

Effect of global warming on forest ecosystem in Japan: Data analysis using tree-rings, satellite images and earth system model

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Global warming not only changes long term trend of temperature and precipitation, but also increases the frequency and intensity of extreme weathers. These changes possibly affect forest ecosystem, and in some cases the ecosystem may be adversely affected. In order to maintain diverse functions of forest ecosystem (ecosystem services) in the future, the effect of global warming on forest ecosystem should be fully understand. However, it has not been obtained yet.

The purpose of this study is to (1) clarify the past effects of long/short term climate change due to recent warming on forest ecosystems in Japan by using tree-ring parameters, satellite images and gridded climate dataset, (2) predict the likelihood of future occurrence for long/short term climate change (e.g., warming trends and intensity/frequency of severe drought) from an earth system model, and (3) evaluate the future risk of forest ecosystems in Japan. In this presentation, we intend to show the preliminary results on this.

Keywords: Global warming, Forest ecosystem, ecosystem service