

Spatiotemporal Variability of Albedo in Bioenergy Cropping Systems

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Research Question:

- Quantify how albedo varies temporally (inter/intra annually), and spatially (between different cropping ecosystems).
- Determine the contribution of albedo on global warming impact (GWI).

Methodology:

- Continuous measurements using portable albedo towers year-round.
- Instantaneous measurements using a survey system (radiation sensor mounted on golf cart) throughout growing season.
- Multiple regression analysis to analysis external variables driving surface reflectivity (e.g. precipitation, plant canopy, texture, etc).

Preliminary Results:

- Perennial grasslands had a higher albedo, higher likelihood for carbon sequestration and negative GWI.
- Annual croplands had a lower albedo, higher likelihood for carbon emission and positive GWI.

Diurnal fluxes in albedo (α) for a typical summer over seven biofuel croplands at BCSE, KBS, MI.

