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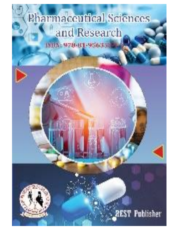

Assessment of Seasonal Variations in Surface Water Quality in SPSS Method

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Abstracts: *The primary source of water in locations without access to surface water is groundwater. In the past, groundwater served as the primary resource for all needs in the Morapur area of Tamil Nadu Dharmapuri district. According to reports, the area has a serious fluorosis problem since the groundwater contains too much fluoride. The area is made up of charnockite, epidotic hornblende gneiss, and ultramafic rocks that date back to the Achaean period. Numerous tectonic upheavals in the region led to the development of quartz/feldspathic veins and heavily mineralized vertical joints. There are two hydrological systems in the area, namely the worn and cracked aquifer water table. 149 groundwater samples were taken before and after the monsoon to better understand the variables influencing high fluoride concentration in groundwater. According to analysis's findings, 35% of groundwater samples contained fluoride concentrations greater than 1.5 bps (permissible limit). The findings show that deep aquifers and high fluoride levels have an impact on both aquifers. Groundwater in the area interacts with biotic and hornblende minerals to release calcium, magnesium, and fluoride. And according to acid-alkaline indices, sodium ions replace calcium ions due to reverse ion exchange, resulting in a high concentration of sodium with a high concentration of fluoride. The federal government has taken measures to make fluoride-free food and water from distant water sources available. To increase groundwater quality, specific water management techniques are crucial. Tamil Nadu, Dharmapuri District, Domestic and Water quality for irrigation purposes to assess water quality survey has been carried out. PH, TDS, TH, Calcium, Magnesium, Chloride, Sulphate. This paper notes that increasing levels of water pollution, the resulting billion-dollar utility and with control schemes, it provides a way to measure and evaluate the quality of given water body Development of water quality codes is necessary. The data output of current water monitoring stations is huge and Dimensional reporting units are different and not integrated in a straightforward algebraic way, even by scientifically trained users have few means of integrating the data to provide; water quality. That quality is locally better than hook and line to be broadly defined, Because of the importance of downstream streams less emphasized in that context. The stream is never fishable However, it is an integral part of the watershed; Protection is essential if downstream streams are to remain fishable and swimmable. The Clean Water Act's biological integrity mandate without considering local streams separately, It depends on the overview of the entire hydrological system at the water table level. Agricultural waste, applied fertilizers, soil leach ate, urban waste, Cattle excreta and sewage Sources of poor water quality. Some models have hardness and due to magnesium concentration are highly saline not suitable for irrigation purposes. In general, ground water farming activities of Dharmapuri district, anthropogenic activities, ion exchange and contaminated by weather.*

Keywords: *Ph, Tds, Th, Sulphate, Chloride and Calcium.*

1. INTRODUCTION

Around the world, groundwater is frequently used to satisfy a variety of human demands. Groundwater is used by one-third of the world's population for a variety of reasons (Nixon et al. 2005). Groundwater is a dynamic resource in society due to the lack of potable surface water and the widespread belief that it is cleaner and superior than surface water (Mishap et al. 2005). The physical and chemical components of groundwater determine its quality, and these components are dependent on soluble substances like weathering, breakdown, and changes in time and place (Baraga and Gil ender 1988). Numerous contaminants coming from home, industrial, and agricultural sources as well as other sources contribute to the pollution of the aquatic environment. Fresh water demand has significantly increased in recent years, and it is rising in arid and semi-arid countries as a result of global population development, urbanization, industrialization, and intensive agricultural practices (Palermo and Beckman 1999; Omo-Irabor et al. 2000).Ground water is polluted and it is very difficult to restore its quality. In the villages of Salem district, the water had high hardness and fluoride content, which softens its properties and can be replaced with difluoride, which makes the water useful. In Salem district, except for fluoride content, groundwater level was good. The ground water level was higher than the permissible limit of TDS. Geographical Information System (TH) for water quality mapping is a valuable tool and useful for monitoring, based on which the concentration values of various chemical elements are used as a database system to create water quality maps. Aim of the present study Geology and geological tools are fundamental to understanding the magnitude of associated health risks and making wise decisions about drinking water quality protection and management. Achieving reliable results and making informed decisions is possible using an effective drinking water quality assessment system Important. Since the 1960s Water Quality Index (WQI) was developed by Horton, many water quality assessment methods have been proposed. Rapidly developing assessment methods improve understanding of simple single-number water quality. Many regulatory agencies have provided more effective water quality standards Criteria for securing useful applications Development of Common Water Quality Index (WQI). These criteria can be analyzed and it is the total water used to indicate the quality. These include water quality variables such as dissolved oxygen (DO), conductivity, turbidity, total phosphorus and faucal coli form, each of which has beneficial uses Specific implications. Many water quality indices have been developed to assess water quality in states and Canada. All these indices contain eight or water quality variables. However, long-term and continuous data are not available for most water bodies. Fewer variables are used and there is a need to develop a new PH that can be used to compare sites with water quality expectations. This course aims to provide a general review of existing codes and to develop a new code that provides a simple method of describing water quality. Contaminants Contamination of the Lower St. Johns River (LSJR) comes from both point and nonpoint sources, including storm water runoff, ditches and creeks, and groundwater Sewage, aquatic weeds control, naturally available organic inputs and Atmospheric deposition. As water quality deteriorates due to this pollution, the composition of organisms in river basins changes. Over the past several decades many efforts have been made to restore the health of the LSJR to prevent further contamination. Developing a surface water monitoring network is one such important initiative.

2. GROUND WATER QUALITY

Drinking water By comparing the measured concentration of ions and other parameters with the suggested limits provided by the Bureau of Indian Standards, the acceptability of the groundwater in this area as drinking water was determined (BIS 2013). Table 1 lists the quantity and percentage of samples that exceeded the drinking quality criteria suggested by BIS (2013). The quantities of calcium, chloride, sulphate, and nitrate as well as total hardness were consistently within suggested levels in the 652 groundwater samples that were collected and analysed water quality for drinking. The restrictions are several points higher for various ions and parameters. When different criteria are applied for various applications, sodium concentration surpassed the advised limits in a maximum of 220 samples in the following sections, with regional variations. Additionally, there are other distinctions that have been made, and the classification of water quality varies depending on the parameters that make up the water. It attempts to make it easier to convey the outcomes of several indicators for an accurate assessment of the water quality in Thailand. To increase public awareness of drinking water issues, freshwater education at the school, community, and informal levels is essential. Adequate learning methodologies contribute to awareness, skill development, and improved interactions with experts, among other advantages. Because the foundation for comprehending drinking water is laid at a young age, it is crucial to begin water education in preschool. The narrow and neutral perception of organoleptic at this level—often for young children—and water issues can be influenced by educational initiatives. Geographically and socially specific concerns that need to be addressed should be determined with the strong input of academics and water experts. Piped water supplies, water services, and expertise that is particularly important in certain areas are a few examples of such themes. Water quality is greatly influenced by personal information, which also expresses thoughts on how to enhance it. When more variables are required in the code to solve certain water quality issues but the integration function does not permit this, rigidity problems arise. A regulatory body might already have an overall index, for instance, but decide to include one or more additional characteristics. This can happen when a location receives a good water quality code, but elements not covered by the code cause the water quality to decline. A similar regulatory authority in another area or region frequently demands a different set of characteristics related to water quality for its integrated index. Therefore, when applied to a different area or region, a water quality improvement strategy that is required for one area or region may produce unclear findings for a different number of water quality parameters. You can include more variables. In the Dharmapuri district, the relationship between land use and water quality was investigated using Spearman's rank correlation analysis. Verifying whether there are substantial differences involves analyzing the variation of the standard values of a few chosen water quality metrics across land use categories. For additional GIS spatial analysis, factors related to water quality that were significantly correlated with land use were chosen.

PH: This study intends to assess if prolonged exposure to low or high pH has positive or negative impacts on tobacco physiology and growth. For Bacon, hematological variables, growth, plasma ions, and tissue phosphates were evaluated. The offspring of this species are growth-promoting and appropriate for aquaculture. These locations were chosen to look into how elements besides geography and climate might impact surface water PH.

TDS: The estimation of bromide concentrations from chloride data was effective because to the discovery of a linear connection. Bromide demonstrated a somewhat improved association with TDS and made it simpler to collect TDS data. According to other published statistics, compared to the chloride and TDS amounts found in saltwater, its ratio relative to bromide content is 70%. Since various ions and titers in various tap water contribute to TDS. More focus should be placed on TDS SMCL because to the acknowledged national trend of rising TDS in raw water and ultimately tap water. There are worries that America will eventually become unfit for human consumption because it is too salty.

TH: Thyroid hormone (TH) Vertebrate development and regulatory processes depend on thyroid hormone (TH). Prior to now, the main emphasis has been on substances thought to be harmful to TH production, transport, and catabolism. The majority of efforts have concentrated especially on thyroid hormone (TH) activation by environmental contaminants and androgen and oestrogen balance. Industrial effluents, sediment extracts, water sources in eastern China, and finished drinking water in Beijing have all shown anti-thyroid hormone effects. Organ chlorine and other synthetic chemicals have an impact on TH functioning (OC). Pesticides used in agriculture and industry, like 4-aminophenol and phthalate esters 9 and 10, affect the thyroid receptor (TR) by preventing binding to its endogenous ligands or by adding more legends.

Magnesium: Magnesium-rich water should be consumed [4]. In developed nations, there is a low daily consumption of magnesium, according to a prior study [5]. Through a number of processes, magnesium shortage leads to cardiac arrhythmias [6]. Magnesium levels in the heart muscle were noticeably lower in autopsy studies of sudden CHD mortality [7]. Magnesium in drinking water has no detrimental effects on CHD [4]. There is evidence that it may have an impact on mortality, magnesium levels in drinking water, and the risk of various CHD fatalities. We looked at whether there was a connection between magnesium levels in drinking water and CHD mortality as there hasn't been a thorough meta-analysis to date to evaluate this association.

Chloride: The growth of plants requires the element chloride. Chloride is present in tobacco in significant proportions and accumulates quickly; values of 100 g Cal kg1 leaf dry matter are observed. While low concentrations of Cal sterility have a positive impact on tobacco yield and leaf market value, excessive concentrations in soil have some anomalous growth characteristics and are linked to unfavorable traits in cured leaf. The pace of burn is reduced and there are minimal negative effects when the cured leaf contains too much chloride. The scents and irregular hues of bacon leaves are unpleasant. This demonstrates that the outcomes of water leakage are consistent with public output.

Sulfate: All industrial processes fundamentally require sulphate removal technology. It could be necessary to remove sulphate in order to reuse water in mining operations. The most suitable choice for a certain mining operation will depend on site-specific factors; therefore appropriate water treatment technology must be assessed on a case-by-case basis. Chemical treatment, membrane filtering, ion exchange, biological sulphate removal by sulphate lime, and chemical precipitation of gypsum with lime are other treatment options for removing sulphate from mine waste. Sulfate concentrations are often decreased to 1,500–2,000 mg/L and less than 1,200 mg/L depending on ionic strength through removal from mine water and solution mixing.

3. RESULTS AND DISCUSSION

TABLE 1. Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.555	.793	7

Table 1 shows the Cronbachs Alpha Reliability result. The overall Cronbachs Alpha value for the model is .555 which indicates 79% reliability. From the literature review, the above 79% Cronbachs Alpha value model can be considered for analysis.

TABLE 2. Descriptive Statistics

	N	**Range**	**Minimum**	**Maximum**	**Sum**	**Mean**		**Std. Deviation**
PH	11	1.4	6.8	8.2	82.0	7.455	.1522	.5047
TDS	11	943	635	1578	10928	993.45	105.921	351.299
TH	11	398	211	609	4764	433.09	46.749	155.048
SULPHATE	11	104	64	168	1136	103.27	9.696	32.159
CHLORIDE	11	240	210	450	3965	360.45	21.913	72.678
CALCIUM	11	277	68	345	2120	192.73	36.342	120.532
MAGNESIUM	11	287	158	445	3063	278.45	31.091	103.118
Valid N (listwise)	11							

Table 2 shows the descriptive statistics values for analysis N, range, minimum, maximum, mean, standard deviation, Skewness, Kurtosis. Output evaluation parameters are PH, TDS, TH, Calcium, Magnesium, Chloride, Sulphate.

TABLE 3. Frequencies Statistics

		PH	**TDS**	**TH**	**SULPHATE**	**CHLORIDE**	**CALCIUM**	**MAGNESIUM**
N	Valid	11	11	11	11	11	11	11
	Missing	0	0	0	0	0	0	0
Mean		7.455	993.45	433.09	103.27	360.45	192.73	278.45
Std. Error of Mean		.1522	105.921	46.749	9.696	21.913	36.342	31.091
Median		7.400	896.00	457.00	87.00	369.00	168.00	249.00
Mode		6.9[a]	635[a]	211[a]	85	210[a]	345	158[a]
Std. Deviation		.5047	351.299	155.048	32.159	72.678	120.532	103.118
Variance		.255	1.234E5	2.404E4	1034.218	5282.073	1.453E4	10633.273
Skewness		.298	.662	-.320	.868	-1.117	.207	.335
Std. Error of Skewness		.661	.661	.661	.661	.661	.661	.661
Range		1.4	943	398	104	240	277	287

Minimum		6.8	635	211	64	210	68	158
Maximum		8.2	1578	609	168	450	345	445
Sum		82.0	10928	4764	1136	3965	2120	3063
Percentiles	25	6.900	668.00	255.00	79.00	347.00	78.00	167.00
	50	7.400	896.00	457.00	87.00	369.00	168.00	249.00
	75	8.100	1253.00	568.00	129.00	423.00	329.00	382.00

Table 3. The frequency (f) of a particular value is the number of values that occur in the data. The distribution of a variable is the pattern of frequencies, the set of all possible values and Corresponding to these values are the frequencies. Frequency distributions are frequency tables or depicted as illustrations. PH, TDS, TH, Calcium, Magnesium, Chloride, and Sulphate this also using Variance curve values are given.

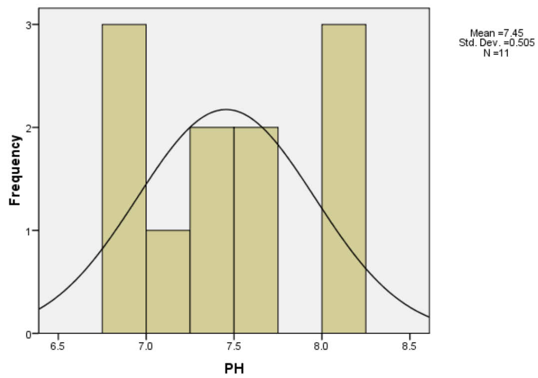

FIGURE 1. PH

Figure 1 shows the histogram plot for the legs from the figure, where it can be clearly seen that the data is slightly skewed to the right due to high values for 6.8-8.2, while all other values are under the normal curve, suggesting that the sample follows a normal distribution.

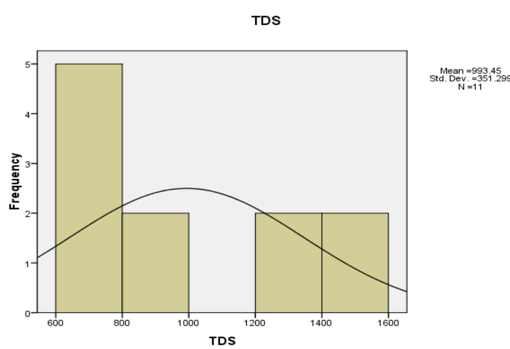

FIGURE 2.TDS

Figure 2 shows a histogram plot for the legs from Figure 1 where it can be clearly seen that the data is slightly skewed to the left due to the high values for 600–1600, while all other values are under the normal curve, the sample substantially follows a normal distribution.

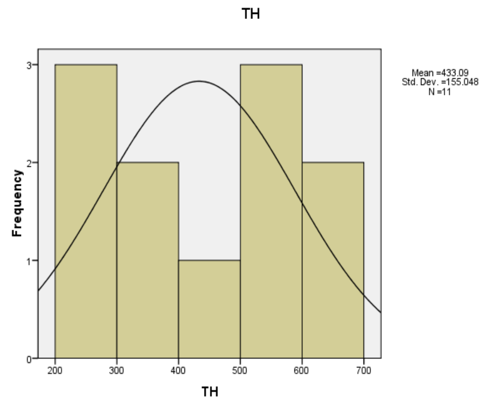

FIGURE 3.TH

Figure 3 shows a histogram plot for the legs from the figure where it can be clearly seen that the data is slightly skewed towards normal due to high values for 200–700, while all other values are under the normal curve, the sample substantially follows a normal distribution.

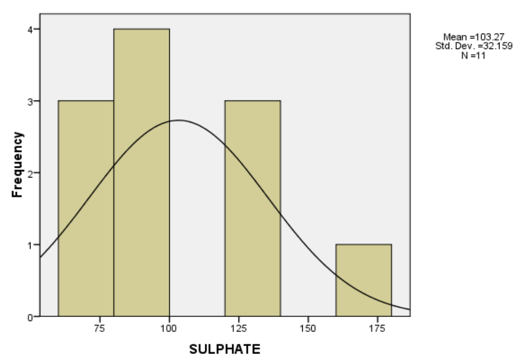

FIGURE 4. Sulphate

Figure 4 shows a histogram plot for legs from where it can be clearly seen that the data is slightly skewed towards normal due to high values for 68-177, while all other values are under the normal curve, the sample substantially follows a normal distribution.

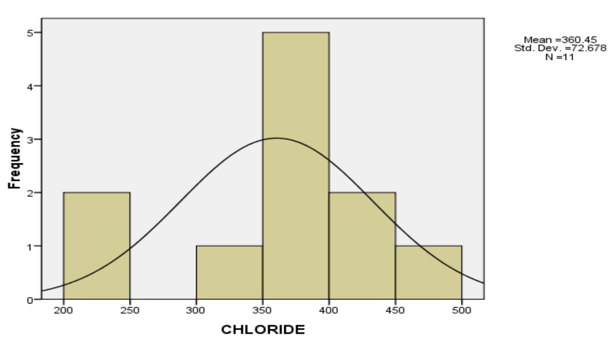

FIGURE 5. Chloride

Figure 5 shows a histogram plot for feet from the figure where it can be clearly seen that the data is slightly skewed to the right due to high values for 200-500, while all other values are under the normal curve, the sample substantially follows a normal distribution.

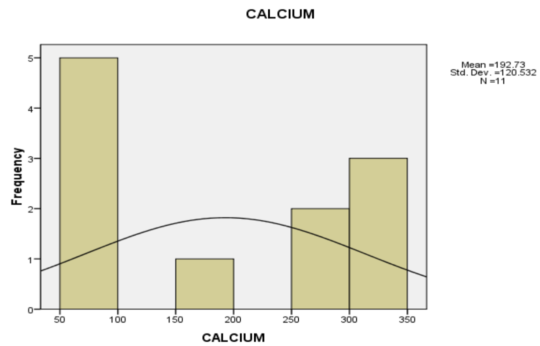

FIGURE 6. Calcium

Figure 6 where it can be clearly seen that the data is slightly skewed to the left due to high values for 50–350, while all other values are under the normal curve, the sample substantially follows a normal distribution.

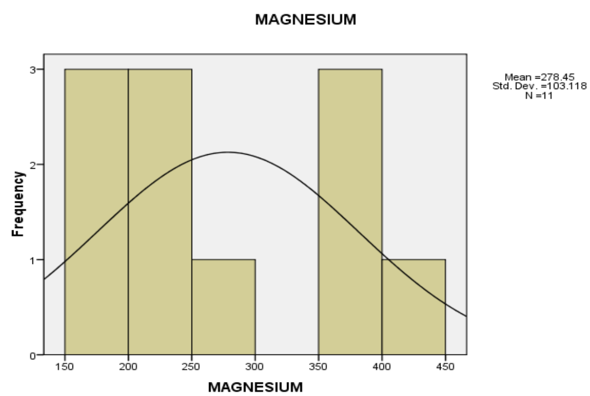

FIGURE 7. Magnesium

Figure 7 shows a histogram plot for legs from Figure 1 where it can be clearly seen that the data is slightly skewed to the right due to high values for 150–450, while all other values are under the normal curve, the sample substantially follows a normal distribution.

TABLE 4. Correlation

Correlations							
	PH	TDS	TH	SULPHATE	CHLORIDE	CALCIUM	MAGNESIUM
PH	1	.109	.818**	.406	.221	.269	.623*
TDS	.109	1	.386	.364	.349	.148	.165
TH	.818**	.386	1	.399	.342	.433	.679*

SULPHATE	.406	.364	.399	1	.779**	.141	.175
CHLORIDE	.221	.349	.342	.779**	1	.072	.132
CALCIUM	.269	.148	.433	.141	.072	1	.423
MAGNESIUM	.623*	.165	.679*	.175	.132	.423	1

Table 4 shows the correlation between motivation parameters for PH is having highest correlation and Sulphate having lowest correlation with. Next TDS is having the highest correlation and Calcium having the lowest correlation with. Next TH is having the highest correlation and PH having the lowest correlation with. Next Calcium is having the highest correlation and Sulphate having the lowest correlation with. Next Magnesium is having the highest correlation and Chloride having the lowest correlation with. Next Chloride is having the highest correlation and Magnesium having the lowest correlation with. Next Sulphate is having the highest correlation and Calcium having the lowest correlation with.

4. CONCLUSION

Tamil Nadu, Dharmapuri District, Domestic and Water quality for irrigation purposes to assess water quality survey has been carried out. PH, TDS, TH, Calcium, Magnesium, Chloride, Sulphate. This paper notes that increasing levels of water pollution, the resulting billion-dollar utility and with control schemes, it provides a way to measure and evaluate the quality of given water body Development of water quality codes is necessary. The data output of current water monitoring stations is huge and Dimensional reporting units are different and Not integrated in a straightforward algebraic way, even by scientifically trained users have few means of integrating the data to provide; water quality. That quality is locally better than hook and line to be broadly defined, Because of the importance of downstream streams less emphasized in that context. The stream is never fishable However, it is an integral part of the watershed; Protection is essential if downstream streams are to remain fishable and swimmable. The Clean Water Act's biological integrity mandate without considering local streams separately, It depends on the overview of the entire hydrological system at the water table level. Agricultural waste, applied fertilizers, soil leach ate, urban waste, Cattle excreta and sewage Sources of poor water quality. Some models have hardness and due to magnesium concentration are highly saline not suitable for irrigation purposes. In general, ground water farming activities of Dharmapuri district, anthropogenic activities, ion exchange and contaminated by weather.

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