Geophysical Research Abstracts
Vol. 14, EGU2012-13557, 2012
EGU General Assembly 2012

Climatic conditionality of world vegetation zones and paleovegetation zone reconstructions

M. Amosov, I. Moskalenko, M. Syromyatina, and M. Mukhanova
Saint-Petersburg State University, Faculty of Geography and Geoecology, Russian Federation (margarita_soi@rambler.ru)

The main purpose of this project is to compose the vegetation zone world maps for three time periods: Last Glacial Maximum, Holocene Thermal Optimum and the present time.
The comparative analysis of the vegetation zone distribution and modern climatic characteristics as well as the analysis of numerous references and cartographic information allowed to compose new edition of the world map of modern vegetation zone boundaries at a scale of 1:65 000 000.
Based on the world weather station data bases (NOAA, Australian Bureau of Meteorology etc.) the climatic database for each modern vegetation zone was made. The database includes climatic normals (1961-1990 yrs) of the average monthly air temperature (mean, maximum, and minimum) and precipitation from approximately 4000 weather stations of the world. The modern climate maps for all continents except Antarctica were composed – the maps of the warmest and coldest months (July, January) air temperature distribution and annual precipitation distribution.
For each vegetation zone the areas, associated with different temperature and precipitation graduations, were defined. These areas were added together over all continents for every vegetation zone and then the hydro-thermal intervals of the most optimal diapason of every vegetation zone existence in relation to the climatic conditions were defined. Revealed interrelations between the modern vegetation zone boundaries and different climatic characteristics are employed to reconstruct vegetation zone boundaries for the periods of the Last Glacial Maximum and Holocene Thermal Optimum.
Collection and generalization of references about paleoclimates and paleolandscapes as well as the climatic analogue method were made and sketch-maps of the world vegetation zones for the periods of the Last Glacial Maximum and Holocene Thermal Optimum were composed. In addition the “disputable” regions were marked, that further required the reconstruction of paleozone location on the base of created probability model of the connection between the vegetation zone boundaries and climatic characteristics.