

**GIST OF INTERNATIONAL PUBLICATIONS AUTHORED/CO-AUTHORED
BY GSI GEOSCIENTISTS DURING 2017-18**

 <p>Presenter Pankaj Mala Bhattacharya</p>	<p>Title: Seismic Hazards in the Himalayas: Evaluation of Seismicity and Seismic Characteristics Name of the Journal: Asian Academic Research Journal of Social Science & Humanities (AARJSH) , Volume 4, Issue 4 (April 2017) , ISSN:2278-859X IF (Impact Factor): 2.015 Authors: Pankaj Mala Bhattacharya and Uma Ghosh</p>
<p>Abstract: Spatial distribution of seismicity and seismic characteristics, like fractal dimension, b-value, energy release and reoccurrence period, are assessed for the Himalayan region falling within the latitude 26⁰– 35⁰ N and longitude 72⁰– 98⁰ E. The EHB (Engdahl, van der Hilst, and Buland) relocated earthquakes $M \geq 4.0$ are selected for the period 1964-2009 from the International Seismological Centre (ISC) catalogue for this study. Three zones (Kangra, Nepal and Sikkim) in the Himalayas are identified on the basis of low b-values, low fractal dimension and low energy release that indicate the probable areas of future large earthquakes. These results are further corroborated with the probabilistic models in order to assess the seismic hazards in the Himalayan region.</p>	
 <p>Presenter A. K. Swain</p>	<p>Title: Bathymetry of Schirmacher lakes as a tool for geomorphological evolution studies Name of the Journal: Geological Society of London IF: 2.683 Authors: A. K. Swain</p>
<p>Abstract: Bathymetric profiles of some proglacial, land-locked and epi-shelf lakes spread across the Schirmacher Oasis were obtained using ground-penetrating radar (GPR) to understand their evolution through space and time. This study shows that the largest land-locked lake has been formed by the fusion of three sub-basins. Some proglacial lakes evolved in the form of kettle lakes, where no further aggradation processes have affected them. Some of the larger lakes are reworked ones which are evolved during multiple phases of glacial advancement. The other larger lakes are very deep and were produced by the glacial activity associated with some weak structural fabric.</p>	
 <p>Presenter A. K. Swain</p>	<p>Title: Depth profiling and recessional history of the Hamtah and Parang glaciers in Lahaul and Spiti, Himachal Pradesh, Indian Himalaya Name of the Journal: Geological Society of London IF: 2.683 Authors: A. K. Swain, M. A. Mukhtar, Z. Majeed and S. P. Shukla</p>
<p>Abstract: Depth profiling of the 6 km long Hamtah glacier and the 2.5 km long Parang glacier, with average widths of 350 and 250 m, respectively and located in different U-shaped valleys was carried out using ground-penetrating radar surveys. The depth of the ice–bedrock interface varied from 35 to 95 m in the Hamtah glacier and from 40 to 140 m in the Parang glacier. The total ice volumes in the Parang and Hamtah glaciers were estimated to be 0.179 and 0.375 km³, respectively and the retreat rates of these glaciers were estimated to be 11.04 and 16.10 m/a, respectively.</p>	

	<p>Title: Inverted sediments in the coastal Antarctic lake: Evidence of paleostorm? Name of the Journal: Polar Science IF: 1.05 Authors: M.A. Raza, R. Saraswat, S.R. Bhadra, Dinesh K. Naik, N.Khare, P. Govil, A. Mazumder</p>
<p>Abstract: The faunal and sedimentological analyses were carried out on two cores collected from a coastal lake in the Vestfold Hills region of Antarctica. Out of a couple of cores collected from the same lake, the one closer to the marine inlet, contained abundant foraminifera and the diatoms were dominant in the second core. The radiocarbon dating of the organic matter revealed that the sediments were inverted, with two sequences of younger sediments overlain by older sediments. The increased abundance of marine microfossils, including both the foraminifera and diatoms in inverted layers and transport against the gravity, suggests that the sediments were transported from the adjacent shelf by storm/cyclone. Two such past storm-cyclone events are inferred.</p>	
	<p>Title: Geochemical sources in metal contamination in a coal mining area, Chhattisgarh, India using lead isotopic ratios Name of the Journal: Chemosphere IF: 4.427 Authors: A. Das, S. S Patel, R. Kumar, K.V.S.S Krishna, S. Dutta, M. C. Saha, S. Sengupta, D. Guha</p>
<p>Abstract: Geochemical characterization and lead isotopic sourcing of heavy metals in soils surrounding the Korba coal fields was done. The highlights were (i) high mean value (ppm) of Pb (311), Mn (3441), Cu (218), Cr (567), V (308), Co (92), Zn (426), Th (123) and U (32). Geospatially, metal hotspots were near fly ash ponds of power stations in the north-eastern part of study area. Lead isotopic sourcing indicated combustion of coal, flyash and diesel were the main pollution sources. The adult residents had a mean blood lead level of 28 µg/dL. This is the first report of blood lead levels of coal miners and its source in India.</p>	
	<p>Title: Lead isotopic ratios in source apportionment of heavy metals in the street dust of Kolkata, India Name of the Journal: International Journal of Environmental Science and Technology IF: 2.037 Authors: A. Das, K V. S. S. Krishna, R. Kumar, M. C. Saha, S. Sengupta and J. G. Ghosh</p>
<p>Abstract: The range of heavy metal pollution in the street dust of India's major urban city of Kolkata was found in this study. The highlights were (i) high mean values (ppm) of Mn(390) Pb(380) Zn (300),As (96),Cu(61),Cr (40),Co(13),Ag (2.1).The major hotspots were in north Kolkata, near busy road intersections.(ii) Geospatially, Cu, Cr, Pb were similar but As was different (iii) Lead isotopic sourcing indicates diesel based vehicular exhausts contributed mainly (66.86%) to the atmospheric lead. This is the first report of using lead isotopes in an urban geochemistry study in India.</p>	

 <p>Presenter S. Dutta</p>	<p>Title: Geomorphic evolution of glacier-fed Baspa Valley, NW Himalaya: record of Late Quaternary climate change, monsoon dynamics and glacial fluctuations Name of the Journal: Geological Society of London:462 IF: 1.69 Authors: S. Dutta, S. A. I. Mujtaba, H. S. Saini, R. Chunchekar and P. Kumar</p>
<p>Abstract: This study emphasizes that Late Quaternary geomorphic evolution of Baspa valley is well synchronous with glacial fluctuations and the rapid response of the glacial system to Indian summer monsoon (ISM) dynamics. Large alluvial fan progradation around Sangla till c. 45 ka (middle MIS-3) due to glacial retreat and readjustment of glacial sediment under warm and humid conditions followed by incision. During the end phase of MIS-3 (>23 ka), intensified precipitation blocked the river course by rock avalanches and formed lakes near Sangla and Kharogla which continued till 11.4ka. Reduced sedimentation rate during c. 23–18 ka suggests a cold and arid climate, whereas increased sedimentation during c. 18–11.5 ka indicates a warm and humid climate. A palaeolake breach occurred in early Holocene and incision continued, with a pulse of fluvial aggradation during c. 9.1–6.5 ka over lacustrine remnant. In upper reach of the valley aggradation continued till 19ka (MIS-3 to LGM) under cold and relatively arid conditions.</p>	
 <p>Presenter Danish Anwar</p>	<p>Title: Bartonian reticulate <i>Nummulites</i> of Kutch Name of the Journal: Geodinamica acta IF: 1.049 Authors: P K Saraswati, Danish Anwar and Amitava Lahiri</p>
<p>Abstract: The present study examined the reticulate species from Bartonian succession of Kutch. The statistical analysis of the biometric data suggested the presence of three distinct species, referred to <i>Nummulitesptukhiani</i>, <i>N. aff. hormoensis</i> and <i>N. acutus</i>. It is found that the reticulation started developing in <i>N. acutus</i> that ranged from P13 to P14 in its type locality, Kutch. We inferred that <i>Nummulitesptukhiani</i> and <i>N. aff. hormoensis</i> possibly evolved from <i>N. acutus</i> in Zone P14. A binary tree model based on Classification and Regression Tree (CART) is proposed to statistically discriminate the three reticulate species.</p>	
 <p>Presenter Debahuti Mukherjee</p>	<p>Title: Tithonian brachiopods from the Kachchh and Jaisalmer basins, India Name of the Journal Neues Jahrbuch Geologie Paläontologie Abhandlungen IF: 0.78 Authors: Debahuti Mukherjee and Sabyasachi Shome</p>
<p>Abstract: In the Jurassic of Kachchh and Jaisalmer basins brachiopods decline at the Oxfordian-Kimmeridgian boundary, but two species <i>Somalithyrislakhaparensis</i> n. sp. and <i>Acanthorhynchiamultistriata</i> suddenly appear in the Tithonian. They are the first records of Tithonian brachiopods from the Indo- Madagascan and Ethiopian biogeographic Provinces Their presence in the Tithonian but complete absence thereafter in the Berriasian, in India and globally, has been linked to the J-K boundary mass- extinction. The assemblage showed dominance of specimens resembling the pre-adult stage of <i>Somalithyris</i> which has been interpreted as resulting from paedomorphosis or selective size reduction due to an unstable environment related to anoxia. The study has significance in Jurassic brachiopod diversity and mass-extinction event.</p>	

 <p>Presenter Prakash K. Shrivastava</p>	<p>Title: Heavy mineral assemblage of marine sediments as an indicator of provenance and east antarctic ice sheet fluctuations Name of the Journal: Geological Society of London IF: 2.63 Authors: Mayuri Pandey, Naresh C. Pant, Paromita Biswas, Prakash K. Shrivastava, Sonalika Joshi and Neety Nagi</p>
<p>Abstract: The continental margin of eastern Wilkes Land formed during the Cretaceous separation of Australia and Antarctica. Since mid-Permian times, parts of Antarctica became re-glaciated only ~34 m.y. ago.</p> <ul style="list-style-type: none"> • The EAIS was dynamic throughout the Miocene. Six ice advance stages based on clay mineral data, including four major ones, took place at 6.62–6.72, 7.43–7.60, 8.04–8.42, 9.06–9.13, 10.83–10.96 and 12.06–12.43 Ma. • Three out of the four major ice advance phases inferred in this study correlate with the global climate record. Corresponding $\delta^{18}O$ data for the youngest ice-sheet advance (6.63–6.71) inferred in this study is not available in distal $\delta^{18}O$ data. • The interior of Wilkes Land close to the inferred subglacial basin is marked as the tentative reference point for ice retreat. 	
 <p>Presenter Diction Saikia</p>	<p>Title: <i>In situ</i> U–Th–Pb total dating of polychronous monazite in the Koraputanorthosite pluton, Eastern Ghats Granulite Belt (India), and implications Name of the Journal: Geological Magazine IF: 0.78 Authors: Diction Saikia, Pritam Nasipuri and Abhijit Bhattacharya</p>
<p>Abstract: This study incorporates U–Th–Pb total age determinations of polychromous monazite in a noriticanorthosite of the Koraputanorthosite pluton in the Eastern Ghats Province (EGP), India. The monazites are complexly zoned (50–500 μm in diameter) and hosted within dynamically recrystallized orthopyroxene and plagioclase grains. Monazites are classified in three groups (group-I, group-II, group-III) based on the textural–chemical heterogeneities. Group-I monazites exhibit a low- ThO_2 core mantled by a high-ThO_2 rim, group-II (high-ThO_2 cores laced by ThO_2-poor rims). Skeletal group-III monazites exhibit patchy and concentric zones with decreasing ThO_2 towards the margin. The U–Th–Pb total chemical ages obtained using electron probe microanalyses exhibit four age clusters. The oldest age population (mean 939 ± 4.5 Ma) obtained in cores in group-I, II and III monazites corresponds with the emplacement of the Koraputanorthosite, consistent with 980–930 Ma emplacement ages reported in other EGP anorthosite massifs. Younger monazites ages 877 ± 5 Ma and 749 ± 18 Ma in group-II and group-III monazites possibly indicate episodic monazite growth by fluid-aided dissolution–precipitation culminating with the disintegration of Rodinia at ~750 Ma. Youngest 574 ± 19 Ma age in the outermost monazite rims and monazite veins represents monazite growth during the Pan African assembly of the Grenvillian-age EGP domain with the proto-Indian cratons.</p>	

		<p>Title: Molecular distribution and carbon isotope of <i>n</i>-alkanes from Ashtamudi Estuary, South India: Assessment of organic matter sources and paleoclimatic implications</p> <p>Name of the Journal: Marine Chemistry</p> <p>IF: 3.337</p> <p>Authors: Yadav Ankit, Praveen K. Mishra, Prem Kumar, Deepak K. Jha, Vivek V. Kumar, V. Ambili and Ambili Anoop</p>
<p>Abstract: The distribution and $\delta^{13}\text{C}$ composition of <i>n</i>-alkanes were used to identify organic matter (OM) sources in river dominated Ashtamudi Estuary, Southern India. A number of <i>n</i>-alkane indices have been calculated to illustrate the spatial variability by considering separately river dominated northern reaches and marine influenced southern part of the estuary. The carbon preference index (CPI) and average chain length (ACL) provide evidence for recycled organic inputs in the tidal zone, whereas dominant biogenic contribution has been observed in the riverine zone. The Paq and TAR indices demonstrate maximum aquatic productivity in the tidal dominated region of the Ashtamudi Estuary. The quantitative apportionment of organic matter sources in Ashtamudi sediments using compound-specific carbon isotope analysis (CSIA) of long-chain <i>n</i>-alkane shows dominance (53–83%) of C₃ terrestrial plants derived OM. The results clearly demonstrate the effectiveness of an integrated molecular and stable carbon isotope analysis for quantitatively assessing OM sources in estuarine environments.</p>		
	<p>Title: Interplay of transitions between oscillations with emergence of fireballs and quantification of phase coherence, scaling index in a magnetized glow discharge plasma in a toroidal assembly</p> <p>Name of the Journal: Chaos Solitons and Fractals</p> <p>IF: 2.4</p> <p>Authors: Debajyoti Saha, Sabuj Ghosh, Pankaj Kumar Shaw, M.S Janaki and A.N SekarIyengar</p>	
<p>Abstract: Examples of plasma are ubiquitous i.e in the sun, in the solar wind, in the magnetosphere and the ionosphere, in fluorescence tube, in flames, etc. In fact, most of the matter (~99 percent) in the known universe exists as plasma. The most important application of the man made plasmas is in the control of thermonuclear fusion reactions which hold a vast potential for the generation of power. The nuclear fusion reaction is the source of energy in the stars including the sun. So for studying various phenomena occurring in the magnetosphere and the ionosphere or in the sun or in fusion reactor, the understanding of plasma and its behaviour is of utmost important. Plasma is a complex and nonlinear system. We carry out experiments in glow discharge plasma (GDP) device to observe the interplay of transition of floating potential fluctuations and its associated phase coherence index. Fluctuations display nearly regular relaxation oscillations inverted relaxation oscillations regular sinusoidal oscillations. When the plasma was formed a small fireball was found to be attached to the anode at a particular position. With the emergence of relaxation oscillation the position of the glow was found to rotate along clockwise direction aligning itself to the back side of the electrode for discharge voltage (DV)=400V. Thus the dynamics of the fireball helps us to gain the knowledge of the instabilities in the form of nonlinear fluctuations which is very useful for characterizing the devices using various nonlinear methods, techniques and hence considered to be extremely beneficial also for application purposes. Lastly the tools, analysis methods such as frequency filtering, amplitude spectrum, wavelet analysis, deconvolution, auto and cross correlation used in our work for signal analysis helps in marine seismic data processing with an objective to generate geologically meaningful subsurface image for the search of oil gas and mineral prospecting.</p>		

 <p>Presenter Debajyoti Saha</p>	<p>Title: A localized cathode glow in the presence of a bar magnet and its associated nonlinear dynamics Name of the Journal: American Institute of Physics, Physics of Plasma IF: 2.6 Authors: Debajyoti Saha</p>
<p>Abstract: Modern life-style is immensely dependent on plasma technologies like plasma processing of materials, laser plasma accelerators, plasma laser, plasma torch, creation of exotic new materials, biomedical application, etc. Plasma is a complex and nonlinear system. In general one can understand the plasma behaviour and phenomena by investigating the plasma parameters. In the presence of a bar magnet next to the plasma chamber, a localized plasma glow appeared near the cathode surface and a periodic fluctuation was noted. With the increase in the strength of bar magnet, the glow grew brighter and the fluctuation went from being periodic through a cascade of period doubling bifurcation to being chaotic. In summary, the application of dipolar magnetic field results in enhancement in ionization and formation of a localized glow leading to instabilities in the plasma. Plasma vapour deposition systems commonly boost efficiency by using dipolar magnetic field. The knowledge of the instabilities and their manifestation in the form of different types of nonlinear fluctuations is important for various types of applications including plasma-surfaceinteractions. Plasma data has been analysed and interpreted as time series data. Time series analysis finds its application everywhere for instance Fluids,, biological systems, social, traffic, biomedical signals such as electro-encephalogram (EEG), heart rate variability, electrocardiogram (ECG) and financial systems, Seismic waves, ecological fluctuations. The dipole magnetic fields are also encountered in space plasma as well as in applied plasma device like magnetron sputtering. So we can simulate the results of space plasmausing our knowledge about the plasma parameters.</p>	
 <p>Presenter Debajyoti Saha</p>	<p>Title: Investigation and quantification of Phase coherence index for different types of forcing in DC glow discharge plasma Name of the Journal: Chaos, Solitons & Fractals IF: 2.4 Authors: Debajyoti Saha, Pankaj Kumar Shaw, Sabuj Ghosh , M.S Janaki and A.N Sekar Iyengar</p>
<p>Abstract: The evidence of finite nonlinear interaction in a DC glow discharge plasma has been demonstrated by estimating phase coherence index for different types external forcing techniques likewise noise, sinusoidal, square etc. The existence of finite phase coherence index i.e finite correlation prompts us to carry out nonlinearity analysis using delay vector variance (DVV). Finite nonlinear interaction obtained from phase coherence index values is observed to be predominant at a particular amplitude of square forcing which corroborates our nonlinearity analysis using DVV. Existence of phase coherence index has been demonstrated introducing continuous wavelet transform (CWT). Characterization of the difference in the phase distribution by the difference in the waveform in real space instead of dealing in Fourier space has been facilitated by introducing structure function or path length for different orders to study and identify the dynamical system. The expression of path length eventually enables us to evaluate the phase coherence index. The transition in the dynamics is observed through recurrence plot technique which is an efficient method to observe the critical regime transitions in dynamics.</p>	

 <p>Presenter Mohd. Sadiq</p>	<p>Title: Mineralogy, geochemistry and geochronology of mafic magmatic enclaves and their significance in evolution of Nongpohgranitoids, Meghalaya, NE India Name of the Journal: Geological Society of London: SP 463 IF: 1.58 Authors: Mohd. Sadiq, Ravi K. Umrao, B. B. Sharma, S. Chakraborti, S. Bhattacharyya and A. Kundu</p>
<p>Abstract: The Nongpoh granitoids contains dark grey porphyry and biotite-rich microgranular enclaves. The mafic magmatic enclaves (MMEs) of various dimensions and shapes, including rounded, ellipsoidal, rectangular, angular to sub-angular, and stretched bodies, were produced by evolving nature and contrasting kinematics of interacting felsic and mafic magmas. The various textural assemblages, geochemical data suggest that multistage magma hybridization was the key process during the evolution of the Nongpoh granitoids. The 501 Ma monazite age from MME ascertained the age of the magma hybridization event in the Nongpoh granitoids, which is equivalent to the igneous activity during the amalgamation of Eastern Gondwana.</p>	
 <p>Presenter Trisrota Chaudhuri</p>	<p>Title: Geochemistry and Sm-Nd isotopic characteristics of the Paleoproterozoic Komatiites from Singhbhum Craton, Eastern India and their implications Name of the Journal: Precambrian Research IF: 3.907 Authors: Trisrota Chaudhuri</p>
<p>Abstract: Komatiites near Gorumahishani village, located in Palaeo-Mesoarchean Gorumahishani-Badampahar greenstone belt of Singhbhum Craton, Eastern India preserve excellent igneous textures and exhibit co-association of Al-depleted (ADK) and Al-undepleted komatiites (AUK). The Gorumahishani komatiites exhibit repeated spinifex textured flows (cooling units) overlying massive cumulate zone. The basal cumulate part of Gorumahishani komatiite is chemically similar to ADK which is characterized by subchondritic Al_2O_3/TiO_2 (~9.38–10.5) and HREE depleted nature (average $(Gd/Yb)_{PM} \sim 1.35$) elucidating presence of majorite in residuum whereas compound upper spinifex lava typically display superchondritic Al_2O_3/TiO_2 (~22–28.5) and HREE enriched nature (average $(Gd/Yb)_{PM} \sim 0.81$) demonstrating majorite free residuum.</p>	
 <p>Presenter Trisrota Chaudhuri</p>	<p>Title: Evidence of Enriched, Hadean Mantle Reservoir from 4.2-4.0 Ga zircon xenocrysts from Paleoproterozoic TTGs of the Singhbhum Craton, Eastern India Name of the Journal: Scientific reports IF: 4.122 Authors: Trisrota Chaudhuri</p>
<p>Abstract: Sensitive High-Resolution Ion Microprobe (SHRIMP) U-Pb analyses of zircons from Paleoproterozoic (~3.4 Ga) tonalite-gneiss called the Older Metamorphic Tonalitic Gneiss (OMTG) from the Champua area of the Singhbhum Craton, India, reveal 4.24-4.03 Ga xenocrystic zircons, suggesting that the OMTG records the hitherto unknown oldest precursor of Hadean age reported in India. Hf isotopic analyses of the Hadean xenocrysts yield unradiogenic $^{176}Hf/^{177}Hf$ initial compositions (0.27995 ± 0.0009 to 0.28001 ± 0.0007; $\epsilon Hf[t] = -2.5$ to -5.2) indicating that enriched reservoir existed during Hadean in the Singhbhum cratonic mantle. Time integrated $\epsilon Hf[t]$ compositional array of the Hadean xenocrysts indicates mafic crust prevailed >4Ga.</p>	

 <p>Presenter S. K. Som</p>	<p>Title: More major earthquakes at the Nepal Himalaya? – Study on Coulomb stress perspective Name of the Journal: Physics of the Earth and Planetary Interiors IF: 2.243 Authors: S.K. Som, Subhrasuchi Sarkar and Soumitra Dasgupta</p>
<p>Abstract: The 7.9 Mw Nepal earthquake, 2015 was followed 7.3 Mw and other 553 earthquakes of local magnitude greater than 4.0 within the first 43 days. The paper describes effect of static coulomb stress (CFS) due to the earthquake on the associated faults. Detailed stress modeling shows that aftershocks were poorly spatially correlated with the enhanced CFS condition after the 7.9 Mw main shock and can be explained by correlation with release of seismic energy from the associated secondarily stressed prominent thrust planes and transverse faults. Stress resolved on the associated receiver faults show increased stress on both transverse and thrust fault systems with the potential of triggering significant aftershocks or subsequent main shocks.</p>	
 <p>Presenter G.S Tiwari</p>	<p>Title: PVTX and Sulphur Isotopic Characterisation of Ore Fluid associated with IOCG type of Mineralisation in Mahendragarh District, Haryana, India. Name of the Journal: Asian Current Research on Fluid Inclusion (ACROFI - VII), Beijing, China IF: Authors: G.S. Tiwari, A. Tripathi, N.S Singh, S. Das, P. Singh, A. Kumar and S.N. Chandel</p>
<p>Abstract: Ore forming-fluids are multicomponent aqueous / carbonic electrolyte solutions. Important sources of information on the composition of ore-forming fluids and the conditions of ore formation are fluid inclusions. Fluid inclusion study and accompanying hydrothermal alterations indicate the following characteristic of the ore-fluid in the area: (i) Na-Ca-K (Fe) brine fluid (ii) Salinity upto 53 wt% NaCl eq. (iii) mineralization temperature in Mahendragarh area varies from 104°C-515°C/ 1.5 to 4.5 kb. (iv) liquid phase dominates in fluid inclusions and (v) multiple fluid source. In the present paper we have evaluated the potentiality / capacity of the mineralizing fluid in Mahendragarh District, Haryana, source of the mineralizing ore-fluid, evolution of the mineralizing ore-fluid, constrained the P-T condition of mineralization, and lastly we have established the genesis of mineralization. Inferred fluid compositions and source, mineralization-related alteration and several other circumstantial evidences found in the study area suggest that the mineralization in the study area is a variant of iron oxide- copper- gold (IOCG) style mineralization. Formation of stable cuprous chloride complexes - transportation of copper in reducing environment - penetration of those chloride complexes into reduced, sulfide-rich, carbonaceous host sediments. The ore-fluid Characteristics is more or less similar to Khetri Copper Belt, but weak as indicated by the low-salinity, low-T and low- density. As per the present genetic model of IOCG, we should give attention to exploration for Iron and REE in addition to copper. IOCG deposits in metamorphic terrain, as is the present case, have evidence of formation in the depth range of 5-20 km. The deepest bore-hole drilled so far in the Mahendragarh area is just 350m.</p>	

		<p>Title: Inferring a Neoproterozoic Orogeny preceding the Rodinia break-up in the Sirohi Group, NW India Name of the Journal: Geological Society of London: SP 457, IF: 1.58 Authors: Devsamridhi Arora, Naresh C. Pant, Fareeduddin, Surbhi Sharma, Raghuram and Mohd. Sadiq</p>
<p>Abstract: Aeromagnetic anomalies underlying the Sirohi Group of metasediments in NW India have a high angle relationship to the South Delhi Fold Belt. It is contended in this study that the Rodinia break-up, marked by Malani Igneous Suite, was preceded by an orogenic event (the Sirohi Orogeny) which marked the culminating mountain-building event in the cratonization of the NW Indian Shield. The age of metamorphism ca. 822+29 Ma was partially reset at 723+65 Ma by the Malani eruption. Specific contribution of GSI authors was in understanding the controls exhibited by accessory minerals on the trace element chemistry of garnet, especially Yttrium distribution.</p>		
	<p>Title: Petrology and mineral chemistry of a porphyritic mafic dyke, Jonnagiri schist belt, eastern Dharwar craton, India: Implications for its magmatic origin. Springer Volume titled “Dyke Swarms of the World - A Modern Perspective Name of the Journal: Springer geology IF: Authors: V. V. Sesha Sai, S.N. Mahapatro, S. Bhattacharjee, Tarun C. Khanna and M.M. Korakoppa</p>	
<p>Abstract: The paper presents the field, petrology and mineralogy of a porphyritic mafic dyke that traverse the granite-greenstone terrain of the Neoproterozoic Jonnagiri schist belt, Eastern Dharwar Craton, India. The plagioclase megacrysts (0.5 cm to 3.5 cm) exhibiting primary magmatic alignment. Partial resorption in the plagioclase phenocrysts indicates crystal-melt interaction. Ilmenite, titanomagnetite, apatite and baddeleyite are the accessory phases. The predominantly andesine composition of the plagioclase indicate the transitional nature of the Jonnagiri porphyritic dyke. The temperature and oxygen fugacity estimates for the coexisting magnetite-ilmenite solid solution pairs yielded an equilibration temperature of ~756 °C and $10^{-15.6}$ atm fO_2 for the Jonnagiri porphyritic dyke presumably emplaced in a rift related setting</p>		
	<p>Title: Boninites in the ~3.3 Ga Holenarsipur Greenstone Belt, Western Dharwar Craton, India Name of the Journal: Geosciences IF: 1.97 Authors: Tarun C. Khanna, V.V. Sesha Sai, S.H. Jaffri, A. Keshav Krishna and M.M. Korakoppa</p>	
<p>Abstract: The paper presents the field, petrography, mineral chemistry and geochemistry of boninites from the Holenarsipur Greenstone Belt in Western Dharwar Craton (WDC). Presence of boninites; high Mg volcanic rocks in the older supracrustals, indicate subduction related magmatism during the Mesoarchean in WDC, Southern India. The paper highlights the geochemical attributes of the Holenarsipur and their similarities with the Phanerozoic boninites and further provides compelling evidence for the onset of the Phanerozoic type plate tectonic processes by at least ~ 3.3 Ga, in the Earths evolutionary history.</p>		

 <p>Presenter V. V. Sessa Sai</p>	<p>Title: ~2.1 Ga intraoceanic magmatism in the Central India Tectonic Zone: Constraints from the petrogenesis of Ferropicrites in the Mahakoshal Supracrustal belt</p> <p>Name of the Journal: Precambrian Research IF: 3.907 Authors: Tarun C. Khanna, D.V. Subba Rao, Michael Bizimis, M. Saytanarayanan, A. Keshav Krishna and V.V. Sessa Sai</p>
<p>Abstract: Ferropicrites are high Fe basalts are rare volcanic rocks, whose petrogenesis seeked the attention of many igneous petrologists. These rocks are formed due extreme fractionation of the basaltic magma. The paper present succinct details of field and laboratory studies of these rare rocks from the Proterozoic Mahakoshal Supracrustal belt in the Central India Tectonic Zone.</p>	
 <p>Presenter V. V. Sessa Sai</p>	<p>Title: Seismically Derived Gondwana and Proterozoic Sediments East of Cuddapah Basin, South Indian Shield and Its Possible Geotectonic Implications</p> <p>Name of the Journal: Pure and Applied Geophysics Springer Int IF: 1.652 Authors: K. Chandrakala, O. P. Pandey, V. V. Sessa Sai, A. Vasanthi and K. Satish Kumar</p>
<p>Abstract: The paper presents two findings on the sub surface crustal structure based on detailed reprocessing of a segment of Kavali-Udipi deep seismic sounding data to the east of the Proterozoic Cuddapah basin. The derived shallow seismic section around Vinjamuru area in the Nellore schist belt adjoining close to the vicinity of eastern margin of Cuddapah basin indicated the presence of a thin layer of (~ 250 m) of Gondwana sediments. Another important finding is an indication of a possible sedimentary basin akin to Cuddapah basin between the Nellore schist belt and east coast. The presence of this basin also indicate Proterozoic sedimentation in a much larger area along the eastern fringes of the Dharwar Craton in Southern India</p>	
 <p>Presenter Girish Kumar Mayachar</p>	<p>Title: Fluid Inclusion characteristics of Tungsten mineralisation in Agargaon area of Sakoli Fold Belt, Central India</p> <p>Name of the Journal: Asian Current Research on Fluid Inclusion (ACROFI - VII), Beijing, China IF: Authors: Girish Kumar Mayachar</p>
<p>Abstract: The lower to middle Proterozoic Sakoli fold belt in Central India hosts vein type and greisens type of wolframite-scheelite and molybdenite mineralizations. EPMA study reveals inclusions of scheelite and galena and native bismuth within the wolframite. Reported for the first time grains of wolframite within cleavage plane of muscovite, clue to search new mineralization. Geo Fluids: Temp 280°C to 390°C and Pressure 1.2 to 2.2 Kb. Sulphur isotope studies of molybdenite reveal $\delta^{34}\text{S}$ value (+3.35 ‰) value indicates magmatic source of sulfur during hydrothermal mineralization.</p>	

 <p>Presenter Subhasish Ghosh</p>	<p>Title: Fluid Inclusion and Stable isotope studies of Cu and Sn mineralisation in Tosham area of Northern Delhi Fold Belt, Western India Name of the Journal: Asian Current Research on Fluid Inclusion (ACROFI - VII), Beijing, China IF: Authors: Subhasish Ghosh</p>
<p>Abstract: The mineralization of Cu and Sn are hosted in the contact between metasediments and granite/rhyolite. Mineralizations are Shear controlled. Chemical analysis of prophyritic granite (1.27% Cu, 50ppm W and 94 to 197ppm Sn) The Sulphur isotope studies (core samples) shows higher positive value of ranging from 13.01 to 19.25 ‰. and the Khetri copper belts are enriched in heavier sulphur value of 12.18‰. Geo Fluids: Temp. 310°C to 460°C and Pressure 2.1 to 3.5 Kb.</p>	
 <p>Presenter Amit Dharwadkar</p>	<p>Title: Geomorphic Evolution of Schirmacher Oasis, Central Dronning Maud Land, East Antarctica Name of the Journal: Polar Science IF: 1.206 Authors: Amit Dharwadkar, S.P. Shukla, Abhishek Verma and Deepak Gajbhiye</p>
<p>Abstract: Schirmacher Oasis is an emergent isolated landmass, surrounded on all sides by ice, along the Princess Astrid Coast in central Dronning Maud Land, East Antarctica. Geomorphological mapping on the oasis revealed different stages of glaciation/deglaciation during the current interglacial period. The scrutiny of various geomorphic signatures, both erosional and depositional, indicate that the deglaciation in this area, spanning a temporal range from 171 Ka to present, was episodic in nature. The recessional regime in Schirmacher Oasis was set in at ~22 Ka and subsequently the area remained ice free. The effects of climate change causing widespread deglaciation are clearly reflected in the landscape evolution and transition from glacial to glacio-fluvial to fluvial. The warming trend points towards increase in the area of the oasis in future.</p>	
  <p>Presenter H. S. Saini S. A. I. Mujtaba</p>	<p>Title: Formation and breaching of two palaeolakes around Leh, Indus valley, during the late Quaternary Name of the Journal: Geological Society, London, Special Publications, 462 IF: 1.69 Authors: S. A. I. Mujtaba, Ravish Lal, H. S. Saini, Pawan Kumar and N. C. Pant</p>
<p>Abstract: Vast climatic and tectonic significance lake deposits stand out prominently in the Indus valley around the town of Leh. Indus River was dammed at least twice in the narrow gorge downstream of Spituk Gompa, forming a reservoir under fluvial and lacustrine environments. During the older phase, the Indus was blocked by debris of moraines/landslides near Zinchan–Indus confluence. The resulting lake existed between c. 125 ± 11 and 87 ± 8 ka. After the lake breach, the Indus River was again dammed near Phey village up to Karu by the advancing alluvial fan of the Phyang River c. 79 ± ka. The lake existed during c. 72–49 ka and breached after c. 46 ± 3 ka, however.</p>	

  <p>Presenter H. S. Saini S. A. I. Mujtaba</p>	<p>Title: Tectonics induced switching of provenance during the Late Quaternary aggradation of the Indus River Valley, Ladakh, India Name of the Journal: Geoscience Frontiers IF: 4.1 Authors: Ravish Lal, H.S. Saini, N.C. Pant and S.A.I. Mujtaba</p>
<p>Abstract: The Indus River flows through Ladakh, one of the driest and coldest places on earth, in a tectonically active domain. Linkages between a major, active fault and deposits formed during the activity period of the fault are explored using heavy mineral deduced provenance and Optically Stimulated Luminescence (OSL) chronology. Five deposits in a ~200 km long stretch of the Indus River have been examined for a ~80 ka period to decipher the climate linked aggradation history. Using geology of the provenance in relation to the mineralogical attributes of the Quaternary deposits, the major drainage reorganization when the connection of the Tangtse Valley to the Indus was blocked, is inferred at ~73 ka. The study demonstrates the application of provenance linked mineralogy in terrestrial aggradation in a tectonically active region.</p>	
  <p>Presenter H. S. Saini S. A. I. Mujtaba</p>	<p>Title: Intensified summer monsoon and the urbanization of Indus Civilization in northwest India Name of the Journal: Scientific reports, Nature IF: 4.12 Authors: Yama Dixit, David A. Hodell, Alena Giesche, Sampat K. Tandon, Fernando Gázquez, Hari S. Saini, Luke C. Skinner, Syed A. I. Mujtaba, VikasPawar, Ravindra N. Singh and Cameron A. Petrie</p>
<p>Abstract: Today the desert margins of northwest India are dry and unable to support large populations, but were densely occupied by the populations of the Indus Civilization during the middle to late Holocene. We measured the isotopic values ($\delta^{18}\text{O}$ and δD) of gypsum hydration water in paleo lake Karsandi sediments. Relatively wet conditions prevailed at the northern edge of Rajasthan from $\sim 5.1 \pm 0.2$ ka BP, during the beginning of the agricultural-based Early Harappan. Monsoon rainfall intensified between 5.0 and 4.4ka BP, during the period when Indus urban centres developed in the western Thar Desert margin. Drier conditions set in sometime after 4.4 ka BP, and by ~3.9 ka BP an eastward shift of populations had occurred. Climate change was associated with both the expansion and contraction of Indus urbanism along the desert margin in northwest India.</p>	
 <p>Presenter Debojit Talukdar</p>	<p>Title: Genesis and prospectivity of felsic volcanics hosted Copper mineralization of Biramsar-Ki- Dungri, North Delhi Fold Belt, Rajasthan, NW India”. Name of the Journal: Asian Current Research on Fluid Inclusion (ACROFI - VII), Beijing, China IF: -- Authors: Debojit Talukdar</p>
<p>Abstract: This paper elucidates on the characterization of an isolated outcrop near Biramsar with a multi-thematic data integration approach. Acid volcanics hosted copper mineralization, characterized by alteration, copper-oxide phases and indicative of concealed causative body is the highlight of the study.</p>	

 <p>Presenter Debojit Talukdar</p>	<p>Title: Petrology and geochemistry of the Mesoproterozoic Vattikod lamproites, Eastern Dharwar Craton, Southern India: evidence for multiple enrichment of sub-continental lithospheric mantle and links with amalgamation and break-up of the Columbia supercontinent Name of the Journal: Contributions to Mineralogy and Petrology IF: 3.626 Authors: Debojit Talukdar</p>
<p>Abstract: This highlights on reporting of comprehensive geochemical, isotopic study on lamproites, having a coeval enrichment episode with other alkaline rocks of EDC and probably be associated with breakup of Columbia.</p>	
 <p>Presenter Arun Singh</p>	<p>Title: A MATLAB based 3D modeling and inversion code for MT data Name of the Journal: Computers & Geosciences IF: Authors: Arun Singh, Rahul Dehiya, Pravin Kumar Gupta and Mohammad Israil</p>
<p>Abstract: A MATLAB based computer code, AP3DMT, for modeling and inversion of 3D Magnetotelluric (MT) data was developed. This code comprises two independent components: grid generator code and modeling/inversion code. The grid generator code performs model discretization and acts as an interface by generating various I/O files. The inversion code performs core computations in modular form - forward modeling, sensitivity computations, regularization etc. These modules can be readily extended to other similar inverse problems like direct current resistivity (as done by the author). The modular structure of the code provides a framework useful for implementation of new applications and inversion algorithms. The code has been validated on several published models.</p>	
 <p>Presenter Arun Singh</p>	<p>Title: 3D CSEM data inversion algorithm based on simultaneously active multiple transmitters concept Name of the Journal: Geophysical Journal International IF: Authors: Rahul Dehiya, Arun Singh, Pravin Kumar Gupta and Mohammad Israil</p>
<p>Abstract: In this study an efficient 3-D inversion of marine controlled-source electromagnetic data is discussed. The efficiency is achieved by exploiting the redundancy in data. The data redundancy is reduced by Compressing the data through stacking of the response of transmitters which are in close proximity. This stacking is equivalent to synthesizing the data as if the multiple transmitters are simultaneously active. The redundancy in data, arising due to close transmitter spacing, has been studied through singular value analysis of the Jacobian formed in 1D inversion. In the proposed algorithm, the data are compressed through stacking which leads to both computational advantage and reduction in noise. The performance of the algorithm for noisy data is demonstrated through a case study.</p>	

 <p>Presenter Sabyasachi Nag</p>	<p>Title: Many-body mobility edges in a one-dimensional system of interacting fermions Name of the Journal: Physical Review B 96, 060203(R) (2017) IF: 5.1 Authors: Sabyasachi Nag and Arti Garg</p>
<p>Abstract: When two waves in the same phase superimpose on each other it leads to constructive interference. In a random media multiple back-scattering events lead to similar effects called the Anderson localization, first discovered for quantum mechanical electron waves in disorderd solids. Localized electrons remain confined within a certain portion of the medium and therefore cannot conduct electricity. Earth being a heterogeneous medium also leads to such localization (or trapping) phenomena pertaining to seismic waves. This gives rise to slowly decaying localized ‘coda’ waves. Seismic coda waves may give valuable information regarding seismic moments and the underlying rock structure. In this work we study localization of interacting electrons in a one dimensional medium with a periodic inhomogeneity (GAA model). In this model, if the electrons are non- interacting (when repulsion between them is negligible) there exists a threshold energy, namely single particle mobility edge (ME), below which electrons are localized and above ME electrons are delocalized. We try to answer the question, when electrons interact with each other do they still remain localized or they start to conduct electricity (i.e. do not get trapped). By exact diagonalization study we show that, for a carefully chosen parameter regime, interacting electrons do remain localized. This phenomena is termed as many body localization (MBL). There also exist many body mobility edges below (above) which many body electronic states remain many body localized (delocalized).</p>	
 <p>Presenter Sabyasachi Nag</p>	<p>Title: Many-body localization-delocalization transition in the quantum Sherrington-Kirkpatrick model Name of the Journal: Physical Review B 97, 144202 (2018) IF: 3.836 Authors: Sudip Mukherjee, Sabyasachi Nag and Arti Garg</p>
<p>Abstract: In this work we study many body localization (MBL) in quantum spin glass systems(S-K model). A spin glass system consists of spins (crudely, tiny quantum mechanical magnets) subjected to random interactions. Such random interactions cause ‘frustration’ among the spins; they cannot decide in which direction to orient and often get ‘frozen’ in arbitrary directions (which may not necessarily be their most stable ‘ground state’). Such random freezing directions of the spins in these systems are analogous to amorphous materials like a window glass (hence the name ‘spin glass’). We show that states in the S-K spin glass model exhibit MBL with an associated many body mobility edge even in the presence of weak transverse magnetic field and manifest similar memory retention effect as MBL electron systems. For large enough magnetic field the system becomes a non-MBL paramagnet.</p>	



Presenter
S. K. Roy

Title: Geological studies in the Baalsrudfjellet Nunatak between the Schirmacher Oasis and the Wohlthat Mountains to establish the continuation of the East African Orogen (EAO) in central Dronning Maud Land, East Antarctica

Name of the Journal: Geol. Soc., London, Spl. Pub. 457.

IF:--

Authors: S K. Roy, N. C. Pant, A. Kundu, A. Dharwadkar, P. K. Kumar, Sonalika Joshi, Raghuram, Mohd. Sadiq and Mayuri Pandey

Abstract: The 600–660 Ma East African Orogen (EAO) granulites of the Mozambique Belt were correlated and extended into a coast marginal area of East Antarctica through the NNW–SSW trending granulite-bearing Schirmacher Oasis. Tracing similarities in lithological association, granulite-facies metamorphism and geochronological data, the 640 Ma EAO was extended by another 110 km south of Schirmacher into the Humboldt Mountains in central Dronning Maud Land (cDML). Based on younger anorogenic magmatism east and west of the Humboldt Mountains, a 10–20 km-wide linear corridor of the EAO from the Schirmacher to the Humboldt Mountains was proposed. Baalsrudfjellet is a nunatak, located at the easternmost margin of the proposed EAO corridor and represents a significant outcrop and validates the presence of the EAO between Schirmacher and the Humboldt Mountains.



Presenter
Sanjay Das

Title: Characterization of surface geological material in Northwest India and adjoining areas of Pakistan using Normalized Difference Water Index, Land Surface Temperature and Silica Index

Name of the Journal: Journal of Indian Society of Remote Sensing

IF: 0.86

Author: Sanjay Das

Abstract: Land Surface Temperature (LST) shows negative correlation with the Normalized Water Index (NDWI) and positive correlation with Silica Index. Four types of geological materials with climatic zones are present here: A: Deformed metamorphic and igneous rocks of exhibiting structural ridges and valleys (semiarid), B: Rocky desert sector with occasional sand sheets (arid), C: Desert with sand sheets and dunes (arid) D: River valley sediments (Subhumid). Structural ridges with different lithological compositions show strong variability both in NDWI (range 1.154, from strong negative to moderate positive value, Stdv=0.0599) and also in LST (range 24°C and Stdv=2.54). Negative LST- NDWI correlation in this sector show partially linear relation. Eastern part of the Thar desert with mixed rocky knolls, and windblown sand show low variability in NDWI (range 0.85) as well as LST (range 15°C). Western Thar Desert, having homogenous silica-sand of lower emissivity shows least variability in its NDWI (range 0.88, Stdv=0.027) and moderate variability in its LST (20°C, Stdv=2.389). High NDWI and high LST bearing linear zones at places are interpreted as structural lineaments / faults based on pattern. The quantitative data of three parameters (LST, NDWI and Silica Index) will enable the planners for Landuse Planning for areas much of which are inaccessible and to find out hidden structural lineaments for neotectonic/seismotectonic study.

 <p>Presenter Bodhisatwa Mondal</p>	<p>Title: Design of CdTeSe–Porphyrin–Graphene Composite for Photoinduced Electron Transfer and Photocurrent Generation</p> <p>Name of the Journal: ACS Sustainable Chemical & Engineering</p> <p>IF: 6.140</p> <p>Authors: Rajesh Bera, Bikash Jana, Bodhisatwa Mondal and Amitava Patra</p>
<p>Abstract: Considerable attention has been paid to designing graphene based hybrid materials for developing new light-harvesting systems. Here, we have synthesized CdTeSe alloy nanorods and modified the surface of CdTeSe-nanorods by porphyrin molecules to attach to graphene surface through π-π stacking. In this CdTeSe-nanorod–porphyrin–graphene hybrid system, porphyrin acts as an antenna material which harvests light and consequently transfers electrons to the adjacent conduction band of nanorods and finally to reduced graphene oxide (RGO). An ultrafast spectroscopic study suggests that the rate of electron transfer from porphyrin to RGO via conduction band of CdTeSe nanorods is 17.4×10^{-2} ps⁻¹. It is to be noted that this ternary hybrid system exhibits 240-fold enhancement of photocurrent under visible light irradiation which reveals that this new type of graphene based inorganic and organic hybrid system is very promising for solar light harvesting.</p>	
  <p>Presenter Saju Varghese¹ Manoj R.V²</p>	<p>Title: Active channel systems in the West Basin, Andaman Fore Arc: Results from high-resolution bathymetry surveys and GIS analysis</p> <p>Name Of The Journal: Arabian Journal of Geosciences</p> <p>Impact factor:</p> <p>Authors: Saju Varghese¹, Manoj R.V²</p>
<p>Using multibeam swath bathymetric survey, a moderate sinuosity meandering channel identified in the West Basin which is extending upto the northwestern corner of the Alcock Rise. Detailed morphometric analysis indicates that this channel is a mature sinuous channel which acts as a major conduit for the sediments into the West Basin. From MBES data the channels seem to be emerge from Andaman Island, by using GIS techniques, a derived channel network system is obtained to identify the source, reveals that its exact source is the Irrawadi Delta system. The relevance is using these methods helps in extracting various submarine channel sources, with various structural and tectonics along with seabed morphology.</p>	
 <p>Presenter R.K. Joshi.</p>	<p>Title: Provenances of possible turbidites and volcanoclastic sediments in the northern part of Narcondam-Barren Basin, Andaman Sea</p> <p>Name Of The Journal: Arabian Journal of Geoscience</p> <p>Impact factor: 0.86.</p> <p>Authors: Drishya Girishbai, Saju Varghese, A.C. Dinesh, Arun Bhadrans & R.K. Joshi.</p>
<p>Paper addressed the role of turbidity currents and seismicity in depositing the turbidites in the deeper part of ocean basin. Seismo-turbidites are indicative of submarine landslide caused due to shaking of ground during an earthquake. Evidence for turbidites and volcanic deposits is observed on subsurface sediments from a gravity core collected at a water depth of 1689m from the northern part of Narcondam-Barren Basin, Andaman Sea during SM-231 cruise. To understand the mode of sediment transport, global bathymetric model (GBM) data was used to generate digital bathymetric model</p>	

(DBM). The bathymetric model shows two active channels: one in Martaban Canyon, along Sagaing Fault (drainage A), and the second one in the western part (drainage B). The moderately sinuous nature with channel-levee system of drainage B is also identified in high-resolution MBES grid model. The coarse fraction (+230 ASTM) studies of the core reveal the presence of multiples and layers at various levels. SEM-EDX and Electron Probe Microanalysis (EPMA) studies confirmed the presence of sub-angular quartz-rich layers at 114cm–116cm and 166cm–169cm and sub rounded amphibole-rich layer at 151cm–155cm. The source of these anomalous sand layers observed in the core is from the outer shelf relict sand. These relict sand brought to the Narcondam-Barren Basin by drainage B, which is formed by slumping/sliding of material in the outer Ayeyarwaddy shelf induced by ground shaking/earthquake



Presenter
R.K. Joshi.

Title: Salinity stratification controlled productivity variation over the last 300 ky in the Bay of Bengal.

Name Of The Journal: Nature Scientific Reports

Impact factor: 4.122

Authors: R. Da silva, A. Mazumdar, T. Mapdar, A. Peketi, R. K. Joshi, A. Shaji, P. Mahalakshmi, B. Sawant, B. G. Naik, M. A. Carvalho and S.K. Molletti.

The Bay of Bengal (BoB) is famous for its unique enigmatic setting. This makes it an ideal site for understanding the tropical marine ecosystem and productivity variation during the late Quaternary. The tremendous riverine influx of fresh water from Ganga-Brahmaputra, Irrawaddy, Godavari, Mahanadi, Krishna and Kaveri rivers has possibly reduces the surface salinity in BoB to $\square 29$ psu near 20°N latitude in contrast to 34psu at 7°N latitude. The excess of precipitation over evaporation results in a stable water column salinity stratification (50m–80m) in BoB, unlikely observed in other Indian Ocean regions. The salinity stratification enhances the stability of the water column and prevents mixing with the underlying cooler waters leading to high sea surface temperatures ($\sim 28^\circ\text{C}$) throughout the BoB. This enormous flux of fresh water into the BoB and consequent salinity stratification significantly weaken the convective mixing and wind driven processes, which is generally responsible for nutrients migration to the euphotic zone driving primary productivity. This paper present a high resolution organic carbon- CaCO_3 MAR and $\delta^{13}\text{C}_{\text{TOC}}$ records for the last 300 kya from the BoB. The results display significant productivity variation at marine isotope sub-stages and millennial timescales. The colder stages and stadials exhibits boost in productivity, which may be attributed to thinning of low salinity cap, thereby facilitating nutrient transport across the euphotic zone.



Presenter
Debajyoti Saha

Title: Quantification of scaling exponent with Crossover type phenomena for different types of forcing in DC glow discharge plasma

Name Of The Journal: Physica A. Elsevier

Impact factor:

Authors: Debajyoti Saha, Pankaj Kumar Shaw, Sabuj Ghosh, M.S.Janaki, A.N. Sekar Iyengar

We have carried out a detailed study of scaling region using detrended fractal analysis test by applying different forcing likewise noise, sinusoidal, square on the floating potential fluctuations acquired under different pressures in a DC glow discharge plasma. The complexity of the nonlinear fluctuation has been revealed with the help of recurrence quantification analysis which is a suitable tool for investigating recurrence, an ubiquitous feature providing a deep insight into the dynamics of real dynamical system. An informal test for stationarity which checks for the compatibility of nonlinear approximations to the dynamics made in different segments in a time series has been proposed. Two prominent scaling regions have been explored reliably using different forcing amplitudes indicating the

signature of crossover phenomena. Furthermore a persistence long range behavior has been observed in one of these scaling regions. A comprehensive study of the quantification of scaling exponents has been carried out with the increase in amplitude and frequency of sinusoidal, square type of forcings. Quantification of scaling exponents may have potential application in case of stock market, econophysics, foreign exchange rates, neuron spiking, that is in diverse areas of research field.