

MEMBER COUNTRY: India

National Report to SCAR for year: 2017

Activity	Contact Name	Address	Telephone	Fax	Email	Website
National SCAR Committee						
	Dr. Shailesh Nayak Chairman (from Jan 2016)	Former Secretary to Government of India Ministry of Earth Sciences, Mahasagar Bhavan, Block 12, CGO Complex, Lodhi Road, New Delhi - 110 003	91-11-24669626		shailesh@moes.gov.in	
	Dr. Rahul Mohan, Member Secretary (continuing)	ESSO-National Centre for Antarctic & Ocean Research, Headland Sada, Goa - Pin-403804, INDIA.	(+91)-832-2525531	(+91)-832-2520877	rahulmohan@ncaor.gov.in	
	Prof. N C Pant (From Jan 2016)	Associate Professor Centre for Advanced Study, Department of Geology, Delhi University, Delhi-110007	(+91)-9953781350		pantnc@rediffmail.com	
	Dr. A. Ganju (From Jan 2016)	Director, Snow & Avalanche Study Establishment, Research & Development Centre, Him Parisar, Sector 37- A, Chandigarh - 160 036	9872083177		ashwagosha@gmail.com/ director@sase.drdo.in	
	Dr. S. Sathyakumar (From Jan 2016)	Scientist G/Sr. Professor Wildlife Institute of India P.O Box, 18, Chandrabani Dehradun 248 001 Uttarakhand.	(+91)- 135 2640230	(+91)- 135 2640117	ssk@wwi.gov.in	
SCAR Delegates						
1) Delegate	D. M.V.Rajeevan (from Nov 2015)	Secretary to Government of India Ministry of Earth Sciences, Mahasagar Bhavan, Block 12, CGO Complex, Lodhi Road, New Delhi - 110 003	(+91)-11-2462977/72	(+91)-11-24669777	secretary@moes.gov.in	
2) Alternate Delegate	Dr. M Ravichandran (from June 2015)	Director, ESSO-National Centre for Antarctic & Ocean Research, Headland Sada, Goa - Pin-403804, INDIA.	(+91)-832-2520876	(+91)-832-2520877	mravi@ncaor.gov.in	www.ncaor.gov.in
Standing Scientific Groups						
Life Sciences						
1)	Dr. S Shivaji	Consultant (Retd. Director Grade-Scientist G) Centre for Cellular and Molecular Biology (CCMB) Uppal Road Hyderabad 500 007	(+91)- 40 24006403	(+91) 40 27160591	shivas@ccmb.res.in	
2)	Dr. S. Sathyakumar	Scientist G/Sr. Professor Wildlife Institute of India P.O Box, 18, Chandrabani Dehradun 248 001 Uttarakhand.	(+91)- 135 2640230	(+91)- 135 2640117	ssk@wwi.gov.in	
3)	Dr. Sarat Chandra Tripathy	ESSO-National Centre for Antarctic & Ocean Research, Headland Sada, Goa - Pin-403804, INDIA.	(+91)- 832 2525635	(+91)--832-2520877	sarat@ncaor.gov.in	

Geosciences						
1)	Dr. Anil Joshi	Dy. Director General, (retd) Geological Survey of India, Faridabad - 121001, India	(+91)-129-2417335	(+91)-129-2417335	anil.joshi@gsi.gov.in	
2)	Dr. N. C. Pant	Associate Professor Centre for Advanced Study, Department of Geology, Delhi University, Delhi-110007	(+91)-9953781350		pantnc@rediffmail.com	
3)	Dr. Thamban Meloth	ESSO-National Centre for Antarctic & Ocean Research, Headland Sada, Goa - Pin-403804, INDIA.	(+91)-832-2525622	(+91)-832 2520877	meloth@ncaor.gov.in	
4)	Dr. Rahul Mohan	ESSO-National Centre for Antarctic & Ocean Research, Headland Sada, Goa - Pin-403804, INDIA.	(+91)-832-2525531	(+91)-832-2520877	rahulmohan@ncaor.gov.in	
Physical Sciences						
1)	Prof. S Gurubaran	Indian Institute of Geomagnetism Plot 5, Sector 18, Near Kalamboli Highway, New Panel (W), Navi Mumabi, 410 218	(+91)-22-27480763/4017	(+91)-22-27480762	gurubara@iigs.iigm.res.in	
2)	Dr. Suresh Babu	Space Physics Laboratory Vikram Sarabhai Space Centre, Thiruvananthapuram - 695 022	(+91)-471-2562404	(+91)-471 2706535	s_sureshbabu@vssc.gov.in	
3)	Dr. V D Mishra	Snow & Avalanche Study Establishment Research & Development Centre Himparisar, Sector 37-A Chandigarh-160 036	(+91)-172-2699804	(+91)-172-2699970	vd_mishra@rediffmail.com	

Activity	Contact Name	Address	Telephone	Fax	Email	Website
Scientific Research Program						
AAA 1) 2) 3) 4)						
AntEco 1) 2) 3) 4)						
AnT-ERA 1) 2) 3) 4)						
AntClim21 1) 2) 3) 4)						
PAIS 1) 2) 3) 4)						
SERCE 1) 2) 3) 4)						

Activity	Contact Name	Address	Telephone	Fax	Email	Website
Standing Committees						
SCADM						
1) 2)	Shri S Samy	ESSO-National Centre for Antarctic & Ocean Research Headland Sada, Goa 403 804, INDIA	(+91)-832-2525515	(+91)-832-2520877	vssamy@ncaor.gov.in	www.ncaor.gov.in
SCAGI						
1) 2)						
Other Groups (optional)						
SOOS	Dr. Anil Kumar	ESSO-National Centre for Antarctic & Ocean Research Headland Sada, Goa 403 804, INDIA	(+91)-832-2525513	(+91)-832-2520877	anil@ncaor.gov.in	www.ncaor.gov.in
	Dr. Bhaskar Iyer	ESSO-National Centre for Antarctic & Ocean Research Headland Sada, Goa 403 804, INDIA	(+91)-832-2525676	(+91)-832-2520877	bhaskar@ncaor.gov.in	www.ncaor.gov.in
CBET	Dr Rahul Mohan	ESSO-National Centre for Antarctic & Ocean Research Headland Sada, Goa 403 804, INDIA	(+91)-832-2525531	(+91)-832-2520877	rahulmohan@ncaor.gov.in	www.ncaor.gov.in

An optional report summarising scientific highlights of the past year may be included below.

37 projects from 22 different premier institutes / universities of India were taken up during the said period of 2016-17. Brief highlights have been provided under the subheads below:

S.No	Project Title and Project Number	PI Name and contact details (Name of Institution, email and telephone number)	Objectives of Project	Area and Duration of Project Study
Meteorology and Atmospheric Sciences				
1	Geophysical Studies in Polar Regions	S Gurubaran, IIG, gurubara@iigs.iigm.res.in, 022-27484227/27484145	To determine the substorm onset and location from Antarctic observations/ Finding the time delay in substorm onset at Maitri and Bharati/ Finding the extent of the substorm and the possible responsible parameters / Examine the auroral westward electrojet at Maitri and Bharati using Magnetometer data / To examine the consequence of interplanetary conditions on the Auroral Substorm Absorption (ASA) events over sub-auroral latitude	Maitri: Long-term
2	Study of melt/freeze dynamics in Antarctica and sea-ice characterization using space based and ground based observations	Rajashree V Bothale, ISRO-NRSC, +91-9949512318, rbothale@gmail.com	Collection of snow density, wetness, temperature, melt freeze status at alternate day interval on the accessible polar ice near Bharati station from November onwards to understand spatio – temporal variations in the snow properties over sheet ice. / Profiling over sea ice to measure thickness and correlating with satellite data. / To monitor the ice shelves for their melt/freeze status with detailed study of Amery shelf and shelf near Maitri.	Bharati: Long-term
3	Observation of Meteorological Parameter Solar Radiation and Ozone Observation	The Director General of Meteorology, Indian Meteorological Division, 011-43824318	Regular Meteorological and Ozone Observation / Further augmentation of surface meteorological observatory and Recording of various surface meteorological parameters / weather forecast for Bharati and surrounding region / Installation of surface UV Ozone Analyzer	Bharati: Long-term
4	Observation of Meteorological Parameter Solar Radiation and Ozone Observation	The Director General of Meteorology, Indian Meteorological Division, 011-43824318	Regular Meteorological and Ozone Observation / Further augmentation of surface meteorological observatory and Recording of various surface meteorological parameters / weather forecast for Bharati and surrounding region / Installation of surface UV Ozone Analyzer	Maitri: Long-term
5	Temporal and spatial variations of meteorological parameters, energy fluxes and study of ice sheet dynamics using remote sensing and in situ measurements	H.S. Gusain, SASE, 0172-2699804/805/806 ext.320, gusain_hs@yahoo.co.in,	Study of spatial and temporal variation of energy fluxes in shelf and continental ice sheet / Study of ice sheet velocity using remote sensing and in situ measurements / Thickness mapping along the grounding line using GPR and remote sensing techniques	Maitri: Long-term
6	Atmospheric studies using moveable atmospheric radar for Antarctica	Sourav Chatterjee, NCAOR, 0832-2525679, srv.sxc@gmail.com	<ul style="list-style-type: none"> • Use radar observations of atmospheric structure and turbulence, in the polar troposphere and lower stratosphere, to improve and validate models of air transport, particularly in relation to vertical transport and mixing, in different meteorological conditions / • Extend possibilities to utilize radar measurements of ice-cloud layers in the polar summer mesosphere to improve understanding of middle atmosphere dynamics and composition on a global scale 	Maitri: Long-term

7	Reactive trace gases and their linkages to marine biogeochemistry	Anoop S. Mahajan, IITM, 91 020-2590 4526, anoop@tropmet.res.in	To make measurements of reactive halogen species (IO, BrO, I ₂ , OIO and OCIO) and determine their impact on: a) Ozone depletion in the troposphere and stratosphere. b) The oxidising capacity in the remote Southern Ocean and Antarctic atmosphere, including ozone depletion, HO _x and NO _x ratio changes. c) Mercury and DMS oxidation and changes to their lifetime. d) Formation of new particles through iodine oxide coagulation. / • Measure the photolysis dependant fluxes of NO _x and HCHO and biological emissions of halogen species over the snowpack and sea ice. / • Study the role of diatoms (a major group of phytoplankton in the Polar Regions) in halocarbon (CH ₃ I, CHBr ₃ , CHBr ₂ , CHBrI etc.) and above mentioned trace gases production through: a) Identification and quantification of halocarbon producing diatom species.	Bharati: Long-term
8	Climate Change Research and Space Weather Studies	S.Suresh Babu, ISRO-SPL, 0471 256 3663, s_sureshbabu@vssc.gov.in	Study of long term changes in the physical, chemical and optical properties of aerosols in polar atmosphere, quantify the effect of long range transport, and estimate radiative impact / Estimate snow scavenging of aerosols and deposition of soot in ice and to study the physical, chemical and optical properties of aerosols in Snow and the corresponding changes in snow albedo. / Quantify the anthropogenic influence in Antarctic atmosphere to delineate local and long-range transport. / Investigate the Atmospheric boundary layer characteristics and vertical fluxes of energy and momentum. / Study of vertical distribution of aerosols, water vapor and clouds. / To understand the exchange process across the polar tropopause by measuring vertical profiles of ozone.	Bharati: Long-term
9	Measurement of atmospheric black carbon, GHGs and solar radiation fluxes at Antarctica on a long-term basis	Biswadip Gharai, ISRO-NRSC, 04023884467, biswadip_g@nrsc.gov.in	Estimation of background concentration of CO ₂ , CH ₄ , and H ₂ O at Bharati, Antarctica on a continuous/seasonal basis for a long-term 5 years; and measurement of GHG's during the voyage / Identifying the changes in seasonal and daily amplitudes of CO ₂ against boundary layer height from high vertical resolution of COSMIC-Radio Occultation (RO) data / Identifying of source processes leading to black carbon loading over Antarctic region. / Monitoring Atmospheric BC and its seasonal changes in response to prevailing meteorology and long range transport / Measurements of BC concentrations on snow to understand the BC deposition over Antarctica / In-situ measurements on Aerosol Optical Depth, total columnar ozone and water vapour and comparative study against satellite observations.	Bharati: Short-term
10	Studies of diurnal changes of the ionosphere using ground based BLF antenna and altitude variation of cosmic rays and other radiation using low cost balloons with fully recoverable payloads	Sandip K.Chakrabarti, Indian Centre for Space Physics, 033-23353057/09903308976, chakraba@bose.res.in	Make two permanent VLF recording stations in Maitri and Bharati region with upgraded and highly sustainable antenna/receiver systems / Study the signal propagation characteristics for the entire year in two very specific solar conditions viz. full day and no sunset (summer) and the full night with no sunrise (winter) / Use our ion-chemistry model to obtain the electron density profile over the path during both summer and winter and to reproduce the temporal and spatial behaviour of the signal / Reconstruction of 3-D electron density profile the entire propagation path and over the Antarctic landmass during summer and winter / Study of the variation of sea ice profile by observing the attenuation profile of the signal amplitude	Maitri: Long-term

11	Role of long-range transported aerosols on earth's radiation budget and its response to recent climate variability over Antarctica	Sanat Kumar Das, Bose Institute, 3325693131, 40, sanat@jcbose.ac.res.in	Quantification of aerosol induced perturbation of Earth's radiation budget over Antarctica during summer using in-situ observation of optico-physical and chemical properties of aerosols / Estimation of vertical distribution of aerosol heating rate and its contribution towards air temperature in summer at Antarctica using optical properties of aerosols / Simulation of radiative heating caused by transported anthropogenic (BC) and natural (desert dust) aerosols and identification of source regions of dust aerosols from isotopic analysis (Sr and Nd) in collaboration with Dr. Waliur Rahaman, NCAOR, Goa	Bharati: Short-term
12	Image measurements of visibility to investigate atmospheric parameters, Larsemann Hills	Alok Taori, ISRO-NRSC, 04023884612/258, alok_taori@nrsc.gov.in	Estimation of atmospheric visibility in horizontal and vertical (zenith) direction / Estimation of atmospheric extinction in vertical direction and Image recording of an identified snow hill for long term climate study	Bharati: Short-term
13	Study on long-term precipitation over Antarctica using surface and space based measurements	M.V. Ramana, ISRO-NRSC, 04023884231/467, ramana.iist@gmail.com	Direct measurements of Antarctic precipitation features such as the frequency, the phase, and the snowfall rate are proposed in this study for the next 5 years. Continuous ~5 year data is needed to understand the inter-annual variability of precipitation / The rate of atmospheric precipitation over Antarctica may have important role to global sea level variation via impact on the surface snow and ice accumulation / Validation of CloudSat retrievals of precipitation over Antarctica.	Bharati: Short-term
1	Multi-year measurements of mercury in Antarctic environment: assessing trends in global emissions, fate and transport of mercury, and bio accumulation in Antarctica	Asif Qureshi, IIT Hyderabad, 040 2301 7100, asif@iith.ac.in	Long-term (multi-year) measurements of mercury in the Antarctic environment, including air, water and biota / Analysis of temporal trends in observations / Assessing the changes in global emissions, fate and transport characteristics of mercury, including possible effects of climate change	Maitri: Long-term
2	Measurement of radiation level due to cosmic rays and terrestrial radiation at and around Bharati Station, Antarctica	A K Bakshi, Bhabha Atomic Research Centre, 022-25598683/84, akbakshi@barc.gov.in	Measurement of radiation level due to cosmic rays and terrestrial radiation at and around Bharati Station, Antarctica using on-line and passive dosimeters	Bharati: Long-term
3	Foraging ecology and habitat use of avifauna of Antarctica and Southern Indian Ocean with special reference to endemic & threatened species	Chandrakasan Sivaperuman, Zoological Survey of India, , 91-3192-231972/233148(Ext.216), c_sivaperuman1@rediffmail.com	To describe the avian community at the Antarctica and Southern Ocean / To study the foraging behaviour and habitat use of selected bird species / To develop Habitat Suitability Index (HSI) model for selected bird species based on critical habitat variable	Bharati: Short-term
4	DNA barcode - based assessment of algal diversity of Antarctica, its special focus on the introduced species	Felix Bast, Centre for Plant Sciences, Central University, 01642864193, felix.bast@gmail.com	To explore selected locations in Antarctica for alien and invasive species of algae / To assess biodiversity of algae, including freshwater, marine, ice, subaerial, epilithic, endolithic and endophytic algae, photobionts of lichens, epiphytic algae on mosses, phytoplankton and cyanobacteria, from selected locations in Antarctica using DNA barcoding	Bharati-Maitri: 5 years
5	Isolation of bio-prospective microalgal isolates from Antarctic sea	R.Kirubakaran, National Institute of Ocean Technology, 914466783418/25, kiruba@niot.res.in	To collect bio-prospective microalgal strains from Antarctica	Bharati: Short-term

Human Physiology and Medicine				
1	Non-pharmalogical intervention to improve the cognition and mood inAntarctic Environment	Usha Panjwani, Defence Instistute of Physiology and Allied Sciences, 011-2388 3203/3206, usha_dipas@rediffmail.com	To evaluate sleep, cognitive function and mood profile in Antarctic environment / To improve cognitive function and mood by cognitive retraining in Antarctic environment	Bharati: Short-term
Earth Sciences and Glaciology				
1	Large scale topographical mapping and geophysical studies for Neo-tectonics and monitoring interplate movement of Antarctica platew.r.t Indian plate	Nitin Joshi, Survey of India, 0135-2654528/0135-2713296, nitin.joshi.soi@gov.in	To establish horizontal & vertical ground control points for detail mapping and scientific activities / To carry out large scale mapping of Schirmacher Oasis and Larsemann Hills Regions of Antarctica / To monitor Inter-plate movement of the continent (Schirmacher Oasis & Larsemann Hills) w.r.t. Indian plate / Studies for neo-tectonic activities of the region	Bharati/Maitri: Long-term
2	A proposal for Geological investigations south of Indian Bharati Stationto elucidate sub-ice geology and to establish the affinity of western Princess Elizabeth Land (PEL) with appropriate cratonic block	Naresh C. Pant, University of Delhi, 120-4234837, pantnc@gmail.com	Study of long term changes in the physical, chemical and optical properties of aerosols in polar atmosphere, quantify the effect of long range transport, and estimate radiative impact / Estimate snow scavenging of aerosols and deposition of soot in ice and to study the physical, chemical and optical properties of aerosols in Snow and the corresponding changes in snow albedo / Quantify the anthropogenic influence in Antarctic atmosphere to delineate local and long-range transport / Investigate the Atmospheric boundary layer characteristics and vertical fluxes of energy and momentum	Bharati: Short-term
3	Ice Sheet dynamics around Schirmacher Oasis,cDML, East Antarctica	Ashit Kumar Swait, Geological Survey of India, (0129)-2417335, ashit.swain@gsi.gov.in	Glaciological studies in parts of the central Dronning Maud Land (cDML), East Antarctica for providing inputs towards a better understanding of climate change	Maitri: Long-term
4	Role of trace elements geochemistry in different phases of metamorphism andpartial melting of rocks from Schirmacher Oasis, cDML, East Antarctica with emphasis on metapelites	Mohd. Yunus Shan, Geological Survey of India, (0129)-2417335, geoyunus@gmail.com	The existing geological map is based on the wok done prior to 1997-98 (Approx. 20 years old) hence needs revision/modifications.	Maitri: Long-term
5	Glaciological monitoring around Grovnes, Larsemann Hills, East Antarctica	Jay Gopal Ghosh, Geological Survey of India, (0129)-2417335, jggjosh@gmail.com	The rock types (quartzofeldspathic gneisses, metabasite, metapelite and granitoids) are not properly classified and demarcated in the map / The same charnokite and pyroxene granulite units are occurring at two different stratigraphic levels. It means their inter-relationship is not properly constrained / The lithostratigraphic sequence is also not validated with modern geochronological data	Bharati: Long-term
6	Mass balance, dynamics, and climate of the central Dronning Maud Land coast,East Antarctica (MADICE)	Thamban Meloth, National Centre for Antarctic and Ocean Research, 0832-2525622/637, meloth@ncaor.gov.in	To understand the current status and dynamics of ice shelves and evolution of ice rises in the coastal Dronning Maud Land / To study photochemical and microbial processes associated with selected supraglacial ecosystems and their significance in coastal Antarctica / To understand the role of ice rises in the evolution and future of the Antarctic Ice Sheet and to reconstruct the palaeoenvironmental variables like temperature, precipitation aerosols, and sea ice conditions during the past using ice core records from ice rises	Maitri: Long-term

7	Bio-geochemical processes associated with supraglacial ecosystems of coastal Antarctica	Thamban Meloth, National Centre for Antarctic and Ocean Research, 0832-2525622/637, meloth@ncaor.gov.in	To understand the current status and dynamics of ice shelves and evolution of ice rises in the coastal Dronning Maud Land / To study photochemical and microbial processes associated with selected supraglacial ecosystems and their significance in coastal Antarctica / To understand the role of ice rises in the evolution and future of the Antarctic Ice Sheet and to reconstruct the palaeoenvironmental variables like temperature, precipitation aerosols, and sea ice conditions during the past using ice core records from ice rises	Bharati: Long-term
8	Biogeochemistry and Paleoenvironmental studies of Larsemann Hills, Prydz Bay and Schirmacher Oasis: a past-present-future perspective	Rahul Mohan, National Centre for Antarctic and Ocean Research, 0832-2525531/532, rahulmohan@ncaor.gov.in	Impact of icebergs and sea-ice on phytoplankton community and their role in biogeochemical cycles in coastal Antarctica / Long-term monitoring of Antarctic Lakes to understand its response to change in climatic conditions / Paleolimnological investigation of Larsemann Hill lakes: Understanding the glaciation-deglaciation timing / Understanding the paleo-environments changes of Prydz Bay: paleo sea-ice variability	Bharati/Maitri/Voyage: Long-term
9	Hydrographic Survey – Off Princess Astrid Coast and Larsemann Hills	Chief Hydrographer, National Hydrographic Office, 01352747365, inho-navy@nic.in	Continued data collection towards Bathymetric and Physical Oceanographic database / Detailed study of propagation of sound waves at various locations in India bay and determine the best fit average sound velocity for optimum performance of various sensors to be deployed for Hydrographic work / Delineation of coastline adjoining India Bay and crosscheck with the coastlining delineated during earlier expeditions and study changes caused by environmental conditions / Production of INT Chart 9050 and its subsequent updation. Produce charts as required for Larsemann Hills area	Bharati/Maitri/Voyage: Long-term
10	Hydrodynamics of the Indian Ocean sector of coastal Antarctica	Alvarinho Luis, National Centre for Antarctic and Ocean Research, 0832-2525525/528, alvluis@ncaor.gov.in	Quantifying changes in thermohaline structure with reference to frontal meandering, with special focus on region south of ACC front / Computation of annual upper-ocean heat and salt content in the coastal Antarctica by using expendable probe data and other data / Water mass distribution and their mixing characteristics / Monitoring of geostrophic circulation and transport and its temporal variation across the region between Africa and Antarctica / Summer fresh water thickness resulting from sea ice melting along the meridional transect in the coastal Antarctica / Construction of empirical models of upper-ocean temperature and dynamic topography from satellite altimeter data to infer baroclinic transports	Voyage: Long-term
11	Validation of parameters of Antarctic Ice Dynamics extracted from Indian Remote Sensing Data	Ram Rajak, ISRO-Space Applications Centre, 91 79 2691 4104/4162/4123, rajakdr@sac.isro.gov.in	To assess the temporal variations in the velocity of glaciers near Bharti and Maitri stations / To estimate temporal changes in thickness of snow over land and sea ice / To estimate the mass balance of glaciers using time-different DEM approach / Assessment of ice deformation over ice-shelves including ice rise. (The above objectives require field validation for next three years.)	Bharati/Maitri/Voyage: Long-term
12	Permanent seismological and GPS observatory at Maitri	J.K.Catherine, National Geophysical Research Institute, 040-27012505, joshicatherine@yahoo.co.in	Seismological and geodetic studies in the Antarctica	Maitri: Long-term

13	Passive acoustic measurements in the shallow waters of Antarctic sea to study ice-flow dynamics	G.Latha, National Institute of Ocean Technology, 91-44-66783399/+91-9444399828, latha@niot.res.in	To measure the underwater ambient noise in the shallow waters of Antarctic sea / To study the ice flow dynamics such as iceberg quaking, thermal fracturing of sea ice, melting of glaciers and sweeping of ice pellets from the ambient noise measurements of the shallow waters of Antarctic sea / To characterize and classify the marine species such as Blue whales, Fin whales and Seals from the ambient noise measurements of the shallow waters of Antarctic sea	NA
14	Terrestrial exposure dating on <i>Roche Moutonnées</i> and glacial deposits of Schirmacher Oasis to understand the extent and timing of last glacial maxima in the Queen Maud Land, East Antarctica	Jitendra Kumar Pattanaik, Central University of Punjab, 91-9674227643, +91-9041785779, jitendra.bapi@gmail.com	To find out the timing of different phase of Late Quaternary glaciations in the Schirmacher Oasis using cosmogenic radionuclide dating of Roche Moutonnées and boulders from glacial deposits / To constrain the maximum ice sheet extent in the Schirmacher Oasis during Last glacial Maxima (LGM) / To establish possible global synchronicity of the glacial events	Maitri: Long-term
15	Ice dynamics and mass balance of Dalk glacier, Larsemann Hills	A L Ramanatha, Jawaharlal Nehru University, 91 11 26704314, alrjnu@gmail.com	Measurement of glacier mass balance, atmospheric parameters and its interaction with glacier surface based on energy balance model / To estimate glacier flux by monitoring ice flow, thickness and bed topography of Dalk glacier basin / To understand the processes of glacier dynamics of Dalk glacier.	Bharati: Short-term
16	Validation of remote sensing and model based high-resolution ice-sheet and glacial landform science products for parts of Antarctic	Praveen K Thakur, Indian Institute of Remote Sensing, 91-135-2524166, 91-135, praveen@iirs.gov.in	Ground observations and validation to verify the remote sensing and model based science products of wind vectors, ice sheet features and glaciers and accumulation and ablation zones formed due to wind.	Maitri: Long-term
17	Antarctica Glacier/ Sea Ice Motion tracking by using soft computing techniques	Damodar Reddy Edla, National Institute of Technology, 08337084991, das.supriyo.kumar@gmail.com	The primary objective of this proposal is to investigate and analyse, both theoretically and experimentally to devise some interfacing tools to provide a vital study on the tracking of Antarctica glacier / sea-ice motion using soft computing techniques	NA
18	Relationship between the paragneiss and orthogneiss in the Larseman Hills, Antarctica	Jay Gopal Ghosh, Geological Survey of India, (0129)-2417335, jggjosh@gmail.com	To determine the antiquity of the paragneiss vis-à-vis orthogneiss in the Larsemann Hills, Antarctica / To relate and date granite magmatism with major deformation events / To assess whether or not two high-grade metamorphic events recorded from the area (i.e., at ~1 Ga and at ~530-500 Ma) occurred subsequent to the deposition of the sediments (paragneiss) or sediments were deposited in between these two high-grade events / To study the tectonic relationship between the paragneiss-orthogneiss association exposed in the Larsemann Hills with the Mesoproterozoic Archean rocks of the Vestfold Hills	Bharati: Long-term