



Curriculum vitae (CV)

Prof. Habis S. AL-Zoubi

Department of Chemical Engineering, College of Engineering
Al-Hussein Bin Talal University, Maan, Jordan

https://www.researchgate.net/profile/Habis_Al-Zoubi

HabisAl-Zoubi@ahu.edu.jo, habisa@yahoo.com
Habisalzoubi@gmail.com

GOOGLE SCHOLAR:

June 2022 Number of citations is **2294**, h-index is **21**, and i10-index is **23**.

<https://scholar.google.com/citations?user=CRcWRO0AAAAJ&hl=en>

ACADEMIC QUALIFICATIONS:

Dec. 2006 PhD in Chemical Engineering, University of Nottingham-UK.

Dissertation: Pretreatment in desalination: Prediction of Nanofiltration Membranes Performance using Atomic Force Microscopy and Modelling

Advisor: Dr. Nidal Hilal

The research covered the following topics:

A comprehensive review of Nanofiltration (NF) membranes including a review of the applications of NF in treating water as well as in the pretreatment process for desalination; and the mechanism as well as minimization of NF membrane fouling problems, Characterization of Nanofiltration (NF) membranes using Atomic Force Microscopy (AFM), filtration of different salts as single and mixtures at salinity similar to seawater using NF membranes, nanofiltration of simulated and real seawater, Spiegler Kedem model, Donnan steric-pore model, neural network model, and cost model for the optimization of NF membranes.

June 1996 M.Sc. in Chemical Engineering, Jordan University of Science and Technology, Jordan

Thesis: Characteristics Study of Jordanian Jojoba Oil,

Advisor: Dr. Mamdouh Allawzi.

The research covered the following topics:

Extraction of Jojoba oil by hydraulic pressing, leaching of Jojoba oil by different organic solvents, and study all the characterization of Jordanian Jojoba oil including its physical and chemical properties

June-1993 B.Sc. in Chemical Engineering, Jordan University of Science and Technology, Jordan

Graduation Project: Design of Natural Gas Sweetening Plant Using Alkanoamines.

Advisor: Dr. M. Abu- Arabi

Design a plant to remove H₂S and CO₂ from a petroleum line using Alkanoamines.

EXPERIENCE:

3 Oct. 2021- Present	Head of the Department, Chemical Engineering, , Faculty of Engineering, AHU, Ma'an , Jordan.
10 Feb. 2022- Present	Professor, Department of Chemical Engineering, Al-Hussein Bin Talal University (AHU), Ma'an , Jordan.
13 Sep. 2019-09 Feb. 2022	Associate Professor, Department of Chemical Engineering, Al-Hussein Bin Talal University (AHU), Ma'an , Jordan.
13 Sep. 2013-12 Sep 2019	Associate Professor, Department of Environmental Engineering, IAU, Dammam, Saudi Arabia.
13 Sep. 2014- 12 sep. 2015.	Head of Summer Training and Alumni Unit, College of Engineering, IAU, Dammam, Saudi Arabia.
13 Sep. 2012-12 Sep 2013	Associate Professor, Department of Chemical Engineering, Al-Hussein Bin Talal University (AHU), Ma'an , Jordan.
9 Sep. 2012- 12 Sep 2013	Assistant Dean for student's affairs, Faculty of Engineering, AHU, Ma'an , Jordan.
20Sep. 2009- 12 Sep. 2012	Assistant Professor, Department of Chemical Engineering, AHU, Ma'an , Jordan.
1 Aug. 2011-31 Jan. 2012	Research Visitor, Center for Energy and Environmental Resources, The University of Texas at Austin, USA.
13 Sep. 2007-19Dec. 2009	Lecturer, Department of Chemical Engineering, AHU, Ma'an , Jordan
Aug. 2003 – Dec. 2006	Researcher: Centre for Clean Water Technologies, Chemical Environmental & Mining Eng., the University of Nottingham-UK.
Oct. 1998 – Sep. 2003	Assistant lecturer: Chemical Eng. Dep., Tafila Applied University College, Al-Balqa Applied University, Al-Salt, Jordan
Jan. 1996 – Jan. 1997	Trainee: Jordanian Ministry of Public Works, Division of Health and Environment (Pollutant Treatment).
Aug. 1993 – Jun. 1996	Teaching and Research Assistant: Chem. Eng. Dep., Jordan University of Science and Technology, Irbid, Jordan.

FELLOWSHIP AND AWARDS

- 1- **Prestigious Award for Distinguished Research, Awarded by Scientific Support Fund at the Ministry of Higher Education** in Jordan for the publication of the article titled “Precipitation treatment of effluent acidic wastewater from phosphate-containing fertilizer industry: characterization of solid and liquid Products” published in Separation and Purification Technology Journal,08/2014.
- 2- **Faculty for Factory Award**, a cooperation between universities and industries to solve their technical problems, Research title: Development a unit for treatment of underground water containing high silica, sulfur, and turbidity. Water Equipment National Factory, Amman, Jordan, Jun. -Oct. 2012.
- 3- **Fulbright Research Fellowship Award**, the University of Texas at Austin, USA. Research title: “Effect of Mixed Ionic Feed Solutions on Sodium Chloride and Water Transport of Sulfonated Polysulfones for desalination applications”. Aug 2011- Jan 2012.
- 4- **German Research Foundation (DFG) Award**, Technical University of Berlin, Berlin, Germany. Research title: “The potential of an immersed anaerobic membrane bioreactor (AnMBR) in the treatment of wastewater, (07/06-04/09)/2010.
- 5- **German Research Foundation (DFG) Award**, Thermal and environmental institute, the university of Freiberg-Germany, Research title: “Optimizing study of Treatment of Acid Mine Drainage using Nanofiltration Membranes”, (8/6- 5/9)/2009.

- 6- **German Research Foundation (DFG) Award**, Thermal and environmental institute, the university of Freiberg-Germany, Research title: “Nanofiltration of Acid mine Drainage”, (4/6-1/9)/2008.
- 7- **Middle East Desalination Research Centre (MEDRC) Award** for PhD Scholarship, The University of Nottingham, UK, June 2003-July 2007.
- 8- **International travel grant, the Royal Academy of Engineering**, UK, to attend desalination conference in France, 22 – 26 May 2006.
- 9- **The University of Nottingham Travel grant**, for a scientific visit to Universiti Kebangsaan Malaysia, Malaysia, 2 – 20 April 2006.
- 10- **JUST Award** for M.Sc Scholarship, JUST University, Jordan. September 1993 – June 1996.

REVIEWER FOR THE FOLLOWING JOURNALS:

- 1- Desalination
- 2- Desalination and water treatment
- 3- Chemical Engineering & Technology
- 4- Journal of Chemical & Engineering Data
- 5- Yanbu Journal of Engineering and Science
- 6- Journal of Hazardous Material
- 7- Journal of water process engineering

RESEARCH EMPHASIS AND INTERESTS:

- Membranes Technology (including NF, UF, MF, and RO membranes)
- Desalination process, Reverse Osmosis, Membrane distillation
- Water and wastewater treatment
- Dissolved air flotation
- Atomic force microscopy
- Neural network model
- Jojoba Oil and its applications

RESEARCH GRANT (Currency rate: 1 Jordanian Dinar (JOD) = 1.38364 (USD))

- 1- **H. Al-Zoubi**, S. Al-thyabat, “Development of an economical Dissolved Air Flotation (DAF) apparatus with membrane technology for treatment of wastewater produced from Jordanian phosphate industry”, Ministry of Higher Education and Scientific Research, Jordan, December 2008. Budget= JOD 47800. finished
- 2- **H. Al-Zoubi**, S. Al-thyabat, “The Application of Dissolved Air Flotation in Water Treatment”, King Abdullah II fund for Development – KAFD, Jordan, February 2010, Budget= JOD 6000. finished
- 3- M. Al-Harashsheh, **H. Al-Zoubi**, M. Batiha, ‘Treatment of effluent water from phosphate-containing fertilizer industry for reuse and production of useful compounds-**Phase II**’, Ministry of Higher Education and Scientific Research, Jordan, February 2012, Budget= **JD 76100**, finished.
- 4- **H. Al-Zoubi**, K. Aref, K. Abu-Sbeih, “Dissolved air flotation process for water purification using different economical polymeric coagulants, Abdul hammed shoman Foundation, Amman, May 2013, Budget= **JD 13800**, finished.

- 5- **H. Al-Zoubi**, O. Aga, N. Jarrah, "Optimization of Dissolved Air Flotation Technology for Treatment of Oily Waste Water", The University of Dammam, Dammam, KSA, Budget= SAR 20000, finished
- 6- Fahid Al-Amri, **H. Al-Zoubi**, Modeling and Experimental Testing of Membrane Distillation Process for Water Desalination, The University of Dammam, Dammam, KSA, Budget= SAR 100000, finished
- 7- **H. Al-Zoubi**, A. Manda, **A. Matani**, "Production of Biodiesel from jojoba oil as future alternative for renewable energy using nanoparticles metal oxide catalyst", Saudi Aramco, KSA, Budget= SAR 211550, on-going

TEACHING EXPERIENCE :

a- UoD University

- | | |
|---|--------------------------------------|
| 1- Environmental Engineering Fundamentals | 2- Waste Water Engineering II |
| 3- Environmental Law & Regulations | 4- Unit Operations & Processes II |
| 5- Desalination Technologies | 6- Environmental Impact Assessment |
| 6- Chemical process safety | 8- library skills |
| 9- Oral Communication & Public Speaking | 10- Thermodynamics and heat transfer |

b- AHU University

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|-----------------------------------|---|
| 1-Chemical Reaction Engineering I | 2- Chemical Reaction Engineering II. |
| 3- Equipment and Plant Design. | 4- Introduction to chemical Engineering |
| 5- Unit operation. | 6- Unit operation Lab |
| 7- Separation Process. | 8- Graduated projects |
| 9- Fluid mechanics. | 10- Heat transfers. |
| 11. Instrumental analysis. | 12. Desalination process (two times). |
| 13. Mass Transfer | 14. Thermodynamics I |
| 15. Plant design | 16. Thermodynamics II |
| 17. Process Dynamics and Control | 18. Environmental Impact Assessment |

An examiner for the following Master Student :

Development of new electrode for phosphoric acid fuel cell, by Mohammad ali frej
Department of Mechanical Engineering, College of Engineering, Al-Hussein Bin Talal University,
Jordan, Jan. 2021.

An examiner for the following graduated projects (selected):

- I Hazard and risk assessment study about bag filter and dual denitration furnace location Rashadiyah cement plant, 2010.
- II. Microwave drying of pharmaceutical and fine chemical molecules, 2009.
- III. Effects of reaction condition on the production of sodium hexafluorosilicates, 2008.

- Graduate projects under my supervision:

- I- Adsorption of sulfate ions from wastewater using kaolin clay, 2021
- II-Environmental impact assessment of wastewater treatment plant , 2020
- I-Treatment of oily waste water using Dissolved Air Flotation (DAF): The use of Sawdust in coagulation process, 2015
- II- Removal of algae bloom in seawater by using DAF process, 2014

Dissolved Air Flotation for Oily Wastewater Treatment, 2013

III- Dissolved air flotation process for wastewater purification using different economical polymeric coagulants, 2012.

IV- The Performance of Dissolved Air Flotation and Nanofiltration Membrane in Treatment of Red Sea, 2011.

V- The Application of Dissolved Air Flotation in Water Treatment, 2010.

VI- Study of the Properties of Eshydia Mine Wastewater for Reuse, 2008.

c- The University of Nottingham, UK:

1. The following courses have been demonstrated as help classes for undergraduate students: Heat and Mass Transfer (two semesters, 40 students), Separation process (two semesters, 35 students), Desalination processes (one semester, 20 students).
2. Laboratory supervision for Master students (25 students) to design a unit for adsorption of phenol using activated carbon.

d-Tafila College, Jordan:

1. Teaching the following courses with highly positive feedback (> 90%) from the undergraduate students (40 students): General Chemistry (teaching six semesters), General Chemistry Lab (six semesters), Local Chemical Industry (two semesters), Security and management of the laboratories (one semester), Analytical chemistry (two semesters).
2. Supervising Final Year Projects for five students (extraction of Jojoba oil by using different mixtures of organic solvents).

d- Jordan University of Science and Technology (JUST):

1. Delivering help section classes for the following undergraduate courses (40 students): Thermodynamics, Heat Transfer, Numerical Methods for Chemical Engineers, Modeling & Simulation, Applied Mathematics for Chemical Engineers, Fundamentals of Chem. Eng, Unit Operations
2. Laboratories supervision (20 students): Heat Transfer lab, Petroleum Properties and Refining lab, Chemical Processing & Kinetics lab.

Short courses taken during PhD study in UK:

Planning Research and Time Management (0.5 day), Skills of Spoken and Written Communication (2 days), Teaching and Learning in Tutorial and Seminars (0.5 days), Combined EXEL: Data formatting and Analysis AND Data Analysis with Excel (2x0.5 days), Creating and Published Web Pages (1 day), Further Presentation skills (0.5 day), How to Prepare an Effective Poster, Enhancing your Website (1 day), Research Students and Research Staff who Teach (one day onference).

Short Courses Attendance (in Desalination)

1- Course title: **Seawater Desalination and the Environment; Impact of brine and chemical Discharge on the Marine Environment**, 1-3 December, 2008, Amman, Jordan. Speakers: Prof. Thomas Hopner, Dr. Tobais Bleninger, and Eng. Sabine Lattemann (Germany).

2-Course title: **Advanced Course on Reverse Osmosis Technology**, March 26 – 29, 2007, Amman, Jordan, Speaker: Prof. Jan Schippers.

PROFESSIONAL ASSOCIATIONS

- Jordan Engineers Association, Chem. Eng. Division, Member
- Association of Fulbright Alumni, USA
- Institution of Chemical Engineers (IChemE)-UK, Affiliate Member
- Jordan Desalination and Reuse Association, Jordan
- Water Environment Federation (WEF), USA

REFEREES:

- Prof. Benny Freeman, centre for Energy and Environmental Resources, University of Texas at Austin, USA, freeman@che.utexas.edu, Tel: +1-512-626-6612.

- Prof. Abdul Wahab Mohammad, Chemical Engineering, Dept of Chemical and Process Engineering, Universiti Kebangsaan Malaysia, 43600 UKM Bangi, Selangor, Malaysia; drawm67@gmail.com, Tel +60123794648.

-Prof. Naif A. Darwish, Chemical Engineering Program, American University of Sharjah, Chemical Engineering Department, P.O. Box 26666, Sharjah, United Arab Emirates; ndarwish@aus.edu, Tel: +(971)65152401.

Dr. Roland Haseneder, Associated Professor in Chemical Engineering, Thermal and environmental institute, the university of Freiberg-Germany, roland.haseneder@tu-freiberg.de, Tel: +493731392376

PUBLICATIONS:

a. International Journal Publications:

1. Z. Al-Qodah, **H. Al-Zoubi**, B. Hudaib, W. Omar, S. Abu-Romman, Z. Frontistis Sustainable vs. Conventional Approach for Olive Oil Wastewater Management: A Review of the State of the Art, Water (Switzerland),14(11), 2022, 1695. <https://doi.org/10.3390/w14111695>
2. **H. Al- Zoubi**, Y. Al-Khasawneh, W. Omar, Design and feasibility study of an on-grid photovoltaic system for green electrification of hotels: a case study of Cedars hotel in Jordan, International Journal of Energy and Environmental Engineering, <https://doi.org/10.1007/s40095-021-00406-z>, 35 (2021) 3407–3420
3. B. Hudaib, A. F. Al-Shawabkeh, W. Omar, **H. Al-Zoubi**, R. Abu-Zurayk, Removal of High-Concentration Sulfate Ions from industrial wastewater using low-cost modified Jordanian Kaolin, Desalination and Water Treatment, 231 (2021) 359–366.

4. Y. Al-Khasawneh, **H Al-Zoubi**, Grinding Characteristics of Torrefied and White Wood Biomass Pellets for Power Plants Application: Laboratory and Industrial Scales, *Journal of Mechanical Science and Technology*, 35 (8) (2021)
5. **H. Al-Zoubi**, M. Manzar, M. Zubair, A. Manda, A. Qureshi, N. Blaisi, A. Matani. Comparative Adsorption of Anionic dyes (Eriochrome black T and Congo red) onto Jojoba Residues: Isotherm, kinetics and thermodynamic studies, *Arabian Journal of Science and Engineering*, (2020) 1-13.
6. **H. Al-Zoubi**, F. Al-Amri, A. E. Khalifa, A. Al-Zoubi, M. Abid, E. I Younis, T. K. Mallick, A Comprehensive Review of Air Gap Membrane Distillation Process, *Desalination and Water Treatment*, 110 (2018) 27-64.
7. A. Alshahrani, **H. Al-Zoubi**, Long Nghiem and Marc in het Panhuis, Synthesis and Characterization of casting of MWNT/chitosan and MWNT/chitosan-crosslinked Buckypaper, *Membranes for desalination, Desalination*, 418 (2017) 60-70.
8. M. Al-Harashsheh, Y. Hussain, **H. Al-Zoubi**, M. Batiha, and E. Hammouri, Hybrid precipitation-nanofiltration treatment of effluent pond water from phosphoric acid industry, *Desalination* 406 (2017) 88-97.
9. H. Al-Zoubi, K. Aref, K. Abu-Sbeih, Removal of heavy metals from wastewater by economical polymeric collectors using dissolved air flotation process, *Journal of water process engineering*, 8 (2015) 19-27.
10. M. Al-Harashsheh, M. Batiha, S. Kraishan, **H. Al-Zoubi**, Precipitation treatment of effluent acidic wastewater from phosphate-containing fertilizer industry: characterization of solid and liquid Products, *Separation and Purification Technology*, 123 (2014) 190–199.
11. **H. Al-Zoubi**, S. Al-Thyabat, Treatment of a Jordanian Phosphate Mine Wastewater by Hybrid Dissolved Air Flotation and Nanofiltration, *Mine Water and the Environment*, 31 (3) (2012) 214-224.
12. S. Al-Thyabat , M. Harareh, K. Tarawneh , **H. Al-Zoubi**, Preliminary investigations into the use of Jojoba oil as a possible collector in phosphate flotation, **book chapter (41)**, Beneficiation of phosphates: New ideas, New Technologies, New Developments, published by the society for mining, Metallurgy and Exploration, Florida, USA, 2012.
13. S. Al-Thyabat, **H. Al-Zoubi**, Purification of Phosphate Beneficiation Wastewater: Separation of phosphate from Eshydia Mine (Jordan) by Column-DAF Flotation Process, *International Journal of mineral Processing*, 110-111 (2012) 18-24.
14. **H. Al-Zoubi**, P. Steinberger , W. Pelz , R. Haseneder , G. Härtel, Optimization study for treatment of Acid Mine Drainage using membrane technology, *journal of separation science and technology*, 45 (2010) 2004-2016.
15. **H. Al-Zoubi**, P. Steinberger , W. Pelz , R. Haseneder , G. Härtel, Nanofiltration of Acid Mine Drainage, *Desalination and Water Treatment*, 21 (2010) 148–161.

16. **H. Al-Zoubi** and W. Omer, Rejection of Salt mixture at high Salinity by Nanofiltration Membranes, *The Korean Journal of Chemical Engineering*, 26 (3) (2009) 799-805.
17. **Al-Zoubi**, Al-Thyabat and Al-Khatib. A hybrid flotation–membrane process for wastewater treatment: an overview, *Desalination and Water Treatment*, *Desalination and Water Treatment*, 7 (2009) 60–70.
18. W. Omar, **H. Al-Zoubi** and J. Ulrich, Seeded Crystallization of Calcite and Aragonite in Seawater as a Pretreatment Scale Control Process, a Study of Supersaturation Limits, *Desalination and Water Treatment*, 3 (2009) 236–240.
19. W. Mohammed, N. Hilal, **H. Al-Zoubi**, N. Darwish, Prediction of permeate fluxes and rejections of highly concentrated salts in Nanofiltration membranes, *Journal of membrane science*, 289 (2007) 40–50.
20. N. Darwish, N. Hilal, **H. Al-Zoubi**, A. W. Mohammed, Neural Networks Simulation of the Filtration of Sodium Chloride and Magnesium Chloride Solutions Using Nanofiltration Membranes, *Chemical Engineering Research and Design*, 85 (A4) (2007) 417–430.
21. N. Hilal, **H. Al-Zoubi**, N. A. Darwish, A. W. Mohammed, Performance of Nanofiltration membranes in the treatment of synthetic and real seawater, *Separation Science and Technology*, 42 (2007) 493 – 515.
22. **H. Al-Zoubi**, N. Hilal, N. Darwish, A. W. Mohammed, Rejection and modelling of Sulfate and Potassium salts by Nanofiltration membranes: Neural network and Spiegler Kedem Model., *Desalination*, 206 (2007) 42-60.
23. W. Mohammed, N. Hilal, **H. Al-Zoubi**, N. Darwish, N. Ali, Modelling the Effects of Nanofiltration Membrane properties on system cost Assessment for Desalination Applications, *Desalination*, 206 (2007) 215-225.
24. N. Hilal, **H. Al-Zoubi**, N. A. Darwish and A. W. Mohammed, Nanofiltration of magnesium chloride, sodium carbonate and calcium sulphate in salt solutions, *Separation Science and Technology*, 40 (2005) 1-23.
25. N. Hilal, **H. Al-Zoubi**, N. A. Darwish, A. W. Mohammed, Nanofiltration of highly concentrated salt solutions up to seawater salinity, *Desalination* 184 (2005) 1295–1306.
26. N. Hilal, L. Al-Khatib, **H. Al-Zoubi**, R. Nigmatullin, Atomic force microscopy study of membranes modified by surface grafting of cationic polyelectrolyte, *Desalination* 184 (2005) 1025–1035.
27. N. Hilal, **H. Al-Zoubi**, N. A. Darwish, A. W. Mohammed, “Characterisation of nanofiltration membranes using Atomic force microscopy, *Desalination*, 177 (2005) 187–199.
28. N. Hilal, **H. Al-Zoubi**, N. A. Darwish, A. W. Mohammed and M. Abu Arabi, “ a comprehensive review of Nanofiltration membranes: Treatment, Pretreatment, Modelling, and Atomic Force Microscopy “, *Desalination* 170 (2004) 281–308.
29. M.K. Abu-Arabi, M.A. Allawzi, **H. Al-Zoubi**, A. Tamimi, “Extraction of Jojoba oil by pressing and leaching”, *Chemical Engineering Journal*, 76 (2000) 61-65.

30. M.A. Allawzi, M.K. Abu-Arabi, **H. Al-Zoubi**, A. Tamimi, “Physicochemical Characteristics and Thermal Stability of Jordanian Jojoba oil”. *JAOCS*, vol. 75, no.1 (1998)

b. International Conference Presentations:

1. S. Al-Thyabat, **H. Al-Zoubi**, Application of Dissolved Air Flotation (DAF) in Halite removal from Dead Sea brine, 60th Canadian Chemical Engineering Conference, Saskatoon, Canada from October 24 to 27, 2010.
2. G. Cook, Geoffrey M. Geise, **H. Al-Zoubi**, B.Freeman, K. Lee, B.Sundell and J. McGrath, Effect of Mixed Monovalent and Divalent Ion Feeds On Sulfonated Polysulfone Desalination Membrane Performance, AIChE conference, USA, October 31 2012.
3. S. Al-Thyabat, **H. Al-Zoubi** (Speaker), Jordanian Phosphate wastewater treatment: phosphate recovery from slime by column-DAF Flotation technology, (Part one), 60th Canadian Chemical Engineering Conference, Saskatoon, Canada from October 24 to 27, 2010.
4. **H. Al-Zoubi**, S. Al-Thyabat, Jordanian Phosphate Wastewater Treatment: A hybrid process of Dissolved Air Flotation (DAF) -Nanofiltration membrane (part two), 60th Canadian Chemical Engineering Conference, Saskatoon, Canada from October 24 to 27, 2010.
5. **H. Al-Zoubi**, P. Steinberger, A. Rieger, W. Pelz, R. Haseneder, G. Härtel, Nanofiltration of Acid Mine Drainage, Conference titled: “Desalination for the Environment: Clean Water and Energy”, Kongresshaus, Baden-Baden, Germany, 17-20 May 2009.
6. **H. Al-Zoubi** (Speaker), “Nanofiltration of highly concentrated salt solutions up to seawater salinity”. *ICHEME Fluid Separation Processes*, Subject Group (FSPG) at BP Sunbury, London –UK, on 26 May 2005.
7. M.Allawzi, M.K. Abu-Arabi, **H. Al-Zoubi** (Speaker), and A. Tamimi, “Characteristics Study and Thermal Stability of Jordanian Jojoba Oil”. *Chemical Engineering Conference II*, Sep. 2-4,1996 Irbid-Jordan.