

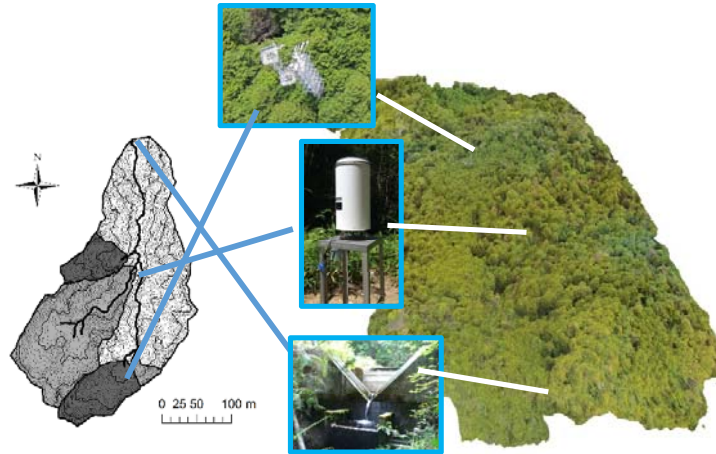
**INTRODUCTION**

The Kiryu Experimental Watershed (KEW) was established in 1967 to address hydrological processes and relating roles of forest, trees, and soil. KEW has one of the longest historical data and continuous research programs in Japan.

**STUDY AREA**

Site name: Kiryu (code: KEW)  
 belonging to JaLTER, AsiaFlux, PEN  
 Location: 34.97°N, 136.0°E  
 Number and type of sites:  
 5 gaged catchments,  
 1 hillslope plot,  
 1 meteorological tower  
 1 wetland plot  
 Catchment area: 0.086-5.99 ha  
 Land use: Plantation Forest  
 Vegetation: Mainly Japanese cypress (*Chamaecyparis obtusa*)  
 Geology: Granite

**TOPOGRAPHY & INSTRUMENTS**



**DATA**

Hydrology (1972-)  
 Sediment yield (1976-)  
 Rain, Stream- & Groundwater chemistry (1990-)  
 Eddy Covariance fluxes and Meteorology (2001-)  
 Tree Biomass Census (2001-)

**RESEARCH FOCUS**

Hillslope & Catchment Hydrology;  
 Biogeochemical cycling; Carbon cycling;  
 Forest dynamics; Sediment yield;  
 Climate change; Gas exchange; Ecohydrology

**KEY FINDINGS**

Rainfall-runoff processes and modelling  
 Soil physics  
 Water balance  
 Evapotranspiration  
 Sediment transport  
 Bedrock GW dynamics  
 Mean residence time  
 Acid buffering processes  
 Nitrogen saturation  
 Dry deposition  
 Denitrification  
 Gas exchange (CO<sub>2</sub>, Methane, etc.)  
 Carbon dynamics  
 Water use by Trees  
 Ecosystem modelling  
 Vegetation phenology



Sediment removal works at weir

**LAND USE & VEGETATION HISTORY**



Photo 1

Photo 2

Photo 3

Photo 5



Photo 4

Till <100 years ago, devastated (Photo 1)  
 Erosion control works(1900s-; Photo 2)  
 Plantation for timber product (1950s-)  
 Pine-wilt disease at part of subcatchment (1990s; Photo 3)  
 Now: **Unmanaged**, typical artificial forest in Japan.  
 60-year-old Japanese cypress forest (Photo 4),  
 Heavy storms & bank erosion (Photo 5)

**CHARACTERISTICS**

Warm Temperate, Cfa  
 MAT: 13.6 °C  
 July: 24.2 °C / January: 2.6 °C  
 MAP: 1664 mm, <2% as snow  
 Elevation: 190-255 m a.m.s.l.  
 Mean slope angle: 25.3°  
 Mean soil depth: 0.65 m  
 Manipulations?: No

**FUNDING**

JSPS Grants-in-Aid for Scientific Research  
 Coca-cola foundation  
 & Many other National/Private grants

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**CURRENT & FUTURE**

The site exist for research and education. We are considering about forest dynamics and hydrological responses using traditional & state-of-the-art monitoring techniques under climate change.

