**RIVER DISCHARGE ANALYSIS OF DANUBE AND ISAR**

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Abstract

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Keywords: [Click here to add keywords.]

**RIVER DISCHARGE ANALYSIS OF DANUBE AND ISAR**

For better prevention of flood events, thus planning protection measures and mitigation actions it is important to analyze the discharge of rivers and the regarding water height, e.g. in order to estimate how likely a critical water height could be exceeded.You are given daily measurements for the discharge of the two rivers Isar and Danube from 1925/11/01 to 2017/05/21 as they can be downloaded from Bayerisches Landesamt für Umwelt (www.gkd.bayern.de). The measurements are given for the gauge stations Plattling (Isar) and Hofkirchen (Danube). The estuarial area where the Isar River enters the Danube River lies in the commune Moos south of Deggendorf and east of Plattling.

# 1.Descriptive Statistical Analysis

Descriptive statistics include the numbers, tables, charts, and graphs used to describe, organize, summarize, and present raw data. Descriptive statistics are most often used to examine[1]:

* **Central tendency** (location) of data, i.e. where data tend to fall, as measured by the mean, median, and mode.
* **Dispersion** (variability) of data, i.e. how spread out data are, as measured by the variance and its square root, the standard deviation.

## 1.1 Central Tendency

**Measures of Central Tendency** indicate the middle and commonly occurring points in a data set. **Mean** is the average, the most common measure of central tendency. The mean may not always be the best measure of central tendency, especially if data are skewed. **Median** is the value in the middle of the data set when the measurements are arranged in order of the magnitude. **Mode** is the value occurring most often in the data.

The Table Tab 1-3. Shows a comparision of the central tendencies of both rivers.

|  |  |  |  |
| --- | --- | --- | --- |
| River | Mean  Discharge  (Mean) | Mean  Discharge  (Max) | Mean  Discharge  (Min) |
| Danube |  |  |  |
| Isar |  |  |  |

Tab 1. Means of various discharges of Danube and Isar

|  |  |  |  |
| --- | --- | --- | --- |
| River | Mode  Discharge  (Mean) | Mode  Discharge  (Max) | Mode  Discharge  (Min) |
| Danube |  |  |  |
| Isar |  |  |  |

Tab 2. Modes of various discharges of Danube and Isar

|  |  |  |  |
| --- | --- | --- | --- |
| River | Median  Discharge  (Mean) | Median  Discharge  (Max) | Median  Discharge  (Min) |
| Danube |  |  |  |
| Isar |  |  |  |

Tab 3. Means of various discharges of Danube and Isar

## 1.2 Dispersion

**Measures of Dispersion** indicate how spread out the data are around the mean. **Variance** is expressed as the sum of the squares of the differences between each observation and the mean, which quantity is then

divided by the sample size . **Standard deviation** is expressed as the positive square root of the variance. The standard deviation is used when expressing dispersion in the same units as the original measurements.

The Table Tab 4-5. Shows a comparision of the dispersions of both rivers.

|  |  |  |  |
| --- | --- | --- | --- |
| River | variance  Discharge  (Mean) | variance  Discharge  (Max) | variance  Discharge  (Min) |
| Danube |  |  |  |
| Isar |  |  |  |

Tab 4. Means of various discharges of Danube and Isar

|  |  |  |  |
| --- | --- | --- | --- |
| River | std. dev  Discharge  (Mean) | std. dev  Discharge  (Max) | std. dev  Discharge  (Min) |
| Danube |  |  |  |
| Isar |  |  |  |

Tab 5. Modes of various discharges of Danube and Isar

[To add a table of contents (TOC), apply the appropriate heading style to just the heading text at the start of a paragraph and it will show up in your TOC. To do this, select the text for your heading. Then, on the Home tab, in the Styles gallery, click the style you need.]

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References

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Tables

Table 1

[Table Title]

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| Column Head | Column Head | Column Head | Column Head | Column Head |
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| Row Head | 456 | 456 | 456 | 456 |
| Row Head | 789 | 789 | 789 | 789 |
| Row Head | 123 | 123 | 123 | 123 |
| Row Head | 456 | 456 | 456 | 456 |
| Row Head | 789 | 789 | 789 | 789 |

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Figures title:

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