

1. Introduction

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

The Division collects and archives daily data from river gauging stations 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 Wangchhu,
2. Kerabari station in Punatsangchhu basin
3. Wangdirapids station in Punatsangchhu basin
4. Kurjey station in Chamkharchhu basin
5. Kurizampa station in Kurichhu, Manas basin
6. Sumpa station in Kurichhu, Manas basin
7. **Panbang station in Dangmechhu, Manas 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.

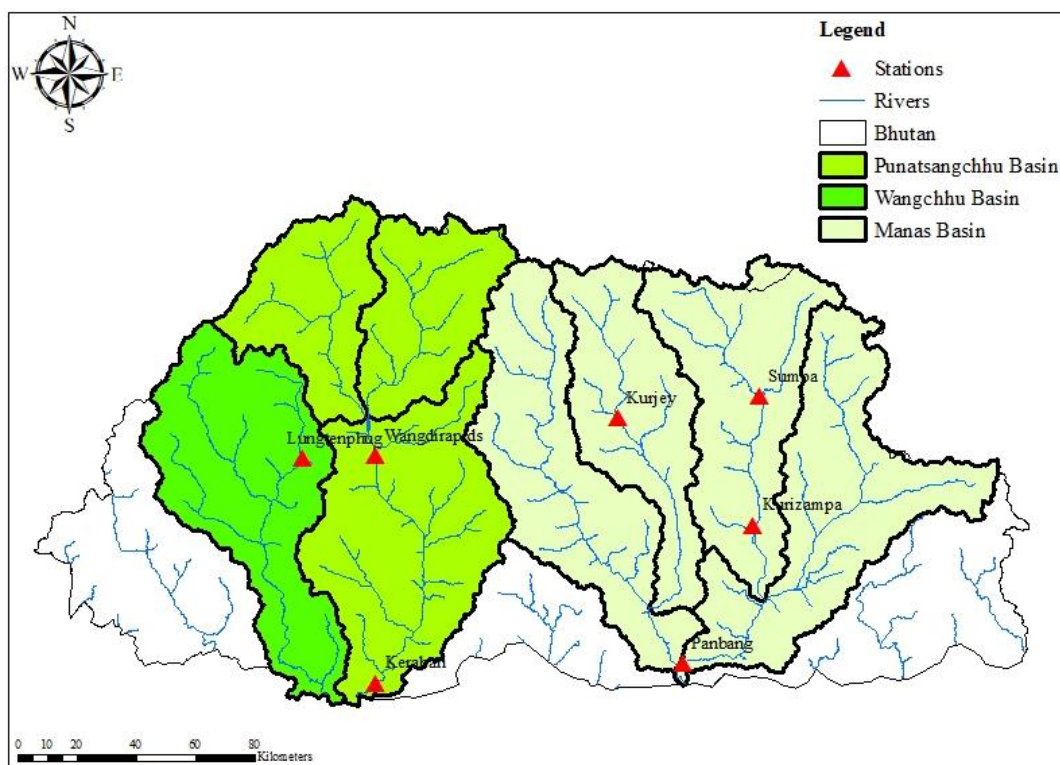


Figure 1 Map showing the selected stations for Flow monitoring

2. Methodology

The flow of December 2022 is compared to the flow of historical December months. The historical flow data is available from 2011 to 2021. The measures of dispersion such as mean, maximum and minimum flows are computed to make comparison.

3. Observation

The mean flow recorded for the month of December 2022 was $228.94 \text{ m}^3/\text{s}$ which is higher than the mean Historical December months (i.e., $216.17 \text{ m}^3/\text{s}$). Maximum flow of December 2022 (i.e., $277.12 \text{ m}^3/\text{s}$) was observed to be lower than the maximum flow observed in the past December months (i.e., $309.22 \text{ m}^3/\text{s}$). Meanwhile Minimum flow of December 2022 (i.e., $186.63 \text{ m}^3/\text{s}$) was also observed to be higher than the past December months ($145.53 \text{ m}^3/\text{s}$).

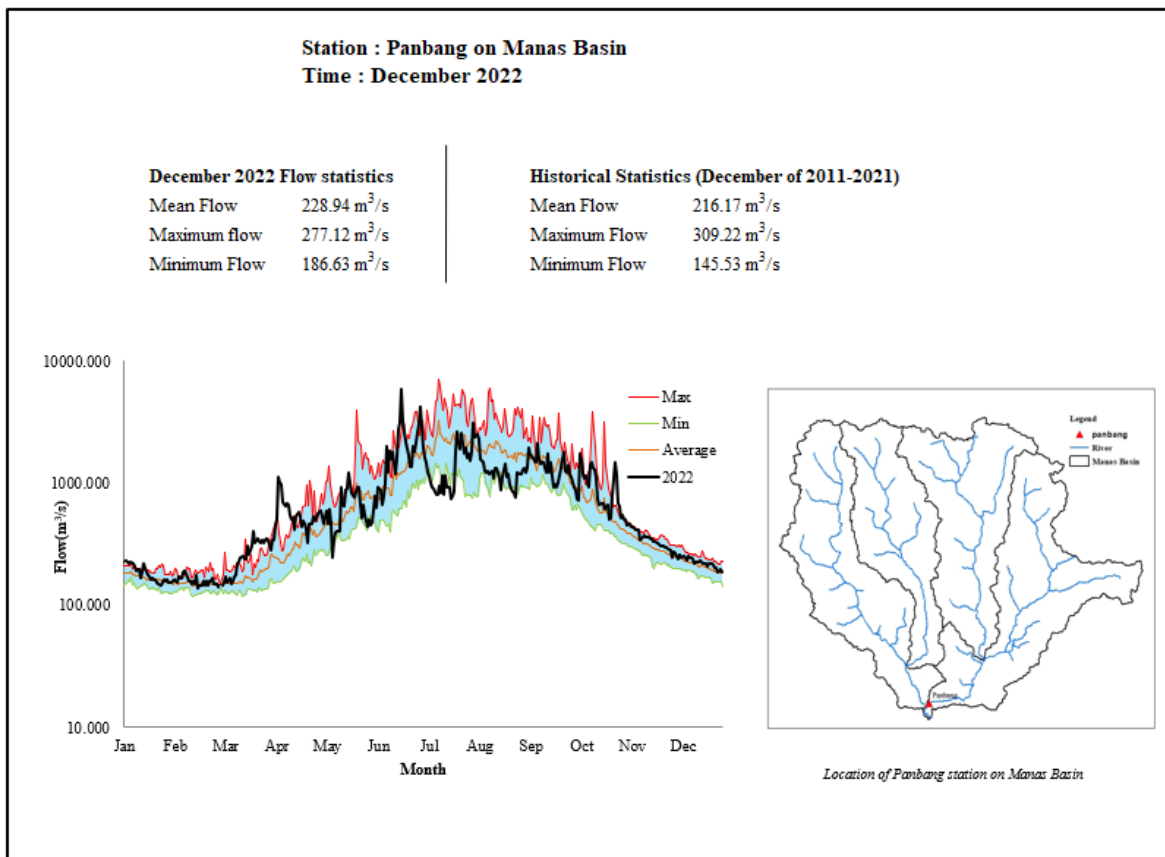


Figure 2 Daily flow status of December 2022 as compared to historical daily flow data of December months

Table 1 Table of flow statistics comparison December of 2022 and historical December months (2011-2021).

Statistics	December 2022 (m^3/s)	Historical December (2011-2021) m^3/s
Mean flow	228.94	216.17
Max flow	277.12	309.22
Min flow	186.63	145.53

4. Summary

1. The mean flow of December 2022 is observed to be $12.77\text{m}^3/\text{s}$ higher than the mean of Normal flow (Historical December).
2. The Maximum flow for December 2022 is observed to be lower than the Maximum flow of the past December months by $32.1\text{m}^3/\text{s}$.
3. The Minimum flow of December 2022 was higher by $41.1\text{m}^3/\text{s}$ from the past December months.