

DNA2Explore

Publieke samenvatting / Public summary

Aanleiding

Biodentify has developed a new innovative method to estimate prospectivity before drilling using DNA fingerprints of seabed samples. The causal relationship is that part of the microbial ecosystem is an indicator for vertical microseepage from a field. Purpose of the methodology is to prevent the drilling of dry wells. It successfully supported ranking prospects for Wintershall in the Dutch part of the North Sea. However, for extrapolating predictions to other parts of the North Sea, a larger training set is needed and seabed sampled locations with known prospectivity are scarce. Because DNA is maintained forever, the idea in this project is to use cuttings stored in the 'Kernhuis' from drilled wells in the past to train a predictive model for the whole North Sea based on thousands of measurements. The innovation has to be extended further to correlated DNA fingerprints of cuttings with seabed samples, but in this way exploration to find the last fields in the North Sea before decommissioning can be supported in a very cost effective and green way by just analyzing (stored) seabed samples on DNA.

Doelstelling

The main goal of this study is use cuttings stored in the Kernhuis to estimate prospectivity of new seabed sampled locations in the North Sea prior to drilling. This to prevent drilling of dry wells. For achieving this the innovative and for exploration game changing method of Biodentify, has to be stretched further to find the correlations between the predictive biomarkers in cuttings and seabed samples.

Projectinformatie / Project information

Projectnummer / Project number

TKITOETKI2018-10-GE

Subsidiebedrag / Grant amount

€ 140.000,00

Algemene informatie / General information

Penvoerder / Secretariat

Biodentify BV

Publicaties en materialen / Publications and attachments

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Eindrapport DNA2Explore (TKI2019-10-GE)

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Korte omschrijving

The project consists of the following work packages (WP's): WP1 Determining the dataset and taking soil samples of the upper part of the cuttings in the 'Kernhuis' • Sample representative data set of about 1000 locations; about 500 producing locations and 500 dry locations out of the 2000 possible offshore drilled locations in NLOG WP2 Analysing the samples on DNA • Get the DNA fingerprints of the cuttings WP3 Modelling and validating predictions by checking modelled vs real prospectivity of the wells belonging to the cuttings • Determine if there is a predictive model of biomarkers that differentiates between producing and dry locations of the cuttings by developing a Machine Learning algorithm (Figure 3). WP4 Predicting prospectivity of seabed samples to determine an indicative 'accuracy score' WP5 Interpretation of results and reporting

Resultaat

The project has the following deliverables: • A dataset of DNA fingerprints from soil samples out of cuttings stored in the 'Kernhuis'. • An analysis if it is possible to estimate for new locations with seabed samples if there is: 1) no hydrocarbon leakage from a prospect, or 2) micro-seepage of a hydrocarbon accumulations (not measurable by 'normal detection devices') by using the upper part from cuttings of drilled wells.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

Voor meer informatie over de Topsector Energie, ga naar www.topsectorenergie.nl.

Voor meer informatie over de TSE / Energie-Innovatie regelingen die RVO aanbiedt, ga naar www.rvo.nl/tse.