Muhammad Azhar Ehsan, PhD

Columbia Climate School,
International Research Institute for Climate and Society (IRI),
Columbia University
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Research and Teaching Interests

- El Niño – Southern Oscillation (ENSO) Dynamics and Predictions
- ENSO teleconnections
- Climate Prediction from Weeks to Years
- Variability and Predictability of the Global Monsoons and its Relation to Sea Surface Temperatures
- Regional Climate Variability and Change
- Global Warming
- Climate for Societal Applications

Education

Institution	Location	Major	Degree	Year
University of the Punjab	Lahore, Pakistan	Physics	MSc	2006
King Abdulaziz University	Jeddah, Saudi Arabia	Meteorology	MS	2012
King Abdulaziz University	Jeddah, Saudi Arabia	Meteorology	PHD	2017

Appointments

2021 - Present	**Associate Research Scientist**, Columbia Climate School, The International Research Institute for Climate and Society (IRI), Columbia University, Palisades, NY
2019 - 2021	**Postdoc Research Scientist**, The International Research Institute for Climate and Society (IRI), Columbia University, Palisades, NY
2018 - 2019	**Visiting Scientist**, The International Center for Theoretical Physics (ICTP), Trieste, Italy.
2009 - 2017	**Research Assistant**, Center of Excellence for Climate Change research (CECCR), King Abdulaziz University, Jeddah, Saudi Arabia.
2014-2019	**Junior Associate**, The Earth System Physics Section (ESP), International Center for Theoretical Physics, Trieste, Italy.
2008 - 2009	**Scientific Officer**, Global Change Impact Study Center (GCISC), National Center for Physics (NCP), Islamabad, Pakistan.

Professional Activities at IRI

- IRI ENSO and Climate Forecast Lead,
- Monthly public seasonal climate forecast briefing and (content writing for IRI Web Page),
- Monthly IRI/Climate Prediction Center (CPC) NOAA, ENSO Team Meeting for ENSO Forecast
- Contributing to World Meteorological Organization's quarterly El Nino/La Nina Forecast Updates
- Contributing Regional Climate Outlook Forums (COFs) in South Asia (SASCOF)
- Contributing Seasonal and subseasonal climate forecast assessment for New York City water resource managers (**Co-PI**)
- Supporting (Forecast Generation, online and In-Person Training Workshops) projects for the World Food Program in Ethiopia and Madagascar (**Co-PI**)
- Supporting the AICCRA climate smart agriculture projects in East and West Africa (**IRI Team Member**)
- PepsiCO Inc. Project "Providing Long-lead tailored seasonal climate forecast for PepsiCo farms in the U.S. and Canada" (**PI**)
- Climate Center Project "The Impact of Climate on Coffee Production in Ethiopia" (**PI**)
- Mentoring NY High School students on School Projects
- Contributing to the International Research Collaboration IRI- (Islamia university Bahawalpur Pakistan) IUB-Pakistan, (Regular Meetings on joint Research and Project proposals)

Grants and Projects

As PI,

Project Title: The Impact of Climate on Coffee Production in Ethiopia

PI Name: **Ehsan, Muhammad Azhar**

Budget: $9,994.00

Project Title: Providing Long-lead Tailored Seasonal climate Forecast for PepsiCo Farms in the US and Canada: Phase I

PI Name: **Ehsan, Muhammad Azhar**

Budget: $49,836.00

Title: Providing Long-lead Tailored Seasonal climate Forecast for PepsiCo Farms around the world: Phase II

PI Name: **Ehsan, Muhammad Azhar**

Budget: $150K

As Co-I,

Project Title: Long Term Agreement for the provision of Climate Services, Analyses, Knowledge and Evidence: Capacity strengthening for developing forecast-based financing (FbF, Daniel Osgood PI) in Madagascar.

Source of Support: World Food Programme

Project Title: Long Term Agreement for the provision of Climate Services, Analyses, Knowledge and Evidence: Capacity strengthening for developing forecast-based financing (FbF, Daniel Osgood PI) in Ethiopia.

Source of Support: World Food Programme

Project Title: Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA, Baethgen, W. PI).

Source of Support: CIAT

Title: Seasonal and subseasonal climate forecast assessment for New York City water resource managers.

PI Name: Andrew W. Robertson

Co-PI Name: Ehsan, Muhammad Azhar

Editorial Board Member

- Editor, Earth System and Environment
- Editor, MDPI Atmosphere Special Issue: Multi-year ENSO Events: Dynamics, Predictability, Teleconnections, and Impacts

Peer-reviewed Publications (30 Publications: Cite Score: 1050 *as of Feb, 2024*)

1) Singh B, **Ehsan MA,** Robertson AW. Calibrated probabilistic sub-seasonal forecasting for Pakistan's monsoon rainfall in 2022 (2024). https://link.springer.com/article/10.1007/s00382-023-07071-4
2) **Ehsan MA,** Singh B. "Forecast skill of Bangladesh summer monsoon rainfall in C3S and NMME models after calibration (2023)". https://www.sciencedirect.com/science/article/pii/S0377026523000611
3) **Ehsan MA,** Tippett MK, Robertson AW, Singh B, Rahman MA. "The ENSO Fingerprint on Bangladesh Summer Monsoon Rainfall (2023)". https://link.springer.com/article/10.1007/s41748-023-00347-z
4) Sajjad Hussain, Muhammad Mubeen, Wajid Nasim, Shah Fahad, Musaddiq Ali, **Ehsan MA,** Ali Raza. "Investigation of Irrigation Water Requirement and Evapotranspiration for Water Resource Management in Southern Punjab, Pakistan". MDPI Sustainability (2023). https://www.mdpi.com/2071-1050/15/3/1768
5) Attada R, **Ehsan MA,** Pillai PA. "Evaluation of Potential Predictability of Indian Summer Monsoon Rainfall in ECMWF's Fifth Generation Seasonal Forecast System (SEAS5)". Pure and Applied Geophysics (2022). https://link.springer.com/article/10.1007/s00024-022-03184-9

6) Almazroui M, …, **Ehsan MA,** …, et al. "Skill assessment of Saudi-KAU and C3S models in prediction of spring season rainfall over the Arabian Peninsula". Atmospheric Research (2022). https://www.sciencedirect.com/science/article/pii/S0169809522004471

7) Mohammed UD, SA Legesse, AB Berlie, **Ehsan MA,** "Climate Change Repercussions on Meteorological Drought Frequency and Intensity in South Wollo, Ethiopia". Earth System and Environment. (2022). https://link.springer.com/article/10.1007/s41748-022-00293-2

8) Qureshi JA, G Khan, N Ali, S Ali, R Bano, S Saeed, **Ehsan MA,** "Spatio-temporal Change of Glacier Surging and Glacier-dammed Lake Formation in Karakoram Pakistan". Earth System and Environment. (2022). https://link.springer.com/article/10.1007/s41748-021-00264-z

9) Senamaw A, T Gashaw, **Ehsan MA,** "Impacts of land-use/land-cover changes on water-borne soil erosion using geospatial technologies and RUSLE Model over Chimbel Watershed of Upper Blue Nile Basin in Ethiopia". Earth System and Environment. (2022). https://link.springer.com/article/10.1007/s41748-021-00259-w

10) Almazroui M, **Ehsan MA,** …, et al. "Skill of the Saudi-KAU CGCM in Forecasting ENSO and its Comparison with NMME and C3S Models". Earth System and Environment. (2022). Earth System and Environment. (2022). https://link.springer.com/article/10.1007/s41748-022-00311-3

11) Farooq I, AR Shah, M Sahana, **Ehsan MA,** "Assessment of Drought Conditions Over Different Climate Zones of Kazakhstan Using Standardised Precipitation Evapotranspiration Index". Earth System and Environment. (2022). https://link.springer.com/article/10.1007/s41748-022-00314-0

12) Acharya N, **Ehsan MA,** Admasu A, Teshome A., Kyle JCH. "On the Next Generation (NextGen) Seasonal Prediction System to enhance Climate Services over Ethiopia". Climate Services (2021). https://www.sciencedirect.com/science/article/pii/S2405880721000601

13) Almazroui M., …, **Ehsan MA,** …, et al. "Projected changes in hot, dry and wet extremes over SREX regions using CMIP6 data". Earth System and Environment. (2021). https://link.springer.com/article/10.1007/s41748-021-00250-5

14) Almazroui M., …, **Ehsan MA,** …, et al. "Assessment of CMIP6 models performance and projected temperature and precipitation changes over South America". Earth System and Environment. (2021). https://link.springer.com/article/10.1007/s41748-021-00233-6

15) **Ehsan MA,** Tippett MK, Robertson AW, Almazroui M, Ismail M, Dinku T, Acharya N, Siebert A, Ahmed JS, Teshome A. "Seasonal Predictability and Forecast Skill of Ethiopian Kiremt Rainfall in ECMWF's SEAS". Climate Dynamics. (2021). https://link.springer.com/article/10.1007/s00382-021-05855-0

16) Sharma S, K Hamal, N Khadka, M Ali, M Subedi, G Hussain, **Ehsan MA,** ... et al. "Projected drought Conditions over Southern Slope of the Central Himalaya using CMIP6 models".

Earth System and Environment. (2021). https://link.springer.com/article/10.1007/s41748-021-00254-1

17) Almazroui M., …, **Ehsan MA,** …, et al. "Projected changes in temperature and precipitation over the United States, Central America and the Caribbean in CMIP6 GCMs". Earth System and Environment. (2021). https://link.springer.com/article/10.1007/s41748-021-00199-5

18) **Ehsan MA,** Nicoli D, Kucharski F, Almazroui M, Tippett M.K., Bellucci A, Ruggieri P, Kang I.S. "Atlantic Ocean influence on Middle East summer surface air temperature". npj Climate and Atmospheric Science. (2020). https://www.nature.com/articles/s41612-020-0109-1

19) Merryfield W.J., **Ehsan MA,** …, et al. "Current and emerging developments in subseasonal to decadal prediction". Bulletin of the American Meteorological Society. (2020). https://journals.ametsoc.org/view/journals/bams/101/9/BAMS-D-19-0037.A.xml

20) **Ehsan MA,** Tippett M.K., Kucharski F, Almazroui M, Ismail M. "Predicting Peak Summer Monsoon Precipitation over Pakistan in ECMWF SEAS5 and North American Multimodel Ensemble". International Journal of Climatology. (2020). https://rmets.onlinelibrary.wiley.com/doi/full/10.1002/joc.6535

21) **Ehsan MA,** "Potential predictability and skill assessment of boreal summer surface air temperature of South Asia in the North American multimodel ensemble". Atmospheric Research. (2020). https://www.sciencedirect.com/science/article/pii/S0169809519311421

22) **Ehsan MA,** Kucharski F, Almazroui M. "Potential predictability of boreal winter precipitation over central-southwest Asia in the North American multi-model ensemble". (2019) Climate Dynamics. https://link.springer.com/article/10.1007/s00382-019-05009-3

23) Almazroui M., …, **Ehsan MA,** …, et al. "Saudi-KAU coupled global climate model: Description and Performance". (2017), Earth Syst Environ. doi:10.1007/s41748-017-0009-7. https://link.springer.com/article/10.1007/s41748-017-0009-7

24) **Ehsan MA,** Michael K. Tippett, · Mansour Almazroui,·Muhammad Ismail, Ahmed Yousef,·Fred Kucharski, Mohamad Omar, Mahmoud Hussein, Abdulrahman A. Alkhalaf. "Skill and predictability in multimodel ensemble forecasts for Northern Hemisphere regions with dominant winter precipitation". (2017a) Climate Dynamics, DOI: 10.1007/s00382-016-3267-4. https://link.springer.com/article/10.1007/s00382-016-3267-4

25) **Ehsan MA,** Almazroui M., Yousef A., Enda O., Tippett M.K., Kucharski F., Alkhalaf A.K. "Sensitivity of AGCM-simulated regional JJAS precipitation to different convective parameterization schemes". (2017b), Int J Climatol. doi:10.1002/joc.5108. https://rmets.onlinelibrary.wiley.com/doi/full/10.1002/joc.5108

26) **Ehsan MA,** Almazroui M., Yousef A., "Impact of different cumulus parameterization schemes in SAUDI-KAU AGCM". (2017c), Earth Syst Environ 1:3. doi:10.1007/s41748-017-0003-0. https://link.springer.com/article/10.1007/s41748-017-0003-0

27) Ahmed Yousef, **Ehsan MA,** Mansour Almazroui, Mazen E. Assiri, Abdulrahman K. Alkhalaf "An improvement in mass flux convective parameterizations and its impact on seasonal simulations using a coupled model". (2015). Theoretical and Applied Climatology. https://link.springer.com/article/10.1007/s00704-015-1668-7

28) **Ehsan MA,** In-Sik Kang, Mansour Almazroui, M. Adnan Abid, Fred Kucharski "A quantitative assessment of changes in seasonal potential predictability for the 20th Century". (2013). Climate Dynamics. https://link.springer.com/article/10.1007/s00382-013-1874-x

29) Athar H, Mansour Almazroui, M. Nazrul Islam, M. Adnan Abid, and **Ehsan MA,** "Effect of mid-latitude blocking anticyclones on the weather of the Arabian Peninsula". (2012) International Journal of Climatology. https://rmets.onlinelibrary.wiley.com/doi/full/10.1002/joc.3450

30) Almazroui M, M. Adnan Abid, H. Athar, M. Nazrul Islam, **Ehsan MA,** "Interannual variability of rainfall over the Arabian Peninsula using the IPCC AR4 global climate models". (2012) International Journal of Climatology. https://rmets.onlinelibrary.wiley.com/doi/full/10.1002/joc.3600

Media Mention

wired.com	https://www.wired.com/story/libya-medicane-flooding-storm-daniel-derma/
LITORALPRESS	Entre sequías e inundaciones, el Niño amenaza con provocar estragos en América Latina
apnews.com	https://apnews.com/article/la-nina-severe-weather-noaa-hurricanes-3a3be03c7d445f3fb4c4ec240589346b
apnews.com	https://apnews.com/article/what-is-la-nina-drought-wildfires-hurricanes-619a4a1a928fdb80d301c7dca0c45dcf
news.sky.com	https://news.sky.com/story/afghanistan-millions-at-risk-of-starvation-as-vital-seeds-go-to-waste-in-warehouses-12465586
Gizmodo.com	https://gizmodo.com/the-climate-crisis-may-have-helped-spawn-massive-locust-1841385871
Infobae.com	https://www.infobae.com/america/mundo/2020/05/17/una-plaga-biblica-puede-causar-mas-muertes-que-el-coronavirus-en-africa/
Vox.com	https://www.vox.com/2020/5/20/21158283/locust-plague-swarm-outbreak-africa-asia-2020

BBC Radio (Discovery)	https://www.bbc.co.uk/sounds/play/w3csz9db
EurekAlert.org	https://www.eurekalert.org/news-releases/723667
Enn.com	https://www.enn.com/articles/61920-the-atlantic-ocean-fingerprint-on-the-climate-of-the-middle-east
Phys.org	https://phys.org/news/2020-01-atlantic-ocean-fingerprint-climate-middle.html

Presentations in Conferences and Meetings

- **Seasonal (Oct-Nov-Dec-2022) Outlook for the South Asia, based on September 2022 First Triple-Dip La Niña of 21st Century.** 23rd South Asian Climate Outlook Forum and Climate Services Users Forum (SASCOF-23 and CSUF) to be held online via video conference during 26-29 September, 2022 (online)
- **Forecast-based Financing for Early Warning and Early Action**. "Innovations in Agriculture to Ensure Food Security in Changing Climate" at International Center for Climate Change, Food Security & Sustainability (ICCFS)/inter-universities consortium on Climate Change, Sustainability & Conservation (CCSC), The Islamia University of Bahawalpur (IUB), Pakistan, August, 23, 2022. (**Invited International Speaker**).
- **La Niña is still humming along (50-60%), and South Asian Summer Monsoon outlook.** 22nd Session of South Asian Climate Outlook Forum (SASCOF-22) for the Summer Season and Climate Services User Forum (CSUF) April 26-28 2022 (online)
- **Skill Assessment of state-of-the-art seasonal forecasting models in simulating summer monsoon rainfall over Bangladesh.** B Singh, MA Ehsan, AW Robertson - AGU Fall Meeting 2021.
- **Variability and potential predictability of summer monsoon rainfall over Bangladesh.** Ehsan MA, B Singh - AGU Fall Meeting 2021.
- **The Impact of Climate on Coffee Production in Ethiopia.** Kopper R, Ehsan MA - AGU Fall Meeting 2021.
- **Adapting Agriculture to Climate Today, for Tomorrow (ACToday): Combating Hunger by Increasing Climate Knowledge.** In 1st International Conference on "Innovations in Agriculture to Ensure global Food Security". Theme: Threats to Agriculture

Being Faced by Climate Change Video Conference Room Main Auditorium, The Islamia University of Bahawalpur, Pakistan. November, 10, 2021. (**Invited International Speaker**)

- **Atlantic Ocean Influence on Middle East Summer Surface Air Temperature.** EGU2020-10459, in OS1.9, Live chat on Monday, 04 May 2020.
- **Predictability of two types of El Niño assessed by ECMWF System 5 and its impacts on Western North American Climate.** 100th AMS Annual Meeting, 12–16 January 2020, Boston Convention and Exhibition Center, 415 Summer Street, Boston, MA, USA.
- **Increasing Arabian Peninsula Summer Surface Air Temperature Response to Greenhouse Warming: The Role of Water Vapor Feedback.** American Meteorological Society's 32nd Conference on Climate Variability and Change, 99th Annual Meeting, Sunday, 6 January 2019 to Thursday, 10 January 2019, in Phoenix, AZ, USA.
- Poster Presentations on **"Interannual variability and predictability assessment of JJA surface air temperature over the Arabian Peninsula in North American Multimodel Ensemble"** and
- **"On the decreasing Arabian Peninsula Winter Precipitation and its teleconnections"** M. Azhar Ehsan: International Conferences on Subseasonal to Decadal Prediction" organized by WCRP, Sep 17-21, 2018 – NACR, Boulder, CO, USA.
- Oral Presentation **"Interannual variability and predictability assessment of JJA surface air temperature over the Arid region of the Arabian Peninsula in North American Multimodel Ensemble"** M. Azhar Ehsan: European Conference for Applied Meteorology and Climatology 2018" organized by European Meteorological Society, Sep 3-7, 2018 – Budapest, Hungary.
- **Sensitivity of AGCM Simulated Regional Summer Precipitation to Different Convective Parameterization. M. Azhar Ehsan**: The Eighth Scientific Forum for King Abdulaziz University (KAU) students, 7-8 December, 2016, Jeddah Saudi Arabia.
- **Cloud Droplet Concentration and its relationship with precipitation. M. Azhar Ehsan**: Summer School on Aerosol-Cloud Interactions and International CFMIP Conference on Clouds, Circulation and Climate Sensitivity (27 Jun-7 July, 2016), Trieste, ICTP, Italy.

- **Skill and predictability in multimodel ensemble forecasts for Northern Hemisphere regions with dominant winter precipitation. M. Azhar Ehsan**: NOAA's 41st Climate Diagnostics and Prediction Workshop held in Orono, Maine, USA, 3-6 October 2016 (*Not able to join personally*).
- **Northern Hemisphere winter precipitation predictability: Arid versus Wet region. M. Azhar Ehsan**: The Seventh Scientific Forum for King Abdulaziz University (KAU) students, 28-29 October, 2015, Jeddah Saudi Arabia.
- **Seasonal Prediction System in KAU: Experimentation, Validation and Inter-Comparison. M. Azhar Ehsan**, In-Sik Kang, Michael Tippett, M. Ismail, M. Omar, Young-Min Yang: The First Seasonal Climatic Prediction Workshop for Arab Region " Dec 29 – Jan 01, 2014-2015, King Abdulaziz University, Jeddah, Saudi Arabia.
- **An improvement in mass flux convective parameterizations and its impact on Seasonal simulations using a coupled model. M. Azhar Ehsan**: 6th Scientific Forum for King Abdulaziz University Students, December, 08-10, Jeddah Saudi Arabia.
- **Coupled Model Seasonal Prediction: Experimentation, Validation and Comparison. M. Azhar Ehsan**, Mansour Almazroui, M. Ismail, M. Omar, Young-Min Yang; ICTP-IITM-COLA Targeted Training Activity (TTA): "Challenge in Monsoon Prediction" June 23 – July 4, 2014, Trieste, Italy.
- **Coupled Model Prediction Skill of Winter Precipitation: Inter-Comparison.** M. Adnan Abid, Irfan Ur Rashid, M. Ismail, Kamil Shahzad, **M. Azhar Ehsan**, M. Omar, Mansour Almazroui; ICTP-IITM-COLA Targeted Training Activity (TTA): "Challenge in Monsoon Prediction" June 23 – July 4, 2014, Trieste, Italy.
- **Cumulus Convection Parameterization in KAU Climate Model: Present and Future Options. M. Azhar Ehsan**: Technical Workshop in Munich, Germany, June 15 – 20, 2014, Fujitsu Technology Solutions, Munich, Germany.
- **Cumulus Convection in KAU Climate Model. M. Azhar Ehsan**; Conference on climate Modeling; March 24 – April 05, 2013; Organized by Tsinghua University and INSPUR Group China, Beijing, People Republic of China.
- **A quantitative assessment of changes in the seasonal potential predictability in the 20th Century. M. Azhar Ehsan**, In-Sik Kang, Mansour Almazroui, M. Adnan Abid, Fred

Kucharski; Workshop on Hierarchical Modeling of Climate, 18-22 July, 2011, Trieste, Italy.

- **Simulation of Tropical Cyclone Gonu with RegCM4. M. Azhar Ehsan**, Mohamed Omar. 18) 5th ICTP Workshop on the Theory and Use of REGional Climate Models May 31-June11, 2010, ASICTP, Trieste, Italy.

Workshops and Conferences

- "Innovations in Agriculture to Ensure Food Security in Changing Climate" at International Center for Climate Change, Food Security & Sustainability (ICCFS)/inter-universities consortium on Climate Change, Sustainability & Conservation (CCSC), The Islamia University of Bahawalpur (IUB), Pakistan.
- Targeted Training Activity (TTA) 2017: Monsoons in a Changing Climate. July 31 – Aug 4, 2017, ASICTP, Trieste, Italy.
- Summer School on Aerosol-Cloud Interactions, 27 June- 1 July 2016, ASICTP, Trieste, Italy.
- International CFMIP Conference on Clouds, Circulation and Climate Sensitivity, 4 - 7 July 2016, ASICTP, Trieste, Italy.
- Fujitsu-KAU workshop on the KAU Climate Modelling Development, 25 April –6 May 2016, London, UK.
- The 1st World Climate Research Program (WCRP) Summer School on Climate Model Development: Atmospheric Moist Processes, 15-26 June 2015, Max Planck Institute, Hamburg, Germany.
- The First Seasonal Climatic Prediction Workshop for Arab Region 29 December, 2014 - 01 January, 2015, King Abdulaziz university, Jeddah Saudi Arabia.
- KAU Climate Model Meeting, November 24 – 26, 2014, Fujitsu System Europe, Toulouse, France.
- ICTP-IITM-COLA Targeted Training Activity (TTA): “Challenge in Monsoon Prediction, June 23 – July 4, 2014, ASICTP, Trieste, Italy.
- Technical Workshop in Munich, Germany, June 15 – 20, 2014, Fujitsu Technology

Solutions, Munich, Germany.

- Conference on Climate Modeling, Tsinghua University, March 26 – April 04, 2013 Beijing, People Republic of China.
- Training school for climate prediction, Jan 16 – Feb 20, 2012, Climate Dynamics Lab, Seoul National University, Seoul, Korea.
- Targeted Training Activity (TTA) on Oscillation Monsoon in the Current and Future Climate, July 30 – August 10, 2012, including the High-level Meeting on "The Looming Environmental Crisis and Global Sustainability" August 6-7, 2012, ASICTP, Trieste, Italy.
- Climatology and Climate Variability of the Red Sea and Gulf of Aden Large Marine Ecosystem, January 24 – 26, 2011, Jeddah, Saudi Arabia.
- Workshop on Hierarchical Modeling of Climate, July 18 – 22, 2011, ASICTP, Trieste, Italy.
- Conference on Decadal Predictability, August 16 - 20, 2010, ASICTP, Trieste, Italy.
- Targeted Training Activity (TTA) on Statistical Methods in Seasonal Prediction, August 2 - 13, 2010, ASICTP, Trieste, Italy.
- 5th ICTP Workshop on the Theory and Use of REGional Climate Models May 31-June11, 2010, ASICTP, Trieste, Italy. https://indico.ictp.it/event/a09151/session/86/contribution/61/material/0/3.pdf

Committees

IRI Seminar Organizer:

Responsibilities include,

Scheduling and coordinating the IRI Seminars, including invitation to the Speakers, announcement of Seminars to folks in IRI and across Lamont, and Zoom meeting scheduling, introducing speaker to audience and conducting Q/A at the end of the talk.

Hiring Committee:

Search committee member for the Staff Associate-II position for ACToday Ethiopia, Job Requisition #88450, posted at https://academic.careers.columbia.edu/#/88450. Reviewed all the applications for this job and interviewed candidates to find the best one for the job.

Outreach Activities, International Capacity Building

a) Helping King Abdulaziz University (KAU) Jeddah Saudi Arabia team in creating ENSO forecasts every month.

During my PhD, I worked as a Researcher in the Center of Excellence for Climate Change Research (CECCR), KAU Jeddah Saudi Arabia (Nov 2013 to Jan 2018), which was the first Climate Research Center of its kind in Saudi Arabia established and funded by the university. At CECCR I worked on the development of the Saudi-KAU model and established the seasonal prediction system based on the Saudi-KAU Model. Under this project, I have been invited as a visiting scientist in the Climate Dynamics Lab in Seoul National University, Korea in 2011, where I worked for 6 weeks with different scientist under the supervision of Prof. In-Sik Kang for the development of the Seasonal Forecast system using Saudi-KAU Model.

The regular seasonal forecast is conducted every month since March 2018, by using Saudi-KAU model and contributed to the IRI ENSO Plume, https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/?enso_tab=enso-sst_table.

b) Focal person on the Research Agreement between Columbia Climate School, International Research Institute for Climate and Society (IRI), Columbia University and International center for Climate Change, Food Security, & Sustainability, at The Islamia University of Bahawalpur, (IUB) Pakistan.
c) Focal person on the Research collaboration agreement between Columbia Climate School, International Research Institute for Climate and Society (IRI), Columbia University and Department of Mathematics, Lahore College for Women University, Jail Road Lahore, Pakistan.

Honors/Awards/Prizes

- Junior Associate member (**2014-2019**) at the Earth System Physics Section (ESP), International Center for Theoretical Physics, Trieste, Italy.
- Best Research Paper Presentation award worth (2500 SAR: **1US$ = 3.75 SAR**), at 8th Scientific Forum of Students at King Abdulaziz University, Jeddah Saudi Arabia, March 2017.