in restricted marine environment (pp 297-302) This paper should have been edited more critically, as many inconsistent statements have crept in the text (e g A positive Ce anomaly and a negative Eu anomaly are observed in these carbonates, when compared with the chondrite normalised REE values, PAAS REE values and other previously conducted REE studies in similar rocks Figures 3 and 4 are contrary to this)

P K Das and others in their paper on Geochemical study of Lakadong (Tertiary) limestones occurring in and around Mawsynram, East Khasi district, Meghalaya (pp 373-383) suggest that the Lakadong limestones were deposited in a reducing environment in a closed basin in nearshore condition with low evaporation and salinity

G Vallinayagam in his paper on rare metals and rare earths in Siwana Ring Complex, Rajasthan (pp 387-391) reports few additional data on rare metals and Ce and La in granite, rhyolite and acid dyke rocks of Siwana ring complex Also described is the petrography of the rocks of the complex The present study is in agreement with the earlier work (*cf* Jain et al 1996), which recorded higher concentration of rare metal and rare earths in peralkaline dykes of Siwana Ring Complex

Shadab Khursheed and others discuss the impact of fly ash and waste disposal from Harduaganj thermal power plant of Aligarh on environment by analyzing major ions and trace elements in soil and water (pp 330-342) The studies indicate deterioration in water quality, making both surface and sub-surface water unsuitable for domestic and irrigation purposes at many sites

Four papers dealing with groundwater geochemistry are included in the present volume Evaluation of hydro-geochemical parameters to delineate fresh ground water potential zones in coastal aquifers in Krishna delta (pp 245-254) by V K Saxena, N C Mondal and V S Singh indicates that HCO_3 Cl, TDS, Sr and Ba are useful chemical parameters V Sambasiva Rao and others evaluate the chemical quality of groundwater in deeper aquifer horizon in limestone terrains in Cuddapah, Nalgonda and Guntur districts of A P (pp 312-320) The study indicates that the deeper aquifer zones underlain by limestones and dolomites are rich in Ca-Mg-HCO_3 waters, while limestones with shale exhibit dominance of Na-HCO_3 ions D Sujatha and B Rajeshwara Reddy evaluate seasonal variation of groundwater quality in the rapidly urbanising and industrially growing southeast part of Ranga Reddy district, A P (pp 321-329) They have analysed major ion concentrations in more than 100 water samples from bore wells The studies indicate that most samples in urbanised and agricultural areas are contaminated by high nitrate and chloride and exhibit high hardness Greater ionic concentrations in groundwater of post-monsoon compared to pre-monsoon suggest increasing addition of leachates into groundwater from the soil and anthropogenic activities, which deteriorates groundwater quality V Sunita, B Rajeswara Reddy and B Srinivas have studied the quality of groundwater in Anantapur town (pp 368-372) by analyzing various physical and chemical parameters The fluoride content in the waters varies between 0 7 and 1 83 mg/l, and it is observed that nearly 85% of the water samples analysed are suitable for drinking

The volume is almost free from editorial and typographic errors, which is a welcome sign The wealth of data presented in the volume is of great interest to all earth scientists

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19th HIMALAYA-KARAKORAM-TIBET WORKSHOP, NESIKO, HOKKAIDO, JAPAN

The Himalaya-Karakoram-Tibet region has been the main attraction of many geologists globally because of the fact that this region happens to be very crucial area for understanding the geodynamics of the Asian continent For example, major earthquakes originate from this region and affect entire Asia and its systematic uplift as also neotectonic activity Glacial dynamics play a pivotal role in affecting the Asian monsoon as well as global climate The 19th Himalaya-Karakoram-Tibet workshop was held in Nesiko, Japan from 10th to 13th July, 2004 to enable interaction among active scientists working on the Himalaya and chart the course of future investigations and motivate young researchers to take up the challenges of the Himalaya-Karakoram region Prof K Arita and his team from Department of Earth & Planetary Sciences, Hokkaido University, Japan organized the workshop More than 150 geoscientists from different parts of the globe (India, Pakistan, Nepal, Japan, China, Switzerland, Germany,

France and Russia) participated in the deliberations

The workshop was divided into six sessions pertaining to different themes The first session with ten papers was devoted to collision tectonics and tectono-metamorphic evolution In his inaugural presentation, by using two ultrahigh pressure (UHP) metamorphic units from NW Himalaya (Kaghan in Pakistan and Tso Morari in India), Stephane Guillot demonstrated that subduction of Indian plate was steeper in the western part in the beginning and was shallow in the eastern part He also tried to deduce the dip of the subduction and the timing of the process and explained that the dip varies from 9-30° around 55 Ma and 25-35° around 45-50 Ma In an attempt to reinterpret the progressive metamorphic series, P-T-t paths and exhumation model for the collisional orogenic belts, in general and the Himalaya in particular Prof Shigenori Maruyama explained the recent discoveries of coesite bearing eclogites in the Himalaya in a different manner He deciphered that the mountain building stage is not related to the exhumation of UHF-HP rocks to the mid-crustal level However, most of present mineralogy exhibits the late-stage crustal metamorphism due to extensive hydration underneath He also emphasized the importance of the study of the role of water in the progressive metamorphism during subduction

Based on apatite fission track (AFI) analyses, Johan DeGrave made some significant observations which demonstrate that appreciable reactivation is going on in the Himalaya AFT thermal history models obtained from the Tien Shan apatites from Kyrgyzstan exhibit neotectonic reactivation feature from ~15-10 Ma onwards, while for the South Siberian Altai-Sayan samples show youngest cooling events at ~5 Ma This young cooling date was interpreted as the result of exhumation of the studied rocks to their present levels Eva Schill presented some interesting work on the compressional part of the collision zone (mainly at western syntaxis) She tried to understand present rotation rates of the zone, which were deduced from GPS measurements and the late-orogenic rotation pattern since 40-50 Ma deduced from palaeomagnetic results She concluded that the oroclinal bending related rotations were initiated some 20 Ma ago

Contrary to plate tectonic models, Ashok K Dubey proposed a model based on inversion tectonics to understand the reason behind the occurrence of younger hanging wall Vaikrita Group of rocks (Higher Himalaya) above the older footwall Munsiari Formation (Higher Himalaya) along Vaikrita Thrust According to his model, normal faulting and metamorphism was followed by lesser displacement than during the early normal faulting

Commenting on the position of Higher Himalayan Basement, Masaru Yoshida, on the basis of recent geochronological work coupled with field observations, opined that Higher Himalayan Crystalline Sequence (HHCS) does not form the basement for the Himalayan orogen This is because the recent detrital zircon geochronology indicates a major peak range at ca 900-1300 Ma with a main peak of ca 1050 Ma However, the zircon ages from Arabian-Nubian Shield are much younger than the HHCS Thus, being younger than HHCS, Arabian-Nubian Shield cannot be the main source for HHCS The author suggests that the Pinjarra orogen (Western Australia) lying to the east of the ancient Himalayan basin in the Proterozoic East Gondwana assembly, to be a more possible source for HHCS

In magmatism, geochemistry and geochronology session around 13 papers were presented It is very interesting to note that most of the papers were based on SHRIMP U-Pb zircon chronology from different parts of the Himalaya-Karokoram and Tibet regions These chronological studies have addressed many of the problems in the Himalayan mountain belt Major and trace elements including Rare Earth Elements study of Yugelu pluton in the Eastern Kunlun orogeny, China carried out by Liu, C and his co-workers exhibit some important granite petrogenetic constraints The geochemical study suggests that the host granitoids and mafic microgranular enclaves (MME) which occur within the granitoids show similar geochemical characters indicating magma mixing origin of the granitoids The substantial evidence for this origin came from SHRIMP U-Pb zircon dates which yielded 241±5 Ma and 242±6 Ma for MME and granitoids respectively This was really a good piece of work that provided convincing evidences for magma mixing origin of granite plutons

The detailed geochemical evolutionary history of the Jijal complex in the roots of the Kohistan island arc in NW Himalaya, Pakistan was discussed by Qasim Jan Exhumation history of the Kohistan arc has been very clearly reflected in the study of Takashi Nakajima and his co-workers They have dated the Dasu Tonalite by using SHRIMP zircon U-Pb method that yielded an age of 98 Ma whereas the $^{40}Ar/^{39}Ar$ biotite age of the tonalite is 70 Ma This 28 Ma age gap has been interpreted to be the measure of the deep crustal residence time of the Dasu tonalite implying that tonalite magma after crystallizing at 98 Ma probably remained at lower crustal temperatures before cooling at 70Ma, possibly when the Kohistan block was tilted, uplifted and exhumed due to the collision of India Many interesting and innovative posters were displayed in the workshop Prof H Sakai and his group members have made an attempt to depict when and how the Lesser

Himalayan Crystalline (LHC) nappe cover the Lesser Himalayan autochthon of Taplejung tectonic window, eastern Nepal Many such type of tectonic windows occur in the entire Lesser Himalaya, but so far nobody has ever tried to study them from this angle They have used the $^{40}Ar/^{39}Ar$ and fission track dating of granitic rocks in the LHC to arrive at the present conclusions Their study demonstrated that the crystalline nappe have covered the Lesser Himalayan autochthon by 14 Ma and affected thermally (350±50°C) the uppermost part of the autochthon

A session was devoted to glacial geology and hazards Iturrizaga Lasafam presented her research work on glacial studies of Karamber valley, Hindukush-Karakoram Mountains, Pakistan and came out with a conclusion that many small glacial dams were formed over a period of time in this region Glacial outbursts are the main reason for causing floods in the area Also mudflows have dammed temporarily the Karamber valley and pose nowadays a permanent threat to the villagers In another study Pitamber Gautam and his team have integrated the magnetic properties and heavy metal chemistry to quantify environmental pollution in urban soils from Kathmandu, Nepal After a careful examination of soil profiles in Kathmandu area, they have observed that the urban elements (heavy metals) such as Pb, Zn and Cu can be collectively used to compare the level of pollution in any area and magnetic susceptibility serves as a best tool for this purpose

Another session was devoted to the uplift of the Himalaya-Tibet region and the Asian monsoon Some good work was exemplified from the presentations of number of scientists such as An Yin, Pascale Huyghe, Erwin Appel, Harutaka Sakai and Kazuhisa A Chikita Overall observations made by these scientists suggest that the uplift of Tibet began around 45-32 Ma and by ~9 Ma, it had attained an average elevation of approximately 5 km This height and the then formed glacial network had drastically effected the Asian monsoon system Another interesting study come from Phadtare and his group who have studied the global climate change using pollen assemblage from a peat sequence Their work revealed that pollen assemblages have changed from cool coniferous to warm grass varieties from ca 2300 year BP to ca 2100 year BP This in turn suggests that there has been a drastic change in the Asian climate for the past 200 years They attribute this change to the high rate of glacial melting in the Himalayan region over the last few centuries, which also supports a warming climate

The organizers arranged a one-day field excursion to Usu volcano which last erupted in the year 2000 It was a wonderful opportunity to visit an active volcano Many, people including me, were astonished to witness the number of structural features associated with the volcano which otherwise were only studied in the textbooks For the first time in life, a beautiful domal uplift of the mountain and its effects such as crustal shortening and graben structures were seen from close quarters Devastation caused by volcanic eruption, displacement of roads, formation of craters are some other unforgettable features that were observed standing right on the wall of a crater It was a fascinating field trip that will live forever in our memories

In the concluding session, it was decided that next two HKT workshops would be held at France (in 2005) and at Cambridge, UK (in 2006)

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SHILALIPI – A NEW POPULAR EARTH SYSTEM SCIENCE MAGAZINE

The P G Department of Geology, Khallikote Autonomous College, Berhampur, Orissa has brought out the first number of the geological magazine – *Shilalipi* in July 2004, to be brought out annually on a regular basis

The magazine intends to promote Earth Sciences by attracting popular contributions straddling the disciplines of Geology, Physics, Biology and Ecology The first issue carries a wide range of review articles dealing with our progress in Space Sciences, Application of GIS in geological studies, Global Warming issues, Geoscience education etc The Editor of the magazine Dr B Mishra and his co-editor Dr P C Sahu deserve appreciation for visualizing and accomplishing the task There is a great need for such initiatives from the Geology Departments of our universities and we wish the P G Department of Geology, Khallikote Autonomous College, Berhampur all success in this effort

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