

عنوان مقاله:

?How is climate change impacting net primary production and reference evapotranspiration in the Zagros region of western Iran

محل انتشار:

مجله علوم زیستی خاورمیانه، دوره 22، شماره 3 (سال: 1403)

تعداد صفحات اصل مقاله: 15

نویسندگان:

Pedram Attarod – Department of Forestry and Forest Economics, Faculty of Natural Resources, College of Agriculture and Natural Resources, University of Tehran, Karaj, Iran

Omid Fathizadeh – Ahar Colleges of Agriculture and Natural Resources, University of Tabriz, Tabriz, Iran

Parisa Abbasian – Natural Resources Bureau of Alborz Province, Natural Resources and Watershed Organization of Iran, Karaj, Iran

Vilma Bayramzadeh – Department of Wood Science and Technology, Faculty of Agriculture and Natural Resources, Karaj Branch, Islamic Azad University, Karaj, Iran

Curtis Holder – Department of Geography and Environmental Studies, University of Colorado, Colorado, USA

QiuHong Tang – Key Laboratory of Water Cycle and Related Land Surface Processes, Institute of Geographic Sciences and Natural Resources Research (IGSNRR), Chinese Academy of Sciences (CAS), Beijing, China

Xingcai Liu – Key Laboratory of Water Cycle and Related Land Surface Processes, Institute of Geographic Sciences and Natural Resources Research (IGSNRR), Chinese Academy of Sciences (CAS), Beijing, China

Hamid Soofi Mariv – Department of Forestry and Forest Economics, Faculty of Natural Resources, College of Agriculture and Natural Resources, University of Tehran, Karaj, Iran

Samira Beiranvand – Department of Forestry and Forest Economics, Faculty of Natural Resources, College of Agriculture and Natural Resources, University of Tehran, Karaj, Iran

خلاصه مقاله:

We assessed how climate change may impact net primary production (NPP) and reference evapotranspiration (ET₀) from the Zagros region of western Iran covered extensively by oak, *Quercus branti* Lindl. forests. The daily meteorological parameters of temperature (T), precipitation (P), relative humidity (RH), wind speed (WS), and sunshine hours were obtained from 20 meteorological stations throughout the region over a 30-year period (1988–2017). Net primary production and ET₀ were estimated by the synthetic and the FAO Penman–Monteith models, respectively. A non-dimensional relative sensitivity coefficient was used to examine the sensitivity of NPP and ET₀ to changes in the meteorological parameters. The sensitivity analyses were carried out for T, P, and WS within a possible range of $\pm 10\%$, $\pm 30\%$, and $\pm 10\%$, respectively, from the long-term mean. Except for the P with no notable trend, other meteorological parameters exhibited upward or downward trends. The mean NPP and ET₀ values were estimated to be $6.5 \text{ t ha}^{-1} \text{ y}^{-1}$ and 3.9 mm d^{-1} across the Zagros region, respectively. Net primary production was found to be more sensitive to precipitation with a sensitivity coefficient of 0.66 and less sensitive to temperature with a sensitivity coefficient of 0.40. The ET₀ sensitivity coefficients in response to T changes doubled relative to WS (0.33 against 0.63). Identifying the contributing factors in NPP and ET₀ trends is important for understanding the relative impacts of climate change and human activities

کلمات کلیدی:

FAO Penman-Monteith model, Sensitivity analyses, Synthetic model

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/2047421>

