Soil Carbon Sequestration Flagship

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES

Online collaborative knowledge hub

Developing solutions

Decision support toolbox

- Maps of SCS potential (e.g. to reach the 4 per 1000 aspirational target)
- Maps of crop and pasture practices suited to reach SCS targets
- Implications of SCS practices for
  - yields,
  - drought tolerance and climate change adaptation
  - N_2O and CH_4 emissions, energy use
- Costs and benefits of transitioning to SCS practices

Monitoring solutions

Methods to certify SCS

- Tiered methodologies for monitoring, reporting and verifying (MRV) soil organic carbon (SOC) stocks in crop and pasture systems
- Handbooks and guidelines for project scale MRV adapted to regional contexts and agricultural systems
- Technologies for rapid SOC stock verification
- Modelling of SOC stock change in crop and pasture systems

Adopting solutions

Enabling environment

- Regional stakeholder workshops on SCS
- Criteria for sustainable SCS projects supporting livelihoods
- Assessment of barriers to the adoption of SCS practices
- Value chains, business models and policy options
- Research funding strategy and international research cooperation

Capacity building, knowledge transfer and training

Soil Carbon Sequestration flagship Contributions received

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Developing solutions

Decision support toolbox

- **Argentina**: Sugarcane and Pasture beef systems
- **Brazil**: C sequestration strategies in agriculture across biomes: low Carbon Emission Agriculture Plan of Brazil
- **France**: national assessment of solutions and implications of SCS in agriculture
- **Lithuania**: stabilization and enhancement of SOC to soil in grasslands or arable land
- **New-Zealand and Ireland**: full inversion tillage in grasslands
- **USA:** funding international collaborations on soil health, reactive N and microbial communities

Monitoring solutions

Methods to certify SCS

- **Argentina**: SCS tool and databases
- **Australia**: monitor changes in soil carbon stocks (similar to Australian Emissions Reduction Fund)
- **Brazil**: MRV for SCS in grain production systems
- **France**: Digital soil map development
- **Ireland**: national soil survey and soil carbon assessment in grasslands
- **Spain**: carbon stability and modeling studies, especially with degraded marginal land
- **USA.** International soil carbon network and database hosted by Fluxnet
- **EU**: ERAGAS (PEATWISE, SCS drained peatlands; GHG-MANAGE, SCS in landscapes)

Adopting solutions

Enabling environment

- **France**: identifying barriers to adoption in the national assessment of SCS
- **Spain**: studies on barriers to adoption

Soil Carbon Sequestration flagship 2017-2019

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Developing solutions

Decision support toolbox

- **Argentina, Australia, Brazil, France, Ireland, Lithuania, New-Zealand, USA (+ other countries?)**

REGIONAL PROJECTS (e.g. 2 post-docs or researchers by region, supported by SCS teams)

- **Regional maps of crop and pasture practices suited to reach SCS targets**
- **Regional implications of SCS practices for**
  - **yields,**
  - **drought tolerance and climate change adaptation**
  - **N_2O and CH_4 emissions, energy use**

Monitoring solutions

Methods to certify SCS

- **Argentina, Australia, Brazil, France, Ireland, Spain, USA, EU-ERAGAS (+ other countries?)**

REGIONAL PROJECTS (e.g. 2 post-docs/researchers + multi-author SCS team)

- **Handbooks and guidelines for project scale MRV adapted to regional contexts and agricultural systems**
- **Modelling & remote sensing methods for SOC stock change in crop and pasture systems**

Adopting solutions

Enabling environment

- **France, Spain (+ other countries?)**

PROJECT 3 (resources from CIRCASA)

- **Regional stakeholder workshops on SCS**
- **Criteria for sustainable SCS projects supporting livelihoods**

CIRCASA: a funded Coordination and Support Action

CIRCASA

Coordination of International Research Cooperation on soil CArbon Sequestration in Agriculture

Goals of CIRCASA project

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The overarching goal of CIRCASA is to develop **international synergies concerning research and knowledge transfer** on agricultural soil C sequestration at European Union (EU) and global levels.

- **Strengthen the international research community** on soil carbon sequestration in relation to climate change and food security;
- **Improve our understanding** of agricultural soil carbon sequestration and its potential for climate change mitigation and adaptation and for increasing food production;
- Co-design a **strategic research agenda with stakeholders** on soil carbon sequestration in agriculture;
- **Create an International Research Consortium**

Countries of the 24 CIRCASA partners

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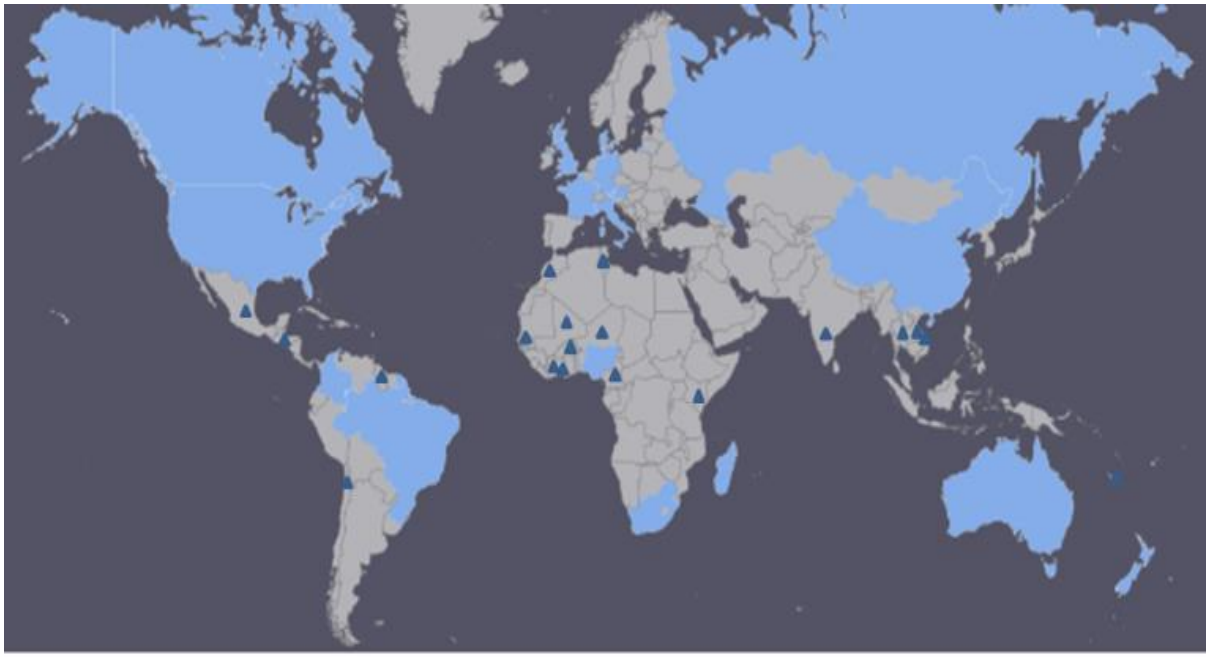

Additional research sites

European Commission

CIRCASA partnership

CIRCASA benefits from the participation of:

- The **Global Research Alliance** on agricultural greenhouse gases (GRA, 47 member countries),
- The **4 per 1000 - Soils for Food Security and Climate** - initiative (33 member countries),
- The Joint Programming Initiative on Sustainable Agriculture, Food Security and Climate Change (**FACCE-JPI**, 22 member countries),
- In addition, CIRCASA will also benefit from the contribution of the Climate Change Agriculture and Food Security program (CCAFS) and the Water, Land and Ecosystems (WLE) programs of the **CGIAR,**
- And collaborate with the **Intergovernmental Technical Panel on Soils (ITPS)** of the Global Soil Partnership (GSP)

Online collaborative research platform

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Knowledge system

- Geo-referenced meta-data
- Soil carbon, land use, maps
- Geo-referenced ag. practices, for soil carbon, co-benefits, trade-offs, etc..
- Handbooks, guidelines

Matchmaking

- My user profile
- Identify researchers and stakeholders
- Map collaborative networks
- Search by theme
- Search by geographical area
- Search by sequestration/ag. practice

Communication & Outreach

- Tools: newsletters, videos, etc
- Discussion forum
- Peer to peer
- Events calendar
- Links
- Webinars

Better structuration of international cooperation

- Strategic Research Agenda
- Research programs
- Funding and alignment opportunities
- Research policy views

SCS Flagship: substantial opportunities for countries investments

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What you can expect?

- **Research organizations**: be part of a large collaborative research effort (facilitated by the online collaborative platform); contribute to the International Research Consortium (IRC)
- **Research agencies:** structure national research on SCS, contribute to the IRC and to research programing (international research calls)
- **Ministries**: define national needs and support national expert teams on SCS

Which support can you bring?

- **Research organizations**: in-kind contribution of researchers,
- **Research agencies:** funding of research calls and regional workshops
- **Ministries**: contribute to science-policy interface on SCS and national action plans, host conferences with stakeholders