Launching workshop on quantitative estimation of carbon and moisture fluxes over the pearl millet based agro-ecosystem

The launching workshop of the collaborative project between ICAR-Central Arid Zone Research Institute (ICAR-CAZRI), Jodhpur and National Remote Sensing Centre (NRSC), Hyderabad was organized on 5th August 2022 at the conference hall of ICAR-CAZRI, Jodhpur. The title of the project is "Quantitative estimation of carbon and moisture fluxes over the pearl millet based agro-ecosystem: Integrating ground observations, satellite data and modeling". The MoU for the abovesaid collaborative project was signed between two organisations recently. In the launching workshops, project teams members from ICAR-CAZRI, Jodhpur, NRSC, Hyderabad and Regional Remote Sensing Centre (RRSC)-West, Jodhpur participated along with head of the Divisions of the Institutes and scientists. The workshop was chaired by Dr. O.P. Yadav, Director ICAR-CAZRI, Jodhpur.

At the beginning of the workshop, Dr. J.P. Singh, Head of the Division of Natural Resources, ICAR-CAZRI welcomed the participants. It was followed by presentation by Dr. Priyabrata Santra, Principal Investigator of the project on details of the project objectives, activities and the measurement protocol of carbon, moisture and heat fluxes using eddy covariance technique. The project aims to quantify the carbon and moisture fluxes throughout the growth period of pearl millet followed by analysis and upscaling of data at regional scale using remote sensing proxies. The data on CO_2 concentration in atmosphere, H_2O concentration in atmosphere, wind vectors at three perpendicular directions, soil heat fluxes, soil moisture content, soil temperature, photosynthetically active radiation, four components of solar radiation (incoming and outgoing shortwave, incoming and outgoing long wave) will be recorded at 10 Hz frequency (10 data recording in 1 second). The data will be further processed to standard 30 minute interval and analyzed to model carbon, moisture and heat fluxes diurnally, seasonally as well as during different crop growth stages. Dr. Abhishek Chakraborty, Head, Agroecosystem and Modeling Divisions, NRSC Hyderabad highlighted the carbon and moisture fluxes measured over other agroecosystems of the country e.g. jute, wheat, chick pea, rice etc.

Dr. Apurba Bera, General Manager from RRS-West, Jodhpur stressed upon the need of collaborative research work on ground truth measurements of different process parameters, which are very important for outscaling the findings to satellite platform. Dr. O.P. Yadav, Director, ICAR-CAZRI stressed upon the importance of carbon and water footprint of different agricultural production systems specially in the context of climate change. He urged to carry out research work on plant's behavior in the context of climate change specially the photosynthetic pathways. He also highlighted the need for compensating those farmers, who grow crops with less water and carbon footprint. At the end of the workshops, all participants visited the experimental site of eddy flux tower and Dr. Abhishek Chakraborty demonstrated the real time data on different parameters e.g. CO2 and H2O concentrations in atmosphere, soil moisture content, solar irradiation etc. The vote of thanks was proposed by Dr. R.K. Kakani, Principal Scientist of the Institute.