Examples of collaboration

Professor Antonio Bussalacchi, representing the University Corporation for Atmospheric Research (UCAR), and Vladimír Šucha, Director-General of the JRC.

Atmospheric and climate change research

In July 2015, the JRC and the University Corporation for Atmospheric Research (UCAR) signed a research arrangement to identify and develop new approaches in the field of atmospheric and climate change research and related sciences.
The common projects focus on climate prediction, monitoring and development of joint scenarios, and evaluation of impacts to better inform international policy-making. The two organisations have also joined forces on air quality monitoring and the development of new approaches for the application of remote sensing instruments.
Furthermore, they are exploring new cooperation opportunities in the field of vulnerability/resilience and risk assessments.
https://ec.europa.eu/jrc/en/news/cooperation-ucar-atmospheric-and-climate-change-research

Cooperation on earth sciences

The JRC and the U.S. Geological Survey (USGS) concluded in December 2015 a comprehensive agreement to further scientific and technical exchange and increase the knowledge and capabilities of the JRC and the USGS in the field of earth sciences. New areas of cooperation focus on issues that are becoming important to the European Union, the United States of America and beyond, including: ecosystem science; climate variability and land use changes; energy, soil, minerals, and environmental health; natural hazards, risk and resilience assessments; disaster alert-related applications; water resources and information technologies; and geo-spatial data management. The implementing arrangement supports the agreement for scientific and technological cooperation between the United States government and the European Commission and builds on over ten years of already existing cooperation between the JRC and USGS.
https://ec.europa.eu/jrc/en/news/jrc-and-us-geological-survey-boost-cooperation-earth-sciences

Collaboration on nuclear safeguards and security R&D

The U.S. Department of Energy and Euratom cooperate in the nuclear safeguards research and development domain, as well as in the field of nuclear security. The 5th Joint Steering Committee for safeguards and security took place in Los Alamos, New Mexico in July 2015. Cooperation projects cover areas such as non-destructive assay nuclear forensics, trade analysis and visualisation. In the area of nuclear security, the Border Monitoring Working Group was established in 2006 by the International Atomic Energy Agency, the European Commission, the European External Action Service and the U.S. government with the aim to promote and coordinate international cooperation on assistance to states for building capacity within their nuclear security regimes.
https://ec.europa.eu/jrc/en/research-topic/combating-illicit-trafficking

Interoperability of e-vehicles and smart grids

Following the Transatlantic Economic Council's decision to promote electric vehicles and smart grid interoperability, in October 2015 the European Commission inaugurated a dedicated state-of-the-art laboratory, operated by the JRC. Together with its partner facility, the Argonne National Laboratory at the U.S. Department of Energy, the laboratory is working on ensuring that the next generation of electric cars and smart grids are fully interoperable, based on harmonised standards, technology validation and testing methods. Both the EU and the United States have a shared interest in the rapid development of cost-efficient solutions in order to achieve cleaner, smarter and integrated transport and energy systems.
https://ec.europa.eu/jrc/en/news/new-european-interoperability-centre-electric-vehicles-and-smart-grids-opened

Electric and hybrid vehicles testing at the European Interoperability Centre.

Contact the JRC

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European Commission

United States of America

and its collaboration with the European Commission's in-house science service,

Joint Research Centre

As the 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.

- 3 023 personnel
- 7 scientific Institutes
- 5 sites in Belgium, Germany, Italy, the Netherlands and Spain.

Worldwide, the JRC has built up successful partnerships with a large number of public and private organisations under the EU Research Framework Programmes, the latest being Horizon 2020.
The JRC collaborates with its United States' partners on:

Framework Programme projects	10
Scientific networks	20
Collaboration agreements	29

This collaborative work covers a wide range of areas including secure supply chains, food security, nanotechnology, consumer safety, food allergens, low-carbon technology, e-mobility and electric vehicle interoperability, alpha-radio-immunotherapy, nuclear safety, nuclear security, nuclear safeguards, combating nuclear smuggling, remote-sensing, and standardisation of measurements in life sciences.

Joint Research Centre

Key priorities

- Economic and Monetary Union (EMU)
- Internal market: growth, jobs and innovation
- Low-carbon economy and resource efficiency (environment, climate change, energy, transport)
- Agriculture and global food security
- Public health, safety and security
- Nuclear safety and security

Examples of JRC partners in the US

National authorities and laboratories

- American Association for the Advancement of Science
- US Department of Energy:
  - Idaho National Laboratory
  - Los Alamos National Laboratories,
  - Sandia National Laboratory
  - Argonne National Laboratory
  - Oak Ridge National Laboratory
  - National Renewable Energy Laboratory
- United States Nuclear Regulatory Commission (USNRC)
- Department of Commerce
  - National Oceanic and Atmospheric Administration
- Department of Health and Human Resources
  - National Institutes of Health
- National Aeronautics and Space Administration, NASA
- National Institute of Standards and Technology
- US Geological Survey (USGS)
- US Food and Drug Administration
- US Department of Agriculture: Forest Service (USDA)

Academia

- Duke University, North Carolina
- University of Nebraska
- Pacific Disaster Center, University of Hawaii
- Virginia Polytechnic Institute and State University
- University of California
- Rutgers University, New Jersey
- University Corporation for Atmospheric Research (UCAR)

JRC collaboration with United States research organisations – examples

Collaboration arrangements

The JRC has around 200 operational collaboration agreements and Memoranda of Understanding with public and private research organisations, universities, and national and international bodies. The majority of these agreements concern joint research, information sharing and the exchange of personnel. Some examples of collaboration agreements with US partners are:

JRC-National Oceanic and Atmospheric Administration Implementing Arrangement

- *National Oceanic and Atmospheric Administration (NOAA)*

This collaboration fosters activities in the fields of climate, weather, oceans and coasts.

JRC-National Institute of Standards and Technology Implementing Arrangement

- *National Institute of Standards and Technology (NIST)*

This collaboration includes activities related to standards, measurements and metrology.

Arrangement between the United States Nuclear Regulatory Commission (USNRC) and Euratom

- *United States Nuclear Regulatory Commission (USNRC)*

This cooperation focuses on the exchange of technical information and cooperation in nuclear safety matters (regulatory/licensing issues).

Technical exchange and cooperation arrangement between US DoE and Euratom in the field of nuclear-related technology research and development (I-NERI)

- *US Department of Energy*

This agreement covers cooperation in nuclear safety. There are currently five ongoing projects on the development and testing of advanced nuclear fuels, materials, fuel fragilisation, and innovative modelling and simulation tools.

Agreement between Euratom and the US DoE in the field of nuclear materials safeguards and security research and development

- *US Department of Energy*

The agreement covers the field of nuclear security, export control, border monitoring, and nuclear forensics. There are currently 18 ongoing projects.

Collaboration agreement on isotope ratio mass spectrometry

- *University of California; Los Alamos National Laboratory*

The collaboration agreement deals with the application of isotope ratio mass spectrometry for the advancement of measurement science and to improve the safeguarding of nuclear materials.

Bilateral collaboration agreement on targeted alpha therapy

- *Rutgers University, New Jersey*

Through this agreement, the JRC and Rutgers University aim to develop targeted alpha therapy of tumour vasculature.

Collaborative arrangement on the Global Health Security Action Group Early Alerting and Reporting project (EAR)

- *National Institutes of Health*

The Health Ministers or Secretaries for G7 countries, Mexico and the European Commission have established the Global Health Security Initiative (GHSI) to strengthen public health preparedness and to respond to the threat of international biological, chemical and radio-nuclear incidents and pandemic influenza. The Global Health Security Action Group (GHSAG) was created to devise strategies and responses for global health security.

JRC-Department of Energy Letter of Intent

- *Department of Energy*

This cooperation focusses on e-mobility and electric vehicle interoperability.

Framework Programme projects

The JRC is involved in more than 150 collaborative research projects and networks as part of the EU's Framework Programmes for research and innovation - the latest being Horizon 2020 - under the same conditions as other organisations. This enables the JRC to form partnerships with major European and international research players. Project activities may involve work carried out at JRC facilities which results in increased access to and use of the JRC's specialised infrastructures and databases by scientists and researchers. Some examples of Framework Programme research and innovation projects involve US partners are:

Logistics and supply chain security (CORE)

- *Georgia Tech Research Corporation;*
- *Icontrol Incorporated; Loadstar Inc*

CORE will develop EU knowledge and international cooperation to secure supply chains whilst improving business performance with specific reference to key supply chain corridors.

Land-use change: assessing the net climate forcing, and options for climate change mitigation and adaptation (LUC4C)

- *University Corporation for Atmospheric Research*

The LUC4C project focuses on climate change and land use change to understand the impact of these challenges on the 'human-land-climate' system and the options for climate change mitigation and adaptation.

Exploring the future of global food and nutrition security (FOODSECURE)

- *International Food Policy Research Institute*

FoodSecure brings together experts from a range of backgrounds in order to analyse, test and assess the effects of certain policies and factors on food security, including ecosystems, energy sources and financial markets.

Engineered nanomaterial mechanisms of interactions with living systems and the environment: a universal framework for safe nanotechnology (NANOMILE)

- *University of California*
- *Duke University, North Carolina*

This project aims to establish a fundamental understanding of the mechanisms of nanomaterial interactions with living systems and the environment, and to do so across the entire life cycle of nanomaterials and in a wide range of target species.

Integrated approaches to food allergen and allergy risk management (IFAAM)

- *University of Nebraska*

This project aims to develop tools and evidence-based approaches for the management of allergens in food and integrate this information into food allergy management plans and dietary advice. The resulting holistic strategies will reduce the burden of food allergies in Europe and beyond, whilst enabling the European food industry to compete in the global market place.

Scientific networks

The JRC collaborates with organisations which share a common interest in specific research areas. This collaboration is essential for the JRC's work on harmonising and validating methods and measurements, establishing common standards, and providing scientific and technical support for the implementation of EU legislation. The JRC collaborates with over 1000 partner organisations in around 100 institutional networks worldwide. Some examples of scientific networks which involve US partners are:

Network on the alpha-radio-immunotherapy of advanced myeloid leukaemia and infectious diseases (Alpha-Diseases)

- *Albert Einstein College of Medicine, Yeshiva University, New York*
- *Memorial Sloan Kettering Cancer Center*
- *National Institutes of Health, Maryland*

The network promotes the advancement of this new form of therapy for cancer and infectious disease based on the connection of radioactive-isotopes to specific carrier molecules that can selectively find and target cancer cells in the body.

Developers and practitioners of composite indicators (COIN)

- *Yale University*

The network deals with statistical indicators, methodological work on composite indicators building, on quality profiles and multi-criteria evaluation of composite indicators.

Joint Committee For Traceability in Laboratory Medicine (JCTLM)

- *Advanced Medical Technology Association, Washington DC*
- *National Institute of Standards and Technology, Maryland*

In order to ensure the traceability of clinical samples, this system establishes reference systems of high metrological order for in vitro diagnostic and medical devices for the EU as well as worldwide.

International Committee for Weights and Measures – Consultative Committee for Amount of Substance – Bio-Analysis Working Group (CIPM-CCQM-BAWG)

- *National Institute of Standards and Technology, Maryland*

The Working Group identifies critical factors influencing the quality and reliability of measurement data in the life science area.

International Technical Working Group on combating nuclear smuggling (ITWG)

- *Lawrence Livermore National Laboratory, California*

A working group to fight against the illicit trafficking of nuclear material, by analysing seized material, developing technical and organisational measures for detection, and handling seized nuclear or radioactive material.

Network on neutron techniques standardisation (NET)

- *National Institute of Standards and Technology, Maryland*
- *Oak Ridge National Laboratory, Tennessee*

This network supports progress towards improved performance and safety of European energy and power (aerospace and automotive) production systems through the standardisation and harmonisation of non-destructive testing methods within the EU.

Network for Evaluating Structural Components (NESC)

- *Oak Ridge National Laboratory, Tennessee*

This network groups key players together in order to foster knowledge sharing, harmonisation and verification of the structural integrity assessment process of nuclear power plants.

Network on the Radiation Transfer Model Intercomparison (RAMI)

- *Alachua Research Institute, Florida*
- *Atmospheric Chemistry and Dynamics, NASA*

The RAMI network is an international effort to evaluate the reflectance models used to exploit remote sensing data in the solar spectral domain through benchmarking.