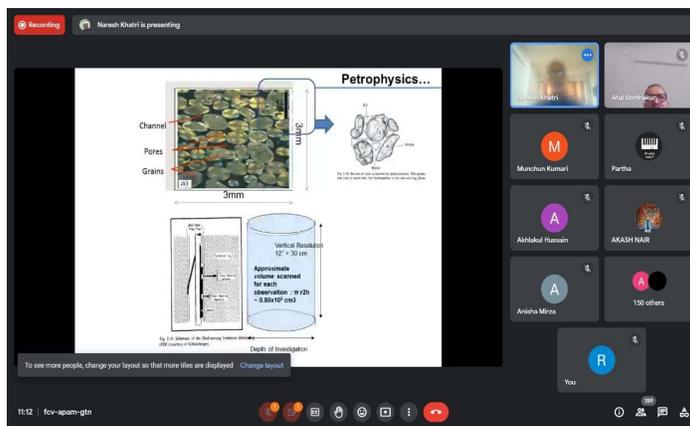


DEPARTMENT OF APPLIED GEOLOGY ORGANIZED GEOSYNERGY

Student chapter of the Society of Exploration Geophysicists, Dibrugarh University initiated to organize the inaugural webinar of “Geosynergy” on 11th March, 2023 in collaboration with University of Delhi and IIT Kharagpur Student Chapters. GeoSynergy is a program that marks the collaborative effort of students of Geophysicists from these three universities of India. This event is a testimony of commitment promoting knowledge sharing and advancing in the field of exploration and applied geophysics. It aims to bring together eminent geophysicists of national and international repute to share their knowledge and experience in the latest advancements in the field of geophysics amongst the students. Through this event it is expected to foster a culture of collaboration, learning and innovation. Interactive sessions and technical workshops are planned that will provide opportunity for the participants to engage in discussions and gain hands-on experience.

The poster features the logos of the Society of Exploration Geophysicists (SEG) for Dibrugarh University, Delhi University, and IIT Kharagpur. The main title is "GeoSynergy" in a large, stylized font. Below it, it states "A collaboration of SEG Dibrugarh University Student Chapter, SEG Delhi University Student Chapter and SEG IIT Kharagpur Student Chapter." The webinar topic is "INAUGURAL WEBINAR ON: 'RESERVOIR CHARACTERIZATION-ROCK PHYSICS AND SEISMIC CHARACTERIZATION OF SUBSURFACE FLUIDS AND LITHOLOGY'". The speaker is Naresh Kumar Khatri, Ex Dy. Gen. Manager (Geophysics), ONGC. The event is scheduled for Saturday, 11 March 2023, at 11:00 AM, and will be held on Google Meet.

In the introductory speech Mr. Akash Nair, President of SEG IIT Kharagpur Student Chapter



welcomed the guests and participants and spoke about the aims and work plans of GeoSynergy. Ms. Namrata Saikia introduced the Guest Speaker Mr. Naresh Kumar Khatri to the audience. Mr. Khatri who is currently working as an independent petroleum geophysicist consultant and faculty. He is Former- Deputy General Manager (Geophysics) at ONGC, endowed with a long period of experience in exploration and development of petroleum reservoirs.

He spent 24 years at INTEG, GEOPIC, Dehradun and Institute of Reservoir Studies, Ahmedabad, India. He has executed projects as member or leader of multidisciplinary teams. He has guided students from various institutions and universities for their summer training and dissertation at ONGC and lectured at regional chapters of society of petroleum geophysicist. He also has 20+ papers published on national and international journals and equal number of papers presented on conferences. Mr. Khatri delivered lecture on the topic “Reservoir Characterization– Rock Physics & Seismic Characterization of Subsurface fluid and lithology”. He talked about V_p & V_s of rocks, related to petro physical properties through rock elastic parameters. He also discussed about

Amplitude Variation with Angle (AVA) ,multicomponent seismic captures of Rp and Rs, Vp and Vs and how the elastic parameters responds differently to gas hydrates, organic shales, pore pressures, steam injection etc.

Rock Physics; K, μ , therefore Vp and Vs respond differently to Lithology and fluid variation

Relation of Rock Moduli to porosity, Pore Space Compressibility, Lithology and fluid saturations.....Betti-Rayleigh reciprocity theorem and Gassmann relation

Dependence on fluid saturations.....
 For Given Lithology , porosity and Pore Space Compressibility
 $1/\mu = 1/\mu_m + \phi / (\mu\phi + \mu_f)$ where $\mu_f = 0$ for non viscous fluids
 $1/K = 1/K_m + \phi / (K\phi + K_f)$ where $K_w \sim 2.5$, $K_o \sim 0.3$, and $K_g \sim 0.04$ Gpa

$V_s = (\mu/\rho)^{1/2}$
 $V_p = ((K+4\mu/3)/\rho)^{1/2}$

Dependence on lithology.....
 For Given fluid saturation, porosity and Pore Space Compressibility
 $1/\mu = 1/\mu_m + \phi / (\mu\phi + \mu_f)$, μ_m for quart and calcite 45 and 32Gpa respectively
 $1/K = 1/K_m + \phi / (K\phi + K_f)$, K_m for quart and calcite are 36.6 and 76Gpa

$V_s = (\mu/\rho)^{1/2}$
 $V_p = ((K+4\mu/3)/\rho)^{1/2}$

NK KHATRI

Mr. Khatri extended heartiest thanks to GeoSynergy for providing an opportunity to interact with the community of Petroleum Geoscientist and Engineers. Mr. Khatri also extended his thanks to Mr. Md Sohail Khan, President and Mr. Partha Pratim Saikia, Secretary of Society of Exploration Geophysicists Dibrugarh University Student Chapter for coordinating and realizing the event.

During the interaction session Mr. Atul Borthakur, GM-(Retd.)-ONGC, Visiting Faculty, Dibrugarh University & Petroleum Geoscience Consultant discussed few issues related to Vp-Vs and Girujan finer clastic exploration, with Mr. Khatri. The participants also interacted with the speaker relating to their queries about well to seismic tie, p-s wave impedance, reservoir modelling etc.

Dr. Diganta Bhuyan, HoD of Department of Applied Geology, Dibrugarh University extended thanks to the Guest Speaker, participants and audiences.



On behalf of the Society of Exploration Geophysicists Dibrugarh University Student Chapter, Miss Namrata Saikia, M Sc.Tech Applied Geophysics 4th Semester student proposed vote of thanks to the Guest Speaker, participants and audiences. Ms. Namrata hosted it gracefully. The event ended successfully
