

1985—2030年江西泰和县森林植被碳储量的时空动态

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Spatiotemporal dynamics of forest carbon storage in Taihe County of Jiangxi Province in 1985-2030.

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摘要

根据第6次森林清查小班数据, 运用生物量转换因子法和平均生物量法估算了2003年江西省泰和县森林植被的生物量和碳储量, 采用空间替代时间的方法, 利用Logistic方程拟合了泰和主要森林类型年龄与碳密度的曲线关系, 并结合小班轮伐信息, 估算了全县1985—2003年的植被生物量和碳储量, 分析了期间的时空动态特征, 并以2003年为基准年, 假定到2020、2030年泰和县森林植被面积保持稳定、且不考虑轮伐期, 推算了此情景下2020、2030年泰和县植被碳储量. 结果表明: 2003年, 泰和县森林林分总面积 $15.74 \times 10^4 \text{ hm}^2$, 总生物量6.71 Tg, 植被碳储量4.14 Tg C, 平均碳密度 $26.31 \text{ t C} \cdot \text{hm}^{-2}$. 1985、1994、2003、2020、2030年泰和县森林植被碳储量分别为1.06、2.83、4.14、5.65和6.35 Tg C, 森林植被碳密度的空间分布由东西部向中部递减. 人工造林使泰和县林分面积大幅增加, 全县森林植被的固碳能力明显增强.

关键词: 碳储量 时空特征 江西省泰和县

Abstract:

Based on the sixth forest inventory data of Taihe County, Jiangxi Province, this paper analyzed the curve relations between the carbon densities and ages of major forest types by using Logistic equation, and estimated the total amounts and change trends of the biomass and carbon storage of forest vegetation from 1985 to 2003 by the method of biomass expansion factor. The carbon storage in 2020 and 2030 was estimated by setting 2003 as the baseline year and assuming that the area of forest vegetation remained stable and without consideration of forest rotation. In 2003, the total forest area of Taihe County was $15.74 \times 10^4 \text{ hm}^2$, the total biomass was 6.71 Tg, the vegetation carbon storage was 4.14 Tg C, and the average carbon density was $26.31 \text{ t C} \cdot \text{hm}^{-2}$. In 1985, 1994, 2003, 2020, and 2030, the forest carbon storage was 1.06, 2.83, 4.14, 5.65, and 6.35 Tg C, respectively. The carbon density of the forest vegetation in Taihe County decreased from the eastern and western regions to the central. Artificial afforestation contributed significantly to the increase of forest stand area, and consequently, to the improvement of forest carbon sequestration capacity.

Key words: carbon storage spatiotemporal characteristic Taihe County of Jiangxi Province

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