Watershed-Scale Experiment on the Carbon Cycle of Larch Plantation

Carbon Cycle and Larch Growth

**CC—LaG Experiment**

- National Institute for Environmental Studies
- FSC for Northern Biosphere, Hokkaido University
- Hokkaido Electric Power CO., Inc.

Study area (13.7 ha)

30 m Tower

Observation Weir

Lat. 45°N

Teshio Experimental Forest

Since 2001
**Study site**

Teshio Experimental Forest, Field Science Center for Northern Biosphere, Hokkaido University (45º 03’N, 142º 07’E, a.s.l. 66m)

**Main Project**

P0 Carbon dynamics monitoring in a young larch plantation

**Sub Projects**

P1 Biomass research of a cool-temperate forest

P2 Carbon dynamics monitoring in a cool-temperate forest

P3 Effect of regeneration managements on the carbon sequestration

P4 Watershed-scale carbon/water/nutrient dynamics

P5 Evaluation of regional carbon budget

**Monitoring terms**

- Wind speed
- Wind direction
- Air temperature
- Relative humidity
- Snow depth
- Net radiation
- Closed-path system box
- Open-path system box
- 3D wind speeds
- Surface temp.
- Precipitation
- PAR
- Long-wave radiation
- Short-wave radiation
- CO₂ & H₂O fluctuation
- Soil heat flux
- Soil temperature
- Soil water content
- Snow melt
- Litter fall
- Biomass & stem CO₂ efflux
- CO₂ concentration in the soil
- Runoff: Water temp.; EC
- Water chemistry: SS
- Measurement term on the top of the tower
- Measurement term on the forest floor
- Measurement term at the weir
- Biomass & matter flow researches
- Flux measurement system
- Gas inlet
- Measurement term on the forest floor
- Measurement term on the top of the tower
- Measurement term at the weir
- Measurement term on the forest floor
- Measurement term on the top of the tower
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- Measurement term on the forest floor
- Measurement term on the top of the tower
Features

1. Clear-cutting of a natural forest & plantation of larch saplings
   - 13.7 ha clear-cutting
   - Effect of clear-cutting on the matter flow
   - Effect of plantation on the matter flow

2. Snowy region
   - Snow depth ≈ 1.5 m
   - Comprehensive understanding of hydro-biogeochemical cycle of a forest in snowy region

3. Watershed-scale monitoring

Schedule

- Observation on mixed-forest
- Hybrid larch (*Larix gmelinii* × *L. kaempferi*) plantation (ca. 30,000 saplings) (Oct. 2003)
Tie up with Tomakomai Flux Research site and Fuji Hokuroku Flux observation site

Comprehensive study on carbon sequestration rate of larch forests

Papers on this project


