

S. K. Satheesh awarded the American Geophysical Union's Devendra Lal Memorial Medal

Professor Devendra Lal, was a distinguished geophysicist and earlier Director of the Physical Research Laboratory. His work spanned diverse areas of the Earth and Space Sciences. He is best known for his role in founding and developing the field in which cosmic rays produced isotopes on Earth are used as tracers to investigate a wide range of Earth science problems.

The American Geophysical Union (AGU) recognizes individuals for their exceptional achievements, outstanding contributions, service to the scientific community and attainment of eminence in the field of Earth or Space Sciences. The AGU instituted a medal in honour of Prof. Devendra Lal in 2016. This medal

is presented every year in recognition of outstanding Earth and/or Space sciences research by a scientist belonging to, and working in, a developing country.

The medal for the year 2017 has been awarded to Professor S. K. Satheesh, Centre for Atmospheric and Oceanic Sciences, Indian Institute of Science (IISc), Bengaluru for his outstanding contributions to the understanding of the climate impact of atmospheric aerosols. He is a pioneer in aerosol research in India. He innovatively combined satellite data with field experiments and numerical model simulations to show that aerosols can alter the natural hydrological cycle and cloud properties. The influence of elevated aerosol layers on the onset of

monsoon in India has been demonstrated by him through several aircraft field campaigns. He also recently showed that elevation of black carbon to the stratosphere has serious implications on ozone depletion. Using multistage polarization techniques, he has pioneered the design of a small satellite to measure and assess the impact of aerosols on climate. He has also devised an angular scattering instrument to study the role of aerosol mixing, which is vital for modelling studies. Satheesh collaborates with many national and international scientists, mentors, several students at IISc and is also the Chairman of the Divecha Centre for Climate Change.

MEETING REPORT

Agronomy for evergreen revolution*

The 4th International Agronomy Congress was inaugurated by M. S. Swaminathan (World Food Laureate). The Congress took note of the fact that today's agriculture is challenged by climate change, land degradation, loss of biodiversity, food and energy crisis, and population explosion. To liberate the developing world, especially South Asia and Africa, from the twin scourge of hunger and poverty, we need strategies for and greater investments in natural resource management (NRM) innovation-led, accelerated and sustainable agricultural growth, with emphasis on resource-poor smallholder farmers. It was recognized that the task of achieving zero hunger was daunting but not insur-

mountable, and agronomy can and has to play a major role in realizing this goal. Agronomic research, facilitated by good-quality science and tackling practical problems of farmers individually and collectively, is essential to enhance productivity and raise farmers' income. The strategies for sustainable NRM include scientific land-use planning, conservation agriculture, precision agriculture (water, nutrient and weed management), contract farming, organic farming, farming systems approach, climate smart agriculture, and strengthening collaboration and partnerships for up-scaling technologies.

All these issues were covered in the deliberations under the detailed agenda of the Congress that comprised of 4 evening lectures, 8 plenary presentations, 4 special sessions, a panel discussion, and 12 symposia with keynote addresses, lead and rapid-fire presentations. In the inaugural session, three textbooks, viz. *Climate Resilient Agronomy*, *Modern Concepts of Agronomy*, and *Weed Science and Management* were released. Besides these, special issues of the *Indian Journal of Agronomy*, *Indian Journal of Fertilisers*, *Indian Farming* and

Kheti were also brought out. The Congress was attended by more than 1000 participants from 22 countries.

The major recommendations that emerged out of these deliberations, with implications for research, development and policy are presented below as the 'Delhi Declaration: Agronomy for Evergreen Revolution'.

(1) It was recognized that agronomy has served the world community in the past by ensuring adequate food and nutritional security. However, in view of the emerging problems, there is a need for reorienting our strategies to achieve the zero hunger challenge. This requires a paradigm shift in our research and development agenda as well as policy support.

(2) For making agronomic innovations relevant to the present needs of farmers, systems research is essential to replace traditional agronomic research. To understand the likely effects of future climate on the current and alternative management practices, cropping system models such as Agricultural Production Systems Simulator (APSIM) enable comparison of alternative cropping

*A report on the Major Recommendations of the Fourth International Agronomy Congress and Delhi Declaration 'Agronomy for Evergreen Revolution' organized under the theme 'Agronomy for Sustainable Management of Natural Resources, Environment, Energy and Livelihood Security to Achieve Zero Hunger Challenge' from 22 to 26 November 2016 by the Indian Society of Agronomy in collaboration with the Indian Council of Agricultural Research, New Delhi.