Scientific Research Open Access



Search Keywords, Title, Author, ISBN, ISSN

Home Journals Books Conferences News	About Us	; Job	
Home > Journal > Earth & Environmental Sciences > JWARP	Open Spec	ial Issues	
Indexing View Papers Aims & Scope Editorial Board Guideline Article Processing Charges	Published Special Issues		
JWARP> Vol.2 No.4, April 2010	Special Issues Guideline		
OPEN GACCESS Rainfall Trends in the District of Ramallah and Al-Bireh, Palestine	JWARP Subscription		
PDF (Size: 814KB) PP. 345-352 DOI: 10.4236/jwarp.2010.24040	Most popular p	Most popular papers in JWARP	
Author(s) Hussein Al-Rimmawi, Marwan Ghanem, Ibrahim Shalash	About JWARP News		
ABSTRACT Linear regression and moving averages were used to analyze the patterns of rainfall in eight station in the district of Ramallah and Al-Bireh for the period from 1950' s to present. Data analysis showed that a ten years period variability of rainfall but with consistency. It also showed that rainfall in the studied area is not decreasing as mentioned in several previous studies. This area is mountainous and enjoys the	Frequently Asked Questions		
	Recommend to Peers		
Mediterranean climates.		Recommend to Library	
KEYWORDS Linear Regression, Moving Averages, Rainfall Trends, West Bank (Palestine), Mediterranean	Contact Us		
Cite this paper H. Al-Rimmawi, M. Ghanem and I. Shalash, "Rainfall Trends in the District of Ramallah and Al-Bireh, Palestine," <i>Journal of Water Resource and Protection</i> , Vol. 2 No. 4, 2010, pp. 345-352. doi: 10.4236/jwarp.2010.24040.	Downloads:	402,262	
	Visits:	1,010,972	
References [1] District of Jerusalem, "Rainfall Distribution Plan, Ra-mallah, and Al-Bireh, 1974-2007," Authority of Water in the district of Jerusalem. Un Published data sheet, 2007.	Sponsors, Associates, ai Links >>		
[2] A. Isakson, " Rainfall Patterns over Central and Southern Israel Induced by Large-Scale Moisture Flux," Journal of Applied Meteorology, Vol. 35, 1996, pp. 1063-1075.			
[3] J. P. Evans, R. B. Smith and R. Oglesby, "Middle East Climate Simulation and Dominant Precipitation Proc-esses," International Journal of Climatology, Vol. 24, 2004, pp. 1671-1694.			
 [4] Kunoooze and Dafain, " The City of Ramallah," 2009. http://kunooze.com/vb374/showthread.php? t=4175. 			
 [5] Palestinian Central Bureau of Statistics, " Population in the West Bank by Governate and Sex," 2009. http://www.pcbs.gov.ps/Portals/_PCBS/Downloads/book1487.pdf 			
[6] D. Sperber, " Drought, Famine and Pestilence in Amoraic Palestine," Journal of the Economic and Social History of the Orient," Vol. 17, No. 3, September 1974, pp. 272-298.			
 [7] A. Smith, "Hyksos and the Exodus," 2008. https://list-host.uchicago.edu/pipermail/ane/2003- October/010855.html 			
 [8] E. W. Rice, "Rainfall in Palestine," Journal of the Society of Biblical Literature and Exegesis, Vol. 6, No. 1, 1886, pp. 69-72. 			
[9] R. Sansur, "Natural Heritage in Palestine," 2006. http://www.palestine-family.net/index.php? nav=6-26&cid=13 & did=2267& pageflip=1.			

[11] C. Price, L. Stone, A. Huppert, B. Rajagopalan and P. Alpert, " A Possible Link between El Nino and

[10] T. Ben-Gai, A. Manes and P. Apert, " Long-Term Chan- ges in Annual Rainfall Patterns in Southern

Israel," Theo-retical and Applied Climatology, Vol. 61, 1994, pp. 177-190.

- Precipita-tion in Israel," Geophysical Research Letters, Vol. 25, No. 21, November 1998, pp. 3963-3966.
- [12] E. H. Steinberger and N. Gazit-Yaari, "Recent Changes in the Spatial Distribution of Annual Precipitation in Is-rael," Journal of Climate, Vol. 9, No. 12, 1996, pp. 3328-3336, 1996.
- [13] N. Halfon, H. Kutiel and B. Ziv, "The Rain Spells in Israel-Major Spatial Patterns and their Synoptic Condi-tions," 8th Plinius Conference on Mediterranean Storms and Extreme Events in an Era of Climate Change, Dead Sea, 17-20 October 2006.
- [14] D. Rosenfeld, et al., "Inverse Relations between Amounts of Air Pollution and Orographic Precipitation," Science, Vol. 315, No. 5817, March 2007, pp. 1396-1398.
- [15] Science Daily, " Pollution Reduces Rainfall in Hilly Ar-eas," 2008, pp. 1-3. http://www.sciencedaily.com/releases /2007/03/070308220825.htm.
- [16] A. Zangvil, S. Karas and A. Sasson, "Connection Be-tween Mediterranean Seasonal Mean 500 hpa Height and Sea-Level Pressure Patterns and the Spatial Rainfall Dis-tribution," International Journal of Climatology, Vol. 23, No. 13, 2003, pp. 1567-1576.
- [17] S. Paz, H. Kutiel and H. Steinberger, "Recent Changes in Precipitation Patterns along the Coast of the Eastern Mediterranean," 2nd European Conference on Applied Climatology, Vienna, 19-23 October, 1998.
- [18] B. A. Ben-Gai, A. Manes and S. Rubin, "Spatial and Temporal Changes in Rainfall Frequency Patterns in Is-rael," Theoretical and Applied Climatology, Vol. 49, No. 2, June 1998, pp. 56-67.
- [19] G. Pe'er, " Climate Change: Israel National Report under the United Nations Framework Convention on Climate Change: Impact, Vulnerability and Adaptation," 2000. http://nasa.proj.ac.il/Israel-Research/Climate_Change_Israel_National_Report.html.
- [20] Y. Goldreich, "Temporal Variations of Rainfall in Israel," Climate Research, Vol. 5, 1995, pp. 179-195.
- [21] A. Dahamsheh and H. Aksoy, " Structural Characteristics of Annual Precpitation Data in Jordan," Theoretical and Applied Climatology, Vol. 88, 2007, pp. 201-212.
- [22] Q. Tarawneh and M. Kadioglu, "An Analysis of Precipi-tation Climatology in Jordan," Theoretical Applied Cli-matology, Vol. 74, No. 1-2, 2002, pp. 123-136.
- [23] A. Ghanem, " Analysis of Possible Rainfall in Arid and Semi Arid Areas in Jordan," Journal of Damascus Uni-versity, Vol. 17, No. 2, 2001, pp. 13-27.
- [24] M. M. Smadi and A. Zghoul, " A Sudden Change in Rain-fall Characteristics in Amman, Jordan during the Mid 1950' s," American Journal of Environmental Sciences, Vol. 2, No. 3, 2006, pp. 84-91.
- [25] S. Haque Alvi, " Climatic Changes and Desertification in Some Regions of the Middle East," GeoJournal, Vol. 37, No. 4, December 2004, pp. 483-488.
- [26] M. F. Pita, J. M. Camarillo and M. Aguilar, " Rainfall Variability Pattern over Time in Andalousia and its Links with the North Atlantic Oscillation," Climate and Envi-ronmental Change, In: C. Lisboa, Ed., 1998, pp. 77-89.
- [27] J. Luterbacher and E. Xoplaki, " 500-Year Winter Tem-perature and Precipitation Variability over the Mediter-ranean Area and its Connection to the Lareg-Scale At-mospheric Circulation," Mediterranean Climate, Vari-ability and Trends, In: H.-J. Bolle, Ed., Springer-Verlag, Heidelberg, 2003, pp. 133-153. http://ao.atoms.colostate. edu/other-papers/Documents5.pdf.
- [28] T. Felis, J. Patzold, Y. Loya, M. Fine and A. Nawar, " A Coral Oxygen Isotope Record from the Northern Red Sea Documenting NAO, ENSO, and North Pacific Telecon-nections on Middle East Climate Variability since the Year 1750," Paleoceanography, Vol. 15, No. 6, 2000, pp. 679-684.
- [29] A. G. Paliatsos, H. D. Kambezidis, P. T. Nastos, M. D. Kariofilli and E. G. Kastrada, " The Spatial Distribution of Precipitation Trends in Greece," 7th Panhellenic Geo-graphical Conference of the Hellenic Geographical Soci-ety, Mytilene, 14-17 November 2004.
- [30] J. D. Pnevmatikos and B. D. Katsoulis, "The Changing Regime in Greece and its Impact on Climatological Mea- ns," Meteorological Applications, Vol. 13, 2006, pp. 331- 345.
- [31] P. Alpert, " The Paradoxical Increase of Mediterranean Extreme Daily Rainfall in Spite of Decreases in

Total Values," Geophysical Research Letters, Vol. 29, No. 22, 2002, pp. 1013-1021.

- [32] A. M. Subyani and A. M. Al-Dakheel, "Multivariate Geo-statistical Methods of Mean Annual and Seasonal Rain-fall in Southwest Saudi Arabia," Arab Journal of Geo-sciences, Vol. 2, 2009, pp. 19-27.
- [33] L. W. Alexander, et al, " Global Change in Daily Climate Extremes of Temperature and Precipitation," 2008. http://secamlocal.ex.ac.uk/people/staff/dbs202/publication /2005/alexander.pdf.
- [34] B. Kwanyuen, "Comparative Study of Rainfall in the North of Thailand. Department of Irrigation Engineer-ing," Faculty of Engineering, Kasetsart University, Thai-land, 2008, pp. 1-9. http://std.cpc.ku.ac.th/delta/conf/ Acrobat/Papers_Eng/Volume%201/Banchaa.pdf.
- [35] A. Robinson and D. Freebarim, "Long-term Changes in Rainfall and Potential Wheat Yields at St. George," De-partment of Natural Resources, Toowoomba, 2008. http://www.google.com/search? hl=en&q=Long-term+Changes+in+Rainfall+and+Potential+Wheat+Yiel-ds+at+St. +George&btnG= Search.