GEOLEADER 2015

a group of companies registered in Russia and France

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Geoleader

- ➤ Registered in 1995

- ➤ 20 years in Geosciences

- ➤ Oil and Gas upstream with CGG, GeoTrace, and downstream with SPIE

- ➤ Exclusive right for the commercialization of some products in some part of the world (e.g. Geovation/Geocluster in CIS etc.)

- ➤ Developer and Owner of the only comprehensive E&P Oil & Gas data bank (PetroVision)

- ➤ Developer and Owner of a number of geophysical and geological software such as GeoTop, GeoTigg, GeoSeisQC etc.

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Geoleader activities

2D/3D seismic data processing and interpretation

Geoleader provides seismic data processing and interpretation services, using its processing centers in Moscow and Tyumen (Russia).

Main Customers: JSC "Sibneft – Noyabrskneftegas" between 2002 and 2005, (appr. 1000 km2 per year), JSC "Surgutneftegas" in 2004. Since 2007, Geoleader is the main contractor of JSC "NK Rosneft" and its subsidiaries for their 2D/3D seismic data processing (appr. 5000 km2 per year).

Implementation, support and maintenance of Geophysical software

Geoleader provides seismic data processing software (Ceovation/Geocluster), seismic data interpretation software (GeoTigg), and "PetroVision" G&G Data Bank. Our software is installed and successfully operates in more than 30 companies, mostly in Russia but also worldwide with an aim for further expansion.

Seismic acquisition, processing and data management services

Geoleader provides high-qualified field seismic acquisition/processing and data management experts (Data managers, QC and processing experts, senior surveyors, vibroseis supervisors, HSE advisors). For the last 3 years more than 15 areas have been supervised in Russia and Personnel was deployed on various projects in Saudi Arabia, Uganda, Iran, Argentina, France, Equatorial Guinea, India, Thailand, Ukraine etc.

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Current projects

Geoleader is the participant of numerous tender bids for various services, such as seismic data processing and interpretation, supervising of seismic works, supply of the software and hardware for leading oil and gas companies.

Within 2014-2015 Geoleader is a participant of:

- Tender bid for E&P data development system (*PetroVision Data Bank*).
  Tender Bid holder: **JSC Surgutneftegaz** (Surgut, Russia);

- Tender bids for 2D/3D seismic data processing and interpretation for several daughter companies of **JSC Rosneft**;

Within last five years Geoleader has performed services in the sphere of oil an gas industry under more than 80 contracts including software and hardware supply, maintenance and support, seismic data processing and interpretation, and supervising.

Geoleader's software is installed in different companies specialized in oil and gas, and has been still successfully used, which is confirmed by close, long-term and fruitful partner relationship between Geoleader and it's Customers.

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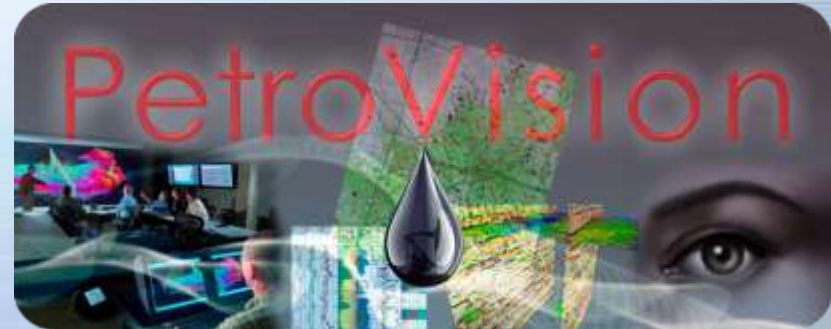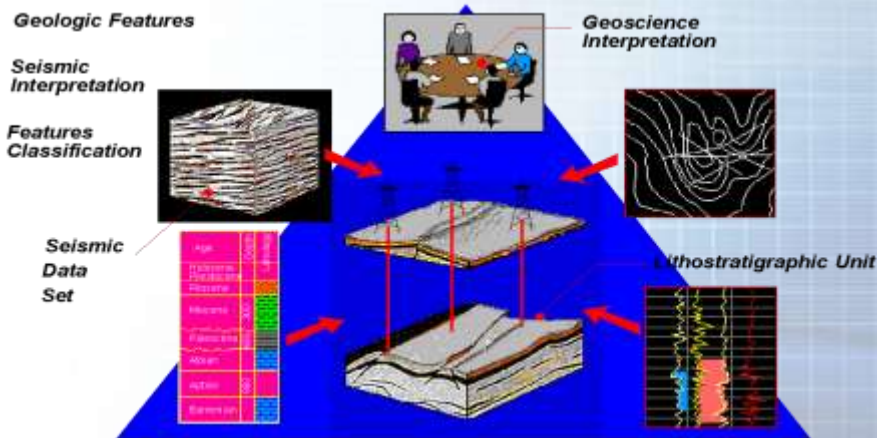
PetroVision Data Bank

E&P Data Bank for the oil and gas industry

➢ Within 15 years, PetroVision Data Bank has successfully operated in a number of countries and for several Oil and Gas companies;

➢ The Data Bank allows to manage comprehensive E&P data types, such as seismic, well log, field, production data, etc.;

➢ This is the perfect solution for corporate or National Data Repository (NDR), to manage all exploration and production data and further information from oil and gas fields.

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PetroVision Data Bank

- PetroVision is the most adaptable solution in the sphere of Oil and Gas data management. Industry standards protect you from any investments into your own solution, and PetroVision environment allows you to integrate YOUR solution into YOUR specific dataflow for the procedures of your company.

- Using Epicenter Petrotechnical Open Software Corporation data model (POSC), Oracle database software and industrial standard formats for data storage, PetroVision secures your investment into data management from obsolescence caused by your own solutions in data management.

PetroVision is a part in a large set of the data bank environment components.

This environment consists of the following components:

➢ software tools, providing both local and remote access, data view and extraction for the final user.

➢ software tools, providing control and management of databank environment infrastructure, data security.

➢ software tools, providing nearline data management environment, for example, access to robot storages integrated into data bank environment.

➢ POSC Epicentre model of exploration and production data, realized on Oracle RDBMS.

Main Geoleader Software

➢ **Geocluster/ Geovation (CGG) -** seismic processing. Geoleader Ltd. has an exclusive right for 3D data (land and marine) processing, using Geocluster/ Geovation software (e.g. it used in ROSNEFT for 5 years (a 40MUS contract)).

➢ **ISOLINE -** geology/ geophysics/ reserve calculation – over 300 licenses, and the integrated interface for Isoline and PetroVision is under development.

➢ **GeoTop -** well log analysis, the preparation of graphic pads to print, including the set of curve and graphic parameters.

➢ **GeoSeisQC** - QC of seismic data. Provides a user with the detailed information about seismic files using internal database of format description which can be modified and edited by users.

➢ **GEOLYMPUS** - single workstation of complete statics solution for short -, mid- and long waves.

➢ **WellQC** – QC of geological and geophysical data obtained in the result of well interventions. This Software is used in the PetroVision Data Bank.

➢ Wells Servicing, Systems Contractor (EPS), Competence development, Asset Support with SPIE (France)

Geocluster/ Geovation

Geocluster/ Geovation is the benchmark software for seismic processing, imaging and reservoir characterization. It is a unified processing platform incorporating the latest technology from the recognized leaders in advanced imaging and wide-azimuth processing. It includes every aspect of seismic exploration and development in an interactive and interpretive environment supporting a comprehensive set of applications and batch modules.

Geocluster/ Geovation is under continual development as cutting-edge processing technology is developed and released by CGG's Research, Development and Industrialisation department. It supports industry standard hardware platforms (SUN, SGI, PC-LINUX and IBM), 64-bit and dual-core processors and has many modules optimized for parallel processing to take full advantage of the compute power and scalability of multi-processor machines and PC clusters.

- ✓ Over 400 batch processing modules
- ✓ 2D, 3D, 4D and multicomponent, land and marine processing
- ✓ Full range of advanced applications for interactive processing and QC
- ✓ Commitment to R&D provides state-of-the-art geophysical technology
- ✓ Worldwide training provided by CGG University
- ✓ Worldwide utilization by crews, vessels, processing and dedicated centers
- ✓ Fully scalable from a single workstation to computing centre clusters
- ✓ Architecture is proven by processing of massive wide-azimuth data volumes
- ✓ The software uses proven technology with over 40 years of experience. Global presence provides worldwide support, local expertise and training.
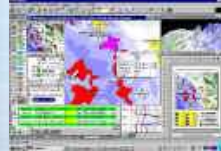
Isoline
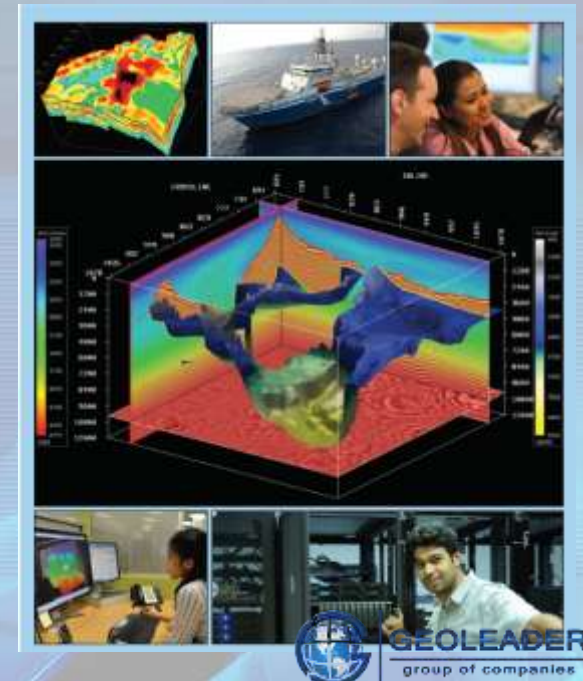
Geological information system for oil companies

Geoinformation analysis and mapping

➢Various tools for objects identification
➢Graphic objects and related data tables creation
➢Built-in editors of types, lines, styles and polygons
➢Developed visual tools and layout settings
➢Classification by text and numeric parameters
➢Direct editing of objects properties data tables
➢Calculation and representation in different coordinate systems
➢Objects search by properties and location
➢Special full screen mode maintenance
➢Contour and string objects generalization
➢Table data reports built-in generator
➢Relational databases queries graphic editor
➢Design and preparation of map models for print
➢Creation of 3D spatial objects projection

Spatial databases creation

➢ Multilevel graphic objects storage – projects, maps, groups, graphic layers
➢ Different data types maintenance – points, lines, polygons, surfaces, images
➢ Storage of properties settings, layout and graphic objects related data tables
➢ Work with several spatial databases in net and Internet
➢ Graphic data and tables export-import
➢ Navigation, browse, hot links with relational databases
➢ Dynamic update of referential graphic objects in corporate databases environment
➢ Graphic databases protection from unauthorized access and export

Building of models and maps in isolines

➢Graphic environment for search and data loading
➢Integrated environment of modeling and visualization
➢Input data different types and formats
➢Constructing of big-size maps with automatic glueing
➢Digital isolines with media registration
➢Faults registration and detailed sections replacement
➢Visual cut from maps
➢Mapping, calculation of volumes and reserves
➢Mathematic and logical operations with surfaces
➢Models storage in graphic databases
➢Models usage during graphic objects search
➢Models representation as colour maps in isolines
➢Creation of 3D parameters maps projection
➢Automatic construction of isolines
➢Grid models export and import

Relative documents databases creation

➢Graphic tools of contents creation and references to documents
➢Review of text, raster files, documents in Microsoft Word, Excel, Corel Draw formats
➢Test of obligatory documents availability and completeness of documents set
➢New, edited and lost documents search
➢Documents query during objects identification in graphic spatial databases

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GeoTop

THE SOFTWARE PACKAGE DESIGNED FOR PROCESSING AND INTERPRETATION OF GEOLOGICAL AND GEOPHYSICAL STUDIES IN A BOREHOLE

Functional possibilities

- Availability of modules, allowing to realize main procedures, applied in LOG interpretation.
- Graphical interactive mode with data visualization in real time mode.
- Multi-window graphic system, where all the windows are logically connected.
- User program connection without developer interference
- External setup files to provide user standards.
- Independence on sampling interval and information sizes.
- Independence on units.
- Pointwise and layer-by-layer processing with consideration of section parameters
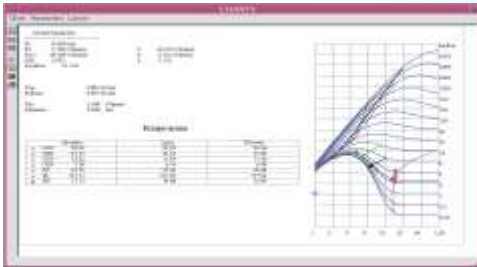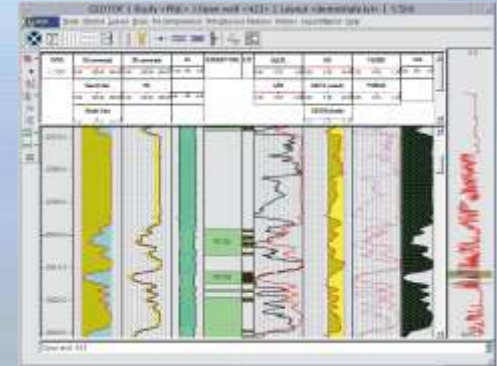

Interpretation

- Well bore correction
- Quality control of electrical logs
- Definition of electrical resistivity in pointwise and layer-by-layer modes
- Definition of porosity, shaliness, oil and gas saturation by standard algorithms
- Calculator, implementing main petrophysical and mathematical dependences
- Lithological section disjunction using critical values of parameters
- Calculation of reservoir parameter average values for further usage in model creation and resource calculation

Utilities

- Value display and correction graphically and in a table form
- Curve filtering
- Depth matching
- Curve conversion - compression, expansion, sampling interval modification
- Curve copy from one set into another
- Transformation of a continuous curve into interval and backwards
- Histogram and cross-plot creation
- Information input from LAS LIS ASCII format files
- Information output in LAS format
- Printing and plotting
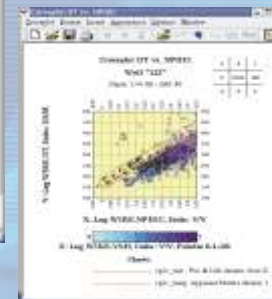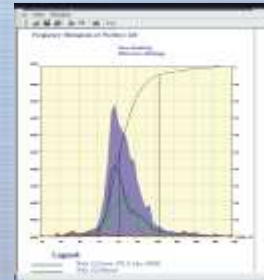
GeoSeisQC

GeoSeisQC was designed to perform QC of seismic data. The main idea is to provide a user with the detailed information about seismic files using internal database of format description which can be modified and edited by users.

GeoSeisQC allows to perform:
• primary data analysis;
• work with geometry files, automatic geofile, coordinate library, 3D a priori static corrections generation, definition of binning parameters;
• acquisition geometry visualization for 2D and 3D data;
• 2D/3D geometry definition;
• definition of a priori velocity function, a priori muting, filter parameters;
• primary data processing.
QC software contains various modules performing operations with seismic data:
• geometry definition;
• mathematical operations with trace samples;
• deconvolution;
• trace editing;
• coherent, band-pass, surgical, notch signal filtering;
• automatic gain control;
• muting;
• stacking;
• NMO and static corrections;
• calculation of seismic record attributes;
• frequency-dependent noise attenuation;
• reading and writing seismic files in SEG-D, SEG-Y and CST formats;
• sorting using trace header attributes;
• automatic noise attenuation and seismic data QC;
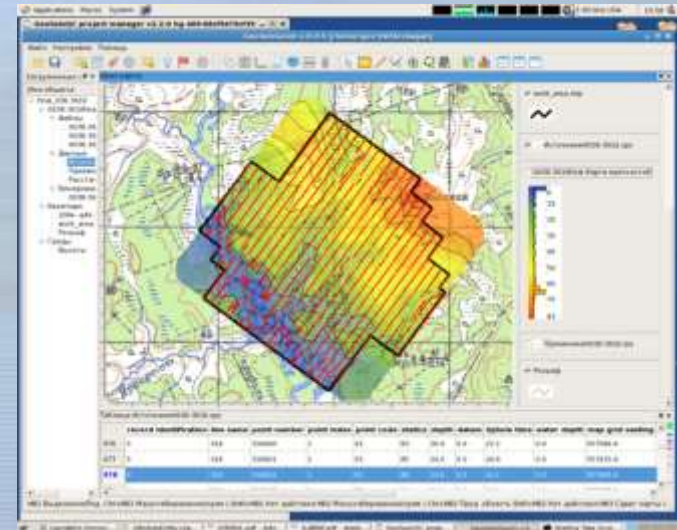
GeoSeisQC has efficient QC tools, a function to define signal/noise ratio (microseisms, Rayleigh waves) in tables and graphs, calculation of average signal and noise level, signal/noise ratio and other parameters. The Software efficiently runs under Windows and Linux

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Geolympus

GeOlympus workstation is designed to build near-surface models (GeoStaR and GeoWZ), calculate (GeoTR) and autocorrect statics and NMO (PACS).

This software is being developed since 2003 in Geoleader Ltd., and since 2010 it is transformed to CGG (CGGV) and now it is a part of Geovation advanced package.

The main idea is to calculate statics in different seismic conditions.

GeOlympus software is used in almost all processing centers using Geocluster\Geovation software.

The advantage of GeOlympus is that it can be used within Geovation as well as with other software packages.

System requirements: Linux (CentOS\RHEL 5+)

Future developments are defined by integration with new versions of Geovation software (CGG).
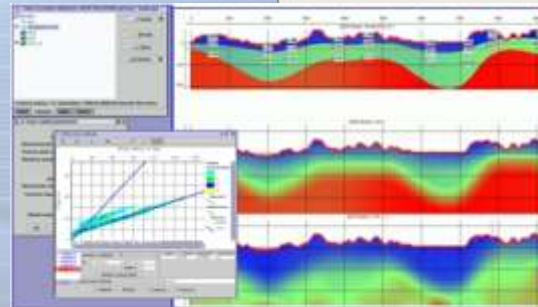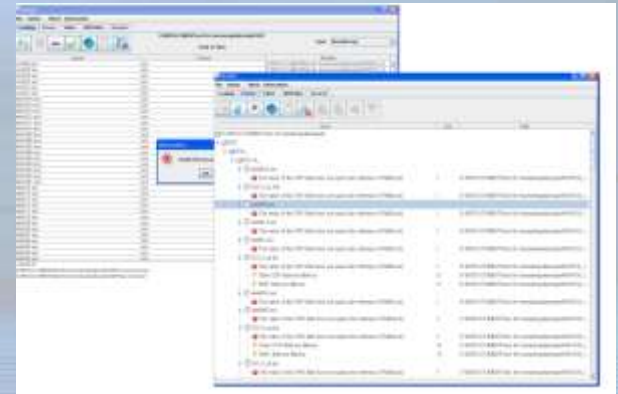
WellQC

WellQC was developed to control the quality of geological and geophysical data obtained in the result of well interventions. This Software is used in the PetroVision Data Bank.

The development of the WellQC started in 2011. Sphere of this SW application is defined by the aims of quality control of the digital geophysical data coming from contractors, and nowadays WellQC is successfully used in the LUKOIL-West Siberia Ltd.

WellQC enables to make the automated data control on the following types:

open hole (wells got out of drilling), including inclinometer survey;

well logging, field management;

verification and reference data analysis.

The Software executes over 200 different checks including:

data consistency;

data correspondence with the real range;

logical correlation of curves and table data;

format control;

syntax correctness and duplicate rows.

WellQC advantages are defined by an ability to adjust the standards for each enterprise evolving developers or without them. The main peculiarity of the Software is the implemented and flexible configuration of all checks and rules by means of external XML-files. Apart from that, our Software has a built-in multifunctional text editor which enables to work with several documents, navigate quickly on errors and to view reference information. WellQC has also an option to evaluate data quality control in course of works executed by contracting companies. WellQC was designed by Russian specialists and ensures a high efficiency for a Russian market.

System requirements depend on Java 1.6 and higher.

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GeoTIGG

The **GeoTIGG** interpretation system is powerful suite of data management and interpretation software that comprehensively satisfies the demanding requirements of geologists and geophysicists. It includes all the software needed for petroleum exploration and production, from initial seismic and well log interpretation to production analysis and reservoir simulation.

The **GeoTIGG** program system is the result of collaboration between three companies:
- A French company, CGG (Compagnie Générale de Géophysique)
- A British company, TIGRESS
- A Russian company, Geoleader

Based on a state-of-art integrated database management system, program avoids the field data duplication at different stages of interpretation and it is one of the main advantages of the GeoTIGG system.

The **GeoTIGG** menus and comprehensive on-line manuals are available in both English and Russian.

GEOTIGG is based on ORACLE data base, and all the modules are totally integrated. No need of data duplication.
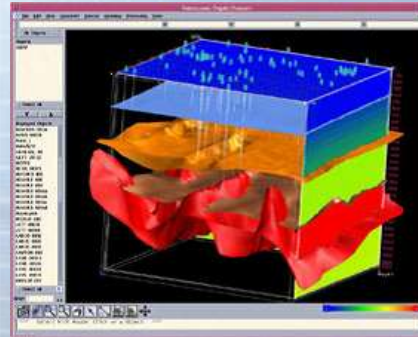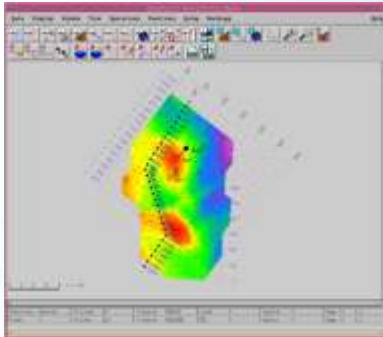
GeoStore

Seismic Data Storing

GeoStore encapsulates the data in one of specified formats and then archives it to the disk. When processing tape media, GeoStore either operates in single tape mode, or can handle up to 10 tapes at a time, in sequence, if an auto-loading stacker is used.


During archiving, **GeoStore** uses format recognition techniques to determine the format of the data being archived. It has the possibility to determine SEG-formats (SEG-Y, SEG-D). Depending on the data format, GeoStore may extract some additional attribute values (from SEG-headers) and populates the database with them.

Archived Data Delivery

The Deliver function of **GeoStore** reads encapsulated data from the archive media, de-encapsulates it and then outputs to the tape
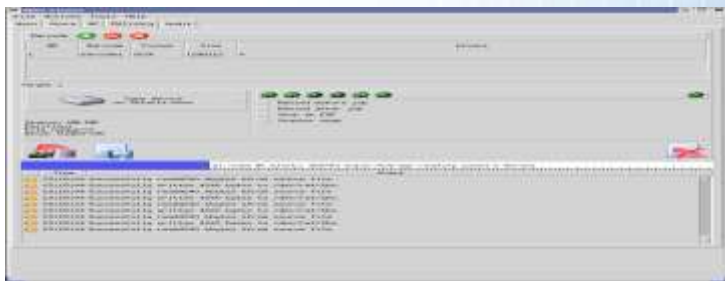
Encapsulated Data Quality Control

The QC function checks the integrity of archived data by bit-comparing it with the original source data from the input media .

GeoStore performs the following steps to run the QC:
1. Read data from the input media
2. Read the equivalent data, which is in specified encapsulated format, from the archive media
3. De-encapsulate the data
4. Perform a bit-compare

RODE-encapsulated Archived Data Auditing

GeoStore reads RODE-format data from the archive and de-encapsulates it. It then employs format recognition techniques to determine the data format, and depending on this, extracts certain attribute values from the data

▪**GeoStore** transcribes seismic data from magnetic tapes and manages archives of specified data formats
▪**GeoStore** supports its own database populating it with seismic data attributes (it receives attributes from headers of SEG data)
▪**GeoStore** gives the possibility to find seismic file info very fast directly in the database, avoiding the necessity to refer to the original tape data
▪**GeoStore** performs transcription QC to verify archived and original data
▪**GeoStore** is well integrated with PetroVision data management system. Data, transcribed by GeoStore, are ready to be loaded into the PetroVision database.

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Thank you!

www.geoleader.ru