Precipitation Changes as Simulated over the River Basins of the Korean Peninsula based on SRES A1B Scenario

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Changes in precipitation due to global warming have been found in different regions. In case of Korea, where 50 % of the annual precipitation occurs during the summer monsoon period, concentrated heavy precipitation could lead to disasters. Hence, it becomes imperative to manage the available water resources in order to prepare to natural hazards caused by heavy rain. Bell et al.(2004) used an RCM to demonstrate the regional changes in extreme climatic events with doubled CO₂ on the hydrologic basin scale. In this study, future precipitation changes have simulated based on SRES(Special Report on Emission Scenarios) A1B Scenario over 5 main riverbasins(Han, Geum, Youngsan, Sumjin, Nakdong) of Korea. The diagnostic rainfall model (QPM) was adopted to simulate small-scale precipitation. QPM (Quantitative Precipitation Model) calculates the rainfall by considering the effect of small-scale topography so that it provides fine-mesh rainfall information in terms of time and accuracy compared to the full dynamical fine-mesh mesoscale model. We used operational global numerical weather prediction model (GME) of German Weather Service which has 40km/40L of horizontal/vertical resolution as the global driver for QPM. 20C3M(20th Century Climate in Coupled Model) Scenario and SRES A1B Scenario are used during 1981~2000, 2001~2030, respectively. The results of these experiments will be presented at the conference.

Keywords: Korea River Basins; A1B Scenario; Precipitation Changes



Figure 1. Five basins of Korea are separated by thick line; Han-river(H), Geum-river(G), Youngsan-river(Y), Sumjin-river(S) and Nakdong-river(N)

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References

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