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News

Innovation and Industry

Climate, environment and circular economy



**IFP Energies nouvelles (IFPEN) and Valorhiz have forged a partnership to develop methods for analyzing soils with low carbon content in order to assess their potential to store atmospheric carbon and use them as carbon sinks. In response to the challenges of climate control and food security, this partnership is in the framework of the “France Relance” scheme to support the employment of active researchers and young graduates.**

Although soils with low organic carbon content have received less attention than carbon-rich soils, their storage potential is particularly high. Existing analytical methods do not measure the quantity and quality of organic matter in soils with poor carbon content with enough accuracy or reliability. Therefore, it is crucial to improve our understanding of the dynamics of organic matter in these types of soils in order to use them as carbon sinks and assess how they function as ecosystems.

## Pooling expertise to roll out a pioneering analysis method

IFPEN and Valorhiz are pioneer in research and development of innovative method that is specifically geared towards soils with low carbon stocks. This collaborative approach draws on IFPEN's historical knowledge and experience in soil analysis and on Valorhiz's innovative and systemic expertise in functional diagnosis and ecological restoration of soils and ecosystems.

IFPEN is contributing with its innovative Rock-Eval® characterization technology which is used in a variety of applications. The Rock-Eval® tool, which is based on thermal analysis, does not require any pre-treatment of soils, and provides data on organic carbon and carbonate content, as well as on the quality of organic matter, more quickly and efficiently than with conventional methods. On its side, Valorhiz is contributing to the project by providing its innovative monitoring methodologies and decision support tools for sustainable soil management.

## Delivering reliable indicators to restore function to carbon-poor soils

In accordance with the "France Relance" scheme, the two partners have recruited a young researcher in soil organic matter for a period of 15 months. Shared between IFPEN and Valorhiz, this engineer (Ph.D. in Environmental Sciences) will compile a panel of more than 150 representative samples from the Valorhiz database to analyze them using the Rock-Eval® tool, interpret them with the help of IFPEN researchers, formulate new descriptors and compare the Rock-Eval® data with the data collected using techniques developed by Valorhiz.

"We are delighted with this initiative undertaken with an innovative SME like Valorhiz to work on sandy soils with high potential to mitigate the impacts of climate change. Through improved knowledge of these soils and more reliable and relevant indicators, we will be able to refine the diagnostic and monitoring tools needed to roll out effective practices to limit greenhouse gas emissions." explains Jean-François Argillier, program manager at IFPEN for the Climate/Soil Interactions and Water Cycle program.

"Through this project, Valorhiz is looking forward to establishing a long-lasting collaboration with IFPEN, a world-class expert in the domain of carbon in soils. In the long term, Valorhiz hopes to incorporate this new methodology into its innovative decision support tools, in order to offer its clients systemic solutions to address the complex issues of regional planning and development, natural mitigation of climate change impacts and ecological restoration of soils as a basis for the functioning of ecosystems." underlines Hassan Bouckim, CEO and president of Valorhiz.

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### About IFP Energies nouvelles

IFP Energies Nouvelles (IFPEN) is a major player in research and training in the areas of energy, transport and the environment. From scientific concepts within the framework of fundamental research through to technological solutions within the framework of applied research, innovation is central to its activities, hinged around four strategic priorities: climate, environment and circular economy; renewable energies; sustainable mobility; responsible oil and gas

## About Valorhiz

Valorhiz specializes in the design, supply and implementation of innovative solutions for functional diagnosis, biological treatment and monitoring of soils and ecosystems. Our solutions are designed for the environment, ecology, landscape and agriculture markets. They are directed at all project phases. Valorhiz also undertakes turnkey assignments for its clients in specific market segments. w  
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IFP Energies nouvelles and Valorhiz are teaming up to study the potential of using soils with low carbon content as carbon sinks

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