



International Workshop on "Impact of Climate Change on Agriculture"

December 17-18, 2009
Space Applications Centre (ISRO), Ahmedabad, India

TECHNICAL PROGRAMME

-Organisers-

ISPRS WG VIII/6 "Agriculture, Ecosystem and Bio-diversity"
GEO Task AG-07-03 "Global Agricultural Monitoring System of Systems"
Indian Society of Remote Sensing

-Hosts-

Space Applications Centre (ISRO)
Indian Society of Remote Sensing – Ahmedabad Chapter

-Sponsors-

Indian Space Research Organisation
Antrix Corporation Limited
Bhaskaracharya Institute for Space Applications and Geo-Informatics
Uttarakhand Space Application Centre
Council of Scientific and Industrial Research



ISPRS-GEO-ISRS
International Workshop on Impact of Climate Change on Agriculture
Space Applications Centre, ISRO, Ahmedabad

TECHNICAL PROGRAMME

Date: 17 December, 2009

08:00-10:00
10:00-11:00

Registration
Inaugural Programme

Venue: SAC Reception
Venue: Vikram Hall

| Time | Item | Speaker |
|-------------|-----------------------------------|--|
| 10:00 | Welcoming Dignitaries to the dais | |
| 10:00-10:10 | Welcome Address | Dr. R. R. Navalgund, Director, SAC |
| 10:10-10:20 | About ISPRS | Dr. H. Shimoda, President, ISPRS TC VIII |
| 10:20-10:30 | About GEO | Dr. F. Jinlong, GEO Secretariat |
| 10:30-10:40 | About ISRS and ISRS-AC | Shri A S Kirankumar, Chairman, ISRS-AC |
| 10:40-10:50 | About the Workshop | Dr. J. S. Parihar, Chair, Organising Committee |
| 10:50-10:55 | Lighting of the Lamp | |
| 10:55-11:00 | Release of Proceedings | |
| 11:00 | Vote of Thanks | Dr. S. S. Ray, Chair, ISPRS WG VIII/6 |

Time 11:00-11:30 Hrs: High Tea

Time 11:30-13:00 Hrs:(Main Hall) Invited Lectures - 1

Chair: Dr. H. Shimoda, ISPRS
Co-Chair: Dr. P. K. Pal, SAC
Rapporteur: Dr. S. K. Saha, IIRS

| S.N. | Title | Authors |
|-------------|--|----------------------------|
| 1 | Earth Observation for Climate Change Studies | Dr. R. R. Navalgund, SAC |
| 2 | Climate Change Models and Scenarios | Dr. K. Krishna Kumar, IITM |
| 3 | Climate Change and Agriculture | Dr. P. K. Aggarwal, IARI |

Time 13:00-14:00 Hrs: Lunch

Date: 17 December, 2009

Time 14:00-16:00 Hrs:

| | |
|------------------|---------------------|
| Main Hall | Seminar Room |
| TS - 1 | TS -2 |

Technical Session 1: Earth Observation for Climate Change Studies

Chair: Dr. S. Bartalev, Russian Academy of Sciences

Co-Chair: Dr. P. C. Joshi, SAC

Rapporteur: Dr. N. R. Patel, IIRS

| S.N. | Reg. ID | Title | Authors |
|-------------------|---------|--|---|
| Lead Paper | 78 | Using Remote Sensing Tools for Climate Change Information | Bettina Baruth and F.N. Tubiello |
| T1.1 | 35 | Impact of Land Surface Data on Simulated Monsoon Regional Climate During Contrasting Episodes of The Indian Summer Monsoon | Rakesh V., R. Singh, P. K. Pal and P. C. Joshi, |
| T1.2 | 36 | Combined use of Microwave and IR data for the study of Indian Monsoon Rainfall-2009 | Satya Prakash, Mahesh. C, A. Mishra, R. M. Gairola, A. K. Varma, and P. K. Pal |
| T1.3 | 77 | The Possibility of GCOM-C1 / SGLI for Climate Change Impacts Analysing | Y. Honda, M. Moriyama, M. Hori, M. Murakami, A. Ono, K. Kajiwara |
| T1.4 | 105 | Climate Change Studies using Coupled Model: Land Surface Perspective | S. K. Das, S. K. Deb, C.M. Kishtawal, P. C. Joshi and P. K. Pal |
| T1.5 | 33 | Atmospheric Methane Concentration Pattern Over India in Relation to Vegetation Dynamics- an Analysis using ENVISAT-SCIAMACHY and SPOT-Vegetation NDVI Data | S. K. Goroshi, R. P. Singh, S. Panigrahy and J.S. Parihar |
| T1.6 | 144 | Increasing Trend in Net Carbon Fixation by Indian Agro-Ecosystem Estimated Using NOAA-AVHRR based GloPEM Model | R. P. Singh, S. Rovshan, S. K. Goroshi, S. Panigrahy and J.S. Parihar |
| T1.7 | 12 | The Earth Observation Data for Agricultural and Climate Change Relevant Monitoring In Russia | S. Bartalev, E. Loupian, M. Medvedeva, D. Plotnikov, I. Savin, V. Tolpin |
| T1.8 | 118 | Validation of a Crop Yield and CO ₂ Fixation Model Over Asia by Carbon Partitioning In Grain Plants | D. Kaneko, P. Yang , T. Kumakura |
| T1.9 | 134 | Measurements and Scaling of CO ₂ Exchange In Wheat using Flux Tower and Remote Sensing | N. R. Patel, V. K. Dadhwal and S. K. Saha |
| T1.10 | 155 | Rice-Ecosystems of India in the Context of Methane Emission | K. R. Manjunath, S. Panigrahy, T. K. Adhya, V. Beri, K. V. Rao and J.S. Parihar |

Technical Session 2: Climate Change Impact on Agriculture-1

Chair: Dr. M. C. Varshney, Anand Agrl. University

Co-Chair: Dr. Y Honda, Chiba University

Rapporteur: Dr. V K Sehgal, IARI

| S.N. | Reg. ID | Title | Authors |
|-------------|----------------|--|--|
| Lead Paper | 34 | Using GBIF to Assess the Likely Impact of Climate Change on Wild Relatives of Major Food Crops | J. Ramirez, A. Jarvis, N. King, S. Gaiji, E. Gilman, V. Chavan, L. Guarino |
| T2.1 | 92 | Impact of Climate Change on Yields of Major Food Crops of India | K.N. Chaudhari, M. P. Oza and S.S. Ray |
| T2.2 | 115 | Space Technology based Study of Climate Change Impacts On Agricultural Water Footprints in a Hydrological Basin | Manavalan P., Jagadeesha C. J., Atma Bharathi M. and P. G. Diwakar |
| T2.3 | 95 | Impact of Climate Change on Plantation Crops in The Humid Tropics of India | G. S. L. H. V. Prasada Rao., A. V. R. Kesava Rao, K. N. Krishnakumar and C.S. Gopakumar |
| T2.4 | 79 | Analyzing the Impact of Rising Temperature on Growth and Yield of Major Cereal Crops using Simulation Model | Rojalin Tripathy, S. S. Ray, and A.K. Singh |
| T2.5 | 154 | Geomatics Analysis of the Impact of Predicted Sea-level Rise on the Agriculture Along the Coastal Zone of Andhra Pradesh | K. Nageswara Rao, P. Subraelu, K. Ch. V. Naga Kumar, G. Demudu, B. Hema Malini, R.Ratheesh, S. Bhattacharya, A.S. Rajawat and Ajai |
| T2.6 | 137 | Impact of Climatic Variability on High-productivity Wheat Regions of Punjab | P. Chandna, B.S. Sidhu, M. Punia, J.K. Ladha and R. Gupta |
| T2.7 | 16 | Effects of Elevated CO ₂ and Temperature on Productivity of Three Main Cropping Systems in Punjab State of India: A Simulation Analysis | S. K. Jalota, S. S. Ray and S. Panigrahy |
| T2.8 | 30 | Climate Change and its Impacts on Eco-Environment and Agriculture in North-East China | W. Yiyong, L. Yi and Q. Shanwen |
| T2.9 | 58 | Recent Trends in Climate and Impact of Climate Change on Food Security of North West India | V. K. Sehgal and S. Jain |
| T2.10 | 86 | Impact of Climate Change on Rice and Groundnut Yield using PRECIS Regional Climate Model and DSSAT Crop Simulation Model | A. P. Ramaraj, R. Jagannathan and Ga. Dheebakaran |

Time 16:30-18:00 Hrs

| | |
|------------------|---------------------|
| Main Hall | Seminar Room |
| TS - 3 | TS -4 |

Technical Session 3: Agricultural Monitoring

Chair: Dr. J. S. Parihar, SAC
Co-Chair: Dr. H. McNairn, Agriculture Canada
Rapporteur: Dr. M. P. Oza, SAC

| S.N. | Reg. ID | Title | Authors |
|-------------|----------------|--|---|
| Lead Paper | 125 | Asia land cover classification using MODIS surface reflectance products | Haruhisa Shimoda and Kiyonari Fukue |
| T3.1 | 82 | Sampling design for global scale mapping and monitoring of agriculture | Shashikant A Sharma and J S Parihar |
| T3.2 | 53 | Exploring the Contribution of LAI to In-Season Crop Acreage Estimates over the Canadian Prairies | Jiali Shang, H. McNairn, C. Champagne, J. Liu, I. |

| | | | |
|------|-----|--|--|
| | | | Jarvis and X. Geng |
| T3.3 | 22 | A Continental Scale Vegetation Index from Indian Geostationary Satellite | R. Nigam, B. K. Bhattacharya, K. R. Gunjal, N. Padmanabhan and N. K. Patel |
| T3.4 | 54 | Multi-Frequency SAR in Support of Operational Crop Monitoring | Heather McNairn, J. Shang and C. Champagne |
| T3.5 | 131 | Spatial and Temporal patterns of Cropping over India Using Multi-temporal IRS AWiFS data | S.V.C. Kameashwara Rao, K. Sreenivas, T. Anasuya, M.C.Porwal, S.Pathak, M.S.R.Murthy,P.S.Roy |

Technical Session 4: Climate Change Impact on Agriculture-2

Chair: Dr. P. S. Roy, NRSC

Co-Chair: Dr. A. M. Shekh, Anand Agricultural University

Rapporteur: Dr. B.K. Bhattacharya, SAC

| S.N. | Reg. ID | Title | Authors |
|-------------------|---------|--|---|
| Lead Paper | 145 | A Spatial Database of Cropping System and its Characteristics to aid to Climate Change Impact Assessment Studies | Sushma Panigrahy, S. S. Ray, K. R. Manjunath, P. S. Pandey, S. K. Sharma, A. Sood, M. Yadav, P. C. Gupta, N. Kundu, and J. S. Parihar |
| T4.1 | 107 | Impact of Climate Change on Indian Mustard (<i>Brassica juncea</i>) in Contrasting Agroenvironments of The Tropics | K. Boomiraj, B. Chakrabarti, P. K. Aggarwal, R. Choudhary and S. Chander |
| T4.2 | 187 | Impact of Climate Change on Soil Degradation Processes | S. K. Saha and Suresh Kumar |
| T4.3 | 149 | Impact of Increased CO ₂ on Rainfall Variability Over Indian Monsoon Region Using IPCC-AR4 CGCM Simulations | V. Sathiyamoorthy and P. C. Joshi |
| T4.4 | 26 | Impact of Climate Change on Runoff of the Major River Basins of India using Global Climate Model (HADCM3) based Projected Data | P. K. Gupta, S. Panigrahy and J. S. Parihar |
| T4.5 | 113 | Long Range Regional Climate Fluctuations/ Changes and their Impact on Agriculture - A Case Study For Chhattisgarh State in Central India | A.S.R.A.S. Sastri |
| T4.6 | 140 | Climate Change Impact on Agriculture Production in Indo-Gangetic plains of India | R. K. Mall, K. K. Singh and R. S. Singh |

Time: 18:15-18:45 (Main Hall)

Evening Lecture

Chair: Dr. R. R. Navalgund, SAC

| Lecture Title | Speaker |
|--|----------------------------|
| IRS Programme: Retrospective and Prospective | Sh. A. S. Kiran Kumar, SAC |

Time: 19:00-21:00

Dinner

Date: 18 December, 2009

Time 09:00-10:00 Hrs: (Main Hall)

Invited Lectures – 2

Chair: Dr. V. S. Hegde, ISRO
Co-Chair: Dr. Qinhua Liu, Chinese Academy of Sciences
Rapporteur: Dr. N. K. Patel, SAC

| S.N. | Title | Authors |
|------|--|----------------------------|
| 1 | Climate Change, Indian Monsoon and Agriculture | Dr. Sulochana Gadgil, IISc |
| 2 | Global croplands and their water use: Remote Sensing and non-remote sensing approaches | Dr. P. S. Thenkabil, USGS |

Time 10:00-11:00 Hrs:

| Main Hall | Seminar Room |
|-----------|--------------|
| TS - 5 | TS -6 |

Technical Session 5: Long Term Changes

Chair: Dr. P. P. Nageswara Rao, NESAC
Co-Chair: Dr. T. T. Medhavy, Geoscience Australia
Rapporteur: Dr. R. P. Singh, SAC

| S.N | Id | Paper Title | Author |
|------|----|---|--|
| T5.1 | 14 | Assessing the Role of Indian Livestock in Climate Change | Abha Chhabra, K.R. Manjunath and S. Panigrahy |
| T5.2 | 15 | Mapping Broadacre Cropping Practices using MODIS Time Series: Harnessing The Data Explosion | P. Tan, L. Lymburner, M. Thankappan and A. Lewis |
| T5.3 | 20 | Long Term Trend Analysis of Surface Insolation and Evaporation over Selected Climate Types in India | Jyotsna Singh, B. K. Bhattacharya and M. Kumar |
| T5.4 | 91 | Long Term Satellite Data Application for Pastureland Biomass Monitoring In Mongolia | M. Erdenetuya and B. Erdenetsetseg |
| T5.5 | 10 | Change of Land Surface Temperature and EVI In China From 2000 To 2008 | Jing Li , Qinhua Liu, Q. Liu, L. Jia |
| T5.6 | 52 | Impact of climate change, variability, and extreme rainfall events on agricultural production and food insecurity in Orissa | Aastha Gulati, P. Gupta, M. Jha, P. Parth Sarthi and K. Vishal |
| T5.7 | 24 | Albedo-Rainfall Feedback over Indian Monsoon Region using Long Term Observations between 1981 to 2000 | B.K. Bhattacharyaa, K.R. Gunjal, S. Panigrahy and J.S. Parihar |

Technical Session 6: Climate Variability and Agriculture

(This session will continue in the same venue during 11:30-13:00 Hrs)

Chair: Dr. V. K. Dadhwal, IIRS
Co-Chair: Dr. F. Jinlong, GEO
Rapporteur: Dr. Kamaljit Ray, IMD

| S.N | Id | Paper Title | Author |
|------|-----|--|------------------------------|
| T6.1 | 143 | Indian Agriculture under Climate Change Scenario | R. P. Samui and M. V. Kamble |

| | | | |
|------|-----|--|---|
| T6.2 | 128 | Weather Based Pest and Disease Forewarning Models in Groundnut in The Context of Climate Change | K. Vijaya lakshmi, D. Raji Reddy, N.R.G. Varma and G. Pranuthi |
| T6.3 | 114 | Climate Change in Northeast India: Recent Facts and Events - worry for agricultural management | A. Das, P. K. Ghosh, B. U. Choudhury, D.P. Patel, G. C. Munda, S. V. Ngachan and P. Chowdhury |
| T6.4 | 151 | Ecological Consequences of Human Impacts in Mahi River Basin of Western India | Y. B. Sharma |
| T6.5 | 19 | Production Potential of Wheat Varieties under Changing Climate in Rice Based Cropping System in Chhattisgarh | S. R. Patel, A.S.R.A.S. Sastri, R. Singh and D. Naidu |
| T6.6 | 106 | Assessing Predictability of PRECIS Regional Climate Model for Downscaling of Climate Change Scenarios | A. P. Ramaraj, R. Jagannathan, Ga. Dheebakaran |
| T6.7 | 122 | Assessment of Modified Weather on Rice Yields using CERES Rice Model in Andhra Pradesh | G. Sreenivas and D. Raji Reddy |
| T6.8 | 81 | Climate Variability over Gujarat, India | K. Ray, M. Mohanty and J.R Chincholikar |
| T6.9 | 111 | Seasonal Effect on Reproductive Behaviour in Jaffrabadi Buffaloes | A. R. Ahlawat, R.M. Padodra, S.N. Godasara |

Time: 11:00-11:30 Tea

Time 11:30-13:00 Hrs:

| | |
|------------------|---------------------|
| Main Hall | Seminar Room |
| TS - 7 | TS -6 |

Technical Session 7: Mitigation and Adaptation Measures

Chair: Dr. A. K. Singh, ICAR
Co-Chair: Dr. W. Yiyong, Chinese Academy of Sciences
Rapporteur: Sh. N. S. Mehta, SAC

| S.N | Reg. ID | Paper Title | Author |
|-----------------|----------------|--|--|
| Special Lecture | | Agricultural Adaptation & Mitigation Measures for Climate Change: Indian Initiatives | A. K. Singh |
| T7.1 | 29 | Terminal Heat Stress Adversely Affects Chickpea Productivity in Northern India: Strategies to Improve Thermotolerance in the Crop Under Climate Change | P. S. Basu, Masood Ali and S. K. Chaturvedi |
| T7.2 | 103 | Mitigating Methane Emission in Rice with Resource Conserving Technologies | Vandana Gupta, S. Singh, P. Chandna, A. Tewari, K. Kumar, J. K. Ladha, R. K Gupta and P. K Gupta |
| T7.3 | 147 | CO ₂ Sequestration through Mineral Carbonation Of Fly Ash and its Use in Agriculture | S.D. Muduli, B.D. Nayak and N. K. Dhal |
| T7.4 | 110 | Weather based Agro Advisories for Managing the Climate Related Crop Production Risks in Southern Telangana Region of Andhra Pradesh | A. Madhavi Lata, G. Sreenivas, K. Vijaya lakshmi and D. Raji Reddy |

| | | | |
|------|----|--|---|
| T7.5 | 68 | Climate Change Scenarios With Wireless Sensor Network & Geo-ICT: A Preliminary Observation | J. Arun, J. Adinarayana, U. B. Desai, S. N. Merchant, N. Shah, CPRG Naveen, R. Ashwani, Ipsita Das, D. Sudharsan, A. K. Tripathy, S. Ninomiya, M. Hirafuji, T. Kiura, K. Tanaka, T. Fukatsu |
|------|----|--|---|

Time 13:00-14:00 Hrs: Lunch

Time 14:00-16:00 Hrs.

| | | |
|------------------|---------------------|------------------------|
| Main Hall | Seminar Room | Horse-Shoe Room |
| TS - 8 | TS -9 | TS -10 |

Technical Session 8: Short Presentations (Earth Observations for Climate Change and Agricultural Monitoring)

Chair: Dr. Sushma Panigrahy, SAC
Co-Chair: Dr. Jiali Shang, Agriculture Canada
Rapporteur: Sh. C. Patnaik, SAC

| S.N | Reg. ID | Paper Title | Author |
|-------|---------|--|--|
| T8.1 | 116 | Remote Sensing Based Studies on Climate Change Implications of Agricultural Watersheds in Krishna Basin of India | CJ Jagadeesha, P Manavalan and P. G. Diwakar |
| T8.2 | 21 | Spatial Database Generation of the Rice-Cropping Pattern of India using Satellite Remote Sensing Data | K.R. Manjunath and Sushma Panigrahy |
| T8.3 | 25 | An Account of Residue Burning from Agricultural System in India using Space Based Observations | C. P. Singh, Sushma Panigrahy |
| T8.4 | 74 | Quantification of the Spatial and Temporal Variability of Savanna Vegetation using Multiscale Remote Sensing. | Tony Rajan Mathew |
| T8.5 | 126 | Analysis of The Distribution Pattern of Wetlands in India in Relation to Climate Change | J G Patel, T. V. R. Murthy, T. S. Singh and Sushma Panigrahy |
| T8.6 | 129 | Energy Budget over Semi-arid Agro-ecosystem using Satellite Data | K.K. Dakhore, B.K. Bhattacharya, K. Mallick, R. Nigam, N.K. Patel, V. Pandey, B. I. Karande and A.M. Shekh |
| T8.7 | 11 | Evaluation of AMSR-E Soil Moisture Product as an Input to Climate Change Models | Sasmita Chaurasia, Do Thanh Tung, P. K. Thapliyal and P. C. Joshi |
| T8.8 | 121 | Energy Balance Components in Low Land Rice in Telangana Region of Andhra Pradesh | G. Sreenivas, G. Pranuthi, D. Raji Reddy and B. K. Bhattacharya |
| T8.9 | 65 | Sea Surface Temperature over Tropical Indian Ocean and Southwest Monsoon Performance | U. K. Singh and P. S. Salvekar |
| T8.10 | 04 | Study for the Effect of Soil Moisture Content on the Agricultural Vegetation using Active Microwave Remote Sensing | V K Gupta and R A Jangid |

| | | | |
|-------|-----|--|---|
| T8.11 | 97 | Measuring Winter Wheat Cultivar (<i>Triticum aestivum</i> L.) Health Status using Hyperspectral Reflectance Data | Manika Gupta and P. K. Srivastava |
| T8.12 | 89 | Characterization of Agro-Ecological Zones of Punjab State using Remote Sensing and GIS Tools | S. K. Bal, B. U. Choudhury, Anil Sood, G. S. Bains and J Mukherjee |
| T8.13 | 59 | Land Use / Land Cover mapping of Keoladeo National Park, Bharatpur, Rajasthan (India) using High Resolution Satellite Data | Niraj and S. Palria |
| T8.14 | 142 | Remote Sensing derived Composite Vegetation Health Index through Inversion of PROSAIL for Monitoring of Wheat Growth in Trans Gangetic Plains of India | Rahul Tripathi, R.N. Sahoo, V. K. Sehgal, V. K. Gupta and B.K. Bhattacharya |
| T8.15 | 172 | Mapping Spatial Variability of Cropping Practices using Time Series of Remotely Sensed Data | Sudhir Gupta and K. S. Rajan |

Technical Session 9: Short Presentations (Climate Change Impact on Agriculture and Mitigation & Adaptation Measures)

Chair: Dr. H. R. Hatwar, IMD
Co-Chair: Sh. R. P. Dubey, SAC
Rapporteur: Dr. Anupam K. Singh, Nirma University

| S.N | Reg. ID | Paper Title | Author |
|-------|---------|---|--|
| T9.1 | 88 | Impact of Climate Change on World Agriculture | A. Kashyapi, Archana P. Hage and Deepa A. Kulkarni |
| T9.2 | 80 | Climate Change Impact Analysis on Crop Growing Periods and Rice Yields over India | T. V. Lakshmi Kumar |
| T9.3 | 127 | Climate Change and Potato Production | J. P. Singh and S. S. Lal |
| T9.4 | 09 | Impact Analysis of Climate Change on Different Crops in Gujarat, India | Vyas Pandey, H. R. Patel and B. I. Karande |
| T9.5 | 48 | Climate Change and Impacts on Crop Pests – A Critique | Sikha Deka, K. Byjesh, U. Kumar, R. Choudhary |
| T9.6 | 138 | Impact of Climate Change on Agriculture | Prabha Shastri Ranade |
| T9.7 | 117 | Climate Change Impacts on Rice in Andhra Pradesh | D. Raji Reddy, G. Sreenivas and G. Pranuthi |
| T9.8 | 179 | Impact of Climate Change on Shift of Apple Belt in Himachal Pradesh | R. S. Rana, R. M. Bhagat, V. Kalia and H. Lal |
| T9.9 | 150 | Impact of Raising Temperatures on Yields of Dryland Groundnut in Southern Agroclimatic Zone of Andhra Pradesh | V.Sumathi, D.Subramanyam and D.S.Reddy |
| T9.10 | 76 | Dynamics of Soil Sodicity in Brahmani-Baitarani Estuary Area under the Influence of Sea Level Rise | Manish Kumar and N. C. Mohanta |
| T9.11 | 119 | Remote Sensing in Carbon Dynamics of Cropland | G. Sandhya Kiran and Kinnary Shah |

| | | | |
|-------|-----|---|--|
| T9.12 | 96 | Economic Impacts of Climate Variability and Resource Management Options In Crop Production | Indira Devi .P and G.S.L.H.V.Prasada Rao |
| T9.13 | 75 | An Approach To Identify Favorable Phenological Zones In Vellore District, Tamil Nadu By Integration Biophysical And Agro Meteorological Variables | Mohana P., V.E. Nethaji Mariappan and N. Manoharan |
| T9.14 | 133 | Effect of Sediment Organic Carbon Content on Microbial Diversity of Bhitarkanika Mangrove Estuary | K.Sahoo, M. K. Khadanga, N. K. Dhal and R.Das |
| T9.15 | 136 | Impact of Climate Change on Productivity of Rice-Wheat Cropping System in the Indo-Gangetic Plains | P. Chandna, B. S. Sidhu, M. Punia, J. K. Ladha and Raj Gupta |

Technical Session 10: Short Presentations (Long Term Changes and Climate Variability and Agriculture)

Chair: Dr. Tej Pratap, HPKVV
Co-Chair: Dr. Magsar Erdenetuya, NRSC, Mongolia
Rapporteur: Dr. P. K. Gupta, SAC

| S.N | Reg. ID | Paper Title | Author |
|--------|---------|--|--|
| T10.1 | 83 | Land Surface Characterisation in Arid and Semi-arid regions of Rajasthan for assessing the long-term changes in vegetation condition using Earth Observation Data | Yogita Shukla, A.D. Tillu, P. S. Roy |
| T10.2 | 45 | Trends and Fluctuations of Temperature Regime of North East India | R. L. Deka, C. Mahanta, K. K. Nath |
| T10.3 | 69 | Wetland Mapping and Study of Temporal Changes in Correlation with Meteorological Data for Solapur Districts of Maharashtra using Remote Sensing and GIS Techniques | F. S. Birajdar, Samee Azmi, Arun Inamdar, Tutu Sengupta, A. K. Sinha |
| T10.4 | 148 | Study of Inter-Annual Ku-Band Backscatter Variations of Amery Ice Shelf, East Antarctica | S. R. Oza, R. K. K. Singh, N. K. Vyas and A. Sarkar |
| T10.5 | 71 | Impact Assessment of Irrigation Development in Vedganga Basin: A Geoinformatic Approach | S. Panhalkar and Rucha Joshi |
| T10.6 | 58 | Deriving Phenology Metrics and their Trends using Times Series of AVHRR-NDVI Data | V. Sehgal, Surabhi Jain and P. K. Aggarwal |
| T10.7 | 135 | Response of Wheat (<i>Triticum aestivum</i>) under Varying Weather Environment | N.S. Solanki |
| T10.8 | 139 | Climate Variability and a Yield Fluctuations of Some Major Crops of Jorhat (Assam) | R. Hussain, K .K. Nath and R. L. Deka |
| T10.9 | 120 | Evaluating the Topography and Climatic Variability on Agricultural Land Use Changes in Semi-Arid Terrain using EO-1 ALI and ETM+ Data. | G. Balamurugan, S. Rajandran and N. Manoharan |
| T10.10 | 123 | Variability of Rainfall and Cropping Pattern Changes of Major Kharif Crops in Semi Arid Tropics of India: A Case Study of Anantapur and Mahabubnagar Districts of Andhra Pradesh State | G. G. S. N. Rao, N. P. Singh, M. C. S. Bantilan, N. Manikandan, T. Satyanarayana, A.V.M. Subba Rao, V. U. M. Rao and B.Venkateswarlu |
| T10.11 | 62 | Agro Ecological Zonation of <i>Fusarium mangiferae</i> for Andhra Pradesh and Uttar Pradesh by using GIS | I .V. Srinivasa Reddy, Usha. K. R. Singh and S. Chander |

| | | | |
|--------|-----|---|---|
| | | Andhra Pradesh and Uttar Pradesh by using GIS Tools | K, B. Singh and S. Chander |
| T10.12 | 13 | Simulating the Effect of Temperature on Growth and Yield of Bt Cotton under Semi-Arid Conditions of Punjab, India | S. K. Jalota, Anil Sood, G. S. Butter, Savitoz Sidhu and P. K. Sharma |
| T10.13 | 23 | INSAT Uplinked Agromet Station – A Scientific Tool with a Network of Automated Micrometeorological Measurements for Soil-Canopy-Atmosphere Feedback Studies | B. K. Bhattacharya, C.B.S. Dutt and J.S. Parihar |
| T10.14 | 130 | Influence of Change in Weather on Phenology and Grain Yield of Kharif Sorghum at Parbhani in Maharashtra | M. G. Jadhav, V. G. Maniyar and G. R. More |
| T10.15 | 141 | Thermal Requirements of Wheat under Different Growing Environments of Tarai Region (Uttarakhand) | R. K. Pal and N. S. Murty |
| T10.16 | 63 | Impact of Climate Change on Jharkhand agriculture-Mitigation and adoption | A. Wadood and Pragyan Kumari |

Time 16:00-16:30 Hrs: Tea

Time 16:30-17:45 Hrs. Panel Discussion and Concluding Session

Panelists

AAU: Dr. M. C. Varshney
 ICAR: Dr. A. K. Singh
 IMD: Dr. H. R. Hatwar
 JRC: Dr. F Tubiello
 USGS: Dr. P. S. Thenkabail
 CAS: Dr. Qinhua Liu
 GEO: Dr. F Jinlong
 RSA: Dr. S Bartalev
 ISRO: Dr. V S Hegde
 GEOAg0703: Dr. J S Parihar

Moderator: Dr. J. S. Parihar, DD, RESA

Time 17:45 Hrs. High Tea

ISPRS WG VIII/6, GEO Ag-07-03 and ISRS Ahmedabad Chapter and the Organizing Committee wishes to thank all the participants for their support and cooperation.

We wish you a very happy and safe return journey.