

## **CHAPTER 5**

### **CONCLUSIONS**

Based on the results carried out in this study, several conclusions can be made as follows:

1. The use of smaller grid sizes in hydraulic simulations increases the accuracy and vice versa. However, the use of smaller grid sizes increases the computational cost exponentially.
2. The exponential increase of the computational cost is due to the exponential increase of the total number of cells, as the computational domain is of 2D area.
3. The grid size of 30 m was found to be the cost-effective size for the hydraulic computations using the ALOS with GVUF and MERIT-Hydro with both GVUF and RVUF. The grid size of 50 m was found to be the cost-effective size for the hydraulic computations using MERIT-Hydro with GVUF. These grid sizes were found effective because their computational cost can be reduced more significantly compared with the decrease of the total number of cells.
4. For the hydraulic computations using ALOS and MERIT-Hydro, the optimum grid size was found to be 30 m based on the cost effectiveness and the accuracy of the results. Using the 30 m grid size, the computational cost reduced significantly without significantly reducing accuracy of the results.

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