

Eddy Covariance Training Course at AsiaFlux

I. Objectives

- 1.1. To understand eddy covariance theory, experimental design and applications
- 1.2. To become skilled at setting up and operating eddy covariance systems
- 1.3. To be able to process raw flux data with EddyPro, understand online flux data processing (SmartFlux) and management (FluxSuite) and know how to use flux data analysis software (Tovi).

II. Time

Sunday - Tuesday, September 29 – October 1, 2019

III. Location

Gifu University, Japan

IV. Class Schedule

Sunday, September 29

- 13:00 – 13:15 Opening remark and self-introduction
- 13:15 – 14:00 Eddy covariance theory
- Eddy covariance theory
 - Long-term flux measurement example
- 14:00 – 15:00 Eddy covariance applications and experimental design
- Eddy covariance applications
 - Concept of flux footprint and fetch requirement
 - Design and implementation of eddy covariance experiments
- 15:00 – 15:15 Break
- 15:15 – 16:30 Operation theories of analyzers and sonic anemometer
- Open and Enclosed Path CO₂/H₂O models
 - Open Path CH₄ model
 - Sonic anemometers

Monday, September 30

- 9:00 – 10:00 Overview on setup of Analyzers, Anemometers, and SmartFlux eddy covariance systems
- 10:00 – 10:15 Break
- 10:15 – 11:00 Biomet measurements and sensors
- The needs for Biomet data
 - Energy balance closure
 - Sensors and station
- 11:00 – 11:30 Software, operation, and maintenance of Analyzers, Biomet, SmartFlux systems and cellular communication
- Operation, SmartFlux, and wireless communication
 - System maintenance and calibration
 - Data management software FluxSuite

- 11:30 – 13:00 Lunch
- 13:00 – 14:15 Hands-on installation of eddy covariance systems
- Instruments layout including cellular communication and SmartFlux
 - Wiring and system integration
- 14:15 – 15:00 Software, operation, and maintenance of Analyzers, Biomet, SmartFlux systems and cellular communication (continued)
- Operation, SmartFlux, and wireless communication
 - System maintenance and calibration
 - Data management software FluxSuite
- 15:00– 15:15 Break
- 15:15 – 16:45 Data processing overview (*Note: Please bring your own laptop*)
- Data processing principles and procedures
 - Software overview
- EddyPro, Tovi and File Viewer software installations and sample data
- Software installation
 - Sample data preparation
 - File Viewer demonstration

Tuesday, October 1

(Note: Please bring your own laptop)

- 9:00 – 10:00 Hands-on GHG data processing with:
- EddyPro Express Mode
 - EddyPro Advanced Mode
- 10:00 – 10:15 Break
- 10:15 – 11:30 Explanations on EddyPro and SmartFlux outputs
- Introduction to Post-processing and analysis (Tovi)
- Hands-on flux data analysis using Tovi
- 11:30 – 13:00 Lunch
- 13:00 – 14:00 Li-COR Training Course Special Lecture
- Trials and Tribulations of Measuring Carbon and Water Fluxes over Ecosystems since 1978
- by Professor Dennis Baldocchi, University of California, Berkeley
- 14:00 – 14:30 Certificate
- 15:00 Leave from Gifu University for Takayama city by chartered bus
(approx. 2.5 hours)