

DR. AMNA JRRAR

NATIONALITY: British/Jordanian

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EDUCATION

University of Cambridge, UK, Dept. of Chemistry

Oct /1999 - Dec/2003

PhD in Atmospheric Chemistry (numerical modelling)

Thesis title: **Modelling Trends in Stratospheric Ozone**. I have studied the dynamical variability of stratospheric ozone using 3-D chemistry-transport model.

Hashemite University, Zarqa, Jordan

Oct /1997 - Aug /1998

Faculty of Education

High Diploma in Curriculum and Instruction Excellent, 'A', 3.85 out of 4.0, No '1' upon graduation.

University of Jordan, Amman, Jordan

Sep/1992 - Jun/1996

Department of Chemistry

B.Sc. in General Chemistry Excellent, 'A', 3.7 out of 4.0, No '1' upon graduation.

AWARDS

- Full financial support (travel, registration & accommodation) from AntClim21- SCAR to participate in the CLIVASH2K workshop held at the British Antarctic Survey, 4th- 5th September 2018, Cambridge.
- The Roland Schlich - established scientist travel support- Award to participate in the EGU 2018 General Assembly, 8-13 April 2018.
- Invited participant at the 2nd International Global Change Young Scientists Conference, 5th -8th November 2006 Beijing, China.
- The 2004 "WMO Professor Mariolopoulos Trust Fund award", awarded for contribution to the paper 'the dynamically-driven long-term trend in stratospheric ozone over northern middle latitudes', the award is given every two years for an outstanding research in atmospheric sciences, and was jointly shared by another paper for Dr. Michal Strizik.
- The Karim Rida Said /Cambridge Overseas Trust PhD scholarship, University of Cambridge, 1999-2002.

COMPUTING SKILLS

- Experienced in working in UNIX/LINUX environment
- Excellent knowledge of FORTRAN 77/90
- Visualization: IDL, NCL
- Very good knowledge of Html and LaTeX
- Data Format: NetCDF, pp-format, GRIB
- Statistical/ Climate Packages: R, NCO, CDO

MODELLING /DATA ANALYSIS EXPERIENCE

- Chemistry Transport Models: running the CTM model SLIMCAT using simplified gas phase chemistry + additional PSC chemistry scheme and analyzing the model's output.
- Global climate models:
 1. Attended the UKCA theory and practice workshop, January 2017.

- 2. running the HadAM3/HadCM3 on the local cluster at BAS and analyzing the model output.
- High resolution modelling: contributed to the development of the HiGEM model (sea ice component). Processing and validating the HiGEM (A-O) model output (pp-format)
- Processing and Data analysis: Analyzed the coupled version of the UМУKCA model, processing NEMO (ocean) model output (ORCA2 grid, NetCDF, Interpolation)

EMPLOYMENT

- **Assistant Researcher:** Royal Scientific Society, Amman, Jordan. January 2020- to date
- **Independent researcher:** January 2017- December 2019.
- **Research Scientist:** Center for Global Sea Level Change, NYUAD Institute, NYU Abu Dhabi, UAE (Sep 2013 – Sep -2016).
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- **Visiting Researcher (part time):** Centre for Atmospheric Science, chemistry department, University of Cambridge (Nov 2010 - Sep 2013).
- **Chemistry Supervisor (Instructor):** for natural sciences students. Newnham College, University of Cambridge, (Feb-June 2011).
- **Freelance Arabic Language Consultant:** (Oct 2009- Sep 2013) working with OCR ASSET languages, CIE (NES project), Cambridge University Press, and Pearson Education.
- **Climate Modeller** at the British Antarctic Survey (March 2004 - June 2007) working on the HiGEM project, HiGEM is a NERC funded project in collaboration with the UK Met Office and 7 other partners.
- **Research Student** at the stratospheric modelling group of Prof. John Pyle, at The Centre for Atmospheric Science, Chemistry Dept., University of Cambridge.
- **Lab Technician/Supervisor:** Hashemite University (Sep 1996-Sep 1999). Preparation/demonstration for general and organic chemistry.

CONTRIBUTIONS:

IN PREPARATION:

- Amna Jrrar, N. Luke Abraham, Peer Nowack and John A. Pyle. *The Role of Interactive Stratospheric Chemistry in Producing Regional Antarctic Sea Ice Variability in the HadGEM3- AO UKCA Model.* <https://meetingorganizer.copernicus.org/EGU2018/EGU2018-1321.pdf>
- Amna Jrrar, N. Luke Abraham, David Holland and John A. Pyle. *Sea Ice Trends in the AO-UMUKCA model: Interplay of Forcing and Internal Variability* adsabs.harvard.edu/abs/2016EGUGA..18.3502J <https://meetingorganizer.copernicus.org/EGU2016/posters/22214>
- Amna Jrrar, N. Luke Abraham, David Holland and John A. Pyle. *The Amundsen Sea Low and the Associated Regional Sea Ice Trends in the AO-UMUKCA Model.* adsabs.harvard.edu/abs/2015EGUGA..17.2170J <https://meetingorganizer.copernicus.org/EGU2015/posters/18184>

Conference Papers:

Jrrar, A., N. Luke Abraham, Peer Nowack and John A. Pyle.

The Role of Interactive Stratospheric Chemistry in Producing Regional Antarctic Sea Ice Variability in the HadGEM3- AO UKCA Model. 2018 UK Antarctic Science Conference, Durham University, 10th -12th of September, Durham, UK.

Jrrar, A., N. Luke Abraham, Peer Nowack and John A. Pyle.

Impact of Atmospheric Forcing/Chemistry on SH Atmospheric Circulation Patterns & Sea Ice variability in the UKCA model. CLIVASH2K workshop, British Antarctic Survey, Cambridge, 4th-5th September, 2018.
<http://pastglobalchanges.org/ini/wg/2k-network/projects/clivash/meetings/127-pages/1814-clivash2k-wshop-18>

Jrrar, A., N. Luke Abraham, David Holland and John A. Pyle

Variability of the Amundsen Sea Low and the Associated Regional Sea Ice Trends in the AO-UMUKA, SCAR Open Science Conference 2016, Kuala Lumpur, Malaysia, 20-30 August 2016.

Jrrar, A., N. Luke Abraham, David Holland and John A. Pyle

Variability of the Amundsen Sea Low and the Associated Regional Sea Ice Trends in the AO-UMUKA Model, 26th IUGG General Assembly, June 22-July 2, 2015, Prague, Czech Republic.

Jrrar, A., N. Luke Abraham, David Holland and John A. Pyle

Antarctic Sea variability in the AO-UKCA model, Workshop on Polar Predictability, Department of Meteorology, University of Reading, 8th– 10th April 2015, Reading, UK.

Jrrar, A., N. Luke Abraham, David Holland and John A. Pyle

Antarctic Climate Variability: Covariance of Ozone and Sea Ice in Atmosphere - Ocean Coupled Model Simulations. EGU General Assembly, 27th April - 2nd of May 2014, Vienna, Austria.

Jrrar A., N. Luke Abraham, Peer Nowak, Peter Braesicke, John A. Pyle

Leading Modes of Variability in Antarctic Climate: Covariance of Ozone and Sea Ice in AO-UMUKA Control Integration
Third NCAS Chemistry-Climate Interaction meeting, 21st -22nd March 2013, Chemistry Department, University of Cambridge, UK.

Jrrar, A., W. Connolley and John C. King Sea ice in HiGEM, I have presented the progress of the model in terms of sea ice representation in all the consortium meetings and video conferences from 2004-2007. A list of HiGEM meetings and presentations can be found at the consortium website, www.higem.nerc.ac.uk.

Jrrar A., P. Braesicke, P. Hadjinicolaou, and J.A. Pyle.

Trend analysis of CTM-derived northern hemisphere winter total ozone using self-consistent proxies: how well can we explain dynamically induced trends?

The 2nd International Global Change Young Scientists Conference, 5-8 November 2006, Beijing, China.

Jrrar, A., P. Braesicke, P. Hadjinicolaou, J.A. Pyle and L. Bishop. Model studies of ozone signatures of climate patterns over the Northern Hemisphere, Stratospheric ozone workshop, ETH, Zurich, 16-17 March, 2004. Also at, the European Meteorological Society general assembly, Nice, France, September, 2004.

Jrrar, A., P. Hadjinicolaou, J. A. Pyle, L. Bishop, A 20 year model study of the ozone trend in middle

latitudes: The importance of dynamical processes, EGS General Assembly, XXVI, Nice, 2001.

Pyle, J.A., **A. Jrrar**, Hadjinicolaou, P., L. Bishop, A model study of ozone trends in the middle latitudes : the importance of dynamical processes, 2nd SPARC General Assembly, 2000, Mar Del Plata, Argentina.

Jrrar, A., P. Hadjinicolaou, J. A. Pyle, A 3-D model study of ozone trends in the middle latitudes: The significance of dynamical processes, UGAMP Meeting, the Royal Institution, London, 2000.

Journal Articles

Len Shaffrey et. al., including A. Jrrar. UK-HiGEM: The New UK High Resolution Global Environment Model. Model Description and Basic Evaluation, *Journal of climate*, vol.22, 1861-1896, 2009.

Harris, N. R. P. et al, including A. Jrrar Ozone trends at northern mid-and high latitudes, *Annales Geophysicae*, vol. 26, 5, 1207-1220, 2008.

King J. C., **A. Jrrar** and W. M. Connolley Sensitivity of modelled atmospheric circulation to the representation of stable boundary layer processes, *Geophys. Res. Lett.*, 34, L06708, doi:10.1029/2006GL028563.

Jrrar A., P. Braesicke, P. Hadjinicolaou, and J.A. Pyle Trend analysis of CTM-derived northern hemisphere winter total ozone using self-consistent proxies : how well can we explain dynamically induced trends ?

Q. J. R. Meteorol. Soc., 132,1969-1983, 2006.

Hadjinicolaou, P., **A. Jrrar**, J.A. Pyle, and L. Bishop. The dynamically-driven long-term trend in stratospheric ozone over northern middle latitudes,

Q. J. R. Meteorol. Soc., 128,1393-1412, 2002.

Braesicke, P., **A. Jrrar**, P. Hadjinicolaou and J. Pyle, Variability of total ozone due to the NAO as represented in two different model simulations, *Meteorol. Z.* Volume 12, No.4, Aug, 2003.