

National Seminar on Multidisciplinary Approach in Sedimentary Basin Studies – Kalpana Deka Kalita, Department of Applied Geology, Dibrugarh University, Assam – 786 004 (Email: kalpana_d_kalita1@rediffmail.com)

Department of Applied Geology, Dibrugarh University, Dibrugarh, Assam organized a CSIR and UGC sponsored National Seminar on ‘Multidisciplinary Approach In Sedimentary Basin Studies’ during 15-16 March 2012. This national seminar was conceptualized to emphasize a fundamental change in approach to undertake sedimentary basin studies connecting spatio-temporal landscape evolution with shallow subsurface variability and deep seated basin dynamism.

Dr. P.K. Bhattacharyya, HOD and convener of the seminar welcomed the guest. In his welcome address he stressed on three main issues, firstly resource perception, secondly scientific issues and lastly research orientation. Honourable Vice Chancellor of Dibrugarh University, Prof. K.K. Deka, declared the seminar open by lighting the ceremonial lamp and delivered a speech emphasizing much on rational uses of natural resources for sustainable development. Guest of Honour Mr. K. K. Nath, Executive Director, Oil India Limited, Duliajan talked about Industry Academia relationship and innovation of new ideas for solving the geosciences problem. Prof. T. Kataki, retired Professor, KDM chair, Applied Geology Department, Dibrugarh University released the Abstracts Volume. The chief guest Mr. A.K. Biswas, Executive Director and chief, Corporate Exploration Centre of Oil and Natural Gas Corporation Limited New Delhi emphasized study of geology in a regional scale rather than taking it in a commercial interest and delivered the Keynote address on “Role of E and P industry in Basin Studies”. Mr. Biswas discussed about the probing of sedimentary basins.

It was a pride moment for the Department of Applied Geology that Oil and Natural Gas Corporation Limited has introduced one Gold Medal of one lakh rupees awarded to the topper of the M.Sc final examination of the year 2010-2011. Mr. A.K. Biswas on behalf of ONGC presented the cheque of one lakh rupees to Ms. Bhaswati Baishya. One more

scholarship of rupees five thousands per month has been introduced and is awarded to the topper of first and second semester of M.Sc in Applied Geology. Mr. K. K. Nath Executive Director, Oil India Limited, Duliajan presented the award to Ms Nisanta Saharia. Dr. Pradip Borgohain, organizing secretary of the seminar offered the vote of thanks.

150 delegates across the country attended the seminar. Scientific presentations were distributed among six technical sessions. In two days, there were 53 oral presentations and 16 poster presentations.

On the first day in technical session I with the theme ‘Petroleum Geology’ there were nine oral presentations and three poster presentations. Mr. Sudhir Sarma, Head, Shale Gas and CBM of Directorate General of Hydrocarbon, New Delhi, Government of India delivered the Key Note Address on “Unconventional Hydrocarbon resources — Indian Scenario.” Prof. T. Kataki, retired Professor of KDM Chair, Department of Applied Geology, chaired the session. The oral presentations of Technical Session I covered various papers on petroleum aspects which include emulsion flow in OIL core samples for enhanced oil recovery; wireline Log characteristics of Tipam Sandstone Formation; reservoir quality of arenaceous Barail Group of Naharkatia Oil

Field of Upper Assam Shelf; water cut problems and its effects on crude oil production; texture definition through XRMI; petrography and diagenesis of oil bearing Palaeocene- Lower Eocene rocks in parts of Upper Assam Basin; performance prediction of a reservoir using modelling software; physical parameters in relation to enhanced crude oil production; formation of gas hydrates in natural gas transporting pipelines. The poster presentations include 3-D Fault Modeling and its significance in hydrocarbon migration and accumulation in Lakuwa Oil Field, Upper Assam Basin, an orthodox geological approach to reservoir architecture in the central part of Naharkotiya Oilfield to find new oil in old oilfield and Reservoir quality of the Tipam Sandstone Formation in parts of Upper Assam Shelf.

In technical session II with the theme “Structure, Tectonics and Himalayan Geodynamics there were eight oral presentations and three poster presentations. Prof. Kali Prasad Sharma of Gauhati University, Guwahati, delivered the keynote address on “Status of Shillong Basin in tectonic configuration of Purana Basins of Indian Peninsula.” Dr. Ranju Duarah of North East Institute of Science and Technology (CSIR) chaired the session. The scientific deliberations covered state of tectonic stress in Shillong Plateau of



Northeast India, morphotectonics and palaeoseismicity around the Kundil river section in the Sadiya-Chapakhowa region, on the frontal alluvial region of Eastern Syntaxial Bend, India; structural and metamorphic signatures of a part of Nellore Schist Belt, Prakasam Districts, Andhra Pradesh; strain analysis of the deformed augens of Boromoi Hill, Kamrup districts; conditions of compaction and development of diagenetic microstructures in the Dafala and Subansiri sandstones, Kameng river sections, Arunachal Pradesh; structural framework of Central Basement High areas of Upper Assam Basin: insights from fault Kinematics and three dimensional perspective; morphotectonic evolution of the Piggy back basin in the Himalayan Frontal Zone, Kameng river sections, Arunachal Pradesh; morphotectonic evolution of the area in and around Bandardewa, Papumpare district, Arunachal Pradesh. The poster presentations included Viscous dissipation in simple shear zones-analytical models and a Himalayan example; Flanking structures in the migmatitic gneisses of the higher Himalayan crystalline around Tato, West Siang district, Arunachal Pradesh and Geochemical signatures in the Trans Himalayan Lohit batholiths, Arunachal Pradesh: geodynamic implications.

In technical session III with the theme Hydrogeology there were six oral presentations and one poster presentation. The Key Note address was delivered by Prof. A.K. Sinha of Rajasthan University on the topic "Consequences of climatic change and adaptability in water sector." Prof. A.D. Patgiri of Gauhati University, chaired the session. The technical presentations covered groundwater quality issues with reference to Himalayan region; spatial variability of groundwater chemical quality in the interfluvies of the rivers Brahmaputra and Kolong, Assam, using GIS; hydrometeorology and hydrology of the Burhi Dihing River, Assam; hydrogeological conditions in and around Numaligarh area of Golaghat district, Assam; ground water resource potential of the shallow aquifer regime in the lower Subansiri Basin, NE India; hydrogeological conditions of the Jhanji-Kakodonga interfluvial area, Assam; hot spring zones

observed in Himalayan region in and around Tawang district, Arunachal Pradesh.

In Technical Session IV with the theme Petrology and Geochemistry there were seven oral presentations and two poster presentations. Prof. Kali Prasad Sharma of Gauhati University, chaired the session. The technical presentations covered geochemistry and petrogenesis of Proterozoic Mafic rocks from east Khasi Hills, Shillong Plateau; hypogene alteration pattern of porphyry granite on Kuthory Granitoids; Ba, Rb and Sr geochemistry of granitoids of Kathalguri area, Naogaon district, Assam with special reference to rare metal abundances; geochemical study of the shales of Disang Group exposed along the Deomali- Khonsa- Longding Road section; petrological investigation of the plutonic and hypabyssal rocks in the Lower Siang valley, petrography of metavolcanic rocks of Pugging area of East Siang District, Arunachal Pradesh and the fission track ages of some co-genetic minerals in the granitic rocks from Nongstoin, Meghalaya Plateau. The poster presentations were on petrography and geochemistry of the host rock of sulphide mineralization in Potin area, Arunachal Pradesh and mineral chemistry and geothermometry of Potin area, Arunachal Pradesh.

On the second day, the Technical Session -V (Sedimentology, Basin studies and Palaeontology) covered a total of nineteen papers out of which nine were presented orally and six were poster presentations. Prof. R. Borgohain, retired Professor of Applied Geology, Dibrugarh University chaired the session. The technical papers included petrological studies of pyroclastics in the subsurface of Upper Assam basin; heavy mineral study of shallow subsurface sediments of Dihing alluvial fan of eastern Assam; petrography and clay mineralogy of Dafala and Subansiri Formations of Arunachal Pradesh; comparative sedimentological study, petrography and chemistry of Tipam Sandstone Formation; source rock palynology of Disang sediments of Imphal valley, Manipur; benthic foraminifera of the Ypressian carbonates of the Sylhet Limestone Formation in Shillong Plateau of Meghalaya; significance of biostratigraphy, microfacies and depositional

environment; palynodebris analysis and palynological approach to depositional environment of the Permian Gondwana rocks of Arunachal Himalaya; Palaeocene-Early Eocene red and green algae from the Sylhet Limestone Formation of the Shillong Plateau, Meghalaya.

The Technical Session VI with the theme Remote sensing, Geophysical exploration, Geomorphology and Geohazards covered eighteen presentations out of which sixteen papers were presented orally and two were poster presentations. Prof. A.D. Patgiri of Gauhati University, delivered the keynote address on "Remote sensing : a versatile tool for scientific exploration." Prof. J.N. Sarma, KDM Professor of Dibrugarh University chaired the session. The technical papers were presented on various aspects covering manual lineament extraction and integration of lineament indices for lineament analysis in parts of Arunachal Pradesh; a platform GIS based study of morphodynamics in parts of Upper Assam; Quaternary geological and geomorphological study of sediments in parts of Arunachal Pradesh; behaviour of sand column during seismic loading; channel change study of the Sisi river using space borne multispectral and multitemporal Imagery; geomorphology and lithofacies association of quaternary morphostratigraphic surfaces in parts of Tinsukia district, Assam; spatio-temporal changes in the fluvial geomorphology in part of the Upper Assam area and its correlation to subsurface geology; drainage analysis around eastern Tripura and Mizoram NELP Block and part of Barak valley for hydrocarbon exploration; study of fluvial geomorphology and bank erosion around the confluence point of the Dihang, Dibang and Lohit rivers; study of stream anomaly through stream length gradient index of some streams flowing through the Belt of Schuppen, NE India; bank stability analysis of Dhansiri river in Numaligarh areas, Assam; erosional aspect of rivers in Sivasagar district with special reference to water resource division; physiography and identification of potential landslide hazard areas of Mishmi hills with SRTM/DTEM modeling; challenges of geo-resource utilization in Assam for food security-a case of water use; satellite derived digital

elevation model: an aid to geological mapping of a part of Mikir hills.

The valedictory session focused on the discussion of multidisciplinary aspects of sedimentary basin studies. The major recommendations of the seminar include:

(1) To promote multidisciplinary approach in sedimentary basin research with an emphasis on intra departmental and inter-departmental collaborations; (2) Integration of surface, shallow subsurface, and deep subsurface studies in the future research

works, which enriches the data bank in this regard to promote basin analysis as well as basin evolution studies; (3) More frequent interactions of researchers at different levels to promote better sharing of more 'down to earth' problems.