

## **CURRICULUM VITAE**

Name: Athar Hussain

Date of Birth: 20th September 1968

*HEC Approved Supervisor in Physical Sciences*

*COMSATS Science Ambassador in the field of Climate Change*

Current Affiliation: Professor, Department of Meteorology

COMSATS University Islamabad

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Current Research Interest: Climate Change Interventions and Geoinformatics

Web of Science ResearcherID: J-2405-2012 (Publications: 59, Citations: 1435, H-index: 18)

Web of Science Profile: <https://www.webofscience.com/wos/author/record/J-2405-2012>

ORCID Profile: [orcid.org/0000-0001-9816-2451](https://orcid.org/0000-0001-9816-2451)

Google Scholar Profile: [scholar.google.com/citations?hl=en&user=Y-j5ZVkAAAAJ](https://scholar.google.com/citations?hl=en&user=Y-j5ZVkAAAAJ)

Linkedin Profile: [www.linkedin.com/in/athar-hussain-100a89126/](https://www.linkedin.com/in/athar-hussain-100a89126/)

ResearchGate Profile: [www.researchgate.net/profile/Athar\\_Hussain](https://www.researchgate.net/profile/Athar_Hussain)

Scopus Profile: [www.scopus.com/authid/detail.uri?authorId=55053999400](https://www.scopus.com/authid/detail.uri?authorId=55053999400)

Facebook Profile: <https://www.facebook.com/ProfAthar>

CUI-MET Research Group: [ww2.comsats.edu.pk/Meteorology/CCDARGroup.aspx](http://ww2.comsats.edu.pk/Meteorology/CCDARGroup.aspx)

Cumulative Impact Factor: 125.00+

### Academic Background

M.Sc. (Physics) 1989 Quaid-i-Azam University Islamabad, Pakistan

M.Phil. (Physics) 1991 Quaid-i-Azam University Islamabad, Pakistan

DICTP (High Energy Physics) 1992-93 The Abdus Salam International Centre for Theoretical Physics Trieste (ICTP), Italy

PhD (Astro Particle Physics) 1996 Quaid-i-Azam University Islamabad, Pakistan

PhD (Atmospheric Science) 2008 University of Missouri, Columbia, MO, USA (GPA 4.0 out of 4.0)

### Post-Doctoral Fellow

August 2008 – July 2009 in Atmospheric Science at University of Missouri, Columbia, MO, USA

November 1996 - September 1997 Quaid-i-Azam University, Islamabad, Pakistan

October 1997 - March 1999 University of Santiago de Compostela, Santiago de Compostela, Spain

April 1999 - October 2000 Tokyo Metropolitan University, Tokyo, Japan

### Visiting Assistant Professor

November 2000 – July 2005 Physics Division, National Center for Theoretical Sciences (NCTS), National Tsing Hua University, Hsinchu, Taiwan

### Assistant Professor

November 2009 - July 2013 Center of Excellence for Climate Change Research and Department of Meteorology, King Abdulaziz University, Jeddah, Saudi Arabia

### Associate Professor

August 2013 - December 2013 Department of Meteorology, COMSATS Institute of Information Technology, Islamabad, Pakistan

### Professor

January 2014 – To date Department of Meteorology, COMSATS University Islamabad, Islamabad, Pakistan

### Administrative Positions at CUI since 2013

Jul 2015 – Apr 2021 Chairman, Department of Meteorology, CUI

May 2018 – Sep 2023 Head, Centre for Climate Research and Development, CUI

Sep 2023 – Oct 2023 Acting Head, Department of Meteorology, CUI

### Teaching Experience in Meteorology, Remote Sensing and GIS, Health Informatics, Physics and Math

*At CIIT/COMSATS University Islamabad, Pakistan (Fall 2013 – To date)*

#### MS Meteorology Courses

1. MET617 Numerical Methods during Fall 2013
2. MET624 Climatology during Fall 2016, Spring 2022
3. MET672 Air-Sea Interaction during Fall 2017
4. MET671 Statistic Techniques in Meteorology during Fall 2018, Spring 2020, Spring 2021,
5. MET622 Dynamic Meteorology during Fall 2019, Fall 2020, Fall 2022, Spring 2023
6. MET667 Mesoscale Meteorology Spring 2021, Fall 2021

#### PhD Meteorology Courses

1. MET713 Science of Climate Change during Fall 2013, Fall 2020
2. MET711 Advanced Dynamical Meteorology during Spring 2014
3. MET723 Statistical Data Analysis during Spring 2014, Spring 2015,
4. MET721 Spectroscopic Theory during Fall 2014, Fall 2015
5. MET716 Monsoon Meteorology during Spring 2015, Spring 2017
6. MET735 Advanced Geo-Statistical Analysis during Spring 2016, Spring 2020
7. MET734 Atmospheric Radiation during Fall 2016
8. MET740 Advanced Statistical Analysis in Meteorology during Spring 2018, Fall 2018, Spring 2021
9. MET745 Advanced Applied Climatology during Spring 2019
10. MET744 Advanced Dynamic Meteorology during Fall 2019

#### PhD Remote Sensing and GIS Courses

1. MET734 Atmospheric Radiation during Spring 2023
2. MET735 Advanced Geo-Statistical Analysis during Fall 2023

## MS Health Informatics Courses

1. HIS622 Geographical Information Systems for HI during Spring 2020, Spring 2022, Fall 2022

*At King Abdul Aziz University, Jeddah, Saudi Arabia (4 years: 2009 – 2013)*

## Graduate courses

1. MET 689 Statistical Meteorology during Fall 2009, Spring 2010
2. MET 779A Special Topics (Statistical Downscaling) during Spring 2010
3. MET 772 Meteorological Data Processing during Spring 2010
4. MET 621 Statistical Meteorology during Fall 2010

## Under-Graduate courses

1. MET 465 Statistical Meteorology during Spring 2011

*At University of Missouri, Columbia, MO, USA (3 years: 2006-2009)*

## Undergraduate courses:

1. Substitute for ATMS 4001 (Space Weather) during Winter 2006
2. TA for ATMS 1110 (Introduction to Atmospheric Science) during Fall 2006
3. TA for ATMS 1050 (Introductory Meteorology) during Winter 2007, Fall 2007, Winter/Spring 2008, Fall 2008, Winter/Spring 2009
4. Substitute for ATMS 3600 (Climates of the World) during Winter 2007
5. Instructor for MATH 1100 (College Algebra for Calculus Bound Students) during Fall 2007
6. Recitation Instructor for PHYSICS 1210 (College Physics-I) during Winter/Spring 2008
7. Recitation Instructor for PHYSICS 2750 (University Physics-I) during Winter/Spring 2008
8. Private tutor for MATH 1500 (Analytic Geometry and Calculus-I) during Winter/Spring 2008

*At Moberly Area Community College, Columbia Campus, MO, USA (1 year: 2008-2009)*

Adjunct Instructor of Physical Science, for:

1. PHY 110 (Survey of Modern Physics) during Fall 2008, Spring 2009, Fall 2009
2. PHY 262 (General Astronomy) during Fall 2008, Spring 2009, Summer 2009, Fall 2009,
3. PHY 264 (Atmospheric Science) during Fall 2008, Spring 2009, Summer 2009, Fall 2009
4. PHY 120 (Foundations of Chemistry with Lab.) during Summer 2009 semester

*During PhD/Post Doc studies in Islamabad, Pakistan (2 years: 1995-1997)*

Taught to M.Sc. (Physics) students

1. Special Relativity (A. P. French, Introduction to Special Relativity)
2. Quantum Mechanics (R. Liboff, Introductory Quantum Mechanics)
3. Particle Physics (mainly from D. Perkins, Introduction to High Energy Physics)

*Taught partially to M.Phil. (Physics) [a post M.Sc. two year program] students course on*

1. Quantum Field Theory (J. D. Bjorken and S. Drell, Relativistic Quantum Fields).

Service work at CUI, Pakistan (since Fall 2013)

1. Convener, Departmental Advisory Committee (DAC) (till Spring 2021)
2. Convener, Departmental Tenure Review Committee (DTRC) (till Spring 2021)
3. Convener, Board of Studies for Department of Meteorology (2015-2021)
4. Convener, Departmental Course Development and Coordination Committee
5. Convener, Departmental Technical Evaluation Committee
6. Convener, Departmental Inquiry Committee
7. Convener, Departmental Evaluation Committee for the Post of Lecturer (Spring 2018)
8. Convener, Campus Inquiry Committee Related to a Research Paper
9. Convener, Departmental/Guest Seminar Committee (Spring 2014-Fall 2015)

10. Convener, Departmental Graduate Admission Interviews Committee (Fall 2014-Spring 2015)
11. Member, Departmental Tenure Review Committee (DTRC) (Since Spring 2021)
12. Member, Supervisory Committee of several Doctoral Students
13. Member, Department Academic Review Committee (DARC)
14. Member, Board of Faculty of Science
15. Member, Departmental Research Attachment Committee
16. Member, Academic Council of CIIT
17. Member, Selection Board of CIIT/CUI
18. Member, Adhoc Selection Committee (ASC) for 2016-17 of CIIT
19. Incharge, Conduct of Exam During Terminal Examinations (Fall 2013, Spring 2015, Spring 2017, Fall 2021, Fall 2022, Spring 2023, Fall 2023)

### Allied Faculty Member

Department of Health Informatics at CUI (2021-2023)

### Awards

Recipient of Research Productivity Award 2014 and 2015 by CIIT, Islamabad

### Nominations

Nominated for award of Pakistan Academy of Sciences gold medal 2014 in Earth Sciences and Physics.

### Service work at Department of Meteorology, King Abdul Aziz University, Jeddah, Saudi Arabia (Fall 2009 - Spring 2013)

1. Member, PhD Program Committee, Department of Meteorology
2. Member, Accreditation Committee, Department of Meteorology
3. Member, Accreditation Committee, Faculty of Meteorology, Environment, and Arid Land Agriculture
4. Member, Review and Independent Opinion Committee for Accreditation, Faculty of Meteorology, Environment, and Arid Land Agriculture
5. Member, Department Board Committee

## Research Interests

I am interested in the statistical and dynamic downscaling approaches, with an intention of using these approaches for regional climate adaptation and mitigation studies. To achieve this objective, I have collaborated to perform the validation and calibration studies of the IPCC AR6 based AOGCMs to identify the suitable predictor variables for South Asia, including Pakistan, to be used in the statistical downscaling.

I have also performed collaborative studies of the impacts of mid-latitude blocking anticyclones for the weather of Pakistan. It was pointed out the anticyclones lead to a shift in the area averaged rainfall in the northern Pakistan during the DJF period by about 1-2 mm/day.

Currently, I am also interested in applications of GIS environment to solve scientific and social problems of varying degree of complexity. In particular, I am interested in Geo-Informatics and in statistical techniques in Geo-Spatial modeling, as it relates to Health Sciences.

## Supervision of MS and PhD Theses

### MS Theses

1. Supervised (with Guey-Lin Lin) MS thesis of Mr. Y. L. Sming Tsai at National Center for Theoretical Sciences, Hsinchu, Taiwan (Aug 2003-July 2004), Taiwan. Thesis topic: *Solar Neutrino Puzzle*.
2. Supervised MS thesis of Ms. Ayesha Ahmad at Department of Meteorology, CIIT, Islamabad (Sep 2013-Jun 2014). Thesis topic: *Investigating the Interannual Variability of Winter Rainfall in Pakistan and its Association with Western Disturbances*.
3. Supervised MS thesis of Mr. Asmat Ullah at Department of Meteorology, CIIT, Islamabad (Sep 2013-Jun 2014). Thesis topic: *An AOGCM Based Diagnostic Study of Climate Change and its Variability in Pakistan*.
4. Supervised MS thesis of Mr. Waseem Ali at Department of Meteorology, CIIT, Islamabad (Sep 2013-Jun 2015). Thesis topic: *Analyzing Temporal Change in Urban/Suburban Growth and its Influence on Changing Climate Using Landsat Imagery: A Case Study of Rawalpindi City, Punjab, Pakistan*.

5. Supervised MS thesis of Mr. Burhan Ahmed at Department of Meteorology, CIIT, Islamabad (Sep 2014-Dec 2015). Thesis topic: *An Analysis of Climate Change in Pakistan.*
6. Supervised MS thesis of Ms. Syeda Batool Tazeem at Department of Meteorology, CUI (Sep 2017-Dec 2018). Thesis topic: *Spatio-temporal Variations of Aerosols and Meteorological Variables for Haqel and Jeddah, Saudi Arabia during 2008-2012.*
7. Supervised MS thesis of Ms. Sumaira Yousaf at Department of Meteorology, CUI (Sep 2018-Dec 2019). Thesis topic: *Long Term Variability of Land Surface Temperature and Population Growth in Central East Punjab.*
8. Supervised MS thesis of Mr. Muhammad Shoaib in Health Informatics Department at CUI (Jan 2021-Jan 2022). Thesis topic: *A Study of Malaria Disease Using VECTRI Malaria Model in the Selected Malaria Endemic Regions of Pakistan.*
9. Supervised MS thesis of Ms. Sundleen Jannat in Health Informatics Department at CUI (Jan 2021-Jan 2022). Thesis topic: *GIS Based Cluster Analysis of Left Ventricular Systolic Dysfunction Patients in Selected Areas of Pakistan.*
10. Supervised MS thesis of Ms. Kanwal Latif in Health Informatics Department at CUI (Jan 2021-Jan 2022). Thesis topic: *Spatial Distribution of Acute Myocardial Infarction Disease in Rawalakot and Islamabad using GIS Environment.*
11. Supervised MS thesis of Mr. Muhammad Saad Arif at Department of Meteorology, CUI (Jan 2020-Dec 2022). Thesis topic: *Satellite Remote Sensing based Assessment of Inter-Annual Spatial Variability in Cotton Growing Areas of Punjab.*
12. Supervised MS thesis of Mr. Muhammad Ali at Department of Meteorology, CUI (Jan 2023-Jan 2024). Thesis topic: *Impacts of Solar Radiation Modification on Projected Climate of South Asia.*
13. Supervised MS thesis of Ms. Varisha Khan at Department of Health Informatics, CUI (Jan 2023-Jan 2024). Thesis topic: *Impacts of Solar Radiation Modification on Malaria Distribution in South Asia.*

#### PhD Theses

1. Co-Supervised (with Guey-Lin Lin) PhD dissertation of Mr. Jie-Jun Tseng at National Center for Theoretical Sciences, Hsinchu, Taiwan (Nov 2000- Jun 2002), Taiwan. Dissertation topic: *Production and propagation of Galactic and Atmospheric neutrinos.*
2. Co-Supervised (with Guey-Lin Lin) PhD dissertation of Mr. Fei-Fen Lee at National Center for Theoretical Sciences, Hsinchu, Taiwan (Sep 2003- July 2005), Taiwan. Dissertation topic: *Topics in Tau Neutrino Astronomy.*
3. Supervised PhD thesis of Mr. Muhammad Farooq Iqbal at CUI (Aug 2013- Aug 2018). Thesis topic: *Spatiotemporal Assessment of Precipitation for Hydrological Applications over Diverse Topography of Pakistan.*



4. Supervised PhD thesis of Mr. Ahmad Waqas at CUI (Aug 2013- Dec 2018). Thesis topic: *Spatiotemporal Impact of Temperature and Precipitation on the Cryosphere of Pakistan in Changing Climate.*
  5. Supervised PhD thesis of Mr. Nabeel Ahmed at CUI (Aug 2013- Dec 2019). Thesis topic: *Precipitation Variability and Associated Wet and Dry Spell Characterization in Pakistan.*
  6. Supervised PhD thesis of Mr. Ibrar ul Hassan Akhtar at CUI (Jan 2017-Sep 2021). Thesis topic: *Climate Integrated Remote Sensing Based Assessment of Agro-Ecosystem in Northern and Central Pakistan.*
- Currently supervising 1 MS thesis in Meteorology.

### Mentor

- ACU and British Council based Commonwealth Futures Climate Research Cohort (Mach 2021 to Jan 2022)

Mentee: Dr. Astrid Werkmeister from Department of Electrical and Electronic Engineering, Centre for Signal & Image Processing (CeSIP), at University of Strathclyde Glasgow.

### Referee

- Physics Letters B
- Atmospheric Research
- Journal of Ecology and the Natural Environment
- International Journal of Climatology
- Journal of King Abdulaziz University: Meteorology, Environment and Arid Land Agriculture Sciences
- Islamabad Policy Research Institute (IPRI) based journal
- COMSATS based journal Science Vision
- Advances in Meteorology
- Atmósfera
- Journal of Applied Meteorology and Climatology
- Journal of Atmospheric and Solar-Terrestrial Physics
- Meteorological Applications
- Nature Sustainability
- Pakistan Journal of Public Health

## Reviewer

- Book proposals submitted to Elsevier
- HEC based Post-Doc Phase III
- Book submitted to Center for Strategic and Contemporary Research
- Punjab Innovation & Research Challenge Award Proposals
- HEC based CPEC Collaborative Research Grants
- HEC based NRPU Collaborative Research Grants
- HEC based GCF Collaborative Research Grants
- Health Research Institute (HRI) based Research Grants

## Member Board of Advisors

- Pakistan Journal of Meteorology (Nov 2021 – Dec 2023)

## Knowledge/Experience of Computer Languages/Softwares

MATLAB, GrADS, R, Fortran, QGIS

## Research and Academic Networks Memberships

1. ICTP based AGCM-Net (Atmospheric circulation and predictability studies)
2. UK based CliMathNet
3. Elsevier's online community-based Innovation Explorers (2014-2015)

## Publications

### *Meteorology and Environment*

61. Solar geoengineering impacts on precipitation under projected climate change in

Pakistan

H. Sipra, A. Nabeel and H. Athar (to be submitted)

60. Investigation of Simulated Weather Data for Diverse Climates of Pakistan using Markov Chain and Artificial Neural Network Models

Ibrar ul Hassan Akhtar and H. Athar (to be submitted)

59. Tracking progress towards carbon neutrality: a study on emissions from COMSATS University Islamabad, Pakistan

Mohsin Raza, Kaleem Anwar Mir, Umair Bin Nisar, Athar Hussain (to be submitted)

58. [Transmission of malaria intensity in changing climate of Pakistan](#)

Athar Hussain, Muhammad Shoab, Fahad Saeed, Ibrar-ul-Hasan Akhtar (Submitted)

57. Review on the Environmental Influence of Gas Flaring: Perspective from the Niger Delta Region of Nigeria

K. E. Ukhurebor, U. O. Aigbe, R. B. Onyancha, B. Okundaye, P. A. Aidonjio, B. E.

Siloko, H. Athar, H. S. Kusuma, H. Darmokoesoemo (Submitted)

56. GIS Environment Based Study of Acute Myocardial Infarction Incidence and Associated Risk Factors at a Major Referral Cardiac Center in Twin City of Rawalpindi and Islamabad, Pakistan

Kanwal Latif, Athar Hussain, Mariam Soomro (Accepted)

Pakistan Journal of Public Health

55. Exploring the academic perceptions of climate engineering in developing countries

H. Athar, H. F. K. Sipra, A. Waheed, K. E. Ukhurebor

Atmósfera 38, 311-325 (2024)

54. Spatio-temporal co-variability of air pollutants and meteorological variables over Haqel and Jeddah, Saudi Arabia

S. B. Tazeem, A. Nabeel, and H. Athar

Atmósfera 37, 131-158 (2023)

53. LST variability and population growth in district of Rawalpindi, Pakistan during 1993-2018: A regional climate model based bias correction approach for LST

A. Waseem and H. Athar

Egyptian Journal of Remote Sensing and Space Sciences, 25, 975–985 (2022)

52. Hydrological Investigation of Subsurface Glacial Lake Outburst Floods at Bindo Gol Valley under Changing Climate, Pakistan

Sarfraz Khan, Umair Bin Nisar, H. Athar, Nabeel Ahmad and Babar Siddique

Journal of Applied Geophysics, 201,104633 (2022)

51. Environmental implications of petroleum spillages in the Niger Delta region of Nigeria: A review

K. E. Ukhurebor, H. Athar, C. O. Adetunji, U. O. Aigbe, R. B. Onyancha, and O.

Abifarin

Journal of Environmental Management, 293, 112872 (2021)

50. Projected changes in climate of Pakistan using IPCC AR5 based climate models

H. Athar, A. Nabeel, I. Nadeem, and F. Saeed

Theoretical and Applied Climatology, 145, 567-584 (2021)

49. Climate related inter-annual variability and long-term influence on wheat yield across canal irrigated areas of Punjab, Pakistan

Ibrar ul Hassan Akhtar and H. Athar

Theoretical and Applied Climatology, 143, 1195-1211 (2021)

48. Water supply and effective rainfall impacts on major crops across irrigated areas of Punjab, Pakistan

Ibrar ul Hassan Akhtar and H. Athar

Theoretical and Applied Climatology, 142, 1097-1116 (2020)

47. Implications of 1.5 and 2.0°C additional warming for Wheat yield using a gridded modeling approach

M. Fahad, I. Ahmad, and H. Athar

Atmósfera 33 337-355 (2020)

46. Stochastic projection of precipitation and wet and dry spells over Pakistan using IPCC AR5 based AOGCMs

A. Nabeel and H. Athar

Atmospheric Research, 234, 104742 (2020)

45. Contribution of changing precipitation and climatic oscillations in explaining variability of water extents of large reservoirs in Pakistan

Ibrar ul Hassan Akhtar and H. Athar

Scientific Reports, 9, 19022 (2019)

44. Observed, stochastically simulated and projected precipitation variability in Pakistan

A. Nabeel and H. Athar

Theoretical and Applied Climatology, 137, 2239-2256 (2019)

43. Spatiotemporal variability in daily observed precipitation and its relationship with snow cover of Hindukush, Karakoram and Himalaya region in northern Pakistan

A. Waqas and H. Athar

Atmospheric Research, 228, 196-205 (2019)

42. Recent decadal variability of daily temperature in Hindukush, Karakoram and Himalaya region in northern Pakistan

A. Waqas and H. Athar

Climate Dynamics, 52, 6931-6951 (2019)

41. PDF based seasonal changes in AgMERRA observations and GCM20 and RegCM4.3 projections over Pakistan Region.

A. Burhan and H. Athar

Climate Change, 5, 68-81 (2019)

40. Observed diurnal temperature range variations and its association with observed cloud cover in northern Pakistan

A. Waqas and H. Athar

International Journal of Climatology, 38, 3323-3336 (2018)

39. An AOGCM based assessment of interseasonal variability in Pakistan

U. Asmat, H. Athar, A. Nabeel and M. Latif

Climate Dynamics, 50, 349-373 (2018)

38. Validation of satellite based precipitation over diverse topography of Pakistan

M. F. Iqbal and H. Athar

Atmospheric Research 201, 247-260 (2018)

37. Classification of precipitation regimes in Pakistan using wet and dry spells

A. Nabeel and H. Athar

International Journal of Climatology 38, 2462-2477 (2018)

36. Assessment of simulated and projected climate change in Pakistan using IPCC AR4 based AOGCMs

F. Saeed and H. Athar

Theoretical and Applied Climatology, 134, 967–980 (2018)

35. Variability, trends, and teleconnections of observed precipitation over Pakistan  
M. F. Iqbal and H. Athar  
Theoretical and Applied Climatology, 134, 613-632 (2018)
34. Evaluation of past and projected climate change in Pakistan region based on GCM20 and RegCM4.3 outputs  
A. Burhan and H. Athar  
Pakistan Journal of Meteorology 13, 63-86 (2017)
33. Run-based multi-model interannual variability assessment of precipitation and temperature over Pakistan using two IPCC AR4 based AOGCMs  
U. Asmat and H. Athar  
Theoretical and Applied Climatology 127, 1-16 (2017)
32. Seasonal characteristics of the large-scale moisture flux transport over the Arabian Peninsula  
H. Athar and K. Ammar  
Theoretical and Applied Climatology 124(3), 565-587 (2016)
31. Assessment of global Carbon Dioxide emission and warming with a focus on Pakistan  
H. Athar  
Science Vision 21, 63-71 (2015)



30. Teleconnections and variability in observed rainfall over Saudi Arabia during 1978-2010

H. Athar

Atmospheric Science Letters 16, 373-379 (2015)

29. Surface temperature forecast skill comparison for the west coast of Saudi Arabia

H. Athar and A. Sara

Atmósfera 27, 287-303 (2014)

28. Trends in observed extreme climate indices in Saudi Arabia during 1979-2008

International Journal of Climatology 34, 1561-1574 (2014)

H. Athar

27. Weather forecast skill comparison at a location in the Midwest United States

Meteorological Applications 21, 930-939 (2014)

H. Athar and A. Sara

26. Interannual variability of rainfall over the Arabian Peninsula using the IPCC AR4 global climate models

International Journal of Climatology 33, 2328-2340 (2013)

M. Almazroui, M. A. Abid, H. Athar, M. N. Islam, and M. A. Ehsan

25. Seasonal variability of the observed and the projected daily temperatures in northern Saudi Arabia

Climatic Change 119, 333-344 (2013)

H. Athar

24. Effect of mid-latitude blocking anticyclones on the weather of the Arabian Peninsula

International Journal of Climatology 33, 585-598 (2013)

H. Athar, M. Almazroui, M. N. Islam, M. A. Abid, and M. A. Ehsan

23. Decadal variability of the observed daily temperature in Saudi Arabia during 1979-2008

Atmospheric Science Letters 13, 244-249 (2012)

H. Athar

22. A dynamic analysis of the role of the planetary and synoptic scale in the summer of 2010 blocking episodes over the European part of Russia

Advances in Meteorology 2012, Article ID 584257 (2012)

A. Lupo, I. Mokhov, M. Akperov, A. Cherokulsky, and H. Athar

21. Recent climate change in the Arabian Peninsula: Seasonal rainfall and temperature climatology of Saudi Arabia for 1979–2009

Atmospheric Research 111, 29-45 (2012)

M. Almazroui, M. N. Islam, H. Athar, P. D. Jones, and M. A. Rahman

20. Recent climate change in the Arabian Peninsula: annual rainfall and temperature analysis of Saudi Arabia for 1978–2009

International Journal of Climatology 32, 953-966 (2012)

M. Almazroui, M. N. Islam, H. Athar, P. D. Jones, and M. A. Rahman

19. A comparative study to quantify the sensitive dependence in numerical models for a developing low in the Southern Plains

Transactions of the Missouri Academy of Science 44, 1-12 (2010)

A. Schnetzler, J. Glisan, H. Athar, P. Market, and A. Lupo

18. Scale analysis of blocking events from 2002-2004: A case study of an unusually persistent blocking event leading to heat wave in the Gulf of Alaska during August 2004

Advances in Meteorology 2010, Article ID 610263 (2010)

H. Athar and A. Lupo

Neutrino Astroparticle Physics

17. The Intrinsic and oscillated astrophysical neutrino flavor ratios

Modern Physics Letters A 21, 1049-1065 (2006) [e-Print: hep-ph/0505017]

H. Athar, C. S. Kim and Jake Lee

16. Tau Neutrino Astronomy in GeV Energies

Physical Review D 71, *id.* 103008 (2005) [e-Print: hep-ph/0407183]

H. Athar, Fei-Fan Lee and Guey-Lin Lin

15. GeV to TeV astrophysical tau neutrinos

Physics Letters B 598, 1-7 (2004) [e-Print: hep-ph/0407182]

H. Athar and C. S. Kim

14. Mixed high energy neutrinos from cosmos

Chinese Journal of Physics 42, 1-20 (2004) [e-Print: hep-ph/0308188]

H. Athar

13. Energy spectrum of tau leptons induced by the high energy Earth-skimming neutrinos

Physical Review D 68, *id.* 063003 (2003) [e-Print: astro-ph/0305507]

Jie-Jun Tseng, Tsung-Wen Yeh, H. Athar, M. A. Huang, Fei-Fain Lee and Guey-Lin Lin

12. Comparison of high-energy galactic and atmospheric tau neutrino flux

Astroparticle Physics 18, 581-592 (2003) [e-Print: hep-ph/0112222]

H. Athar, Kingman Cheung, Guey-Lin Lin, and Jie-Jun Tseng

11. Implications of  $\bar{\nu}_e \rightarrow W^- \gamma$  for high-energy  $\bar{\nu}_e$  observation

Astroparticle Physics 19, 569-574 (2003) [e-Print: hep-ph/0108204]

H. Athar and Guey-Lin Lin

10. Muon pair production by electron-photon scatterings

Physical Review D 64, *id.* R071302 (2001) [e-Print: hep-ph/0104185]

H. Athar, Guey-Lin Lin and Jie-Jun Tseng

9. Prospects for observations of high-energy cosmic tau neutrinos

Physical Review D 62, *id.* 093010 (2000) [e-Print: hep-ph/0006123]

H. Athar, G. Parente and E. Zas

8. Effects of neutrino mixing on high-energy cosmic neutrino flux

Physical Review D 62, *id.* 103007 (2000) [e-Print: hep-ph/0005104]

H. Athar, M. Jezabek and O. Yasuda

7. Neutrino spin-flip in Active Galactic Nuclei

Chinese Journal of Physics 40, 251-264 (2002) [e-Print: hep-ph/9806408]

M. Anwar Mughal and H. Athar

6. Neutrino conversions in cosmological gamma-ray burst fireballs

Astroparticle Physics 14, 217-225 (2000) [e-Print: hep-ph/0004191]

H. Athar

5. Matter effects on neutrino oscillations in gravitational and magnetic fields

Physical Review D 61, *id.* 103001 (2000) [e-Print: hep-ph/0001069]

H. Athar and Jose F. Nieves

4. Effects of a primordial magnetic field twist on neutrino conversions in the early Universe

Physics Letters B 366, 229-234 (1996)

H. Athar

3. Neutrino spin-flip effects in collapsing stars

Physical Review D 51, 6647-6662 (1995) [e-Print: hep-ph/9501283]

H. Athar, J. T. Peltoniemi and A. Yu. Smirnov

2. Signatures of neutrino conversions to sterile states in collapsing stars

Physical Review D 51, 5785-5789 (1995)

H. Athar and J. T. Peltoniemi

Low Temperature Physics

1. Flux Pinning in Intergrain Junctions-A Magnetization Rotation Study

Solid State Communications 79, 601-605 (1991)

A. Mumtaz, H. Athar, S. K. Hasanain and Jamil A. Khan

Conference Talks and Conference Papers in Meteorology

1. Talk entitled 'Atmospheric Blocking and Lyapunov Exponents' given in 19th Conference on Climate Variability and Change (19th CVC) held at 87th AMS Annual Meeting, 14-18 January, 2007, San Antonio, TX, USA. Appeared in its proceedings.

2. Talk entitled 'A Calculation of Lyapunov Exponents for Atmospheric Blocking' given in 43rd Annual meeting of Missouri Academy of Sciences, 20-21 April, 2007, held in Missouri Western State University, San Joseph, MO, USA.

3. Talk entitled 'A comparative study to quantify the chaotic behavior in numerical models' given by A. Schnetzler, G. Amaenta and H. Athar et al., in 43rd Annual meeting of Missouri Academy of Sciences, 20-21 April, 2007, held in Missouri Western State University, San Joseph, MO, USA.

4. Talk entitled 'A Calculation of Lyapunov Exponents for Atmospheric Blocking' given in 16th Conference on Atmospheric and Oceanic Fluid Dynamics (16th Fluid), 25-29 June, 2007, Santa Fe, NM, USA. Appeared in its proceedings.

5. Group project based talk entitled 'Relationship of Arabian Peninsula Rainfall with SST' given at Targeted Training Activity (TTA) on 'Statistical Methods in Seasonal predictions', 2-13 August, 2010, The Abdus Salam ICTP, Trieste, Italy.

6. Group project based talk entitled 'Nile Basin Precipitation Response to the Tropical Variability' given at School and Conference on 'The General Circulation of the Atmosphere and the Oceans: a Modern Perspective', 11-15 July, 2011, The Abdus Salam ICTP, Trieste, Italy.

7. Talk entitled ‘Atmospheric Modelling Systems for Southeast Region’ given by Dr. Vanisa at Siam Physics Congress 2018 (SPC2018), held at Topland Hotel, Phitsanulok, Thailand, during 21 May to 23 May, 2018 (appeared in its proceedings published by IOP Science: V. Surapipith, H. Athar and S. H. Bran, IOP Conf. Series: Journal of Physics: Conf. Series 1144 (2018) 012100, doi :10.1088/1742-6596/1144/1/012100).

8. Talk entitled ‘Spatiotemporal Impact of Observed Temperatures and Precipitation over the Cryosphere of Northern Pakistan in Changing Climate’ given by A. Waqas and H. Athar, in Two-day Conference on Water Problems in Pakistan and Their Solutions, 15-16 April, 2019, Islamabad, organized by Pakistan Nuclear Society.

9. Talk entitled ‘Exploring the Stakeholder’s Perceptions of Solar Geoengineering in Developing Countries’ given by H. Athar, A. Waheed, H. Sipra, M. Shoaib at RFF Solar Geoengineering Research Project: September Workshop, held in Washington D.C. USA, on 16 September, 2023, organized by Resources for Future (RFF).

#### Pre-prints in Meteorology

1. Landsat8 based Crops and other Land Use mapping in Okara district of Pakistan  
Ibrar ul Hassan Akhtar, Athar Hussain, Kashif Javed and Hammad Ghazanfar  
doi:10.20944/preprints201808.0344.v1 (2018)

#### Invited Talks and Seminars

1. Talk entitled ‘A Dynamic Perspective of Asian Monsoon’ given at International Conference on the Asian Monsoon and Climate Change’, 20-21 January, 2014, Islamabad.

2. Talk entitled ‘Mid-Latitude Anticyclones and Climate of Pakistan’, given at 14th Regional Conference on Mathematical Physics, 9-14 November, 2015, Quaid-i-Azam University, Islamabad. Appeared in its proceedings, pp. 293-302 (published by World Scientific).

3. Talk entitled ‘Trans-boundary hydro-ecological and spatio-temporal characterization of large water reservoirs’ with Ibrar-ul-Hassan Akhtar, given at United Nations/Pakistan/PSIPW 4th International Conference on Space Technology for Water Management, Hosted by SUPARCO on behalf of the Government of Pakistan, Islamabad Serena Hotel, Islamabad, 26 February - 2 March 2018.

4. Talk entitled ‘Changing Climate of Pakistan’ given at 10th International Scientific School, 12-16 March, 2018, held at National Centre for Physics (NCP), Islamabad, co-

organized by NCP and The Abdus Salam International Centre for Theoretical Physics Trieste (ICTP), Italy.

5. Talk entitled ‘Modelling of Parthenium Risk Maps Using Low-Resolution Data’ given at technical workshop ‘Remote Sensing of Parthenium in Pakistan’, 9-10 October, 2019, held at Ramada Islamabad, by CABI.

6. Seminar entitled ‘Climate of Pakistan: Past, Present and Future’ given at Center for Mathematical Sciences, PIEAS, Islamabad, on 20 Nov 2019.

7. Presented a talk entitled ‘Climate Change and Global Warming and how to integrate them into nutrition frameworks and policies’ as a panelist in Panel Discussion on ‘Climate Change and Nutrition’ in National Workshop on ‘Building Nutrition Resilience: Integrating Gender and Climate Change’, held at Marriott Hotel, Islamabad, on 09 Dec 2019, organized by Action Against Hunger.

8. Presented a talk entitled ‘Vector Borne Diseases in Changing Climate of Pakistan’ in International Conference and Workshop “Changing Climate and Dengue Fever in the era of COVID-19”, held at CUI, Islamabad, on 10 February, 2022.

9. Presented an invited online lecture entitled ‘Climate of Pakistan: Updates and Implications’ in Pakistan Academy of Sciences Lecture Series on Climate Change and Environmental Sciences, on 17 March, 2022.

10. Invited talk entitled ‘Climate Change Investigations in Pakistan’, given in seminar on Climate Change-Act Now, on 06 December 2022, organized by Islamabad Policy Research Institute (IPRI) and Department of Meteorology, at CUI, and in 7th International Water Conference 2022, on 29 December 2022, organized by Riphah International University, in partnership with CCRD, and other partners, at PCRWR, Islamabad.

11. Invited participation in Roundtable Discussion on ‘Climate Change: Causative Factors, Impact on Pakistan and Way forward’, 28 December 2022, at Institute for Strategic Studies, Research and Analysis (ISSRA) in National Defense University (NDU), Islamabad.

12. Invited participation in Group Discussion on ‘Climate Change and its impacts on Disaster Risk Reduction (DRR) and Disaster Risk Management (DRM)’ on first day, at Pakistan Expo on DRR (PEDRR-23) being organized by NDMA from August 16-18, 2023 at Pak-China Friendship Centre, Islamabad.

13. Invited panelist talk entitled ‘Aligning the global and local understanding on DRR through linkages development’ in key seminars on the first day of the PEDRR-23 being organized by NDMA from August 16-18, 2023 at Pak-China Friendship Centre, Islamabad.



14. Invited talk entitled 'Climate Change Interventions' given at One Day Workshop on Emerging Trends & Technologies: Carbon Capture and Storage, Climate Change and Net Zero, on 21 August 2023 at CUI Wah Campus.

#### Conference Posters in Meteorology

1. Poster entitled 'A comparative study to quantify the chaotic behavior in numerical models' presented by A. Schnetzler, P. Market and H. Athar et al., in NWA's 32nd Annual Meeting, 13-18 October, 2007, held in Circus Circus-Reno Hotel and Convention Center, Reno, NV, USA.

2. Poster entitled 'Stability analysis of barotropic flow in an extreme blocking event leading to heat wave in Gulf of Alaska during August 2004' by H. Athar and A. R. Lupo presented in 20th Conference on Climate Variability and Change (20<sup>th</sup> CVC) held at 88th AMS Annual Meeting, 20-24 January, 2008, New Orleans, LA, USA. Appeared in its proceedings.

3. The following six posters were presented in International Conference on the Asian Monsoon and Climate Change, 20-21 January, 2014, Islamabad:

i) Synthetic rainfall Generation During Winter and Summer Monsoon in Pakistan, by A. Nabeel and H. Athar (**Winner of Third Student Poster Position**)

ii) Simulation and Projection of Summer Monsoon Climate in Pakistan using MAGICC/SCENGEN, by G. Qaiser, S. Haider, S. Zia, I. Ahmad, I. Azeem, and H. Athar

iii) Study of Summer and Winter Monsoon Variability in Pakistan using an AOGCM, by U. Asmat, and H. Athar,

iv) Statistical Analysis of Winter Monsoon in Northern Pakistan, by A. Ayesha, and H. Athar,

v) A Diagnostic study of Monsoon Rainfall in Pakistan, by B. Ahmad, A. Sajjad, A. Bukhtar, A. Shafiq, and H. Athar

vi) Multimodel Summer Monsoon Variability in Pakistan using MAGICC/SCENGEN during 1981-2010, by S. Haider, I. A. Siddiqui, G. Qaiser, S. Zia, I. Azeem, and H. Athar.

4. Poster entitled 'Recent Variability of the Observed Diurnal Temperature Range in the Karakoram and its Surrounding Mountains of Northern Pakistan' by A. Waqas, H.

Athar, and M. I. Shahzad, in AGU Fall Meeting, 12-16 December, 2016, San Francisco, USA.

5. Presented following five posters at the Science Policy Conference on Climate Change (SP3C) 2017 being held at Marriott Hotel Islamabad, organized by GCISC:
  - i) Spatiotemporal Characteristics of Precipitation in Changing Climate of Pakistan  
Muhammad Farooq Iqbal, H. Athar
  - ii) Evaluation of TRMM Satellite based Precipitation over Pakistan  
Muhammad Farooq Iqbal, H. Athar
  - iii) Climate Classification in Pakistan  
A. Nabeel, H. Athar
  - iv) Interseasonal variability of Precipitation in Pakistan Using IPCC AR5 Based AOGCMs  
U. Asmat, H. Athar, A. Nabeel, M. Latif
  - v) Assessment of Climate Change in Pakistan using IPCC AR4 based AOGCMs  
F. Saeed, H. Athar
6. Poster entitled 'Recent Variations in Observed Daily Temperatures and its Impact on the River Discharge of the Upper Indus Basin' by A. Waqas and H. Athar, in AGU Fall Meeting, 11-15 December, 2017, New Orleans USA.
7. Poster entitled 'Stochastically simulated precipitation under IPCC AR4 based AOGCMs in Pakistan' by A. Nabeel and H. Athar, in Conference on Water Problems in Pakistan and Their Solutions, 15-16 April, 2019, held at Islamabad Hotel, Islamabad, organized by Pakistan Nuclear Society.
8. Poster entitled 'Impacts of sulfate aerosols on the climate of Pakistan' by H. Sipra, A. Nabeel and H. Athar, in Ninth Meeting of the Geoengineering Model Intercomparison Project (GeoMIP), Beijing Normal University, Beijing, China, 15-16 August 2019.

#### Conference Organization in Atmospheric and Climate Science

1. One of the Principal Organizer, International GIS Day 2016, held at CIIT, Islamabad, on 01 December, 2016, organized by Department of Meteorology, CUI.

2. Member, Advisory Committee, International Training Workshop on “Mesoscale Modeling using Weather Research and Forecasting (WRF) Model” under the joint PSF/NSFC funded research project, organized by Department of Meteorology, CUI, during 5-7 November 2018.
3. Member Advisory Committee, Two-day Conference on Water Problems in Pakistan and Their Solutions, 15-16 April, 2019, Islamabad, organized by Pakistan Nuclear Society.
4. Jointly organized a Two-Day International Conference on Solar Radiation Modification, 3rd and 4th January, 2024, Serena Hotel Islamabad, with USA based The Alliance for Just Deliberation on Solar Geoengineering.

#### Session Chairs/Remarks in Meetings

1. Chaired two sessions entitled 1)- future climate projections under IPCC scenarios & 2)- the response of cryosphere to warming climate, at the Science Policy Conference on Climate Change (SP3C) 2017 being held at Marriott Hotel Islamabad, organized by GCISC.
2. Chaired a Plenary Session ‘4 – Capacity Building and Cooperation Initiatives’ in United Nations/Pakistan/PSIPW 4th International Conference on Space Technology for Water Management, Hosted by SUPARCO on behalf of the Government of Pakistan, Islamabad Serena Hotel, Islamabad, 26 February - 2 March 2018.
3. Presented remarks in opening ceremony and chaired closing ceremony in International Workshop on Sustainable Food Systems Under Climate Change in South Asia, organized by CCRD, CUI, Islamabad, during 26-28 June, 2018, at Islamabad Serena Hotel. Also participated in one of the thematic technical sessions in the Workshop.
4. Delivered welcome Remarks in Seminar on Conclusion of the Project ‘Strategic Environmental Assessment (SEA) & Environmental Impact Assessment (EIA) of EU’s Rural Development Programmes in Pakistan’ organized by CCRD at CUI and Delegation of the European Union to Pakistan, Islamabad Marriott Hotel, on 25th September 2018.
5. Delivered closing remarks in International Training Workshop on “Mesoscale Modeling using Weather Research and Forecasting (WRF) Model” under the joint PSF/NSFC funded research project, organized by Department of Meteorology, CUI, during 5-7 November 2018.

6. Co-Chair of Section-II (B) entitled ‘Water Resources’ in Two-day Conference on Water Problems in Pakistan and Their Solutions, 15-16 April, 2019, Islamabad, organized by Pakistan Nuclear Society.
7. Delivered opening remarks in a talk on ‘Air Quality in Pakistan: Interpreting Data and Improving Public Health Communication’ by Dr. Gabriel Filippelli, on 22 April, 2019, at CUI, co-organized by CCRD and American Institute of Pakistan Studies (AIPS), in celebration of Earth Day 2019, held at CUI, Islamabad.
8. Delivered opening remarks in “Consultative Meeting on Water Metering and Pricing in Pakistan”, on 26 April, 2019, at CUI, organized by CCRD in collaboration with Swiss Agency for Development Cooperation (SDC), Islamabad & Pakistan Council of Research in Water Resources (PCRWR), held at CUI, Islamabad.
9. Delivered vote of thanks in ‘Seminar on Sustainable Alternatives to Plastic Bags: Conserving Environment’ on 03 October, 2019, at CUI, organized by CCRD and CLIMOSOL.
10. Delivered introductory remarks in project inception work entitled “Identification and up-scaling of climate-smart agriculture (CSA) practices for sustainable food security in high altitude farming regions of Himalaya” funded by Asia-Pacific Network for Global Change Research (APN-GCR), Japan, on 23 Oct 2019, held at CUI, organized by CCRD.
11. Delivered inaugural remarks entitled ‘Role of Academia in Cross-Cutting Research’ in one day seminar on ‘Water Conservation through Smart Water Metering and Pricing in Pakistan’, on 06 Nov 2019, held at PCRWR Headquarters, Islamabad, organized by CUI/CCRD, PCRWR, ETH Zurich, and Swiss Agency for Development and Corporation (SDC).
12. Delivered welcome remarks in one day seminar on ‘Awareness and Management of Parthenium Weed’, on 25 Nov 2019, organized by CCRD and CABI, held at CUI.
13. Delivered vote of thanks in opening plenary session on ‘Engaging Youth in Climate Advocacy and Action’, mainly focusing on ‘Climate Change and Disaster Risk Reduction’, as a part of 9th Mountain Youth Festival, held at CUI, on 11 Dec 2019, organized by DEVCOM Pakistan.
14. Delivered opening remarks in ‘Hands-on Training Workshop on Air Quality Monitoring’, on 21 December 2021, organized by CCRD, held at CUI.
15. Delivered opening remarks in lecture on ‘The Risk Factors for Adverse Outcomes with COVID-19 Infections & Its Management’, on 17 February 2022, organized by CCRD, held at CUI.

16. Delivered closing remarks in seminar on ‘Capacity Building of Faculty, Staff and Students for Water Conservation’, on 16 June 2022, organized by CCRD, held at CUI.

17. Delivered opening remarks in Inception Workshop of project ‘Sustainable Bioenergy Development in Emerging Economies Under Global Changes’, on 07 September 2022, organized by CCRD, held at CUI.

18. Delivered welcome remarks in GIS Day activity, on 18 November 2022, organized by CCRD, held at CUI.

19. Chaired a Thematic Session entitled ‘Climate Change & Maritime Security’ in 7th International Water Conference 2022, on 29 December 2022, organized by Riphah International University, in partnership with CCRD, and other partners, at PCRWR, Islamabad.

20. Delivered opening remarks in a one-day seminar on “Environmental Sustainability and Islamic Banking” along with walk for sustainable environment and tree plantation under the auspices of World Environment Day 2023, on 07 June 2023, organized jointly by CCRD and Meezan Bank, at CUI.

21. Delivered opening remarks in a one-day ‘Waste to Energy Training Workshop’ jointly organized by CCRD and CREECO (PVT) at CUI, on 08 June 2023.

#### Agreements Signed

1. Signed a non-disclosure agreement with Pioneer Pakistan Seed Limited on behalf of CIIT, on 07 July 2017.
2. Signed a document of Understanding (DoU) on behalf of COMSATS University Islamabad, with Fujian Normal University, China, on 22nd November 2018, as Head, CCRD.
3. Signed an Intent of Cooperation (IoC) on behalf of COMSATS University Islamabad, with Human Resource Development Network, on 20 February 2019, as Head CCRD.

#### Public Service - Participation in TV/Media Interaction

1. Participated in a live morning transmission program on *Climate Change and Global Warming* by PTV World on 18th October 2016.
2. Aired live comments by [PTV news](#) on Tropical Cyclone 'SHAHEEN' in the Northeast Arabian Sea, on 01 October, 2021.

3. Participated as Panelist in [PIDE live webinar](#) on ‘CLIMATE & POLLUTION: LAW, POLITICS & GOVERNANCE’ on 18 November, 2021.
4. Delivered technical briefs and interviews to several digital journals including Australia based [ABC news](#) channel, UK based multi-disciplinary journal [Nature](#) and UK based [Reuters](#) news agency, Iran based [PRESSTV](#), PTV World, South Africa based Radio 786, Singapore based [channel news asia](#) (CNA TV Network), during mid-August to mid-Nov 2022 in relation to devastating Monsoon rainfall and ensuing floods during summer of 2022.
5. Developed an explainer video on ‘unplanned urban development and its impact on the climate’ with The Centrum Media (TCM), Pakistan's first digital news network, on 27 September 2022.
6. Provided live comments to PTV World on Biparjoy cyclone in their 12 pm news transmission, on 13 June 2023; between comments from Sardar sb (Meteorologist) and Minister Ahsan Iqbal sb., on 14 June 2023.
7. Provided an interview to Voice of America on flood anniversary on 22 June 2023 at CUI.
8. Comments for [Media](#) in Global Health Security Summit, 10th and 11th January 2024, Islamabad.
9. Convened a [special meeting](#) with climate adaptation expert and [youth advisor](#) at Global Center on Adaptation (GCA), Irfan Ullah on 17 January 2024.
10. Comments for [Averting climate effects for economic growth, food security](#) by Ali Jabir, published by Associated Press of Pakistan on 21 January 2024.

### Blogs

1. Blog entitled ‘Meteorologists win 2021 Noble Prize in Physics’ published on [ccrd.edu.pk](#) on 25 October 2021.
2. Blog entitled ‘Climate change projections for Pakistan: the need for sustainable solutions to protect its people and biodiversity’ [published](#) on 08 November 2021.

### Working Papers:

1. Working paper entitled ‘Exploring the Stakeholder’s Perceptions of Solar Geoengineering in Developing Countries’ in collaboration with Hassaan Fayyaz Khan Sipra, Abdul Waheed, and Kingsley Eghonghon Ukhurebor, in partnership with RFF (05 September 2023).

### Participation in Conferences

1. One-day meeting entitled ‘Advancing Renewables in the Midwest’, University of Missouri, Columbia, MO, USA, 28 March, 2007.
2. Fourth Annual Meeting entitled ‘Advancing Renewables in the Midwest’, University of Missouri, Columbia, MO, USA, 3 June, 2009.

### Participation in Summer Schools

1. Second Heliophysics Summer School entitled “Space Storms and Radiation: Causes and Effect”, UCAR, Boulder, CO, USA, 23-30 July, 2008.

### Hands-on Experience

1. Quality control and data analysis for wind data from tall wind towers in Missouri.
2. Attended a one-day training course in ‘Basics of Data Analysis in SPSS’ at University of Missouri, Columbia, MO, USA, on 26th Sept. 2009.

### Participation in Faculty Professional Development Skill Programs

1. One Day Professional Faculty Development Workshop with Focus on *Assessment*, held at Moberly Area Community College, Moberly, MO, USA, 17 October, 2008.

### Membership of Professional Bodies/Scientific Organizations

1. Life Member of the Pakistan Institute of Physics (PIP), Lahore (Pakistan).

2. Life Member of the Pakistan Physical Society (PPS), Islamabad (Pakistan).
3. Full Member of the American Geophysical Union (AGU), 2007-2014, Washington, DC (USA).
4. Full Member of the American Meteorological Society (AMS), 2006-2013, Boston, MA (USA).
5. Associate Member of the Sigma Xi, The Scientific Research Society (2007-2013), NC (USA).

### Projects

1. PI, pilot commercial project ‘Geospatial Monitoring of Maize Crop in Okara District’, funded by ORIC at CIIT, Islamabad, and Pioneer Pakistan Seed Limited, during March 2017 to December 2017. Funding amount: 400000.00 Rs.
2. PI, project ‘Modeling of Parthenium Risk Maps Using Low Dimensional Data’, funded by Center for Agriculture and Bioscience International (CABI), UK, during March 2019 to December 2019. Funding amount: 560000.00 Rs.
3. PI, project ‘Exploring the Stakeholder’s Perceptions of Solar Geoengineering in Developing Countries’ funded by Resources for Future (RFF), USA, during February 2022 to November 2022. Funding amount: 10,000 USD.
4. PI, project ‘Study of Impact of SRM and Climate Change on Malaria Dynamics in South Asia’ funded by The Degrees Initiative, UK, during February 2023 to December 2024. Funding amount: 55,000 USD.
5. PI, project ‘Solar Radiation Modification Impacts Based Dashboard for Health Policy Makers in South Asia’, funded by Harvard University based Center for International Development (CID), during January 2024 to December 2024. Funding amount: 25,000 USD.
6. PI, project ‘Two days International Conference on Solar Radiation Modification’, 3-4 January 2024, under the theme ‘Living with Climate Change: Awareness and Training on SRM’, at Serena Hotel Islamabad Pakistan, funded by The Alliance for Just Deliberation on Solar Geoengineering (DSG). Funding Amount: 20,000 USD.



### Participation in Discussions/briefings on SRM related Project

1. Participated in brief discussion with Chris Guillot from Faculty of Geosciences and Environment, University of Lausanne, Switzerland on 16 February, 2023.
2. Participated in podcast entitled ‘[Mosquitoes, sun dimming, and lives at stake](#)’ for [Eco-Business](#) – an ESG and sustainability news publication based in Singapore, on 20 February, 2023.
3. Interview entitled ‘[Pakistan needs to explore solar geoengineering potential](#)’ appeared in Daily Times on 03 April, 2023.

### Some of the seminars given in universities/institutes

2023

Department of Meteorology, COMSATS University Islamabad

2019

Pakistan Institute of Engineering and Applied Sciences, Islamabad

2015

Pakistan Academy of Science, Islamabad

2014

Department of Meteorology, COMSATS Institute of Information Technology, Islamabad

2010

Department of Meteorology, King Abdulaziz University, Jeddah, Saudi Arabia

2007

Soil, Environmental and Atmospheric Sciences Department, University of Missouri-Columbia, USA

2006

Soil, Environmental and Atmospheric Sciences Department, University of Missouri-Columbia, USA

Math Department, University of Missouri-Columbia, USA

Department of Physics and Astronomy, University of Missouri-Columbia, USA

2005

Institute of Physics, National Chiao Tung University, Hsinchu, Taiwan.

Department of Physics, National Taiwan University (NTU), Taipei, Taiwan.

Math Department, University of Missouri-Columbia, USA

2004

Institute of Physics, Academia Sinica, Taipei, Taiwan.

Institute of Physics and Applied Physics, Yonsei University, Seoul, Korea.

Department of Physics, National Cheng Kung University (NCKU), Tainan, Taiwan.

Department of Physics, National Central University (NCU), Jungli, Taiwan.

2003

Department of Physics, Quaid-i-Azam University, Islamabad, Pakistan.

Department of Physics, National Cheng Kung University (NCKU), Tainan, Taiwan.

2002

Department of Physics, National Tsing Hua University (NTHU), Hsinchu, Taiwan.

Department of Physics, The Chinese University of Hong Kong (CUHK), Hong Kong, P. R. China.

2001

Institute of Physics, Academia Sinica, Taipei, Taiwan.

Department of Physics, National Cheng Kung University (NCKU), Tainan, Taiwan.

Institute of Physics, National Chiao Tung University (NCTU), Hsinchu, Taiwan.

Department of Physics, National Taiwan University (NTU), Taipei, Taiwan.

Institute for Theoretical Physics, University of Vienna, Vienna, Austria.

2000

Koh Enerhughi Kenkyusho (KEK), Tsukuba-Shi, Ibaraki-Ken, Japan.

Yukawa Institute for Theoretical Physics (YITP), Kyoto, Japan.

Department of Physics, Hiroshima University, Hiroshima, Japan.

Aspen Center for Physics, Aspen, Colorado, USA.

National Center for Theoretical Sciences (NCTS), Hsinchu, Taiwan.

1999

Department of Physics, Tokyo Metropolitan University, Tokyo, Japan.

Institute for Theoretical Physics, Kanazawa University, Kanazawa, Japan.

Fermi National Accelerator Laboratory (FNAL), Batavia, Illinois, USA.

Institute for Elementary Particle Physics Research, Department of Physics, University of Wisconsin, Madison, USA.

Laboratoire d'Annecy-le-Vieux de Physique des Particules (LAPP), Annecy-le-Vieux, France.

Kamioka Observatory, ICRR, Univ. of Tokyo, Higashi-Mozumi, Kamioka, Japan.

1998

Deutsches Elektronen-Synchrotron Lab (DESY), Hamburg, Germany.

Departamento de Fisica de Particulas, Universidade de Santiago de Compostela, Santiago de Compostela, Espana.

Centro de Fisica das Interaccocs Fundamentais (CFIF), Instituto Superior Tecnico of Univ. Tecnica de Lisboa (IST), Lisboa, Portugal.

1997

Department of Physics, McGill University, Montreal, Canada.

1996

European Laboratory for Particle Physics (CERN), Geneva, Switzerland.

1995

The Abdus Salam International Centre for Theoretical Physics, Trieste (ICTP), Italy.

1994

Department of Physics, Quaid-i-Azam University, Islamabad, Pakistan.

#### Short-term visitor

1. European Laboratory for Particle Physics (CERN), Geneva, Switzerland.
2. Deutsches Elektronen-Synchrotron Lab (DESY), Hamburg, Germany.
3. Fermi National Accelerator Laboratory (FNAL), Batavia, Illinois, USA.
4. Joint Institute for Nuclear Research (JINR), Dubna, Russia.
5. Laboratoire d'Annecy-le-Vieux de Physique des Particules (LAPP), Annecy-le-Vieux, France.
6. Korea Institute for Advanced Study (KIAS), Seoul, S. Korea.
7. Aspen Center for Physics, Aspen, Colorado, USA.
8. National Centre for Physics (NCP), Islamabad, Pakistan.
9. Yonsei University, Seoul, S. Korea.

#### Academic Distinctions

1. Stood Second in School in Matric/High School.
2. Stood First in College in B.Sc.
3. Invited to join Golden Key International Honour Society, Atlanta, GA, USA, in recognition of outstanding academic achievement for the academic year 2007-2008,

issued by the Golden Key Chapter at University of Missouri-Columbia, Columbia, MO, USA.

4. By invitation, brief biographical sketch included in Marquis Who's Who, NJ, USA.

5. By invitation, brief biographical sketch included in dictionary of international biography by International Biographical Centre, Cambridge, England.

#### Academic Scholarships

1-President Talent scholarship for M.Sc. studies in Islamabad (Pakistan) during 1988-1990.

2-University Grants Commission (UGC) scholarship under the scheme 'Scholarships for higher studies in Science' for M.Phil. studies in Islamabad (Pakistan) during 1991-1992.

3-Switzerland based World Laboratory (WL) scholarships for Ph.D. and Post-doctoral studies in Islamabad (Pakistan) during 1992-1997.

4-Prestigious Japan Society for the Promotion of Science (JSPS) scholarship for Post-doctoral study in Tokyo (Japan) during 1999-2000.

#### Knowledge of Languages

English (fluent), Urdu (fluent), Italian (slight), Spanish (slight), Arabic (slight)

#### Experience in Physics

\* Previous Main interest was in phenomenological aspects of (Neutrino) Astro Particle Physics.

Dissertation: PhD Dissertation (unpublished) 1996

Dissertation Advisor: Prof. Kamaluddin Ahmed (late)

Title: NEUTRINO SPIN-FLIP EFFECTS IN COLLAPSING STARS AND IN THE EARLY UNIVERSE

Briefly, in this thesis, the conversions of neutrinos from collapsing cores of stars in matter and magnetic fields of stars are considered. Possible consequences of magnetic field twist effects for the observations of supernovae neutrino bursts are discussed. In the early Universe, the effects of uniform as well as non-uniform primordial magnetic field twist on neutrino conversions are studied.

\* Collaboration member of the Salt Neutrino Detector (SND) Study Group at Tokyo Metropolitan University, Tokyo, Japan (1999-2001)

High-energy neutrinos interacting near or inside a detector produce (electromagnetic) showers through charged and/or neutral current deep inelastic scatterings over the free nucleons. This shower contains radio waves via Askaryan effect. In this collaboration, we are measuring the transmission properties of radio waves in different samples of (rock) salt to judge its suitability as a detection medium for high-energy neutrinos.

An update of the SND efforts is described in Proceedings of First NCTS Workshop on Astroparticle Physics, Kenting, Taiwan, 6-9 December, 2001, edited by H. Athar, Guey-Lin Lin and K.-W. Ng, published by World Scientific Publishing Co., Singapore.

\* Collaboration member of *NuTel group* based in Taipei, Taiwan (2001-2005). Status was reported in *Mod. Phys. Lett. A19, 1117 (2004)*.

High-energy neutrinos interacting near or inside a detector produce (electromagnetic) showers through charged and/or neutral current deep inelastic scatterings over the free nucleons. This shower contains radio waves via Askaryan effect. In this collaboration, we are measuring the transmission properties of radio waves in different samples of (rock) salt to judge its suitability as a detection medium for high-energy neutrinos.

### Coordination/Organization

1. A coordinator in Neutrino Study Group at NCTS during 2000-2001, Hsinchu, Taiwan.
2. A coordinator for NCTS Subprogram on Astroparticle Physics during 2002-2003, Hsinchu, Taiwan.
3. Member, Organizing Committee, 2nd NCTS Workshop on Astroparticle Physics, 16-18 January, 2003, Taiwan.

4. Member, Scientific and International Organizing Committee, The 7th Constantine High Energy Physics School on Theoretical Physics-Cosmology, 3-7 April, 2004, held in LPMPS, Mentouri - Constantine University, Algeria.
5. A discussion leader in 2004 Summer Program on Particles and fields, held in National Tsing Hua University, Hsinchu, Taiwan, 12 July - 6 August, 2004.
6. Main coordinator of the National Subprogram in Neutrino Astroparticle Physics by NCTS, January – December 2005, Taiwan.

#### Editorial Work

Editor (with Guey-Lin Lin and K.-W. Ng), Proceedings of *First NCTS Workshop on Astroparticle Physics*, held in Kenting, Taiwan, December, 2001, published by World Scientific Co., Singapore, ISBN 981-238-103-1, October 2002, 192 pages.

#### Proceedings Articles

1. Talk entitled 'Constraints on neutrino intrinsic properties from supernovae' given at 5th National Symposium on Frontiers in Physics, 26-28 Dec., 1995, held at Department of Physics, Quaid-i-Azam University, Islamabad, Pakistan (Published in its Proceedings, Eds. G. Murtaza and Tahir Farid, p. 206-213).
2. Talk entitled 'Neutrino spin-flip in active galactic nuclei' given in 6th National Symposium on Frontiers in Physics, 16-18 December, 1997, held in Department of Physics, Quaid-i-Azam University, Islamabad, Pakistan (Published in its Proceedings; Eds. K. Ahmed, M. Aslam Baig and S. Hussain; QAU press, p. 188-195).
3. Presented a seminar entitled 'Spin-flavor conversions of neutrinos in collapsing stars' in Second Meeting on "New Worlds in Astroparticle Physics" held in University of Algarve, Faro, Portugal, 3-5 September, 1998, [Published in its Proceedings, Eds. A. Mourao, M. Pimento and P. Sa; World Scientific, Singapore, p. 244-248 (hep-ph/9902222)].
4. Talk entitled 'Tau neutrinos from active galactic nuclei' given at Fifth International Workshop on Tau Lepton Physics (TAU 98), 14-17 Sep., 1998, Santander, Spain [Published in its Proceedings; Nucl. Phys. B (Proc. Suppl.) 76 (1999) 419-424; Eds. A. Pich and A. Ruiz, hep-ph/9811221].
5. Presented a contributed paper entitled 'High Energy Cosmic Tau Neutrinos' in Sixth International Workshop on Topics in Astroparticle Physics (TAUP 99), held at College de France, Paris, France, 6-10 September, 1999 [Published in its proceedings; Nucl. Phys.

B (Proc. Suppl.) 87 (2000) 442-444; Eds. M. Froissart, J. Dumarchez and D. Vignaud, hep-ph/9912417].

6. Presented a contributed talk entitled 'Neutrino Conversions in Active Galactic Nuclei' in 9th Lomonosov Conference on Elementary Particle Physics, held at Faculty of Physics, Moscow State University, Moscow, Russia, 20-26 September, 1999 (appeared in its proceedings entitled 'Particle Physics at the start of the New Millennium', edited by A. Studenikin, published by World Scientific Publishing Co., Singapore, p. 147-152, hep-ph/0001128).

7. Talk entitled 'Cosmic Tau Neutrinos' given in Yukawa Institute for Theoretical Physics (YITP) workshop on 'Theoretical Problems related to Neutrino Oscillations', held in Kyoto, Japan, 28 February-01 March, 2000 [Published in its proceedings report Soryushiron Kenkyu (Kyoto) [Elementary Particle Physics Research] edited by M. Bando et al., 101 (2), May 2000, p. B33-B37, hep-ph/0004083].

8. Talk entitled 'Ultra-high energy cosmic neutrinos' given in the 8th Asia Pacific Physics Conference (APPC 2000), held in Academia Sinica, Taipei, Taiwan, 7-10 August, 2000 (appeared in its proceedings edited by Y-D. Yao et al., published by World Scientific Publishing Co., Singapore, p. 158-160, hep-ph/0008121).

9. Talk entitled 'Study of Salt Neutrino Detector' by M. Chiba, presented in 1st International Workshop on Radio Detection of High-Energy Particles (RADHEP 2000), Los Angeles, California, USA, 16-18 Nov 2000, published in AIP Conf. Proc. 579 (2001) 204-221,. Also in \*Los Angeles 2000, Radio detection of high energy particles\* 204-221 by T. Kamijo, M. Kawaki, H. Athar, M. Inuzuka, M. Ikeda, O. Yasuda.

10. Talk entitled 'The Implications of  $e^- \text{Anti-}\nu_e \rightarrow W\gamma$  for the detection of high-Energy Antineutrinos' by Guey-Lin Lin presented at 5th RESCEU International Symposium on New Trends in Theoretical and Observations Cosmology, Tokyo, Japan, 13-16 Nov 2001. Published in \*Tokyo 2001, New trends in theoretical and observational cosmology\* 141-144, e-Print Archive: hep-ph/0201026, by H. Athar, Guey-Lin Lin.

11. Invited Talk entitled 'On non hadronic origin of high energy neutrinos' given in the First NCTS Workshop on Astroparticle Physics, held in Kenting, Taiwan, 6-9 December, 2001 (appeared in its proceedings edited by H. Athar, Guey-Lin Lin and K.-W. Ng, published by World Scientific Publishing Co., Singapore, pp. 127-135, hep-ph/0203265).

12. Talk entitled 'Measurement of Attenuation length in Rock salt and Limestone in Radio Wave for Ultra-high Energy Neutrino Detector' given by M. Chiba in 1st NCTS Workshop on Astroparticle Physics, Kenting, Taiwan, 6-9 Dec 2001. Published in \*Kenting 2001, Astroparticle physics\* 90-104, by M. Chiba, M. Kawaki, M. Inuzuka, T. Kamijo and H. Athar.



13. Talk entitled 'Galactic High-energy Cosmic-Ray Tau-Neutrino Flux' given by K. Cheung in 1st NCTS Workshop on Astroparticle Physics, Kenting, Taiwan, 6-9 Dec 2001. Published in \*Kenting 2001, Astroparticle physics\* 117-126 by H. Athar, K. Cheung, Guey-Lin Lin and Jie-Jun Tseng.
14. Talk entitled 'Comparison of High-energy Galactic and Atmospheric Tau Neutrino Flux' given by Jie-Jun Tseng in 2002 International Symposium on Cosmology and Particle Astrophysics (CosPA 2002), Taipei, Taiwan, 31 May - 2 Jun 2002. Published in 'Taipei 2002, Cosmology and particle astrophysics', 181-189 by H. Athar, et al.
15. Talk entitled 'High-energy astrophysical neutrinos' given in 8th Asian Pacific Regional Meeting of the International Astronomical Union, held in Tokyo, Japan, 2-5 July, 2002 (appeared in its proceedings edited by S. Ikeuchi, J. Hearnshaw and T. Hanawa, published by Astronomical Society of the Pacific as ASP Conference series volume 289, San Francisco, 2003, ISBN: 1-58381-134-6, hep-ph/0209130).
16. Talk entitled 'High-energy astrophysical tau neutrinos: The expectations' given in XII International Symposium on Very High Energy Cosmic Ray Interactions (XII ISVHECRI), held in CERN, Geneva, Switzerland, 15-20 July, 2002 [appeared in its proceedings in Nucl. Phys. B (Proc. Suppl.) 122 (2003) 305-308 edited by B. Pattison et al., hep-ph/0210244].
17. Talk entitled 'The High-energy Galactic Tau Neutrino Flux and Its Atmospheric Background' given by G. L. Lin in International Europhysics Conference On High-Energy Physics (HEP 2003), 17-23 Jul 2003, Aachen, Germany. Published in Eur. Phys. J. C33 (2004) S959-S961, e-Print Archive: astro-ph/0311586 by H. Athar et al.
18. Talk entitled 'High Energy Tau Neutrinos: Production, Propagation and Prospects of Observations' given in 28th International Cosmic Ray Conference (ICRC 2003), held in Tsukuba, Japan, 31 July - 07 August, 2003 [appeared in its proceedings edited by T. Kajita et al., HE, pp. 1431-1434, hep-ph/0308270].
19. Talk entitled 'Tau Leptons from Earth Skimming Tau Neutrinos' given by Jie-Jun Tseng in International Workshop on Astroparticle and High-Energy Physics (AHEP-2003), Valencia, Spain, 14-18 Oct 2003. Published in \*Valencia 2003, Astroparticle and high energy physics\* AHEP2003/040 by Jie-Jun Tseng, Tsung-Wen Yeh, H. Athar, M.A. Huang, Fei-Fain Lee and Guey-Lin Lin.
20. Invited Talk entitled 'PeV Cosmic Neutinos from the Mountains' given by P. Yeh in 2003 International Symposium on Cosmology and Particle Astrophysics (CosPA 2003), Taipei, Taiwan, 13-15 Nov 2003. Published in Mod. Phys. Lett. A19 (2004) 1117-1124, by P. Yeh, H. Athar et al., [NuTel Collaboration]; edited by W-Y. Pauchy Hwang, Guey-Lin Lin and J. -H. Protty Wu.

21. Poster entitled "On possibility of The Tau Neutrino Astronomy in GeV energies" presented in Neutrino 2004 by Fei-Fan Lee, held in Paris, France, 14-19 June, 2004. Published in Nucl. Phys. B (Proc. Suppl.) 143 (2005) 553, by H. Athar, F.-F. Lee and G.-L. Lin.; edited by J. Dumarchez, Th. Patzak, and F. Vannucci.

22. Invited Talk entitled 'Atmospheric and Galactic Neutrinos', given in 2003 International Symposium on Cosmology and Particle Astrophysics (CosPA 2003), held in National Taiwan University, Taiwan, 13-15 November, 2003 (appeared in its proceedings in Mod. Phys. Lett. A 19 (2004) 1171-1178, hep-ph/0401242).

23. Invited Talk entitled 'On the prospects of tau neutrino astronomy in GeV energies and beyond', given (by GLL) in the Moriond Conference: Very High Energy Phenomena in the Universe, La Thulie, Italy, 12-19 March, 2005 (appeared in its proceedings, hep-ph/0505248).

24. Lectures entitled 'Some aspects of neutrino astrophysics' given in the 6th Constantine High Energy Physics School on *Weak and Strong Interactions Phenomenology*, held in Physics Department, Mentouri University, Constantine, Algeria, 6-12 April, 2002 (summary of the lectures will appear in its proceedings edited by N. Mebarki and J. Mimouni, hep-ph/0212387).

#### Some other talks given in Conferences/Schools (not included in Proceedings Articles)

1. Talk entitled 'Neutrino spin-flip effects in Collapsing Stars' given in a Discussion Group of Summer School in High Energy Physics and Cosmology, 12 June - 28 July, 1995, held at ICTP, Trieste, Italy.

2. Talk entitled 'Neutrino spin-flip in collapsing stars' given at the Summer School on Physics with Neutrinos, 4-10 August, 1996, held at Zuoz (Engadin), Switzerland.

3. An informal seminar entitled 'High Energy Cosmic Neutrinos' given in Second Session of Summer Institute'99, held in Yamanashi (near Mount Fuji), Japan, 15-21 August, 1999.

4. Talk entitled 'High-energy cosmic neutrinos' given in Sendai Phenomenology Workshop (NEW DIRECTIONS TO UNIFIED THEORIES), held in Tohoku University, Sendai, Japan, 23-25 October, 2000.

5. Talk entitled 'High-energy cosmic neutrinos' given in USA-Taiwan Cooperative Workshop on Cosmology and Particle Astrophysics, held in I-Lan, Taiwan, 11-15 December, 2000.

6. Talk entitled 'High-energy cosmic neutrinos and CP violation' given in the 3rd Mini-Workshop on B Physics and CP violation, held in Wulai, Taipei, Taiwan, 16-17 December, 2000.

7. Talk entitled 'High-energy tau neutrinos from cosmos' given in 2001 annual meeting of The Physical Society of Republic of China (PSROC 2001), held in National Taiwan University, Taipei, Taiwan, 12-14 February, 2001.

#### Invited talks

1. Talk entitled 'High energy tau neutrinos' given in VHE Neutrino Telescope Workshop, held at National Taiwan University, Taipei, Taiwan, 21-23 March, 2002.

2. Talk entitled 'High energy neutrinos from cosmos: Present expectations', given in Second NCTS Workshop on Astroparticle Physics, held in Lung-Tan, Taiwan, 16-18 January, 2003.

3. Talk entitled 'GeV to TeV tau neutrinos', given in 2004 Summer Program on Particles and fields, held in National Tsing Hua University, Hsinchu, Taiwan, 12 July - 6 August, 2004.

#### Plenary talks and Lectures

1. Talks entitled 'Cosmic Rays (I) & (II)' given in the International Neutrino Workshop, held in Institute of Theoretical Physics, Chinese Academy of Sciences, Beijing, P. R. China, 8-13 June, 2001.

2. Lecture entitled 'High energy neutrinos from cosmos: present expectations', given in KIAS Winter School for Particle Physics: *Neutrinos*, held in Korea Institute for Advanced Study, Seoul, Korea, 24-28 February, 2003.

3. Lectures entitled 'Cosmic Neutrinos' given in the The 7th Constantine High Energy Physics School on *Theoretical Physics-Cosmology*, 3-7 April, 2004, held in LPMPS, Mentouri - Constantine University, Algeria.

4. A series of 3 lectures entitled 'Neutrino Astrophysics' given at the Institute of Physics and Applied Physics (IPAP), Yonsei University, 20 April -10 May, 2004, Seoul, Korea.

#### Participation in Poster Sessions

1. Participated in Poster Session of Fourth School on Non-Accelerator Particle Astrophysics, 17-28 July, 1995, held at ICTP, Trieste, Italy.

2. Participated in Poster Session of 5th Symposium on frontiers in Physics, 26-28 Dec., 1995, held at Department of Physics, Quaid-i-Azam University, Islamabad, Pakistan.

#### Contributed Papers

1. Contributed a written paper entitled 'Prospects for observations of high-energy cosmic tau neutrinos' in XIX the International Conference on Neutrino Physics and Astrophysics (Neutrino 2000), Laurentian University, Sudbury, Canada, 16-21 June, 2000.