An application of GDPP point on Sea Temperature: The performance of the GDPP point

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Abstract :

If you take two time series lines, you will observe the difference between the two. The difference between the lines can increase, decrease or, can remain constant. Even if the data is non stationary, the two lines can show relation. However this time, I will show you the performance of the GDPP point on the Sea temperature.

Introduction and hypothetical back ground:

I have collected the data from the depth of 2 hands (40 inch approx.) of sea water from an unknown place of Chittagong. Because of the limitation of the finance and scope I have used only some traditional methods to collect the data. In order to collect the data I have used a thermometer(with rope) which normally we use in Lab to collect the data from chemical reactions. However the data has collected between 12.34 A.M. to 7.12 P.M. . After 7.12 P.M. it is difficult to collect the data for a long time because of the darkness and other difficulties, distance of the place for example.

This paper will help the researchers and the fishermen who drive deep into the sea, who actually likes to know the difference between the two lines and the rate of the changing of this differences, which gives them the information about the

dissimilarities of the data from their normal behave, which represent the expected environment of the sea.

Implication of the GDPP points:

$$Growth\ rate\ of\ DPP\ (GDPP) = \frac{(x_{n+1} - y_{n+1}) - (x_n - y_n)}{x_n - y_n} \times 100$$

$$where, \quad x_n > y_n \ \ and \ \ x_{n+1} \geq y_{n+1} \ \ Or, x_{n+1} < y_{n+1}$$

$$Growth\ rate\ of\ DPP(GDPP) = \frac{(x_2 - y_2) - (x_1 - y_1)}{x_1 - y_1} \times 100$$

$$where, \quad x_1 > y_1 \ and \ x_2 \geq y_2 \ \ Or, x_2 < y_2$$

$$If \ \ x_2 > y_2, \qquad when, (x_2 - y_2) = (x_1 - y_1)$$

$$Then\ GDPP = 0, \qquad when, (x_2 - y_2) > (x_1 - y_1)$$

$$Then\ GDPP > 0, \qquad when, (x_2 - y_2) < (x_1 - y_1)$$

$$Then\ GDPP < 0, \qquad If\ x_2 = y_2, \qquad then \ \ GDPP = -100\%$$

$$If\ x_2 < y_2, \qquad then \ \ GDPP < -100\% \ \ and \ \ after\ that\ the\ next\ step\ should\ be,$$

$$Growth\ rate\ of\ DPP(GDPP) = \frac{(x_3 - y_3) - (x_2 - y_2)}{x_2 - y_2} \times 100$$

$$PD = Point\ of\ Distruction\ (That\ Point\ the\ model\ maximum\ can\ allow)$$

$$PD > GDPP \geq -100\%$$

$$PD > GDPP > 0$$

$$GDPP = 0$$

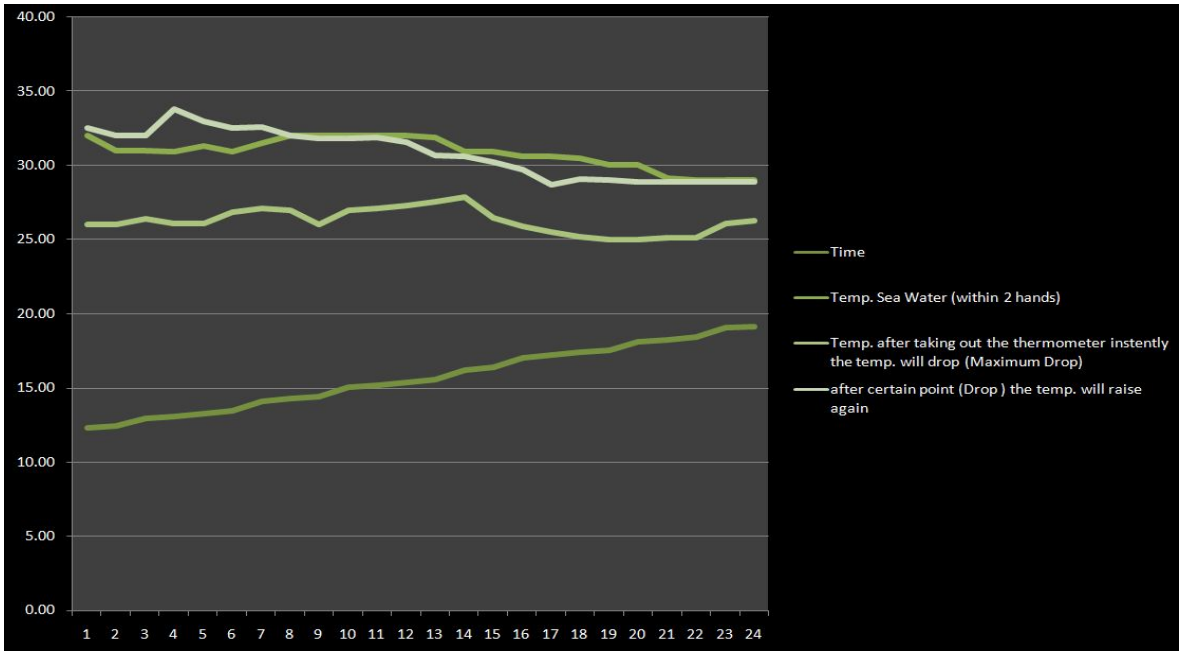
$$0 > GDPP > -100$$

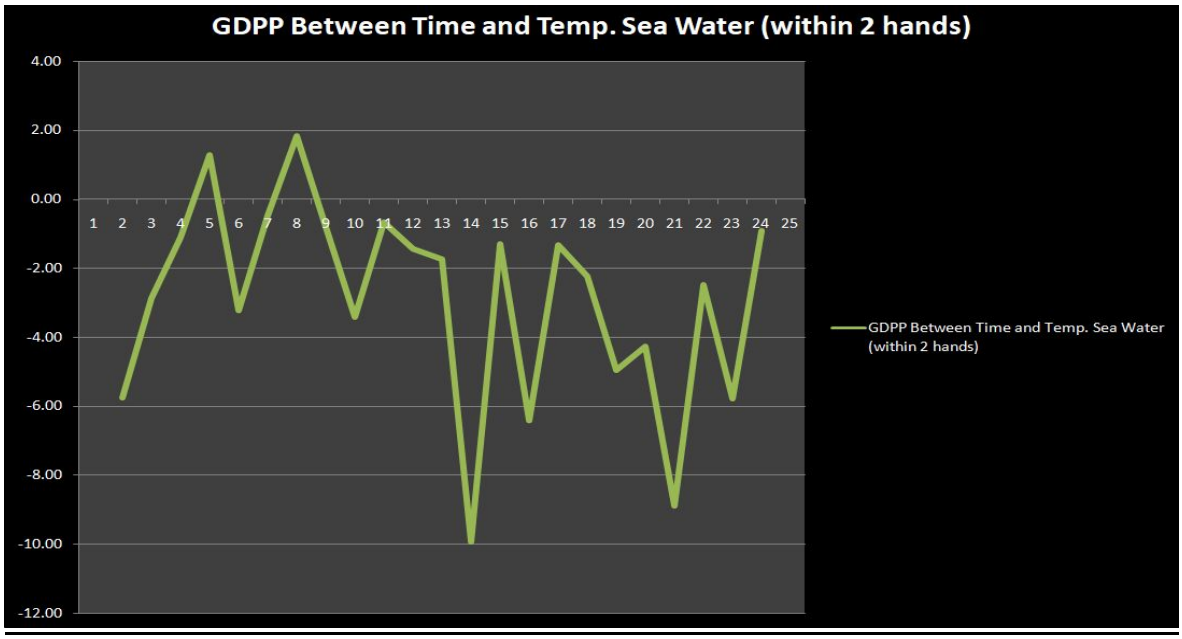
$$GDPP = -100$$

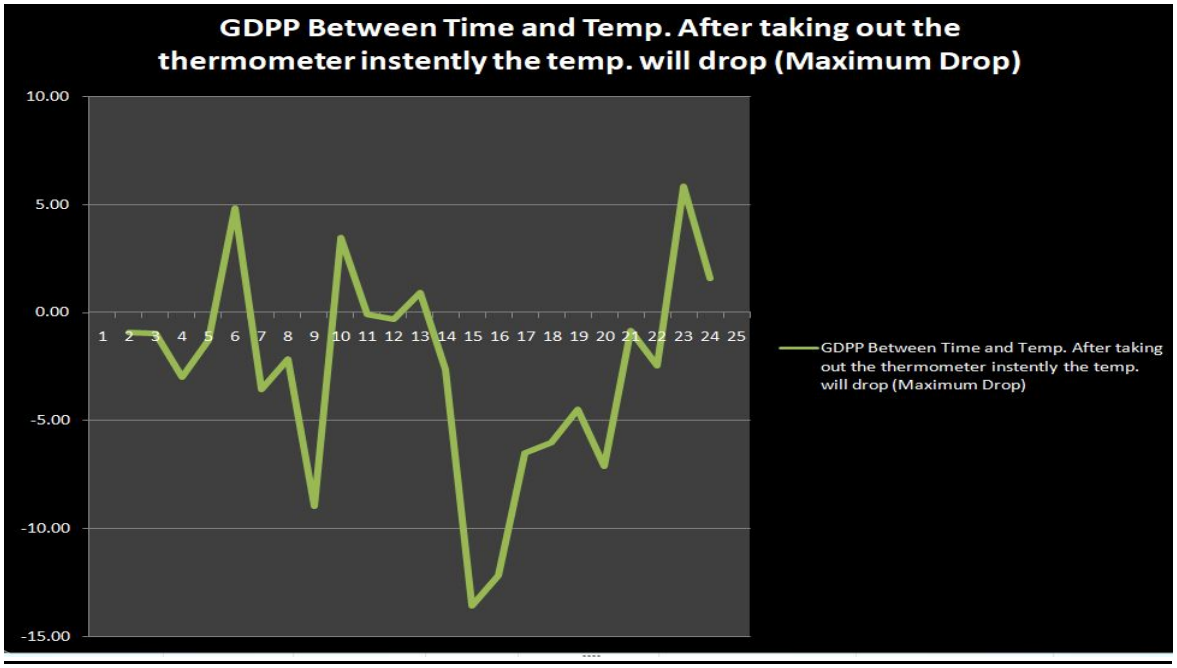
Let's consider a range of equilibrium points. As it is a growth rate, the range can vary from one situation to another situation. Therefore if two points for example, UQP and LQP. We can write,

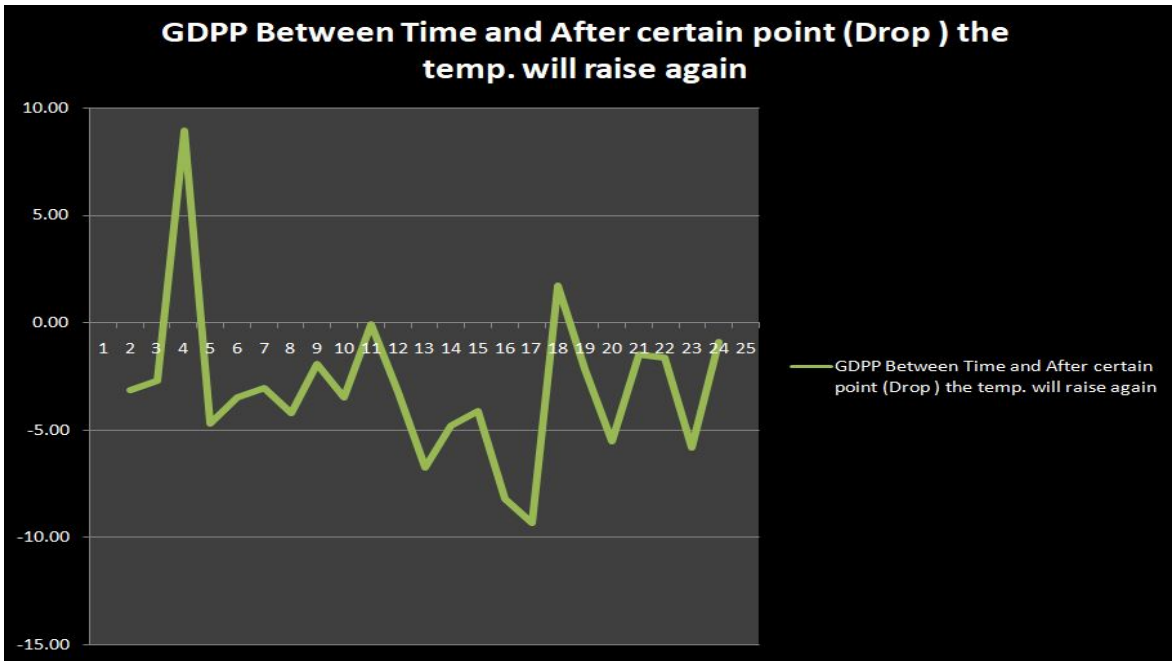
$$UQP \geq GDPP \geq LQP$$

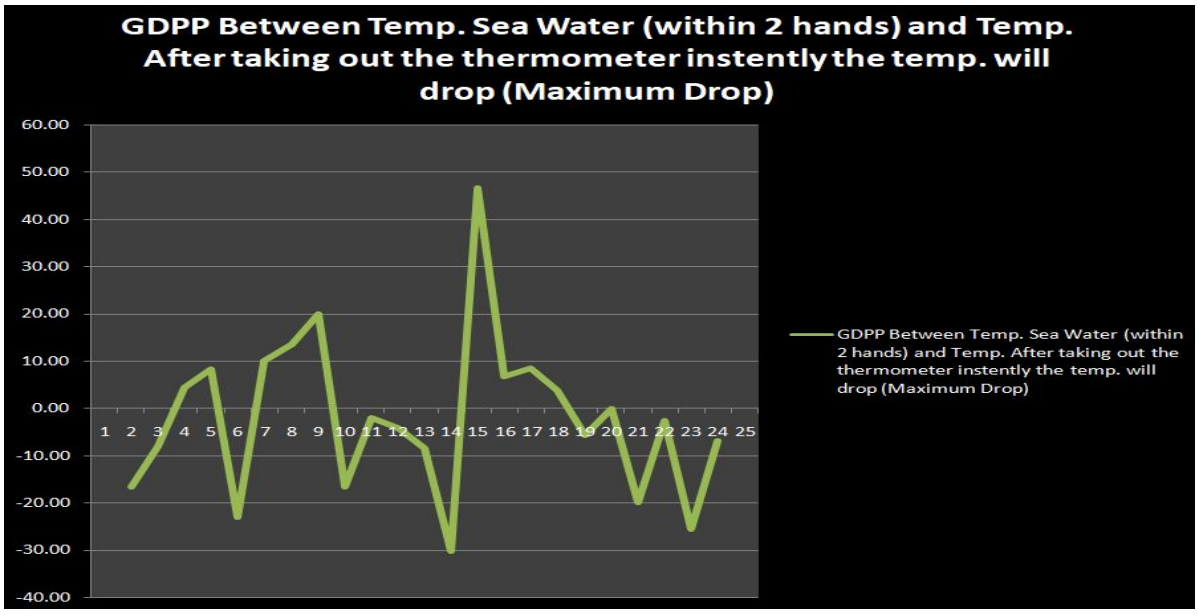
(Shahrear, 2009: P2-P4, 2019: P1-P2)

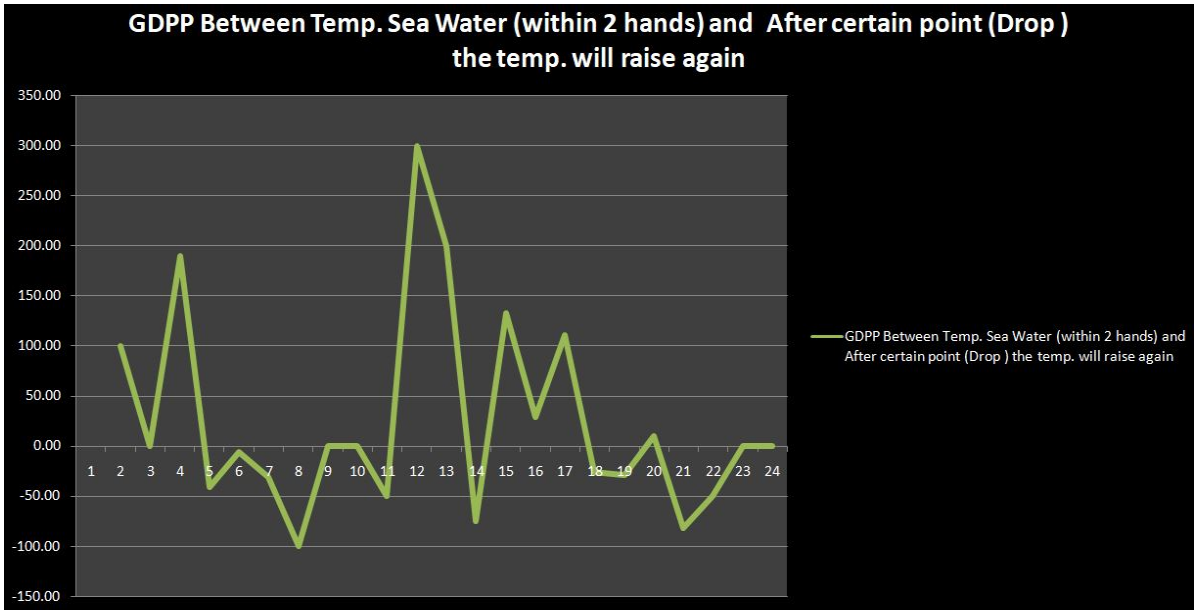


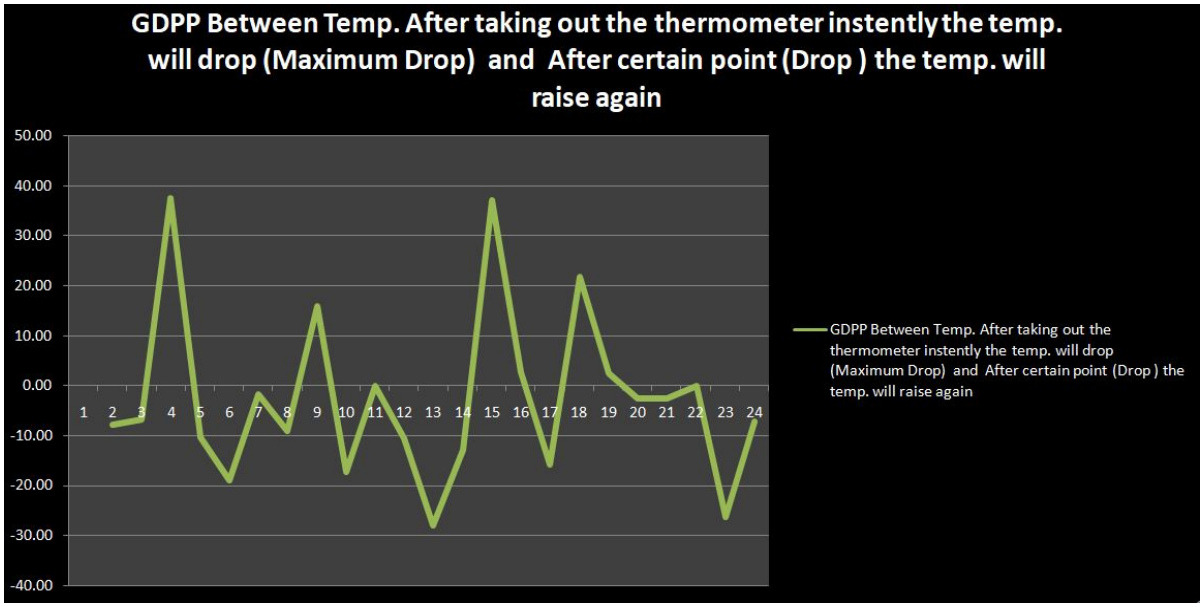

GDPP Between Time and Temp. Sea Water (within 2 hands)
4.00
2.00
0.00
-2.00
-4.00
-6.00
-8.00
-10.00
-12.00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
GDPP Between Time and Temp. Sea Water (within 2 hands)


GDPP Between Time and Temp. After taking out the thermometer instently the temp. will drop (Maximum Drop)
10.00
5.00
0.00
-5.00
-10.00
-15.00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
GDPP Between Time and Temp. After taking out the thermometer instently the temp. will drop (Maximum Drop)


GDPP Between Time and After certain point (Drop) the temp. will raise again
10.00
5.00
0.00
-5.00
-10.00
-15.00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
GDPP Between Time and After certain point (Drop) the temp. will raise again


GDPP Between Temp. Sea Water (within 2 hands) and Temp. After taking out the thermometer instently the temp. will drop (Maximum Drop)
60.00
50.00
40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
GDPP Between Temp. Sea Water (within 2 hands) and Temp. After taking out the thermometer instently the temp. will drop (Maximum Drop)





Data has taken on 21/04/2019 from 12.34 A.M. to 7.12 P.M

Conclusion :

There are lots of reasons that the temperature of the sea can fluctuates. However, the implication of the results in real sense will depend on the applied field and it is another story.

References:

1. Md. Shahrear Zaman ; Decomposition of GDP Growth rate of Bangladesh: An Analysis of Its significance and stability, Term paper of Econometrics: Methods and Applications(Econ-508), M.S.S. Final Examination-2009; P. 2-4.

2. https://github.com/shahrear86/Market-Clearing---Price-System/blob/master/gdpp.m

3. https://github.com/shahrear86/Market-Clearing---Price-System/blob/master/GDPP%20Performance.pdf

4. https://drive.google.com/open?id=1f53SvxXsbtf8axOEim7qVi8ZL6wrrnxP

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