

image shows impact craters at the south-western edge of Syrtis Major. Syrtis Major Planum is a 'dark spot' which is considered to be a low-level shield volcano built almost entirely of lava flows and having basaltic rocks. The dark coloured regions in Figure 2 are exposures of basalts, while the red colour regions show dust-covered areas. The image also reveals streaks being blown out of craters, known as wind streaks, indicating that the wind is moving in a southwest direction. Thermal Infrared Imaging Spectrometer (TIS) instrument is aimed to observe thermal emission from Mars surface to detect its temperature and hot spot regions or hydrothermal vents on Martian surface. The TIS is designed to observe emitted infrared radiation from Martian environment in 7–13  $\mu\text{m}$  region of electromagnetic spectrum using micro bolometer device.

Methane Sensor for Mars (MSM) is a differential radiometer based on Fabry–Perot Etalon filters to measure columnar methane ( $\text{CH}_4$ ) in the Martian atmosphere at several parts per billion (ppb) levels. This differential signal gives a measure of columnar amount of  $\text{CH}_4$ . The possible finding of methane in Martian atmosphere will provide clues about

the presence of life on Mars. Lyman Alpha Photometer (LAP) instrument onboard MOM is an absorption cell photometer. It measures the relative abundance of deuterium (D) and hydrogen (H) from Lyman Alpha emissions in the upper atmosphere of Mars. Measurements of D/H ratio will allow us to understand the water loss process from Mars surface through the atmosphere.

Mars Exospheric Neutral Composition Analyser (MENCA) is a quadrupole mass spectrometer covering the mass range of 1–300 amu with mass resolution of 0.5 amu. MENCA, weighing 4 kg, would provide *in-situ* measurement of the neutral composition and density distribution of Martian exosphere. All the five instruments will be making extensive and carefully planned measurements during the expected mission time of six months. MCC, MSM and TIS will also provide complementary information to interpret the data, e.g. MCC will be used for dust optical thickness estimation to correct for atmospheric scattering in MSM data for accurate estimation of methane. MCC will also provide context information and TIS will give information about surface temperature to analyse MSM data.

MOM instruments will have a unique opportunity to observe the closest approach of the Comet Siding Spring (C1 2013 A1) on 19 October 2014. The comet will pass around  $\sim 137,000$  km from Mars during this time. The Comet Siding Spring is an Oort cloud comet discovered on 3 January 2013 and will pass through the inner solar system for the first time after its discovery. The main objective of MOM-based observations will be to study the size and shape of the comet, its brightness changes using MCC camera. MSM will be used to detect methane and  $\text{CO}_2$  concentration within the Comet. MENCA is expected to detect changes in the neutral environment in exosphere of Mars, subsequent to the passage of the Comet Siding spring. This natural opportunity will further add to the planned science from MOM.

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1. Arya, A. S. and Kiran Kumar, A. S., *Curr. Sci.*, 2014, **106**(5), 661.

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## MEETING REPORT

### Technological empowerment of women and scientific paper writing\*

Science & Technology is the vehicle of societal development and play a vital role in the developmental activities. The Uttarakhand State Council for Science & Technology (UCOST), Dehradun has been putting its efforts to develop scientific temper in the state. Science popularization, training and workshops are prominent tools by which UCOST is inculcating science in the society and young scientist in particular. UCOST has

established local chapter of the National Academy of Sciences, India (NASI) in the state.

Vijay Kumar Dhaundiyal (Department of Science & Technology, Govt of Uttarakhand) welcomed the guests and participants. R. C. Joshi (Graphic Era University, Dehradun) addressed the gathering wherein he emphasized on radical and incremental innovation. He said that incremental innovation is the contemporary thrust area of research in every field of science and technology. Illustrating the role of NASI for the nation, Manju Sharma (formerly, Dept of Biotechnology, New Delhi), spoke that in spite of being a significant contributor in growth and development of a nation, the condition of the women is still not

good, particularly in the developing world. She stressed that our motto should be on ensuring maximum involvement of women in the field of S&T. She said that women are part and parcel of nation building and they themselves should come forward to take challenges. She further explained that research should be carried out keeping three P's in mind, i.e. Product development, Patent and Publication (PPP) and the developed product should be sustainable, economically viable and environmentally friendly. Finally, she said that S&T is the major vehicle for societal transformation. A. N. Purohit (NASI-Uttarakhand Chapter) told that students should not be disheartened with the rejection of research papers. He suggested acknowledging the

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\*A report on the two-day workshop on 'Technological Empowerment of Women and Scientific Paper Writing'. The workshop was organized by the NASI-Uttarakhand Chapter and Uttarakhand State Council for Science & Technology, Dehradun on 17 and 18 June 2014 at Graphic Era University, Dehradun.

source of secondary data and references while writing research papers.

Rajendra Dobhal (NRDC, New Delhi) explained efforts of NRDC towards women empowerment on education and societal transformation. Citing various examples of empowerment of women in various fields, he pointed out that there is lot more to be done towards their involvement in S&T in Uttarakhand. S. P. Singh (formerly HNB Garhwal University, Srinagar, Uttarakhand) said that as far as India is concerned, the era is changing and Government is developing infrastructure and favourable conditions for development. Now is the right time to think over developing opportunities for women community, especially in S&T. He shed light on various programmes of Indian Government which have been devised to propagate women empowerment in S&T. B. R. Arora (formerly Wadia Institute of Himalayan Geology, Dehradun) delivered his talk on the societal responsibility and efforts to support aspirations of women and to break the discriminating attitude.

In the technical session, V. P. Sharma (formerly ICMR, New Delhi) delivered as lecture on 'Methods of scientific paper writing'. He said that a good paper contains logical sequence of investigated matter with text and illustrations. Paramjit Khurana (NASI) in her talk on 'The

art of paper writing' said that research is not completed until it is published. She further explained various salient features, which young researchers often do not notice, such as number of objectives under a title, use of English and data presentation using figures, graphs and table and discussion part. U. C. Shrivastava (NASI) told that identifying objectives under given research idea is critical and should be carefully set after rigorous exercise of reviewing the literature and finding out the gaps. He also said that objectives should be divided under general and specific categories. D. P. Uniyal (UCOST) speaking about 'Project writing, funding mechanism and IPR issues and its management' explained that for a good project, gap area is to be highlighted which shows the novelty or necessity for a new project. He also stressed that objectives should be set in such a way that they can be achieved in specified time.

Jyoti Sharma (DST, New Delhi) delivered her lecture on 'Schemes of DST for women'. Subhra Chakravarty (NIPGR, New Delhi) explained the efforts made by her group in proteogenomics. Her study on metabolic pathways and immunity in chick pea applying proteogenomics was greatly appreciated. Citing thrust areas for research in Himalayan region, Anil P. Joshi (HESCO, Dehradun) said

that real science associates us with the society. He felt that science has lot for urban and very less for rural; therefore, planners and policy makers should think over it. He suggested S&T intervention in the existing rural wisdom for advancement of rural society. Kiran Negi (HESCO) in her lecture on 'Women empowerment using indigenous resources of mountain' spoke about the efforts made by HESCO in establishing of Mahila Bachat Bank (Women Saving Bank) in rural areas of Uttarakhand to cater to the need of finance of rural women. She also explained 'Decentralized economic development pursuit' and 'Ecological-economic drive' by afforestation, water farming, soil enrichment measure, non-carbon emitting pursuit, resource-based enterprises which are undertaken by HESCO. She highlighted the need for strengthening of rural producer-consumer network.

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## MEETING REPORT

### Blood and blood products; Laws by letters and spirit\*

The seminar was inaugurated by the welcome speech of Ananga Mohan Chandra, ISCA, Kolkata Chapter. He mentioned about the contributions of Bidhan Chandra Roy in the upliftment of the society both as a physician as well as the former Chief Minister of West Bengal.

The occasion was graced by the presence of eminent personalities like Amit Krishna De (Indian Science Congress

Association), Arun Kumar Pandey (Indian Science Congress Association), Biswapati Mukherjee (University of Calcutta), Debasish Bandyopadhyay (University of Calcutta), Somnath Gangopadhyay (University of Calcutta) and Sankarashish Mukherjee (University of Calcutta), A. K. Hati (School of Tropical Medicine, Kolkata) chaired the session.

A. Ganguly (Centre for Transfusion Medicine, Kolkata) delivered a lecture on 'Rational use of blood and blood products'. He said about the various types of blood products, their clinical uses and limitations. These specialized blood products, i.e. frozen plasma, platelets, serum, etc. have made it possible to

make a single unit of blood useful for five different patients with five different kinds of requirements. According to him, primarily 13 different types of blood transfusion risks still remain despite thorough screening of the donated blood. The main reason is that the pathogens in blood may mutate and evolve as drug-resistant strains. So the existing kits may not be able to detect the blood viruses. On the other hand, no kit in the world can detect the viruses present in blood on day 1 and so we have to wait for 3–4 days for detection of virus, if any, in the transfused blood. Thus we are not getting zero risk blood. Then what is the way out to remain out of risk in situations where blood transfusion is unavoidable? The

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\*A report on the seminar 'Blood and blood products; Laws by letters and spirit' held at the Department of Physiology, University of Calcutta, Kolkata. The seminar was sponsored by the Indian Science Congress Association, Kolkata Chapter, in celebration of the Doctor's Day on 1 July 2014.