

The collaboration focuses on safety systems, safest technologies, and standards applied in the exploitation of offshore hydrocarbon resources, especially in view of the increasingly challenging conditions. With the co-operation of the Brazilian Ministry of Science, Technology and Innovation (MCTI), the JRC brought together a delegation of European experts on offshore safety from UK, Italy, Norway and the JRC, who performed a fact-finding mission to Brazil in December 2014. Following this, more than 80 experts from Brazilian Institutions, researchers, consultants and the industry took part in a large seminar where many topics of future collaboration in the field of offshore oil and gas safety were discussed.

Brazilian partners have proposed a bigger collaboration project for 2015-2016. The project, to be funded by the EU-Brazil Sector Dialogues, will focus on safety and environmental critical systems and their requirements in order to prevent accidents in the exploration and exploitation of offshore hydrocarbon resources.

| Examples of JRC partners in CELAC countries   |
|---|
| <b>Brazil</b>   |
| <div><ul style="list-style-type: none"><li>Ministry of Science, Technology and Innovation (MCTI)</li><li>Brazilian Agricultural Research Corporation (Embrapa)</li><li>National Institute for Space Research (INPE)</li><li>National Centre for Natural Disaster Monitoring and Alerts to the Ministry of Science, Technology and Innovation (Cemaden)</li><li>Institute of Nuclear Energy Research (IPEN)</li><li>National Food Supply Agency (Conab)</li><li>Association of Researchers on the Large Scale Experiment on the Amazonian Biosphere-Atmosphere (APLBA)</li><li>Sao Paulo State University (Unesp)</li><li>State University of Campinas (Unicamp)</li></ul></div> |
| <b>Argentina</b>  |
| <div><ul style="list-style-type: none"><li>National Scientific and Technical Research Council (CONICET)</li><li>National Agricultural Technology Institute (INTA)</li><li>National Institute for Fisheries Research and Development (INIDEP)</li><li>Argentine Antarctic Institute (IAA)</li><li>Austral Centre for Scientific Research (CADIC)</li><li>National University of Cuyo (UNCuyo)</li><li>National University of Cordoba (UNC)</li></ul></div>   |
| <b>Mexico</b>   |
| <div><ul style="list-style-type: none"><li>Monterrey Institute of Technology and Higher Education (ITESM)</li></ul></div>   |
| <b>Colombia</b>   |
| <div><ul style="list-style-type: none"><li>Institute of Hydrology, Meteorology and Environmental Studies (IDEAM)</li></ul></div>  |

## JRC – The European Commission’s in-house science service

As the European Commission’s in-house science service, the Joint Research Centre’s mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.

Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new methods, tools and standards, and sharing its know-how with the Member States, the scientific community and international partners.

### JRC’s structure

The JRC’s headquarters are in Brussels, in close proximity to the policy-making Directorates-General of the European Commission and other institutions, such as the European Parliament.

Most of the JRC’s scientific work is carried out in the JRC’s Institutes located on specialist sites in five countries, with the main site located in Ispra, Italy.

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*Serving society  
Stimulating innovation  
Supporting legislation*



**The European Commission’s Joint Research Centre (JRC) is increasingly working with the Community of Latin American and Caribbean States (CELAC). The main areas of collaboration between the JRC and scientific institutions in CELAC member states are related to soil, water, climate change, deforestation, disaster risk reduction and the bioeconomy. Many of these projects are carried out with the Commission’s Directorate-General for International Cooperation and Development (EuropeAid).**

The publication of the Soil Atlas of Latin America and the Caribbean in 2014, developed in close partnership with the UN Food and Agriculture Organization (FAO) as well as scientific partners from across the CELAC region, highlighted the dynamic scientific collaboration between the JRC and Latin American and Caribbean partners. The JRC works with state authorities in the region and fostered the establishment of the Latin American network of knowledge centres in the water sector (RALCEA) as a means to exchange best practice.

In 2014, to further develop collaboration with the region, the JRC launched a dialogue with the CELAC group of ambassadors in Brussels. The visit of CELAC ambassadors to the JRC site in Ispra, Italy, in December 2014, provided the opportunity to identify new collaboration opportunities of mutual interest. As a result, dedicated webinars were organised in May 2015, focusing on human settlements mapping and media monitoring.

The JRC has built up a particularly strong co-operation with Brazil, which led to the signing of a collaboration arrangement with the Brazilian



*CELAC ambassadors visiting the JRC Ispra site in December 2014, accompanied by EU Commissioner Tibor Navracsics and JRC Director-General Vladimír Šucha.*

Ministry of Science, Technology and Innovation (MCTI). Many working relationships are ongoing with other countries of the region, such as Mexico, Argentina, Chile and Colombia.

Besides partnering in research, a strong focus is put on capacity-building. The JRC collaborates with the Brazilian ‘Science without Borders’ mobility programme and will host Brazilian grantholders in JRC facilities. Training is also provided to practitioners from state authorities and agencies. For instance, the JRC actively supported the establishment of the Brazilian National Centre of Monitoring and Alerts of Natural Disasters (Cemaden).

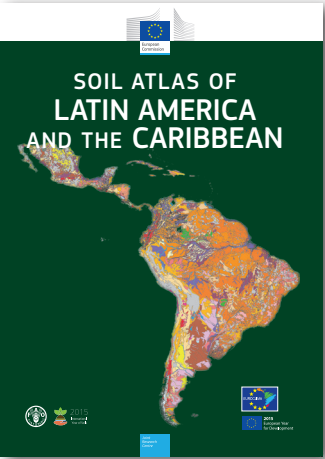




Soil Atlas of Latin America and the Caribbean

This first ever comprehensive overview of the soils of Latin America and the Caribbean was released in February 2014, the result of a fruitful collaboration between the JRC and leading soil scientists in Europe, Central and South America, and the Caribbean. It highlights the importance of soil, a precious non-renewable resource which provides food, fodder and fuel for more than 500 million people in Latin America and the Caribbean.

The atlas emphasises the complex relationship between climate and land use and underlines the role of soil in food security. The soils of South and Central America produce large amounts of agricultural commodities that are exported to other countries – around half of the global production of coffee, sugar cane and soya are cultivated in this area. In addition, Latin America's soils host an important share of the world's biodiversity. More than half of the 576 million hectares of arable land of Latin America are estimated to be affected by degradation processes. The main causes are change in land use (especially deforestation), over-exploitation, climate change and social inequality. The atlas presents a number of strategies for soil preservation and conservation.



The Soil Atlas of Latin America and the Caribbean is available in Spanish, English and Portuguese.

The Soil Atlas of Latin America and the Caribbean was funded by the EUROCLIMA Programme to build on the knowledge of Latin American decision-makers and the scientific community on the impact of climate change in the region in order to strengthen sustainable development strategies. Initially published in Spanish, the Atlas is now available in English and Portuguese.

The Atlas can be downloaded: [http://eusoils.jrc.ec.europa.eu/library/Maps/LatinAmerica\\_Atlas/Index.html](http://eusoils.jrc.ec.europa.eu/library/Maps/LatinAmerica_Atlas/Index.html)

Improving water resource management

The Latin American network of knowledge centres in the water sector (RALCEA) is a programme funded by the European Union to facilitate direct collaboration and information exchange between scientific institutions in Latin America. Co-ordinated by the JRC, it brings together groups of experts for capacity building, while fostering information-based policy and governance in the water sector and promoting South-South co-operation in capacity.



The Water Project Toolkit was developed by the JRC with Latin American and Caribbean partners.

The network helps to strengthen regional collaboration and promotes co-operation between water sector research institutions, as well as facilitating decision-making by key actors at national and regional levels. The network's activities include research of the regional water balance in the context of climate change, water quality, and sanitation.

To help improve water resources management in developing countries and emerging economies, the JRC and EuropeAid have published the Water Project Toolkit. The guide covers the full cycle of water resources management and aims to support water sector practitioners in achieving an equitable, efficient and sustainable use of water through best practice.

<https://ec.europa.eu/jrc/en/scientific-tool/water-project-toolkit>

Collaboration with Latin America on floods

In Latin America, there is an abundance of water resources but their availability varies widely. In parts of the region, the current patterns of water use are unsustainable. Many countries are vulnerable to recurring natural disasters from floods and droughts.

The JRC collaborates with the Brazilian National Centre for Natural Disaster Monitoring and Alerts (Cemaden), particularly in relation to crisis management and flood detection. The JRC has hosted scientists from Cemaden to research flood forecasting and flash flood forecasting. Cemaden is also using the Global Flood Awareness System (GloFAS) jointly developed by the JRC and the European Centre for Medium-Range Weather Forecasts (ECMWF) to monitor some catchment areas for research purposes.

<http://www.globalfloods.eu/>



Floods are a major natural hazard throughout Latin America.

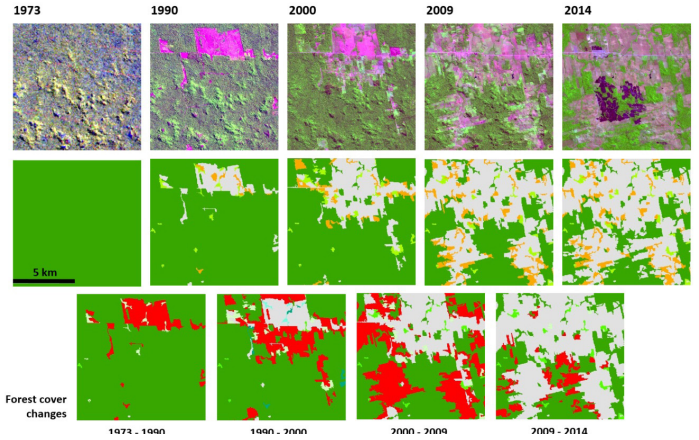
Remote sensing imagery to monitor deforestation and forest degradation

Latin American research institutions and the JRC have collaborated for many years on the topic of deforestation and forest degradation by means of remote sensing imagery. The Brazilian National Institute for Space Research (INPE) and the Brazilian Agricultural Research Corporation (Embrapa) are currently involved in joint developments of methods for the assessment of tropical forest cover change in Latin America.

Through the 7th EU-Brazil Sectorial Dialogues, a collaboration between Embrapa Florestas and the JRC was initiated in 2014. Embrapa Florestas is responsible for the remote sensing survey or 'landscape ecology' as part of the ongoing Brazilian national forest inventory. Together they are developing an open-source software designed for semi-automatic land cover mapping of forest cover on 5000 images of the RapidEye satellite sensor spread over Brazil.

In addition to INPE and Embrapa, the JRC has worked with the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) since the 6th EU-Brazilian Sectorial Dialogue in 2013 on the land cover and land cover change in the Brazilian Cerrado biome. The JRC has also initiated a collaboration with the Colombian Institute of Hydrology, Meteorology and Environmental Studies (IDEAM) targeted at methodologies for remote sensing-based forest degradation assessment.

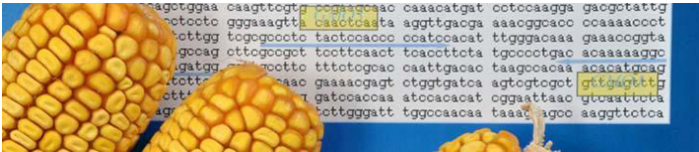
<http://forobs.jrc.ec.europa.eu/>



Example of a remote sensing-based deforestation and forest degradation assessment: Deforestation assessment from 1973 – 2014 in the Brazilian Arc of Deforestation.

Towards global GMO testing capacity

Over the past decade the JRC has accumulated considerable expertise in GMO detection, identification and quantification. It is sharing and proactively spreading this expertise to help build and harmonise global capacity for GMO detection. With its capacity building activities the JRC supports countries around the globe to face the overall growing need for enhanced harmonisation of means and methods in GMO analysis.



The JRC contributes to global harmonisation of GMO testing.

A number of regional GMO laboratory networks co-operate with the JRC, allowing GMO producing countries to control their exports with the same methods used in the EU for controlling imports. The recently established Latin American Network of GMO Laboratories (RLAC-OGM - Red Latinoamericana de laboratorios de detección de OGM) comprises 37 laboratories from 16 countries. It provides the platform for technical and scientific co-operation among the main laboratories responsible for GMO analysis in Latin America and the Caribbean.

The JRC organised several international workshops on 'Harmonisation of GMO Detection and Analysis for LAC Countries' in Brazil (2009), Mexico (2011) and Colombia (2012).

<https://ec.europa.eu/jrc/en/research-topic/gmos>

Smart grid deployment in Brazil

In the field of smart grids, the JRC has a working arrangement with the Brazilian Ministry of Science, Technology and Innovation (MCTI) within the context of the EU-Brazil Sectorial Dialogues. The arrangement supports shared use of knowledge and joint scientific research, reciprocal access to laboratories and exchange of personnel and scientific information.

Within the 7th Call of EU-Brazil Sectorial Dialogues concluded in 2014, the JRC continued to develop its work on smart grids with Brazilian counterparts such as identifying relevant smart grid projects in Brazil and the EU. The JRC participated at the 'International Mapping of Suppliers of Information and Communication Technology for Smart Grids and Sector Dialogues: Brazil – European Union' seminar in Brasília in October 2014 by presenting its activities on policy support for smart grid deployment.

<https://ec.europa.eu/jrc/en/publication/articles-journals/redes-eletricas-inteligentes-dialogo-setorial-brasil-unio-europeia-2014?search>



JRC participation at the 'International Mapping of Suppliers of Information and Communication Technology for Smart Grids and Sector Dialogues: Brazil – European Union' symposium.

Collaboration with Latin America on nuclear safety

The Instrument for Nuclear Safety Cooperation (INSC), implemented by EuropeAid, is dedicated to promoting a high level of nuclear safety and radiation protection in partner countries all over the world. The JRC has been supporting technical co-operation with Brazil and Mexico on nuclear safety projects in Latin America contracted to EU industrial companies and regulatory authorities. In both countries, collaboration with the nuclear regulatory authorities, the Brazilian Nuclear Energy Commission (CNEN - Comissão Nacional de Energia Nuclear) and the Mexican Commission for Nuclear Safety and Safeguards (CNSNS - Comisión Nacional de Seguridad Nuclear y Salvaguardias) has been established in order to share EU experience on the development of nuclear legislative and regulatory frameworks, as well as technical and administrative capacity building for the proper discharge of the regulatory function.

In Brazil, the co-operation has additionally focused on the Angra nuclear power plant, Eletrobrás Termonuclear S/A (Eletronuclear) to improve severe accident management.

In Mexico, further collaboration included a project in support of the Ministry of Energy (SENER - Secretaría de Energía), the National Institute for Nuclear Research (ININ - Instituto Nacional de Investigaciones Nucleares), the Federal Electricity Commission (CFE - Comisión Federal de Electricidad), and CNSNS, on the development of a policy for the management of spent nuclear fuel and radioactive waste in Mexico, including the Luguna Verde nuclear power plant.

Offshore oil and gas safety in Brazil

In the context of the EU-Brazil Sector Dialogues programme, the JRC has established a dialogue between Brazilian and European research centres, laboratories, authorities and industry in the area of offshore oil and gas safety. The aim is to promote collaboration and partnership of research, industrial and governmental bodies in international projects related to offshore safety.