Webinars under INSAM Platform

1. Webinar on "Livelihood Enhancement through Agroclimatic Risk and Opportunity Management with Engagement Practices

Speaker:

Dr. Samsul Huda, Adjunct Associate Professor, School of Science, Western Sydney University, Australia.

Date: 12th June, 2021

About the Speaker:

Dr Samsul Huda is a forward thinking internationally reputed agroclimatologist/agronomist/crop modeller and has over 30 years' teaching, research and outreach experience. His research focusses on climate-smart agriculture; food and water security; crop, soil and water management for livelihood improvement; agriculture and water education; engagement and capacity building; and environmental sustainability. He is passionate about understanding the social, economic, cultural, policy and institutional aspects of food and water security, and engaging communities, governments and other stakeholders to address local and regional natural resources including water issues.

He and his team have developed and applied frameworks to address climate variability towards maximising opportunities and minimising crop production risk in a number of countries including India. He has more than 300 publications and led/initiated over 24 major externally funded research projects. His research created opportunities to more than a dozen Australian scientists to work and establish their own networks overseas. Additionally, opportunities were created for over 20 scientists from at least three developing countries including India to receive training and mentoring in Australia who have developed their own successful programs subsequently. His high organisational skills have offered opportunity to work with and utilise expertise of scholars from different countries in many disciplines such as Economics, Environmental science, Plant Protection, Mathematics and Physics in addition to agriculture and horticulture.

Currently as Adjunct Associate Professor at the Western Sydney University, Australia, he is leading a large project on "Enhancing vegetable production and quality in greenhouse and open

field conditions in Qatar" supported by Qatar National Research Fund and the Ministry of Municipality and Environment, Qatar Government. He is initiating a new project based on completed work led by him on "Livelihood improvement through climate-smart agriculture: An Australia-India Initiative" funded by Australia-India Council. Samsul is a member of a large international project "Family Farming, Lifestyle and Health in the Pacific (FALAH)", funded by Europe-based Research and Innovation Staff Exchange: RISE Program of H2020.

Samsul spent his sabbatical as Visiting International Professor at the University of California-Davis. Before joining the Western Sydney University in 1992, he had worked with other institutions including South Australian Department of Primary Industries, Queensland Department of Primary Industries and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India.

Samsul earned B.Sc (Agricultural) Honours from Visva-Bharati University, Santiniketan; M. Sc (Agriculture) in Soil Science from G.B. Pant University of Agriculture and Technology, Pantnagar; and PhD in Agronomy from the University of Missouri-Columbia, USA. He was awarded many prestigious and highly competitive scholarships including Indian Council of Agricultural Research Fellowship and the Government of India National Scholarship for Study Abroad. The American Society of Agronomy bestowed on him its highest Honour as Fellow of the Society in 2005. He serves on leadership and expert committees to select Fellows and Awards winners, and organise conferences and symposia. He was awarded Honorary Fellowship of Association of Agrometeorologists (FAAM) in 2021 in recognition of his outstanding contribution in research, education and extension services of agrometeorology at national and international levels.

About the Presentation:

The presentation of Dr. Huda outlined thoughts on scaling up and out of pilot outcomes to other communities in India, and beyond, that would have far-reaching benefits in contributing to enhanced livelihoods, reduced poverty, improved productivity and increased small-holder competitiveness. Dr.Huda demonstrated livelihood improvements through capture of excess rain water normally lost, and applied using climate -smart practices to diversify agricultural production and improve water use efficiency. He also discussed on Himalayan University Consortium, ICIMOD. Besides, discussion was made how International Society for Agricultural Meteorology (INSAM) and South Asia Forum on Agricultural Meteorology (SAFOAM) can help in capacity building of the mountain communities in relation to improving their livelihood through climate-smart agricultural practices (integrating crops and livestock).

Video Link of the webinar is as follows.

https://www.youtube.com/watch?v=qGLYiFS4ZDs

2. Webinar on “Activities on Agrometeorology in Italy: Research and Services

1. Webinar on “Activities on Agrometeorology in Italy: Research and Services” was organised at 16.00 IST (4.00 pm) on 26thJune. Three eminent scientists in the field of Agricultural Meteorology Dr. Francesca Ventura, University of Bologna, Italy, Dr. Federico Spanna, Piedmont Regional Agrometeorological Service, Italy & Dr. Chiara Epifani, The Council for Agricultural Research and Economics, Italy jointly delivered presentation on the above-mentioned subject. Participants from different countries attended the webinar. At the outset Dr. Francesca nicely described the structure as well as the different activities of the Italian Association of Agrometeorology followed by activities on university research particularly in respect of crop and weed physiology, soil water management and water balance, pathogens, plant phenology, crop growth models &environmental models. Also mentioned on University research in new and emerging topics like bioclimatic indices,climate change, adaptation & mitigation strategies, weather extremes and risk management, use of medium and long-term (seasonal) forecasts, satellites data, precision irrigation, precision agriculture including university education. Dr. Chiara in her presentation informed that Council for Agricultural Research and Analysis of Agricultural Economics (CREA) is the leading Italian research organization dedicated to the agri-food supply chains and operate as a legal entity under public law, and we are supervised by the Ministry of Agricultural, Food and Forestry (Mipaaf). According to her scientific activities of CREA cover agricultural crops, livestock, fishery, forestry, agro-industry, food science – and socioeconomics.She talked about more on CREA, and Agrometeore project in Italy, The National Coordination Table in the Agrometeorology Sector and its aim,the agro-meteo-climatic indicators – how to choose, specific agrometeorological indices for crops. Dr. Federico Spanna briefed about the actual main regulations involving agrometeorology under European Union for the development of agriculture in all its modern

aspects. He covered number of important issues like Integrate Crop Management (ICM),the actual main regulations regarding agrometeorology, framework for community action to achieve the sustainable use of pesticides, national action plan on the sustainable use of pesticides, agrometeorology and climate change, contributions from agrometeorological services, services and decision support systems, technical and operational framework, estimation of climatic variables and bioclimatic indices, numerical weather forecasts, phytopatological models, biophysical models for estimation of climatic variables and simulation of Soil - Vegetation - Atmosphere processes, regional web services for bulletins dissemination

Video link of the webinar

https://www.youtube.com/watch?v=SsfcKGygOOA

3. **Webinar under INSAM platform on "Impact of increasing climate variability and climate change in agriculture**

. Third webinar under INSAM platform on "Impact of increasing climate variability and climate change in agriculture" has been organised at 1400 hrs on 19th March, 2022. Dr James Salinger is a New Zealand scientist and climate change researcher and teacher, working for a range of universities in his home country and around the world, has been invited to address on this subject. Dr Salinger is the lead author for the Intergovernmental Panel on Climate Change, which collectively was awarded a Nobel Peace Prize in 2007 "for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change

Video link of the webinar

https://youtu.be/hLdo9dMQQgw

4. **Webinar was on the Remembrances of Kees Stigter, Founding President of International Society for Agricultural Meteorology**

As a part of webinar series, a webinar was on the Remembrances of Kees Stigter, Founding President of International Society for Agricultural Meteorology on 17th October, 2021. Cornelis Johan Kees

Stigter was the Founding President of the International Society for Agricultural Meteorology (INSAM) since 2001 and dedicated his life to the development of different facets of agrometeorology. Entire agromet community and global users of agromet information are inspired by the vision of Kees for helping the farmers under the scenario of food security, climatic variability and climate change. Executive Council of INSAM feels that organisation of webinar on important areas, where Kees took active initiative i.e., Education, Training & Research & Services, may be organised to further remember the contributions of Kees as well as inform the agromet community about new dimensions of these thrust areas of agrometeorology. Four eminent agrometeorologists across the world have been invited to speak on this occasion.

STIGTER

Video link

https://youtu.be/7cgMDfl0mYA

5. Webinar

on

Climate Change and Impacts in Argentina: Impacts of Increasing Climate Variability and Climate Change in Agriculture

Speaker:

Dr Andrea Inés Irigoyen

Director of Scientific and Technological Activities Nucleus (NACT) on Environmental Physics of University of Mar del Plata

&

Chair of Argentinean Association of Agricultural Meteorology (AADA)

Argentina

Date: 26th November, 2022

Time: 16.00 -1700 IST (Video call link: https://meet.google.com/nox-jrix-pia)

Abstract of the Presentation

Increasing climate variability and climate change are reported for Argentina, as over all the world. Favorable and unfavorable changes have been detected. Temperature extremes in the central region have differential relationships with atmospheric circulation and ENSO phases, according to the season of the year. Compound daily extreme events (precipitation and temperature) have different trends for warm and cold season and over different regions.

Unprecedent extremes were recorded during the last years. Recent report from National Meteorological Service (SMN) for Climate status in Argentina indicates events of cold and hot waves, and droughts. During 2022, the average temperature was slightly lower than normal of climatological period. During summer, three waves were registered, with coverage of 72% of continental area and duration of two weeks. During winter, three cold waves briefly affected Patagonia area, and South of Córdoba and Buenos Aires, with maxima duration of 8 days.

Argentina's agricultural sector contributes 7.2% to the gross domestic product (GDP), high in comparison to the 5.2% average in the rest of the Latin America and the Caribbean (LAC) region According to the latest report from National Drought Monitoring Board more than 120 million hectares are affected, equivalent to 75% of the agricultural area. The phenomenon is especially sensed in the "Zona Núcleo", located in the Center East of the country, where the production of wheat, maize and soybean is concentrated. Other cycles where a "triple episode" of La Niña was recorded (1973 to 1976 and 1998 to 2001), but now it occurs in the context of climate change with other extremes striking simultaneously. Moreover, other teleconnections seem to be active as the Indian Ocean Dipole ((DOI), from June. Cereal Exchange organism anticipates that wheat production will stand at 17.5 million tons because of drought, representing the lowest value in the last seven years. Economists estimate losses of 4.000 million de dollars (counting all exportable crops), which means a decrease of 9% compared to the previous season. Late sowing for maize and soybean is an option if precipitations occur until December.

Agroclimatic services are fundamental to develop knowledge in agrometeorology/agroclimatology and transfer this knowledge to help agricultural managers mitigate the production risks associated with variability and climate change. Brief reference sites (SMN, CIMA, CREAN) presenting agroclimatic services would be presented. Future scenarios in agroclimatic services should be included to perform best integrated solutions for the farmers.

Finally, the presentation includes activities from the Association Argentina de Agrometeorología (AADA) and Environmental Physics group at UNMdP and future actions for sustainable production

Information about Dr Andrea Inés Irigoyen

Dr. Irigoyen holds a degree in Agricultural Engineering from the National University of Mar del Plata (UNMdP) Faculty of Agricultural Sciences FCA (1992), master's degree in Plant Production-Crop Production (1998), also awarded by the National University of Mar del Plata (UNMdP), Argentina and PhD in Agronomy-Physics of the Agricultural Environment (2010) from the Escola Superior de Agricultura Luiz de Queiroz ESALQ, University of São Paulo (USP), Brazil. Associate Professor at the School of Agricultural Sciences of the University of Mar del Plata (UNMdP) and Associate Researcher of Scientific Research Commission of Buenos Aires Province (CIC), Argentina. Dr. Irigoyen has research experience on understanding, simulating and predicting processes of agronomic relevance linked to climate variability. She works at the UNMdP in Agronomy, with emphasis on Agrometeorology, being the following the main lines of research: operational

agrometeorology, agroclimatology and agricultural planning, evapotranspiration and agricultural use of water, biophysical modeling, crop ecophysiology, plant bioclimatology. As a teacher, she teaches at the undergraduate level the Agrometeorology course and at the postgraduate level four courses: Agrometeorology, Climate Variability, Climate Change and Agricultural Sector, Bioclimatology in Changing Environment and Biophysical Modeling with Application of the Artificial Neural Network Technique. She has participated or coordinated many research projects on agricultural meteorology. She is director of Scientific and Technological Activities Nucleus (NACT) on Environmental Physics of University of Mar del Plata. She has authored peer-reviewed scientific journal articles and book chapters. During the last years she has expanded toward inter-disciplinary scientific efforts related with climate services and climate change impacts. She is currently Chair of Argentinean Association of Agricultural Meteorology (AADA) and member of editor committees of specialized journals on agricultural meteorology

6.Webinar

on

Sub-seasonal to Seasonal (S2S) prediction of the Southwest Monsoon Rainfall: Application to Agriculture

Speaker: Nachiketa Acharya, Ph.D

Research Scientist III
CIRES, University of Colorado
& NOAA Physical Sciences Laboratory, Boulder, Colorado, USA

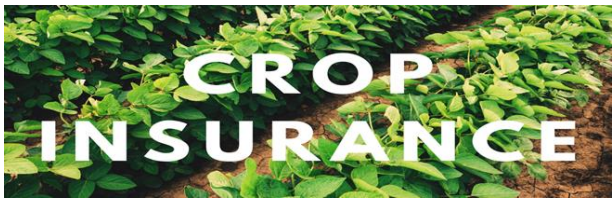
Details of the Meeting
Saturday, 22 April · 9:30 – 11:30am
Google Meet joining info
Video call link: https://meet.google.com/rbb-akgi-mbh

***About the Speaker**: Nachiketa Acharya is an expert in statistical and machine learning modeling in climate sciences, especially sub-seasonal to seasonal forecasting. He is a CIRES/University of Colorado Research Scientist III working with the NOAA Earth System Research Laboratories's Physical Sciences Laboratory. Previously, he has held influential positions at the Department of Meteorology and Atmospheric Sciences*

at the Pennsylvania State University, the International Research Institute for Climate and Society at Columbia University, the Institute for Sustainable Cities at the City University of New York, the National Centre for Medium-Range Weather Forecasting in India, the Indian Institute of Technology Delhi, and Bhubaneswar. He is actively engaged in several Regional Climate Outlook Forum by WMO as an expert and trainer of S2S forecast and verification. For more information, https://psl.noaa.gov/people/nachiketa.acharya/

***Abstract of the Presentation**: This talk will cover how S2S forecast tailored to the application to agriculture for SW Asia .For the sub-seasonal scale, we will describe an experimental system that was system is based on the rainfall forecast issued in real-time during the monsoon of 2018 in order to explore the potential value of the S2S forecasts for small-holder farmers. For the Seasonal scale, we will describe the co-design, co-development, and the skill assessment of the recently developed "NextGen" forecast system that follows the WMO's recent seasonal forecast guidance on objective-based methods for Bangladesh. Since October 2019, the Bangladesh Meteorological Department has been issuing this new forecast system in real-time. I can also explain how this seasonal forecast is used for Aquaculture in Bangladesh*

https://www.youtube.com/watch?v=cRvEyp8gYb8&t=119s



7. Webinar details:

Webinar on Crop Insurance

Wednesday, 18 January · 10:00am – 12:00pm (IST)

Google Meet joining info: Video call link: https://meet.google.com/rrm-btzm-qdf

Abhijit's is an entrepreneur with business, technology and humanity (BTH) rigor working on decarbonization and climate resiliency challenges involving livelihood, air, water and soil. If you use a touch smart device, you are a user of his technology contribution. His leadership on surface capacitive touch screens has made touchscreens ubiquitous and enabling billions of lives and devices every day. He has launched a $1 billion steel decarbonization fund focused on India and now working on crop insurance for marginal. Abhijit leads ICT pillar for SAFOAM.

As you may already know, crop insurance is sparsely adopted in India and other countries. The reasons are various from political and disbursement issues to lack of well-designed insurance products and capacity building and education. Most agri-insurance products s are indemnity based, which involves assessment issues and high cost of engagement with little business and insured value outcome.

Work is in progress to propose a new insurance concept to a funding agency in the Global North. Objective is to design a parametric insurance model based on a multi-variant indexing, supported by AI/ML to mitigate the negative impacts caused by extreme weather events for South Asian Marginal.

We often talk about crop protection when we talk about crop insurance, but what we are really protecting is livelihood of the marginal.

What is Marginal? Over the last decades of rapid economic disparity, many people working on farms are landless laborers. The average land holding in these regions is less than 0.75 acres. Good portion of the population that own land is armchair farmer with a day job, and employs laborers to farm. When crop fails, laborers' livelihood is equally at risk as that of small holding farmers working on their farms, together marginal.Intention is to create an insurance model where we support a person and livelihood on nature triggered crop failure instead of paying out for crops to just one person, usually the landowner.

Himalayan and coastal regions are primary targets for the pilot; inland could be extended later-, North, south and East India, Nepal, Bhutan and Bangladesh, depending on Government willingness to give blessing and potentially integrating available subsidies. Government operational exposure will be limited. Insure signup, management, assessment and payments will be direct with very little human intervention or physical ground assessment of loss.

Country with digitization, citizens with ID and bank account, would be must for pilot, so KYC is easier. Given the recent cloud + reservoir bursts in Himalayan terrain the downstream farming community is at risk while cyclones are devastating the coasts.

***Join us to learn and share, help us capture your concise relevant input to build first-of-a-kind insurance*.**

https://www.youtube.com/watch?v=cRvEyp8gYb8&t=62s

8.Webinar on "Evolution of Agrometeorological Research from a Canadian's Perspective."

On 15th July, 2023, a webinar on "Evolution of Agrometeorological Research from a Canadian's Perspective" by Dr. Raymond L. Desjardins, an emeritus scientist working at the Science and Technology Branch of Agriculture and Agri-Food Canada in Ottawa was organised under INSAM platform. A number of climate scientists/meteorologists/ agrometeorologist attended the programme. At the end of Ray's presentation, interactions of the participants with Dr. Ray were found to be highly impressive. Video Recording of the programme is available in the following link

https://youtu.be/ClwKnkq7QAA

Speaker: Dr. Raymond L. Desjardins

Emeritus scientist , Science and Technology Branch of Agriculture and Agri-Food Canada in Ottawa

Ray.Desjardins@agr.gc.ca, Ray_desjardins@hotmail.com

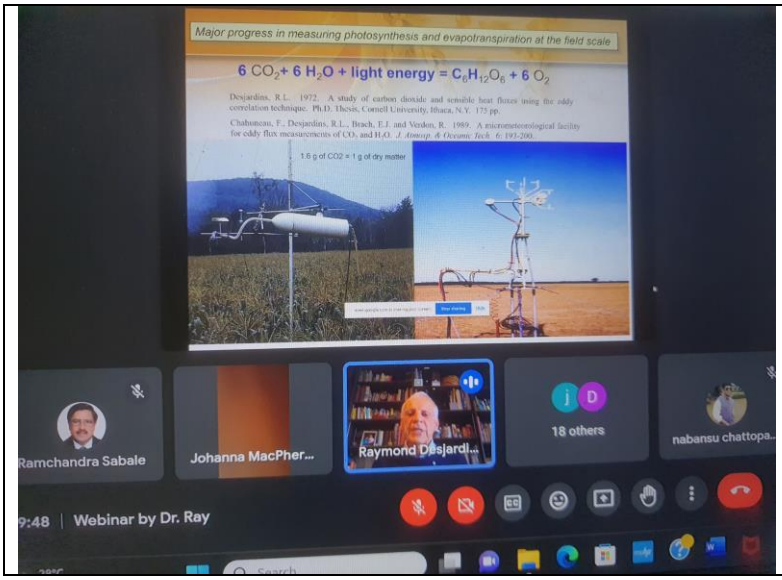
Details of the Meeting

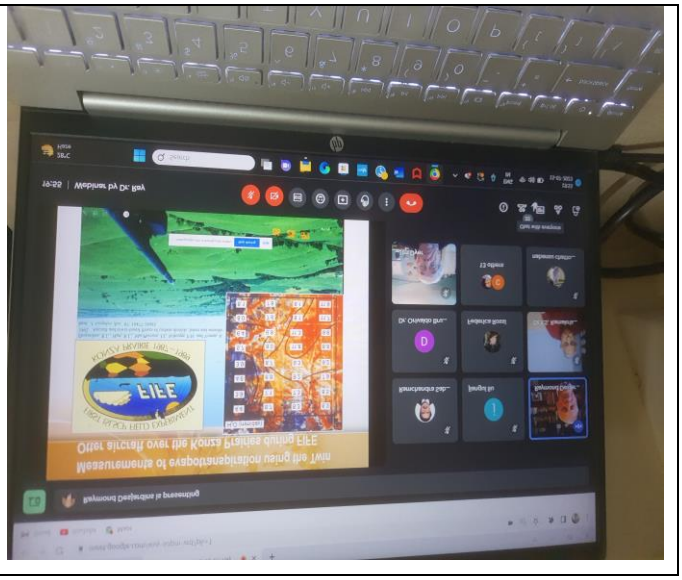
Saturday, 15 July · 7:30 – 9:30pm:Time zone: Asia/Kolkata

About the Speaker: *Raymond L. Desjardins C.M., OOnt, FRSC, PhD, FAIC, FASA, FCSAM studied Physics at Ottawa University, Meteorology at the University of Toronto and Micrometeorology at Cornell University. He is an emeritus scientist working at the Science and Technology Branch of Agriculture and Agri-Food Canada in Ottawa. He developed techniques to quantify greenhouse gas emissions from a wide range of sources. He worked with national and international teams on quantifyingthe role of terrestrial ecosystems, in North America, on climate change, as well as the potential impact of climate change on these ecosystems. He used aircraft-based flux measuring techniques to verify, at a regional scale, the accuracy of agriculture greenhouse gas emission inventories of methane and nitrous oxide. Some of his recent research has focused on improving estimates of the carbon footprint of agricultural products and helping producers and consumers reduce the impact of the agriculture sector on climate change. He co-edited and co-authored two books: "Health of our Air" and "Better Farming Better Air" which shed light on how efficient farming practices can improve air quality and reduce greenhouse gas emissions. He was part of the Canadian delegation, at the Commission of Agricultural Meteorology (CAgM) of the World Meteorological Organization, for more than 30 years. As team leader of a CAgM expert team, he co-edited a book on the Contribution of Agriculture to the State of Climate, which proposed ways to minimize the impact of agriculture on climate while producing safe and nutritious food for the world's rapidly growing population.*

Abstract of the Presentation: *Agrometeorological research in Canada has evolved considerably during the last seventyyears. Studies by agrometeorologists, on crop development in the 50s and 60s, provided the key concepts used yet today to describe the pace of plant development. During the 70s to the 90s, much progress was achieved in measuring photosynthesis and evapotranspiration at a wide range of scales. Models to scale up plant processes from the leaf level to the field were greatly improved. Studies were carried out, using aircraft-based flux technology, to measure GHG emissions and to verify the accuracyof scaling up tower-based flux measurements to a region scale. A series of multidisciplinary experiments were carried out, overa wide range of ecosystems, to improve our understanding of the role of major ecosystems in North America on climate as wellas how these ecosystems might respond to climate change. One of the great challenges facing mankind is to minimize human impact on the environment. A GHG calculator developed, as part of the Model Farm project, is being used to guide producers on how to estimate and reduce their on-farm GHG emissions. The carbon footprints of most agricultural products have now beenestimated and consumers are being shown how they could reduce their carbon footprint by their food choices. Estimates of radiative forcing due to carbon sequestration and albedo differences for vegetation types and management practices have beenpublished. The climate mitigation potential*

by 2030 of eleven agricultural pathways was recently calculated for $10, $50 and $100 per Mt CO2e/y and shown to be larger than all the GHG emissions from the agriculture sector in Canada.





9. Webinar On Application of Remote Sensing in Operational Agrometeorological Advisory Services

Speaker:

Dr. Catherine Champagne

Environmental Scientist

National Agroclimate Information Service

Science and Technology Branch Agriculture and Agri-Food Canada (Ottawa)

Details of the Meeting

Webinar on RS in Agriculture

Saturday, 22 July · 7:30 – 9:30pm: India Standard Time (IST)

About the Speaker: Dr. Catherine Champagne leads applied research and development on agroclimate, remote sensing, yield forecasting, drought monitoring, agricultural water balances and land dynamics. She has 25 years of experience in applied science and research moniotirng environmental health of ecosystems, food production and food security using geospatial data. Her expertise spans remote sensing, land surface hydrology, soils and climatology of agricultural, forested and industrial (mines and metals) environment. She has worked with a variety of remote sensing data including hyperspectral, optical, active and passive microwave at a variety of geographic scales. For the past 12 years, she has been leading the projects estimating risks to agricultural systems from drought and excess moisture using earth observation, integrating this information into crop yield forecasting at regional and local spatial scales, forecasting drought, soil moisture and agricultural water management, and building integrated modelling and data exploitation systems for the National Agroclimate Information Service at Agriculture and Agri-Food Canada (AAFC).

Abstract of the Presentation: Inter-annual variability in agricultural production in Canada is largely determined by weather and climate where most crops are rainfed. This is coupled with a complex and diverse geography, with high variations in population density to support traditional agrometeorological measurement and monitoring nationally. Climate-related impacts have caused billions of dollars in financial losses in some years, with the incidence of extreme weather and related costs expected in increase in a changing climate. The National Agroclimate Information Service at Agriculture and Agri-Food Canada (AAFC) monitors the impacts of weather and climate on agricultural activities using a number of geospatial data sets, models and tools to support decision making in the agricultural sector through climate related services using remote sensing, in situ and modelled agrometeorological data. This presentation will provide an overview of how AAFC is developing and using these tools to monitor the impacts of climate and climate change on Canada's field crop production, highlighting innovative research on drought assessment and forecasting, yield forecasting, extreme weather indices and risk assessment. The talk will also highlight how AAFC's monitoring fits into the global monitoring of food supplies and how monitoring is responding to climate change.

Video Recording of the programme is available in the following link

https://youtu.be/ynFd6bZNDXw