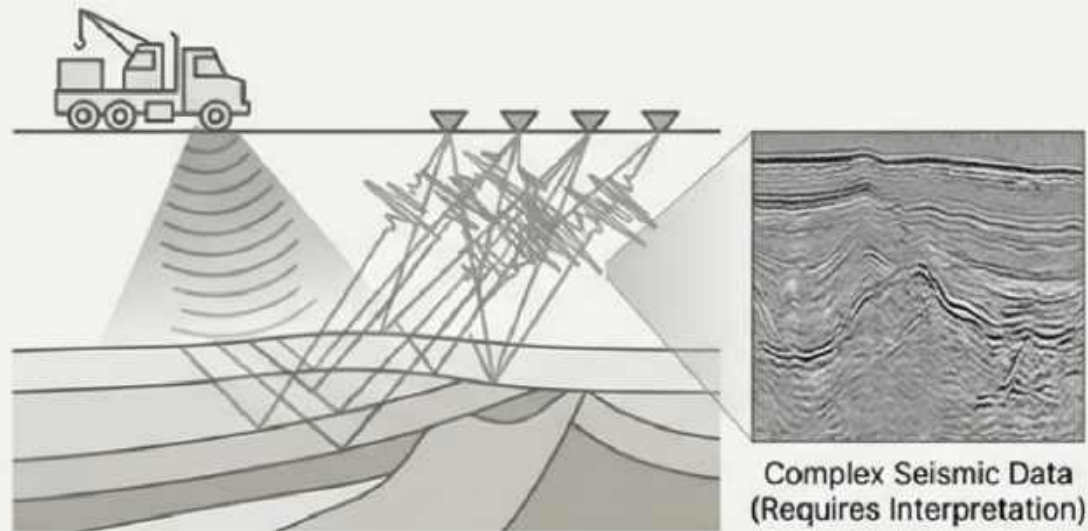
### Exploration Cost

Ranging from \$25,000 to over \$70,000 per square kilometer for 3D seismic

# The Breakthrough: From Interpreting Reflections to Detecting Resonance

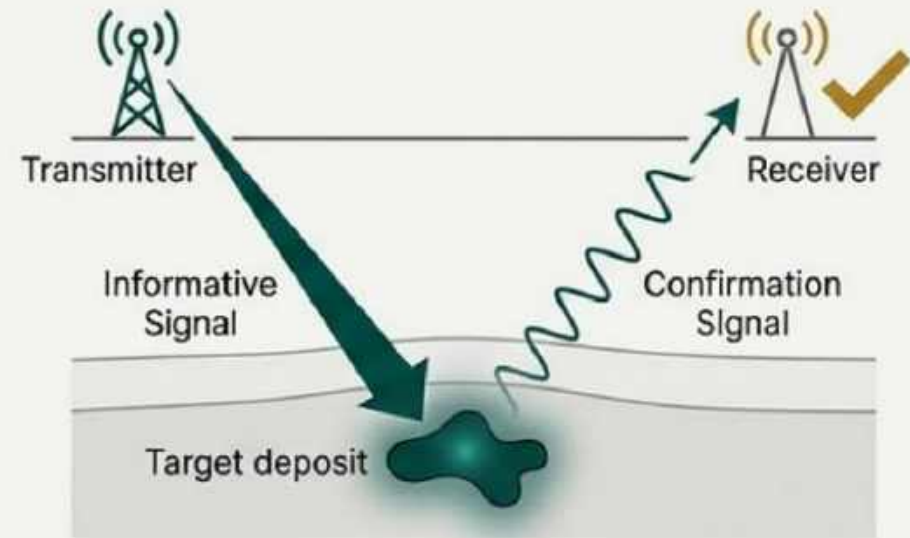
RSS/NMR is a **direct** detection method. Instead of interpreting echoes, we tune into the specific signature of the target substance itself, like tuning a radio.

## Reflection (Indirect)



Sends a powerful, "faceless" signal and interprets the echo from underground geological structures.





## Resonance (Direct)



Transmits a focused signal tuned to the target substance. The target re-emits a confirmation signal that we detect with certainty.

"The main thing in our approach...is that we do not use the interpretation of indirect data, but directly determine the presence of the desired mineral in the subsurface."

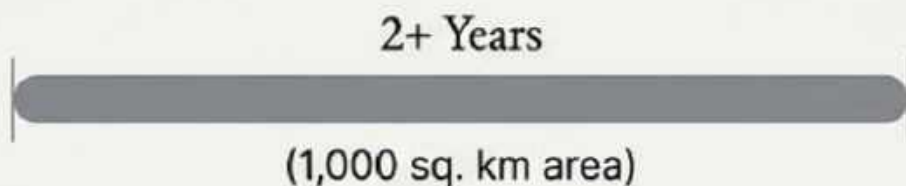
# Certainty vs. Probability: A Head-to-Head Comparison

Metric	3D Seismography	RSS/NMR
Effectiveness / Success Rate	 30-40%	 >80-90%
Result	Identifies contours of anomalies	Identifies contours of deposits (±10m accuracy)
Exploratory Wells per Discovery	 6	 1
Drilling Savings	N/A	Potential savings of <b>&gt;\$20 Million</b> by avoiding a single dry well.

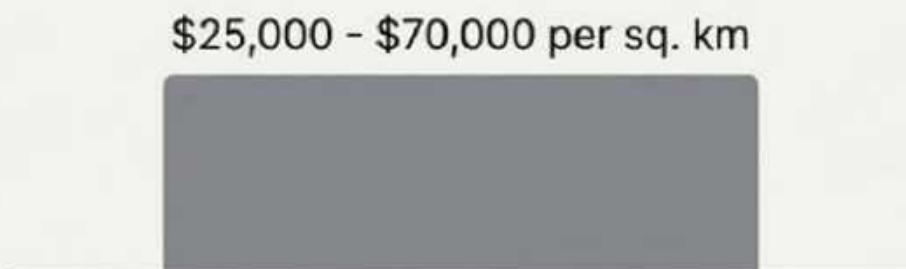
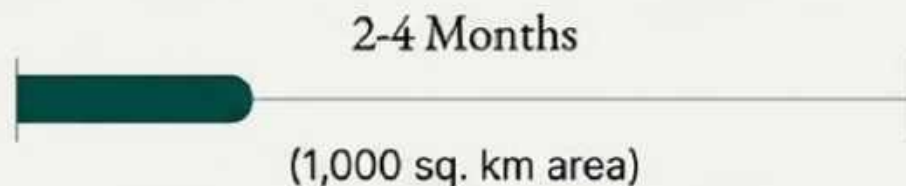
# Months vs. Years: The Efficiency Advantage

## 3D Seismography

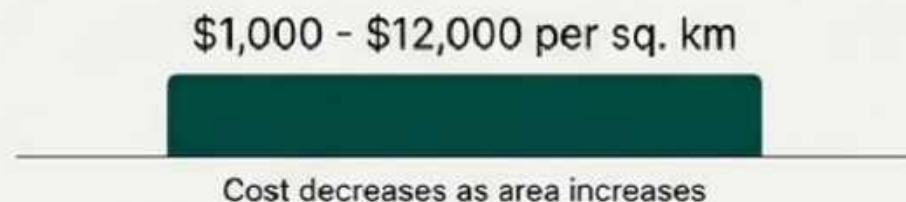
## RSS/NMR



Inter



Inter



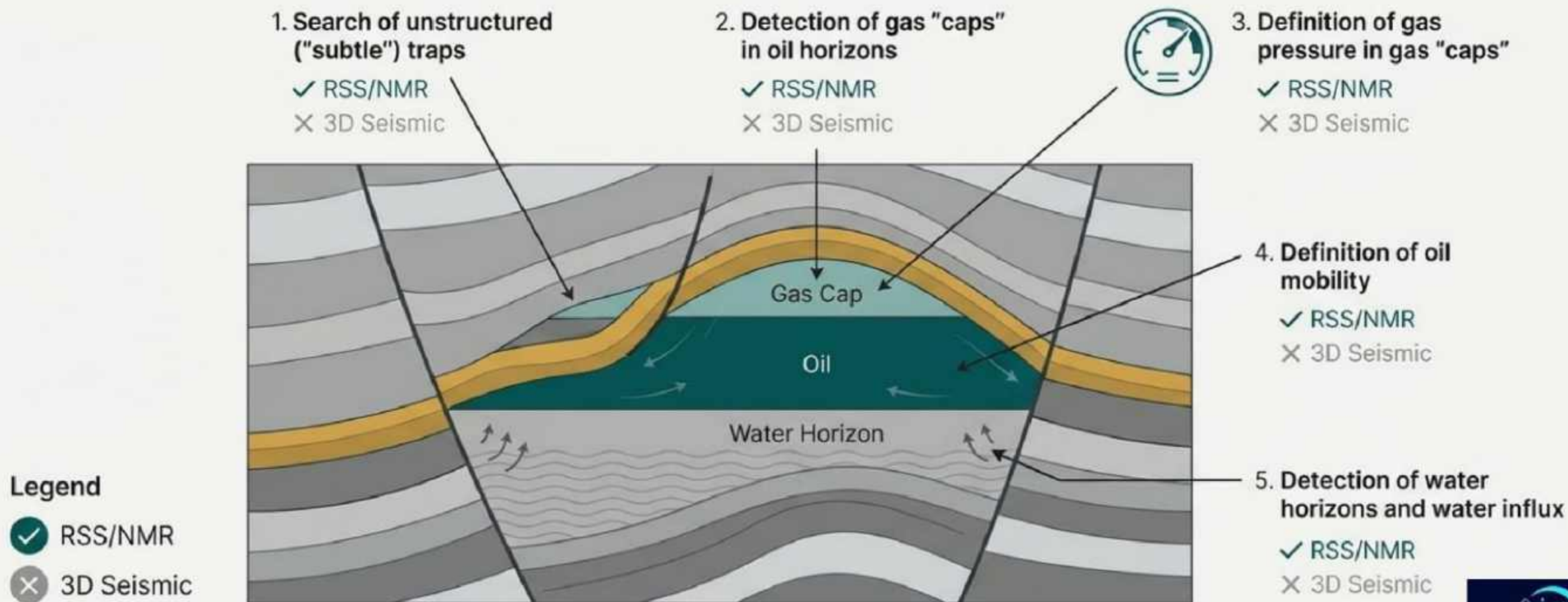
- ✗ Cutting Lines
- ✗ Heavy Crew Presence
- ✗ Explosives/Vibrators
- ✗ Permits & EIA
- ✗ Difficult in Complex Terrain

Inter

- ✓ Environmentally Friendly
- ✓ No Ground Disturbance (Stage 1)
- ✓ Minimal Footprint (Stage 2)

# Seeing What Others Can't: Enhanced Qualitative Insights

RSS/NMR provides direct measurements of reservoir characteristics that seismic methods can only infer or cannot detect at all.



# THE 'POISK' COMPLEX: DIRECT REMOTE DETECTION

## CORE TECHNOLOGY:

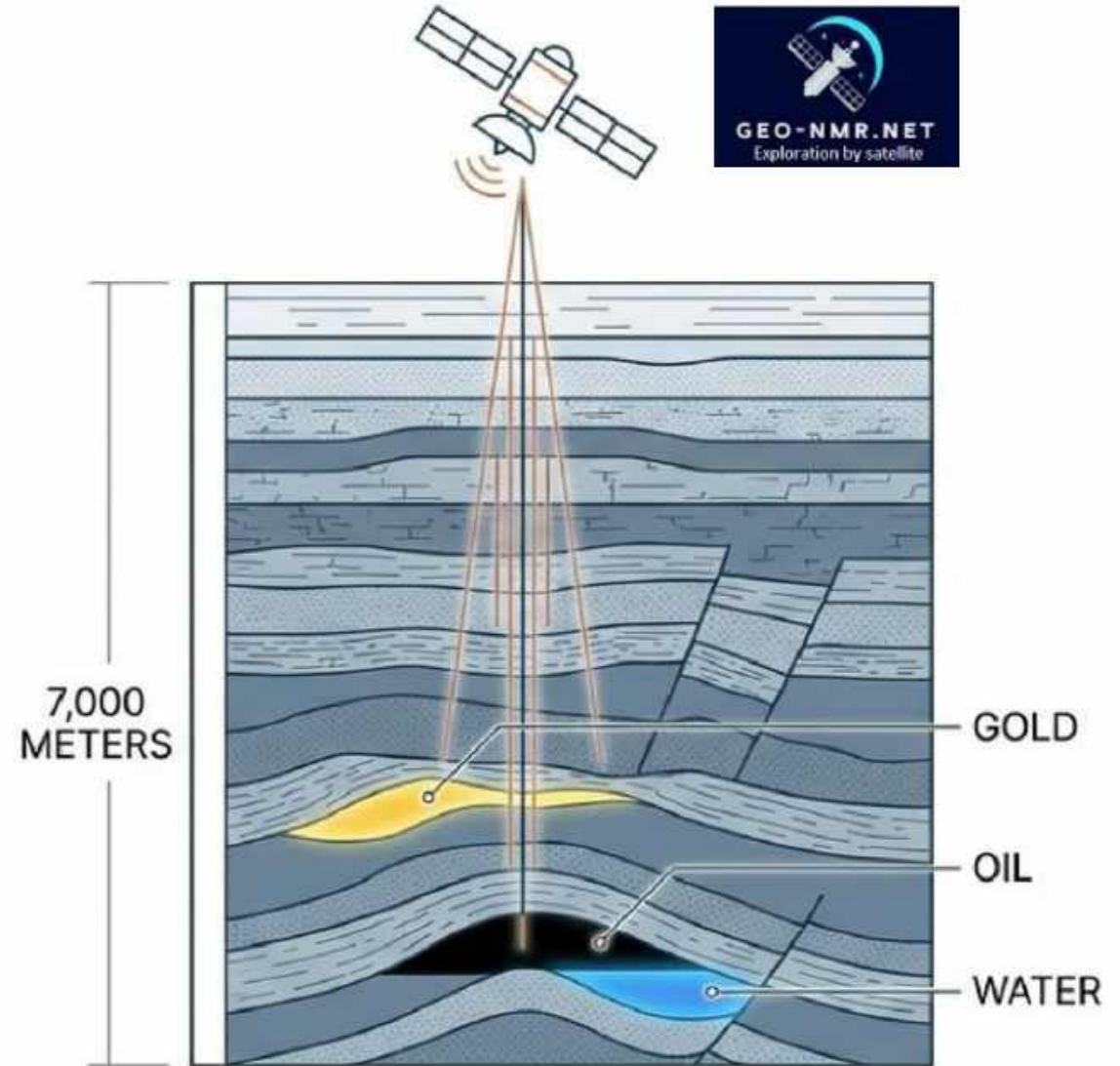
- Utilizes Nuclear Magnetic Resonance (NMR) spectra analysis in the Earth's magnetic field.
- Integrates with electromagnetic resonance testing via satellite or airborne sensing.

## KEY DIFFERENTIATOR:

- Detects the specific material type (Oil, Gas, Water, Polymetals) rather than just rock anomalies.

## OPERATIONAL DEPTH:

- Effective detection up to 7,000 meters into the Earth's interior.



# Validated in the Field Across Diverse Geological Environments

Over 360 projects with discoveries (Green fields) or rediscoveries ( brown fields) , but confidentiality clauses in our contracts with the E&P prevent us from disclosing them.



## Case Highlight: Green River Formation, Utah, USA (2009)

A high-stakes test in a region known for its notoriously difficult and complex geological structures. The technology completely confirmed its high parameters of efficiency.

**100%**

**Productivity**

(Confirmed presence of hydrocarbons in all targeted locations)

**98%**

**Accuracy**

(The precision of the data regarding depth and composition)

# PERFORMANCE METRICS VS. TRADITIONAL METHODS

## COST EFFICIENCY

**10-15x**

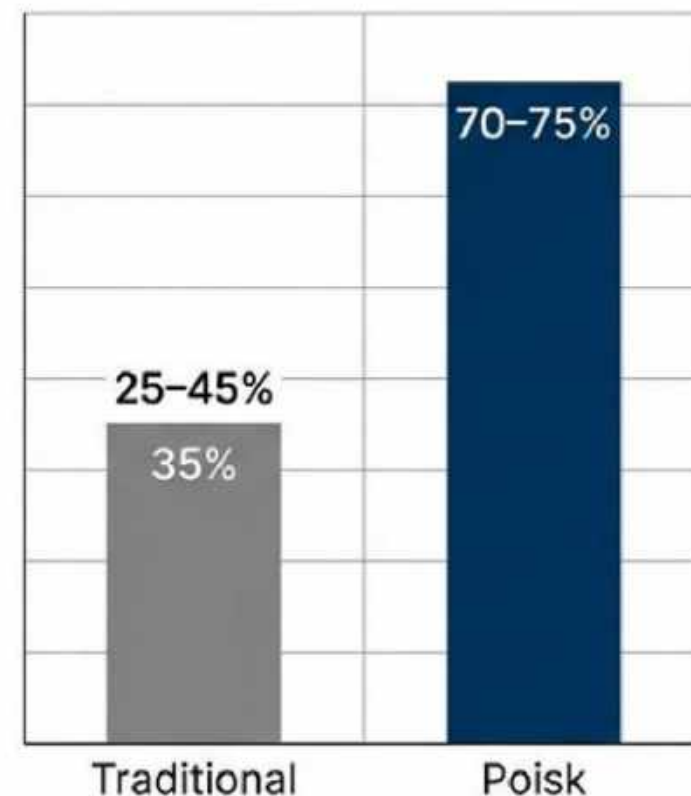
Reduction in financial expenditure compared to standard exploration.



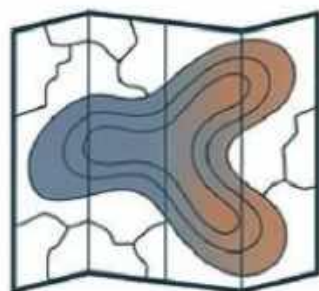
## SPEED



## ACCURACY



# TWO-STAGE EXPLORATION METHODOLOGY



## STAGE 1: REMOTE GEOCHEMISTRY

**Duration:** 0–2 Months

- **Objective:** Identify dispersion halos over large territories.
- **Deliverable:** Conclusive report on presence/absence of anomalies.

## STAGE 2: PRECISION DELINEATION

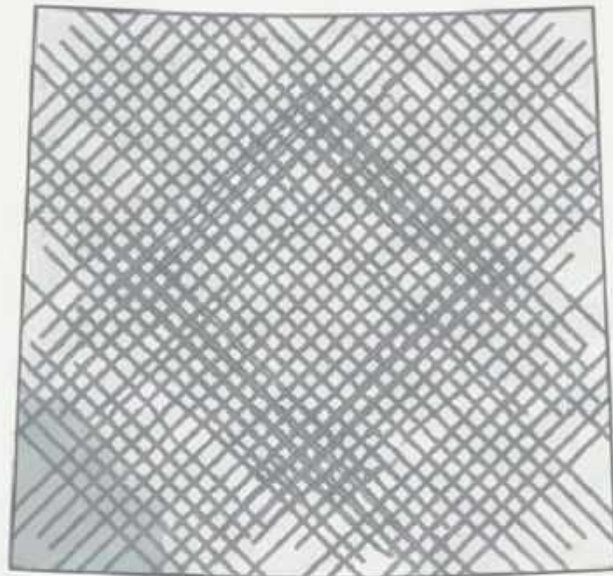
**Duration:** 2–3 Months

- **Objective:** Refine anomaly boundaries via satellite imagery.
- **Deliverable:** Exact drill point identification, tectonic fault mapping, depth analysis, and industrial concentration estimates.

# Redefining the Workflow: From “How to Do Everything” to “Where to Focus”

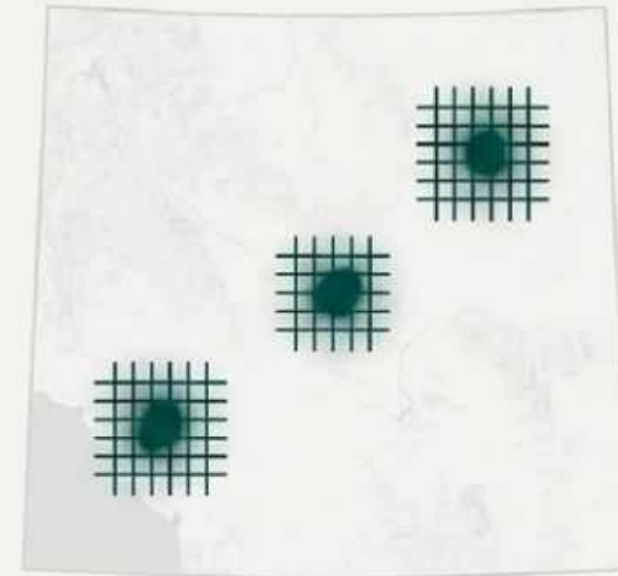
The Seismic Scheduling Problem (SSP) changes completely with RSS/NMR pre-screening. Instead of optimizing massive campaigns across an entire block, you can pinpoint the most promising areas first.

**The Old Problem**



“How to do everything everywhere” — planning complex, expensive seismic campaigns (Vibroseis, OBN, MT) across a vast, uncertain area.

**The New Solution**



“How to concentrate seismic/OBN/MT on 10-20% of the surface” — pre-selected with high confidence by RSS-NMR.



The Paradigm Shift

**Impact:** This transforms SSP. It reduces the area to cover, prioritizes campaigns on high-probability targets, and increases planning flexibility.

# A Versatile Tool for the Entire Asset Lifecycle

RSS/NMR delivers value whether you are exploring new frontiers, verifying existing targets, or maximizing production from mature assets.



## Greenfield (New Fields)

Use as a **pre-exploration tool** to drastically **reduce seismic costs** by focusing only on high-potential areas.



## Well Verification

**Confirm** or **challenge** drilling points identified by 2D/3D **seismic before** committing capital. Re-examine **dry wells** to find nearby missed targets.



## Brownfield (Mature Fields)

**Re-explore** producing or abandoned blocks to **identify** undiscovered reservoirs, re-draw field maps, and **optimize** the **production network** without disrupting operations.

# The Economic Imperative: A Smarter Path to Reserves

## The EROI Challenge

In an era of increasing extraction difficulty, improving your Energy Return on Investment (EROI) is critical. 1 inverted barrel produced 100 barrels in 1900. By 2020, it produced only 18.

## The Business Impact

By dramatically increasing success rates and reducing timelines, RSS/NMR directly improves your EROI. It provides the high-certainty data needed for the recertification of reserves—the core asset that underpins company value and access to capital.

## The Equation for Higher ROI



# The Innovator's Challenge: Why Isn't This Mainstream?

The traditional geophysical sector is a massive, established ecosystem built around 3D seismic. Our technology represents a fundamental disruption to that established order.

An entire industry of companies, personnel, equipment, and financial structures is built around 3D seismicity.



“For big [service] companies the application of our service would mean... radical changes... From this point of view **we are competitors to the settled order and traditions.**”

# Redefine Your Exploration Strategy

Let's discuss how RSS/NMR can de-risk your portfolio and accelerate your path to production.

## **The Next Step:**

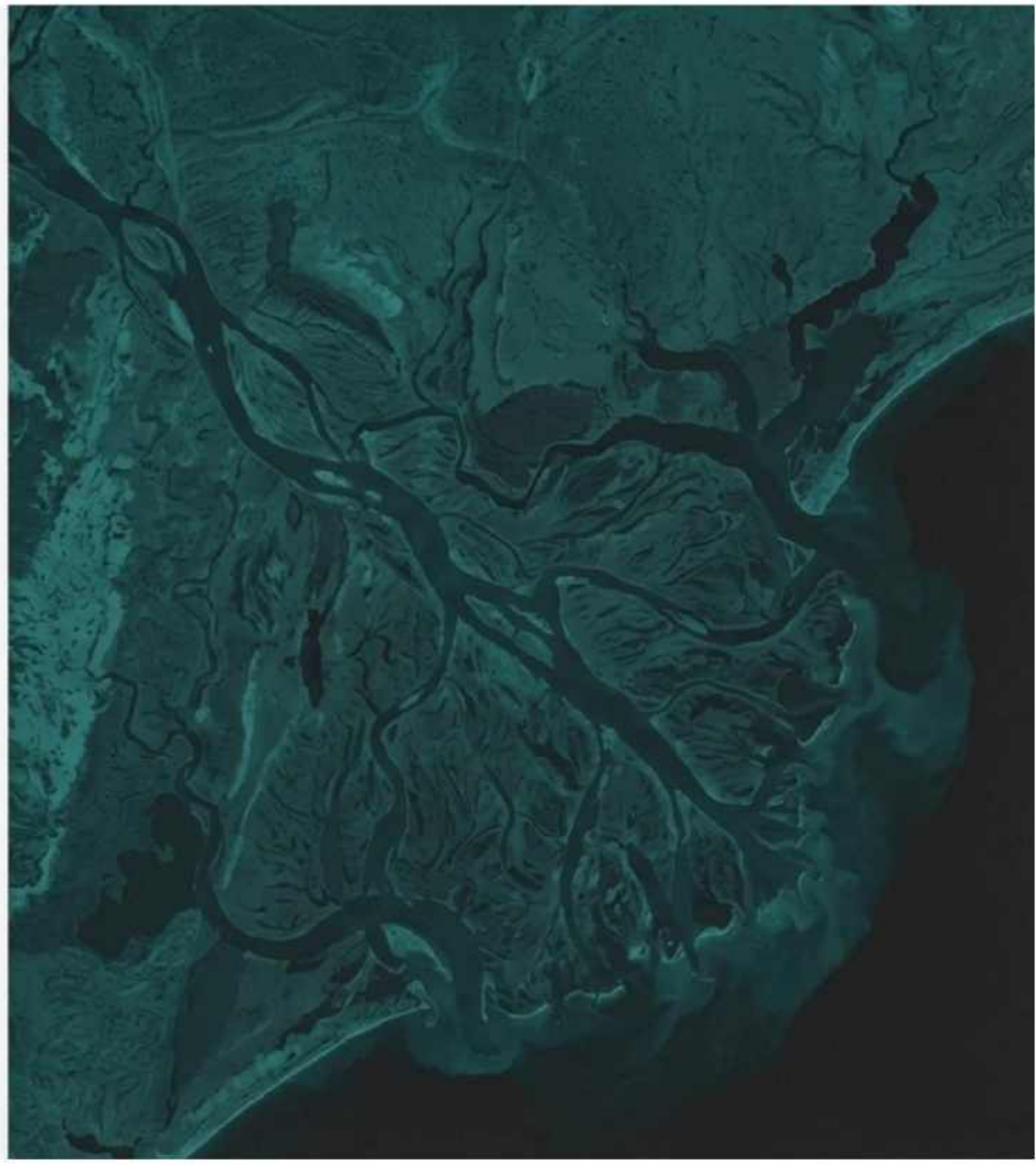
To begin, provide the coordinates of your exploration area (WGS84), the search target (e.g., hydrocarbons), and the depth interval for a preliminary assessment and quotation.

## **Americas & Africa**

Michel L. Friedman-Matarese  
Email: [michel@geo-nmr.net](mailto:michel@geo-nmr.net)  
Mobile/WhatsApp: +591-71696657

## **World**

Igor Kostelanetz  
Email: [igor@geo-nmr.net](mailto:igor@geo-nmr.net)  
Mobile: +79787155212





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- Michel L. Friedman-Matarese (Destom LH 67/11)
  - Mobile +591-71696657
  - WhatsApp +591 71696657
  - Email 1 [michel@geo-nmr.net](mailto:michel@geo-nmr.net)
  - Speaker: FR-UK-ES-BR/PT
  - GMT - 04h
  - Base Bolivia Santa Cruz
  - In Charge [Africa & Américas](#)
  -
- Igor Kostelanetz (Director of LLC "Poisk Group")
  - Tel +78692456491
  - Mobile +79787155212
  - WhatsApp +79787155212
  - Email 1 [igor@geo-nmr.net](mailto:igor@geo-nmr.net)
  - Speaker: RU-UK
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