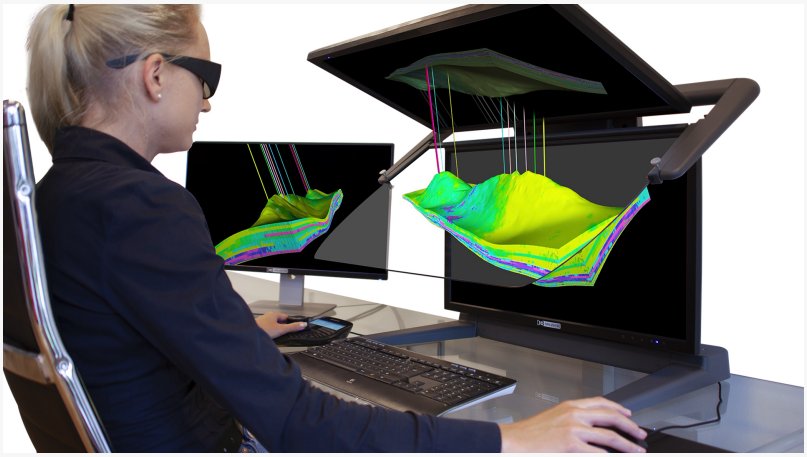
3D PluraView – stereoscopic 3D-visualisation for the oil- and gas industry

Optimal visualization of 3D geodata for geologists and geophysicists



MIESBACH, BAVARIA, GERMANY, December 7, 2023 /EINPresswire.com/ -- In order to optimize the exploration and production of oil and gas fields, assess potential and increase yield, it is mandatory to understand all aspects of the geological subsurface situation. A higher level of understanding will lead to an earlier recognition of problems, reduce avoidable delays and associated substantial expenses. The optimal visualization of 3D geo-datasets is the key for geologists and geophysicists to analyze and evaluate geological and geophysical information components with the highest degree of confidence. The stereoscopic 3D PluraView dual-screen systems with integrated beam splitter mirror from Schneider Digital, offer such an optimal 3D visualization right at the workplace. With up to 4K resolution per screen and stereo-channel, the user benefits from a readily available, extremely bright and high-contrast 3D-stereo display on his/her desktop, when evaluating stratigraphic profiles, seismic 3D data, borehole information and derived 3D models. In the oil and gas industry, stereo-capable software platforms, such as Petrel from Schlumberger, Halliburton GeoProbe or MapInfo Discover are utilized. These allow the professional user to integrate, display and analyze all relevant subsurface information components quickly and comprehensively, display variants and associated simulations, improve play understanding and ultimately support more accurate hydrocarbon recovery forecasts. The visualization in 3D-stereo is an integral part of a ‘best-practice toolkit’, ensuring the success of the project.

Petroleum engineers and geoscientists spend a substantial amount of time combining 2D and 3D data sets from multiple sources to create interpolated 3D digital subsurface models. These datasets are used extensively over longer periods of time by the oil and gas industry in a variety of formats, with varying resolutions and in very large volumes. The stereoscopic monitors of the 3D PluraView series offer the highest stereoscopic display quality at the workplace with their proven beam splitter technology. They are the decisive interface for the visualization, for the

creation and analysis of digital 3D 'twins'. All recorded surface and subsurface structures, as well as dynamic processes that are relevant for the exploration and production of oil and gas fields, can be visualized on the stereoscopic 3D monitors from Schneider Digital.

Optimum visualization for stereoscopic 3D geo-datasets at the workplace

The 3D PluraView monitors are ideally suited to display 3D subsurface reservoir models stereoscopically in 3D, together with detailed surface datasets. With two high-resolution screens, the stereoscopic image pairs for the left and the right eye are combined by the so-called 'beam splitter', a specially coated transflective mirror, to form a very bright and high-contrast holographic stereo image.

The stereoscopic visualization is an essential part of professional geology software, such as Schlumberger Petrel, Halliburton GeoProbe, Baker Hughes JewelSuite, the Dassault GEOVIA Modules or MapInfo Discover. As the global market leader in the GIS sector, Esri has implemented with ArcGIS Pro a fully stereoscopic 3D GIS environment. ArcGIS Pro enables also the mapping of stratigraphic and tectonic subsurface structures with 3D voxel elements.

The 3D PluraView monitors by Schneider Digital represent this ‘state of the art’ in terms of hardware. They are by far the most practical and highest resolution 3D-stereo desktop systems currently available and are designed for fatigue-free, daily use in standard office environments as the perfect visualization solution for:

• 3D spatial data visualization - stratigraphic and tectonic surfaces
• Interpretation of 3D seismic data
• Integration of 3D surface and subsurface datasets
• Assessment and analysis of reserves
• Play development planning
• 3D modeling of property rights
• Preparation and visualization of directional drilling pathways
• Reservoir simulation, pressure drop modelling
• Industrial plant simulation / installation of production technology
• Dynamic modeling of finite elements (FEM)
• Oil & Gas 3D printing applications
• Software training for geologists, geophysicists, petroleum engineers
• Geo-scientific education

Reliably authorize exploration results through 3D models

A comprehensive and accurate understanding of the available 3D geological and geophysical data is required to comprehend the stratigraphic and tectonic structures, as well as the rock properties of oil and gas reservoirs in relation to their production potential. Among other things, seismic 3D profiles are recorded for this assessment, to identify reflective horizons, structures

and faults. Together with results from other data sources, such as existing well logs, aero-magnetics and electrical resistivity tomography, all information is merged to create the most competent 3D reservoir model possible.
Especially at the transition point from exploration to production activities and associated surface installations, not only economic aspects are relevant, but strict environmental protection measures also have to be taken into account. Meeting associated requirements for official approval procedures are critical decision issues. Geospatial datasets that have been prepared on the desktop on 3D PluraView systems can be visualized just the same on large-format, stereoscopic projection systems and LED walls for larger groups of viewers, for instance for the company decision makers and public officials and thus presented in a much more easily understandable way.

Benefits of 3D stereo visualization technology for oil and gas companies:

• 3D PluraView monitors are fully compatible with almost any workstation, even laptop hardware. Most professional software applications require only a standard professional graphics card for visualization.
• No need for special drivers or IT configurations, no stereo signal emitters as required by active shutter glasses. 3D PluraView monitors work with standard NVIDIA or AMD graphics drivers and are future-proof, operating with the latest Windows or Linux versions.
• Absolutely flicker-free and therefore permanent, comfortable usage thanks to very light, passive and cross-polarized stereo glasses.
• Shared stereoscopic viewing for small workgroups of two to six users, especially with the 27" and 28" 3D PluraView models.
• Fully integrated and usable in normal office daylight environments due to bright and high-contrast displays with up to 4K resolution per stereo channel.
• True spatial depth perception in 3D-stereo display mode, promoting an intuitive and faster understanding of stratigraphic and tectonic features and relationships.
• Best 3D-stereo visualization solution for geospatial professionals and engineers, supporting all stereoscopic features of leading software applications.
• Substantial decision support through 3D visualization, better validation of work results and error avoidance.

Read more.

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