

Report for Japan-India Forum for Advanced
Study FY2018 <Summary>

Date March 27, 2019

1. Title of Seminar Progress and perspective of the studies on the crustal evolution of the Indian Peninsula from the Archean to the present days by geochemical, chronological and geological approaches

2. Purpose of Seminar

In the last ten years, several Japanese groups have worked with Indian scientists to study the crustal evolution of the Indian Peninsula which preserves a complex geological history from the Archean to the present-day. The study was carried out using the modern techniques of structural geology, mineralogy, petrology, geochronology, tectonics, sedimentology, biogeochemistry, and isotope geochemistry. Results of these studies can be collated in order to put forward a clear understanding of the interaction of biosphere, hydrosphere, atmosphere and lithosphere for a major part of the Earth's history. This happened so as the old continents like that of Indian continent are the greatest archive of the related information and understanding. It is time for us to review the individual scientific topics with each other, and to merge the ideas to construct a new paradigm on the crustal evolution processes, and to unify the individual views from the different approaches through this seminar.

3. Period

From March 7, 2019 through March 16, 2019 (10 days)

4. Venue

Nagoya University (4 days from March 7 to March 10), National Institute of Polar Research (1 day on March 12), Niigata University (3 days from March 14 to March 16)

Plus 2 days field excursions: One day around Mt. Fuji area on the way from Nagoya to Tokyo on March 11, and one day around Nagatoro area on the way from Tokyo to Niigata on March 13

5. Organization

(1) Cosponsors

Japan Side	Japan Society for the Promotion of Science (JSPS)
	Nagoya University, National Institute of Polar Research, Niigata University
India Side	Department of Science and Technology (DST)
	University of Delhi, Presidency University

(2) Organizer

1) Japan side

Name in full

Hiroshi Hidaka

Affiliation and Position Nagoya University, Professor

2) India side

Name in full Partha Pratim Chakraborty

Affiliation and Position University of Delhi, Professor

6. Program: Agenda, Topics, Related Activities (e.g., Reception, Excursion)

*You can either enter/paste text here or send a file as an attachment

Please see the attachment

7. Lecturers and Participants

1) Number of Persons

	Lecturers	Participants	Total
Japan side	16	27	43
(Number who participated under program funding)	11	11	22
India side	10	11	21
(Number who participated under program funding)	10	9	19
Other persons	8	5	13
(Number who participated under program funding)	8	1	9
Total	34	43	77
(Number who participated under program funding)	29	21	50

2) List

A: Lecturers

Name in full	Position /Affiliation/ Institution(Country of Affiliated Institution)	Remarks
-Japan side		
Hiroshi Hidaka	Professor /Nagoya University (Japan)	*
Madhusoodhan Satish Kumar	Professor /Niigata University (Japan)	*
Tomokazu Hokada	Associate Professor / National Institute of Polar Research (Japan)	*
Kohki Yoshida	Professor / Shinshu University (Japan)	*
Kaushik Das	Associate Professor / Hiroshima University (Japan)	*
Yasutaka Hayasaka	Associate Professor / Hiroshima University (Japan)	*
Fumito Shiraishi	Assistant Professor / Hiroshima University (Japan)	*
Tetsuya Sakai	Professor / Shimane University (Japan)	*
Sarata Kumar Sahoo	Senior Researcher /National Institutes for Quantum and Radiological Science and Technology (Japan)	*
Kazuyuki Shiraishi	Emeritus Professor / National Institute of Polar Research (Japan)	*
Tetsuo Kawakami	Associate Professor / Kyoto University (Japan)	*
Tsuyoshi Iizuka	Associate Professor / University of Tokyo (Japan)	
Yuichiro Ueno	Professor / Tokyo Institute of Technology (Japan)	
Toshiaki Tsunogae	Professor / University of Tsukuba (Japan)	
Eiichi Takazawa	Professor / Niigata University (Japan)	
Shinnosuke Aoyama	Assistant Professor / Niigata University (Japan)	
-India side		
Srinivasan Balakrishnan	Professor /Pondicherry University (India)	*
Sankar Bose	Professor /Presidency University (India)	*

Ramananda Chakrabarti	Associate Professor /Indian Institute of Science, Bangalore (India)	*
Partha Pratim Chakraborty	Professor /University of Delhi (India)	*
Supriyo Kumar Das	Professor /Presidency University (India)	*
Mudlappa Jayananda	Professor /University of Hyderabad (India)	*
V.J. Rajesh	Associate Professor / Indian Institute of Space Science and Technology (India)	*
Krishnan Sajeev	Associate Professor /Indian Institute of Science, Bangalore (India)	*
Amit Basu Sarbadhikari	Associate Professor /Physical Research Institute (India)	*
Harnder Pal Singh	Professor /University of Delhi (India)	*
-Other Persons		
Ian Williams	Professor /Australian National University (Australia)	*
Allen Nutman	Professor /University of Wollongong (Australia)	*
Chang-sik Cheong	Professor /Korea Basic Science Institute (Republic of Korea)	*
Ian Fitzsimons	Professor /Curtin University (Australia)	*
James Connolly	Professor /Swiss Federal Institute of Technology (Switzerland)	*
Bernardo Cesare	Professor /Padova University (Italy)	*
William McDonough	Professor /University of Maryland (U.S.A.)	*
Chang Whan Oh	Professor /Chonbuk University (Republic of Korea)	*

Place a check [*] in the Remarks Column for those who participated using JSPS's seminar funding.

B: Participants

Name in full	Position /Affiliation/ Institution(Country of Affiliated Institution)	Remarks
-Japan side		
Keisuke Sakuma	PhD student /Nagoya University (Japan)	*
Kenta Kawaguchi	PhD student /Hiroshima University (Japan)	*
J.M.R. Guotana	PhD student /Kanazawa University (Japan)	*
Keita Itano	PhD student /University of Tokyo (Japan)	*
Tohru Nakajima	PhD student /Kyoto University (Japan)	*
Rai Lalit Kumar	PhD student /Shinshu University (Japan)	*
A.S. Silpa	PhD student /Niigata University (Japan)	*
Lakshmanan Sreehari	PhD student /Niigata University (Japan)	*
Yoshihiro Nakamura	Postdoctoral Researcher /National Institute of Advanced Industrial Science and Technology (Japan)	*
Mami Takehara	Postdoctoral Researcher / National Institute of Polar Research (Japan)	*
Muruga Rajamanickam	Postdoctoral Researcher /National Institutes for Quantum and Radiological Science and Technology (Japan)	*
-India side		
Anupam Banerjee	Postdoctoral Researcher /Indian Institute of Science, Bangalore (India)	*
Proloy Ganguly	PhD student /Presidency University (India)	*
Swapnil Kumar Rai	PhD student /Benaras Hindu University (India)	*
Aditi Sharma	PhD student /University of Delhi (India)	*
Mohd. Azhar Ul Haq	PhD student /Pondicherry University (India)	*
D. Harinadha Reddy	Postdoctoral Researcher /Indian Institute of Science, Bangalore (India)	*
Rasikh Barkat	PhD student /University of Delhi (India)	*
Subham Chatterjee	PhD student /Presidency University (India)	*
Vishal Goyal	PhD student /Panjab University (India)	*
-Other Persons		
Durgalashmi	PhD student /Australian National University (Australia)	*
Chiranjeeb Chatterjee	Postdoctoral Researcher /Indian Institute of Science, Bangalore (India)	
Claude Nambaje	Postdoctoral Researcher /Indian Institute of Science, Bangalore (India)	
Kenji Horie	Assistant Professor /National Institute of Polar Research (Japan)	
Vanessa Andrade	Assistant Professor /Niigata University (Japan)	
Sam Uthup	PhD student /University of Tsukuba (Japan)	

Fei Xue	PhD student /University of Tsukuba (Japan)	
Otgonbayar Dandar	PhD student /Tohoku University (Japan)	
Diana Mindaleya	PhD student /Tohoku University (Japan)	
Austin Nurdiana	PhD student /Tohoku University (Japan)	
Kouta Suzuki	PhD student /Kyoto University (Japan)	
Keisuke Suzuki	PhD student /Niigata University (Japan)	
Raiki Yamada	PhD student /Niigata University (Japan)	
Ryusei Kohta	PhD student /Niigata University (Japan)	
Syun Watanabe	PhD student /Niigata University (Japan)	
Pendanath Gopina Athira	PhD student /Niigata University (Japan)	
Akari Imura	PhD student /Niigata University (Japan)	
Takaharu Saito	PhD student /Nagoya University (Japan)	
Hikari Harada	PhD student /Nagoya University (Japan)	
Ommen Vinod Samuel	Postdoctoral Researcher /Yonsei University (Republic of Korea)	
Bo Young Lee	PhD student /Chonbuku University (Republic of Korea)	
Wonjeong Kim	PhD student /Chonbuk University (Republic of Korea)	
Ji Wan Jeong	PhD student /Chonbuk University (Republic of Korea)	

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8. Please describe the achievements of the seminar.

The seminar brought out a comprehensive idea about the evolution of lithosphere since the early part of the Earth's history, its interaction with biosphere, atmosphere and hydrosphere. Possibility of similar history was sought from the evolution of planetary bodies. Apart from exchanging research ideas among geoscientists of varying disciplines, young researchers including PhD students are finding this seminar a new platform to pursue career.

In the last ten years, several Japanese groups have co-worked with Indian counterparts to study the crustal evolution processes of the Indian Peninsula consisting of a wide range of geological history from the Archean to the present-day. This includes integrated studies on mineralogy, petrology, structural geology (macro- to micro-scale), element and isotope geochemistry and geochronology using high precision analytical techniques mainly to unravel the tectonic settings and related plate movements, deep recycling of rocks and fluids, formation and break-up of supercontinental masses at different points of the Earth's long history. Deep to middle continental crustal rocks are the main source of such records. The shallow crustal processes and near-surface processes were/are also occurring in response to such deep earth processes. One of the major target areas were sedimentary basins of the Precambrian time, particularly those occurring at the margin of the Archean cratons, which preserve the information of paleoenvironment, and its reconstruction was carried out using high resolution sequence stratigraphy, geochemistry and geochronological data generation. A major aim also was to check the effect of primitive life forms on the processes occurring at the interface between sediment and water. At the same time, the younger sedimentary sequences on the present day continental margins and other basins preserve a huge amount of information on the biological evolution, climatic and environmental changes in the recent geological past. Understanding the physical and chemical sedimentary processes, biogeochemical evolution, and isotope geochemical signatures supported by the modern analytical techniques in such sedimentary sequences form the another main line of collaborative research in recent years. All these together collate to a better and finer understanding of the interaction of biosphere, hydrosphere, atmosphere and lithosphere for a major part of the Earth's history. This was achieved as the old continents like that of Indian continent are the greatest archives of the related information and understanding the geological process-product relationships. It was the best timing for us to review the individual scientific topics with each other, and to merge the ideas to construct a new paradigm on the crustal evolution processes, and to unify the individual views from the different approaches through this seminar. For further discussion, both our sides between Indian and Japanese member including young researchers recognize to expand and strengthen our research network in near future.