

Dr. Ravi Kant Pathak (Reservoir Geophysicist)

Education

- **1984** M.Sc. in Applied Geophysics, ISM Dhanbad, India.
 - **1996** PhD IIT Kharagpur India
-

Key Competencies

- Expert in Rock Physics analysis, Seismic QI studies (Seismic inversion, AVO), attribute analysis and Seismic reservoir characterization. Specialized in Extended Elastic Impedance (EEI) & Stochastic inversion.
- Expert in 4D seismic feasibility study, modeling and quantitative pressure/ saturation changes analysis.
- FDP/FFR studies for optimum field development. Seismic support in 3D geological model building, establishing depositional environment and reservoir development/ architecture/ heterogeneity/ compartments integrating seismic sequence stratigraphy and seismic attributes, building structural models, facies and property propagation, PRMS consistent resource/reserve & risk assessment, development program, uncertainty analysis, well placement and firming up of development well trajectories.
- Brownfield redevelopment – FDP support, identifying infill/upside opportunities and EOR planning support to maximize reserve/recovery from the fields using appropriate seismic technology & solutions.
- Prospect generation, resource & risk assessment in rank exploratory/subtle traps in mature basins and exploratory areas. Proven experienced of working in clastics and carbonate & deep water regimes. Regional seismic interpretation for identifying, mapping and evaluation of exploration prospects.
- Experienced in unconventional resource assessment and seismic support for field development, selecting hydrofrac targets based of rock static/dynamic geo-mechanical properties (3D Geo-mechanical models). Knowledge of application of micro-seismic technology for SRV estimation.
- Experienced in pre-survey modeling, illumination studies, parameter design, planning and QC to support seismic acquisition in variety of basin settings covering clastic and carbonate realms (land, streamer, OBC/Node).
- Experienced in latest seismic imaging technologies. Experienced in planning, parameter optimization and QC support in seismic data processing projects.
- Skilled in well log QC, analysis & quick log valuation.
- Knowledge of Geo-hazards, HS & E standard norms and practices in Exploration operation. Knowledge of seismic based pore pressure prediction.
- Experienced in working in Multi-disciplinary Team.

Work History

Geocoin Global Pvt Limited

OCT 2019 – Till date

CEO of Geocoin Global Private Limited. Responsible for Business strategy and Technical Project assurance.

PETRONAS Malaysia**1st April 2016 – Oct 2020** - Principal (Reservoir Geophysics).

- Technical Head of PEG Specialized Study responsible for Rock Physics studies, Seismic QI (AVO, Inversion) studies, Reservoir Characterization and 4D analysis.
- Project & Review support to Field Development Plan (FDPs) and Full Field Reviews (FFRS). Member of FDP/FFR technical review committee.
- Project support to Brownfield redevelopment – seismic integration for identifying bypassed potential for infill targets, upside potential and EOR planning.
- Responsible for seismic integration in static models to capture uncertainties and support in resources assessment, in-fill well placement and EOR planning.
- Provided expert advice, guidance, technical lead/support and perform studies in Reservoir Geophysics / Seismic QI specialized areas to ensure that application and integration of Geophysical technology/information for PCSB's business are technically sound and commercially viable.
- Formulate, develop and implement initiatives, programmes, training and mentoring to enhance skill and capability of the organization related to Reservoir Geophysics/Seismic QI technology.
- Lead multidisciplinary teams on integrated Reservoir Geophysics/Seismic QI technology projects, business improvement, technology development, collaborative research and skill enhancement. Showcase PCSB at International forums as Reservoir Geophysics/Seismic QI technology leader/enabler.
- Provide expert advice on Reservoir Geophysics/Seismic QI specialized areas in unconventional resource assessment, field development and capability management

PETRONAS Carigali Sdn Bhd**1st Sept 2008 – 31st Mar 2016**

- Worked as technical geophysics lead to conduct/ supervise /review in-house/outsourced FDP/FFR/Seismic QI projects.
- Conducted Rock physics studies, seismic QI feasibility studies, AVO & Inversion studies, attribute analysis and seismic reservoir characterization studies to support FDP/FFR and field development at Malaysian basins, Vietnam, Mauritania, Egypt and Turkmenistan basin. Conducted EEI & stochastic inversion studies for reservoir property estimation to support static model. Provided technical support to in-house and outsourced seismic QI projects.
- Completed three full field 4D analysis projects for estimating pressure/saturation changes to optimize Brownfield re-development & EOR planning. Conducted and supported six 4D feasibility studies for new 4D surveys in Malaysian Basins. Supported Brownfield upside potential study leading to significant resource accretion.
- Provided Project and review support in FDP/FFR projects. Conducted 3D pre-stack/post stack seismic interpretation, velocity modeling, time depth conversion, and attribute analysis to support 3D geological model building, seismic guided facies and property propagations to capture inter-well heterogeneity, resource assessment and uncertainty analysis.
- Conducted integrated attributes and geo-body analysis for delineation of reservoir sand geometries from different depositional environments covering fluvial, coastal, marine and deep water settings within Malaysian basins, Egypt & Turkmenistan Block. Delineated stratigraphic prospects from integrated analysis of well and seismic attributes.
- Conducted Technical Review/Peer review/FDRC review of FDP/FFR studies.

- Technical Geophysics Lead. Provided project & review support on seismic integration in CBM & Shale gas characterization, resource assessment, field development and production enhancement. Team member to establish workflow and capability development.
- Supported pre-survey modeling and illumination study of multi-component OBC/Node seismic acquisition in Malaysian basin. Supporting acquisition & processing of 3D-4C data. Will lead multi-component QI analysis projects.
- Providing parameter optimization & QC support for PEG processing/reprocessing projects.
- Leading technology Project (Developing capability/solutions through technology projects)
 - ✓ Improving image below shallow gas through inelastic solution.
 - ✓ EEI & stochastic Inversion
 - ✓ AVOA technology for fracture detection
 - ✓ Micro-seismic technology.

Bahrain Petroleum Company (Bapco) Bahrain

Sept 2003 – Aug 2008

- Integrated seismic data into structural and stratigraphic framework for identifying exploratory and development locations.
- Carried out integrated study for geological model building for Permian Khuff gas bearing formations. The work involved structural model building from integrated analysis of well and seismic data, 3D reservoir grid building and estimating/simulating rock properties including rock types, porosity and permeability from integration of well/core and seismic data. The work carried out using GOCAD software.
- Worked in a team responsible for conducting study for development of Ab fractures model integrating well and 3D seismic data.
- Carried out integrated study including seismic inversion and attribute analysis for delineation of Hanifa (Jurassic) prospects at Awali flank.
- Carried out seismic inversion studies and attributes analysis for providing seismic guided input to reservoir model building and identification of new/ remaining potential of Cretaceous reservoirs.
- Seismic inversion and attribute analysis for identifying deep Permian gas sand development locations.
- Involved in conducting Data Room and successful promotion of Bahrain offshore Blocks.
- Worked in multidisciplinary projects jointly with M/s Fugro's Geoscientists in reassessment of prospectivity of Bahrain offshore areas.
- Integrated 2D/3D seismic data interpretation and mapping for onshore prospect generation. Carried out probabilistic reserve estimation, appraisal and ranking for exploratory prospects. Conducted integrated well & seismic studies for delineation of Cretaceous reservoir sands at onshore Bahrain.
- Integrated 2D/3D seismic data interpretation for identifying and evaluating exploration (structural/ stratigraphic) prospects / plays within Bahrain offshore blocks.
- Firmed up of processing sequence and quality control during reprocessing of Awali 3D and offshore seismic data.

OJanuary 1992 - September 2003 : Oil India Limited (OIL), Upper Assam, India

- Carried out seismic inversion and attribute analysis from 3D seismic data and utilized seismic attributes along with well data for accurate reservoir delineation and mapping

of porosity, sand/shale ratio, etc. using both deterministic and geo-statistical approach to provide seismic guided static reservoir model using in-house & **Hampson-Russell** software.

- Carried out AVO and inversion studies using **ProMax & Hampson-Russell** software for the delineation of gas bearing sands and reservoir characterization.
- Carried out large scale integrated 2D/3D seismic data interpretation from clastics regime using **Geo-quest, SIDIS & Geoframe (GF-Charisma)** interpretation workstations.
- Worked in Asset team responsible for play evaluation, follow up exploration strategy such as 3D / 3D seismic data acquisition, processing/ reprocessing, and integrated data analysis for firming up with the exploratory prospects.
- Involved in planning of acquisition, processing and interpretation (API) of multi-component 3D seismic survey.
- Conducted field recording of 3D seismic data using SN-368 field recording system. Designed field parameters, carried out field simulation, Monitored field data quality and estimated field statics for 3D surveys in upper Assam.
- Involved in planning, acquisition, processing and interpretation (API) of Ground Gravity-Magnetic data in thrust-belt areas of NE part of India.
- Worked in asset team for scouting & techno-economic evaluation for prospects within India & abroad.
- Processed 2D/3D seismic data from NE part of India including the belt of schuppen using Promax seismic data processing system

January 92 - January 88: Oil India Limited (OIL), Upper Assam, India

- Processed 2D/3D seismic data from NE part of India including the belt of schuppen using Geomaster processing system.
- Conducted field recording of 2D seismic data using SN-358 field recording system. Designed field parameters, Monitored field data quality and estimated field statics for 2D survey in upper Assam.
- Developed in-house algorithm/technique/software for
 - ✓ Estimation of Q factor from sonic - seismic drift
 - ✓ Interpolation of seismic traces from spectral coherency measures.
 - ✓ Pore pressure prediction from seismic velocities.
- Prepared & managed exploration data base

January 1988 - October 1984: Oil India Limited (OIL), Western Rajasthan, India

- Worked with CGG crew acquiring 2D Vibroseis seismic data for Oil India Limited in Western part of India. Carried out followings during the period:
 - ✓ Field acquisition parameter design
 - ✓ Up-hole and LVL survey and field statics computation
 - ✓ Preparation of staking chart and Quality control
 - ✓ Provide logistics support
- Carried out processing 2D land and marine seismic data of Oil India Limited at CGG processing center established at Jodhpur India.
- Carried out interpretation of Vibroseis 2D seismic data