

# Atmospheric water budget analysis using regional climate model in eastern Mongolia

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Characteristic distribution of vegetation is found over eastern part of Mongolia changing continuously from Gobi desert in the south to steppe grassland and forest in the northern mountainous region. Although various processes of climate or phenology (biology) will affect to such rangeland of vegetation, meridional change of precipitation should be very important to determine such distribution. In warm season synoptic scale disturbances and local scale circulations, induced by thermal effect of mountains, are two major processes which gives precipitation over Mongolia. Annual precipitation will be approximately 200 to 300 mm over grassland whereas less than 100 mm over southern arid region. Most part of the annual precipitation is observed during June to August. On the other hand the amount of evapotranspiration in this season is estimated almost comparable with that of precipitation. This is interesting fact when we discuss the concept of water recycling, that is, how the evapotranspired water affects or contributes the local precipitation? In previous studies, however, it has been difficult to describe meridional structures of vegetation and precipitation using reanalysis data or GCMs. Water vapor transport by local circulation around few hundred kilometer scale mountains should be properly evaluated as well. For that reason we use regional climate model to study the atmospheric water budget over eastern Mongolia. Additionally we discuss the origin of precipitating water using collected precipitation and water vapor together with the model.