Integrated Surface Flux System
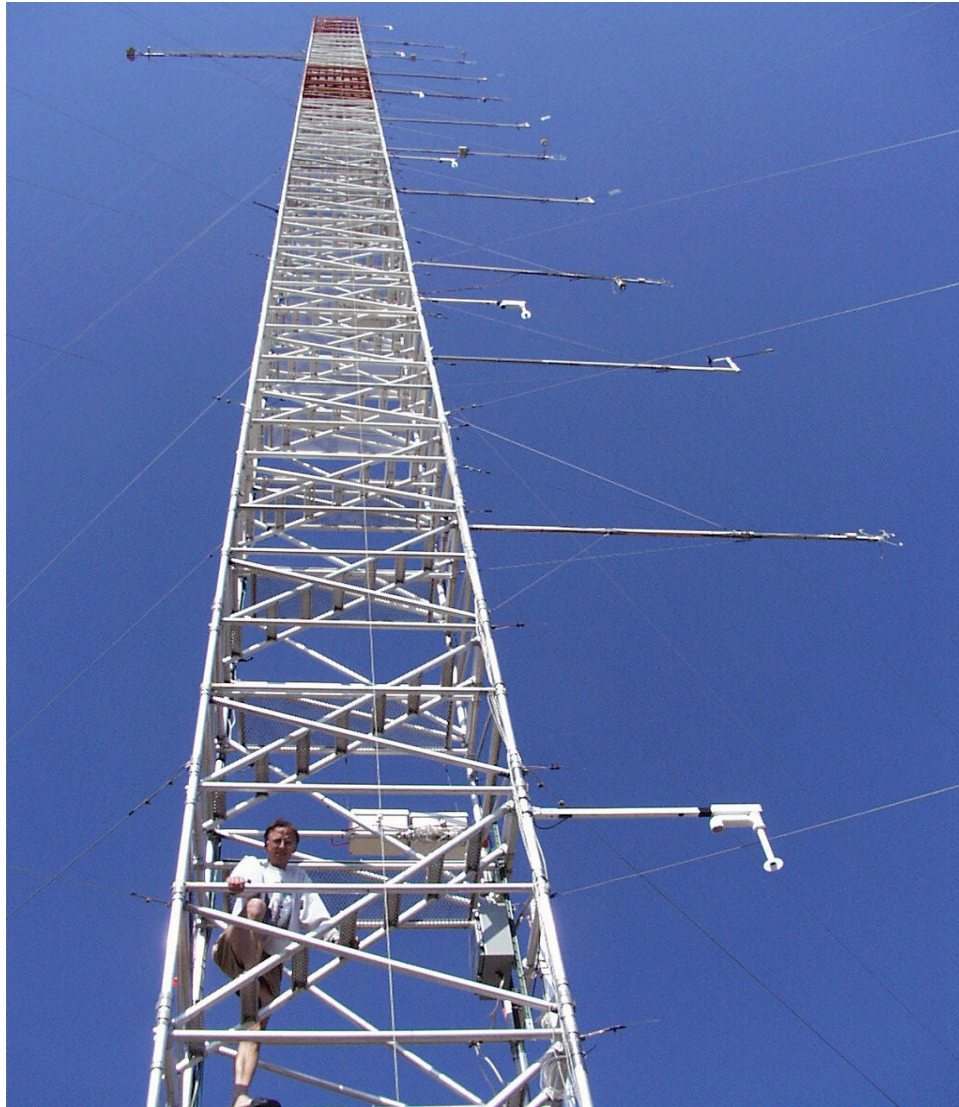

ISFS is a configurable suite of tower based sensors, commonly used to study exchange processes between the atmosphere and the earth's surface.
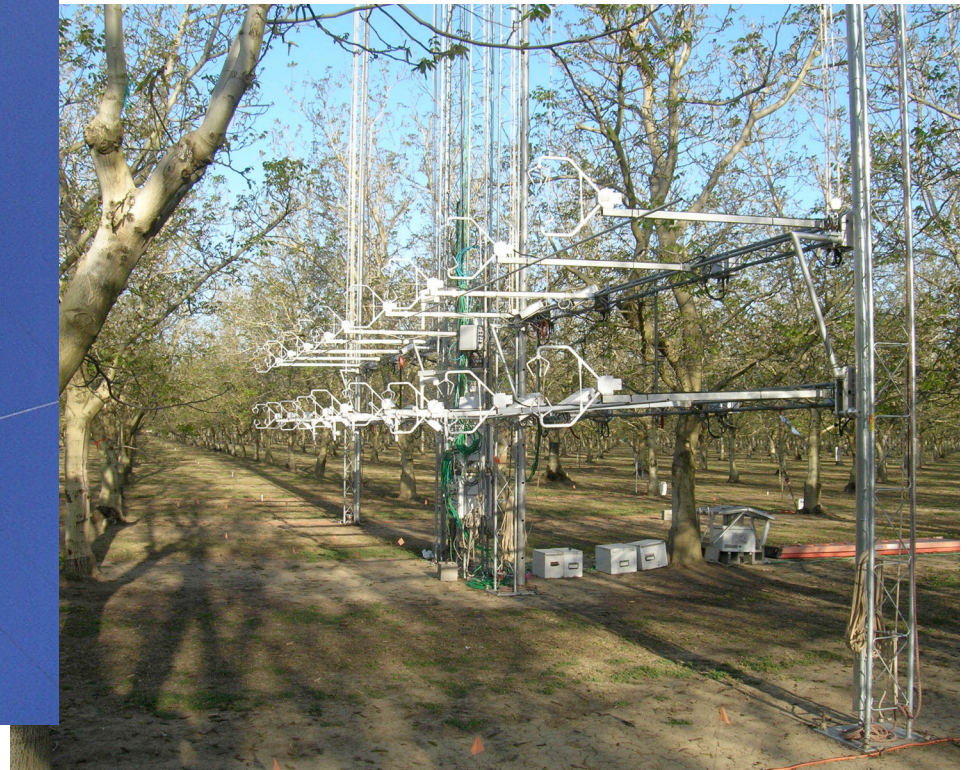
ISFS can be deployed as either a spatially disperse network of station to measure the surface energy budget...

Integrated Surface Flux System

... and/or as a dense array of sensors a single location for an intensive micrometeorological study
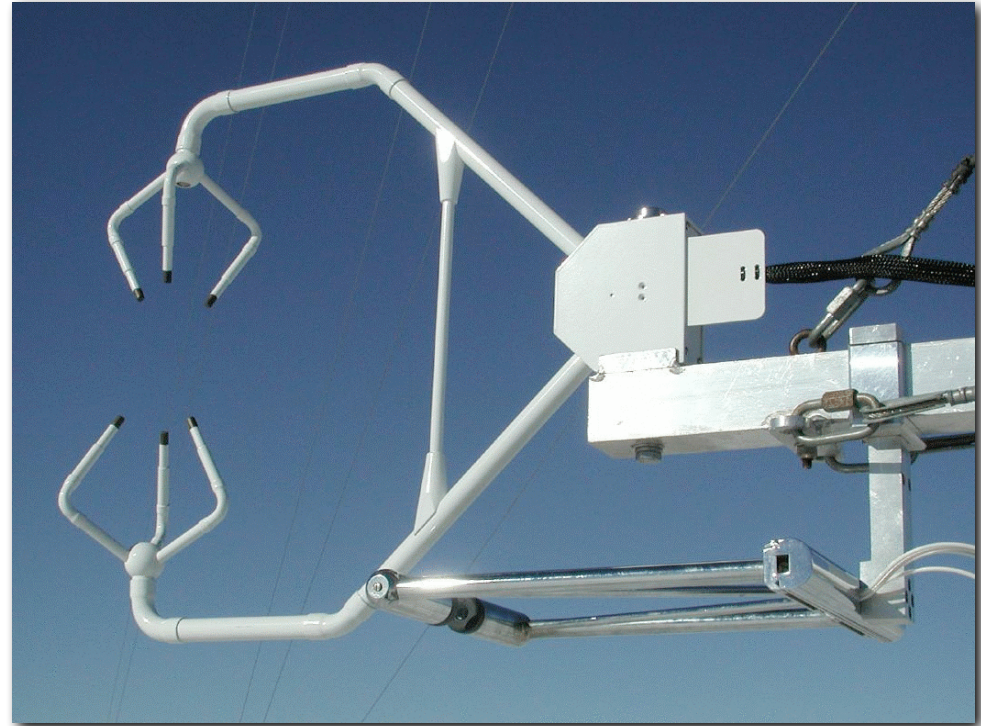
ISFS Applications

- Surface energy balance

- Turbulent fluid dynamics

- Surface deposition/emission of trace gases

- Basic surface meteorology

- Spatial variation of surface fluxes

- Vertical gradients of fluxes

ISFS Measurement Capabilities

- Turbulent Fluxes

  - Momentum

  - Sensible and Latent Heat

  - Carbon dioxide

  - Trace species (with user-provided scalar sensors)

ISFS Measurement Capabilities

- Surface Meteorology

  - 10m Wind speed and direction

  - 2m Temperature and relative humidity

  - Pressure

  - Precipitation

ISFS Measurement Capabilities

- Radiation

  - Broad-band shortwave

  - Broad-band longwave

  - Net

  - PAR

  - IR surface temperature

ISFS Measurement Capabilities

- Soil
  - Temperature
  - Moisture
  - Heat flux
 - Heat capacity
  - Thermal diffusivity

ISFS Data Acquisition

- Serial data to 230 Kbaud

- Analog data to 10,000 samples/sec

- Microsecond time tag of every sample

- 4 GB local data storage

- GOES data transmission at 1200 baud

- Ethernet/WiFi two-way communication

- All data samples archived and available for analysis

ISFS Logistics

- AC line power distribution to 2 km

- Off-grid: Solar, wind, or hydrogen fuel cell

- Tripod, triangular, scaffolding towers up to 30m

- Field office/laboratory trailer
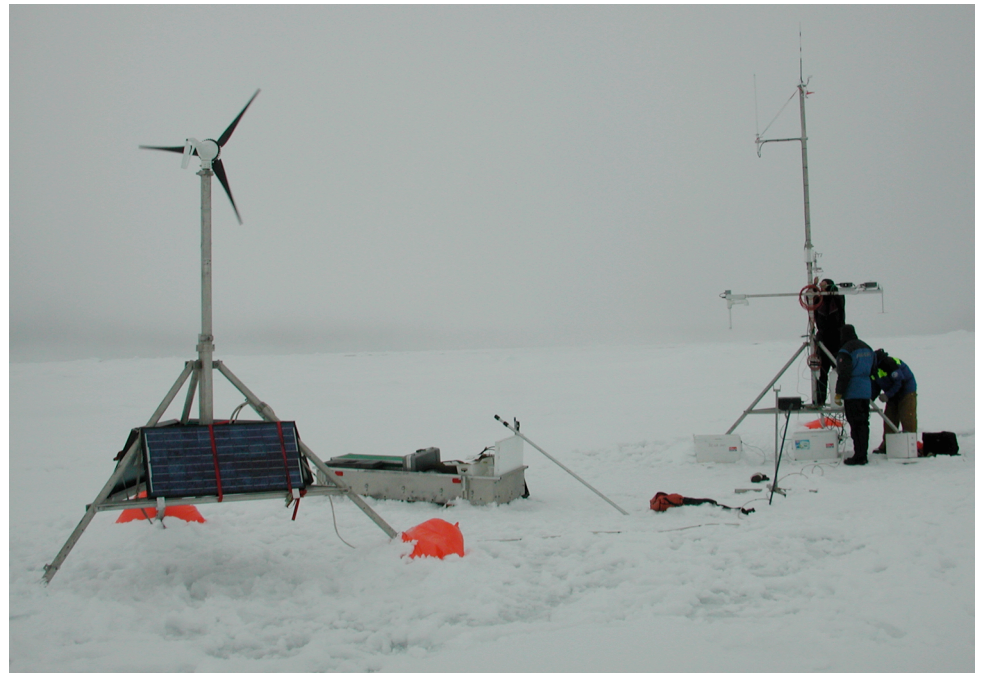
ISFS Facility Request

Tom Horst (horst@ucar.edu) and Steve Oncley (oncley@ucar.edu) are available to optimize the match between your facility request and ISFS capabilities.   Begin this process with the measurements required by your science, not perceived limits on ISFS capabilities.