The Effect of Salt from the Ocean on the Growth of Trees.

Kazumi FUKAZAWA, Ryo FUNADA and Yuzou SANO
Faculty of Agriculture, Hokkaido University

SUMMARY

The typhoon on 23 August in 1981 damaged 15,000 m^3 of trees and also resulted in the discoloration of leaves in almost areas at the Tomakomai Experimental Forest of Hokkaido University being close to the ocean (about 4 km). The degree of discoloration (green to brown), however, varied with the distance from the ocean, the topographic condition, and the forest structure such as tree species and ages. These indicate possibilities that the effect of salty wind from the ocean would be controlled by the course of plantation. On the other hand, the discoloration disappeared gradually in the following season, showing this being temporary phenomenon by the typhoon in 1981.

The tree-ring analysis using the soft X-ray densitometric method revealed that the annual growth suppression in conifers occurred in the years during 1982-85 after the typhoon had visited. The statistical analysis also showed that the original tree-ring index for annual ring growth was lower during this period than the predicted one estimated by the response function method. The numerous salt carried rapidly with the strong wind of the typhoon probably inhibited the crown activity and thus the annual ring increment. After 1985, the cambial activity recovered, but in some trees the symptoms as declining trees, namely a thinning of the foliage with the loss of needles and branches and narrow annual rings, are now seen.