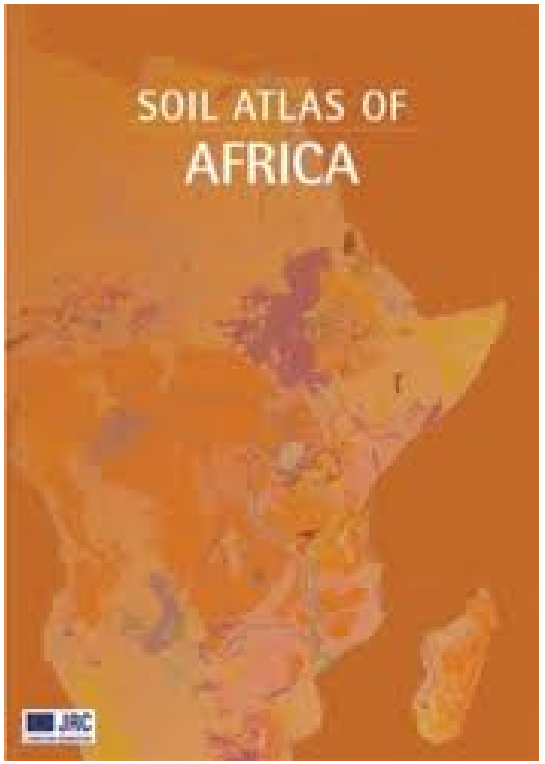
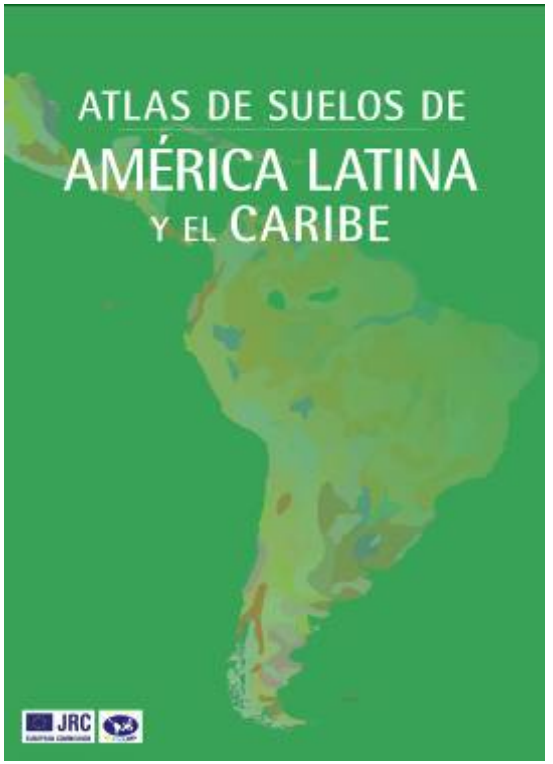
STATUS OF THE SOIL ATLAS OF AFRICA AND LATIN AMERICA





Ciro Gardi, Arwyn Jones

Joint Research Centre (JRC)

IES - Institute for Environment and Sustainability

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http://ies.jrc.ec.europa.eu/

EUROCLIMA

SOIL IS BACK !!

NEWS FEATURE FOOD
NATURE|Vol 466|29 July 2010

THE GLOBAL FARM

With its plentiful sun, water and land, Brazil is quickly surpassing other countries in food production and exports. But can it continue to make agricultural gains without destroying the Amazon? **Jeff Tollefson** reports from Brazil.

SOILS OF AFRICA AND LAC

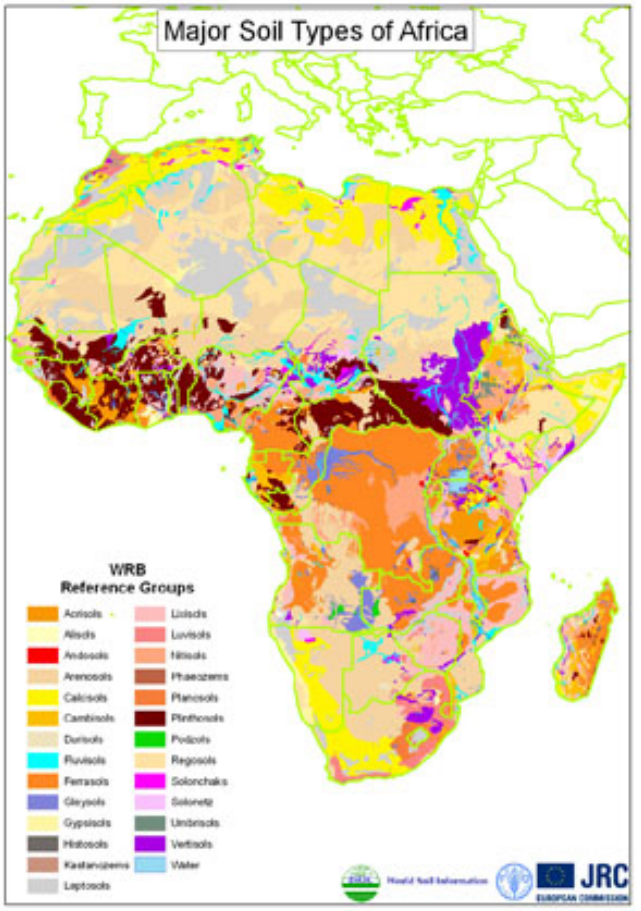
- Soil resources from Africa and Latin America are crucial for meeting the needs of the fast growing human population (MEA, 2005)

- According to FAO and UNEP, current cropland could be more than doubled by adding 1.6 billion hectares, mostly from Africa and Latin America

- The Soil Atlases of Africa and Latin America represent a JRC contribute to Soil Awareness in a global perspective

AFRICA

- Introduction
- Soils of Africa
- Soil Maps at regional and continental scale
- Derived maps at continental scale with descriptive text (e.g. vulnerability to desertification, soil nutrient status, carbon stocks and sequestration potential, irrigable areas and water resources)
- Case studies (e.g. soil erosion)
- Sources of soil information for Africa, including national contacts and institutions



LATIN AMERICA AND CARIBBEAN
EUROCLIMA PROJECT – DG DEVCO

Improving the knowledge of Latin American decision makers and scientists regarding the impact of climate change in the region in order to strengthen sustainable development strategies.

Biophysical component

- **Soil** → **Soil Atlas of Latin America and Caribbean**
- Agriculture
- Water resources
- Desertification and drought
- Bioenergy and Biofuels

OBJECTIVES OF THE ATLAS

- Raise awareness on soil issues in Latin America and Caribbean (LAC)
- Strength the scientific cooperation among LAC soil scientists and between LAC and Europe
- Assess the impact of climate change (CC) on soils and the potential of soils in CC mitigation
- Update the cartographic information on soil
- Contribute of JRC to the Global Soil Partnership

SOIL MAP UPDATE

- Update and harmonize a comprehensive soil map for Latin America and the Caribbean
- Integrate the existing Soterlac information with more detailed data available in digital format
- Translating the existing soil classification (FAO 88) into the latest version of WRB

ATLAS CONTENT

- Soil and Environment in LAC
- Soil classification
- Soil mapping and cartography
- Soils in LAC and Climate Change
- Soil and land use in LAC
- Ecozones
- Soils in LAC: a national perspective

DATA AVAILABLE

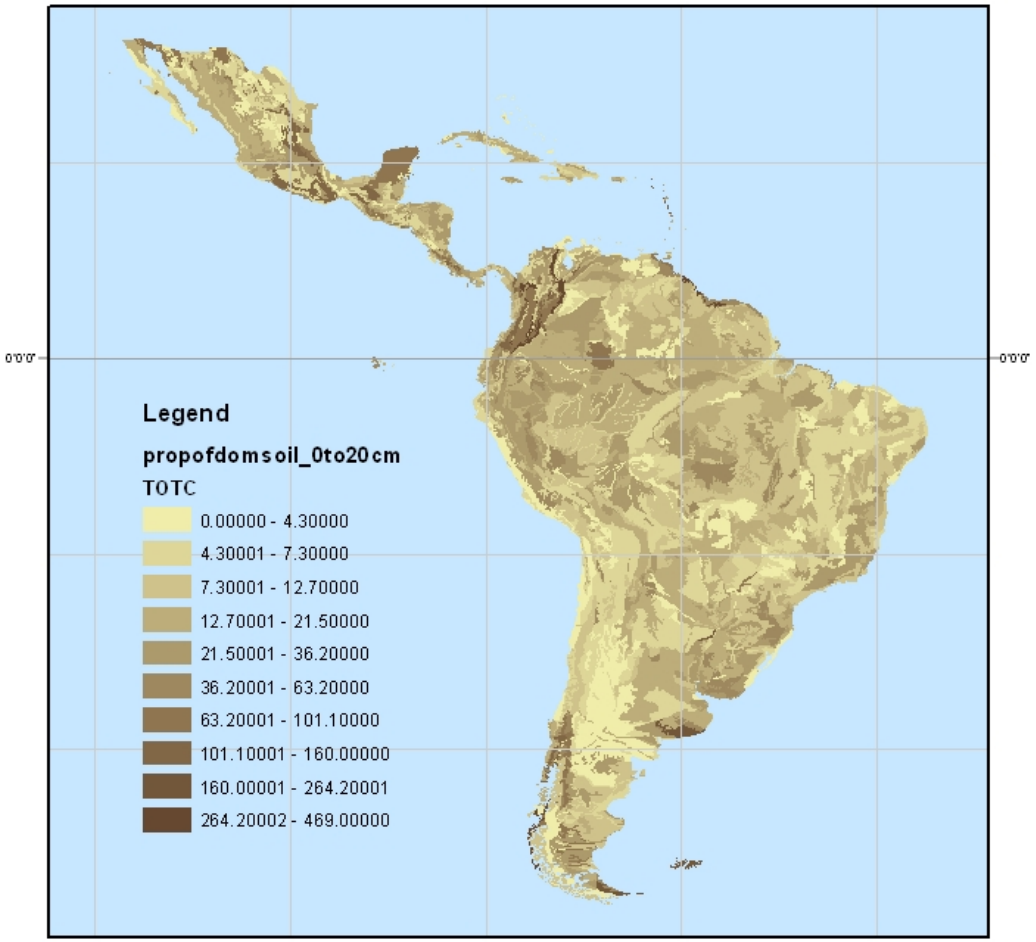
Soterlac v 2.0

- Scale 1:5,000,000
- Based on Soterlac v.1.02 (1998)
- 1585 soil mapping units (Soter Units)
- Classification is FAO 88
- WRB classification is given only for some areas

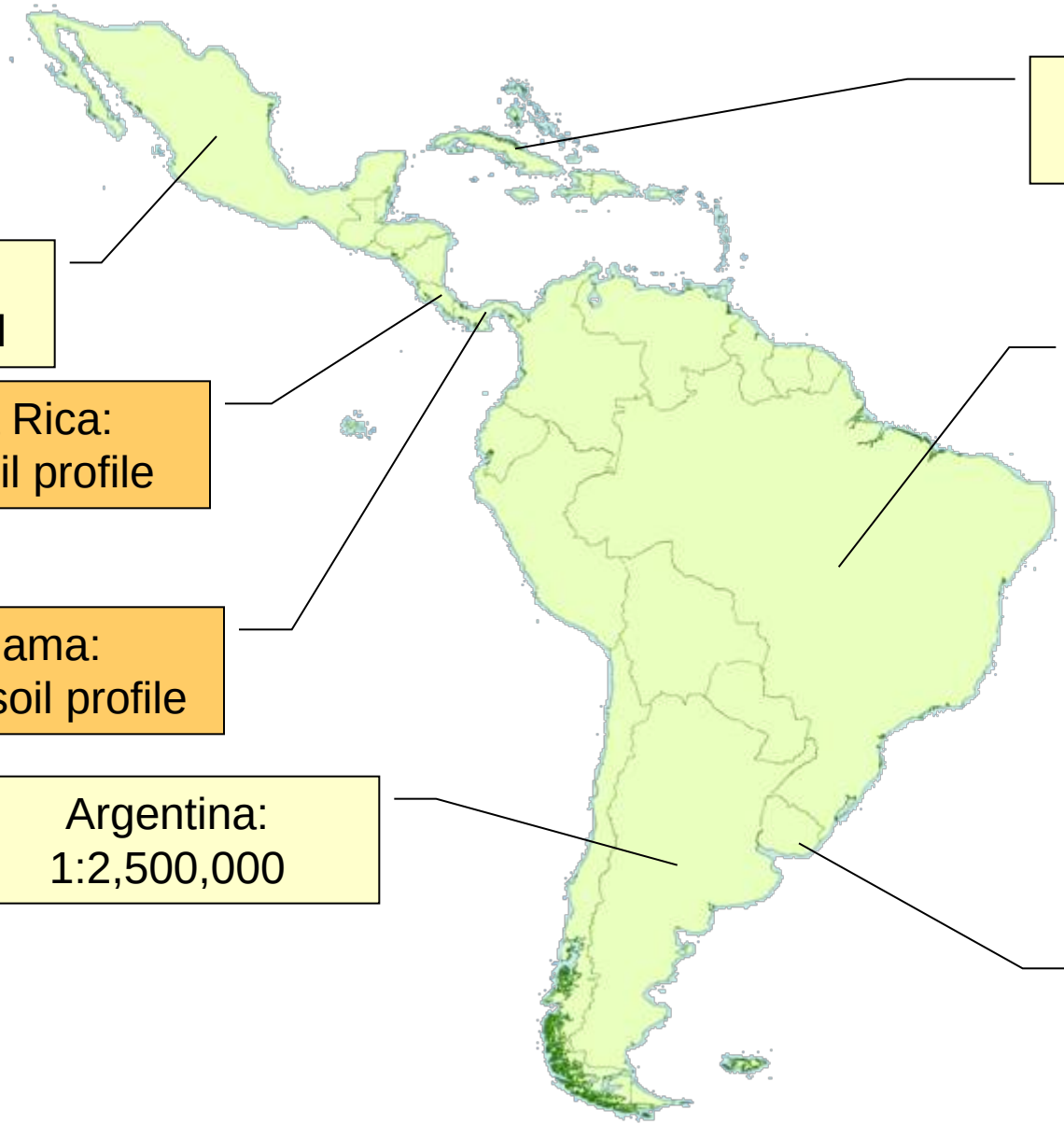
SOTERLAC v 2.0

Soil Information

- Soterlac
  - Landform
  - Parent material
  - Number of soil classes
  - Coverage of dominant soil
- Soter unit composition
  - Classification of dominant and associated soils
- Soterlac terrain
  - Slope
  - Lithology
  - Landforms
- Soterlac properties
  - Texture, ph, BD, C, N, etc



OTHER SOIL DATA: SOME EXAMPLES



Cuba:
1:250,000

Mexico:
1:250,000 digital

Brazil:
1:5,000,000 digital

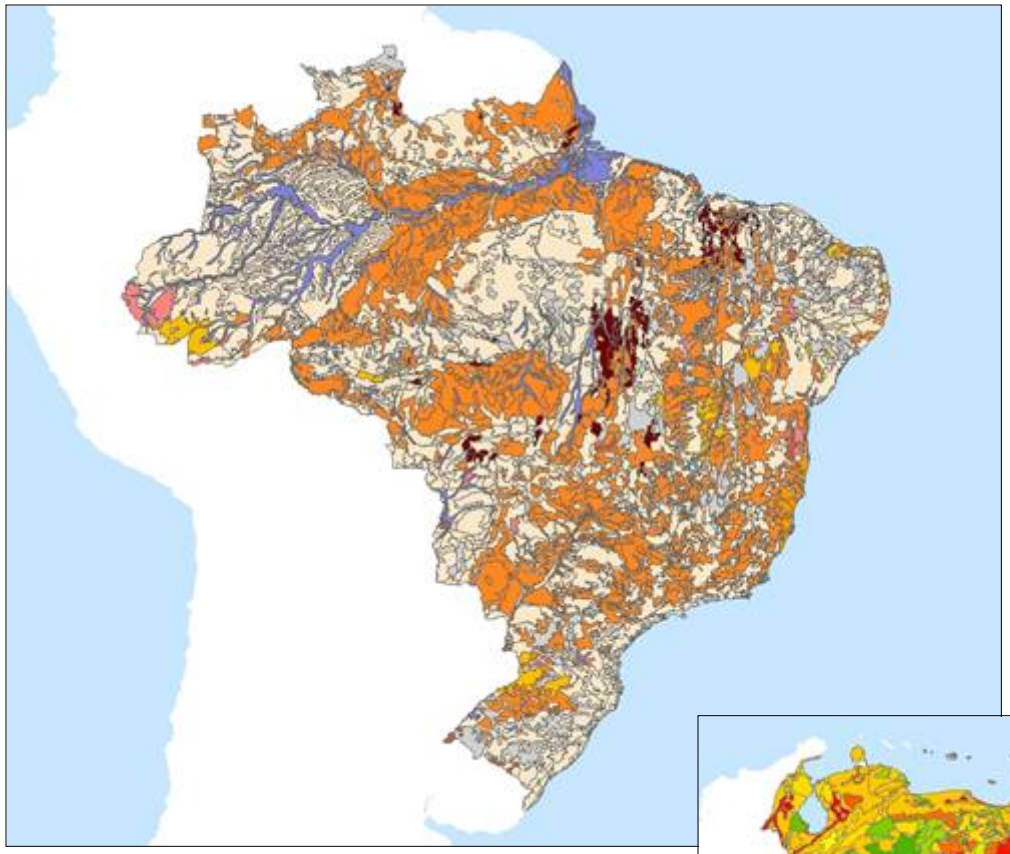
Costa Rica:
1000 soil profile

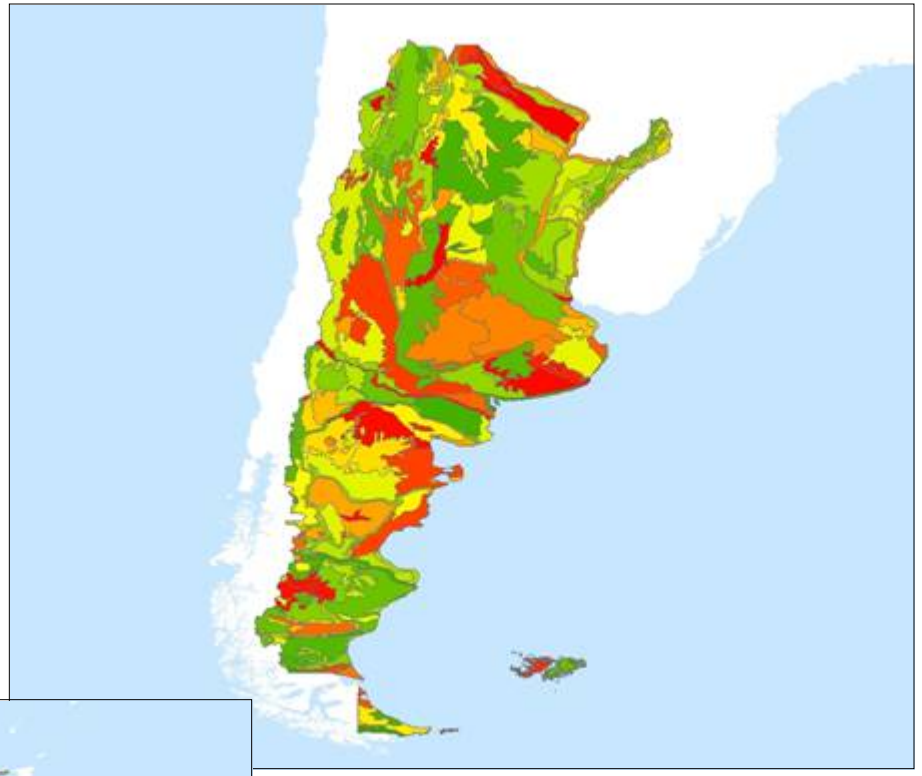
Panama:
19,000 soil profile

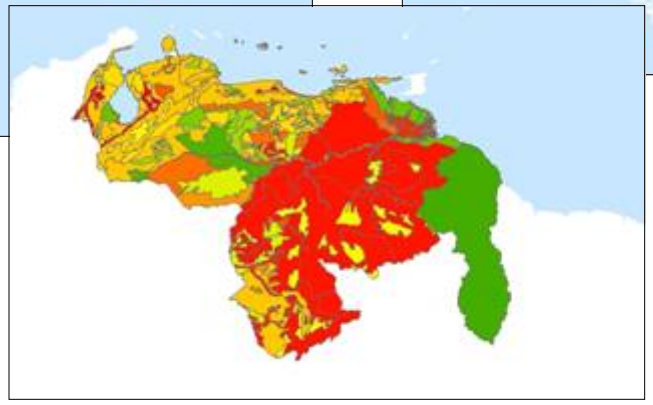
Argentina:
1:2,500,000

Uruguay:
1:250,000 digital

OTHER SOIL DATA: SOME EXAMPLES

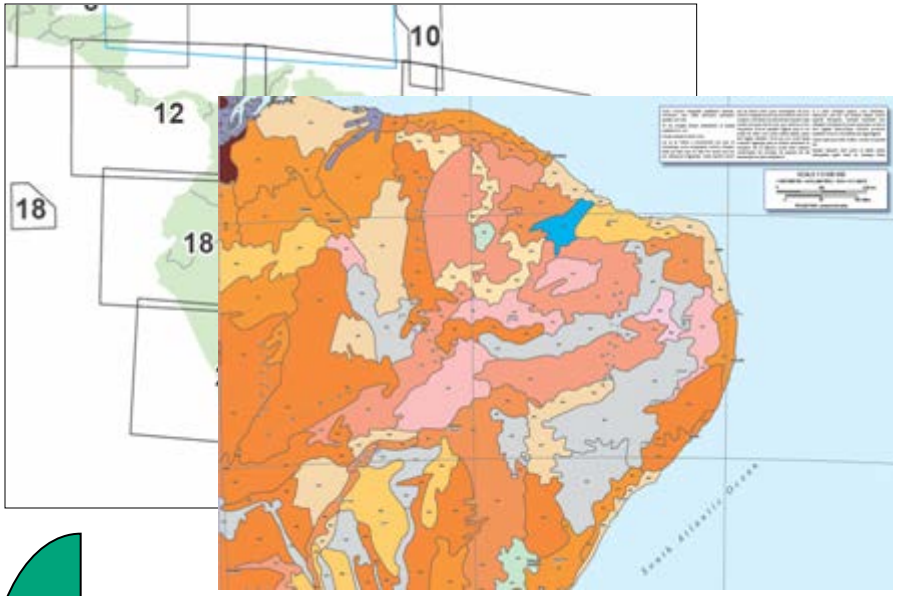






SOTERLAC UPDATE

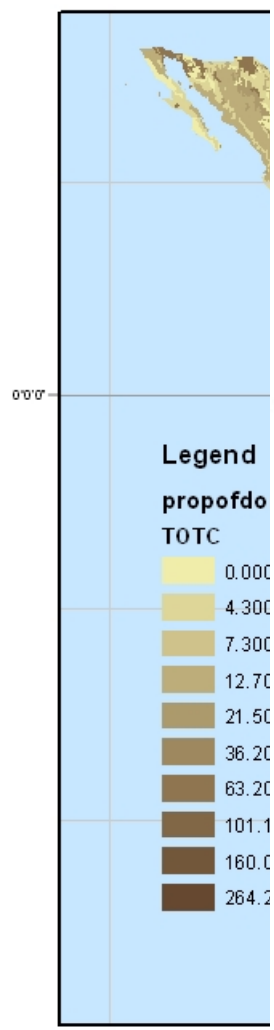
FAO, Rome – 20-23 March 2012

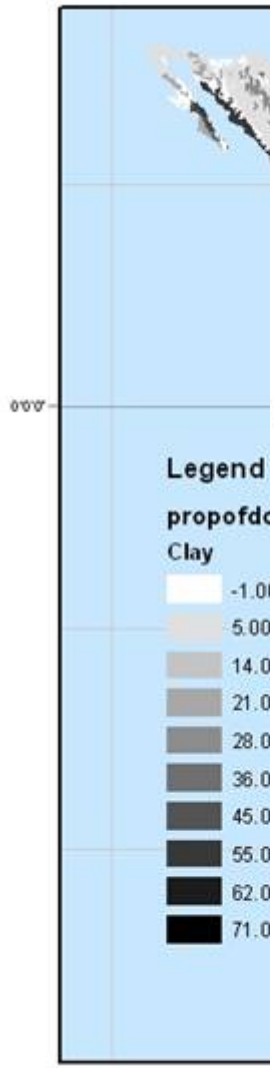


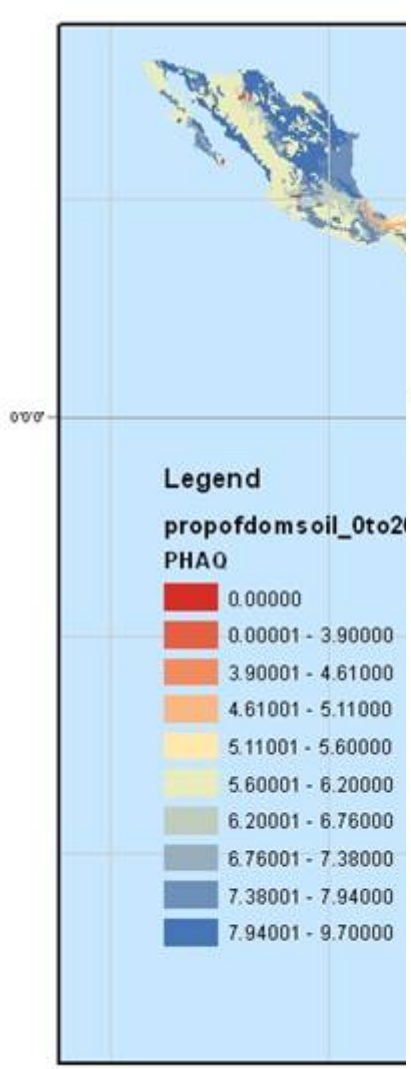
Validation by LAC states

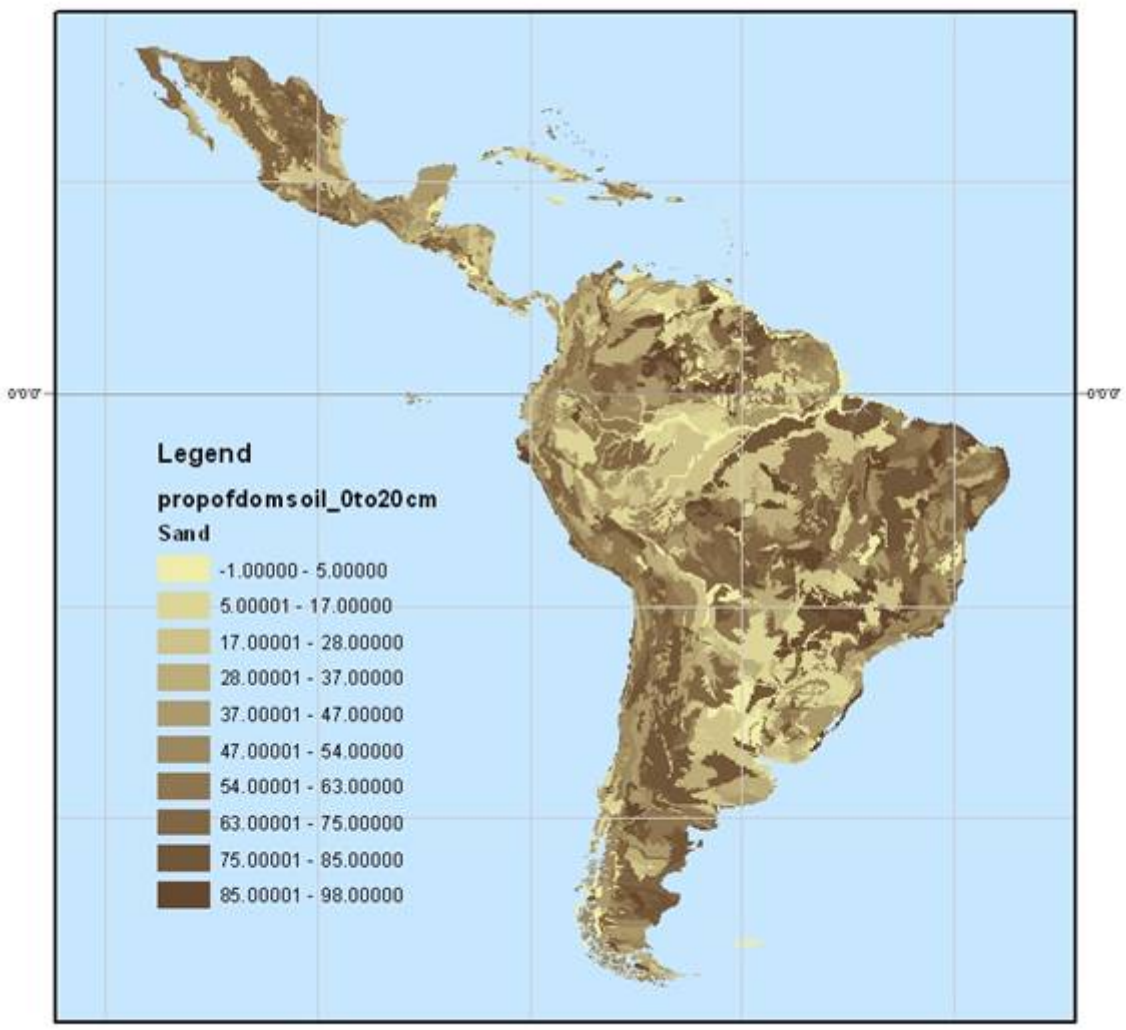
Number	DOMSOIL_WR 88	Cnt_DOMSOI	Sum_AREA	RSG 88	1st qualifier 88	2nd qualifier 88	3rd qualifier 88	RSG 10	1st main qualifier 10	2nd main qualifier 10	1st optional qualifier 10	2nd optional qualifier 10	Soil 10
1	Ferri-Abruptic Acrisol (Alumic)	13	11669901197.30	Acrisol	Abruptic	Ferric	Alumic	Acrisol	Ferric		Abruptic	Alumic	Ferric Acrisol (Abruptic, Alumic)
2	Ferri-Abruptic Acrisol (Chromic)	2	31331409900.10	Acrisol	Abruptic	Ferric	Chromic	Acrisol	Ferric	Chromic	Abruptic		Chromic Ferric Acrisol (Abruptic)
3	Ferri-Abruptic Acrisol	12	11989626799.50	Acrisol	Abruptic	Ferric		Acrisol	Ferric		Abruptic		Ferric Acrisol (Abruptic)
4	Ferri-Albic Acrisol	1	6816615443.20	Acrisol	Albic	Ferric		Acrisol	Albic	Ferric			Ferric Albic Acrisol
5	Chromi-Alumic Acrisol	13	80024521136.40	Acrisol	Alumic	Chromic		Acrisol	Chromic		Alumic		Chromic Acrisol (Alumic)
	Chromi-Alumic Acrisols	2	2189394474.23	Acrisol	Alumic	Chromic							
	Chromi-Aluminic Acrisols	3	69851391803.70	Acrisol	Alumic	Chromic							

DERIVED INFORMATIONS









CLIMATE CHANGE AND SOIL

One of the main objective of the Atlas, is the evaluation of the relationships between Soil and Climate Change

It will be investigated:

- **How soil will react to climate change**
- **Which measure, in soil management, can be adopted for adaptation**
- **How the management of soils can contribute to Climate Change mitigation**



SOIL THREATS IN LAC

The most important threats on LAC soils, not necessarily related to climate change, will be discussed:

- Soil erosion
- Soil pollution
- Organic matter decline
- Soil biodiversity loss
- etc.



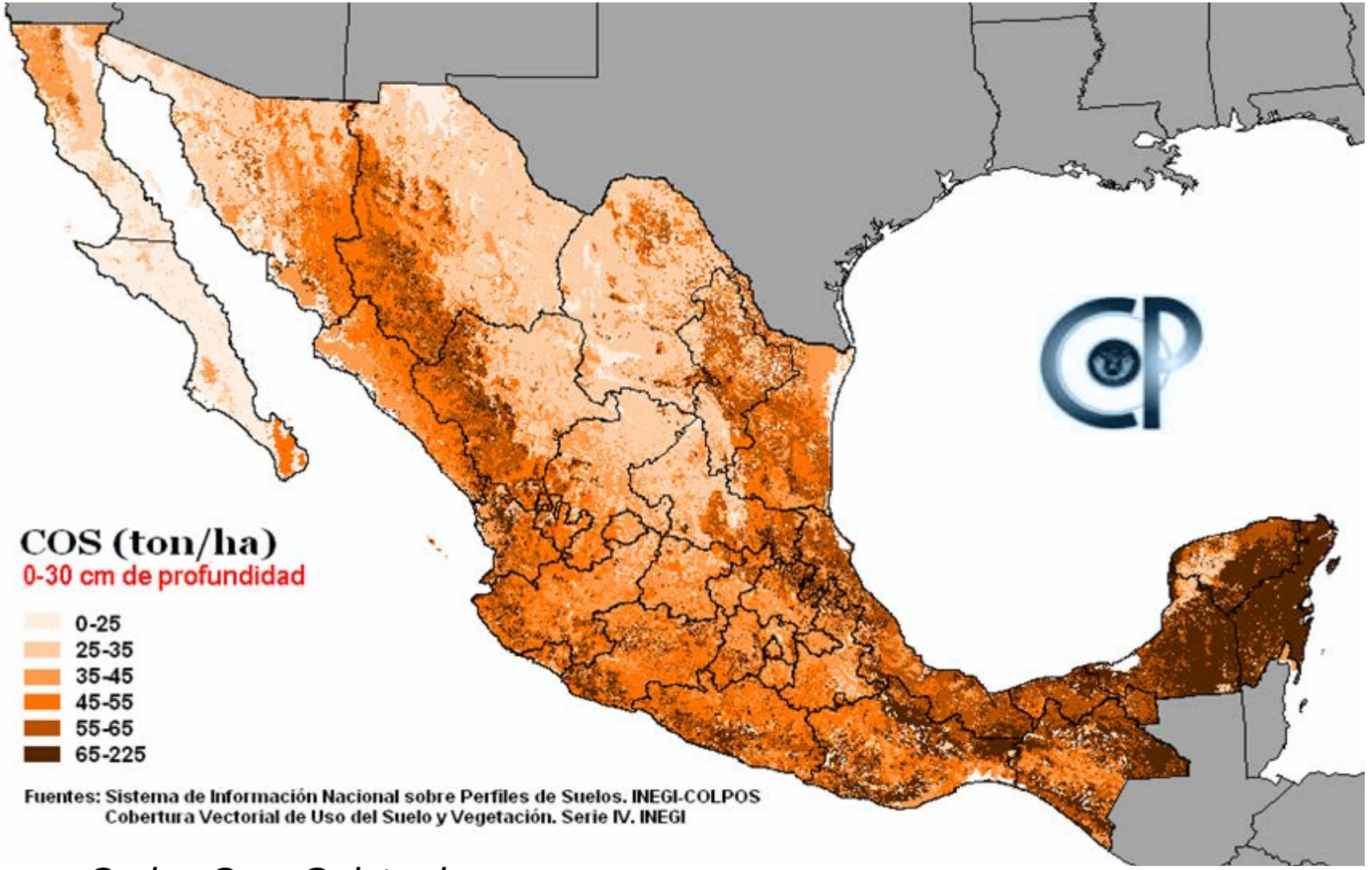
CREATION OF NEW DATA

- New, harmonized soil map for Latin Amerca and Caribbean

- Estimate of Soil Carbon Stock, in some test areas, using digital soil mapping approach

- Evaluation of soil threats, thanks to a survey among LAC Soil Scientists

- Evaluation of the impact of climate change son soil degradation processes (literature and data review)



Source: Carlos Cruz Gaistardo

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5 Instituto

6 Universi

7 Universi

8 Instituto

9 Technol

10 Karelia

CONCLUSIONS

• Improved soil information is needed to address major, emerging global issues (climate change, food security, energy crops, water, biodiversity)

• The Soil Atlas of LAC will not only contribute is to raise awareness on soil issues, but also:

- promote scientific networking and cooperation (especially south-south) in Soil Science
- stimulate the production of new data and collect the existing one
- promote capacity building on new methodologies in soil science (i.e. Soil digital mapping)
- promote new studies in emerging topics in soil science (ethnopedology, etc.)

Thank you for your attention

SOIL

Land Management & Natural Hazards Unit

http://ies.jrc.ec.europa.eu

http:/eusoils.jrc.it