

## **Statistical analysis of river discharge projected using the MRI-AGCM3.2S dataset in Indochina Peninsula**

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**Abstract** To evaluate the impacts of climate change on river discharge in the Indochina Peninsula region, a distributed flow routing model (1K-FRM) with kinematic wave flow approximation was applied. Generated runoff data from the MRI-AGCM3.2S dataset corresponding to the present climate experiment (1979–2008), the near future climate experiment (2015–2044) and the future climate experiment (2075–2104) were fed into the flow routing model 1K-FRM to project river discharge in the Indochina Peninsula. The MRI-AGCM3.2S is the latest version of the super-high-resolution atmospheric general circulation model (AGCM) with a horizontal grid size of about 20 km, which was jointly developed by the Meteorological Research Institute (MRI) and the Japan Meteorology Agency (JMA). In this study, the impacts of climate change on river discharge in the Indochina Peninsula region were investigated by comparing projected river discharge of the present climate, the near future climate and the future climate experiment. From the results, clear changes of annual mean discharge, annual maximum daily discharge and annual minimum daily discharge were detected with the degree of changes differing according to location. In addition, the statistical significance of river discharge changes in the region under climate change was examined by performing statistical analyses on the projected river discharge.

**Key words** Indochina Peninsula; river discharge; 1K-FRM; climate change; general circulation model; statistical test