

**Data Management: from georeferenced data to data storage and access**  
**Thurs, 9:20 AM**

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- I. Review - Raw sensor outputs to georeferenced data
  - A. Convert latitude and longitude data to UTM coordinates
  - B. Assign coordinates to each sensor location based on vehicle geometry
  - C. Locate sensor observation points within field plot boundaries
  - D. Assign field plot ID information to each sensor observation point
- II. Data interpretation
  - A. Instrument information
    1. Sensor type
    2. Relative sensor position on the phenotyping system
  - B. Physical information
    1. Observation values
    2. Unit
    3. Range
  - C. Temporal information
    1. UTC
  - D. Geographical information
    1. Longitude
    2. Latitude
    3. Elevation
  - E. Field plot information
    1. Plot name
    2. Seed variety
    3. Plot boundaries
- III. Data management
  - A. Table design
    1. HTP data table
      - a) Sensor ID
      - b) Sensor output(s)
      - c) Absolute sensor positions (x, y, and z coordinates)
      - d) UTM zone
      - e) Sampling date and time
      - f) Plot ID
      - g) Others (i.e. raw GPS outputs)
    2. Field plot table
      - a) Plot ID
      - b) Seed ID
      - c) Range and column index
      - d) Planting date
      - e) Boundary coordinates
      - f) Others (i.e. field location)
    3. HTP instrumentation table

- a) Sensor ID
  - b) Model type
  - c) Serial number
  - d) Relative positions (x, y, and z coordinates) on the phenotyping system
  - e) Others (i.e. phenotyping system information)
- 4. Relationship between tables
    - a) Using Plot ID to link the “HTP data” table and the “Field plot” table
    - b) Using Sensor ID to link the “HTP data” table and the “HTP instrumentation” table
- B. Storage and access
    - 1. File
    - 2. Database