

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 November 2022 is compared to the flow of historical November 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 November 2022 was $366.66 \text{ m}^3/\text{s}$ which is higher than the mean Historical November months (i.e., $320.56 \text{ m}^3/\text{s}$). Maximum flow of November 2022 (i.e., $505.7 \text{ m}^3/\text{s}$) was observed to be higher than the maximum flow observed in the past November months (i.e., $493.96 \text{ m}^3/\text{s}$). Meanwhile Minimum flow of November 2022 (i.e., $249.14 \text{ m}^3/\text{s}$) was also observed to be higher than the past November months ($199.85 \text{ m}^3/\text{s}$).

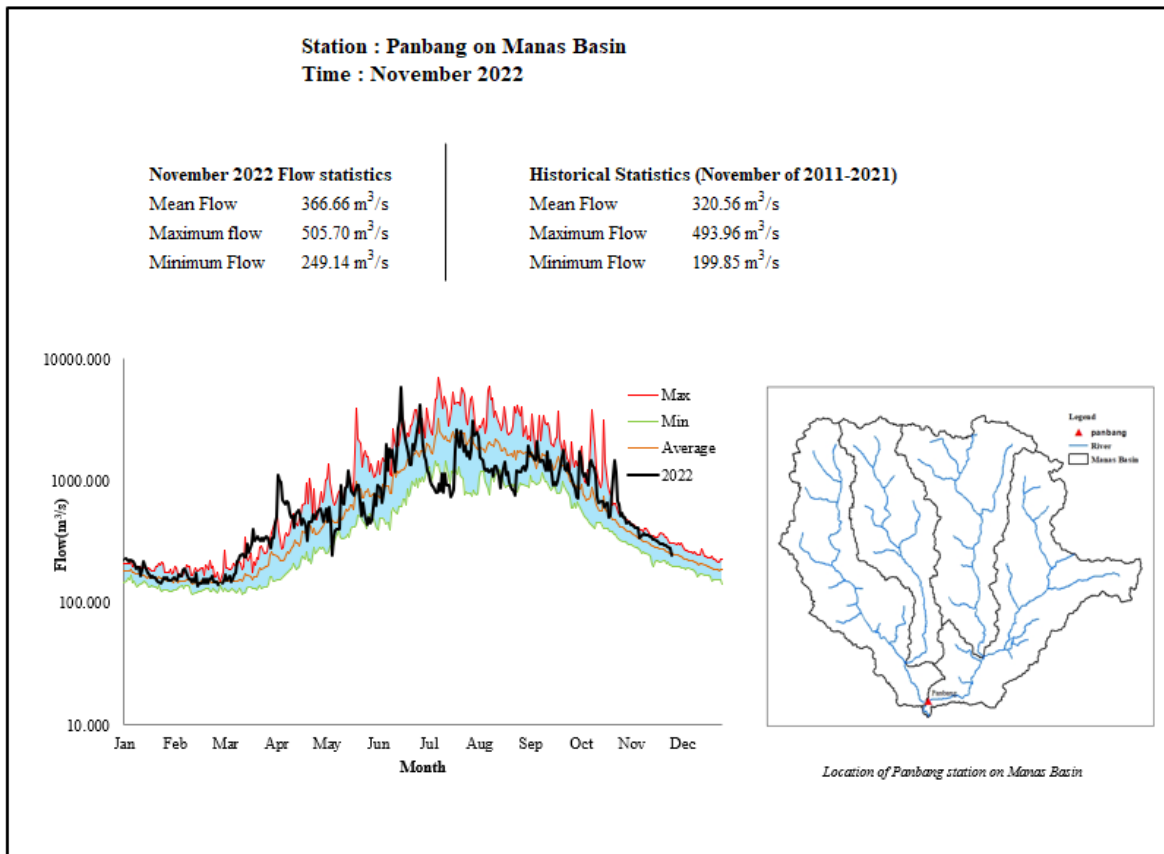


Figure 2 Daily flow status of November 2022 as compared to historical daily flow data of November months

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

Statistics	November 2022 (m^3/s)	Historical November (2011-2021) m^3/s
Mean flow	366.66	320.56
Max flow	505.70	493.96
Min flow	249.14	199.85

4. Summary

1. The mean flow of November 2022 is observed to be $46.1\text{m}^3/\text{s}$ higher than the mean of Normal flow (Historical November).
2. The Maximum flow for November 2022 is observed to be the highest recorded yet of $505.7\text{m}^3/\text{s}$ which is higher than the Maximum flow of the past November months by $11.74\text{m}^3/\text{s}$.
3. The Minimum flow of November 2022 was higher by $49.29\text{m}^3/\text{s}$ from the past November months.