Hussain Alsarraf
Assistant Professor of Physics
Department of Mathematics and Natural sciences
American University of Kuwait
Email: halsarraf@auk.edu.kw; dr.hussain.alsarraf@gmail.com

Education

Ph.D**,** Atmospheric Physics
  University of Nebraska-Lincoln, Lincoln, Nebraska, USA.   Jan 2014

MS, Atmospheric Physics
  Creighton University, Omaha**,** Nebraska, USA.   May 2010

BS, Atmospheric Physics
  Creighton University, Omaha**,** Nebraska, USA.   May 1997

Professional Experience

○ 2015-Present
  American University of Kuwait
  • 2021-Present, Assistant Professor of Physics
  • 2017-2021, Department Chair of Mathematics and Natural Sciences
  • 2016-2017, Assistant Professor of Physics
  • 2015-2016, Adjunct faculty of Physics

○ 2015-2016
  Australian College of Kuwait
  • 2015-2016, Adjunct faculty of Physics

○ 1997-2016
  Directorate General of Civil Aviation
  Meteorology Department
  • Numerical modeling, Developing the physics of the numerical models
  • Dual Polarization Radar, Radar setting and operating.
  • Geostationary Satellite, setting and operating.
  • Taught physics for internship students from The Kuwait College of Science and Technology, PAAET.

Teaching Experience

- *General Physics I: Introduction to Mechanics*
- *General Physics II: Electricity and Magnetism*
- *Introduction to Physics*
- *Physics: Astronomy*
- *Physics: Environmental Physics*
- *Math & Statistics: Calculus, College Algebra, Statistics.*
- *Engineering Physics I: Introduction to Mechanics*
- *Engineering Physics II: Electricity and Magnetism*
- *Remote sensing*

Peer Review Publications

1. ***Hussain Alsarraf*** [1] (2021) Projected climate change over the Arabian Peninsula simulated using a WRF high resolution regional climate model. Accepted to International Journal of Global Warming.

2. ***Hussain Alsarraf*** [1], Matthew Van Den Broeke, Hala Aljassar (2019)" Effects of Sea Breeze Circulation on Soil Temperatures over Kuwait Using in Situ Observations and the ECMWF Model". Atmospheric Science Journal Volume 13:29-42, Bentham Science Publishers.

3. Hala K. AlJassar [*], Marouane Temimi , Dara Entekhabi , Peter Petrov , ***Hussain Alsarraf*** , Panagiotis Kokkalis , Nair Roshni.(2019) Forward Simulation of Multi-Frequency Microwave Brightness Temperature over Desert Soils in Kuwait and Comparison with Satellite Observations. Remote Sensing 11(14):1647

4. Panagiotis Kokkalis [*], Hala K. Al Jassar, Stavros Solomos, Hamad Al Hendi, Vassilis Amiridis, Alexandros Papayannis, ***Hussain Alsarraf***, Marwan Al Dimashki. (2018) Long-term ground-based measurements of aerosol optical depth over Kuwait City. Remote Sens. 2018, 10(11), 1807;

5. Van Den Broeke, M. S., and ***Hussain Alsarraf*** [2], (2016) Polarimetric radar observations of dust storms at C- and S-band. J. Operational Meteor., 4 (9), 123−131.

6. ***Hussain AlSarraf*** [1], and Broeke MV (2015) Using the WRF Regional Climate Model to Simulate Future Summertime Wind Speed Changes over the Arabian Peninsula. Journal of Climatology and Weather Forecasting, Volume 3, Issue 3: 1000144.

7. ***Hussain AlSarraf***[1], Broeke MV (2015) Using High-Resolution WRF Model Simulations to Investigate the Relationship between Mesoscale Circulations and Aerosol Transport over Kuwait. Journal of Climatology and Weather Forecasting, Volume 3, Issue 3: 126.
   i.

8. JA Qasem, H Nasrallah, BN Al-Khalaf, F Al-Sharifi, A Al-Sherafyee, SA Almathkouri, ***H Alsarraf*** (2008) Meteorological Factors, Aeroallergens and Asthma-Related Visits in Kuwait: A 12-Month Retrospective Study. 2008; 28(6): 435-441

9. ***Alsarraf, Hussain***[1], "Investigating the Impact of Climate Change on Dust Storms Over Kuwait by the Middle of the Century Simulated by WRF Dynamical Downscaling" (2013). ETD collection for University of Nebraska - Lincoln. AAI3605200. https://digitalcommons.unl.edu/dissertations/AAI3605200

10. ***Hussain Alsarraf***[1] (2010) Relationship between the land/sea breeze circulations and the air pollution dispersion over the coastal area of Kuwait. ProQuest LLC 1479265.

In progress

1. Hala AlJassar, Panos Kokkalis, ***Hussain AlSarraf***, Nair Roshni. (2021) Validation of NASA SMAP Satellite over the desert test site of Kuwait. Submitted to Remote Sensing, MDPI.
2. ***Hussain AlSarraf,*** Hala AlJassar, Panos Kokkalis.(2021) Evaluating of NCEP and ECWMF-Era5 reanalysis climate models for precipitation and soil moisture from (2008-2018) over Kuwait. Submitted to Atmosphere, MDPI.

KFAS Research Grants

Ongoing Project

- Impact of Climate Change on Soil Moister over Arabian Peninsula and Kuwait. (CN17-42SP-01)
- Kuwait University CubeSat 1

Completed Project

- *Calibration and Validation of NASA (Soil Moisture Active Passive) Satellite for the Retrieval of Soil Moisture and the Application to Environmental Modeling in Kuwait. (P12544SP01)*

Researching Experience and interests

- Atmospheric /Climate Physics
- Atmospheric and Climate Modeling
- Climate change
- Pollution/ Aerosols Modeling
- Atmospheric/Environmental Remote sensing
- Dual Polarization Radar

Conference Presentations

- **European Geosciences Union**, Vienna, Austria, (7-12) April 2019. Oral/poster paper: A Regional Climate Simulation Study using WRF Model over the Arabian Peninsula.

- **CCI Soil Moisture Workshop**, Vienna, Austria, 18 September 2017\. Paper: The affect of mesoscal circulation on soil moisture over Kuwait by using Soil Moisture Active Passive Satellite (SMAP).

- **NASA 3rd Satellite Soil Moisture Validation and Application,** New York City, NY, 21-22 September 2016. Oral/poster paper: Comparing the Soil Moisture Active Passive NASA Satellite with Reanalysis Climate Models.

Conferences

- *NASA Satellite Soil Moisture Validation and Application Workshop, Vienna, Austria, 19-20 September 2017.*

- **NASA 7th SMAP Cal/Val Workshop**, New York City, NY, 19-20 September 2016.

- **Seventeenth World Meteorological Congress**, Geneva, Switzerland, May 25, 2015 to Friday, June 12, 2015.

- **King Abdul Aziz University**, Jeddah, Saudi Arabia. Workshop in Climate modeling. 28-12-2014/02-01-2015

- **World Meteorological Organization (WMO).** Regional Impact of climate change on water resources and economic vulnerability. Amman, Jordon 10-12 October 2014.

- **Third UN World Conference on Disaster Risk Reduction**. Held from 14 to 18 March 2015 in Sendai city, Japan.

- **The International Civil Aviation Organization (ICAO)** the Meteorology/Climatology Divisional Meeting in Montréal, 7 and 12 July 2014.

- Fifteenth Session of the **World Meteorological Organization (WMO)** Commission for Aeronautical Meteorology, and environmental hazards, Montréal, 13 and 18 July 2014.

- **The International Civil Aviation Organization (ICAO);** Regional workshop on ICAO MID regional OPMET Center, Jeddah, 31 August-1-September 2014.

Selected Certificates

- Center of Excellence for Climate Change Research, King Abdul Aziz University, Climate modeling. 28/12/2014 - 02/01/2015.

- Gematronik Company: Dual Polarization remote sensing radar training in Kuwait, March 2014.

- Satellite: Kongsberg Satellite Services AS (KSAT), commercial Norwegian company. Training on earth observation services for polar orbiting satellites and remote sensing. 2005, Kuwait.

- Workshop, the course consists on the methods and the ability to teach and plan a course for national trainers and meteorology instructors. 16-27 / May / 2005 - Kuala Lumpur, Malaysia.

- Gematronik Company, Doppler Weather Radar training course. 11- 21 / Sept / 2000 Düsseldorf, Germany.

Affiliation

- European Geoscience Union
- American Geophysical Union.

Professional Services

- Journal Reviewer for Remote sensing section Kuwait Journal of Science-Kuwait university
- Journal Reviewer for International Journal of Global Warming.

Services at AUK

- The Accreditation Board for Engineering and Technology (**ABET**)
- The American Academy for Liberal Education (AALE)
- Graduate School Panel
- Grad appeal committee

Computers Skills

- ICDL
- Linux operating system
- Red hat Linux
- Programming language NCAR Command language (NCL)
- Grid Analysis and Display System (GrADS)
- Cisco WebEx
- Zoom
- Microsoft Teams
- Microsoft office