

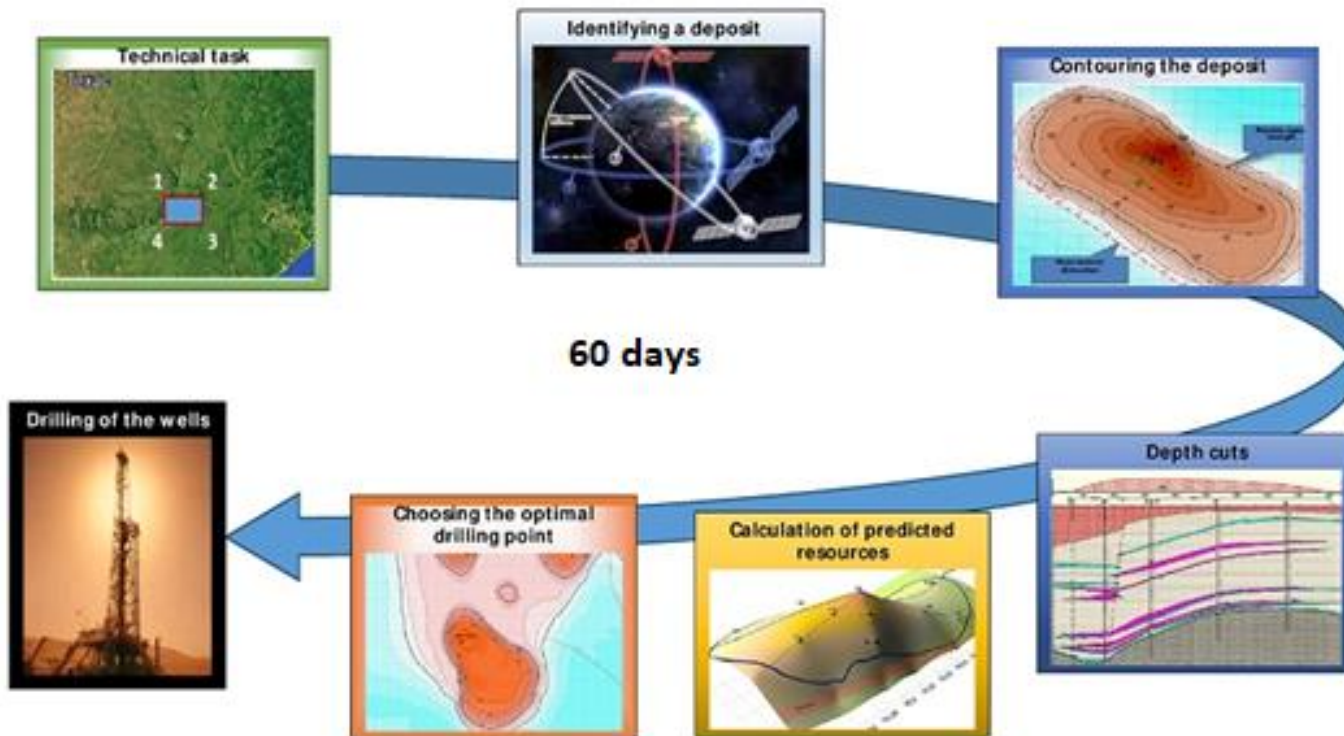


# An Innovative Technology for Remote Sounding of Mineral Deposits

**Water projects**



How RSS technology works  
for remote deposits survey directly



## General Provisions

Water supply problems in the world is getting more acute. This problem is especially relevant for countries with arid climate and deserts who occupy large areas.

*Relevant is the development and application of accurate, rapid and inexpensive methods to search for underground fresh water in large areas.*

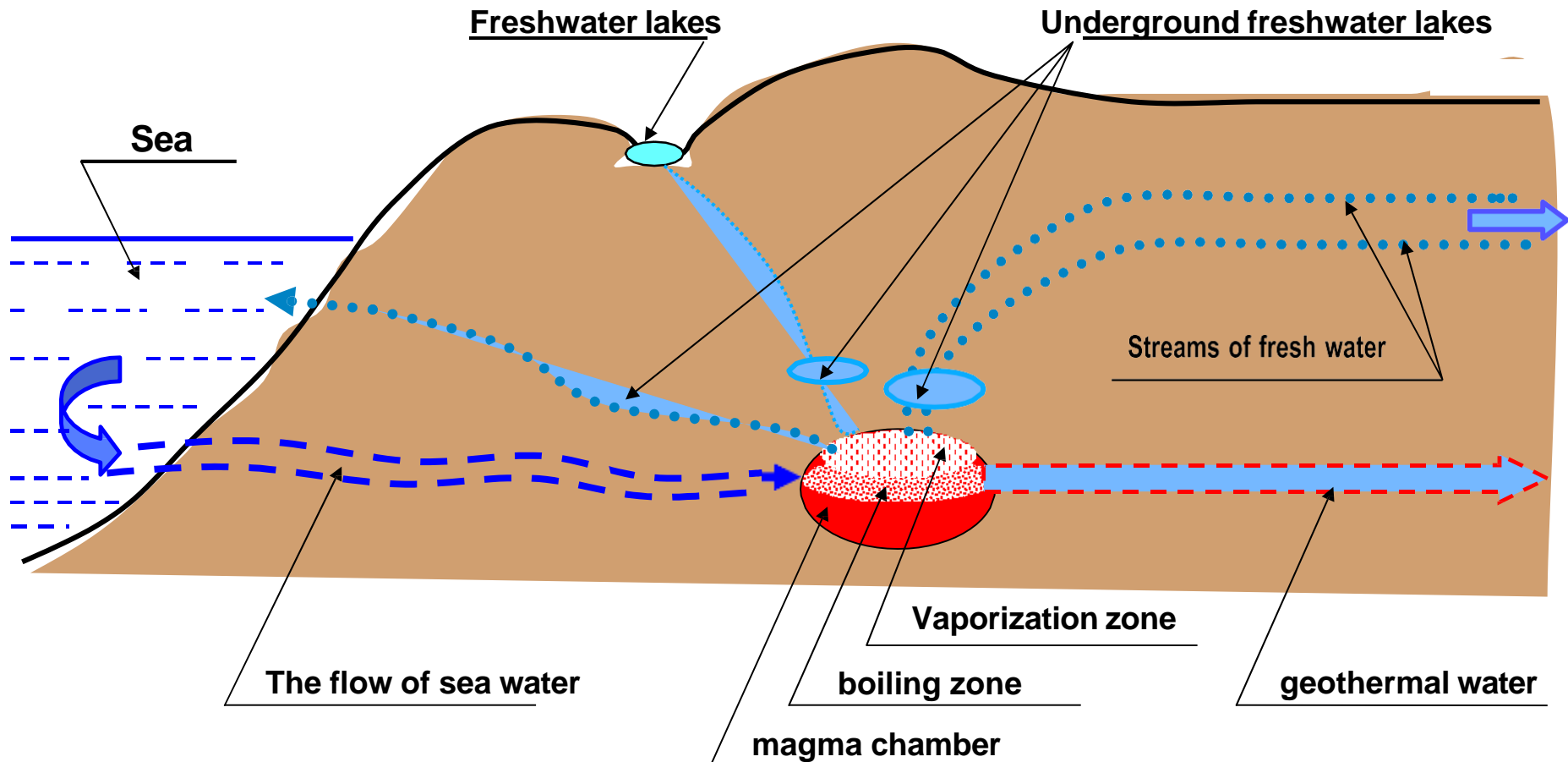
The scientists of our company developed and successfully applied the technology of remote search for underground water resources, based on the effect of nuclear magnetic resonance.

The use of technology in your country lets you quickly inspect large and hardly accessible areas, identify underground fresh water and to determine the optimal drilling point.

***Confidence in the success is based on three main principles:***

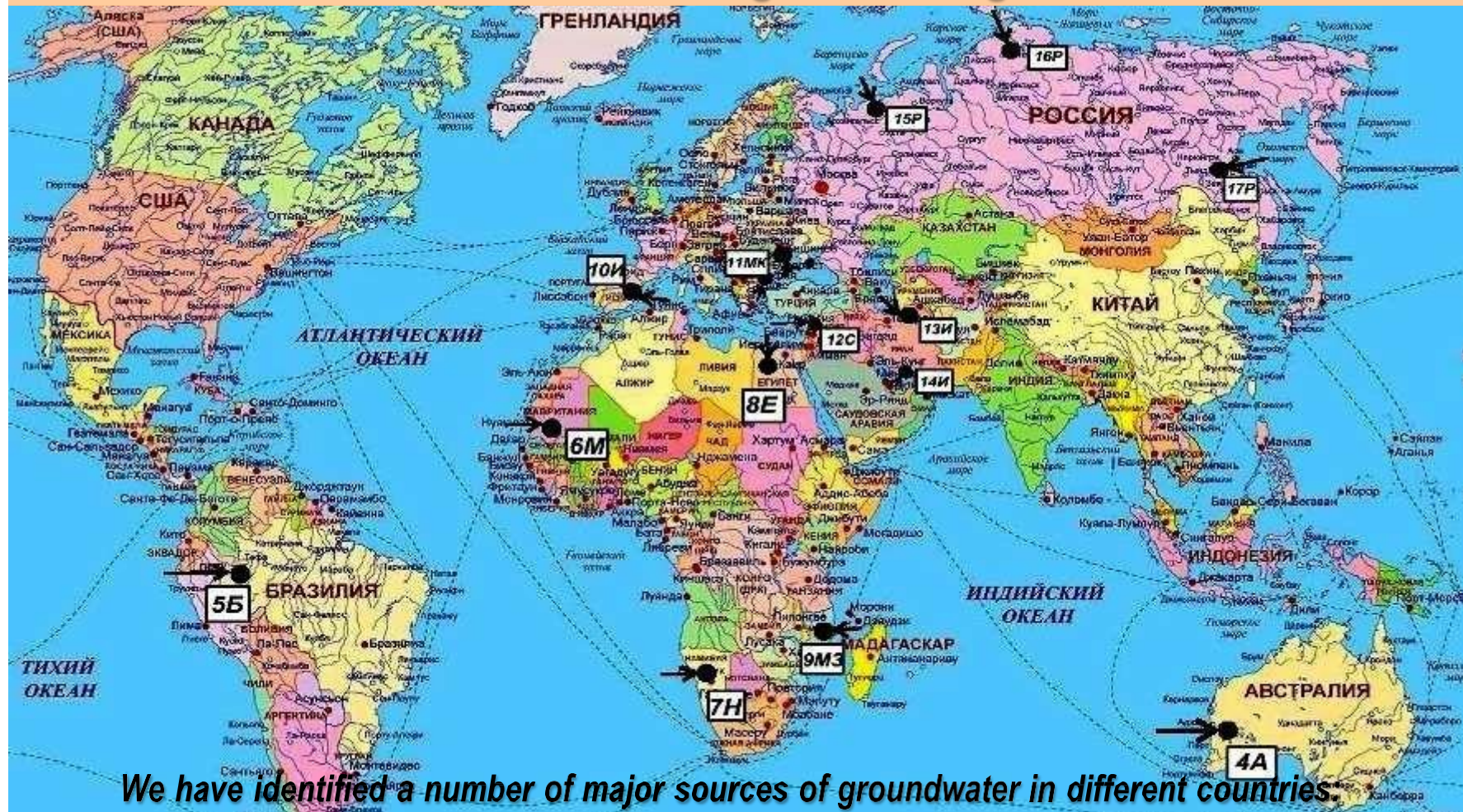
1. The development and availability of a scientific approach to the genesis of groundwater,
2. Successfully completed projects on search fresh waters, carried out in different countries.
3. The presence of highly effective technology groundwater exploration,

# 1. Our scheme of formation of underground fresh water near of magma chambers



1. Mechanism of formation of underground waters is that sea water along tectonic fractures comes to the magma chamber (2000 ÷ 3000 m depth), where the water boils.
2. The resulting vapor flows under pressure into the upper water permeable rocks by tectonic fractures (at a depth of 400 ÷ 1000m) condenses and forms an underground lake. Of these lakes along the faults expire streams of fresh water.
3. From boiling zone by tectonic fractures expires geothermal salt water (at a depth of 2000 ÷ 2500 m).

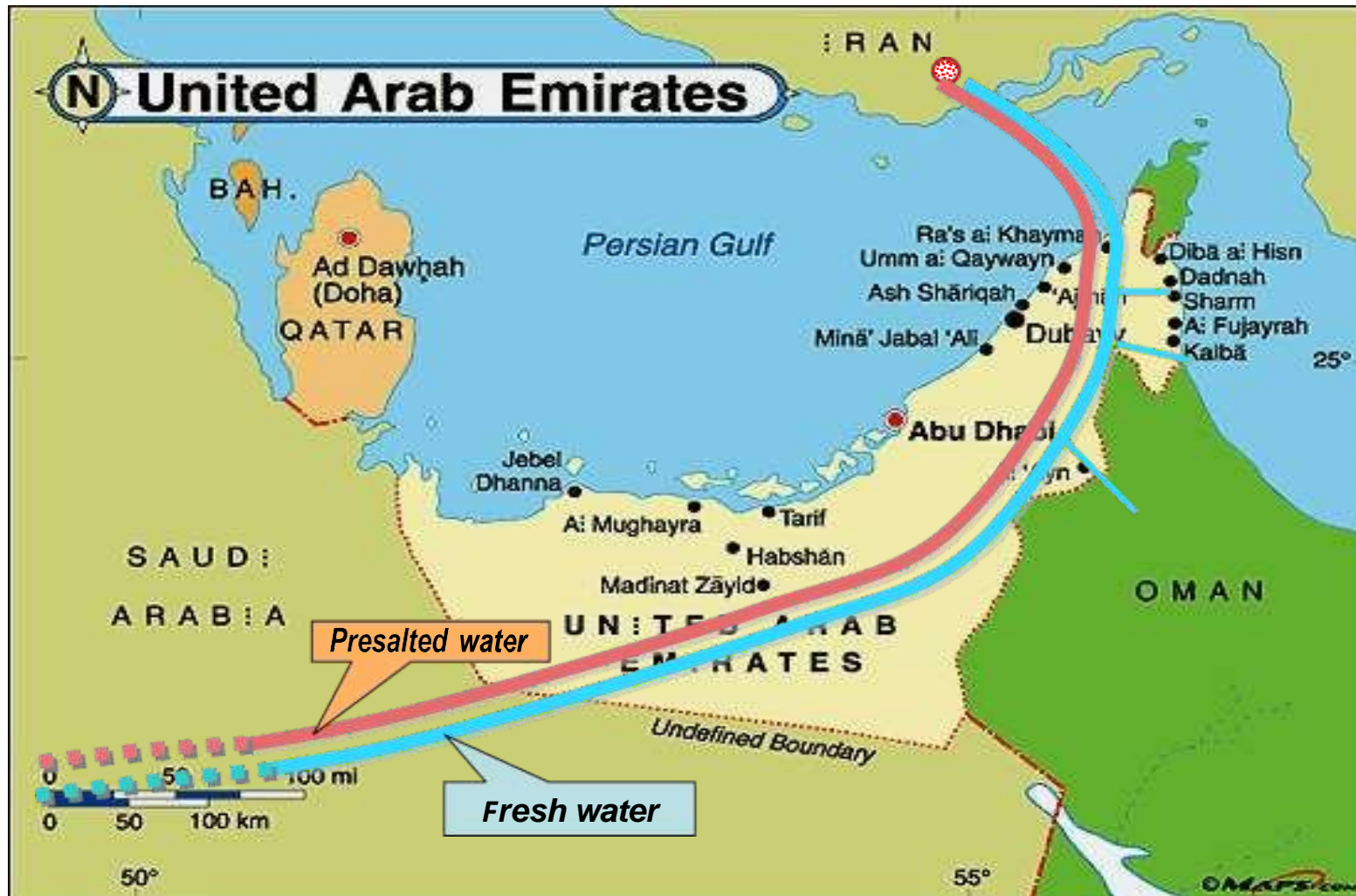
## Research results. The formation of large water flows in different regions of the globe



*We have identified a number of major sources of groundwater in different countries*

In all cases, groundwater flow is discharged into the seas and oceans (wedge out in the lake) through hundreds of kilometers at certain depths and distances from the shoreline. Typically, in these places tend to have higher catches of marine and freshwater fish. Along the way, the flow of fresh water is branching into smaller streams, which cover large areas.

## A simplified diagram of the underground water flow (point 14)



For example: In the magma chamber number 14 in the south of Iran sea water comes from the Arabian Gulf. As a result forming two flow of geothermal water at depths of 2 and 3 km. Is also formed a large flow of fresh water that crosses Arabian Peninsula. A powerful stream of fresh water crosses the UAE at a depth of 280m - 350m. North you will flow of salt water which has a smaller depth.

## A few more examples of powerful natural sources of fresh water in Africa

Parameters	Point number 6 <b>Mauritania</b>	Point number 7 <b>Namibia</b>	Point number 8 <b>Egypt</b>	Point number 9 <b>Mozambique</b>
<b>Receipt of salt water. The flow width</b>	Atlantic Ocean. 3 km	Atlantic Ocean. 10 km	Mediterranean Sea. 8 km	Indian Ocean. 10 km
<b>Geothermal water</b>	Geothermal salty streams. The depth of ~ 2000 m	Geothermal salty streams. The depth of ~ 2300 m	Geothermal salty streams. The depth of ~ 2500 m	Geothermal salty streams. The depth of ~ 2300 m
<b>Freshwaters</b>	3 flow. Depth 70m -128m	Multiple streams of fresh water. Depth $\geq$ 180m	Multiple streams of fresh water. Depth $\geq$ 200m	Multiple streams of fresh water. Depth $\geq$ 150m

In all cases, groundwater flow is discharged into the seas and oceans (wedge out in the lake) through hundreds of kilometers at certain depths and distances from the shoreline. Typically, in these places tend to have higher catches of marine and freshwater fish. Along the way, the flow of fresh water is branching into smaller streams, which cover large areas.

### ***Publications by our scientists on this subject***

1. G.A. Bielawski, NI Kovalev. New technologies in remote environmental monitoring of underground and underwater objects // "Environment and Resources", vol. Number 9, Kiev, 2004., P.7.
2. N.I.Kovalev, etc. Investigation of the mechanism of formation of underground fresh water near the magma chambers extinguished volcanoes. International Conference «Space technologies in geophysics» //C.P. Russia, 2013.
3. N.I. Kovalev, etc. On the mechanism of formation of underground fresh water near magma chambers. - The book Scientific works of СНУРЭиП, vol. 2(46), 2013.

## 2. Some of the work performed (groundwater)

  
УКРАЇНА  
МІНІСТЕРСТВО ПАЛИВА ТА ЕНЕРГЕТИКИ УКРАЇНИ  
НАУКОВО-ВИРОБНИЧИЙ ЦЕНТР  
ЯДЕРНО-ХІМІЧНИХ ТЕХНОЛОГІЙ

99033, м. Севастополь – 33, вул. Курчатова, 7  
СНУЯЄнП, НВЦ ЯХТ  
тел./факс: (0692) 71-00-43  
e-mail: nchm@snrp.com.ua  
office@snrp.com.ua

СНУЯЄнП ОКПО 33229373  
Ррр 35225004000143 в УДК м. Севастополь  
МФО 824509

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№ 405/АТЦ від 10.11.2008 р.  
на № \_\_\_\_\_ від \_\_\_\_\_

**Заключення**  
по результатам поисковых работ, выполненных специалистами СНУЯЄнП  
на территории Мавритании

По заказу Департамента геологии Минтопэнерго Мавритании (главный геолог Ибрагим Ламине) в 2001 году специалистами СНУЯЄнП произведены работы по поиску и разведке природных залежей пресной воды на территории пустыни в Мавритании с помощью аппаратуры дистанционного комплекса «Понск». При этом дистанционными средствами поиска было обследовано около 1600 км<sup>2</sup>, а затем полевой аппаратурой определены параметры залегания потоков подземных вод.

В результате работы обнаружен в Мавритании (2001 г.) и вскрыт промышленной скважиной поток подземных вод на глубине 75+150 м с самозливом 900 т/час. Питьевая вода соответствует требованиям ГОСТа. Независимую экспертизу качества питьевой воды выполнено лабораторией НПЦ п/я ЯПЦ Минтопэнерго Украины.

  
Директор НВЦ ЯХТ  
Минтопэнерго Украины  
Д.С.В.

АКИМОВ А.М.

2001г.  
2001г.

### MAURITANIA

Detected and then opened the flow of fresh water in the desert. Results: The depth of 75m - 150m

Spouting water with the debit of 90 tons per hour (25 liters per second!)

The work was commissioned by the Department of Geology of the Ministry of Energy of Mauritania (Chief Geologist Lamine Ibrahim)

Initially remote search facilities were surveyed 2,500 km square. Then, the mobile equipment on the terrain were refined parameters of occurrence of water and drilling points



# Experience of work performed (groundwater)

## “МОН-ЗИМ-ИНТЕРНЭШНЛ” ХХК

г.Улаанбаатар №56 18.05.2011.

Монголиа

Тел: 976-11-45-51-72

Моб: 976-99-89-18-12

Email: gag\_dmn@yahoo.com

### Заклучение

по результатам поисковых работ, выполненных специалистами  
СНУЭИП на территории Монголии.

По заказу Монголо-Украинской компании “Мон-Зим-Интернэшнл” в 2008 году специалисты СМУЭИП руководитель работы к.т.н. Ковалев Н.И., научный руководитель к.т.н. Гох В.А., выполнили работы по поиску и разведке природных залежей подземных вод Шинэ-Усны-Гоби на территории Мандах сомона Дорногобийского аймака Монголии с помощью аппаратуры комплекса “Поиск”.

По результатам работы на заданной территории обнаружены подземные пресные воды, имеющие промышленное значение. Результаты бурения подтвердили наличие подземных вод, поставленные задачи контрактом успешно выполнены.

Директор компании “Мон-Зим-Интернэшнл”

Голубничий А.Г.



2008 г.

## MONGOLIA (Gobi)

Detected and then opened the flow of fresh water in the Gobi Desert.

Results: 6 wells were drilled with a diameter 67 mm, all successful.

Depth of 290m - 320m,

For all wells debit of water from 20 to 25 tons per hour (5 - 7 liters per second).

The work was commissioned by the Mongolian-Ukrainian company "Mon-Zim-International".

Remote search tools have been surveyed more than 1,600 sq km.

Then, with the help of mobile devices, on the terrain were refined data streams of water, and drilling points

## Comparison of our data with drilling

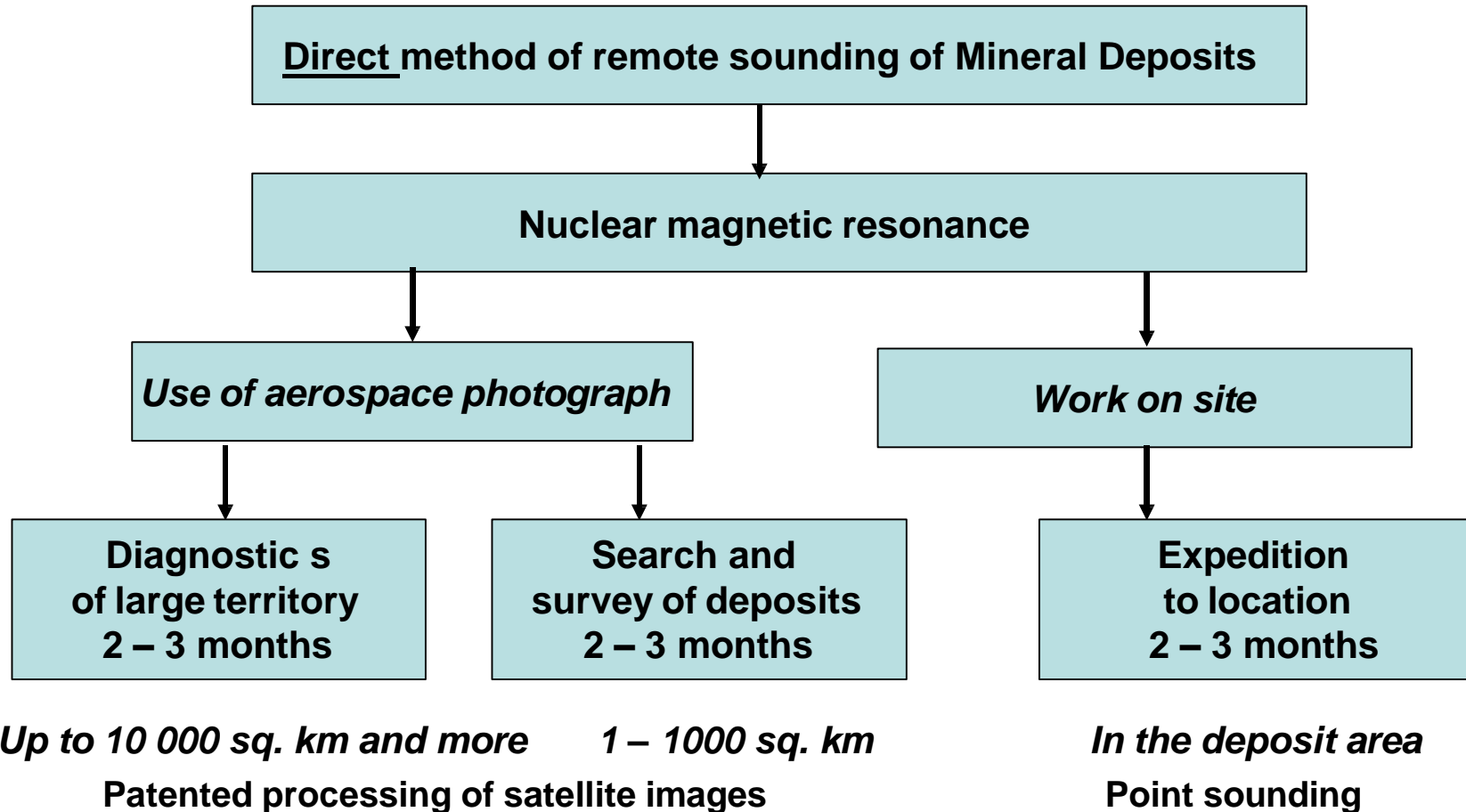
Country	Area remote	Coordinate survey that drilling	The depth, m	Type of water
			Our data / drilling results	Our data / drilling results
<b>Mauritania</b> , city of Atar	2500 sq. km.	N 20°32' E 13°02'30"	$\frac{130}{125} \div \frac{150}{150}$	Fresh / fresh
<b>Mongolia</b> , Gobi Desert	1600 sq. km.	N 44°01'40" E 108°29'00"	$\frac{270}{275} \div \frac{320}{320}$	Fresh / fresh
<b>Cyprus</b> , city of Limassol	400 sq. km.	N 34°42'00" E 33°01'20"	$\frac{180}{195} \div \frac{200}{205}$	Fresh / fresh
<b>Ukraine</b> , Sevastopol Simferopol	1600 sq. km.	More than 100 wells	$\frac{\text{From 50 to 150}}{\text{Error 1} \div 10\%}$	Fresh / fresh (two errors)

### *Publications by our scientists on this subject*

1. N.I. Kovalev, etc. Remote defining the contours of underground fresh water in the Gobi Desert in Mongolia / / Scientific report "Gobi" SNUNEI, Sevastopol, 2008., P.65.
2. N.I. Kovalev. Алсын удирдлагын аргаар ашигт маомалын хайгуул хийж ажлын үр дүнгийн үнэгээ. Mongolian University of Science and Technology. Scientific transaction, 4/106 – Ulanbaatar, 2009. p. 187-192.
3. Kudric I.D, Kovalev N.I., Bielawski S.G. Environmental monitoring. / / Cherkassky CSTEI, 2013. P.258.

### 3. About Innovative Technology

#### Classification



The combination of the different stages of technology allows us to solve various problems of research - from control points selected for drilling - to survey difficult areas on land and offshore in all climatic conditions

# The Innovative Technology is patented



## PATENT

Name of useful model:  
**METHOD OF SEARCH FOR  
MINERAL DEPOSITS**

Serial number: **u 35122**

Inventors: **Eduard Bakai (UA), Pavlo Ivashchenko (UA),  
Mykola Kovalyov (UA)**

Date : **26.08.2008**

### Formula of useful model:

1. Method of search for mineral deposits, which includes processing of an space photograph, which differs due to the fact that a black-and-white negative is used as an space photograph which was obtained in an infrared range of frequencies, and processing of an space photograph is conducted after a package was preliminary formed which consists of a negative of space photograph, test wafer and X-ray film, the formed package is treated with  $\gamma$ -rays, X-ray film is separated, the latter being chemically processed and placed in an alternating electric field of high pressure of a camera of gas-discharge visualisation and visualise an obtained image on a PC screen.

2. Patent u № 55916 "The process for the search for natural resources", 2010

3. The positive decision to the International application PCT/UA2011/000033 "The system of remote exploration of mineral resources" 2011.

4. The positive decision to the International application PCT/UA2013/000036 "System for remote exploration of mineral deposits " 2013.

# Equipment for work with analogue satellite images

Research is conducted in Ukraine  
in a certified laboratory



Ukraine

## CERTIFICATE OF ATTESTATION

RI-038/13

5<sup>th</sup> July, 2013

This certificate certifies that  
the Group of analytic surveys of  
the research laboratory of nuclear,  
chemical and radiation  
technologies and technical control

**COMPLIES WITH CRITERIA OF  
ATTESTATION AND CERTIFIED TO THE  
RIGHT OF DEPTH MEASUREMENTS OF  
MINERALS**

# Capabilities of the Technology

Services are provided in the following format:

<b><i>Territorial applicability</i></b>	– no limitations (any in-land or shelf area)
<b><i>Total size of the territory</i></b>	– practically without limitations
<b><i>Sounding depth</i></b>	– 0-5 km underground
<b><i>Detectable minerals</i></b>	– water, oil, gas, different metals in ore beds
<b><i>Success ratio</i></b>	– for hydrocarbons and water reserves > 90%
<b><i>Duration</i></b>	– typically 2 months
<b><i>Safety</i></b>	– the method is environmentally friendly and completely safe for people

- 1.V.A. Puhliy, N.I. Kovalev, V.A. Puhliy "Nuclear Magnetic Resonance, Theory and Applications" Sevastopol University Press | ru | 671 pages ISBN |. 2010.
- 2.V.A. Puhliy, N.I. Kovalev, Resonances in physics. Vol.1, Quantum Mechanics and Magnetism" | Kiev Znannya publishing house | ru | | 581 pages | ISBN. 2011
3. N.I. Kovalev, etc. Lasers.Theory and Applications. Cherkassky CSTI. | 532 pages | 2008.
- 4.N.I. Kovalev, etc. The use of geo-holographic technique for remote detection of minerals. Ecology and atomic energy, vol. Number 1, 64 -67 pages, 2009.
5. E. Bakai, P. Ivashchenko. Innovative Technologies.//Business Panorama №3, Ukraine [67 pages] 2012
6. Kudric I.D, Kovalev N.I., Bielawski S.G. Environmental monitoring. / / Cherkassky CSTI, 2013. P.258

# Technology is tested in the USA



Testing and practical demonstration of innovative geophysical technology of search and survey of minerals was conducted in 2009 on territory of state of Utah, USA: 3600sq.km, 5 wells

**The results: Effectiveness = 100%, Accuracy of depth = 98%**

## Testing in Indonesia



We examined 2 sections onshore and 3 sections offshore with a total area of Brantas block - 3050 km<sup>2</sup>, a total of 30 wells.

The boundaries of identified prospective oil and gas anomalies practically fully coincided with the boundaries of the previously uncovered drilling anomalies or with promising geological structures, including and marine.

## Testing in the Gulf of Guinea

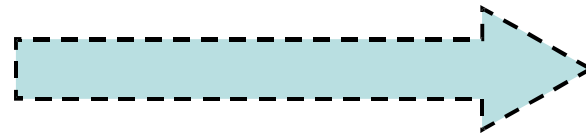
### Testing remote results of 2 Wells off shore

1. Presence of oil inflows in wells – 100 %
2. Horizon occurrence depths - 75 % to 84 %
3. Useful capacity of oil horizons - no less 70 %

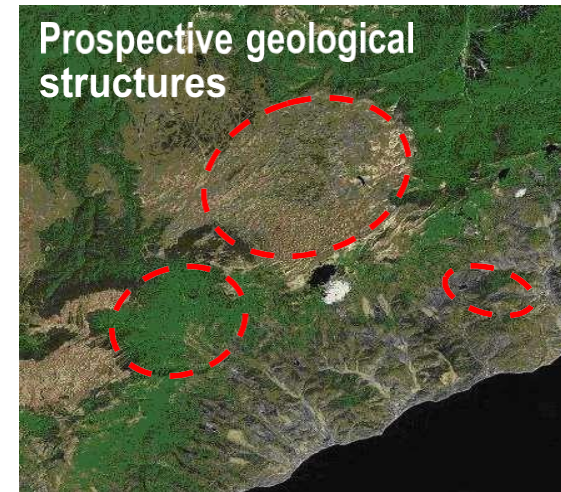
*The measurements were made with a patented radiation-chemical processing of analog satellite images without going to the the area*

# Work with aerospace photographs

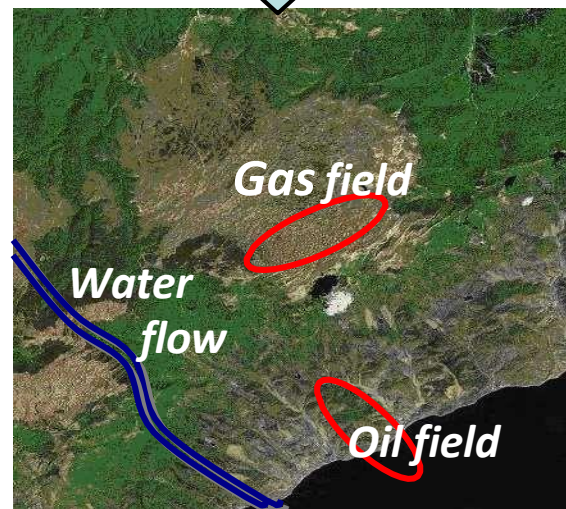
## Remote Sensing using digital satellite images



By interpretation of digital multichannel satellite imagery specialists reveal the geological structures, in which basins of hydrocarbons or other minerals can be located



## Diagnosis of territories with the help of our patented method



We conduct radiation-chemical processing of analogue infrared satellite images of territories according to the patent.

Diagnosis is a simplified version of the technology allowing to quickly detect and delineate the oil fields (and other minerals) in large areas.

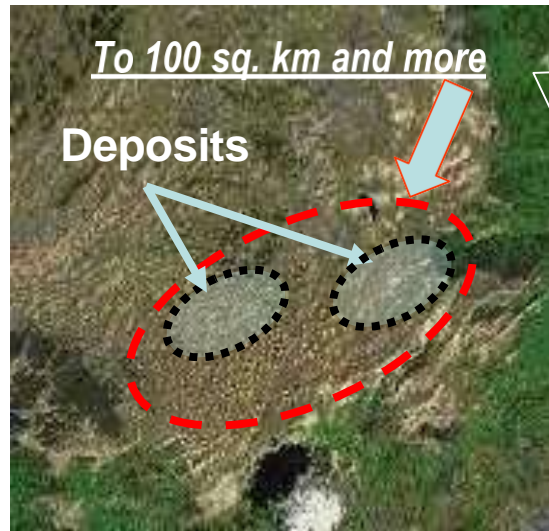
Also, we determine the number of horizons and the possible

depth. Several minerals can be surveyed at the same time.

After that we can prospect and explore deposits in a localized oil field.



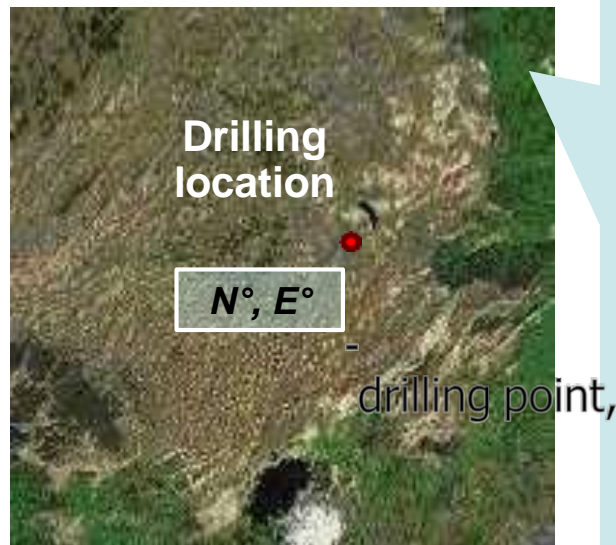
# Remote prospecting and exploration of deposits



Using the patented technology processing of satellite images we can identify and investigate in detail the deposits onshore and offshore

Thus we have:

- *Surface contours of the deposit,*
- *The number of horizons,*
- *The depth of the horizons,*
- *Thickness of horizons,*
- *Calculation of extractable reserves.*



## Remote survey of drilling point

Information necessary for work:

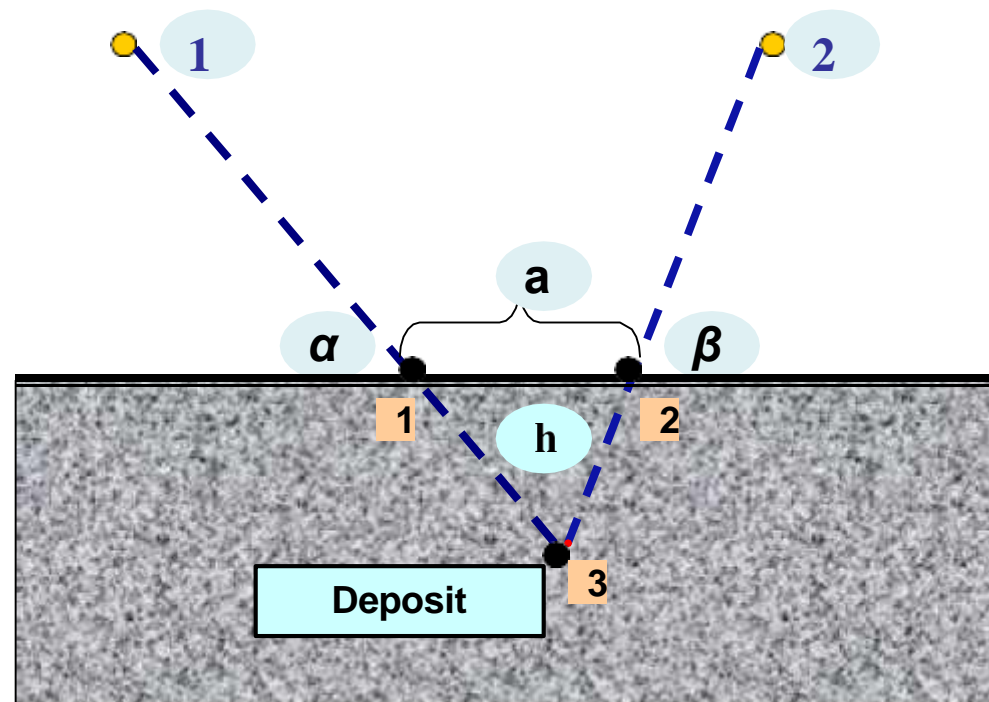
- coordinates of drilling point - the desired mineral and, if possible, a sample from a well in the region.

Results of the survey:

- Presence or absence of mineral deposits in the
- Number of horizons, estimated depth of the horizon, thickness of horizons.

## The procedure for measuring the depth of occurrence of deposits using analog satellite images

1. Use space images the investigated area obtained at different elevation angles  $\alpha$  and  $\beta$  from the satellites **1** and **2**. Obtain ground mapping point **3** in two different positions, "1" for the first satellite and "2" for the second.
2. We calculate coordinates of points **1** and **2**, calculated by different images.
3. Determine the amount of displacement "and" between them on the ground.
4. In the triangle **1-2-3** side **a** and the adjacent interior angles  $\alpha$  and  $\beta$  are known. Such a triangle is called a solution. After the evaluation is determined by the depth of the deposit **h**.



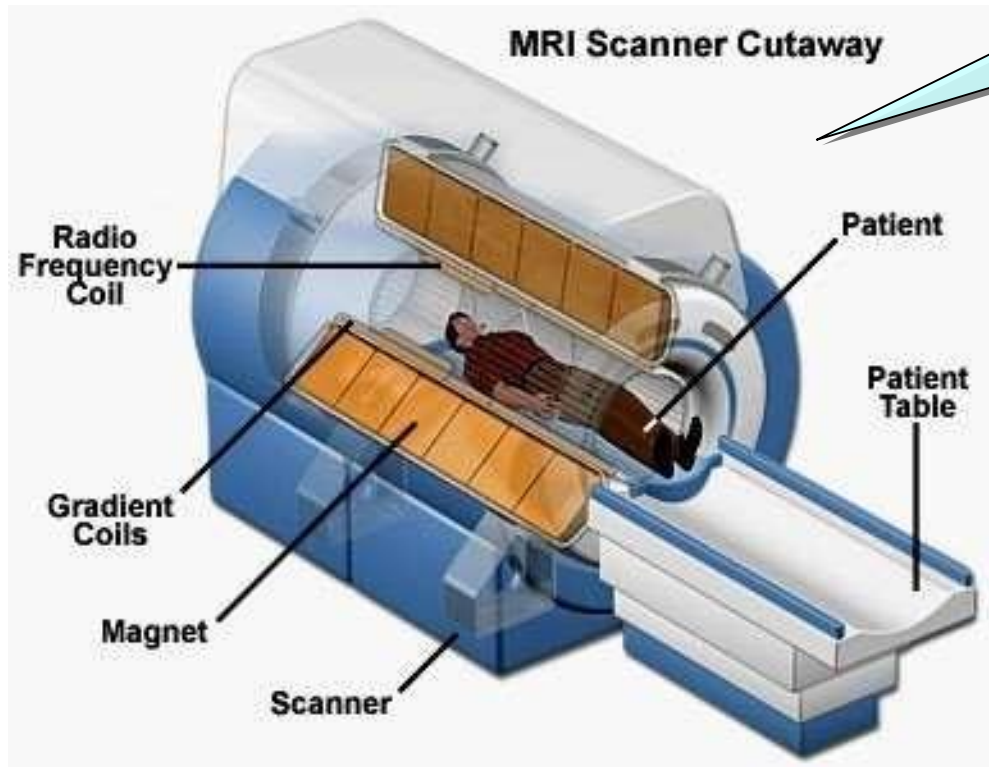
# Operating sequence

№	list of works of remote detection and investigation of deposits	
1	<p style="text-align: center;"><b><i>Preparatory works</i></b></p> <p>Order and obtaining of aerospace photographs of the investigated territory.            Order and obtaining of ultra-pure chemical reagents.            Laboratory manufacture of test gel-wafers.            Recording of electromagnetic spectrum of the sought-for substance on test wafers.</p>	<b>2 weeks</b>
2	<p style="text-align: center;"><b><i>Object identification</i></b></p> <p>Radiative processing of aerospace photographs on research nuclear reactor with test wafers of the sought-for substance and sensitive X-ray film.            Chemical processing of negatives that have undergone radiative and energoinformational impact in the nuclear reactor.</p>	<b>2 weeks</b>
3	<p style="text-align: center;"><b><i>Contour object deciphering</i></b></p> <p>Visualization of object contours and also incoming and outgoing torrents with the help of Kirlian-camera.            Obtaining of computer image with the help of digital camera connected to Kirlian-camera.</p>	<b>1 week</b>
4	<p><b><i>Photogrammetric calibration</i></b> of computer image of the object (geographic connection of the image's points and the area).</p>	<b>1 week</b>
5	<p><b><i>Object's fixation</i></b> – definition of its size, form and location on the area according to the photograph.</p>	
6	<p><b><i>Analytical data processing</i></b> obtainment of coordinates of beds and preliminary calculation of supplies</p>	<b>2 weeks</b>
7	<p><b><i>Preparation of report</i></b> and providing the Customer with it</p>	<b>Total = 2 months</b>

# Expedition

## The general idea

Nuclear magnetic resonance is widely used in science and technology.



In medicine – it is magnetic resonance imaging

As well as in MRI, our technology uses a constant magnetic field (Earth's magnetic field), RF exciting signal and the scanner (receiver of reradiated signals). Instead of patient in our case it is the researched area of land we received an "Open system."

**Due to resonance which we aroused in the desired substances we "see" mineral deposits underground and pointwisely define their parameters**

## How we work on site

During the expedition specified parameters deposits, determined by the effective power horizons. Selects the optimum drilling location. For these points, we are building a deep column.

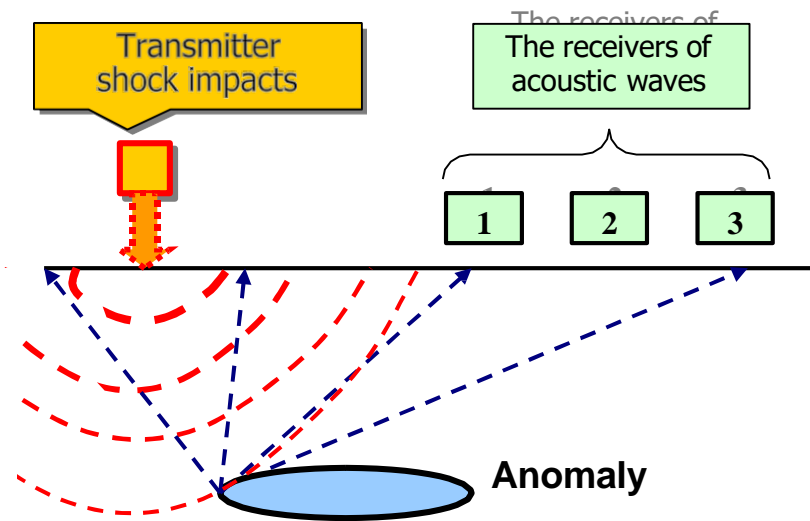
**The figure shows the transmission part of the complex of mobile equipment**



**Work on the ground is absolutely harmless to humans and the environment**

# Comparative analysis of technologies

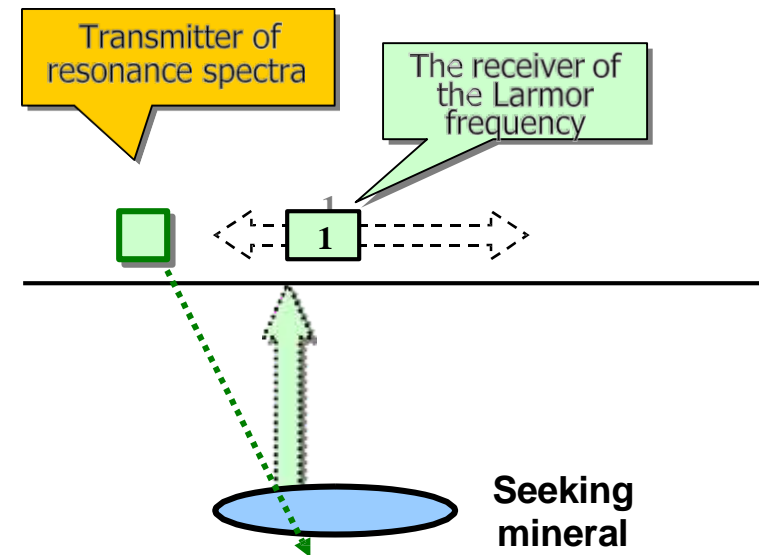
## Seismography



Investigation of the Earth's crust, based on the study of artificially excited elastic waves

*To excite vibrations applied explosions, vibration or shock effect on the rocks.  
Effectiveness - about 30%  
There are restrictions on the character terrain,  
The relatively high cost of the work,  
The long duration of work and data processing,  
Unfavorable to the environment.*

## Resonance method



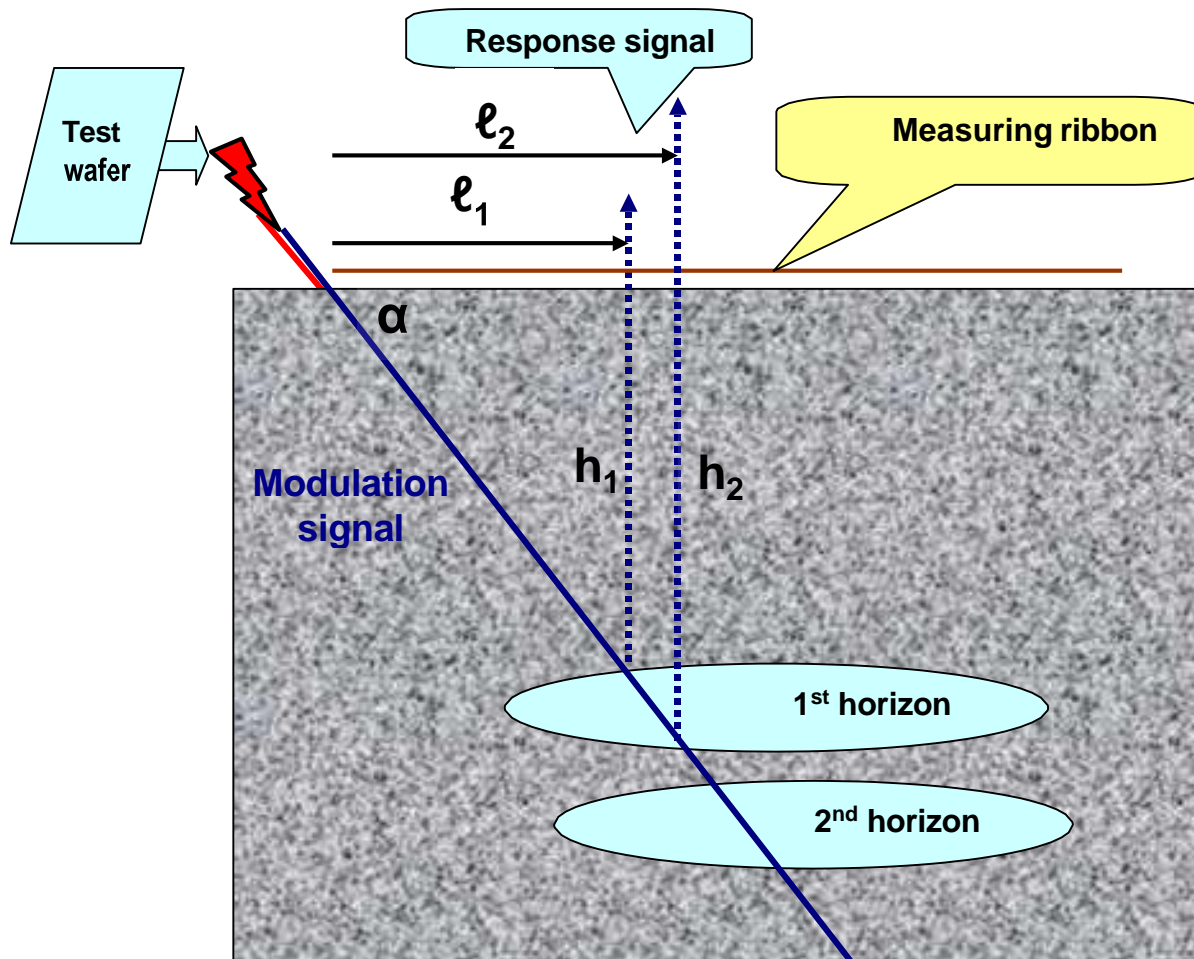
Studies of mineral deposits based on the excitation of the desired material of nuclear magnetic resonance

*To excite resonance applies the signal spectrum corresponding to the desired substances  
Effectiveness - 90%  
There are no restrictions on the character terrain,  
The relatively low cost of the work,  
The short duration of work and data processing,  
It has no effect on humans and the environment.*

# Technical Know - How



# Diagram of Measurement of Deposit Parameters



In measuring point the modulated laser beam is directed towards deposit under  $\alpha$  angle. Modulated signal spreads under ground from test wafer.

Operator moves along the measuring ribbon with receiver. Response signal is registered at distance from  $\ell_1$  to  $\ell_2$ .

Occurrence depths of a horizon are calculated with the help of the following formulae

$$h_1 = \ell_1 \cdot \operatorname{tg} \alpha, \quad h_2 = \ell_2 \cdot \operatorname{tg} \alpha. \quad \text{Horizon thickness } \Delta h = h_2 - h_1 = (\ell_2 - \ell_1) \cdot \operatorname{tg} \alpha$$



## TECHNOLOGY DEVELOPMENT

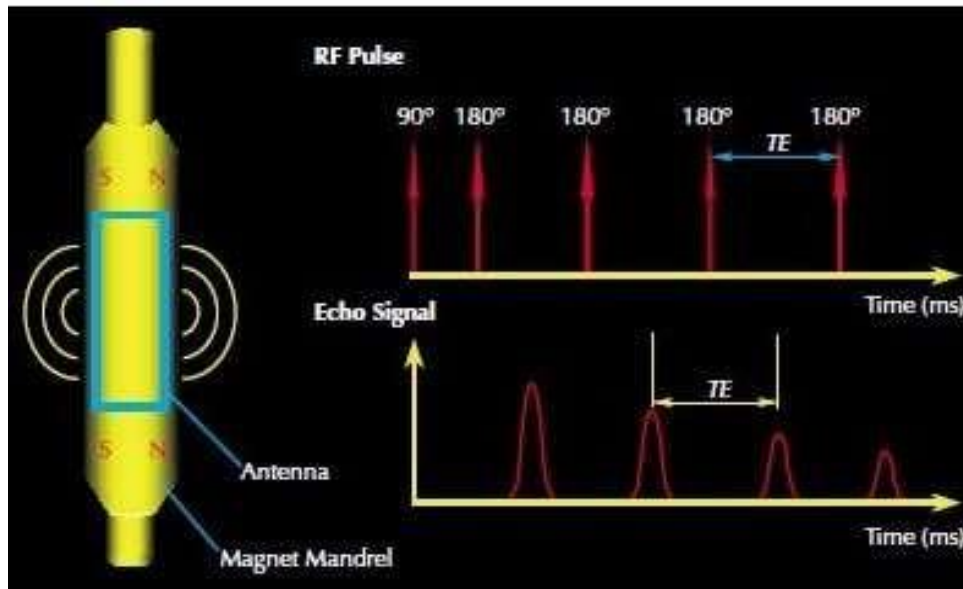
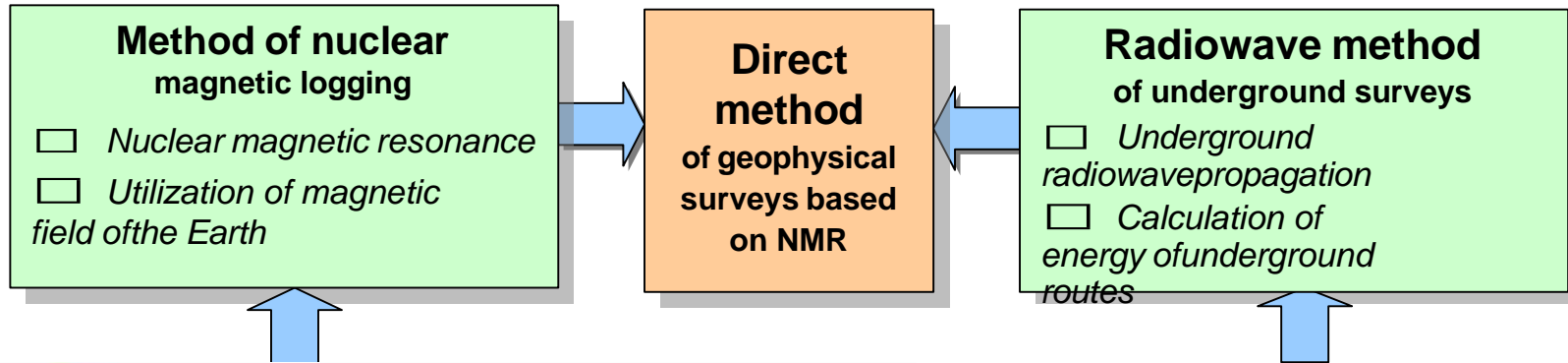
During development and creation of innovative geophysical technology of remote search and survey of mineral deposits we set the followings tasks:

- 1. Provide remote sounding of terrain and shelf at depths of up to 5 km*
- 2. Reach high efficiency and accuracy of sounding results*
- 3. Decrease survey time to the maximum, especially of large territories*
- 4. Reach relatively small expenses on work execution*

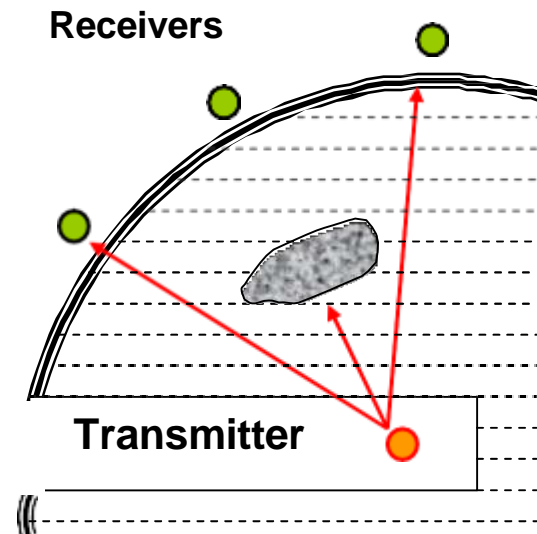
## Theoretical Basics

In our survey we mainly relied on two geophysical methods:

- method of nuclear magnetic logging (1978, "Schlumberger")
- radiowave method of underground surveys (1923, USSR)
- as well as MRT in medicine.



$h = 0,05-0,2 \text{ m}$   $f = 0,6-1,2 \text{ MHz}$   $B_0 = 0,1-3 \text{ T}$   $P = 50-300 \text{ W}$



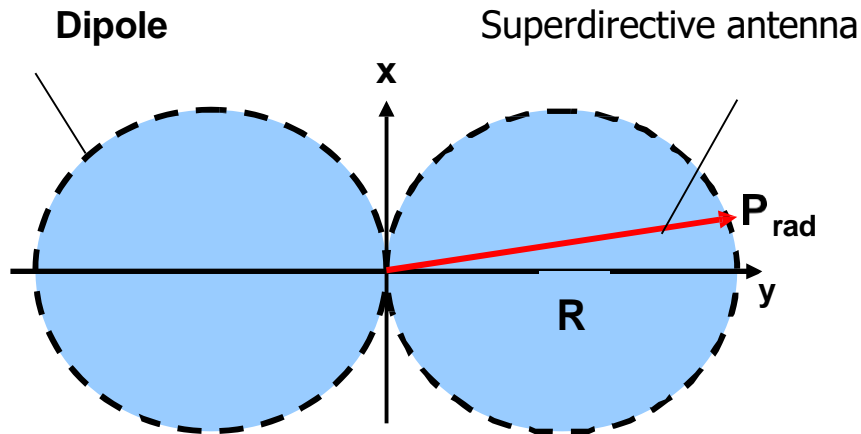
$h = 400-600 \text{ m}$   $f = 0,1-150 \text{ kHz}$   $P = 2-90 \text{ W}$

### Problems of deep sounding from the surface or the Earth

1. Sharp increase of capacity of transmitters for creation of useful signal
2. Considerable absorption of radiowaves in the ground

# Increase of Radiating Power

## 1. Application of superdirective antenna



$$P_{\text{rad}} = \eta_A \cdot G_A \cdot P_{\text{tr}}$$

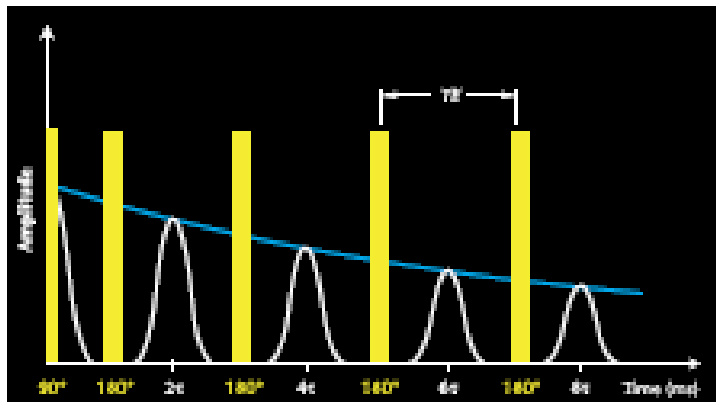
$$G_A = S_1/S_A = 4\pi \cdot R^2 / S_A$$

With  $R = 1\text{m}$  and  $S_A = 10^{-6}\text{m}^2$  we receive increase of power of superdirective antenna

$$G_A = 4\pi \cdot 10^6 \sim 12 \cdot 10^6$$

$$\text{For dipole } G_d \sim 4$$

## 2. Decrease of interpulse period of transmitter



*This is an important aspect*

We transfer to another principle of measurement: not relaxation time, but registration fact of the response signal from deposit.

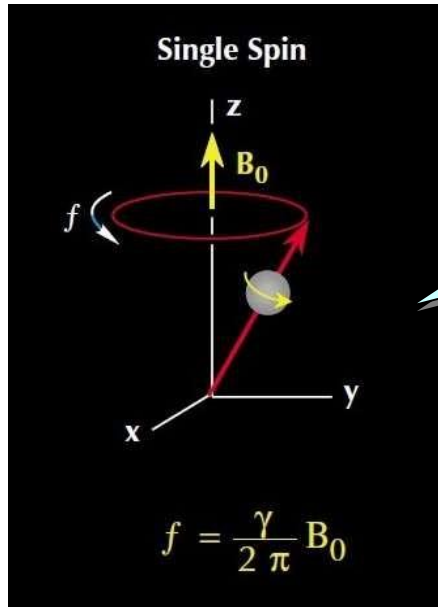
Average radiation power

$$P_{\text{av}} = P_{\text{rad}}/Q, \quad Q \sim 10$$

At  $Q \rightarrow 1$  (constant radiation)

$$P_{\text{rad}} = 10 \cdot P_{\text{av}}$$

# Reduction of Radiowave Absorption in the Ground

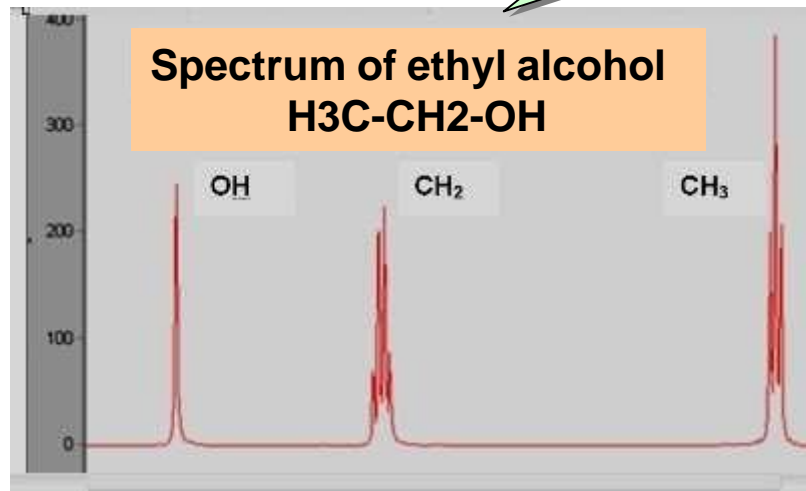


In order to reach this goal we use the effect of 'chemical shift' in NMR

Proton in constant magnetic field has a fixed absorption frequency

$$F = \gamma B_0 / 2\pi$$

Grouping of atoms into molecules causes complex absorption spectrum, which is an 'individual address' of each molecule

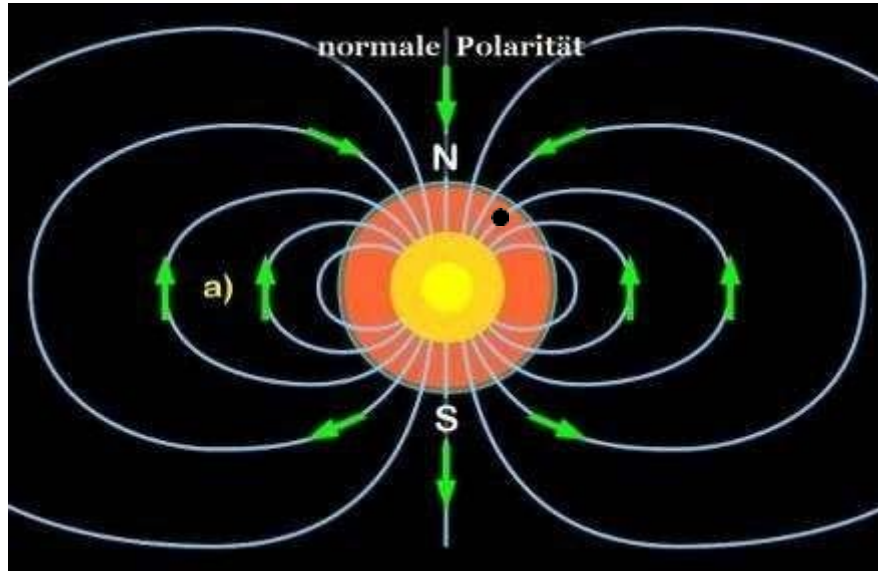


If it were possible to form spectrum of oil frequencies and use this signal for its actuation, we would be able to considerably reduce absorption of signal energy in other substances.

Since oil is a mixture of molecules of complex hydrocarbons (in any oil sample there are more than thousand of various compoundings) it is almost impossible to generate such complex vibrations with the help of traditional methods.

**We decided to solve this task by recording spectra of sample signals onto special test wafers and use them for modulation of frequency of the master generator**

# Reception of Response Signal on the Surface of the Earth



1. We will use natural magnetic field of the Earth as a source of constant magnetic field with intensity  $B_e = 0,34-0,66 \text{ E}$

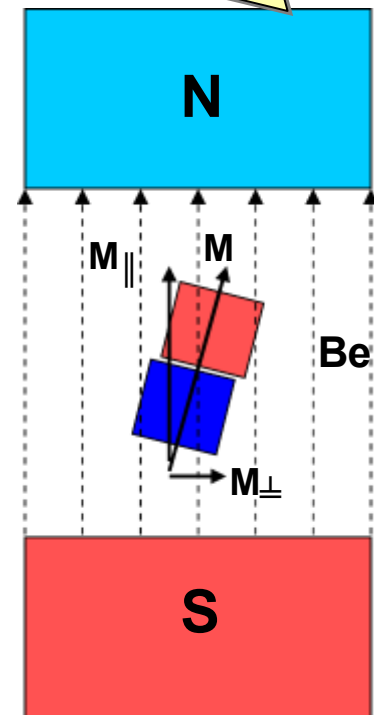
As to shape the main magnetic field of the Earth up to distance of less than three radii close to field of the equivalent magnetic dipole

2. Vector of nuclear magnetization  $M$  in relation to  $B_e$  can be decomposed into

two compounds: longitudinal  $M_{\parallel}$  that matches with vector direction  $B_e$ , and transverse  $M_{\perp}$ , perpendicular to  $B_e$ .

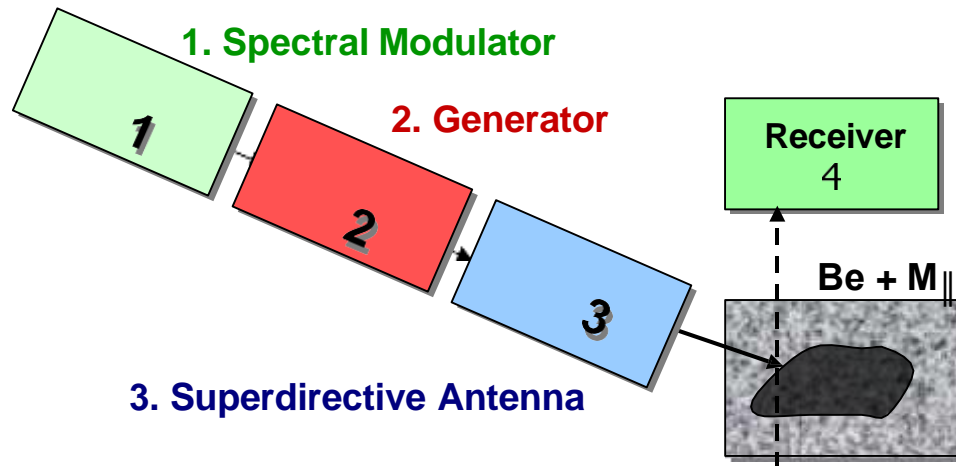
3. **Principle of superposition of magnetic fields:** magnetic field that is created by several moving charges or currents is equal to vector sum of magnetic fields that are created by each charge or current separately.

According to Gauss's law for magnetic field  $\text{div } \mathbf{B} = 0$  we receive superposition of fields  $\mathbf{B}_e$  and  $\mathbf{M}_{\parallel}$ , i.e. the magnetic field of the Earth's extract's resonance response of molecules to the surface.



# IMPLEMENTATION

## Diagram of reception of resonance signal from deposit

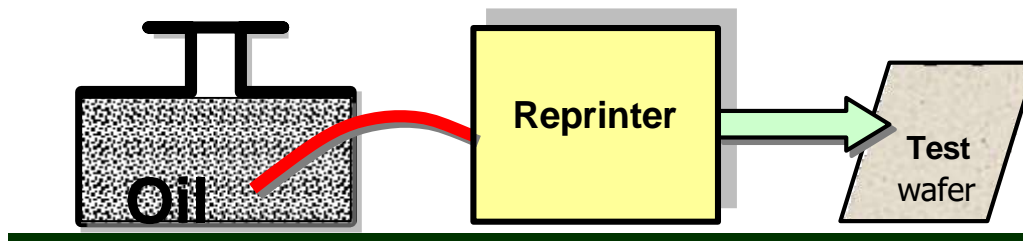


For resonance actuation of oil molecules in a deposit and registration of response signal we use a transmitter containing:

- spectral modulator 1,
- master generator 2,
- superdirective antenna 3, as well as
- superregenerative receiver 4

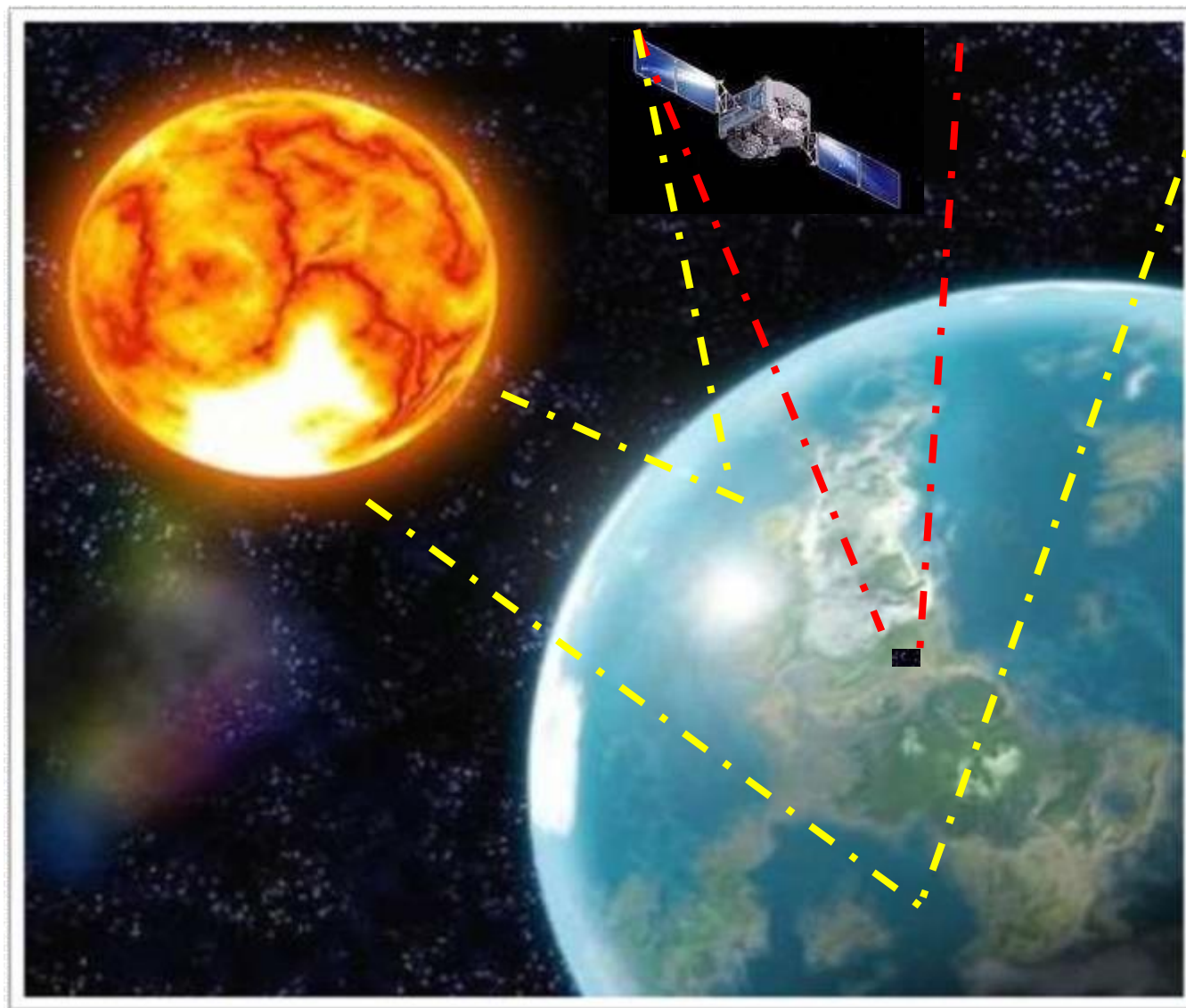
Characteristics of various oil types are recorded from samples onto test wafers. Test wafers as spectrum carriers are used for modulation of semiconductive laser (positive decision on international application PCT/UA2011/000033)

As integrated with antenna high frequency generator we use red gallium-arsenide laser:  $P_{rad} = 0,2 \text{ W}$ , beam diameter = 1,1mm,  $G_A = 13 \cdot 10^6$  relative to point-light isotrope emitter



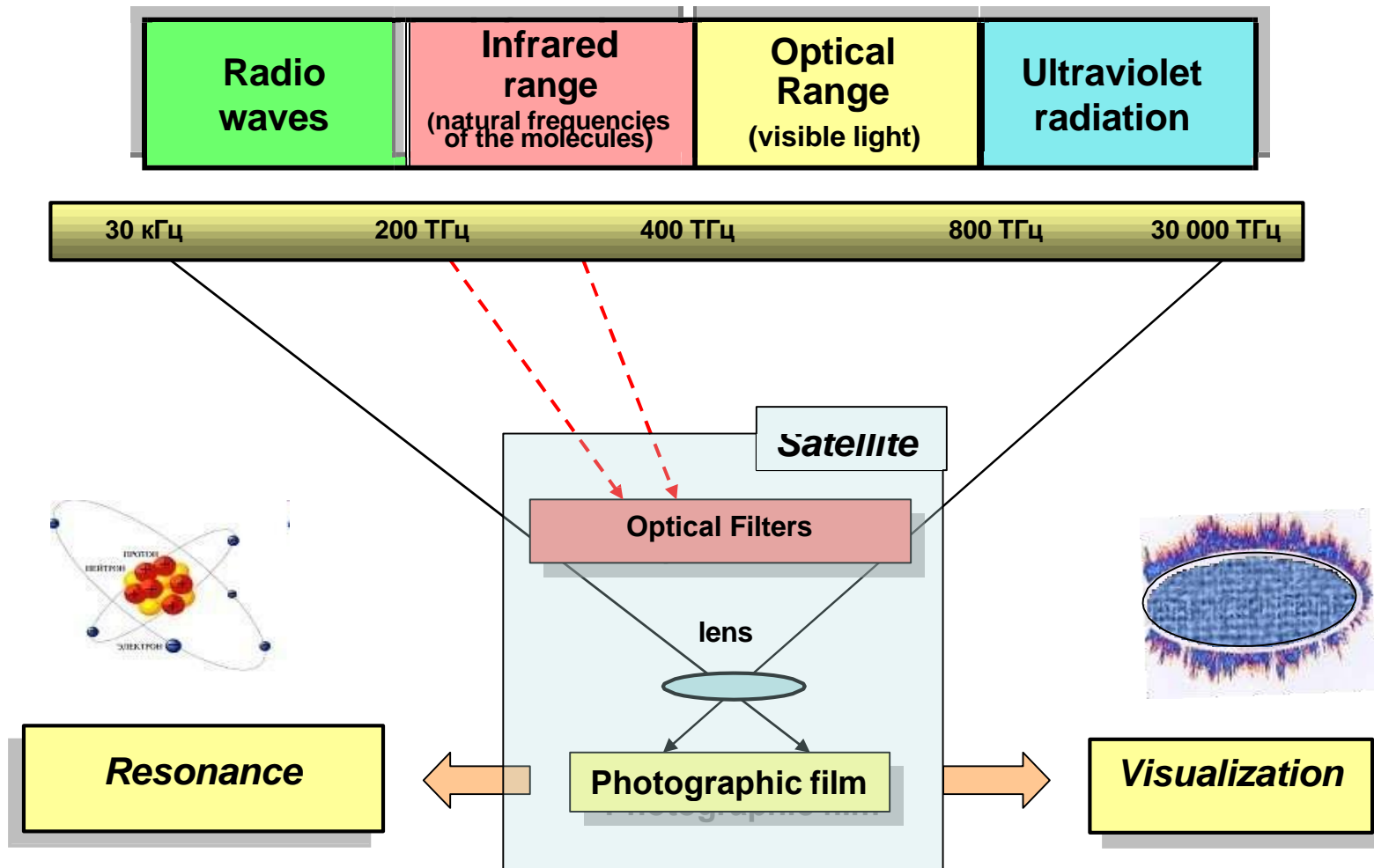
(laser aiming device)

# Radiation-chemical treatment of analogue aerospace photographs



# Radiation-chemical treatment of analogue aerospace photographs

## Basic idea



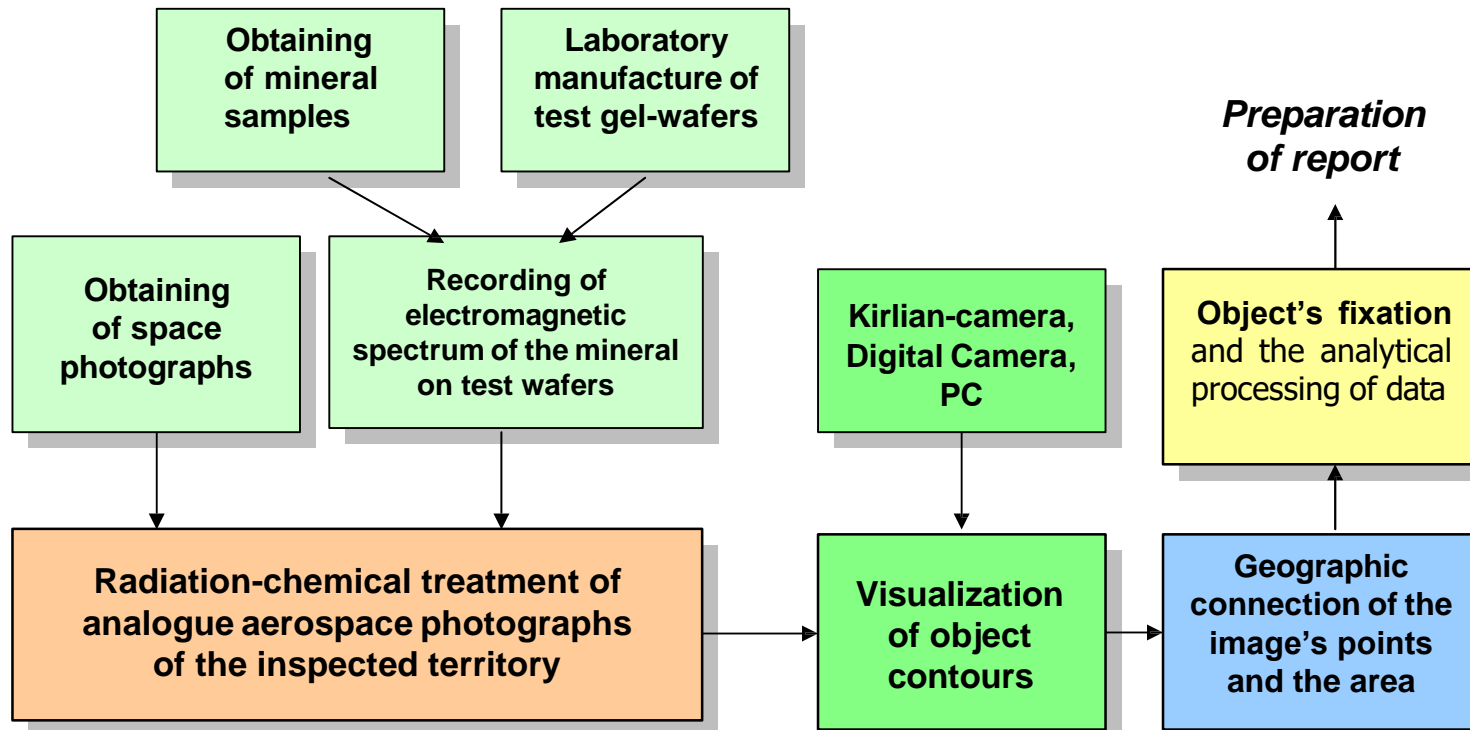


# Technology

## The general scheme



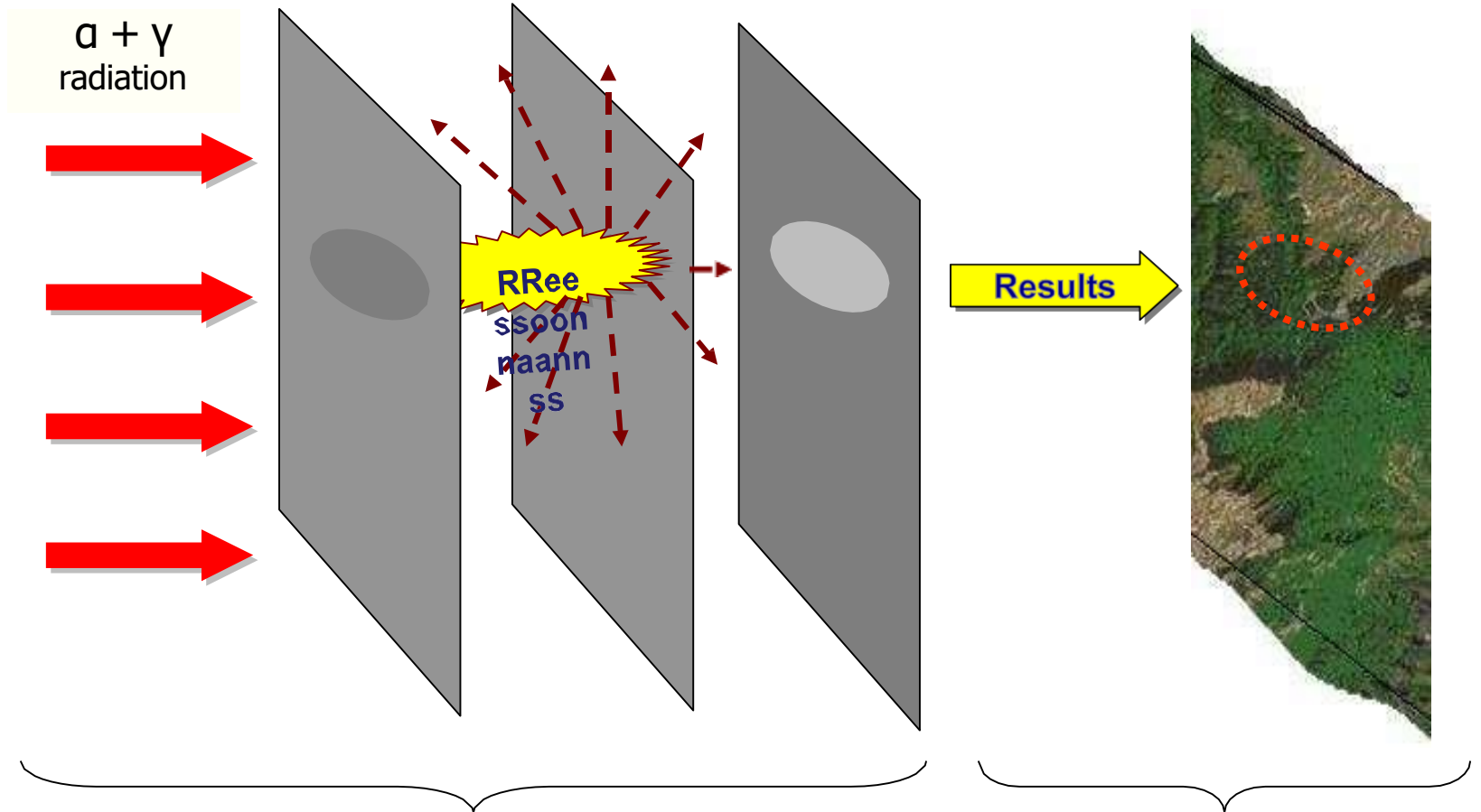
## Technological scheme



# How it is done

Aerospace picture Test plate X-ray photography tape

Map of locality

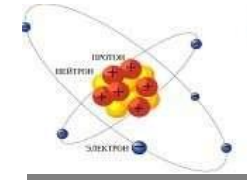


**Radiation-chemical treatment of analogue aerospace photographs**

**Visualization of latent image with Kirlian effect**

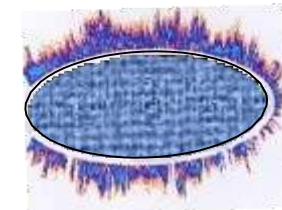
# Technology Implementation

Radiation-chemical treatment of analogue aerospace photographs of the inspected territory



## *Underlying physical effects*

- Nuclear magnetic resonance
- Energy-information transfer of sample radiation to the test substance
- Chemical and electronic (Kirlian effect) visualization of latent image



## *What is used*

- Special chemical laboratory
- Isotropic sources of  $\alpha$  and  $\gamma$  radiations
- Space photographs of the surveyed territory obtained in the underbody of infrared range of frequency
- High purity chemical reagents and gel wafers
- High speed X-ray photo plates





# RSS NMR

THE SIMPLE WAY OF EXPLORATION

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