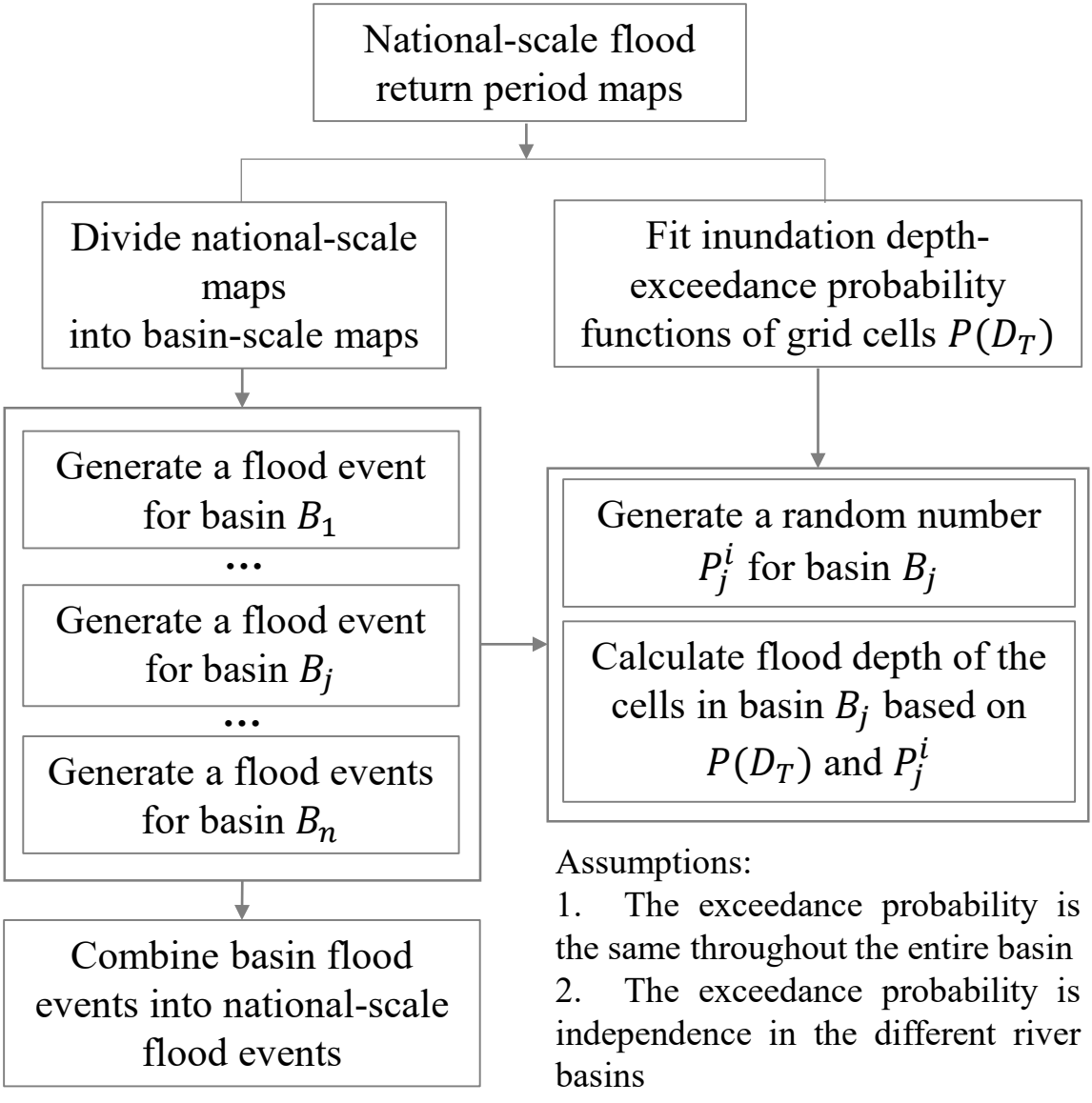
National-scale flood return period maps
Divide national-scale maps into basin-scale maps
Fit inundation depth-exceedance probability functions of grid cells $P(D_T)$
Generate a flood event for basin B_1
...
Generate a flood event for basin B_j
...
Generate a flood events for basin B_n
Generate a random number P_j^i for basin B_j
Calculate flood depth of the cells in basin B_j based on $P(D_T)$ and P_j^i
Combine basin flood events into national-scale flood events
Assumptions:
1. The exceedance probability is the same throughout the entire basin
2. The exceedance probability is independence in the different river basins