APRIL 2020

Shown in Figure A are the hourly Water Level and Rain Gauge Profiles for the 1st Week of April 2020. For the given timeframe, there are two points of interest where the Rain Gauge shows a non-zero reading which was on April 3 at 3:00 pm and April 4 at 7:00 pm. Among the data points, the first reading has the largest reading at **1.2mm** followed by the second reading at **0.4mm**. As for the water level, the highest reading was April 2 at 1:00 am at **1.61m** despite having no rainfall on the said date. The increase in water level is possible due to heavy downpours on the neighboring provinces. The lowest water level is on April 5 at 8:00 am with a reading of **1.37m**.

**Figure A** 1st Week of April 7-days Daily and 24-Hourly Data (April 01 to April 05, 2020)

Shown in Figure B are the hourly Water Level and Rain Gauge Profiles for the 2nd Week of April 2020. For the given timeframe, the data shows only one point of interest concerning its Rain Gauge Profile which is on April 03 at 3:00 pm with a reading of **1.2mm**. The highest water level reading for the said week is on April 6 at 12:00 nn with a reading of **1.73m**, whereas the lowest water level can be found on April 8 at 8:00 pm with a reading of **1.08m**.

**Figure B** 2nd Week of April 7-days Daily and 24-Hourly Data (April 06 to April 12, 2020)

Shown in Figure C are the hourly Water Level and Rain Gauge Profiles for the 3rd Week of April 2020. The highest rain gauge measurement for the given timeframe is on April 18, 11:00 am with a reading of **6mm**. However, the lowest water level can be found throughout April 13,14,15,17, and 18 with a measurement of **1.37m**. On April 15, the water level spiked at 6:00 pm signifying a heavy downpour on the river’s neighboring provinces. Moreover, it is to note that the highest rain gauge and water level do not share a common date.

**Figure** **C** 3rd Week of April 7-days Daily and 24-Hourly Data (April 13 to April 19, 2020)

Shown in Figure D are the hourly Water Level and Rain Gauge Profiles for the 4th week of April 2020. The highest rain-gauge measurement from the given timeframe is on April 20 at 11:00 pm with a reading of **4.6 mm**. Furthermore, the highest water level measurement is on April 21 at 4 am with a reading of **1.92m** whereas, the lowest water level measurement is on April 23 at 1:00 pm with a reading of **0.99m**.

**Figure D** 4th Week of April 7-days Daily and 24-Hourly Data (April 20 to April 26, 2020)

Shown in Figure E are the hourly Water Level and Rain Gauge Profiles for the 5th week of April 2020. For the given timeframe, the rain gauge value throughout the week is zero indicating no rainfall. The highest water level measurement is on April 27 at 12 nn with a reading of **1.56m** whereas, the lowest water level measurement is on April 28 at 10 pm with a reading of **1.37m**.

**Figure E** 5th Week of April 7-days Daily and 24-Hourly Data (April 27 to April 30, 2020)

Shown in Figure F are the hourly Water Level and Rain Gauge Profiles for the entire month of April 2020. The highest rain gauge measurement can be found on April 18, however, the water level reading has not increased significantly on the aforementioned date. A minimal downpour occurred on April 15 which saw a spike in the water level reading. Moreover, a heavy downpour occurred on April 19, which again saw a spike in the water level reading.

**Figure** **F** 24-Hourly Data for 30 days of April 2020

Shown in Figure G is the Average Daily Water Level and Rain Gauge data for April 2020. From the data gathered, precipitation for April shows little to no rainfall in the first half of the month. However, moderate to heavy downpour was experienced in the second half of the month. Moreover, continuous rainfall was experienced from April 18 to April 21 which caused a rise in the river’s water level on the aforementioned dates.

**Figure** **G** Average Daily Data for 30 days of April 2020

Finally, shown in Figure H is the highest and lowest rain gauge data comparison for April 2020. The highest recorded rain gauge reading is **6 mm, 4.6mm**, and **4.2 mm** on April 18, April 20, and April 19, respectively. The lowest rain gauge measurement recorded is 0 mm and is observed mostly for the entire month.

**Figure** **H** Highest and Lowest Rain Gauge Data for 30 days of April 2020

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Shown in Figure A are the hourly Water Level and Rain Gauge Profiles for the 1st week of May 2020. The lowest recorded water level reading can be found on May 03 at 3:00 am with a reading of **1.34m**. Moreover, the highest recorded water level reading can be found on the same date at 7:00 pm with a reading of **1.58m**, a 240mm spike from the reading at 3:00 am. Rain gauge differences are mostly 0 except during May 03 at 10:00 AM to 12:00 PM where the difference spiked to **11.6 mm** at 11:00 PM which is also the highest during the week.

**Figure A** 1st Week of May 7-Days Daily and 24-Hourly Data (May 1 to May 3, 2020)

Shown in Figure B are the hourly Water Level and Rain Gauge Profiles for the 2nd week of May 2020. The lowest recorded water level reading can be found on May 08 at 3:00 am with a reading of **1.34m**. Moreover, the highest recorded water level reading can be found on May 04 at 7:00 pm with a reading of **1.58m**. Rain gauge differences are mostly 0 and the highest recorded difference is on May 10, 3:00 PM at **4.4 mm.**

**Figure B** 2nd Week of May 7-Days Daily and 24-Hourly Data (May 4 to May 10, 2020)

Shown in Figure C are the hourly Water Level and Rain Gauge Profiles for the 3rd week of May 2020. The lowest recorded water level reading can be found on May 11 at 7:00 am and 9:00 am with a reading of **1.36m**. Moreover, the highest recorded water level reading can be found on May 12 at 5:00 pm with a reading of **2.51m**. Rain gauge differences are mostly 0mm and the highest recorded difference is on May 16, 1:00 PM at **5.4 mm.**

**Figure C** 3rd Week of May 7-Days Daily and 24-Hourly Data (May 11 to May 17, 2020)

Shown in Figure D are the hourly Water Level and Rain Gauge Profiles for the 4th week of May 2020. The lowest recorded water level reading can be found on May 20 at 3:00 pm with a reading of **1.44m**. Moreover, the highest recorded water level reading can be found on May 23 from 8:00 to 9:00 pm with a reading of **2.47m**. Rain gauge differences are mostly 0 and the highest recorded difference is on May 22, 3:00 PM at **16.8 mm.**

**Figure D** 4th Week of May 7-Days Daily and 24-Hourly Data (May 18 to May 24, 2020)

Shown in Figure E are the hourly Water Level and Rain Gauge Profiles for the 5th week of May 2020. The lowest recorded water level reading can be found on May 26 at 8:00 am with a reading of **1.51m**. Moreover, the highest recorded water level reading can be found on May 27 at 8:00 pm with a reading of **2.16m**. Rain gauge differences are mostly 0 and the highest recorded difference is on May 30, 3:00 PM at **25.2 mm.**

**Figure E** 5th Week of May 7-Days Daily and 24-Hourly Data (May 25 to May 31, 2020)

Shown in Figure F is the Hourly Data for May 2020. From the data gathered, there are four highlights for May. First, the data indicate a downpour on May 3 but reflects little changes to the water level. However on May 12, little to no rain was observed but a great increase in the water level, which had the highest level recorded for May at **2.51 m**. Second, there was a downpour on May 22 which resulted in a slight increase in the water level. Third, there was a minuscule amount of rainfall on May 23 but has however resulted in a higher water level reading compared to the heavier rainfall on May 22. Lastly, the heaviest downpour occurred on May 30 at 3 pm with a rain gauge reading of **25.2mm**. However, the downpour had no significant increase in its water level in comparison with similar occurrences that occurred on May 12 and May 23.

**Figure F** 24-Hourly Data for 30 Days of May 2020

Shown in Figure G is the Average Daily Data for May 2020. From the collated data, the data indicates that heavier rainfall occurred in the second half of the month. On May 22 a heavier downpour was experienced for the whole day compared to May 30 which had the heaviest downpour on a per hour basis. Throughout the month, the water level is gradually rising.

**Figure G** Average Daily Data for 30 Days of May 2020

Shown in Figure H is the comparative analysis of the daily minimum and maximum rain gauge readings for May 2020. The minimum rain gauge reading is at 0mm, whereas the maximum gauge reading is at **25.2mm** on May 30, 2020.

**Figure H** Daily Maximum and Minimum Rain Gauge Data for 30 Days of May 2020

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Shown in Figure A are the hourly Water Level and Rain Gauge Profiles for the 1st week of June 2020. The highest recorded rain gauge data point was on June 6 at 4:00 pm with a reading of **11.40mm.** Whereas, the highest recorded water level reading was on June 3 at 8:00 pm with a reading of **1.99m.**  In contrast, the lowest recorded water level reading was on June 7 at 1:00 pm with a reading of **1.44m.** On June 1, June 3, and June 6, a heavy downpour was experienced but it was only on June 3 where an increase in the water level reading was recorded.

**Figure** **A** 1st Week of June 7-days Daily and 24-Hourly Data (June 01 to June 07, 2020)

Shown in Figure B are the hourly Water Level and Rain Gauge Profiles for the 2nd week of June 2020. The highest recorded rain gauge datapoint was on June 11 at 2:00 pm with a reading of **16.60mm.** Whereas, the highest recorded water level reading was on June 10 at 3:00 am with a reading of **2.42m.**  In contrast, the lowest recorded water level reading was recorded on June 8 and June 9 a with a reading of **1.44m.** A spike in water level activity was observed on June 9, with the rain gauge reading on that day the 2nd highest recording for the week. A healthy increase in water level was observed on June 11. The rain gauge reading on that day was the highest for the week.

**Figure B** 2nd Week of June 7-days Daily and 24-Hourly Data (June 08 to June 14, 2020)

Shown in Figure C are the hourly Water Level and Rain Gauge Profiles for the 3rd week of June 2020.The highest recorded rain gauge data point was on June 21 at 1:00 pm with a reading of **14.2mm.** Whereas, the highest recorded water level reading was on June 18 at 11:00 pm with a reading of **3.71m.**  In contrast, the lowest recorded water level reading was recorded throughout June 15 a with a reading of **1.58m.** From the given data, it is observed that the Water Level has been increasing from June 15 to June 18 due to frequent downpours. However, Water Level decreased from June 19 to June 21 despite 2 heavy downpours.

**Figure C** 3rd Week of June 7-days Daily and 24-Hourly Data (June 15 to June 21, 2020)

Shown in Figure D are the hourly Water Level and Rain Gauge Profiles for the 4th week of June 2020. The highest recorded rain gauge data point was on June 27 at 3:00 pm with a reading of **10.0mm.** Whereas, the highest recorded water level reading was on June 27 at 7:00 pm with a reading of **3.33m.**  In contrast, the lowest recorded water level reading was recorded on June 25 from 6:00 am – 8:00 am a with a reading of **1.68m.** Heavy Rainfall was observed on the 4th week, with a water level spike observed on June 27.

**Figure D** 4th Week of June 7-days Daily and 24-Hourly Data (June 22 to June 28, 2020)

Shown in Figure E are the hourly Water Level and Rain Gauge Profiles for the 5th week of June 2020. The highest recorded rain gauge data point was on June 29 at 2:00 pm with a reading of **3.4mm.** Whereas, the highest recorded water level reading was on June 29 at 1:00 pm with a reading of **2.56m.**  In contrast, the lowest recorded water level reading was recorded on June 30 at 3:00 pm with a reading of **2.04m.** The river experienced a heavy downpour on June 29 but did not see an increase in water level; the water level is stable.

**Figure E** 5th Week of June 7-days Daily and 24-Hourly Data (June 29 to June 30, 2020)

Shown in Figure F is the Hourly Daily Data for June 2020. In the given timeframe, the river experienced frequent rainfall throughout the month which in turn resulted in a rise in water level. However, rainfalls on June 1 and June 6 didn’t cause an increase in water level for their respective date.

**Figure F** 24-Hourly Data For 30 days of June 2020

Shown in Figure G is the Average Daily Data for June 2020. Heavy and moderate rainfall was observed throughout June with frequent occurrence.

**Figure G** Average Daily Data for 30 days of June 2020

Shown in Figure H is the comparative analysis of the Highest and Lowest Rain Gauge reading for June 2020. The highest rain gauge recorded are 16.6 mm, 14.2 mm, 12.4 mm, and 12.4 mm on June 11, June 21, June 18, and June 18, respectively. Whereas, the lowest rain gauge reading recorded is 0mm.

**Figure H** Highest and Lowest Rain Gauge Data for 30 days of June 2020