



Frontiers in Geosciences Research Conference

Physical Research Laboratory
27- 28 September 2021 (online)



Conference link: <https://bluejeans.com/288733140/2078>

Program Summary

Session	Session Chair	Time (hrs.)	Day
Opening Ceremony		09:00	Day 1 (Monday, 27 Sept 2021)
<u>Session 1:</u> Solid Earth and Earth Surface Processes	Hetu Sheth (IIT B) A. D. Shukla (PRL)	09:40	Day 1 (Monday, 27 Sept 2021)
<u>Session 2:</u> Marine and Terrestrial Biogeochemistry	Sanjeev Kumar (PRL) Amzad Hussain Laskar (PRL)	14:00	Day 1 (Monday, 27 Sept 2021)
Flash Talk 1		17:05	Day 1 (Monday, 27 Sept 2021)
<u>Session 3:</u> Paleoclimate and Isotope Hydrology	Rajeev Saraswat (NIO) Vineet Goswami (PRL)	09:30	Day 2 (Tuesday, 28 Sept 2021)
<u>Session 4:</u> Aerosols, Air Quality and Ocean-Atmosphere Coupling	Neeraj Rastogi (PRL) Narendra Ojha (PRL)	14:00	Day 2 (Tuesday, 28 Sept 2021)
Flash Talk 2		16:30	Day 2 (Tuesday, 28 Sept 2021)
Session on career guidance for PhD students and Post-docs (by R. D. Deshpande)		17:30	Day 2 (Tuesday, 28 Sept 2021)
Concluding Session		18:00	Day 2 (Tuesday, 28 Sept 2021)

Day 1 (Monday, 27 September 2021)

Opening Ceremony

Time (hrs.)	Event	Speaker
09:00 – 09:05	Opening Remarks	Prof. R. D. Deshpande (Chair, GSDN)
09:05 – 09:15	Welcome	Prof. Anil Bhardwaj (Director, PRL)
09:15 – 09:25	Inaugural Address	Shri A. S. Kirankumar (Council chair, PRL)
09:25 – 09:30	About the FGRC-2021	Amzad Hussain Laskar (Convener, FGRC-2021)
09:30 – 09:35	Vote of Thanks	Vineet Goswami (Convener, FGRC-2021)

Scientific sessions

Session 1:

Solid Earth and Earth Surface Processes: 09:40 – 12:35

Session Chairs: Hetu Sheth (IIT Bombay), A. D. Shukla (PRL)

Time (hrs.)	Title of the talk	Speaker
09:40 – 10:10	Plenary talk: Some interesting research questions in Indian Geology	J. S. Ray (NCESS, Thiruvananthapuram)
10:10 – 10:30	Sediment-routing system of the Himalayan rivers	Vikrant Jain (IIT Gandhinagar)
10:30 – 10:50	Erosional changes in the Himalaya during last glacial-interglacial cycle	Gyana Ranjan Tripathy (IISER Pune)
10:50 – 11:05	An insight into the subsurface geology of the Andaman Islands using clasts ejected through the mud volcanoes	Neeraj Awasthi (VBS Purvanchal Univ, Jaunpur)
11:05 – 11:20	Zoned crystal records of open magma chamber fractionation, mafic recharge, remobilisation of crystal mush zone in LIPs:	Abhinay Sharma (PRL, Ahmedabad)

	Insights from the lamprophyres and dolerites of end-Cretaceous (ca. 66 Ma) Phenaimata alkaline igneous complex, NW India	
11:20 – 11:35	Bridgmanite in shock-melt veins of Katol L6 chondrite	Kishan Tiwari (IIT Kharagpur)
11:35 – 11:50	Insights into the subduction zone processes and generation of arc magmas in the Barren and Narcondam Islands, Andaman subduction zone: A review	Ngangom Romario Meitei (BHU, Varanasi)
11:50 – 12:05	Geochemical Characterization of Meso-Proterozoic Carbonates from Pindwara- AbuRoad Belt, Sirohi District, Rajasthan	Riya Dutta (MLSU, Udaipur)
12:05 – 12:20	Noble gas in interior of rocky planets	Satvika Jaiswal (Banasthali Vidyapith)
12:20 – 12:35	Minimization of the effect of Down-Hole Fractionation (DHF) in age calculation for Zircon mineral using LA-MCICPMS	Saurabh Singhal (WIHG, Dehradun)
12:35 – 14:00	Lunch Break	

Session 2:

Marine and Terrestrial Biogeochemistry: 14:00 – 17:05

Session Chairs: Sanjeev Kumar (PRL), Amzad Hussain Laskar (PRL)

Time (hrs.)	Title of the talk	Speaker
14:00 – 14:30	Plenary talk: Biogeochemistry of the Indian Ocean	Sunil K. Singh (NIO, Goa)
14:30 – 14:50	The trace metals cycling in the Ganga (Hooghly) River estuary: regional and global perspectives	Tarun Dalai (IISER Kolkata)
14:50 – 15:10	Ganges river drying: insights from surface water-groundwater interactions	Abhijit Mukherjee (IIT Kharagpur)
15:10 – 15:30	Mobilization of elements during Basalt Weathering	Jitendra Pattanaik (Central Univ Punjab, Bhatinda)

15:30 – 15:50	Development of non-traditional isotope systematics for tracing biogeochemical cycles in natural water	Sambuddha Misra (IISc, Bangalore)
15:50 – 16:05	Spatial pattern of the isotopic composition of bird feathers from India	Shreyas Managave (IISER Pune)
16:05 – 16:20	Calibration and Validation of a Process-based Model to Simulate the Ecosystem-Atmosphere Carbon, Water and Energy Fluxes at a Subtropical Forest in India	Pramit Kumar Deb Burman (IITM, Pune)
16:20 – 16:35	Anomalous $\delta^{18}\text{O}$ signal in the shell of a giant clam (<i>Tridacna maxima</i>) from the Lakshadweep Archipelago, India: Signatures of thermal stress during a coral bleaching event	Fousiya A. A. (IIT Kanpur)
16:35 – 16:50	Seasonal radiocarbon record from a coral of the Andaman Sea	Harsh Raj (PRL, Ahmedabad)
16:50 – 17:05	Endolithic cyanobacterium <i>Chroococcidiopsis</i> sp. JS7 from Mawsmi Limestone cave, Meghalaya, India	Jyoti Singh (IARI, New Delhi)

Flash Talk 1

Two slides, two minutes presentations: 17:05 – 18:30

S. No.	Poster No.	Title of the poster	Presenter
1	S1	Physical volcanology of the Pavagadh rhyolites, northern Deccan Traps: Stratigraphic, structural, and textural record of explosive and effusive eruptions	Janisar M. Sheikh (BHU, Varanasi)
2	S3	Chemical weathering rate of a small western ghat river, Southwestern India	V. N. Amrish (Manipal Inst Tech, Manipal)
3	S4	Drastic change in sediment provenance during the Permian-Triassic transition: An insight from Sr-Nd isotopic study of Guryul Ravine section, India	Anirban Mandal (IISER Pune)

4	S5	Extremely high-grade, lava-like rhyolitic ignimbrites at Osham Hill, Saurashtra, northwestern Deccan Traps: stratigraphy, structures, textures, and physical volcanology	Anmol Naik (IIT Bombay)
5	S7	Significance and role of controlling factors in the chemical weathering of Amphibolite: an overview	Khalid Mohammed Ghasera (AMU, Aligarh)
6	S8	Evolution of Kamthai carbonatites, Rajasthan: Evidence from geochemistry	Milan Kumar Mahala (PRL, Ahmedabad)
7	S9	Lithospheric Velocity Structure beneath The Chhotanagpur Plateau, India Using Waveform Modeling Of Shear-Coupled PL Wave	Mukesh Kumar Das (IIT(ISM), Dhanbad)
8	S10	Impact of extreme rainfall events on chemical weathering in a tropical river basin (Mahanadi river, India)	Rakesh Kumar Rout (IISER Pune)
9	S11	Analysis of Seismic Attenuation Characteristics for Eastern Chotanagpur Plateau, India	Rashid Shams (IIT(ISM), Dhanbad)
10	S12	Silicate versus carbonate rock weathering in Peninsular India: a study from the Kali watershed	Kumar Arun (Manipal Inst Tech, Manipal)
11	S13	Comparison of Seismic Declustering Methods for Kishanganj (India)	Yehya Rasool (IIT(ISM), Dhanbad)
12	S14	Comparison of the LST, NDVI, and NDBI between the old Ahmedabad city and the new Ahmedabad city using the LANDSAT-8 satellite	Divyakumar A. Kotia (St. Xavier's College, Ahmedabad)
13	A1	Aerosol physical-chemical properties and its association with cloud condensation nuclei activation over a tropical coastal location	T. C. Ajith (VSSC, Thiruvananthapuram)
14	A2	Understanding the variation of particulate matter over Ahmedabad city	Bhargav Prajapati (St. Xavier's College, Ahmedabad)
15	A3	Impact of PM ₁₀ and PM _{2.5} on air quality during Diwali festival at Agra	Gunjan Goswami (DEI, Agra)

16	A4	Comparative study of PM _{2.5} diminution and haze events over Delhi and Agra during the COVID 19 lockdown period	Isha Goyal (DEI, Agra)
17	A5	Finding and analyzing the source for the production of carbon monoxide over India using Satellite data	Khushali Tank (St. Xavier's College, Ahmedabad)
18	A6	Impact of Covid-19 pandemic on the variation of Black carbon over an urban city Delhi	Kush Ghetia (St. Xavier's College, Ahmedabad)
19	A7	A three-year record of chemical composition and ⁸⁷ Sr/ ⁸⁶ Sr in rainwater over Bhopal, the second cleanest city of India	Nafees Ahmad (IISER Bhopal)
20	A8	The impact of lockdown on air pollution levels and change in air quality at sub-urban site Dayalbagh, Agra	Neelam Baghel (DEI, Agra)
21	A10	Mixing ratios and stable isotopes in CO ₂ and N ₂ O in a coastal station of a western pacific island: quantification of influences from regional and long range transported sources	Uddalak Chakraborty (BHU, Varanasi)
22	A11	Impact of the COVID-19 Lockdown on Air Pollution Levels in Jalandhar, Punjab	Manik Bhandari (B.R. Ambedkar Nat Inst Tech, Jalandhar)

Day 2 (Tuesday, 28 September 2021)

Session 3:

Paleoclimate and Isotope Hydrology: 09:30 – 12:55

Session Chairs: Rajeev Saraswat (NIO), Vineet Goswami (PRL)

Time (hrs.)	Title of the talk	Speaker
09:30 – 10:00	Plenary talk: Frontiers in hydrology Research	R. D. Deshpande (PRL, Ahmedabad)

10:00 – 10:20	Clumped isotope thermometry; exploring theoretical and experimental approaches during analysis of natural carbonates	Prosenjit Ghosh (IISc Bangalore)
10:20 – 10:40	Carbon source-sink characteristics of a semi-deciduous forest in northeast India	Supriyo Chakraborty (IITM Pune)
10:40 – 10:55	Extreme rainfall deficits were not the cause of recurring colonial era famines of southern Indian semi-arid regions	Atreyee Bhattacharya (University of Colorado-Boulder)
10:55 – 11:10	Predicting Arctic sea ice in near future climate using mid-Pliocene records	Waliur Rahaman (NCPOR, Goa)
11:10 – 11:25	Soft sediment deformation in the Late Pleistocene-Holocene glacio-fluvial lake in NW Himalaya: evidence of past earthquake along seismically active Kaurik Chango Fault or climate transition?	Archna Bohra (NGRI, Hyderabad)
11:25 – 11:40	Prolonged repercussions of ground water overdraft in Chhattisgarh state	Mukesh Anand (Central Ground water board, Raipur)
11:40 – 11:55	Observation of changes in local-onset in Indian Summer Monsoon Rainfall	Hiteshri Shastri (CHARUSAT, Anand)
11:55 – 12:10	Reducing the stage of groundwater extraction through incentivizing the Recharge	Sidhanta Kr. Sahu (Central Ground water board, Raipur)
12:10 – 12:25	Interaction of Indian Summer Monsoon with global climatic events during the Holocene epoch: An Overview	Upasana S. Banerji (NCESS, Thiruvananthapuram)
12:25 – 12:40	Isotopic constraints on relative contributions of the Himalayan and Peninsular rivers to the Ganga plain	Chinmaya Maharana (JNU, New Delhi)
12:40 – 12:55	Indian Hydrometeorological Processes: Insights from Precipitation Isotopes	Harsh Oza (PRL, Ahmedabad)
12:55 – 14:00	Lunch Break	

Session 4:

Aerosols, Air Quality and Ocean-Atmosphere coupling: 14:00 – 16:15

Session Chairs: Neeraj Rastogi (PRL), Narendra Ojha (PRL)

Time (hrs.)	Title of the talk	Speaker
14:00 – 14:30	Plenary talk: Sources, processing and impacts of atmospheric haze over Indo Gangetic Plains (IGP)	S. N. Tripathi (IIT Kanpur)
14:30 – 14:50	Natural Aerosols and the Indian Summer Monsoon Rainfall	V. Vinoj (IIT Bhubaneswar)
14:50 – 15:10	Atmospheric new particle formation in India: Current understanding and knowledge gaps	Vijay Kanawade (Univ of Hyderabad)
15:10 – 15:30	Atmospheric carbonaceous aerosols and nutrients in the continental outflows: sources, transport and biogeochemical significance	B. Srinivas (NIO, Goa)
15:30 – 15:45	Bioactive trace metal composition and their fractional solubility in aerosols from the Arabian Sea during the Southwest Monsoon	Ashwini Kumar (NIO, Goa)
15:45 – 16:00	Air chemistry in a tropical urban environment of India: A modeling perspective	Meghna Soni (PRL, Ahmedabad)
16:00 – 16:15	Green Technology to Mitigate Air Pollution – Real Time Data Based Analysis	Ramya C Balan (Device Earth Pvt Ltd, Bengaluru)
16:15 – 16:30	Are fireworks a significant episodic source of brown carbon?	Prashant Rawat (IISER Kolkata)

Flash Talk 2

Two slides, two minutes presentations: 16:30 – 17:30

S. No.	Poster No.	Title of the poster	Presenter
1	B1	Concentration and average chain lengths of leaf wax n-alkanes in tropical deciduous and evergreen species	A. Saishree (IISER Pune)
2	B2	Seasonality of particulate REEs in the estuarine water column of the Gulf of Cambay	Abul Qasim (IISER Bhopal)
3	B3	Assessment of spatial distribution of metal contamination in shallow groundwater of Udyavara river basin, Southwest India	Vignesh Akshitha (Manipal Inst Tech, Manipal)
4	B4	Effect of semidiurnal tides on dissolved inorganic carbon (DIC) and $\delta^{13}\text{C}_{\text{DIC}}$ in a tropical estuary (Mahanadi river estuary)	Mohammad Atif Khan (PRL, Ahmedabad)
5	B5	Biogeochemistry of Nutrient, dissolved Silica along the salinity gradients of three estuaries, Southwest coast of India	D'Souza Nishitha (Manipal Inst Tech, Manipal)
6	B6	Studies on water pollution on water pollution of north Koel river in and around Kechki and Daltonganj, Jharkhand	Nikita Bhagat (Ranchi Univ)
7	B7	Spatial variability and residence time of beryllium isotopes in the Indian Ocean: Role of oceanic processes	Partha Sarathi Jena (PRL, Ahmedabad)
8	B8	Evaluation of the role of carbon and sulfur bio-geochemical cycles on the seasonal arsenic mobilization process in the shallow groundwater of the Bengal aquifer	Pousali Pathak (IISc, Bangalore)
9	B9	Fresh and recirculated submarine groundwater discharge through Indian coastline: A review	Yovan Lino (Manipal Inst Tech, Manipal)
10	P1	The late Miocene monsoon evolution and erosion history of the western Himalaya: insight from IODP Site U1457	Mahboob Alam (BSIP, Lucknow)
11	P2	Isotopic characterization of groundwater of Kerala: Insights into hydrological processes	Amit Pandey (PRL, Ahmedabad)
12	P3	Performance of PRL-AURiS for Radiocarbon measurements	Ankur Dabhi (PRL, Ahmedabad)
13	P4	Ground water level monitoring in the state of Gujarat (1997-2017)	Ishan P. Jariwala (CHARUSAT, Anand)

14	P5	Evidence of Poorly Ventilated Deep Central Indian Ocean during the Last Glaciation	Nisha Bharti (PRL, Ahmedabad)
15	P6	Mean monsoon climate shift at the edge of Roman Warm Period	Phanindra Reddy A (IITM Pune)
16	P7	Reconstructing the variability of deep water circulation in the Indian sector of the Southern Ocean during the last glacial cycle	Pranav S. Prem (NCPOR, Goa)
17	P8	Continuous Measurements of Atmospheric Water Vapour Isotopic Composition from Western India	Pratheeksha Nayak (PRL, Ahmedabad)
18	P9	Siliciclastic paleosol revealed paleoclimatic and provenance geochemistry during Gondwana sedimentation; featuring Permo-Triassic sequences of Satpura Basin, Madhya Pradesh, India	Y. Priyananda Singh (Central Univ. Punjab, Bhatinda)
19	P10	Timing and mechanism for the onset of modern like deep water circulation in the Indian Ocean	Priyesh Prabhat (NCPOR, Goa)
20	P11	Revised calibration for otolith clumped isotope thermometry: An extended application to determine growth temperature of travertine	Sanchita Banerjee (IISc, Bangalore)
21	P12	Paleoclimatic Implications of Thermocline Variation in the Equatorial Indian Ocean Region	Sanjit Kumar Jena (PRL, Ahmedabad)
22	P13	Stable isotopes and nitrogen functionalities in coals and their crafty responses to coal metamorphism	Santanu Ghosh (IIT(ISM), Dhanbad)
23	P14	Tracing the impact of basin topography on the hydrological processes in a Himalayan River: A stable isotopic (δD and $\delta^{18}O$) approach	Satyabrata Das (WIHG, Dehradun)
24	P15	First results of Beryllium isotope measurements from PRL-AURIS	Shivam Ajay (PRL, Ahmedabad)
25	P16	Hydrogeochemistry of two tributaries of the Brahmaputra river (Pagladia and Kuls) in Assam, India	Sumi Handique (Tezpur Univ)

26	P17	Structural control on groundwater flow in trans Yamuna region Prayagraj as inferred using remote sensing and GIS	Swarnim (Univ. Allahabad)
27	P18	Perturbations in the Rainfall Trends in India: New Insights from a Different Approach	Swagatika Chakra (PRL, Ahmedabad)
28	P19	Long-term variation of the Sea Surface Temperature over 13 oceanic regions linked to Indian Summer Monsoon Rainfall	Riddhi M. Bhatt (CHARUSAT, Anand)
29	P20	Estimation of Seasonal Base Flow Contribution to a Tropical River Using Stable Isotope Analysis	Himanshu Bhagat (IISc Bangalore)
30	P21	Influence of climate change on precipitation patterns on watersheds of Central Suvarnamukhi Basin, South Interior Karnataka, India	Tejas K. (East West Inst Tech, Bengaluru)
31	P22	Thermal state of Eocene-Oligocene tropical Indian Ocean based on carbonate clumped isotope thermometry of planktonic foraminifera from DSDP site 237	Thamizharasan S. (IISc Bangalore)
32	P23	Paleomonsoonal reconstruction using lake sediments from coastal Karnataka, Southern India: A multi-proxy approach	A. S. Yamuna Sali (Manipal Inst Tech, Manipal)

Time (hrs.)	Session	Speaker
17:30 – 18:00	Career guidance for PhD students and Post-docs	R. D. Deshpande (PRL, Ahmedabad)

Time (hrs.)	Session
18:00 – 18:15	Concluding Session