

دراسة تغيرات ملوحة مياه نهر شط العرب الشهرية والفصلية والسنوية للفترة ٢٠٠٥-٢٠١٢

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The Study of Monthly, Quarterly and Annual Water Salinity Changes for the River Shatt al- Arab for the period 2005-2012

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Abstract

The salt concentration in sea and rivers water is affected by number of factors, the most important are : the evaporation rates, the average temperature, solar radiation, and air moisture. There is no doubt that the evaporation rates and the rates of precipitation in the form of rain or snow will affect seas' and rivers' salinity, which vary depending on the location of the latitude, season of the year and the proximity or distance from the continental coast. And according to the fact that water in Shatt al-Arab communicate with marine waters through the Arabian Gulf , components of Shatt al-Arab water are affected by many factors, the most important is marine salt water penetrating to distances in Shatt al-Arab during tide period. And because water is the basic component of the vital environment, it has become extremely important to determine its suitability for human and agricultural use by determining the proportion of dissolved salts and its change, monthly, quarterly and annually. After study and analysis we noticed that time represented in days, months, seasons and years has no effect on the concentration of salinity in Shatt al-Arab and the effect of water and air temperature on salinity was weak according to Pearson correlation coefficient, which is calculated in SPSS program.

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Salinity and its Measurement

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Cl Chlorinity

$$S = 0.03 + 1.805Cl$$

$$S = 1.80655 Cl$$

(Lewis,1980)

KCl

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$$K_{15} = C(S, 15, 0) / C(KCl, 15, 0)$$

15 °C

C (S,15,0)

micro Siemens per centimeter E.C. (Steward,2005) ±
(µS/cm)

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Total Tide

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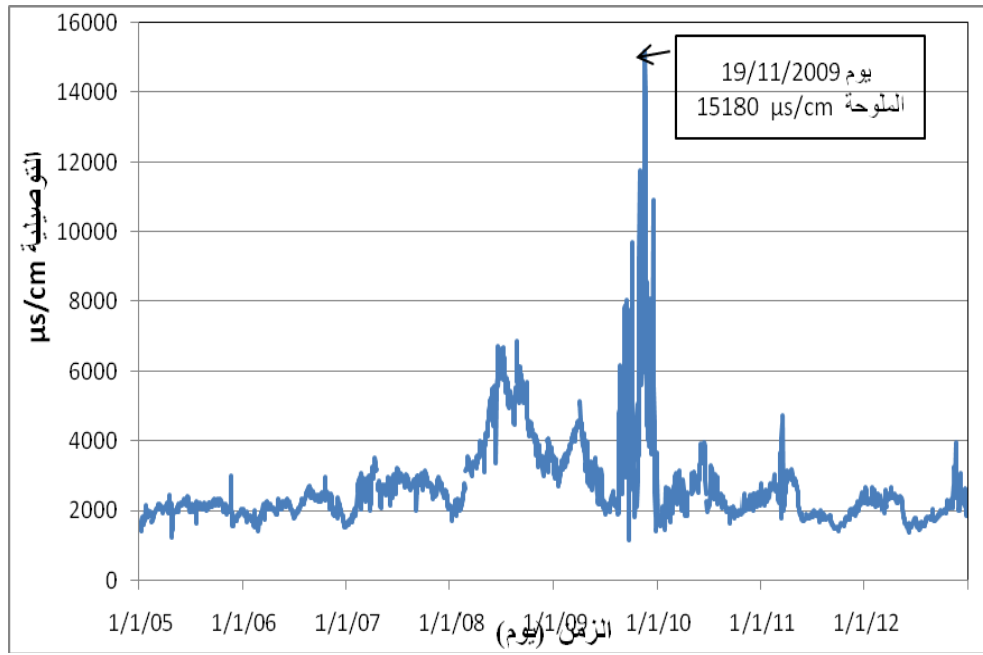
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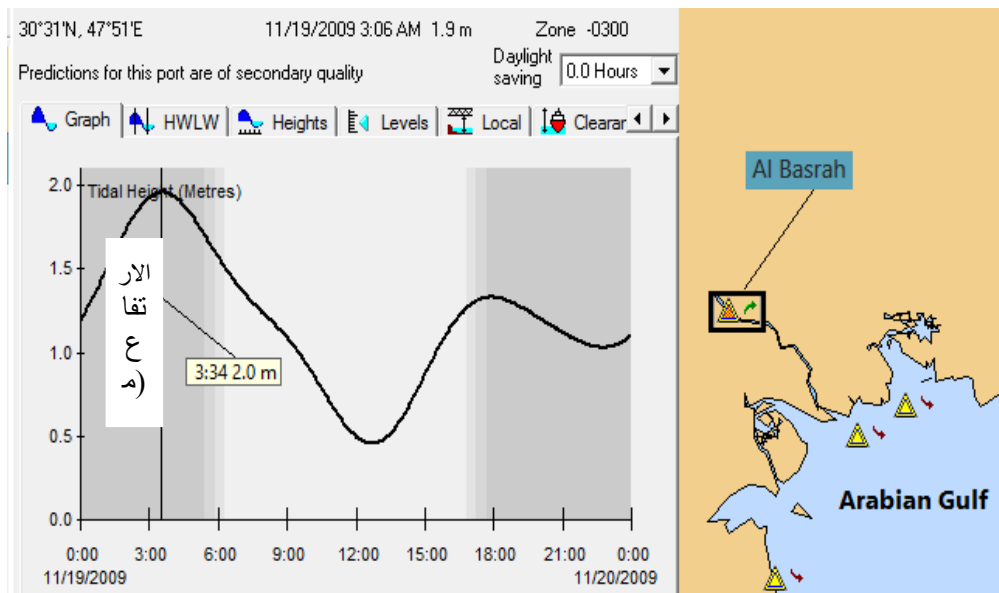
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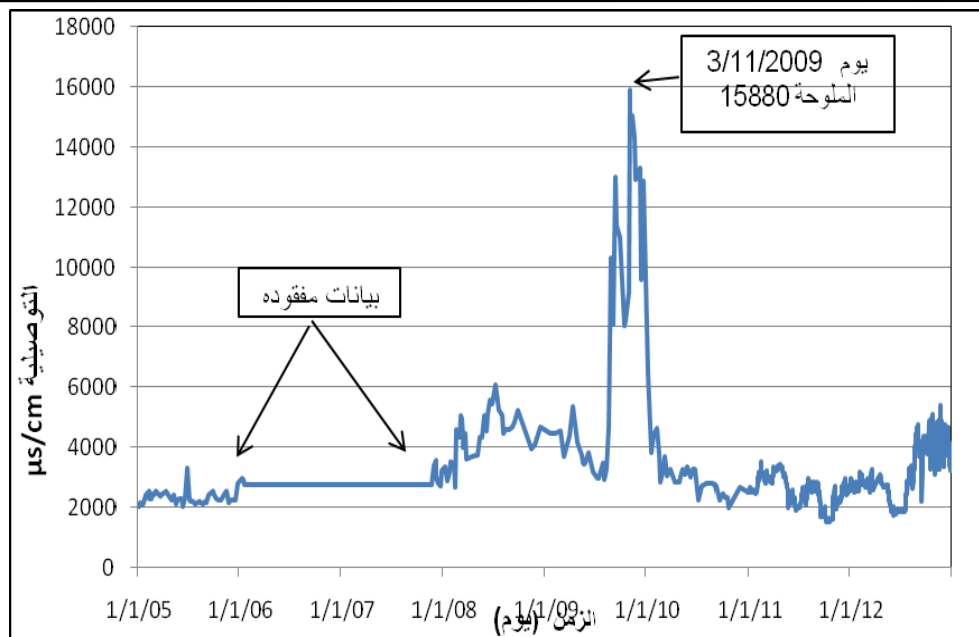
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(30°31'N , 47°51'E)

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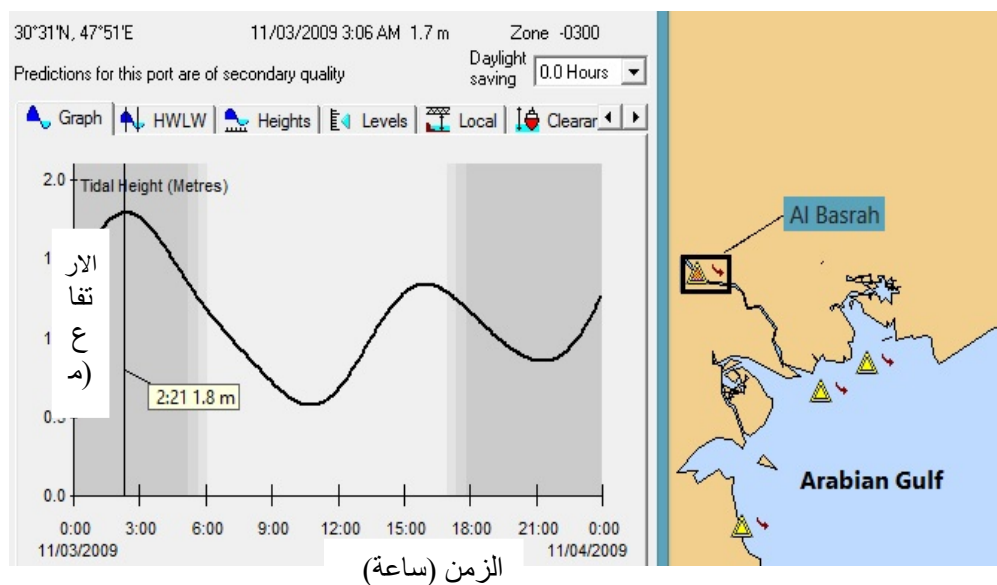
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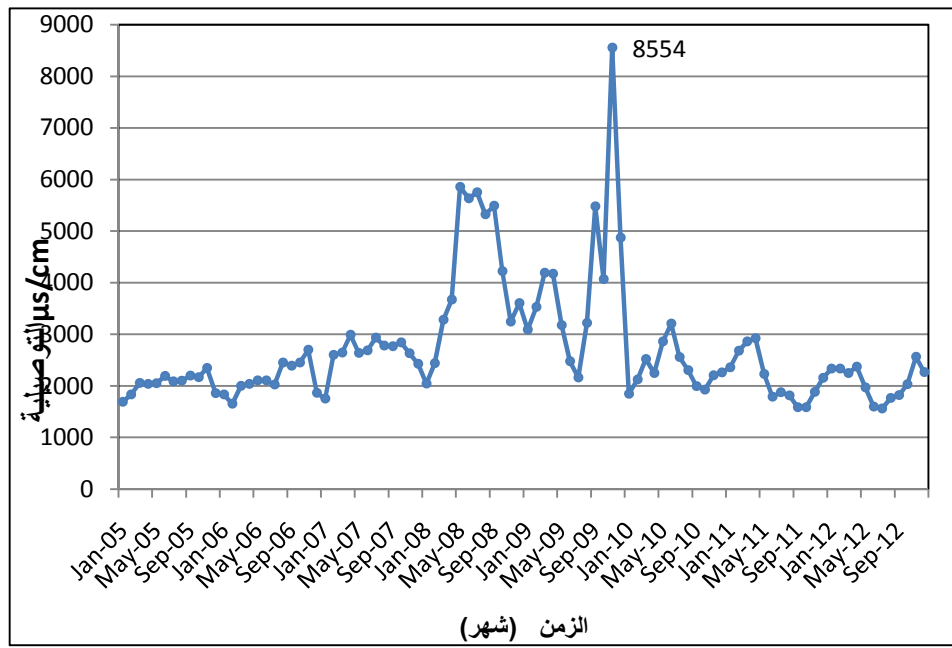
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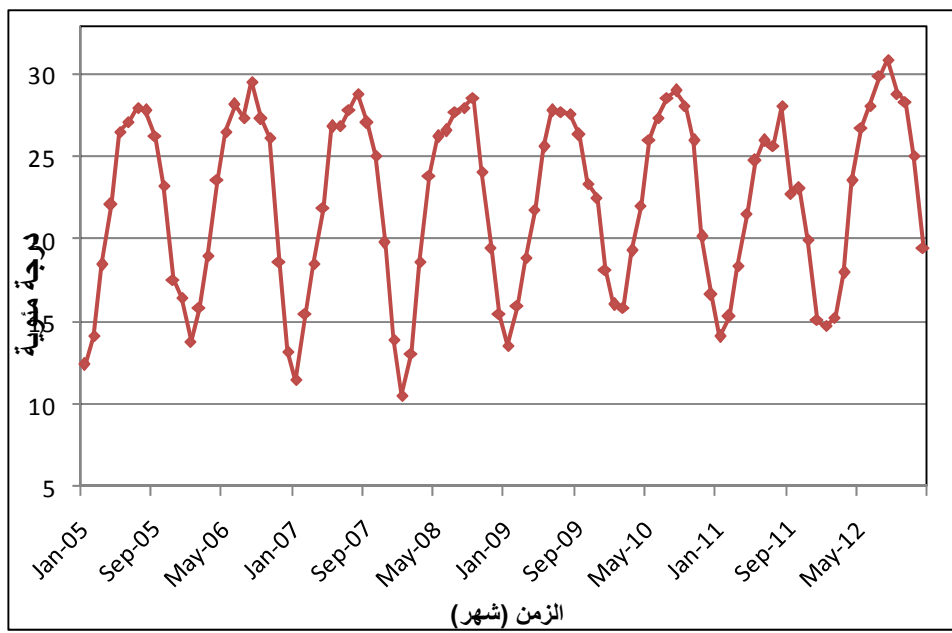
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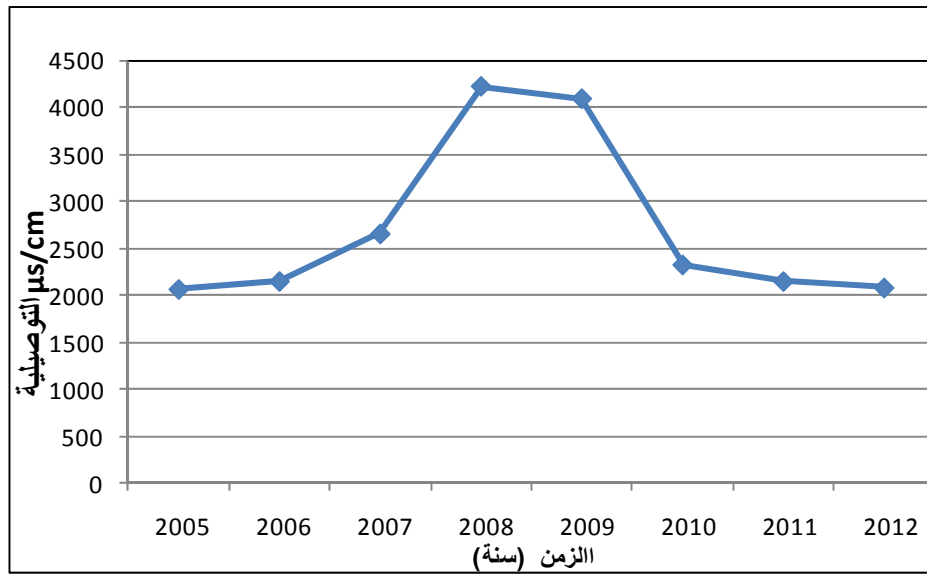
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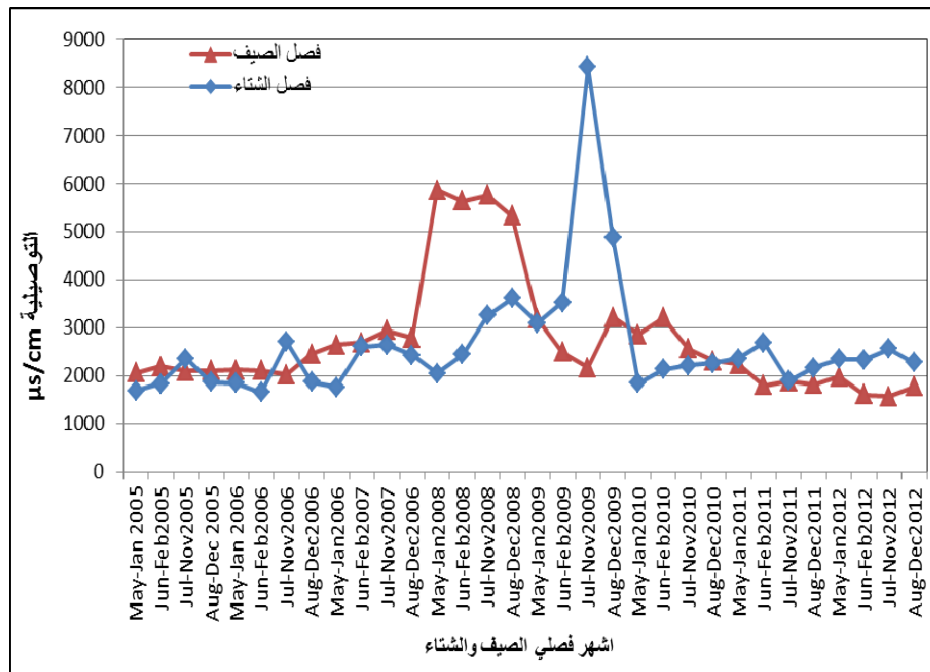
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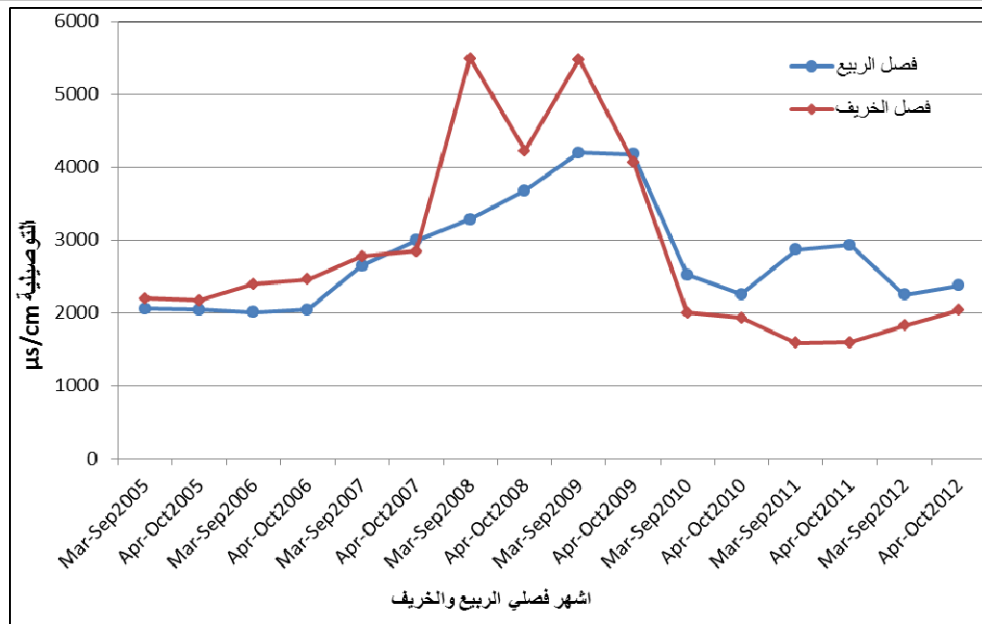
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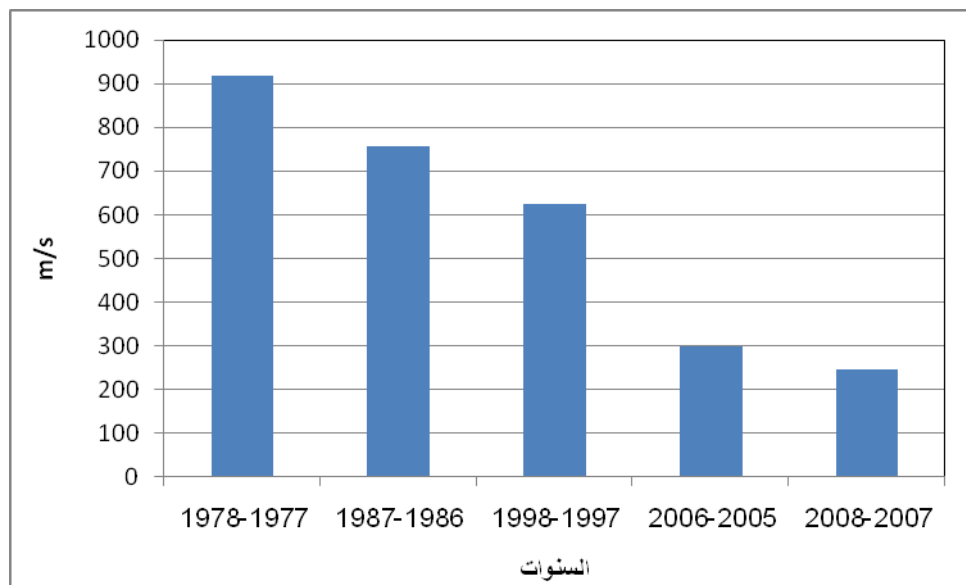


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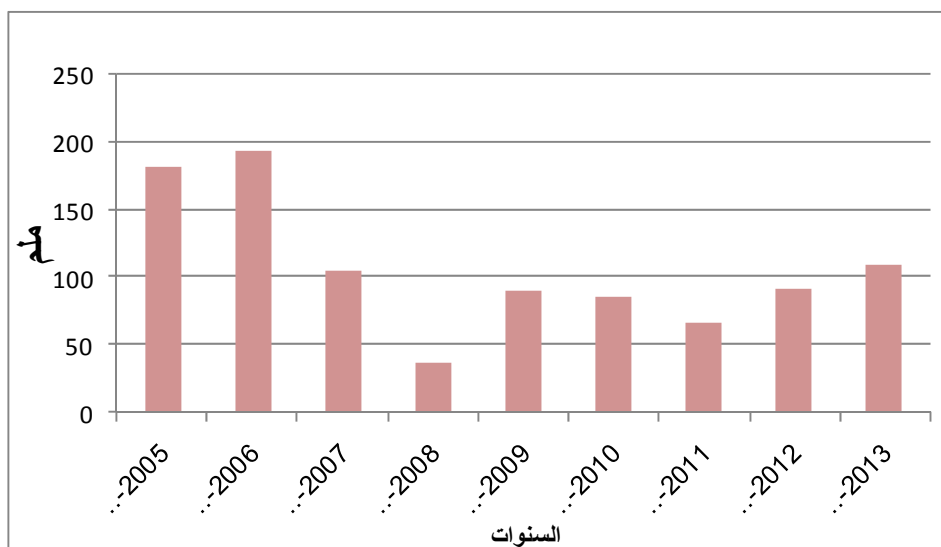
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Correlations

		conductivity	wateraTe mperature
conductivity	Pearson Correlation	1	.106**
	Sig. (2-tailed)		.000
	N	2772	2772
Water temperature	Pearson Correlation	.106**	1
	Sig. (2-tailed)	.000	
	N	2772	2772

**. Correlation is significant at the 0.01 level (2-tailed).

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Correlations

		conductivity	AirTemp erature
conductivity	Pearson Correlation	1	.039*
	Sig. (2-tailed)		.046
	N	2772	2616
AirTemperature	Pearson Correlation	.039*	1
	Sig. (2-tailed)	.046	
	N	2616	2616

*. Correlation is significant at the 0.05 level (2-tailed).

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Correlations

		MoConductivity	MoWeter Temp
MoConductivity	Pearson Correlation	1	.130
	Sig. (2-tailed)		.207
	N	96	96
MoWeterTemp	Pearson Correlation	.130	1
	Sig. (2-tailed)	.207	
	N	96	96

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- 1- Jean-Rene Donguy and Gary Meyers, 1996, Seasonal variations of sea-surface salinity and temperature in the tropical Indian Ocean, Deep Sea Research I, Vol. 43. No.2. pp. 117-138
 - 2- Ronald J. Lynn, 1967, Seasonal Variation of Temperature and Salinity at 10 Meters in The California Current, The California Cooperative Oceanic Fisheries Investigations, v 11, http://www.calcofi.org/publications/calcofireports/v11/Vol_11_Lynn.pdf
 - 3- V. Chandy Johan, Stephen L; Coles, Abobaker I. Abozed, 1990, Seasonal cycles of temperature, salinity and water masses of the Western Arabian Gulf, Oceanologica Acta, Vol 13, N 3.