

Examples of collaboration



Methods for eye irritation assessment passed OECD acceptance in record time thanks to the common position established by the partners of the International Cooperation on Alternative Testing Methods.

Working together on alternative methods to animal testing

Since 2009 the JRC has been collaborating closely with the validation bodies of Canada, the US, Japan and recently the Republic of Korea, in the framework of the International Cooperation on Alternative Testing Methods (ICATM). The international partners exchange information on upcoming validations and participate in the validation activities of their partners. The ultimate objective of this work is to promote and harmonise the validation of alternative methods worldwide, to avoid duplication of efforts, and to ensure that recommendations on validated methods

are mutually acceptable and can directly enter the regional regulatory acceptance process. Very importantly, it is aimed at establishing common positions on validated methods at the level of the Organisation for Economic Co-operation and Development (OECD). This allows for accelerated international acceptance. For example, two methods for eye irritation assessment passed OECD acceptance in record time thanks to the common position established by the ICATM partners, highlighting the effectiveness of the collaboration.

JRC and Canada Border Service Agency improve border controls

Within the Border Monitoring Working Group, the JRC is strengthening its collaboration with the Canada Border Service Agency. The Canadian Agency recently presented its findings on the deterioration of plastic within the Radiation Portal Monitors. These portals are largely deployed worldwide to

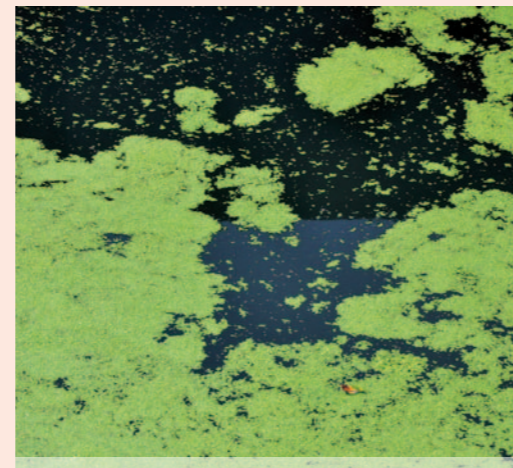
counteract the illicit trafficking of nuclear and radioactive materials at borders. As a result this issue called into question the sustainability of international efforts in the field so it is crucial to ensure the portals are well maintained. Through this experience sharing, follow-up actions have been agreed

between the Working Group Members including R&D activities on NORM (Naturally Occurring Radioactive Materials) alarm response and development of a joint syllabus to provide harmonised training in maintaining Radiation Portal Monitors deployed at borders.

JRC and National Research Council of Canada prevent shellfish poisoning

Shellfish are generally nutritionally healthy food, but they can become toxic if they grow in waters polluted by harmful algae blooms which generate so-called phycotoxins. Therefore, the European Union Reference Laboratory (EU-RL) for marine biotoxins coordinates quality assurance measures for control laboratories in the European Union. Modern measurement methods for such biotoxins require tailored reference materials for quality control. The JRC collaborated with the National Research Council of Canada (NRCC) and the Marine Institute of Ireland to develop and produce a

suitable certified reference material. These references provide benchmarks for testing laboratories around the world to deliver reliable and comparable results. The reference material is certified for six different groups of phycotoxins in blue mussel tissue (*Mytilus edulis*), and will soon be available from the NRCC for worldwide distribution. The new reference material means that consumers will be better protected from shellfish poisoning, thanks to more reliable measurements performed by the official control laboratories.



A new reference material will be available worldwide to measure marine biotoxins which means that consumers will be better protected from shellfish poisoning.

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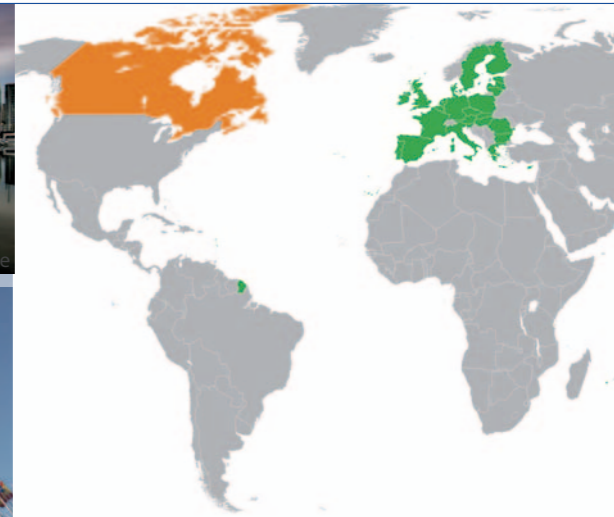


Canada

and its collaboration with the European Commission's in-house science service
Joint Research Centre

Joint Research Centre

The Joint Research Centre (JRC) is the European Commission's in-house science service. It is independent of any national, private or industry interest and provides sound and relevant scientific input to European policy making.



- 2750 scientific and technical personnel
- 7 scientific institutes
- 5 sites in Belgium, Germany, Italy, the Netherlands and Spain.

Worldwide, the JRC works with a large number of public and private organisations, research centres, universities, regulatory bodies, local authorities, industrial associations and companies.

The JRC has built up successful partnerships under the EU Research Framework Programmes, including collaborations with many international organisations, in order to provide robust scientific evidence for policy making.

The JRC works with Canadian partners through a range of collaborations agreements, Framework Programme projects and scientific networks:

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Currently the JRC collaborates with Canadian partners in a wide range of areas including nuclear power plant safety, environmental technology verification (ETV), satellite ocean colour radiometry, satellite remote sensing, atmospheric emissions, ozone layer depletion, atmospheric dispersion models, oceanography, engineered nanoparticles and standards in bio-analysis.

Key priorities

- **Environment and climate change**
- **Energy and transport**
- **Agriculture and food security**
- **Health and consumer protection**
- **Information and Communication Technologies (ICT)**
- **Safety and security (including nuclear)**

Examples of JRC partners in Canada

National authorities and laboratories

- Health Canada
- Meteorological Service of Canada
- Canadian Centre for Remote Sensing
- Environment Canada
- Fisheries and Oceans Canada
- Atomic Energy of Canada Limited AEC
- Bedford Institute of Oceanography
- International Federation of Clinical Chemistry

Academia

- University of Alberta
- Royal Institution for the Advancement of Learning McGill University
- University of Quebec in Rimouski
- Université Laval
- Trent University

Businesses

- The Bloom Centre for Sustainability



JRC collaboration with Canadian research organisations – examples

Framework Programme projects

The JRC is involved in more than 140 collaborative research projects and networks under Europe's Seventh Framework Programme for research and technological development (FP7). 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.

Coordination action on Environmental Technology Verification (ETV) – Building a framework for international cooperation (ADVANCEETV)

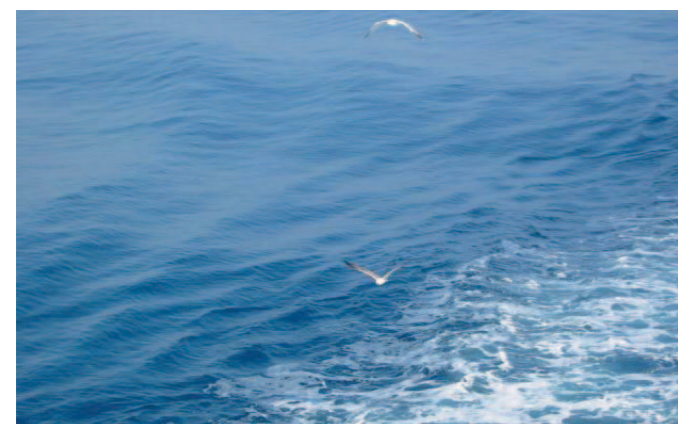
- *The Bloom Centre for Sustainability*

AdvanceETV aims to demonstrate that the proposed schemes and protocols for Environmental Technologies Verification systems have the potential to be recognised internationally. By supporting international collaboration, the project will achieve its main objective which is to develop an international framework for the cooperation, harmonisation and mutual recognition of ETV activities.

Upgrading Global Monitoring for Environment and Security (GMES) (MyOcean)

- *Fisheries and Oceans Canada*

This project builds on the European operational oceanography strategy and sets up infrastructures, services and resources to prepare the operational deployment of the first Marine Core Services. Its objective is to deliver regular and systematic reference information on the state of the oceans and regional seas



Nanoparticles in food: analytical methods for detection and characterisation (NANOLYSE)

- *University of Alberta*

The NanoLyse project will focus on the development of validated methods and reference materials for the analysis of engineered nanoparticles (ENP) in food and beverages. The developed methods will cover all relevant classes of ENP with reported or expected food and food contact material applications.

Development of reference methods for hazard identification, risk assessment and life cycle assessment (LCA) of engineered nanomaterials (NANOVALID)

- *Royal Institution for the Advancement of Learning McGill University*

Exposure of humans and ecosystems to engineered nanomaterials and associated products will increase as more ENPs are developed. Current knowledge is still incomplete and there are limitations to the existing hazard and risk assessment methods. By rigorous testing of current analytical and toxicity methods the project aims to accelerate the development of appropriate risk assessment and LCA schemes.

Climate change and European freshwater ecosystems (REFRESH)

- *The Trent University*

The principal focus of this project is to understand how freshwater ecosystems will respond to climate change and other changes in land use, pollution and water demand. This will allow development of policies and implementation strategies to protect aquatic and riparian ecosystems. Thereby minimising the consequences of climate change on freshwater quantity, quality and biodiversity.

Severe Accident Research Network of Excellence 2 (SARNET 2)

- *Atomic Energy of Canada Ltd*

The network will combine its capacities of research to resolve important pending issues on potential severe accidents within existing and future Nuclear Power Plants (NPPs) in order to reduce the uncertainties and enhance plant safety. The project aims to create a sustainable network in which common research programmes and computer tools are developed to predict NPP behaviour during a potential severe accident.

Scientific networks

The JRC collaborates with over 650 partner organisations in around 60 scientific networks worldwide 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.

Analysis of atmospheric chemistry transport and dispersion models (ENSEMBLE)

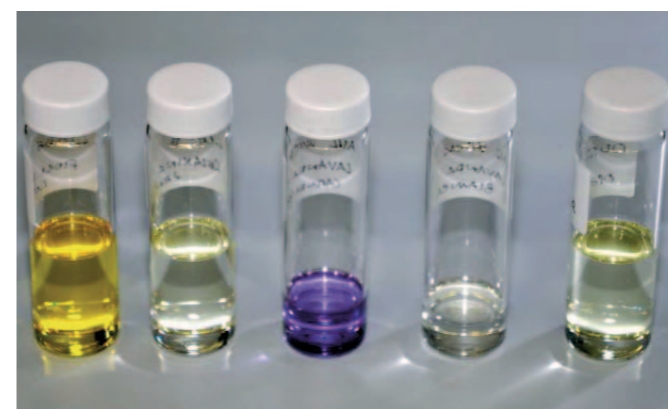
- *Environment Canada*

ENSEMBLE is a system for the real-time exchange of atmospheric dispersion model predictions. The system collects the results of 24 models used operationally in 19 meteorological offices and environmental protection agencies (mainly in Europe but also US and Canada). The models can predict the dispersion of a radio nuclide emitted in the atmosphere as a consequence of an accidental release from a nuclear power plant or any other source.

Consumer Exposure Modelling (CEM NET)

- *Health Canada*

This is a global network on consumer exposure modelling that was set up in order to eliminate existing deficiencies in data on human exposure to chemicals from different routes – inhalation, ingestion, skin contact. This will be achieved through the development, harmonisation and validation of consumer exposure models to chemical substances.



Combustion and Industry Expert Panel (C&I)

- *Environment Canada*

This is a panel responsible for the chapters on the European Monitoring and Evaluation Programme (EMEP) Atmospheric Emissions Inventory Guidebook which deal with combustion and industrial activities. It also provides guidance for the technical issues related to the compilation of the relevant emission inventories for these sectors and collaborates with the Review Expert Panel in order to further improve emission inventories. The panel is working under the auspices of the United Nations Economic Commission for Europe (UNECE) Task Force on Emissions Inventories and Projections.

International Ocean Colour Coordinating Group (IOCCG)

- *Bedford Institute of Oceanography*

The IOCCG is made up of an international committee of experts comprising representatives from both the provider (Space Agencies) and user communities (scientists, managers). The objectives of the IOCCG are to develop consensus and synthesis on a world scale in the subject area of satellite ocean colour radiometry (OCR). Specialised scientific working groups are established to investigate various aspects of ocean-colour technology and its applications, and their findings are published in the highly-acclaimed IOCCG Report Series.

World Meteorological Organisation/ United Nations Environment Programme (WMO/UNEP)

- *Meteorological Service of Canada*

A scientific assessment of the status and other scientific aspects of ozone layer depletion.

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

- *National Research Council Canada*

The Bio-analysis Working Group is taking a stepwise approach in order to identify critical factors influencing the quality and reliability of measurement data in the Life Science area. It is important to ensure the reliability of the international measurement system, which is strengthened through a continuous effort by the world's national metrology institutes (NMIs) to base measurements and measurement uncertainties on internationally accepted units.

Collaboration agreements

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.

Collaboration Agreement on the production, certification and distribution of Biomedical Certified Reference Material (CRM)

- *International Federation of Clinical Chemistry*

This is the International Federation of Clinical Chemistry's standardisation project for measurements of apolipoproteins. The collaboration's project deals with production, certification and distribution of biomedical Certified Reference Material (CRM).



Collaboration Agreement with the University of Quebec in Rimouski on Multicriteria Decision Aid

- *University of Quebec in Rimouski*

Memorandum of Cooperation on the International Cooperation on Alternative Test Methods (ICATM)

- *Environmental Health Science and Research Bureau of Health Canada*

The participants to this network seek to establish and strengthen cooperation, collaboration, and communication among national validation organisations on the scientific validation and evaluation of new alternative testing methods proposed for regulatory health and safety assessments.