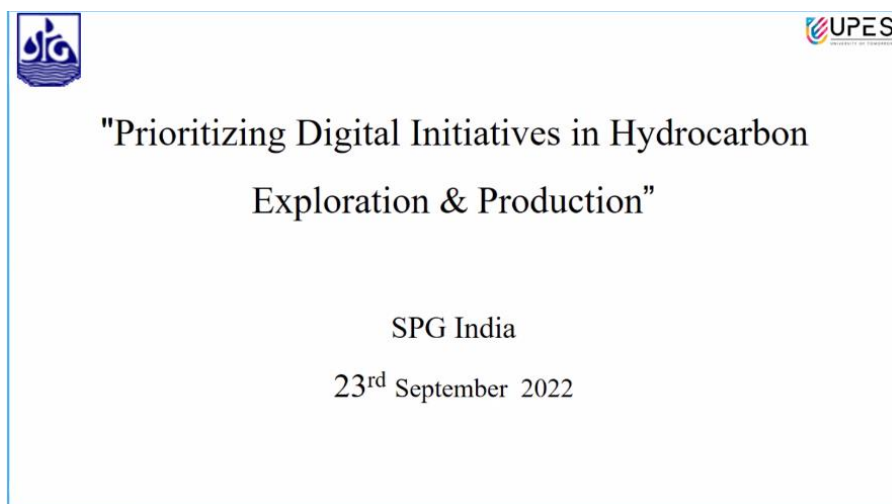


SPG organized a technical webinar on 23rd September 2022 at Dehradun

A technical webinar was organized by SPG, India on "Prioritizing Digital Initiatives in Hydrocarbon Exploration and Production" on 23rd September 2022 by Mr. Promod Kumar Painuly, Professor, Oil and Gas, University of Petroleum and Energy Studies (UPES), Dehradun.



The technical webinar highlighted some of the aspects of digital initiatives and data mining tools with examples of practical cases of Big data, AI-ML, digital twin, DAS (Distributed Acoustic Sensing) and block chain across hydrocarbon industry. Mr. Painuly started the webinar by discussing commercial high-impact drilling/discovery in the world in the year 2021 and argued how digital rock physics could be a key to discover more oil out of the ground. The digital rock physics project poses an energy efficient solution to the challenge of extracting more oil from carbonate reservoirs. He emphasised on the behaviour of how oil inside the rock changes when one is dealing with different size pores. Oil in smaller pores is more difficult to get out, which is why we need to understand the complexity of the rocks and understand how fluid moves in these small pores. He then discussed about focused ion beam-scanning electron microscopy (FIB-SEM) technology which can give extremely clear 3D image of the microstructure of the porous carbonate rocks. FIB-SEM enabled to capture high-resolution images at the nanoscale level, identify what is rock and what is pore space. Prof. Painuly then moved to the topic on fibre optic sensing which enables continuous, real-time measurements along the entire length of a fibre optic cable. Unlike traditional sensors that rely on discrete sensors measuring at pre-determined points, distributed sensing utilizes the optical fibre. He discussed about merits of different optical fibres related tools viz Distributed Acoustic Sensing (DAS), Distributed Temperature Sensing (DTS) and Distributed Temperature Gradient Sensing (DTGS) etc. Prof. Painuly then discussed about big data solutions.

The most common solution widely used in handling big data is 'Hadoop' which provides efficient solution for data storing and processing and for system management and integration different modules. There are wide range of application of Hadoop in Oil and Gas industry which were discussed briefly. Lastly, Prof. Painuly discussed about artificial intelligence and machine learning and its importance in the Oil and Gas industry.

The webinar session was attended by the members of SPG-India from all over the country and other Geoscientists of KDMIPE, GEOPIC, Frontier Basins and professors and students from different Institutes. The lecture was well appreciated by all the participants and praised by one and all for its contents and thoughtful discussion provided by the presenter. During the webinar session participants actively participated on discussion and asked various question related to the topic. Chief Editor of GEOHORIZONS, Mr. Satinder Chopra was also present in the webinar, and he interacted with Prof. Painuly discussing advancement in data sciences and how this tool can be used in the future of hydrocarbon industry.

Earlier, Shri Onkar Singh, Secretary SPG-India gave the welcome speech. The vote of thanks was given by Shri Subash Kumar Sharma, Treasurer, SPG India. The entire webinar session was coordinated by Dr. Jitendra Bhatt, Joint Secretary, SPG-India. [G](#)

Did you know?

1 barrel of crude oil is equivalent to 42 US gallons.

1 gallon is exactly 3.7854 litres.

1 barrel is exactly 158.9873 litres.

Why is crude oil sold in barrels?

Interestingly, no one actually measures oil in barrels, and it is not even transported in barrels. When oil was first struck in Pennsylvania in 1859, and its production started, explorers were looking for a way to transport it. At the time whisky was being transported in barrels with a standard size of 40 gallons, and thus the inspiration came from the whisky industry. The oil explorers adopted 40-gallon barrels as a standard measure, to which they would add another 2 gallons to cover spillages during transportation to their destinations. Oil was being transported in barrels in those days but would not be efficient or economical today. These days, it is generally pumped into tankers or cargo ships, but the term barrel has stuck till today.