

GLOBAL RESEARCH ALLIANCE

ON AGRICULTURAL GREENHOUSE GASES

Integrated Research Group Soil Carbon Network

Claire Chenu
Denis Angers



Cali, Colombia

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Established in 2017 to consolidate Soil C activities in one «location» within the GRA

- Soil C activities were previously embedded in other GRA Research Groups

C&N Cross-cutting RG



The use of biogeochemical models to evaluate mitigation of greenhouse gas emissions from managed grasslands

Renáta Sándor ^{ab}, Fiona Ehrhardt ^c, Lorenzo Brilli ^{d,e}, Marco Carozzi ^f, Sylvie Recous ^g, Pete Smith ^h, Val Snow ⁱ, Jean-François Soussana ^c, Christopher D. Dorich ^j, Kathrin Fuchs ^k, Nuala Fitton ^h, Kate Gongadze ^l, Katja Klumpp ^a, Mark Liebig ^m, Raphaël Martin ^a, Lutz Merbold ^{k,n}, Paul C.D. Newton ^o, Robert M. Rees ^p, Susanne Rolinski ^q, Gianni Bellocchi ^{a,*}



Croplands RG



Carbon Management



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MAGGnet: An international network to foster mitigation of agricultural greenhouse gases

M.A. Liebig, A.J. Franzluebbers, C. Alvarez, T.D. Chiesa, N. Lewczuk, G. Piñeiro, G. Posse, L. Yahdjian, P. Grace, O. Machado Rodrigues Cabral, L. Martin-Neto, R. de Aragão Ribeiro Rodrigues, B. Amiro, D. Angers, X. Hao, M. Oelbermann, M. Tenuta, L.J. Munkholm, K. Regina, P. Cellier, F. Ehrhardt, G. Richard, R. Dechow, F. Agus, N. Widiarta, J. Spink, A. Berti, C. Grignani, M. Mazzoncini, R. Orsini, P.P. Roggero, G. Seddaiu, F. Tei, D. Ventrella, G. Vitali, A. Kishimoto-Mo, Y. Shirato, S. Sudo, J. Shin, L. Schipper, R. Savé, J. Leifeld, L. Spadavecchia, J. Yeluripati, S. Del Grosso, C. Rice & J. Sawchik

The Network's **scope** includes:

- Estimating **potential soil carbon sequestration** across spatial and temporal scales
- Understanding **trade-offs and synergies** with non-CO₂ GHG emissions, as well as costs and **barriers to adoption**
- Understanding the **co-benefits** of soil carbon sequestration for soil health and agricultural production
- Producing **best practice guidance on monitoring** soil organic carbon (SOC) stocks over space and time.

Divisional Symposium at World Congress of Soil Science
Rio de Janeiro, August 2018

“Carbon sequestration potential of soils”
Conveners: C. Chenu and D. Angers

Jointly: GRA-IRG Soil C Network and 4 per 1000 Initiative

37 communications (≈15 countries)

Keynote: Mike Beare (NZ): Defining and predicting OC sequestration potential of soils

Discussion around theoretical (C saturation concept) and achievable (practical) C sequestration potential.

2019

Training workshop on modelling SOC in livestock (grassland) systems



Challenges and opportunities

- Large number of national and international initiatives related to SOC
 - Need to find a niche with potential added value
 - Funding - contribution from CIRCASA ...
- Take advantage of specificity of GRA
 - Bringing together interested scientists from 55 member countries
- Possible activities:
 - Stocktake of **current initiatives** in member countries (would foster collaboration)
 - Stocktake of **approaches to estimate** Soil C sequestration potential
 - Identify **priority topics** (e.g. irrigation and SOC), **funding sources** (e.g. EJP-SOIL, C. Chenu)
 - **Thematic sessions** at international conferences (Eurosoil, EGU, AGU etc.).

Denis.angers@canada.ca

Claire.chenu@inra.fr