

An estimation of net ecological production of forests in Hokuriku area

著者	Kawanishi Takuya
著者別表示	川西 琢也
journal or publication title	Proceedings of EMEA 2001 in Beijing
page range	177-177
year	2001
URL	http://doi.org/10.24517/00049173

An estimation of net ecological production of forests in Hokuriku area

Takuya KAWANISHI

Faculty of Engineering, Kanazawa University

kawanisi@t.kanazawa-u.ac.jp

Knowing the dynamics of carbon and nitrogen in local ecological systems is important for not only the conservation of the ecosystem but also making good use of ecosystem for carbon sequestration. There have been many discussions about the role of terrestrial ecosystems in global carbon circulation and many estimates in global scale. However, we just began our work according to the saying, “act locally”. Estimating the net ecological production of a forest is not a trivial task. It is known that the net primary production, namely how much carbon is fixed as plant body during a certain period can be estimated in an acceptable allowance of error. The difficulties lie in the estimation of the carbon loss from the ecosystem by soil respiration, etc. In this research, we try to understand the carbon dynamics and net ecological production of the forests in Hokuriku region, where Kanazawa city is. We estimated the net primary production by using two different methods: one is remote sensing method by using AVHRR data from NOAA satellite, the other is Chikugo model method by using meteorological data. The estimates by these methods agree well with the results of the survey made by the government by a more direct method. Carbon loss estimation is more intractable. We tried two different approach. One is to estimate the respiration rate from the average temperature: we reviewed papers on soil respiration and obtained a regression relationship between the temperature and the soil respiration rate. Also, we are trying to interpret the carbon content of the forest soil: this reveals the cumulative effect of carbon supply and loss. Comparing these values, we are trying to figure out the range of the possible annual carbon loss from the forest soil.