

Magmatism, tectonism and mineralization*

More than a hundred eminent scientists from various national laboratories, Geological Survey of India, IITs, universities, public and private sector units and State Directorates of Geology and Mines across the country and many research students of geology from various academic institutions participated in the national seminar on 'Magmatism, Tectonism and Mineralization'. A total of 48 research contributions (oral and poster) were presented during 10 technical sessions. The deliberations included 17 invited and 30 regular presentations. In addition, R. Dhana Raju delivered the 4th Professor C. Mahadevan Memorial Lecture of the South Asian Association of Economic Geologists (SAAEG) on I-, M-, A- and S-type granitoids, their attributes and mineralization, giving Indian examples.

In the session dealing with 'Mineralization in dynamic magmatic system', Mihir Deb provided an excellent correlation between Precambrian Supercontinent cycles and juvenile crust formation, and discussed the time relationship and possible locations for the exploration of gold. K. S. Misra, based on field evidences, explained the eruption of Cretaceous volcanic sequences of Peninsular India, highlighting the intricate relationship between extensional tectonism and decompressional melting events at different levels. V. Balaram presented new dimensions of geochemical researches based on advanced analytical techniques in the field of mineral exploration. S. K. Bhusan presented field relation, mineralogy and geochemistry of Neoproterozoic felsic magmatism in Rajasthan, with its implication on petrogenesis and geodynamics. Kanchan Pande provided a detailed account of understanding the ore system through ^{40}Ar - ^{39}Ar and ^{187}Re - ^{187}Os geochronology. O. P. Goel re-

viewed the field occurrence of ophiolite rock suite of Manipur-Nagaland regions and its future prospects for chromite deposit. C. Manikyamba discussed the ocean island basalts of Dharwar craton with its implication on the understanding of Archean plume tectonomagmatism. S. L. Ramesh discussed the geochemistry and petrogenesis of gabbros from Amba Dongar region of the Deccan volcanic province. R. K. Srivastava explained the evolutionary mechanism of carbonatite and silicate-rock association from Shillong plateau. N. V. Chalapathi Rao gave mineralogical and geochemical account of Archean to Neoproterozoic alkaline-potassic-ultrapotassic-mafic-ultramafic magmatism of Peninsular India, concluding that this rock association is more prevalent in the Eastern Dharwar Craton. V. V. Sessa Sai discussed the occurrence of astrophyllites in the Podili alkali granite of Prakasham District. Gurmeet Kaur gave the age constraints and geochemical feature of mafic magmatic rocks in the parts of Betul mobile belt. L. Gopeshwar Singh presented the petrographic features of volcanic-plutonic association of Dhiran area of the Malani igneous suite. D. Majumdar provided geochemical features and mineralization potential of porphyry granitoids from the Kuthori-Bagori region and correlated them with Dharwar and Singhbhum cratons. A. N. Singh outlined the fluid inclusion, ore petrographic and sulphur isotopic evidences of Imalia gold occurrence, which supported the magmatic origin. S. P. Singh explained the field observations in favour of collapsed cauldron-type granite breccia influenced by pulses of felsic and metasomatic activities in Mohar region of Bundelkhand massif, which probably caused base-metal mineralization. P. K. Singh presented the distribution patterns and economic potential of PGE in ultramafic and mafic rocks in the Ikauna region of Bundelkhand massif. Abhimanyu Singh described the geology, petrography and geochemistry of Proterozoic stanniferous granite of southern Bastar Craton, identical with other specialized granites of the world. Parijat Roy discussed the geochemistry and origin of Archean anorthosites, with its implica-

tions on PGE metallogeny of Khamman region.

In the session on 'Structure and tectonics in relation to mineralization', M. M. Mukherjee discussed the Late Archaean regional deformation, metamorphism and structural controls on gold-quartz-sulphide mineralization in the south Kolar schist belt. A. R. Bhattacharya explained the ductile shear deformation and mineral formation along the Main Central Thrust of Himalaya. M. K. Panigrahi, based on several lines of geological and geochemical evidences, reviewed the genesis of the granitoid-affiliated palaeoproterozoic copper-molybdenum deposit at Malanjkhanda. P. Konwar opined that the Mishmi block of Meghalaya could be a tectonic roof. Swati Deol described two phases of gold mineralization associated with arsenopyrite commonly hosted in calc-silicates, quartz-albite and tourmaline-rich rocks from Bhukia-Jagpura region of south Rajasthan, which can be a promising gold-prospect region. T. C. Vineesh explained the various controlling factors of manganese nodule formation in the Central Indian Basin. N. R. Devi presented microstructural architecture of Mesoproterozoic lower metapelite formation of the Shillong Basin. K. M. Muhammad Shabeer discussed the exploration potential of base-metal deposits associated with ultramafic rocks along the Attur-Salem fault zones. A. Kumar provided structural details of shear-zone evolution exposed in the basement and supracrustal rocks of Prithvipur and adjoining regions of Bundelkhand massif.

In the session on 'Metamorphism, anatexis and role of fluids in ore genesis', C. S. Dubey discussed the P - T - t path, active tectonics and orographic precipitation in erosional unloading of Sikkim Himalaya and the insights on critical-wedge mechanism. R. Krishnamurthi presented fluid inclusion record and genesis of auriferous quartz vein of Attapadi area proximal to mafic-ultramafic supracrustal rocks within Bhavari Shear Zone, southern Indian granulite terrain.

In the session on 'Tectonomagmatism and mineralization in the Himalayan do-

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mains', Hakim Rai discussed the varied nature of felsic magmatic activities along the southern margin of eastern Karakoram, with its implication on geodynamics. Rajesh Sharma explained the typology of fluid inclusions and sulphide mineralization in a uprising metamorphic belt of Himalaya. R. C. Patel, based on apatite-fission track dating, inferred the deformational and exhumation history of crystalline rocks from Kumaun Himalaya. M. N. Joshi discussed the nature of strata-bound Veitsch-type, magnesite deposits of western Himalaya and its likely relation to Vendian–Cambrian magnetization epoch. R. S. Rawat explained the syngenetic and epigenetic features and some possible exploration sites of sulphide mineralization in Uttarakhand Lesser Himalaya. B. K. Mukherjee dealt with the fate of ultrahigh pressure metamorphism in the Himalaya. Prabha Joshi presented the fluid-inclusion data and explained the P – T – X_{CO_2} condition of talc deposit formation in the Deoban carbonates of Kumaun Lesser Himalaya. Ritu Chauhan presented lithological and AMS variations, and inferred three-phase deformational history of Seraghat–Dwarahat region of the North Almora Thrust. R. A. Singh explained the defor-

mational and tectonic history of Nauti and Adbadri regions of Lesser Garhwal Himalaya. Rajeev Upadhyay reported U–Th-rich zircon and monazite from granulites of Indus and Shyok suture zone from Ladakh Himalaya. Manju Pandey provided microstructure and P – T condition of metamorphosed mafic rocks of Central Crystalline from Kumaun Himalaya. Moulisree Joshi discussed the use of structural and morphotectonic analyses to establish neotectonic activities of Bilaspur region, SW Himachal Himalaya. G. C. Kothyari integrated the field observations, digital elevation models and seismic records and inferred the prevalence of neotectonic activity along the North Almora Thrust Zone.

In a special session on 'Earth surface environment and human health', P. Dev discussed noise pollution and its impact on human health in Saharanpur District. Yogesh Joshi discussed the growth of subaerial biofilms on rock surfaces, their medicinal value and utility in the study of glaciers. Nidhi Arya outlined the geological and ecological features responsible for environmental changes in the high-altitude Tsokar lake, Ladakh region. Archana Bora, using multi-proxy climatic indicators, discussed the environ-

mental changes in the north of Baralacha Pass, NW Himalaya.

The first Lifetime Achievement Award of SAAEG was presented to K. S. Valdiya. Jokhan Ram (ONGC Limited) was honoured by SAAEG for his significant contribution in the field of basin analysis and hydrocarbon exploration. There was a common consensus among the speakers that the three main themes of the seminar have been represented well by the papers presented and several papers have attempted to unify these three processes into a larger crustal and mantle evolution scenario. The SAAEG-sponsored young geoscientist awards for best presentation of research-oriented papers (oral and poster) at the seminar was awarded jointly to Swati Deol and Prabha Joshi and the best poster award was given to Manju Pandey. The seminar concluded with closing remarks by K. S. Valdiya, who stressed upon the need of interlinking the research results with mineral exploration programme, and expressed his views to draft a new mineral policy in the Indian context.

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MEETING REPORT

Rashtriya Vigyan Sanchark Sammelan*

A special addition to the Indian Science Congress this year was the Science Communication Meet. It was catalysed by the Indian Science Congress Association (ISCA) and supported by National Council for Science and Technology Communication (NCSTC), and Department of Science and Technology (DST), New Delhi.

Addressing the inaugural function of the Meet on 4 January 2008, the Principal Scientific Advisor to Government of India, R. Chidambaram said that the lack of basic knowledge is the cause for miscon-

ceptions about nuclear technologies. He added that nuclear power is an inevitable option to satisfy future energy needs of the world in the context of depleting fossil fuels and that climate changes also force the need for nuclear technology. Speaking about the importance of science communication, he stressed on the need to disseminate science information at various levels. He stated that C. V. Raman and S. Chandrasekhar demonstrated extraordinary skills as science communicators, which created a lot of interest among the masses. According to him, science communication goes beyond the frontiers of visual media. He prevailed upon the communicators not to bring their prejudices into science communication; issues like IPR and technology-controlling regimes hinder exchange

of information. Chidambaram quoted Alvin Toffler and said that technology is power and science communication can be used as a tool for development, global peace and environmental protection.

Anuj Sinha (Advisor, NCSTC) spoke on the focal theme 'Challenges in communicating science and technology in regional languages', which was apt and timely. Most of the papers were submitted by academicians, journalists from both print and electronic media, and they highlighted in general, the lacunae, pitfalls and possible solutions. Some of the papers were on content analysis, while others chronicled the history and evolution of science communication in their respective regions. Presentation of the papers and the roundtable discussions provided concrete recommendations, the

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