This script calls all the necessary functions to perform the analysis of Experiment C1.

Initially, gridded data for (a) meteorological variables (air temperature, solar radiation, total precipitation, wind speed), and (b) remotely sensed chlorophyll-a concentrations are formulated as time-series data corresponding to specific areas of interest (AOIs) within the water bodies.

Then, the time-series data of chlorophyll-a values are pre-processed to (a) fill in missing data, and (b) smooth noisy inputs. In addition, predictors and target values are normalized using z-score.

Subsequently, the script searches for the optimal width of the sliding window strategy employed for the predictions. Once the windows are estimated, a feature selection process takes place to reduce the dimensionality of the model.

Ultimately, the model is developed using a k-fold cross validation strategy and predictions are interpreted using visualization tools (individual conditional expectation plots and partial dependence plots) and Shapley values.