Kingdom of Saudi Arabia

Ministry of Education

Administration of Education in Makhwah

Nawan Secondary Girls School

A study on the Physical and Chemical properties of the Almuzailef Seaboard and different Internal agricultural areas

Presented By

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To

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Abstract

The Red Sea, with a total length of approximately 2100 km, is enclosed by deserts (Figure 1). The only connection to the open ocean is through the shallow and narrow straits of Bab el Mandeb, connecting the Red Sea with the Gulf of Aden and ultimately the Indian Ocean. Due to the very high evaporation rates in this basin (up to ~2 m/yr) , low mean annual rainfall from 3 mm/yr (N) to 150 mm/yr (S) and no significant rivers flowing into the basin, the basin is characterized by a . pronounced antiestuarine circulation

Air, water and soil from tree areas at AlMuzaylef were investigated. The tools that provided with Globe program were used to determine the properties of air, water and soil sample. The results of physical and chemical analysis of water samples confirmed that the sample of water are not contaminated with nitrite and nitrate. In general, we can conclude the properties of the water, the air and thesoil) in Al-.Muzaylef- Al-qunfedah area

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1-Introduction

AL-Muzaylaf district is located on the coast the climate is warm in the winter and hot in the summer. Little information is obtainable for the estimation of health effects in relation to Sea Salinity. Soil particles containing contaminants are .thereafter entrained into the environment as soil and water

The main objective of this study is estimate the physical properties on air, soil of .AlMuzaylaf seaside region and Intern agriculture areas

The Red Sea, with a total length of approximately 2100 km, is enclosed by deserts (Figure 1). The only connection to the open ocean is through the shallow and narrow straits of Bab el Mandeb, connecting the Red Sea with the Gulf of Aden and ultimately the Indian Ocean. Due to the very high evaporation rates in this basin (up to ~2 m/yr) , low mean annual rainfall from 3 mm/yr (N) to 150 mm/yr (S) and no significant rivers flowing into the basin, the basin is characterized by a pronounced antiestuarine circulation . Surface waters flow northward while evaporating, resulting in a strong south-north gradient in salinity. However, maximum temperatures become ~2°C lower at the southernmost position. The temperature gradient opposes the salinity gradient, with temperatures increasing

2- **Materials and methods**

2-1Description of the sampling sites

Three area are chosen for this study located within AlMuzailef seaboard region, AL-Muzaylaf, Table 1. AL-Muzaylaf is a populated place in Saudi Arabia, Asia. It is located at an elevation of 448 meters above sea level and its coordinates are 19°46'46" N and 41°26'8" E in DMS (Degrees, Minutes Seconds) or 19.7794 and 41.4356 (in decimal degrees). In the western part of Saudi Arabia, the main source of water or almost the single source is the sea. The Geographic location of the AL-Muzaylef city is shown in Fig. 1. Figure 2 show the Geographic of different sites . (under study in AlMuzaylef (19.526236, 40.990084

The area of study was surveyed during 2019. Soil samples were collected by stainless steel drill. The soil was excavated up to 12-15 cm depth by an auger containing all layers. The water samples were collected in polyethylene bottles (1.5 liters capacity). The sample bottles were covered immediately, after water samples from groundwater wells were taken by lowering the polyethylene bottles to about .0.5 m under the water level. The following pictures show the tests for soil

Fig. 1 Saudi Arabia map showing AlMuzaylef city

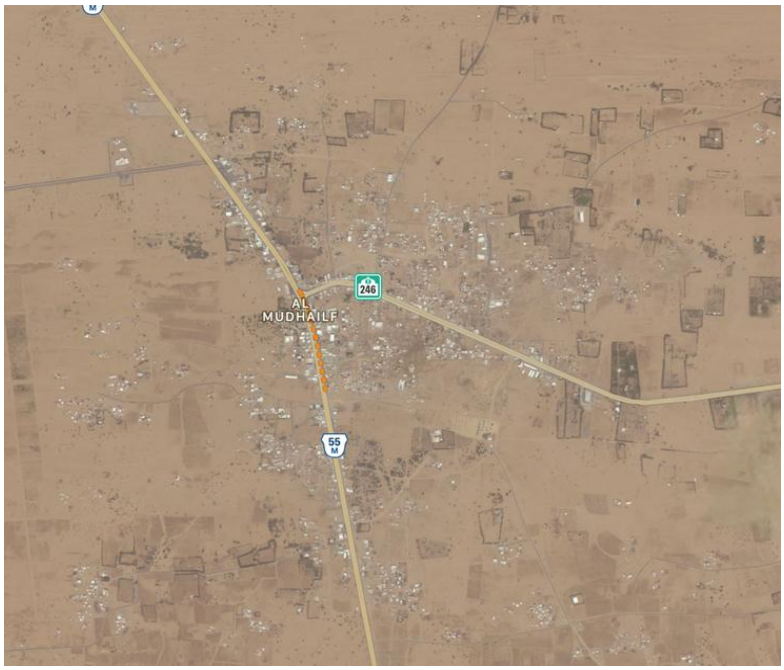


Figure.2 AlMuzaylef city (19.526236, 40.990084)

Table 1

Name and coordinates of studied the sea

The sea	Name	coordinates						Heigh,m
		Latitude			longitude			
1	Al-Muzalef Seaboard	19	29	200	40	57	329	-1.6
2	Different Internal Areas	19	58	1326	41	25	1389	163.4

Results and discussion

3-1Study Area and Sample Collection

The Red Sea, with a total length of approximately 2100 km, is enclosed by deserts (Figure 1). The only connection to the open ocean is through the shallow and narrow straits of Bab el Mandeb, connecting the Red Sea with the Gulf of Aden and ultimately the Indian Ocean. Due to the very high evaporation rates in this basin (up to ~2 m/yr), low mean annual rainfall from 3 mm/yr (N) to 150 mm/yr (S) and no significant rivers flowing into the basin, the basin is characterized by a pronounced antiestuarine circulation . Surface waters flow northward while evaporating, resulting in a strong south-north gradient in salinity. However, maximum temperatures become ~2°C lower at the southernmost position . The temperature gradient opposes the salinity gradient, with temperatures increasing

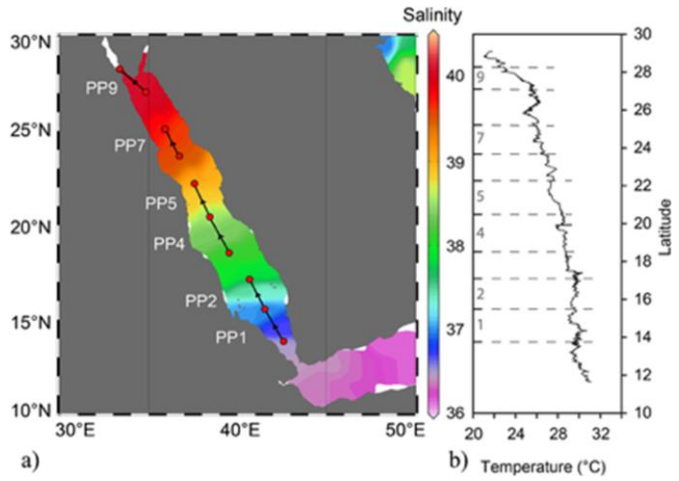


Figure 1: Salinity map (WOA 2001, average April–June) with (a) annual average salinities of the Red Sea and (b) aquaflow temperatures for the used plankton pump (PP) transects

2-3Analysis of atmospheric and climate

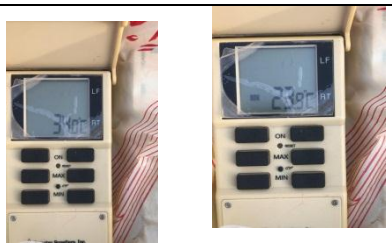
Table 2 shows the date of investigation of atmospheric and climate. As shown of soil of Internal area the current temperature is 29 to 34 ºC, maximum temperature 29 to 36 ºC and minimum from 20 to 23 ºC. The humidity for all sites was 31% in average as .While the Temperature. Of soil of seaboard was about 28 .to 30 ºC

3-3Analysis of soil samples

Soil analysis results showed that all of the samples have a single granular structure. In addition, most samples have a color degree close to each other. All .soils have a silt texture structure except one sample

.The amount of carbonate varies from one location to another

Different Internal agricultural areas

Title	Pictures
1-Determination of air temperature	 
2-Determination of soil temperature	
3-Humidity apparatus	

Different Internal agricultural areas

Title	Pictures	Title	Pictures
1- Soil structure		5-Quantity of rocks	
2- Soil consistency		6- Amount of carbonates	
3-Soil texture		7- The primary soil color	
4- Amount of roots		8-Secondary soil color	
9- pH for Soil			

The Almuzailef Seaboard

Title	Pictures
1-Determination of air temperature	  
2-Determination of soil temperature	  
3-Humidity apparatus	

The Almuzailef Seaboard

Title	Pictures	Title	Pictures
1- Soil structure		5-Quantity of rocks	
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9- pH for Soil			

Analysis of atmospheric and climate **The Almuzailef Seaboard**

	Date	Time	Air Temperature °C			Soil temperature °C			Heat and humidity		Clouds		
			Current	Maximum	Minimum	Current	Maximum	Minimum	Ambient air temperature, °C	Humidity,%	Cloud cover	Type	Proportion ,%
١	19/2/2022	5:00 pm 14:00 pm	29.5	29.5	28.1	31.4	36.3	31.4	29.3	49	sky	Clear	0
2	19/2/2022	5:30 pm 14:30 pm	28.7	30.4	28.1	36.3	36.4	36.3	29.7	53	sky	Clear	0

Table 2-2

Analysis of atmospheric and climate **Different Internal agricultural areas**

	Date	Time	Air Temperature °C			Soil temperature °C			Heat and humidity		Relative atmospheric pressure ,mabr	Clouds		
			Current	Maximum	Minimum	Current	Maximum	Minimum	Ambient air temperature, °C	Humidity,%		Cloud cover	Type	Proportion ,%
١	6/2/2022	5:00 pm 14:00 pm	29.1	29.6	20.3	31.9	32.1	20.5	32.3	30	992.97	sky	Clear	0
2	8/2/2022	5:00 pm 14:00 pm	29.9	30.7	22.3	31.4	31.8	22.8	34.3	32	993.04	sky	Clear	0
٣	13/2/2022	5:00 pm 14:00 pm	34.0	36.7	23.9	34.7	34.7	34.4	32.7	32	989.54	sky	Clear	0

Table 4-2-1

Physical Properties of Soil **The Almuzailef Seaboard**

	Soil structure	Soil color		Soil consistency	Soil texture	Amount of roots	Quantity of rocks	Amount of carbonateS	PH	Soil temperature ,C		
		The primary soil color	Secondary soil color							Current	Maximum	Minimum
1a	Single grained	10YR4l4	10YR5l4	Loose	Caly	None	Few	None	7.1	31.4	36.3	31.4
1b	Single grained	10YR4l3	10YR4l3	Loose	Silt	None	Few	None	7.3	36.3	36.4	36.3

Table 4-2-2

Physical Properties of Soil **Different Internal agricultural areas**

	Soil structure	Soil color		Soil consistency	Soil texture	Amount of roots	Quantity of rocks	Amount of carbonateS	PH	Soil temperature ,C		
		The primary soil color	Secondary soil color							Current	Maximum	Minimum
1a	Single grained	10YR4l3	10YR4l4	Friable	Silt	Few	None	Slight	7.1	31.9	32.1	20.5
1b	Single grained	10YR4l4	10YR5l4	Loose	Silt	None	None	Slight	6.9	31.4	31.8	22.8
1c	platy	10YR4l4	10YR5l4	Friable	Silt	Few	None	Slight	6.9	34.7	34.7	34.4

Conclusion

We can summarize some of the results as the following:-

-The results of the analysis of soils sample showed that it does contain various particles types from Seaboard to Internal areas

-There is no different found in the Temperature of soil of Seaboard and Internal areas.

Acknowledgement

The research team work extends its sincere thanks and appreciation to the Education Department in Al Makhwah for their efforts in facilitating the tasks of this team. We would also like to thank Teacher Fatima Aladwani for providing scientific and technical support for this research.

Badges

Cooperate	Contact a stem specialist	Communication between schools
Students Ghadi Ahmed Al-Zahrani and student Joud Nasser Al-Zahrani 1-Go to different farms in the area 2-Taking different amounts of soil 3-Use of instruments for weather measurements 4-Conducting experiments for soil measurements at school 5-Searching and reading about books that help in the research	1-The teacher: Fatima Al-Adawani, a master's degree in Biology and a Biology teacher, translating research into English 2-The teacher: Aida Al-Rashidi, the chemistry teacher, supervising the experiments and research of the students 3-School lab teacher: Alia Al-Zahrani 4-School Principal: Aisha Al-Zailai provided support and assistance	Contacting Professor: Fayza Bahri at El-Matn Interm ediate and Secondary School to assist in the Globe research

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Work Plan

The project's head, Aisha Khader Mohammed Al Zaili, distributed the work to the team as follows:

Students collect samples from various sites over a period of days.

Field studies were carried out for three different farms in the AlMuzaylef area and measurements of different weather conditions at each site.

Test and analysis the samples (water, soil and air) on Globe program devices.

Make reports about each site

Assigning the Globe program coordinator, Ida Ali Hussein Al-Rashedi, to follow up the students during the experiments on the environmental globules and to establish sites for field studies on the school's Globe website.

The project leader communicates with the academic supervisor to conduct some specialized nalysis, quality and con