

1. Introduction

Hydrology and Water Resources Services Division (HWRSD) is one of the four Divisions of the Center, responsible for generating and disseminating information and services related to hydrology and water resources.

The Division collects and archives daily data from the river gauging station located across the country, to keep updated on the status of the flow, the Division is coming up with Monthly Flow Monitoring Report in selected hydrological stations located in different river basins. Currently, following stations (figure 1) are selected for monthly monitoring of the flow;

1. Lungtenphu station in Wangchu,
2. Kerabaristaion in Punatsangchhu basin and
3. Bjizam station in Mangdechhu basin.

The main objective of the report is to understand and keep updated flow status of the river and further provide information on the abnormal data observation while comparing with the historical flow data.

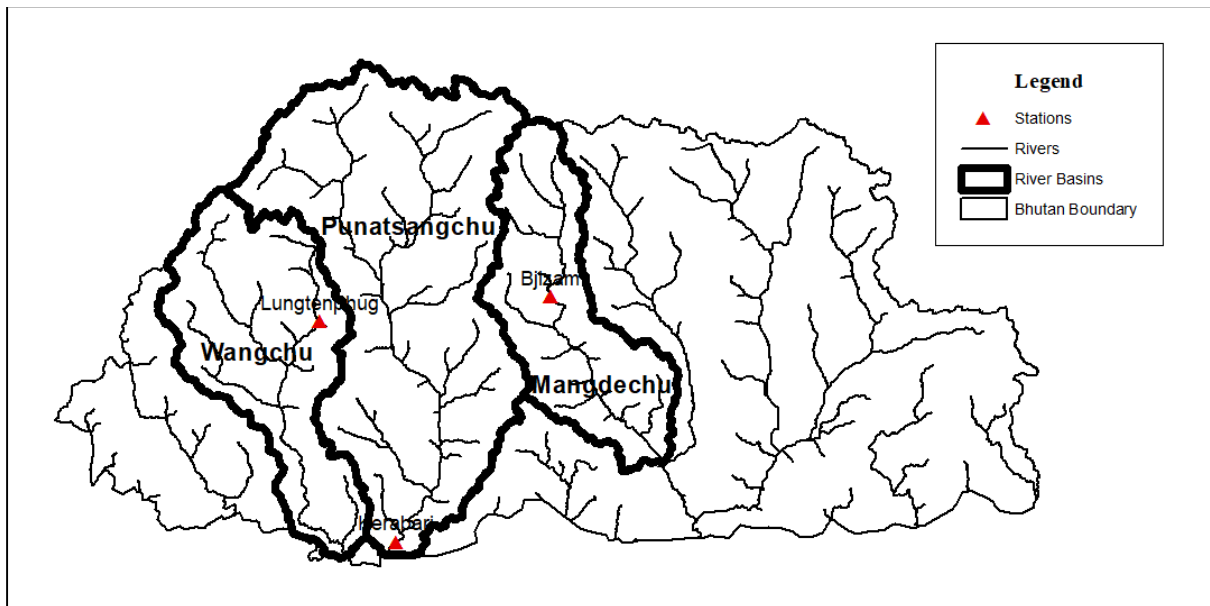


Figure 1 Map showing the selected stations for Flow monitoring

2. Methodology

The flow of February 2020 is compared to the flow of historical January months. The historical flow data is available from 2008 to 2018. The measures of dispersion such as mean, maximum and minimum flows are computed to make comparison. The rainfall data is also plotted with flow data to visualize how the river flow response to the precipitation.

3. Observation

The time series plot (figure 2) shows mostly lean season flow for the month of January 2020. The minimum flow recorded for the month of January 2020 was 89.527 m³/s. It is the lowest minimum flow compared to the past historical record (2008-2018) of minimum flow 90.12 m³/s. Overall, the average flow has been lower than the normal, which attributes to lesser precipitation over the Punatsangchhu basin.

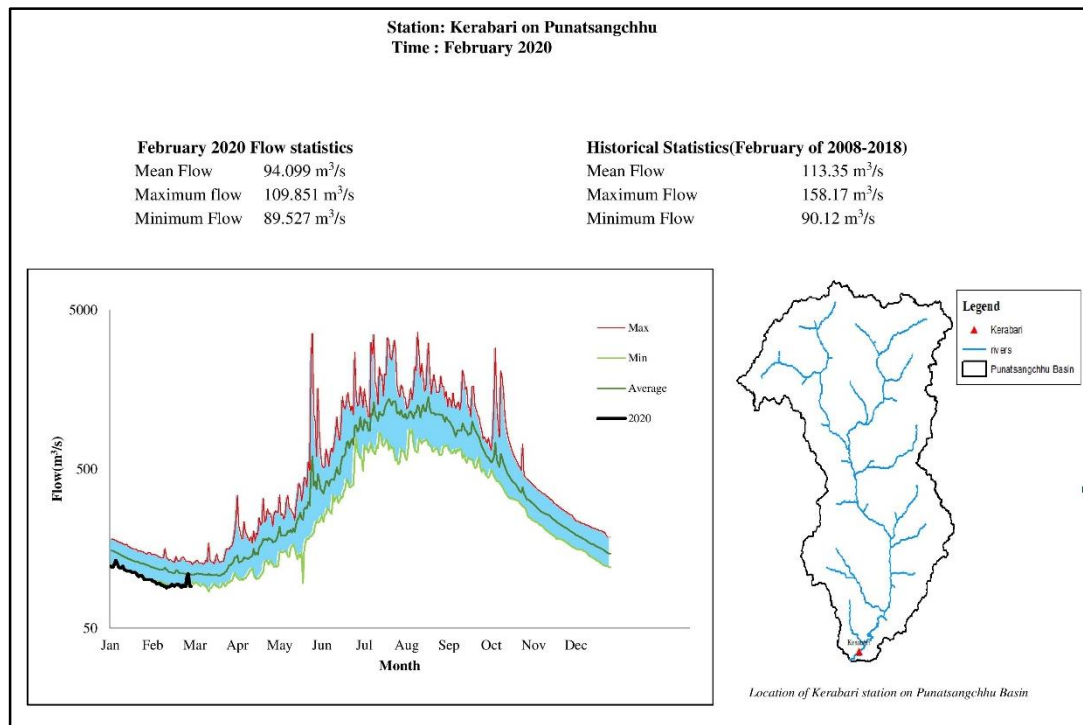


Figure 2: Daily flow Status of Feb 2020 as compared to historical data

The basic statistical values for February 2020 for Kerabari station on Punatsangchhu is given below:

Table 1 Table of flow statistics comparison between January of 2020 and historical (2008-2018).

Statistics	Feb 2020 (m ³ /s)	Historical Feb (2008-2018)m ³ /s
Mean flow	97.099	113.35
Max flow	109.851	158.17
Min flow	89.527	90.120

4. Summary

1. The mean flow of Feb 2020 is observed to be $16.251 \text{ m}^3/\text{s}$ lesser compared to the mean of Normal flow (Historical Feb).
2. The minimum flow of Feb 2020 is observed from 11th February 2020.