

B-11. Assessment of the Global Warming Effects on the Water Balance

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Purpose of the study is to predict effects of greenhouse-induced climate change on the water balance in river catchment scale. The prediction is, however, more uncertain than prediction of climate change, because any climate models do not yield regional climate changes such as precipitation and evapotranspiration changes over a river catchment because of rough resolution of the climate models.

The best method to solve the problem is the utilization of hydrologic model combined with mesoscale atmospheric model. We have been developing the coupling models which can describe interrelationship between the land surface and the atmosphere, e.g., regional precipitation pattern and evapotranspiration. We could get the good simulation result from this latest model for winter season.

On the other hand, changes of snowfall and snow melt amount has a very important effects on water resources for cold region such as Hokkaido. An attempt was made to develop the snow melt runoff model based on the remote sensing information in order to investigate the current and future snow melt runoff situations. An attempt was also made to develop the long and short terms runoff model in order to evaluate the annual hydrological cycle in a catchment area.