



Case Study: Forest Measurements in South Korea

In March 2008, Sang Woo Corporation, Skye's distributor in South Korea, installed a climate monitoring station in Gangwon-do Research Center for Natural Environment (G.R.C.N.E.), located in the Gangwon Nature Environment Research Park in Gangwon-Do province. Dr Chae Hee-Mun at the G.R.C.N.E. installed five DataHog logging stations at 2m intervals on a single 10m mast within the forest canopy. The microclimate is recorded at 2m, 4m, 6m, 8m and 10m heights, including measurements of wind speed and direction, relative humidity, air temperature, total solar radiation, PAR radiation and rainfall at each height plus soil temperature and soil moisture at several depths. The park is not only a research station, but is also open to the public. The weather data, transmitted wirelessly to a large LED panel, is also on display in the Visitor's Centre.



RESEARCH GOALS



Long-term monitoring of forest ecology through the analysis of meteorological phenomena in the forest. Analysis of growth and vigour on tree and forest stands, by microclimate analysis (above by layer) that climate actual condition grasp within the forest. Long-term change in climate monitoring which leads a mountain style climate data analysis. Analysis on climate change in mountain areas by understanding climatic differences using climate factors in mountain and non mountainous areas, with substantial data provision for climate change in the future within the forest.

RESEARCH DURATION AND RESULTS

Project Establishment: Review the monitoring sector in the research park.

Analytical parameters: Air Temperature, Relative Humidity, Rainfall, Solar Radiation, (Pyranometer), WindSpeed, wind direction, Soil Temperature and Soil Moisture (Tensiometer). *Research duration:* From April 1st to October 30th 2008

Research result summary:

1. Change in climate above by layer within forest
 - Average temperature: The stratum department (2m) is lower than the upper layer (10m)
 - Average wind speed: 8m and 4m height has the highest relatively
 - The stratum department (2m) is lower than the upper layer (10m)
 - Rainfall: The upper layer (10m) area has the lowest relatively
2. Daily change of microclimate within the forest
 - Temperature: The tendency where the lower stratum department (2m) is high relatively in nighttime (24:00~07:30) and evening time (19:24: 00)
 - Wind velocity: Morning of wind velocity (07: 00) is most low-end tendency
 - Relative humidity: The upper layer (10m) relatively high tendency in nighttime (24:00~07:30) and evening time (19:00~24: 00)
3. With Hongcheon' weather station comparison
 - Average temperature: About 4°C lower (within 16°C forest, Hongcheon' weather station: 19.9°C)
 - Average wind speed: About 1m/s lower (within 0.3m/s forest, Hongcheon' weather station: 1.3m/s)
 - Average relative humidity: About 12% higher (within 83.8% forest, Hongcheon' weather Station: 71.3%)

Acknowledgements and Contacts

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