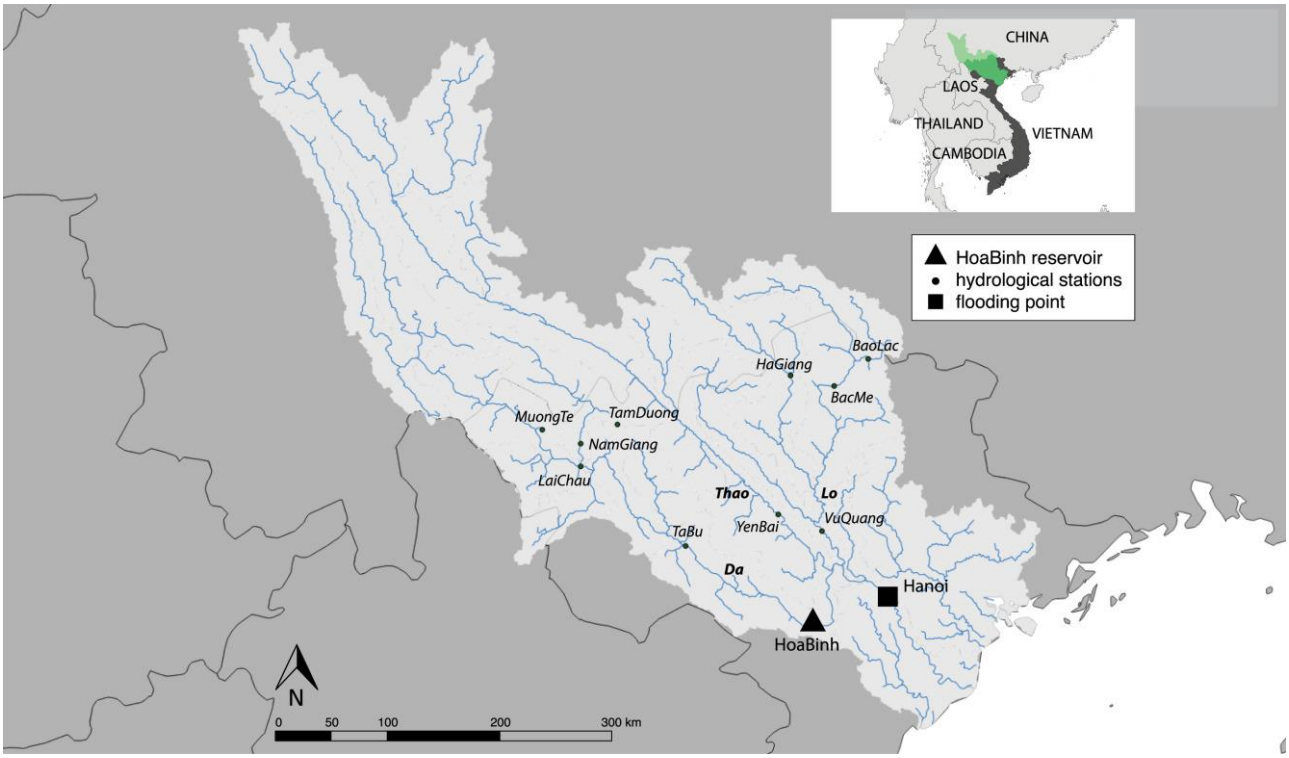
Matlab Project – Part 1

PROJECT OBJECTIVE

- Identify a forecast model of the cumulative 5-day inflow to the Hoa Binh reservoir



DATA AVAILABLE (historical data)

Input variables

- Hoa Binh inflow [m^3/s]
- Flow at TaBu [m^3/s]
- Flow at LaiChau [m^3/s]
- Flow at NamGiang [m^3/s]
- Flow at YenBai [m^3/s]
- Flow at VaQuang [m^3/s]
- Precipitation at MuongTe [m^3/s]
- Precipitation at TamDuong [m^3/s]
- Precipitation at Da [m^3/s] (spatial average over the river basin)
- Precipitation at BaoLac [m^3/s]
- Precipitation at BacMe [m^3/s]
- Precipitation at HaGiang [m^3/s]

Output variable

- Cumulative 5-day inflow at Hoa Binh [m^3/s]

ADDITIONAL INFORMATION

- Input and output variables are provided for the training (and validation) set; other data are held out for the final model assessment.
- Identification procedure should explore different model structures (linear/nonlinear) and orders, as well as the subset of input variables to be considered.

- Only proper models are allowed.
- Evaluation will consider forecasting accuracy (pay attention to overfitting), model complexity, and the originality of the solution.
- Remember to justify your modeling choices.
- Only one model must be selected to participate in the contest.
- Use a window size equal to 21 (parameter f=10) to compute the cyclo-stationary behavior.
- "contest1_train.m" identifies a dummy model and saves it.
- "contest1_test.m" loads the dummy model and computes its accuracy on a dummy test set ("test_set_dummy.txt"). A different one, not shared with the students, will be used for the official model assessment.