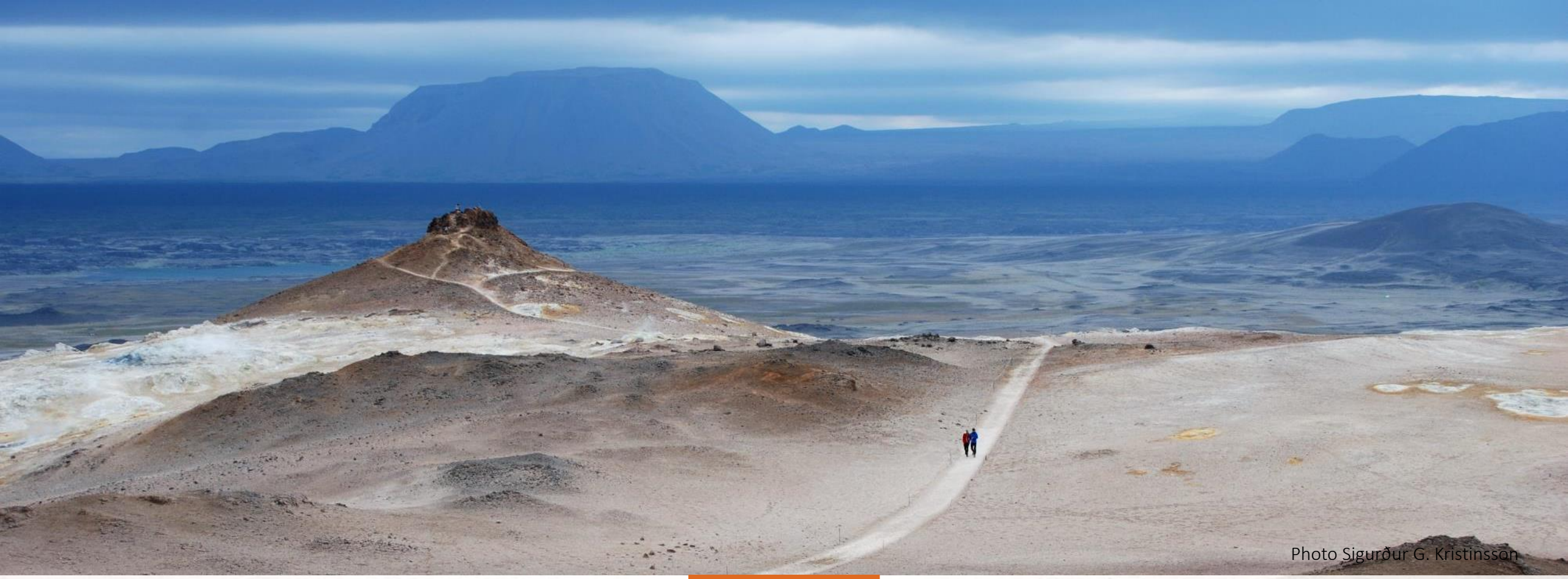


Photo Sigurður G. Kristinsson

ÍSOR – HISTORY AND CURRENT MISSION

Bjarni Gautason

Director of Monitoring and Education

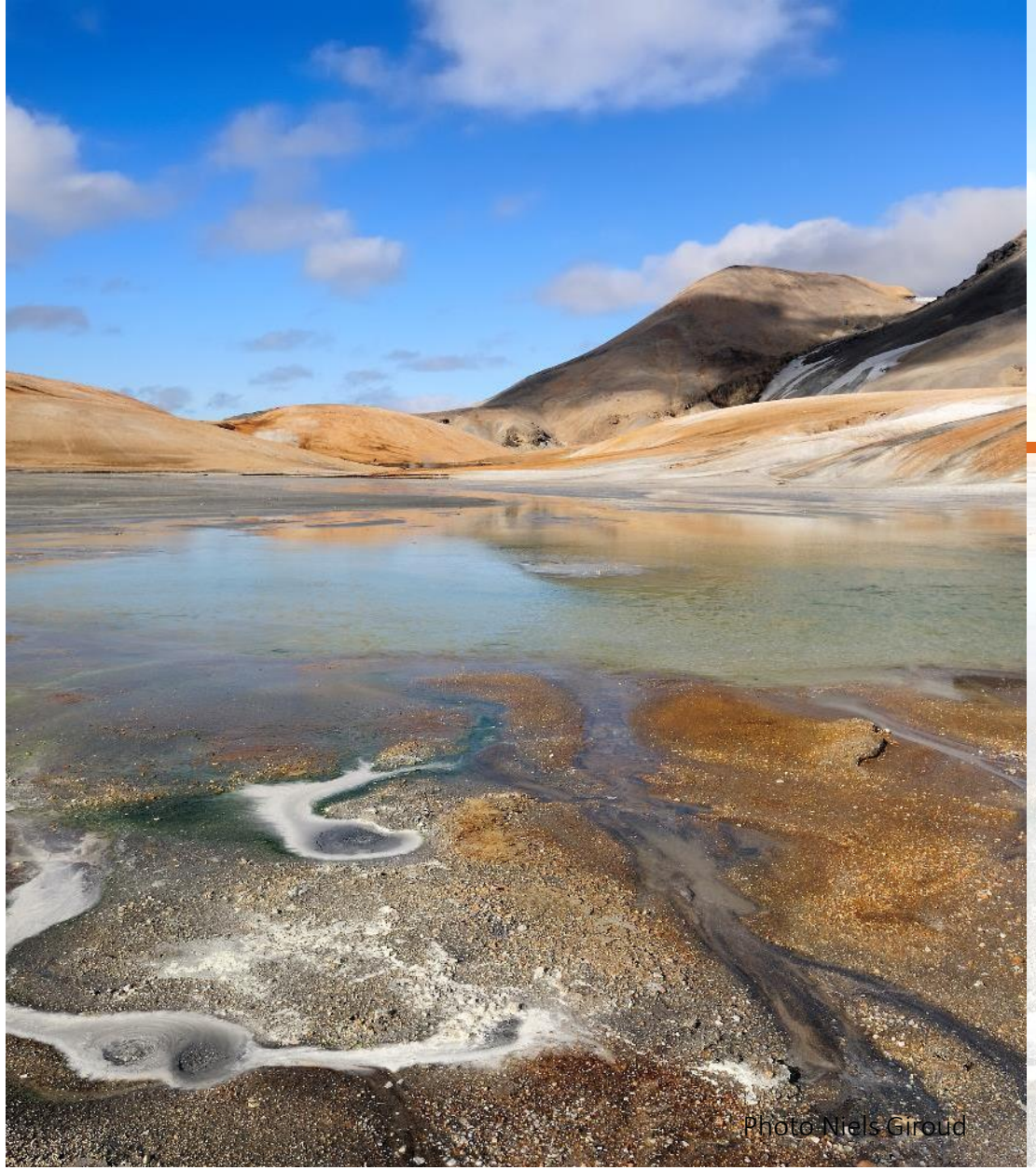


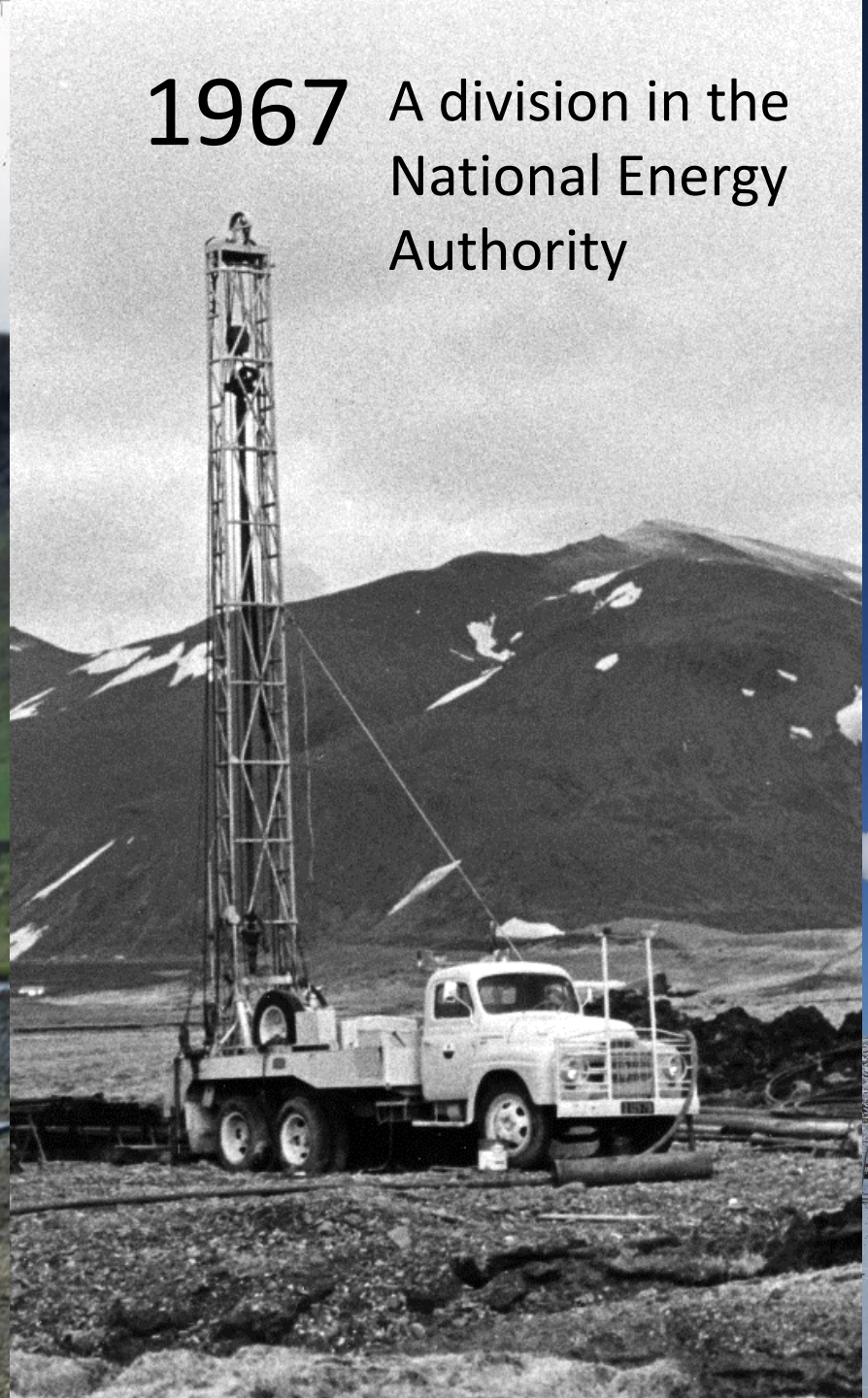
Photo Niels Giroud

ÍSOR – ICELAND GEOSURVEY

- Owned by the Icelandic government.
- Provides specialized services to the Icelandic power industry, the Icelandic government and international companies.
- Operates on the free market on competitive basis.
- Profit goes exclusively into scientific research and to strengthen ÍSOR.

1945 Established as a part of the State Electrical Authority

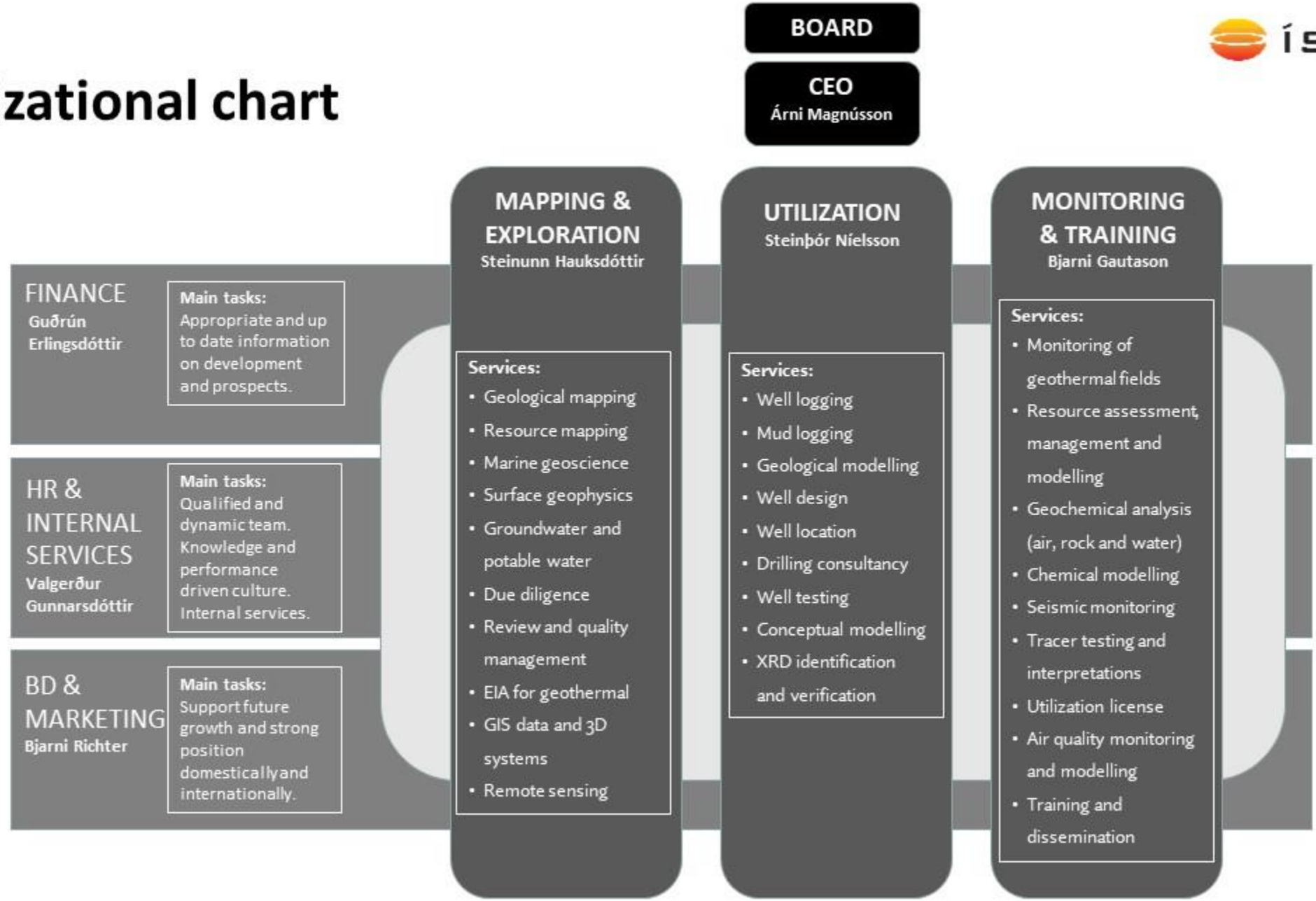
1967 A division in the National Energy Authority



2003

ÍSOR - Iceland GeoSurvey
Independent institute

Organizational chart



A FEW WORDS ON ÍSOR

SERVICES

- Geothermal exploration
- Drilling consultancy
- Well logging and mud logging
- Well testing and evaluation
- Resource assessment and management
- Due Diligence and Feasibility reports
- Geothermal training
- Environmental and Groundwater studies
- Engineering geology
- Offshore exploration
- Information technology

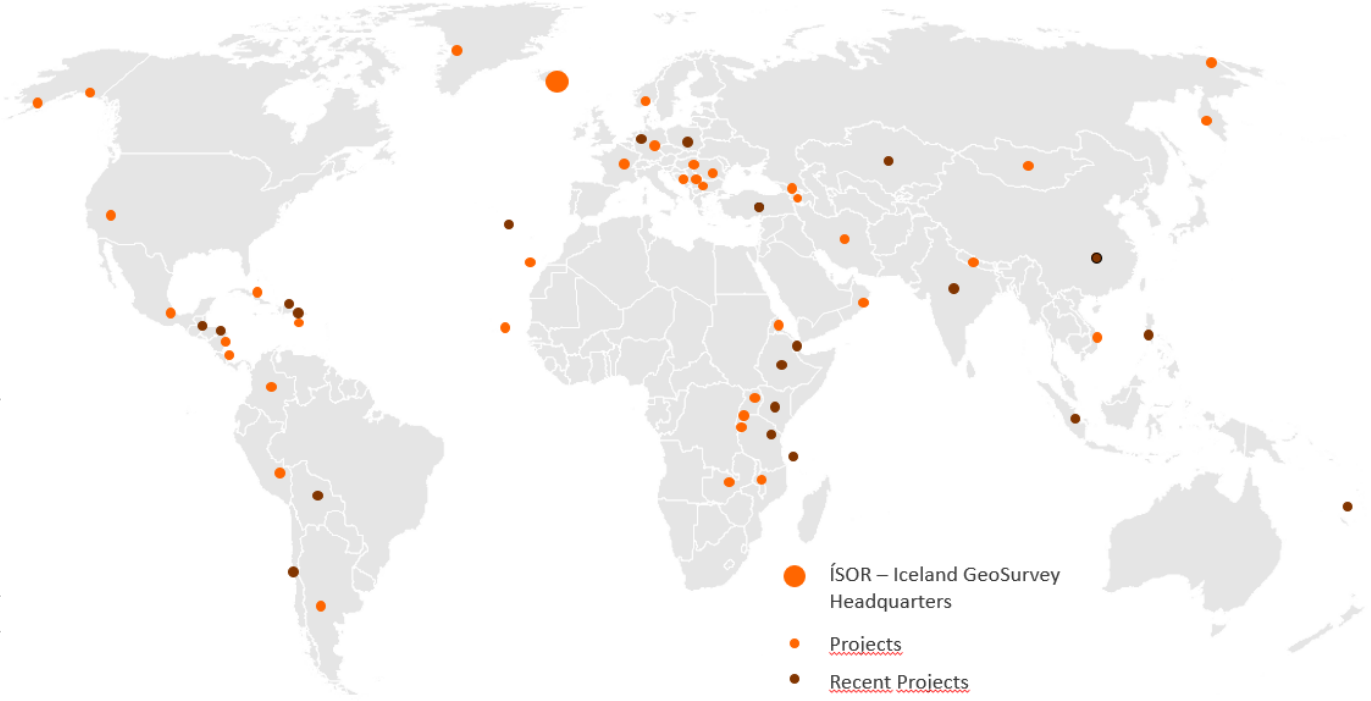
ÍSOR has been involved in most geothermal projects in Iceland, both for power production and direct use.

ÍSOR has also been involved in geothermal development all over the world for several decades.

Successful harnessing of geothermal energy, i.e. power or direct use, needs well executed exploration, proper data processing and combined interpretation of available data.

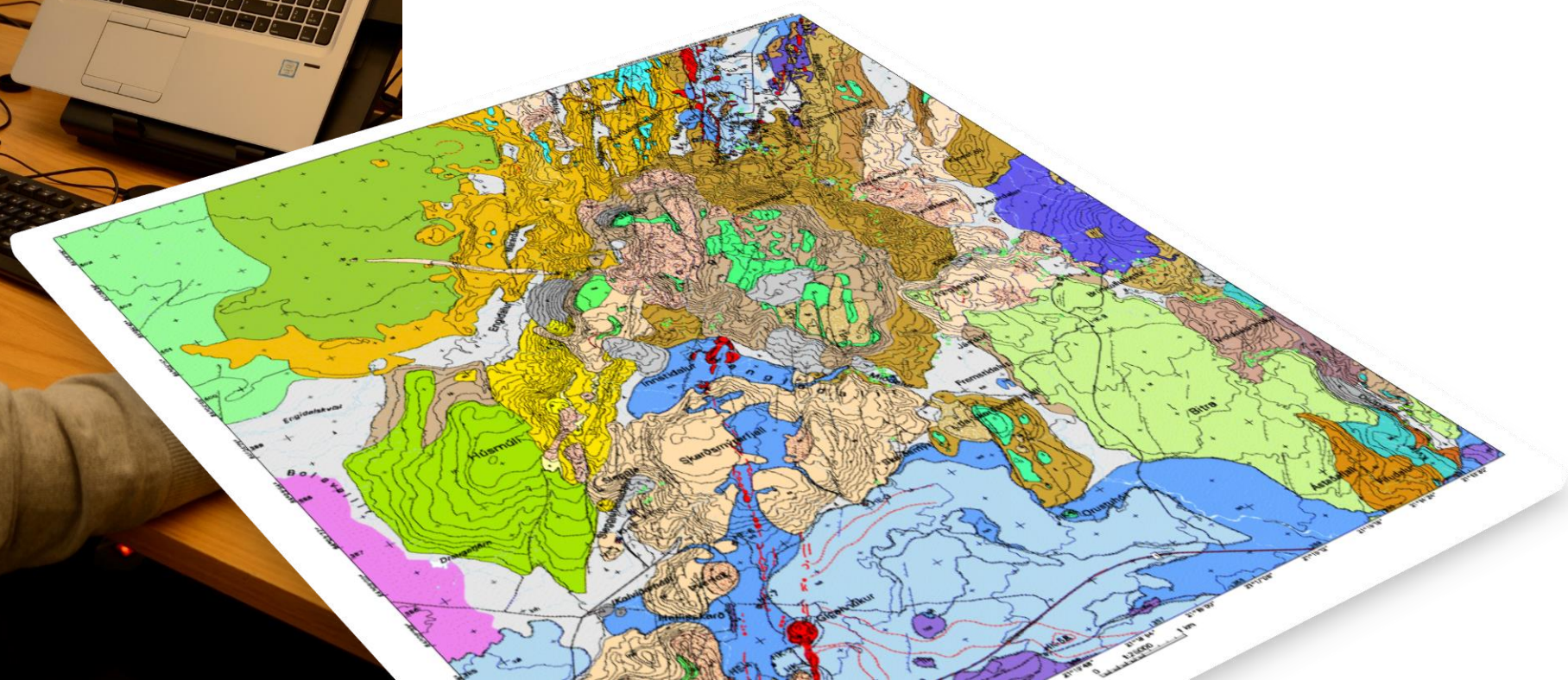
In that, ÍSOR has excelled for decades.

ÍSOR PROJECTS AROUND THE WORLD

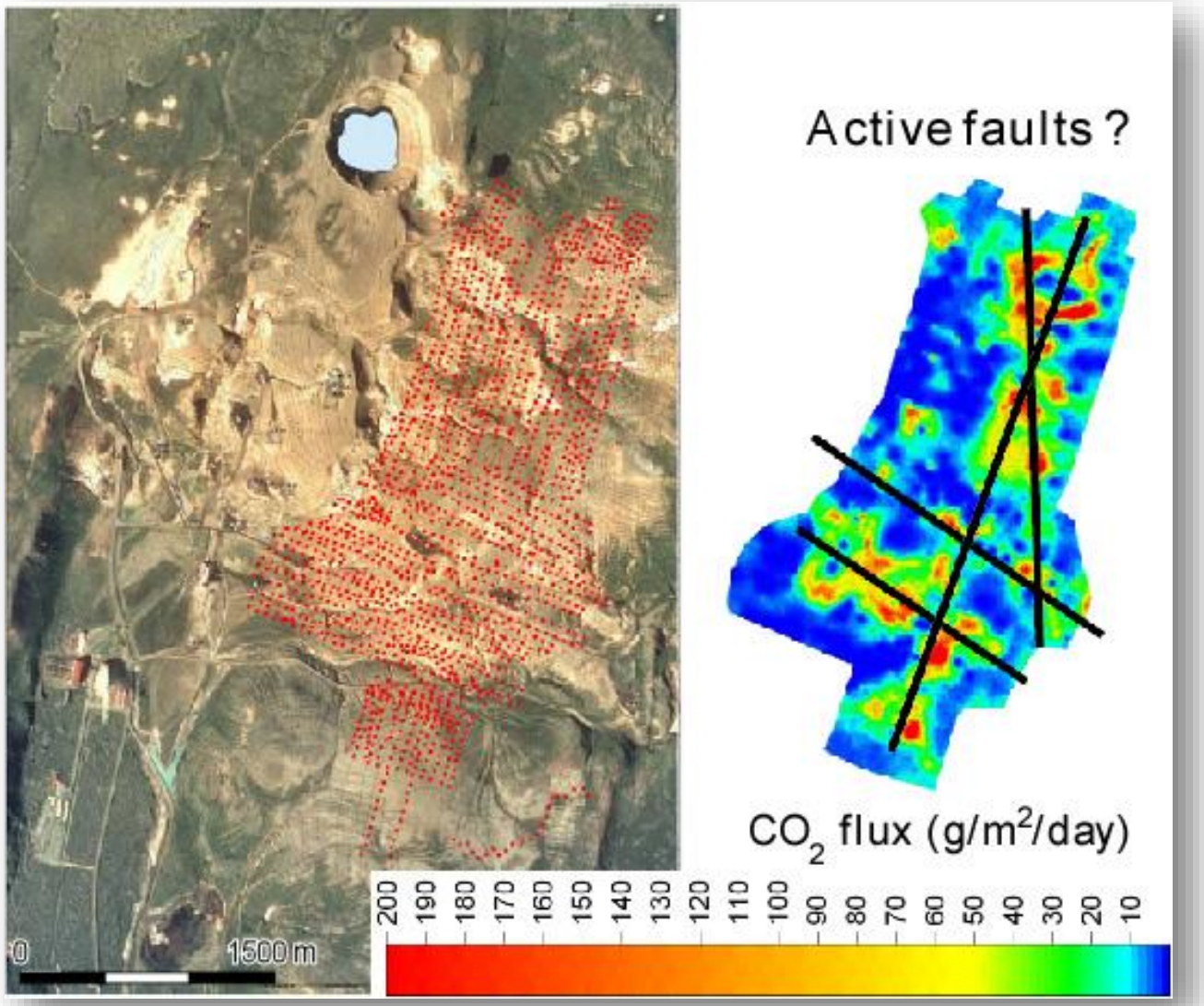


Geothermal mapping

- Geological and structural mapping
- Stratigraphic mapping
- Mapping of soil temperatures
- Geothermal surface manifestations



Mapping of soil diffusion

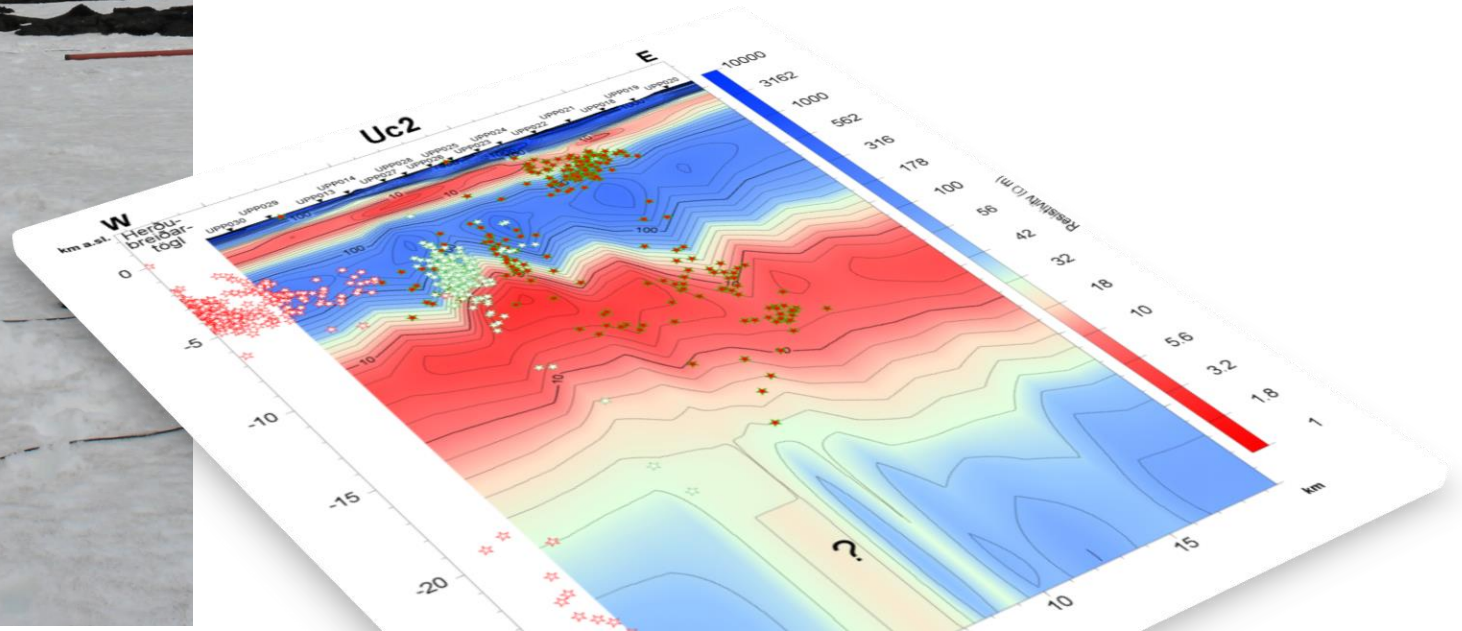


Gas flux measurements in the field. Results from the Krafla field north Iceland.

ÍSOR

Geophysical exploration

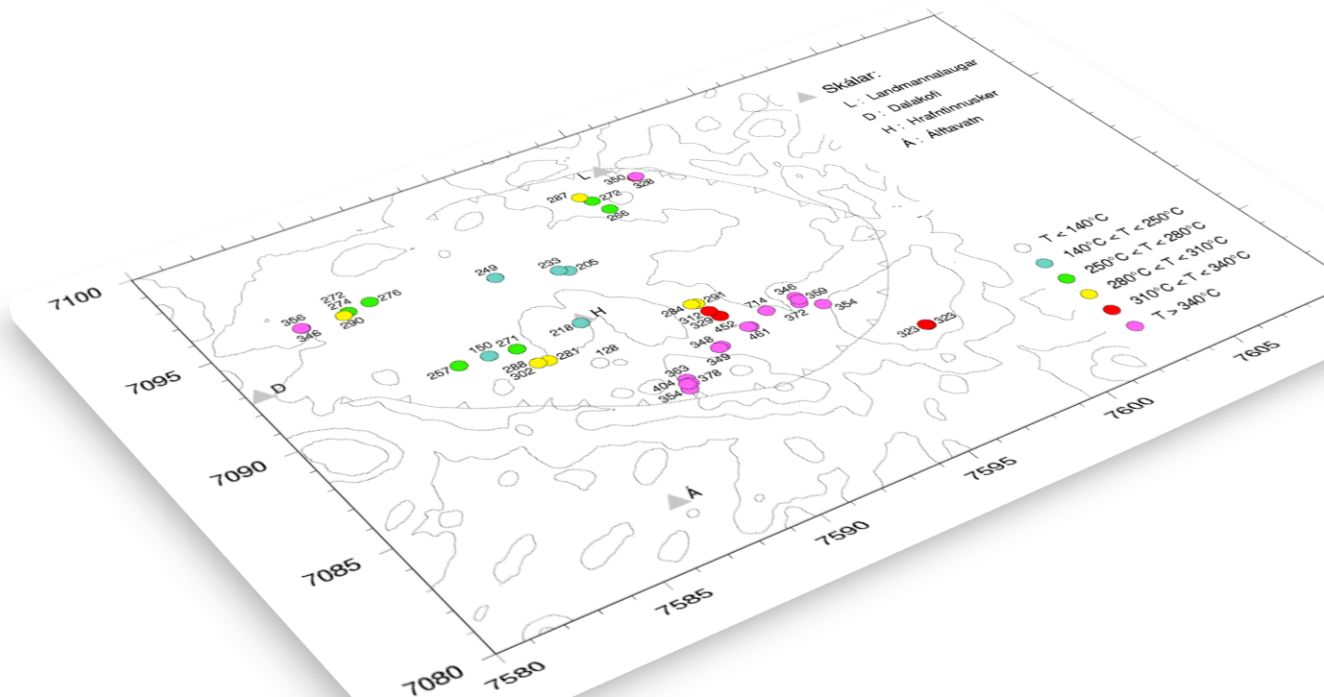
- Resistivity surveys
- Seismic surveys
- Seismic monitoring
- Gravimetric measurements
- Surface GPS measurements



Geochemical exploration

Sampling and analysis of

- Geothermal water, gas and steam
- Groundwater
- Cuttings/cores from wells
- Scaling and corrosion
- Rock samples

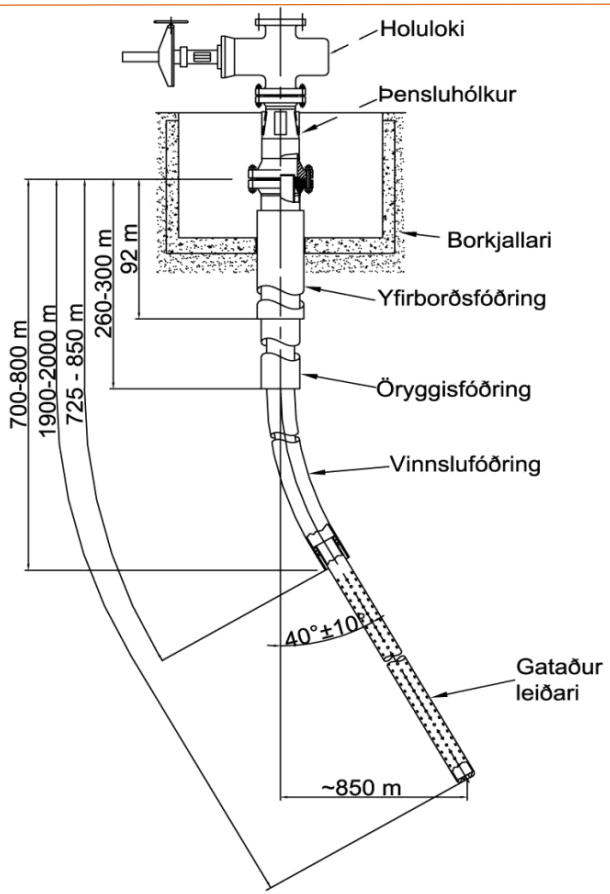


Environmental studies

- Monitoring environmental changes
- Gravity and leveling surveys
- Chemical pollution
- Protection
- Re-injection studies
- Gas emission monitoring

Drilling consultancy

- Well siting
- Well design
- Drilling supervision
- Mud logging services
- Well logging services
- On site geological consultancy



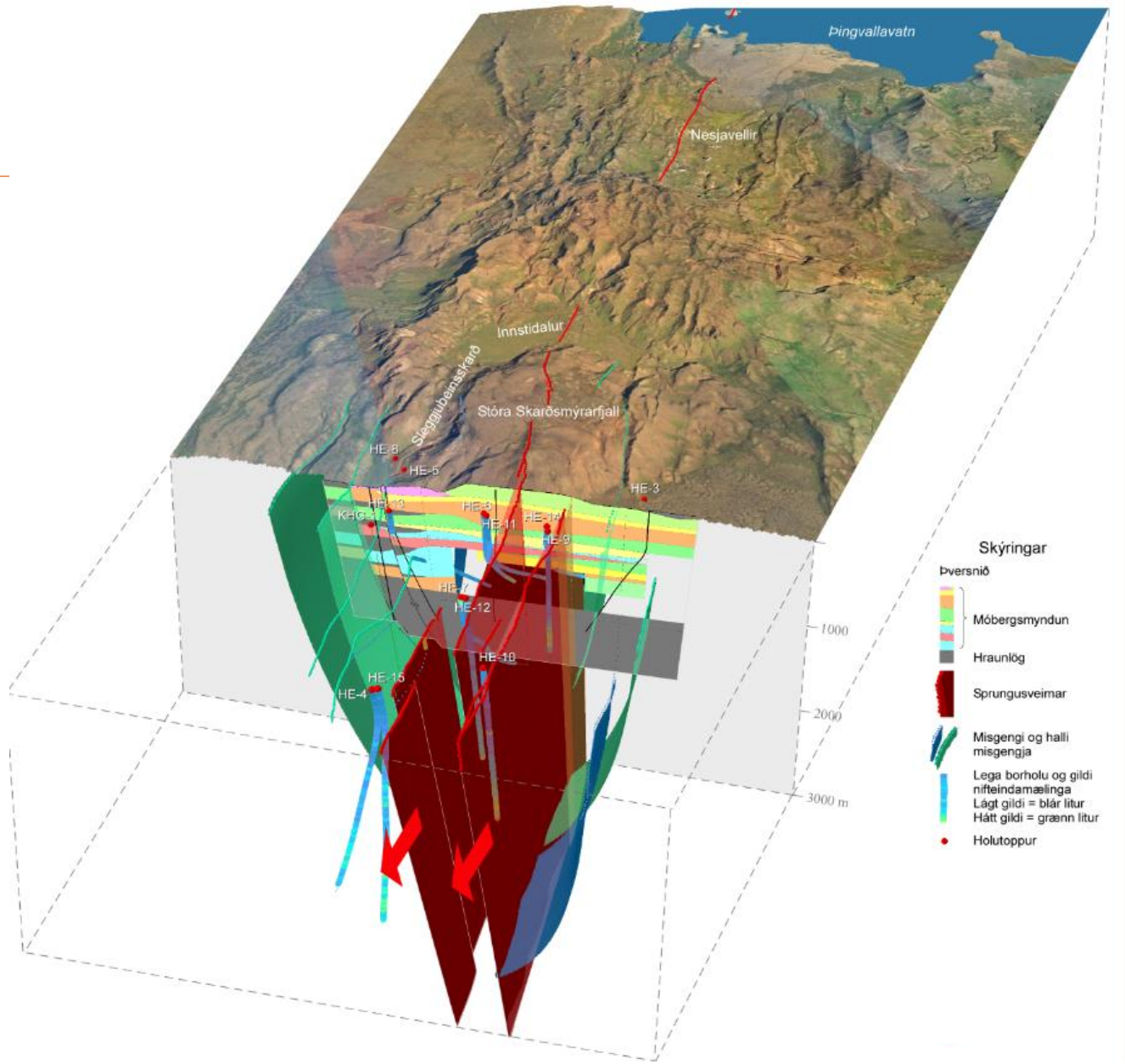
Well logging during drilling

- Temperature / pressure
- Caliper
- Resistivity, Neutron logs (n-n)
- Natural gamma ray
- TeleViewer
- Water sampling in wells
- Cement bound logs (CBL)
- Casing Collar Locator (CCL)
- Downhole Video Camera
- Gyroscopic logging

Well testing

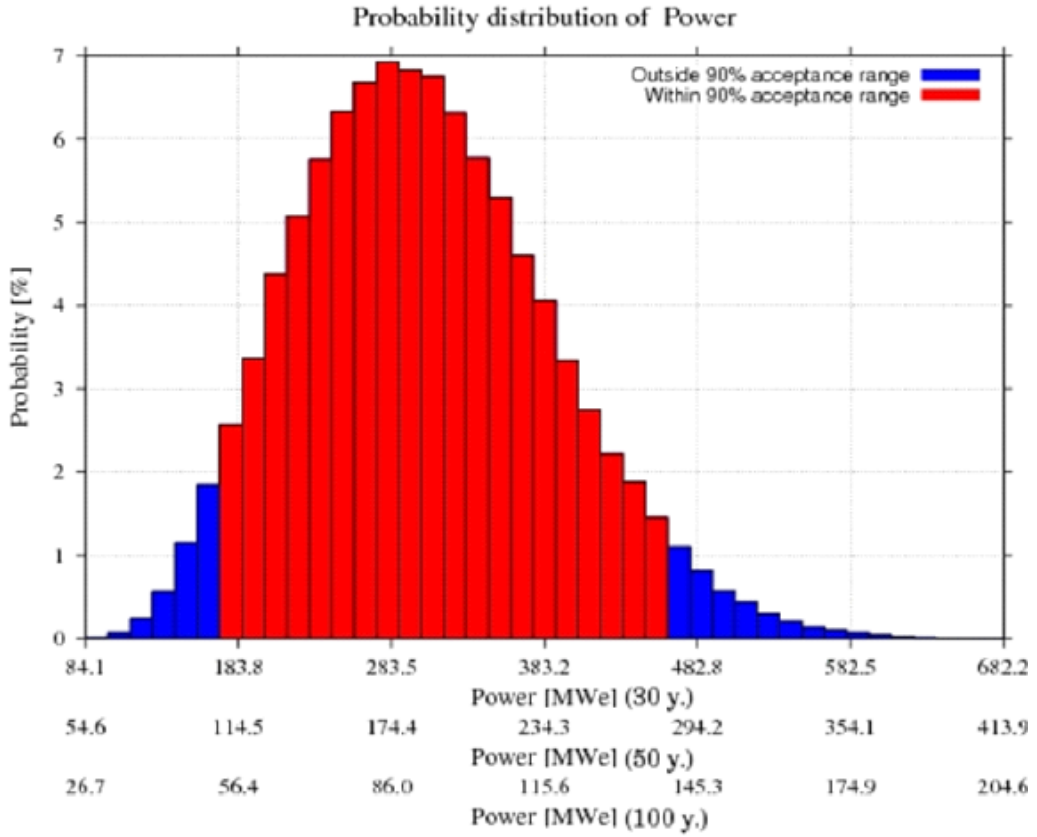
- Injection- and flow testing
- Well test design
- Well stimulations
- Tracer- and interference testing
- Appraisal of existing wells
- Chemical sampling and analysis

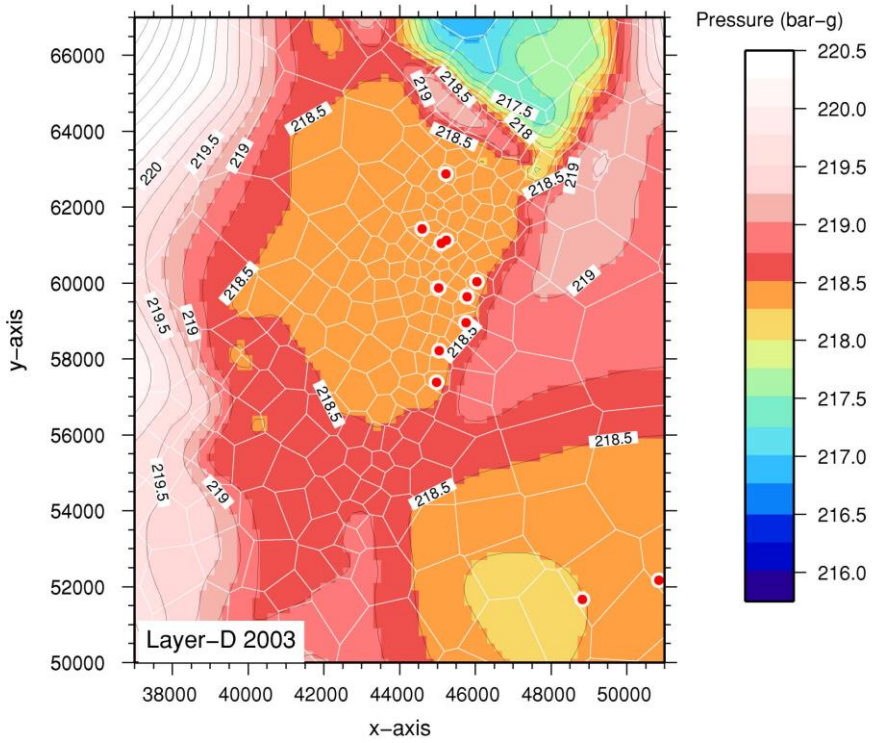
Conceptual models



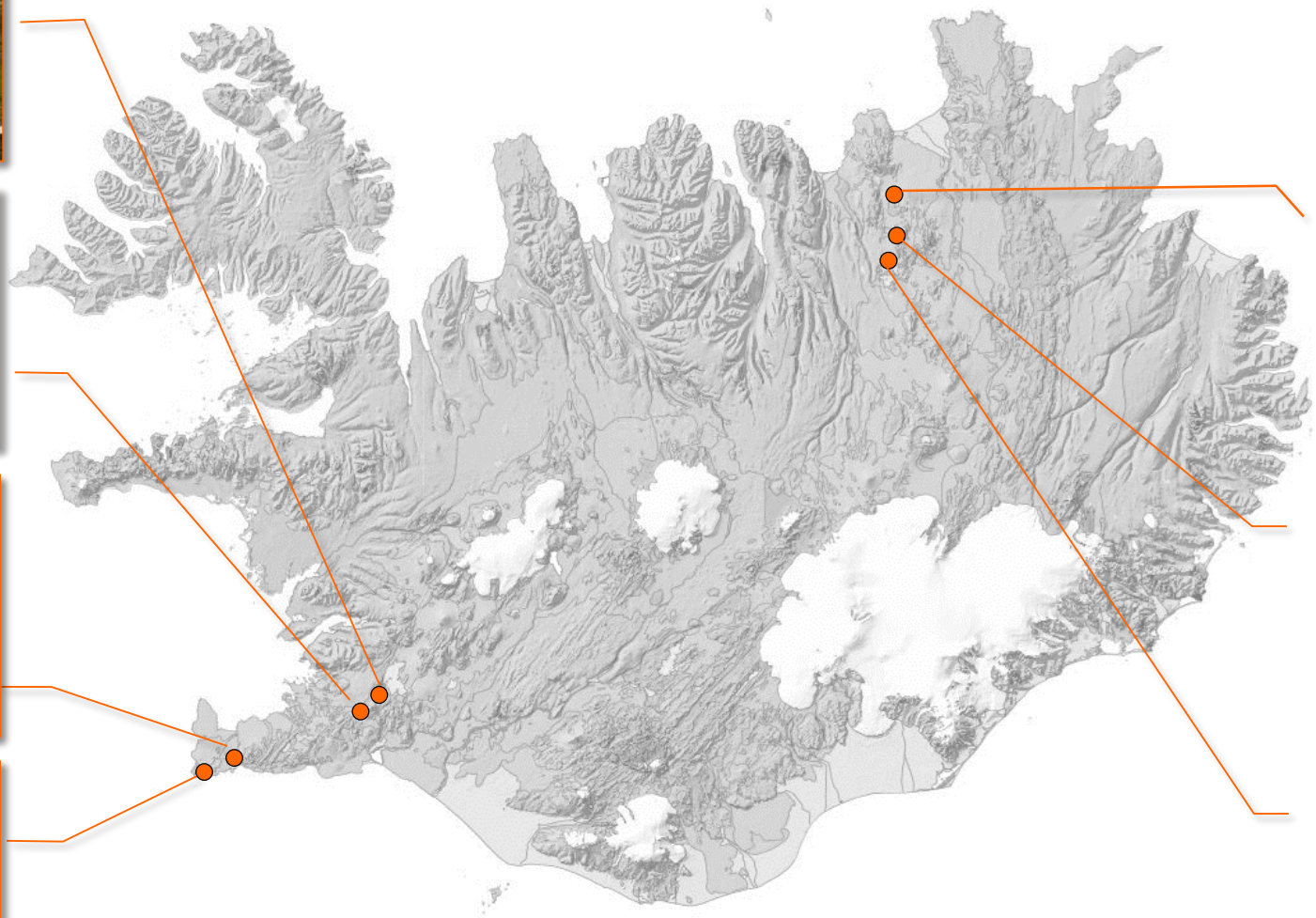
ÍSOR

VOLUMETRIC ASSESSMENT / RESERVOIR MODELLING





GEOTHERMAL POWER STATIONS IN ICELAND

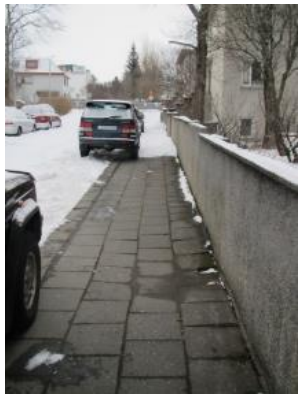


Total 753 MWe

ÍSOR has been a key actor in all development of geothermal power production in Iceland.

SOME DIRECT UTILIZATION OF GEOTHERMAL ENERGY IN ICELAND, WITH ÍSOR INVOLVEMENT

- DISTRICT HEATING – ABOUT 90% OF ALL HOUSES IN ICELAND ARE HEATED WITH GEOTHERMAL
- BATHING AND SWIMMING – SPAS AND PUBLIC SWIMMING POOLS
- AQUACULTURE, SUCH AS FISHFARMING IN REYKJANES PENINSULA
- DRYING OF FISH PRODUCTS, AND OTHER TYPES OF FOOD PROCESSING
- SALT PRODUCTION FROM SEAWATER – NORÐURSALT AND SALTVERK
- SEAWEED PROCESSING PLANT AT REYKHÓLAR BY ÞÓRVERK
- AGRICULTURE, GREENHOUSE GROWING
- PRODUCTION OF METHANOL IN SVARTSENGI
- CO_2 PRODUCTION, HÆÐARENDI
- DIATOMITE PLANT AT MYVATN
- SNOW MELTING / DE-ICING



SOME ÍSOR PROJECTS IN EUROPE

Sao Miguel and Terceira, Azores Islands (Portugal)

- Flow testing of wells and recommendations for further development
- Conceptual modelling
- Siting and design of wells
- Power plant consultation
- Geothermal training

Holland, Belgium

- Well logging and reservoir consultation

Germany

- Well siting
- Consultation on geothermal development and resource assessment in Molasse
- Due Diligence

France
Rheingraben and Guadeloupe

- Monitoring of flow test, evaluation of flow data, Tracer Flow Measurements (TFT), Stimulation
- Monitoring of temperature and pressure changes in the reservoir Study of well integrity (calcite scaling and/or casing problems)

Turkey

- Consultation for World Bank in promoting exploration drilling
- Consultation for Turkish Developing Bank on exploration drilling
- Flow testing and interference testing
- Exploration consultation in several areas
- Consultation on development and resources
- Due diligence and feasibility studies

ÍSOR

Photo Sigurður G. Kristinsson

Thank you

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www.isor.is