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**REGIONAL DIFFERENCES IN ATMOSPHERIC
CIRCULATION PATTERNS DURING GLOBAL
CLIMATE CHANGES**

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Every change of global climate is accompanied with changes in the atmospheric circulation leading to some different effects in different regions of the earth. This paper will focus on circulation changes concomitant to global cooling and warming (natural or man-made) and on regional differences which appear in resulting

circulation patterns. Analyses are based on hemispheric daily grids of 500 hPa geopotential height and of sea-level pressure throughout some 40 years since 1947. These data have been submitted to statistical analyses, especially to principal components and to Fourier analysis. To reduce involved variance, initial selections of periods with 500/1000 hPa thicknesses or thickness gradients significantly different from long-term means have been carried out. These periods are representing different climatic states, and principal component patterns of large-scale air flow as well as Fourier patterns of large-scale wave structure which characterize these states, give information about circulation changes and their regional peculiarities which have to be envisaged during global climate changes pointing to similar climatic states.