REPORT ON THE 32nd INTERNATIONAL GEOLOGICAL CONGRESS, FLORENCE, ITALY

(More than one report on the International Geological Congress has been received by us. We reproduce below excerpts from these to avoid repetition – Ed.)

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The International Geological Congress is the largest congregation of geoscientists taking place every four years since 1876. The 32nd International Geological Congress was held in Florence, Italy between 20th and 28th August, 2004. The Congress was opened officially in an impressive ceremony in the Cavaniglia Pavillion within the Fortezza da Basso, Florence, during the afternoon of 20th August. The welcome address was given by Prof. W.Cavazza, and the official starting of the Congress was announced by the Deputy Mayor of Florence. The opening ceremony included speeches by the President, Province of Florence, Councillor for the environment of the Tuscany region, Head, Division of Global Change Research, Minister of Land and Resources of China, Minister of Natural Resources of Russia. The closing speech of this ceremony was given by the Prefetto of Florence, Mr. Lombardi. There was a welcome party at the Visarno on the evening of August 21, which gave an opportunity to meet and mingle with old and new colleagues from different parts of the world. Towards the end of the Congress there was also a Get Together party at the famous Palazzo Pitti, Boboli garden on 26th August, which also gave a similar opportunity of interaction. The Congress was officially declared closed in the same Cavaniglia pavilion at noon time on 28th August, 2004.

About 7000 delegates attended the Congress. There were more than 9000 abstracts by authors from 100 countries. This was made possible through the promotional efforts of nearly 800 session conveners from more than 50 countries. There were more than 25 concurrent sessions on each day. All the presentations were divided into special symposia, topical symposia and general symposia. There was also a plenary lecture by an eminent geoscientist every day at noon time. One of the most attractive parts of the Congress was the huge poster area where up to 700 posters on different themes were put up every day. This gave a wonderful opportunity to interact with poster presenters on a one-to-one basis. One of the main highlights of the Congress was the huge Geo-Expo with a large number of stalls from the different Geological Surveys and Earth Science Institutes. Most conspicuous was the stall from China while that from India was also conspicuous, but by its absence. There was just one stall of India bidding for IGC 2012, manned by scientists from the NGRI. However, inspite of best of efforts by the Indian delegation to host the 2012 IGC in Hyderabad, Australia was successful in their bid to host the 34th IGC in August, 2012 in Brisbane. The other bids were offered by Ireland and Morocco. The 2008 IGC will be held in Oslo, Norway. The 32nd IGC saw the integration of the IGC and IUGS councils which existed separately since IGC came into existence in 1876 and IUGS in 1961.

Although there were many sessions on the fundamental aspects of the Earth Sciences, e.g., New concepts in global tectonics, Ultra high pressure metamorphism, Aspects of the Earth's interior, Metallogeny of large and super large mineral deposits etc., there was a clear emphasis on the Earth Science for societal needs and problems. In this regard, there were symposia on Geosciences for Cultural Heritage, Geological Hazards: assessment and mitigation, Medical Geology, Urban Geology, Water management, Geoscience for education and geoethics etc. This balance between basic and applied aspects of Geosciences was reflected in the well attended Plenary lectures, e.g. the interesting talks by Enrico Bonatti on " Internal breathing of the Earth: mantle volatiles, plate tectonics and climate" and that by C. Viggiani on " The history and threats endangering the survival of the leaning tower of Pisa". The Congress also generated a lot of interest about the new multidisciplinary Earth Science initiative "The international year of Planet Earth", 2005-2007, conceived by IUGS and accepted by UNESCO. The years' subtitle is: Geoscience for society: aims to show the potential of our science for a safer, healthier and a wealthier planet. There are eight themes chosen for their societal impact: Ground water, Hazards, Earth and Health, Climate, Resources, Megacities, Deep Earth and Ocean.

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A highlight of the Congress was the plenary lectures delivered by eminent Earth Scientists. Internal breathing of the Earth: Mantle volatiles, Plate Tectonics and Climate (E Bonatti); The Leaning Tower of Pisa: The History and

Threats endangering its survival (Carlo Viggiani) and Geotechnical Stabilisation and Structural strengthening (M B Jamiolkowski); Water, Life, and Geological Histories of Mars and Earth (V R Barker); Living with Volcanic Hazards (F Barberi); Offshore Oil and Gas: The Stakes, the Challenges, the Perspectives (B C Duval); Impact of Geology on our Cultural Heritage (P T Bobrowsky); Will Global Warming plunge Europe into a Glacial Cold? (W S Broecker).

The Global Earth Science Community presented their new findings both in oral and poster sessions. Every single day, 25-30 parallel sessions took place and about 400-500 posters were put up. At the sessions, scientists could interact, discuss, compare, hear and learn new developments in Earth Sciences. The sessions were lively with debates and discussions. The themes of the sessions included the classical ones like crustal growth and tectonic processes through time; Crustal dynamics and supercontinent history; Ultra-high pressure metamorphism; Deep continental drilling projects; Thermotectonic evolution of orogenic belts; Lithospheric mantle evolution; Mineralisation in diverse environments; Tectonics and sedimentation; Biogeochemical evolution; and Palaeoclimates. There were also sessions on emerging themes: Assessment of geological hazards and risks in urban areas; Cities at risk, geotourism, geoparks, conflict of economy and ecology; Natural hazards and cultural heritage; Geoarcheology and climate changes; Paleobiodiversity and major biotic changes in the Earth's history; Earth surface environments; Impact of climatic changes on ground water resources; Seismicity and active tectonics; Geosciences and underground development of cities; Earth Science education for lay people: Understanding our life supporting system; Promoting Geoscience education at all levels; New developments in analytical geochemistry; Earthquakes in stable continental regions etc. There was a session on "Wine and Geology" which addressed questions such as what are the relationships between Geology and wine? How do the composition of the substratum, weathering, soil development, climate and landscape influence the quality of wine? In the true "spirit" of the session theme, a wine-tasting party followed in which participants were requested to bring one (or more) bottles of wine.

Another session highlighted the aims and proposed activities under the International Year of Planet Earth – 2006 although the activities would commence in 2005 and run through 2007. The aim is to build awareness of the relationship between humankind and Planet Earth and to demonstrate that geoscientists are key players in creating a balanced, sustainable future for both. A staggering sum of $20 million is proposed to be raised to support both research and outreach activities – educational, public relations and other avenues of mass communication to bring the central message of the Year – and its research results - home to billions of people around the world. Eight themes have been chosen for their societal impact, their potential for outreach, as well as their multi-disciplinary nature and high scientific potential: Groundwater - Towards sustainable use; Hazards - Minimising risk, maximizing awareness; Earth and Health - Building a safer environment; Climate - The "Stone tape"; Mega Cities - Going deeper, building safer; Deep Earth - From crust to core; Ocean - Abyss of time (more details at www.esfs.org).

GEOEXPO 2004 was an exhibition where geological surveys/societies of different countries showcased their activities, manufacturing companies exhibited their new products ranging from clinometers to microscopes, publishing houses sold their books at discounted prices etc. There was also an exhibition of ancient geological maps that aptly started with the stunning intuitions of Leonardo da Vinci which date back to the 16th century. This multi-facetted genius, more famous for his masterpieces of art, was the initiator of geomorphological mapping and was also the first to draw geological profiles. Another unique feature was a beautiful maquette of all the Mediterranean area, seas and continents prepared and exhibited by the primary school students from France.

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During the IGC prizes were awarded to outstanding geoscientists for their contributions to geosciences and society. L.A. Spendiarov International Geological prize of the Russian Academy of Science was awarded to Prof. Carlo Donglioni for his significant contributions in deep crustal studies and indepth study of Alps and Apennines and geodynamics of Mediterranean sea. The Q. Sella prize was given to Prof. Dr. Harald G. Dill of Federal Institute of Geosciences and Natural Resources (BGR) Germany for his contribution to formulation of a lithofacies terrain model based on sedimentological and geomorphological mapping.

Classical mapping techniques combined with the new technology of GIS is the most innovative approach of the project. The international commission on stratigraphy had honoured Prof. Digby Johns with Mclaren Medal for his chronostratigraphic calibration of sequence stratigraphy, which is a guiding force in Paleogene chronostratigraphy and geochronology. The 32nd IGC special medal was presented to Prof. Constantino Faillace (Tino to his friends) for his outstanding contribution in alleviating the suffering of tribal people of India and Africa from drinking water crisis through development of a low cost water lifting device, the bucket pump appropriate to the local conditions.

Apart from the scientific sessions, the first international Earth Science Film Festival was organized by OGS (Trieste) and CNR-IRPI-RCS (Cosenza), Italy. The festival was devoted to scientific and teaching aid videos and multi-media products, in the field of Earth Sciences.

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INTERNATIONAL WORKSHOP ON RECENT ADVANCES IN MAGMATIC ORE SYSTEMS

The IGCP-479 workshop on "Recent Advances in Magmatic Ore Systems Associated with Mafic-Ultramafic Rocks" was held during 14th -15th December, 2004 at the Department of Earth Sciences, The University of Hong Kong, Hong Kong. This is the one of the series of meetings planned under the IGCP Project 479 entitled "Sustainable use of Platinum Group of Elements in the 21st Century, Risks and Opportunities" being led by Prof. J.E. Mungal, University of Toronto, R.M. Iljina, Geological Survey of Finland and Prof. C. Ferriera Filho, University of Brasilia. It was co-sponsored by the UNESCO, IUGS, Chinese Academy of Sciences and several other professionals and academic institutions in China.

This meeting of IGCP-479 is the first to be held in China and has attracted about 60 participants from Australia, Canada, China, Egypt, Finland, Hong Kong, India, Russia, South Africa, UK and USA. Most of the participants were academic professionals, geologists/geochemists representing many R&D Institutes, Universities and private mining companies from various countries.

Prof. John Malpas, Pro-Vice Chancellor of the University of Hong Kong and Chair-Professor of the Department of Earth Sciences, Hong Kong University formally inaugurated the meeting. Being a geologist himself, Prof. John Malpas extended a warm welcome to the delegates and informed that the Department of Earth Sciences at Hong Kong University (HKU) is actively involved in a range of research endeavours centered around the geology of South and East Asia aimed specifically at greater understanding of magmatic ore deposits particularly in China and adjacent areas. These deposits include major magmatic deposits, PGE deposits and Ni-Cu (PGE) sulphide deposits. He also informed that HKU Department of Earth Sciences had registered considerable progress in the area of new techniques for the PGE analysis. Greatly improved analytical techniques are a prerequisite in PGE exploration.

The programme was divided into four different sessions as follows: (i) General session, (ii) Magmatic ore deposit of North Central China, (iii) Magmatic ore deposits associated with Emeishan Igneous Province in South-West China, and (iv) Magmatic ore deposits elsewhere.

The first session was devoted to the fundamentals of PGE deposits as well as new theories on their formation. Prof. Anthony J. Naldrett who is an authority on PGE deposits, classified the PGE deposit world over into the following genetic types: (i) PGE rich zones associated with Ni-Cu deposits (e.g. Noril'sk, Sudbury); (ii) Stratiform layers of PGE rich sulphides in layered intrusions.(e.g Merensky, UG-2); (iii) Stratabound zones of PGE rich sulphide near margins of layered intrusions (e.g. Platreef, Portimo); (iv) Associated with chromitite zones without sulfides .(e.g. Bushveld lower zone chromitites,Ophiolite occurences); (v) Associated with irregular zones of remelting within intrusions (e.g. Lac Des Iles); (vi) Hydrothermally remobilised (e.g. Duluth, Bushveld dunite pipes); (vii) Associated with crystallized chromite schlieren (e.g. Nizhny Tagil); (viii) black shales (e.g. Sukoi Log). He also emphasized that such a classification would aid in PGE exploration. Chromite deposits in many places in the world are used as a potential sources of PGE and also suggested the significance of the three types of magmas such as U-type, T-type and Hybrid type (mixing of two magmas of U and T types) which were considered to be the sources of Chromite, PGE and Ni-Cu sulphides. Dr. Ahmed Hassan Ahmed, from Cairo made a presentation on Oman Ophiolites. He tried to discriminate between the PEG-rich and PEG-poor chromitites based on the field observations, petrological and geochemical characteristics. He felt that