

Winter climate of Chitwan district for Gharial unit

Introduction of the place:

Chitwan is the district which lies in the southern belt of the central region of the country. The southern region is also known as the Tarai region where the climate is moreover tropical like and there is the possibility of good agricultural and horticultural inputs.

This study is based on the winter temperature limits of the area (30-32°C) and the study enrolls the maximum temperature and humidity of the area. The Gharial Breeding Center lies at KASARA in the Chitwan district. Because of the lack of meteorological station that lies in the Kasara the team decided to collect the stations at the periphery for the study. The details of the stations selected are:

Longitude	Latitude	Elevation(m)	Station	Measuring type	District
84.2	27.7	154	Dumkauli	Agro-meteorology	Nawalparasi
84.4	27.7	173	Rampur	Agro-meteorology	Chitawan
84.5	27.6	270	Jhawani	Precipitation	Chitawan
84.4	27.7	205	Bharatpur	Climatology	Chitawan

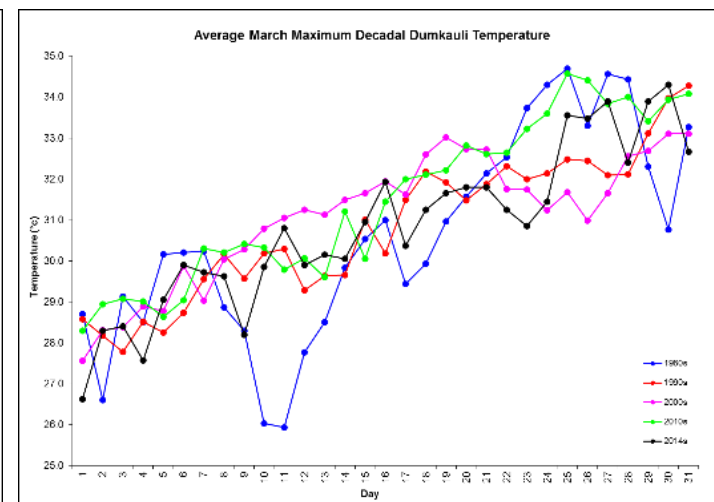
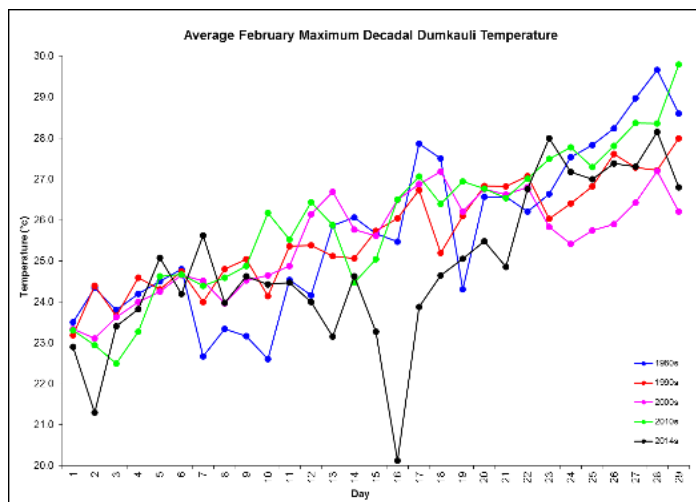
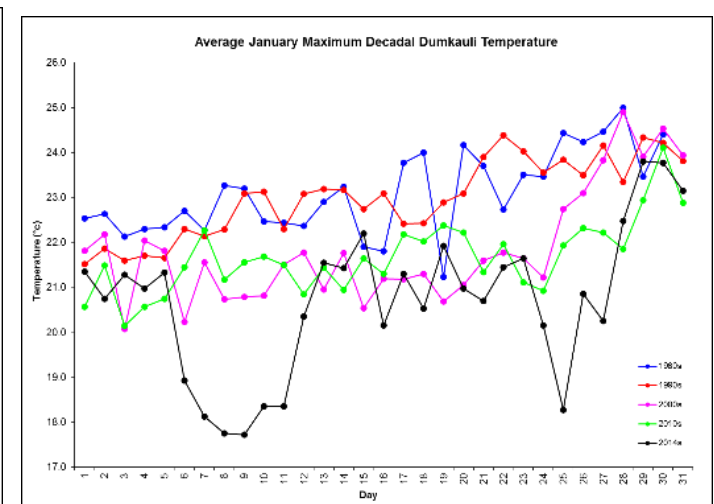
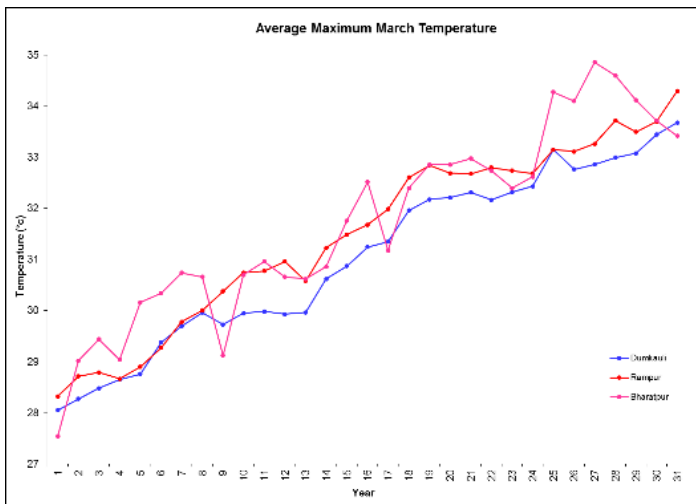
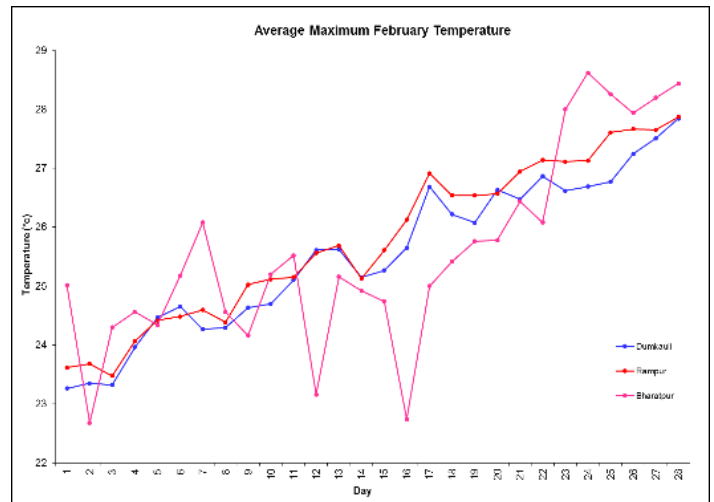
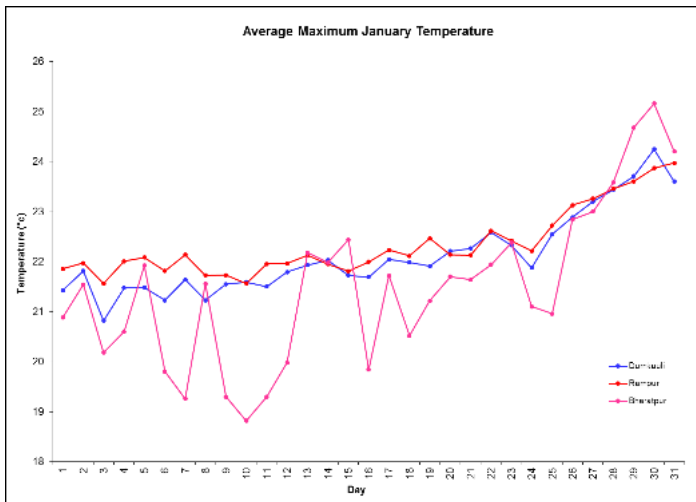
Fig: Station location of the three stations in the Chitwan and one in the Nawalparasi district



1. Bharatpur– This station is situated in the Chitwan district. It has data from 2010 A.D. It is a climatological station. The data contains the temperature and precipitation parameters.
2. Rampur- this station also is situated in the Chitwan district. This is an agro-meteorological station so there are climatic parameters as well as other parameters too in this station. The data is available from 1967 A.D.
3. Dumkauli- this station is situated in the Nawalparasi district. This is too an agromet station. The data is available from 1978 A.D.
4. Jhawani- This station is a precipitation station situated in the Chitwan district. The data is available from 1957A.D.

Temperature:

The maximum temperature of a day is mostly recorded after the noon and it is recorded specially at 4-5 P.M. The average temperature of the three stations show that the temperature reaches 21-22 to 24-25 in the January and 23-25 to 27-28 in the February month and from 27-28 to 33-34 in the month of March. March is taken into account for the study as the temperature of the first week attained into 30-32°C limit so it was obliged to take the first week of the month as for the study purpose.

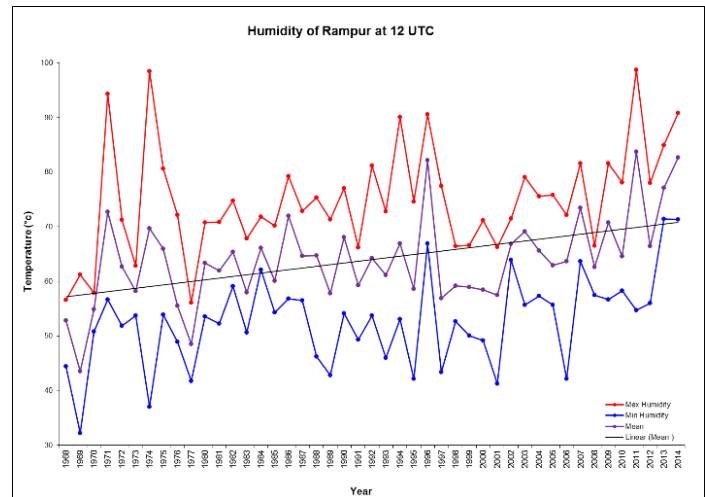
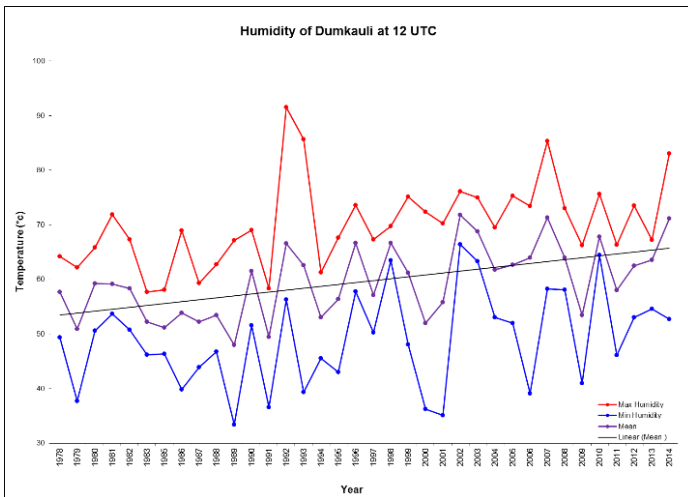
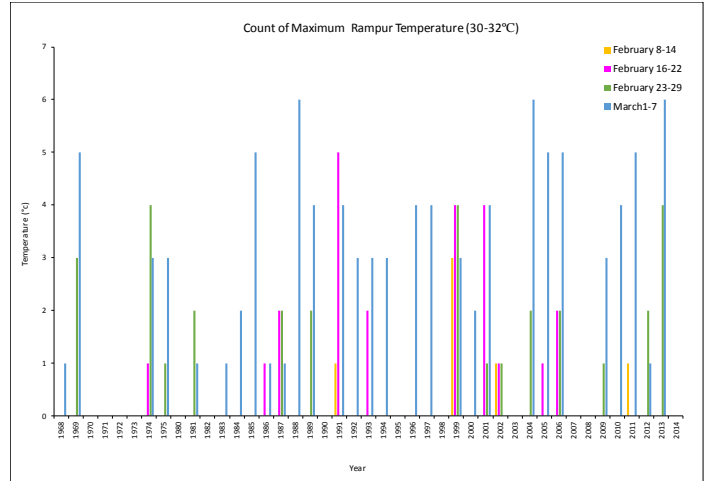
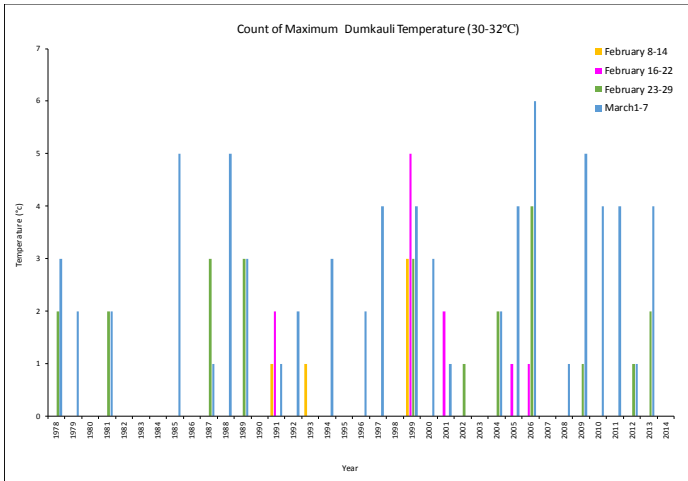


Average temperature of the first three months of all three stations. This is not so much significant for the study as the prescribed temperature lies within the range of 30-32 degrees Celsius.

Average temperature of the first three months in the station Dumkauli. This is too not so much significant for the study as the prescribed temperature lies within the range of 30-32 degrees Celsius and most of them lies in the March and very less in the winter months. So the team thought of a breakdown of the data from the stations. We broke the daily data within the weeks to see the time of the winter when there was the temperature attained the range of 30-32 degrees Celsius.

It was quite astonishing to know that the range of the time of the month was very significant. The figures below shows that the last week of the February and the first week of the March had max numbers of days with the aforementioned range of temperature whereas there are some years in which the temperature has reached 30-32 during the third week of the February. But there was no or very few days with the 30-32 degrees in the half of the month of February.

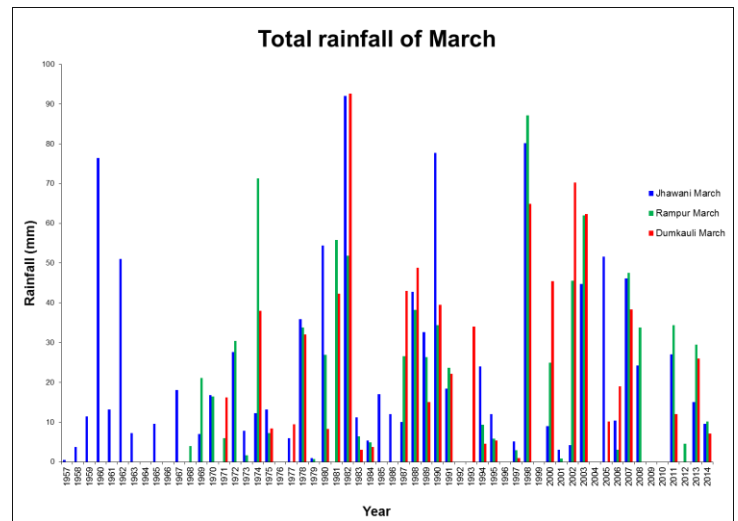
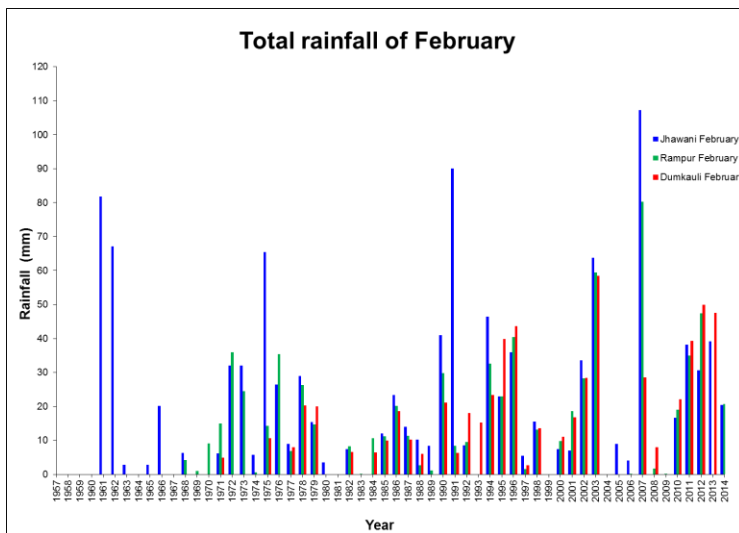
Humidity:



There is an interesting trend of humidity at the maximum temperature attaining time which is slightly increasing with time and it is true for both the stations. The range of average humidity lies within 50 -70%. Though there are years when the humidity is above 80% but those are the years when the temperature has not reached at 30-32°C.

Rainfall:

Among the stations selected Jhawani seems to be more wetter on both of the months than other two stations. Rampur and Dumkauli seems to have rainfall total of 25-45mm in average whereas in the month of May the trend is varying in all the years. Especially the month of March being the pre-monsoon month has a lot of rainfall variability than other months. But the years after 2009 have very few rain even in march. The last four years for the february month seems to have average rain as usual. As for the station position Dumkauli is in the other district so the rainfall over there may have less significance over the study.



Conclusion:

This study concludes that the favourable temperature and humidity characteristics for the Gharial breeding with male hatchling possibility is the final week of the month February and the first week of the month March. As per the temperature to be maintained in the 30-32°C, there is the possibility of higher male hatchings if the time is late afternoon.