



Groundwater protection, Ltd.

2024 OPV

2024



[www.opv.cz](http://www.opv.cz)

# OPV

With more than 30 years of experience,  
„Together, we create a sustainable future“

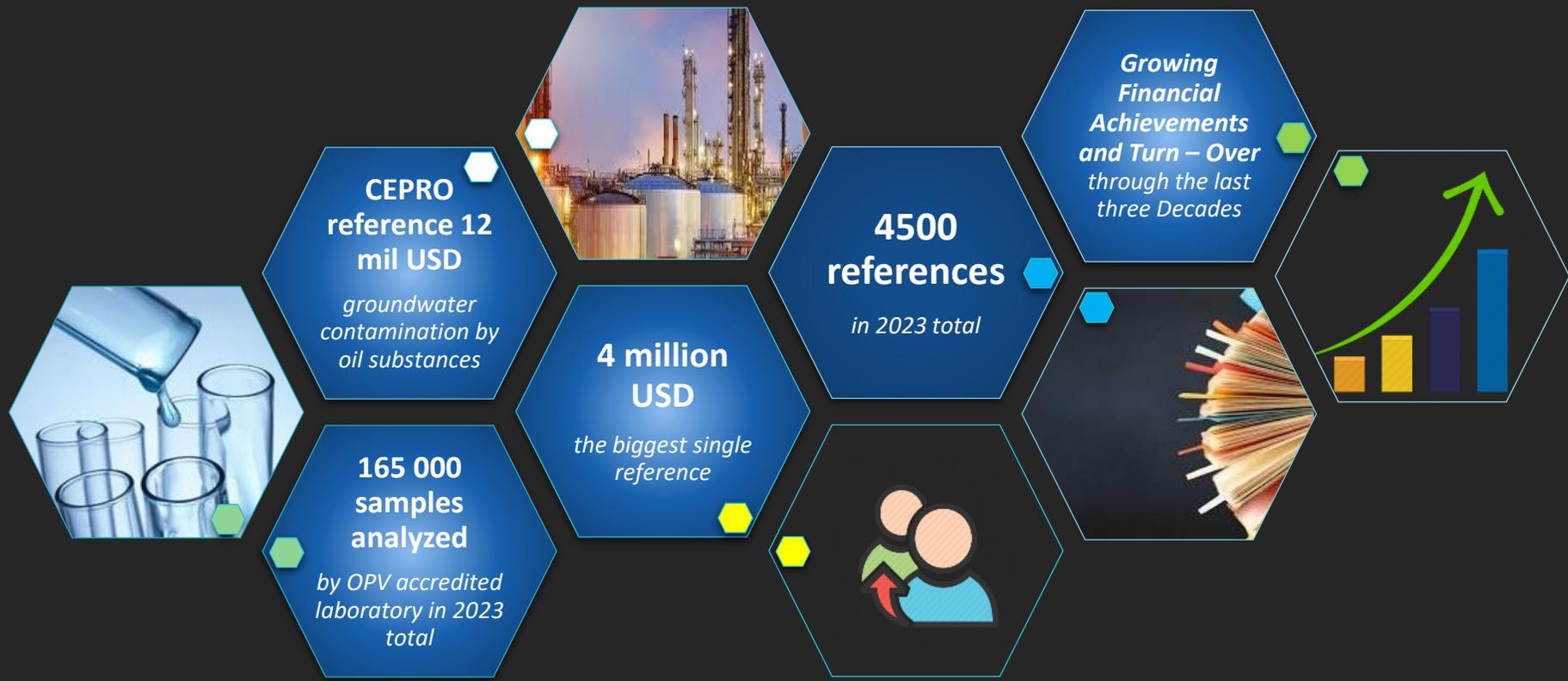
OPV letters stands for „Ochrana podzemnich vod“  
„Groundwater protection“

Company have been founded in 1991 by specialists, having long-term experience in groundwater investigation and rehabilitation. During the upcoming years we developed and focused our portfolio on:

- All types of the geological surveys
- Environmental consultancy
- Remediation technologies for water, air and soil

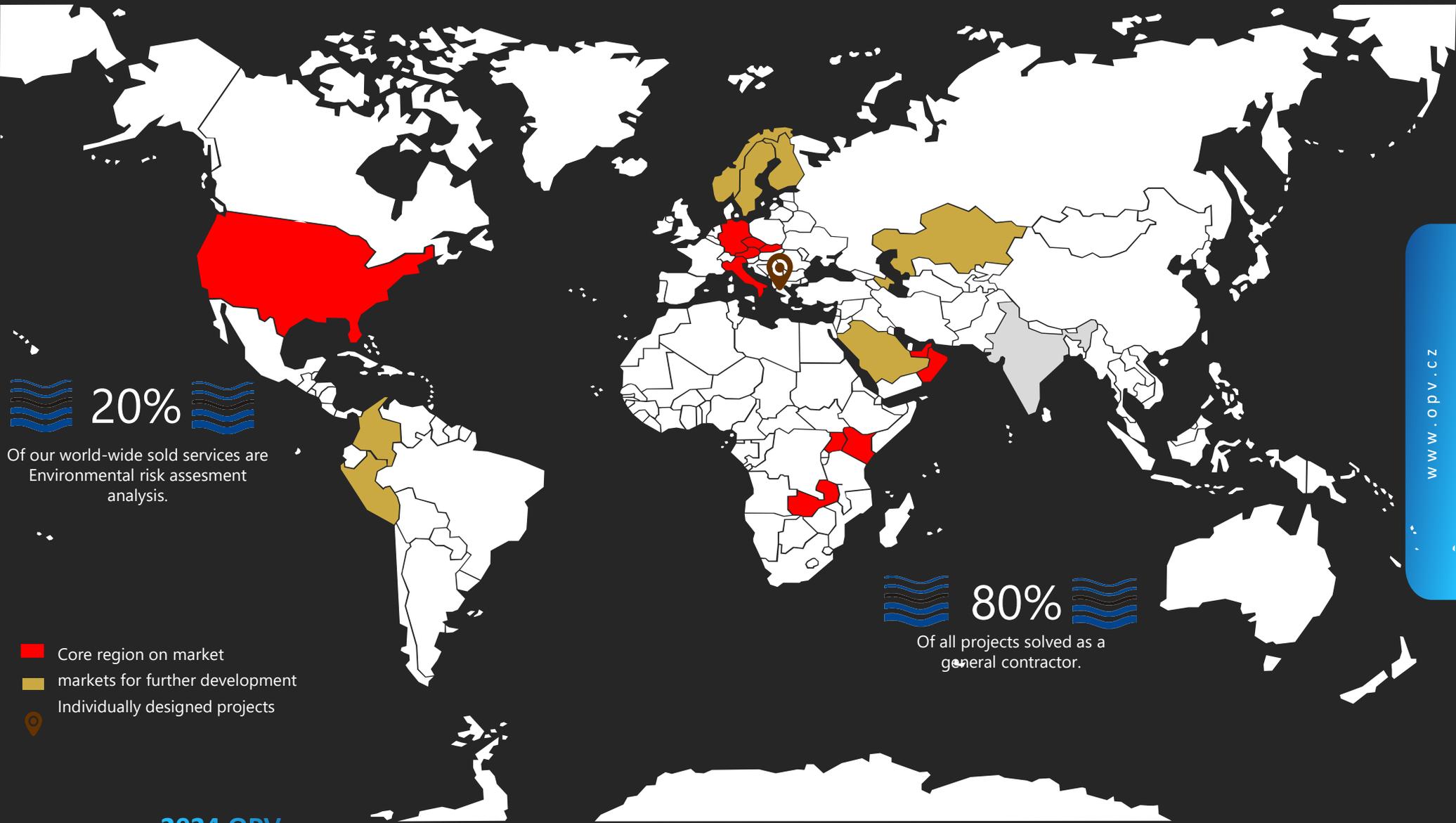
In the recent years company is also focused on:

- Environmental monitoring using IoT solutions and remote sensing technologies like drons and satellites
- Geological data cloud storages
- Artificial inteligenace for the data procesing and management



OPV  
**Achievements**

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20%

Of our world-wide sold services are Environmental risk assesment analysis.

80%

Of all projects solved as a general contractor.

- Core region on market
- markets for further development
- Individually designed projects

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# Portfolio



## Hydrogeological, geological, engineering geological surveys

OPV offers geology surveys for all types of environmental, mining and construction projects, including stratigraphy. ISO reports are for all type of geological surveys.



## Water resources, groundwater investigation

New water resources seeking, verifying the yield of ground water sources; delineate their protection zones; and provide risk assessment analysis under CSN 75 7111 - the national standards.



## Mining, Oil and Gas industry

Company provides comprehensive services in the areas of mineral/oil/gas mining geology, mine design, environmental supervision and surveying works for mining companies.

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# Portfolio



## Contaminated sites remediation

Investigations and remediation of the underground environment. The company proposes designs and performs all the work related with remediation systems, employing the most advanced methods.



## Risk assessment Analysis

We help identify and evaluate environmental liabilities. OPV prepares risk analysis of the detrimental effects on man and the environment caused by contaminated localities.



## Environmental protection services, supervision

Processing environmental audits using the methodologies recommended by the Ministry of the Environment of the Czech Republic and the National Property Fund of the Czech Republic.

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# Licenses and authorizations

OPV Management system is certified for quality management system according to ISO 9001, environmental management according ISO 14001 and implementing ISO 45001 as an International Standard requirements for an occupational health and safety (OH&S) management system. The company actively participates with professional authorities for the development of international standards and regulations.

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## 01 Company licenses

Design, perform and evaluate geological work, and to carry out work classified as mining activities;

## 02 HSE company policy

Due to HSE safety policy, OPV continuously performs:

- Audit and Inspection Management
- Risk Assessment
- Event / Incident Reporting
- Corrective / Preventative Actions
- Health and safety trainings
- Environmental Health Compliance Training

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# Our team

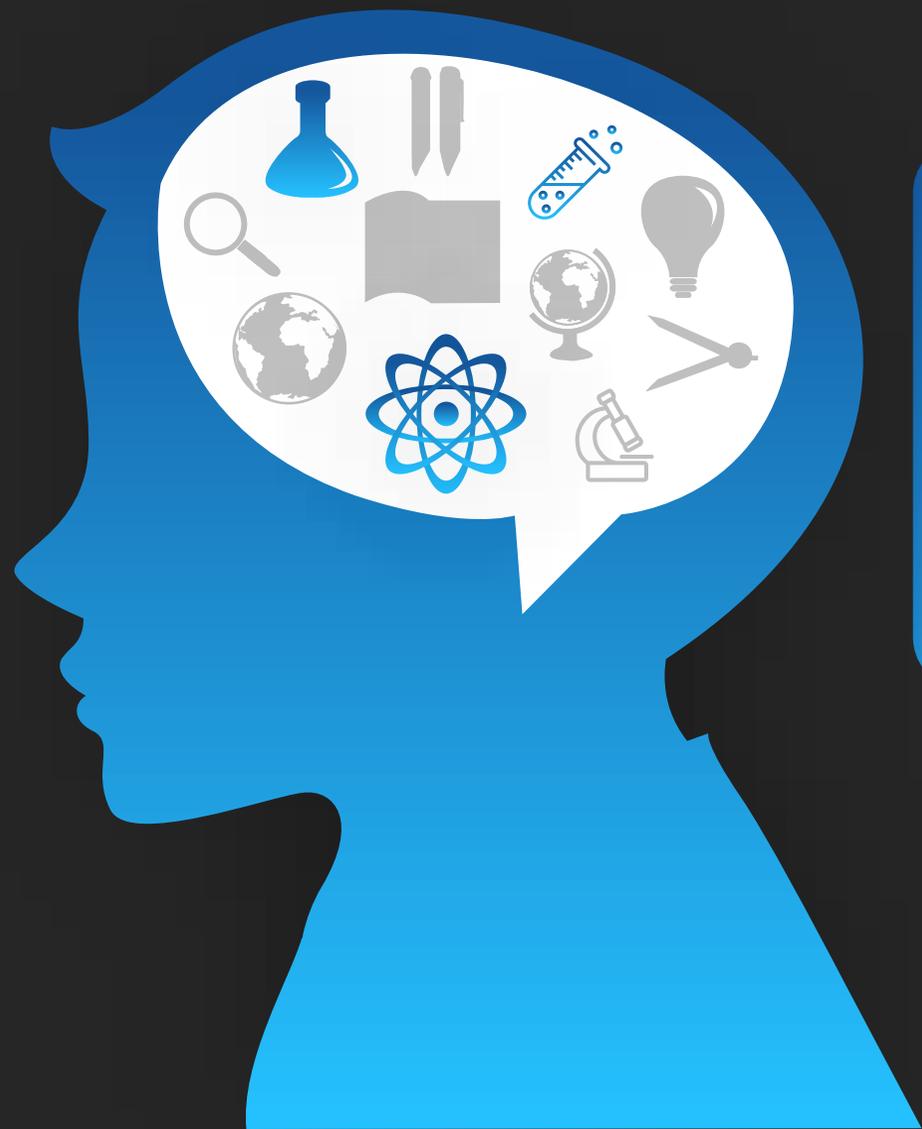
The entire corporate team is very well educated in the areas of: geology, hydrogeology, geochemistry, engineering geology, environmental chemistry, engineering chemistry and analytical chemistry.

**85%**

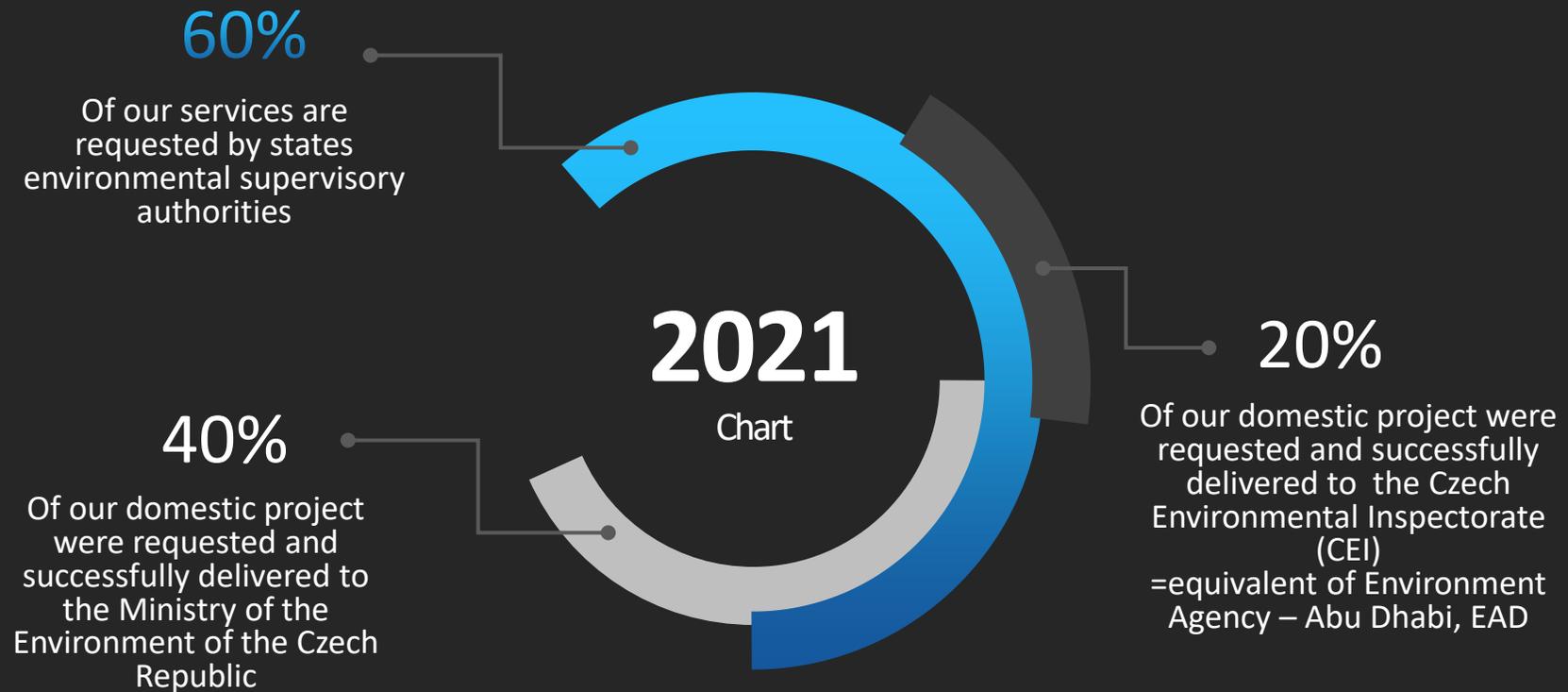
People in OPV team reached university Master's degree education.

**40%**

Of the corporate team reached postgradual Doctorate degree and are actively involved in the R&D development and actively publishing in their field.



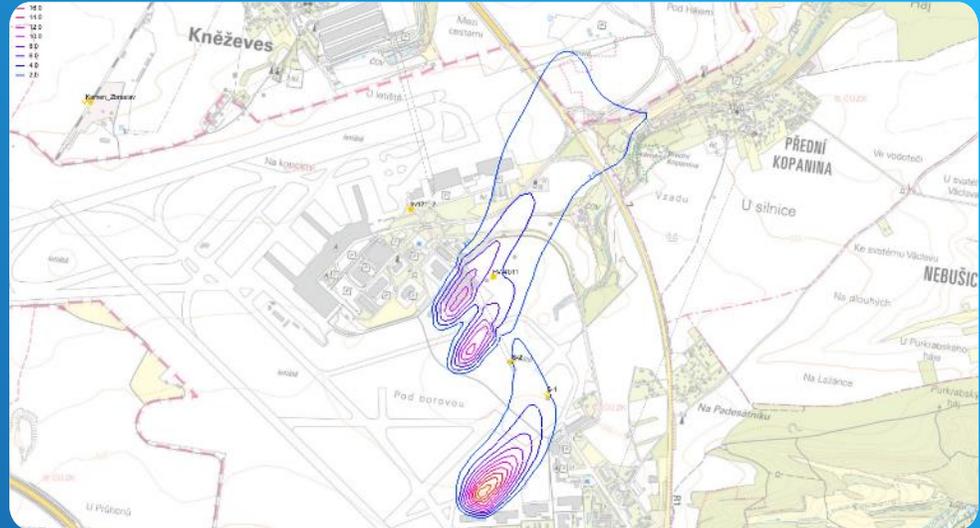
# We Are the Trusted Experts



## We deliver innovative solutions OPV Mathematical groundwater quality and flow modeling

OPV use mathematical modelling to determine groundwater flow a widespread of the groundwater contamination by aviation fuel products on the Prague Vaclav Havel airport. To determine the extent of contamination, groundwater flows etc. sampling, pumping tests and mathematical modeling has been used, including groundwater flow in the rock environment, transport of dissolved substances, processes of natural or stimulated attenuation and biodegradation of pollutants.

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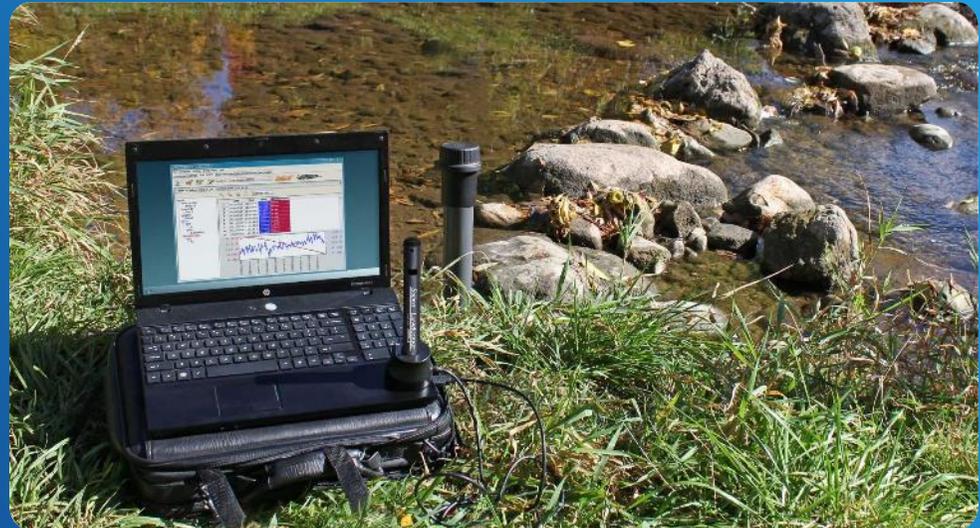
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## We deliver innovative solutions OPV IoT and Cloud environmental monitoring solutions

We design, build and operate our own IoT cloud database (AWS) for global management and control of our environmental sensors in the field and to operate and control our automated remediation equipment

Our environmental sensors (groundwater levelloggers etc.) or remediations stations are equipped with telemetry access to the cloud with AI data processing. Therefore, data could be accessible for our geologists and customers from anywhere in the world and can warn in case of any unexpected or problematic changes.

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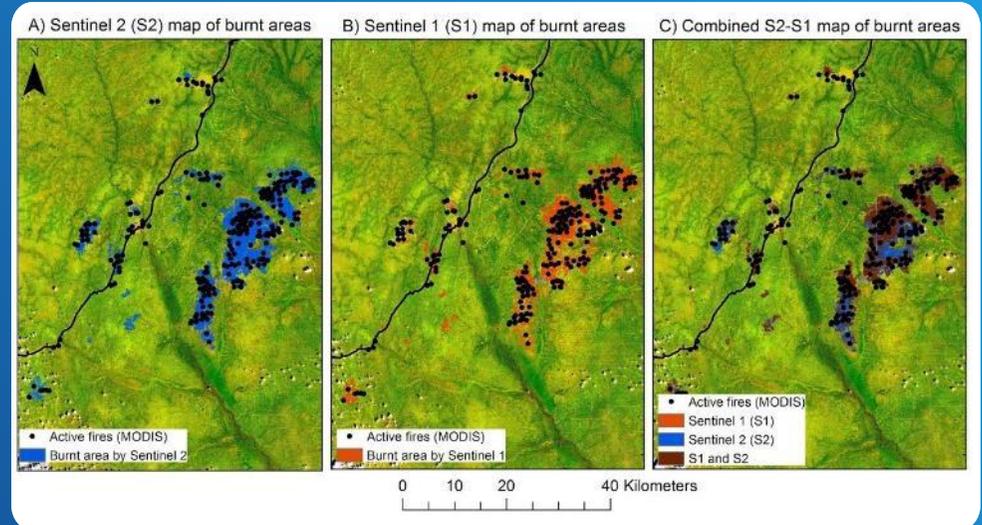
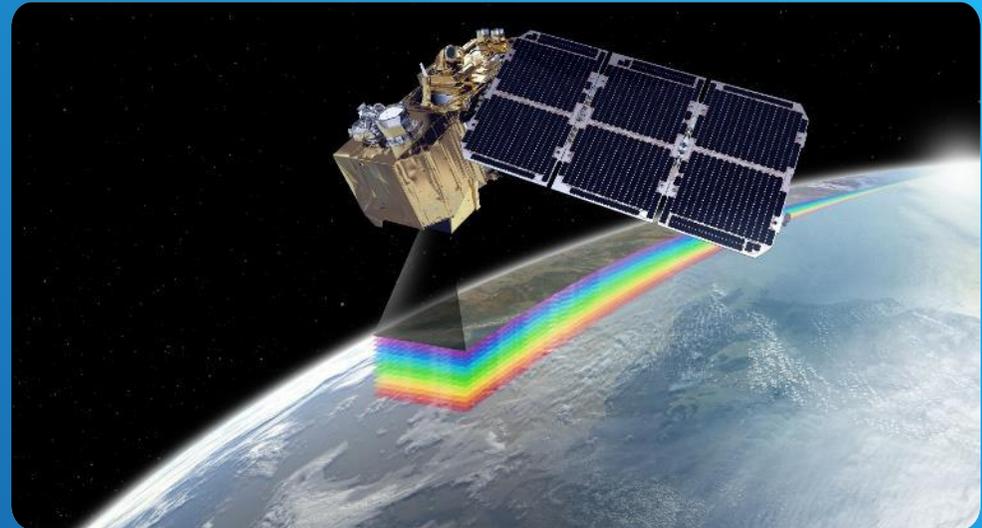
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## We deliver innovative solutions OPV satellite survey monitoring solutions

OPV works with data from remote sensing satellites to evaluate groundwater and surface water resources and possible surface contaminations.

OPV is currently cooperating on the usage and development of the GRACE and COPERNICUS systems with the NASA JPL, ESA, Astronomical Institute of Uni Bern, German Research Centre for Geosciences Et al.

For the environmental monitoring we use GRACE/COPERNICUS/LANDSAT etc. systems



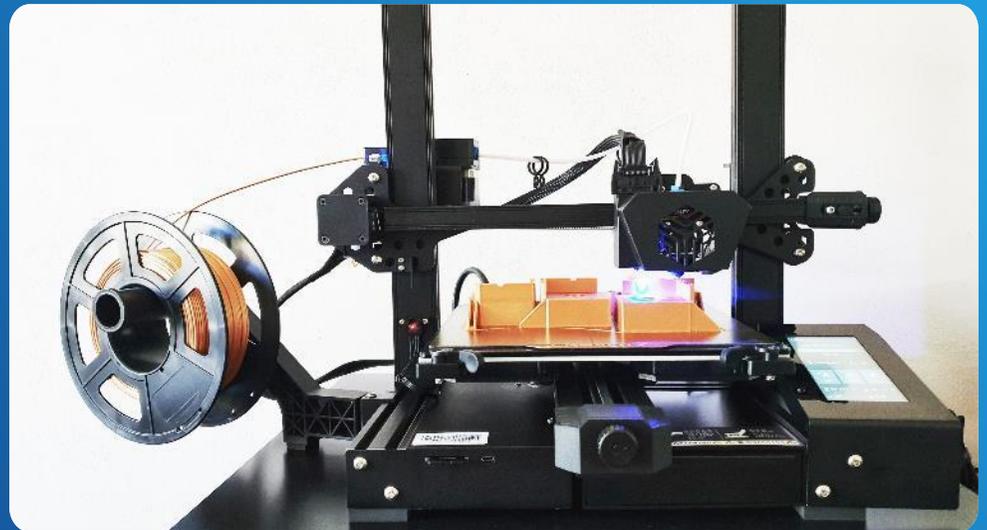
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## We deliver innovative solutions OPV drone survey environmental solutions

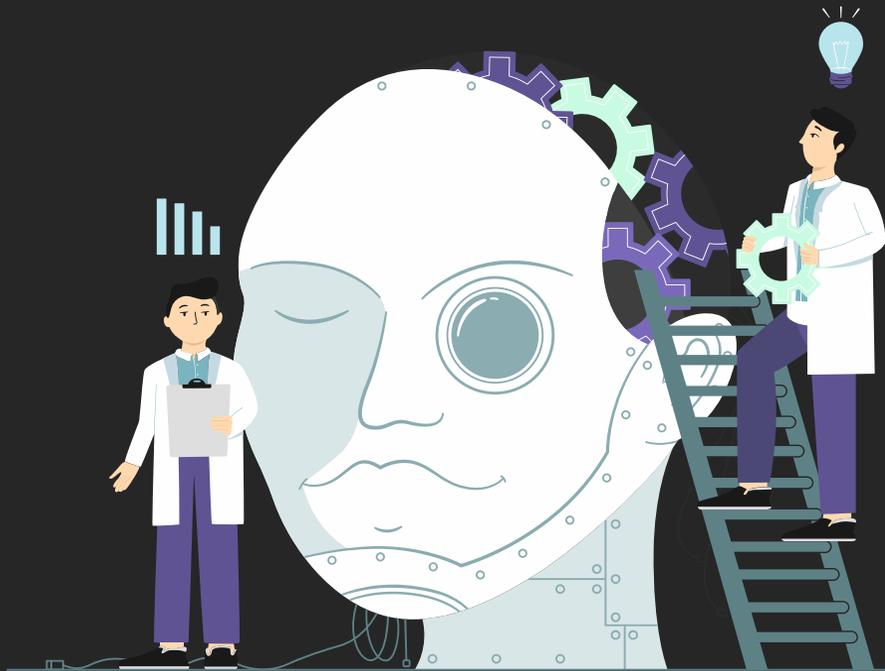
We operate our own drone survey systems, to provide spectral and 3D surface model mapping. Drone survey data are creating orthophoto maps with higher spatial resolutions than from satellites and could be used also for water/soil quantification, contamination surveys etc.

Company use its own 3D printing solutions for the cloud connected environmental sensor casings, spectral camera systems for aerial surveys and datalogger/telemetry system parts.



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# Newest R&D Project



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## AI GEOLOGIST

2021-2025

Company works on development of the Artificial intelligence (AI), connected to IoT and remote sensing technologies, understanding the hydrology/hydrogeology and geochemistry problematic. Such AI can bring a whole new perspective and possibilities how to protect and enhance water resources for the future generations.

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## Africa case study Environmental risk assessment analysis

In 2009, OPV cooperated on the implementation of a development cooperation project between the Ministry of the Environment of the Czech Republic and the association "Zambia" represented by the OPV and Czech Geological Survey. The developed project was "Assessment of the Impacts of Mining and Processing of Mineral Resources on the Environment and Human Health in Selected Areas of the Central and Copperbelt Provinces of Zambia".

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### Solution

Environmental monitoring of heavy metal concentrations, well systems designed, risk analysis implemented.



### The result

A risk assessment analysis has been carried out for the entire area concerned. Safe water resources identified and protected.



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## Czech Republic case study

### Groundwater monitoring

Undeground water levels and quality monitoring. More than 350 references around the Czech republic and Slovakia.

- Technical conditions of water production wells
- Present situation of piezometric head
- Time development of piezometric head for single wells
- Results of pumping tests

Description of groundwater flow system

Optionally, a model of groundwater flow

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Pumping test of all production wells performed are usually using constant pumping rate method .



All tests evaluated using methods for transient flow with the AQTESOLV software. We use also telemetry systems to our IoT cloud, with AI for the data Processing.

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## Czech Republic case study

### Remediation of the heavy metal's contamination

PRAGOVKA is territory with an area of more than 4 hectares, exposed to long-term effects of the handling of large volumes of dissolved chromium Cr6+heavy metals solutions, with the risk of endangering drinking water sources.

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#### Solution

On the basis of the risk assessment analysis and mathematical model, a unique automatic remediation system was designed to reduce the state of the chromium and precipitate it out of the environment. Including state of the art in-situ high pressure injection system.



#### The result

Heavy metal contamination reduced/removed from the saturated and unsaturated zones/collectors.

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## Middle East case study Hydrogeological evaluation

Since 2018, OPV has been involved in several interesting programs in the Middle East region, one of them is also the company's entry into the UAE market, specifically with a branch in Abu Dhabi, one of our most interesting customers in this market was ADNOC Gas Processing company, for which OPV evaluated the status and quality of groundwater reserves on the gas mining site BuHasa. OPV further expands its operations to Oman and the Kingdom of Saudi Arabia, but Abu Dhabi remains a company central location.



### Solution

Evaluation of the quantity and quality of groundwater resources at the Bu Hasa gas mining area.



### The result

Following to these works, ADNOC Gas Processing received necessary guidance for the sustainable groundwater usage in the area.

# THANK YOU

Trust and meeting individual needs of the customer are the key factors in the establishment of long-term relationship

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- Geological surveys
- Environmental consultancy and IoT monitoring
- State of the art technologies