

## Abstract

The terrestrial carbon pool represents the third largest carbon pool on earth after ocean and fossil fuels. Florida's natural and agro-forest ecosystems have much potential to sequester carbon in biomass and soils due to unique climatic and landscape conditions. Research projects involving carbon and related properties are many and scattered across multiple disciplines and spatial and temporal scales. However, research gaps exist to synthesize knowledge on carbon dynamics and cycling and accurately assess carbon pools and fluxes at coarse scales, ranging from county to the regional and larger scales. The overarching objective of this project is to address these obstacles by creating a database infrastructure for the carbon science community, focused on ecosystems in Florida and the southeastern United States. The Terrestrial Carbon (TerraC) Information System is dedicated to advance terrestrial carbon science through fusing of carbon and environmental data to accurately assess the potential to capture carbon in biomass and below-ground in Florida. TerraC offers tools to upload, store, manage, query, analyze, and download data characterizing terrestrial carbon dynamics from various sources, including soils, plants/biomass, atmosphere, water, and whole ecosystems. **The purpose of TerraC is three-fold:** (i) advance terrestrial carbon science through sharing of carbon and environmental data; (ii) facilitate environmental synthesis; and (iii) enhance collaboration among researchers, scientists, and extension specialists through shared resources. Data stored in TerraC conform to quality standards and can be shared privately among selected users or publicly with any user.

## Data sharing

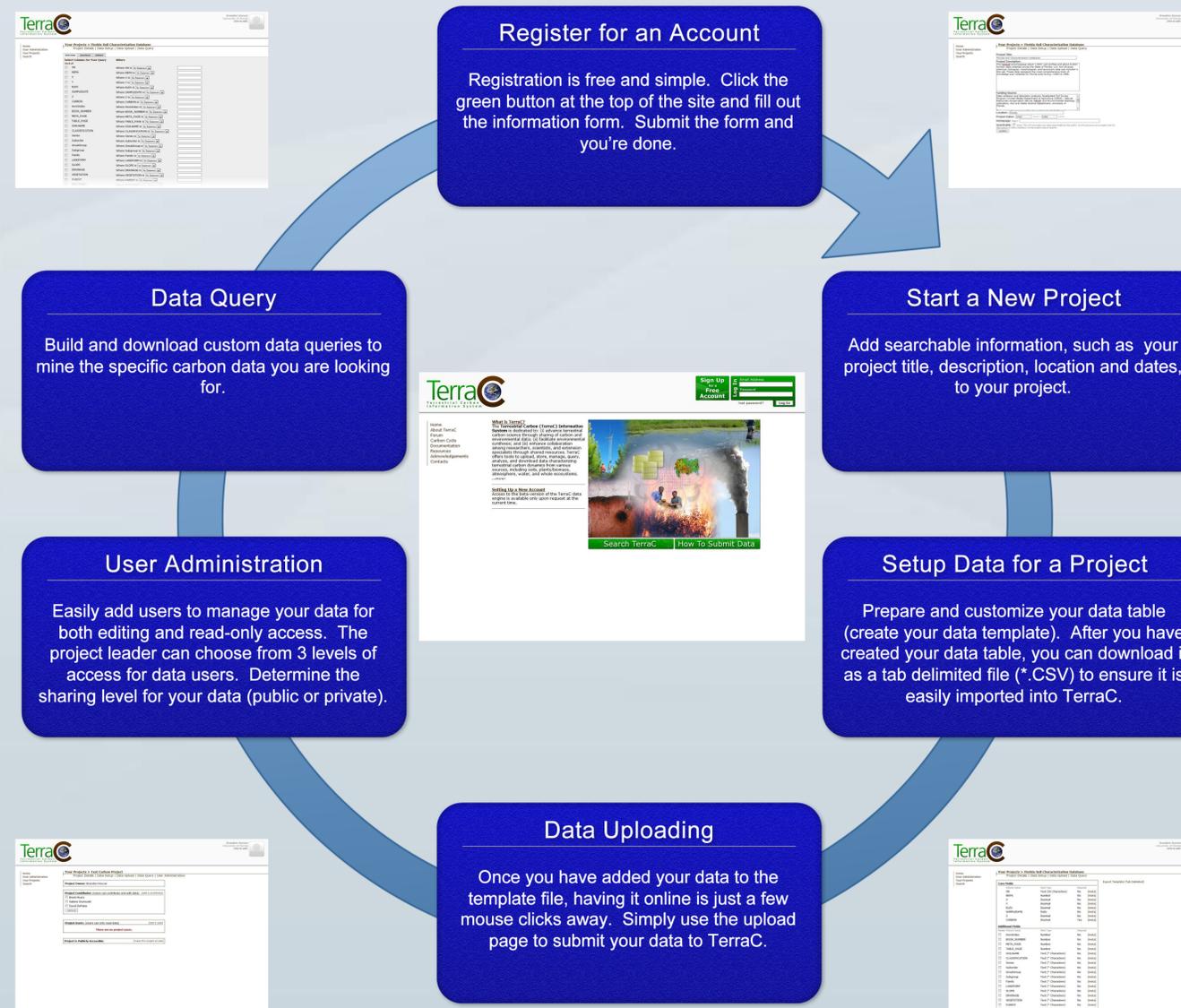
Data stored in TerraC can be shared at three access levels. Data contributors select an appropriate level:

*Level 1 – Public with read-only access*

*Level 2 – Private read/write access*

*Level 3 – Private read-only access*

*Data sharing and usage in TerraC is governed under the Creative Commons licensing scheme.*



## What data are available in TerraC?

Data collected in soils, plant/biomass, atmosphere, water, and whole ecosystems are stored in TerraC. Datasets include carbon and associated environmental measurements in different forms (e.g. total, labile, recalcitrant carbon), different units (e.g. concentrations, stocks, fluxes), and at different spatial and temporal scales. Each data set is described in form of a project, including meta data for each data record.

## Acknowledgements

The TerraC project is funded by the Florida Energy Systems Consortium (FESC), sponsored by the Florida Energy and Climate Commission (FECC).

## Who contributes and participates in TerraC?

Access to TerraC is free. All public data are readily accessible and private data may be obtained by contacting the project owner.

- Researchers / scientists
- Students
- Agencies (e.g. NRCS)
- Private industry
- Societies & non-profit organizations

## How can you get involved?

- Contribute carbon data
- Query / access carbon data
- Collaborate with students, faculty, and scientists

## Envisioned topics for synthesis

- Bioenergy / biofuels
- Life cycle assessment
- Modeling of carbon dynamics
- Soil carbon change analysis (historic-current comparison)
- Coupled carbon-nutrient models
- Global climate change modeling
- Meta analysis - carbon assessment across different biomes, land use types, or ecosystem types.

## Next phase of TerraC project

- Graphics tools will be added to enhance queries and browsing
- Add a Google Earth-based carbon application for interactive visualization and sharing of carbon data