



The SET-Plan: the technology pillar of the EU energy and climate change policy

The energy and climate challenge we face today has no precedent. The European Union is 80% dependent on fossil fuels and by 2050 we need to reduce our greenhouse gas emissions by 80%. This means

no less than transforming the whole energy system: our sources of energy; how we produce it; how we transport and trade it; and how we use it.

The European Union's energy and climate policy already boasts major achievements.

First, the so-called "20-20-20" targets for renewables, energy efficiency and greenhouse gas emission reduction by 2020, will change current trends of increasing emissions and dependency on fossil fuels. This will be underpinned by a price on carbon emissions for many sectors by the revised Emission Trading System (ETS) that includes the auctioning of emission allowances.

Second, we are progressing towards a real European internal market for energy and gearing infrastructure funding towards gas and electricity interconnectors. We are putting in place the conditions for building the smart grids and supergrid that will transport the decentralised and intermittent energies of the future, while optimising production and distribution to reliably meet consumers' needs at reasonable prices.

Third, by boosting energy efficiency through multiple measures in buildings, transport, industry, electric appliance standards and labelling, and information and communication technologies, we are tapping into the cheapest and readiest energy source: that which we don't use.

None of these measures can work without the necessary technologies and it is only natural to devise a technology strategy at a European and international level. This is the European Strategic Energy Technology Plan or "SET Plan". It will accelerate the provision of better, more reliable and cheaper low carbon technologies, giving the EU clean technology industries a head-start. The great challenge we face is thus a great opportunity.

In the short term we will have to rely on existing technologies, though we certainly need more efficient, affordable and publicly acceptable low carbon technologies in the medium term. We thus plan to launch six European Industrial Initiatives next year: wind, solar, bio-energy, fission, smart grids and carbon capture and storage (CCS), as well as the first joint programmes of the European Energy Research Alliance. Already, big steps for investing in CCS and innovative offshore wind technology are being taken this year within the recovery package.

"By boosting energy efficiency...we are tapping into the cheapest and readiest energy source"

In its communication on 'Investing in the Development of Low carbon Technologies' adopted on 7 October 2009, the Commission presented a cost estimation for the technology surge proposed in the SET-Plan. Over the next 10 years the EU must invest another € 50 billion, an increase from €3 to €8 billion per year, public and private sources taken together. Without the JRC, we would not have been able to present our unique technology analysis and outlook.

These efforts are part of an online SET Plan information system (SETIS) built by the JRC. SETIS provides information and analysis for planning and the implementation of SET-Plan actions. It produces Technology Maps that tell us what we can expect from different technology avenues. Its Capacities Maps tell us who is doing what and how much is being invested. Last but not least, SETIS helps us devise and monitor Key Performance Indicators, which are at the heart of the European Industrial Initiatives.

Technology is again a key component of the EU's energy policy. With the SET Plan and its implementation, the Commission is giving a new dynamic and vision to EU technology and research work. Internally, the excellent co-operation between the Directorate-General for Energy and Transport and the JRC on this initiative together with the Research Directorate-General bodes well for the future, as we turn the SET Plan into a reality.

MATTHIAS RUETE

Director-General for Energy and Transport, European Commission

ENERGY

<http://setis.ec.europa.eu/>**How is Europe doing in clean energy technologies?**

On 7 October 2009 the JRC launched "SETIS", the online Strategic Energy Technologies (SET-Plan) Information System, which provides the latest research results on the status, forecasts and investment figures for research and development in the field of low-carbon energy technologies. SETIS underpins the effective strategic planning, conception and implementation of EU energy technology policy and serves the implementation of the Strategic Energy Technology Plan. It assesses and monitors technologies that have a significant potential to help Europe meet its energy and climate change targets, such as wind power, solar power, Carbon Capture

and Storage (CCS) and bioenergy. The Information System offers interactive tools to compare the maximum potential and energy production costs foreseen for the different technologies over time.

SETIS, run by the JRC Institute for Energy (IE), was launched in the context of the Commission's call for substantial investment in low carbon technologies. It focuses its analysis on R&D investment, marks the innovation capacities for each technology; their state-of-the-art and forecasts from a technological, market and impact point of view.

SETIS also provides an online energy production cost calculator that allows users to compare costs of production for different technologies over time (up to 2030) and dissects the main elements that contribute to these costs. Cost prospects are a valuable tool to assess the competitiveness of a given technology within the energy system and its evolution.



SETIS: Strategic Energy Technologies Information System

ENERGY

<http://www.jrc.ec.europa.eu/rr>**Europe invests €3.3 billion in green energy technologies R&D in one year**

A new JRC Reference Report shows that €3.3 billion was invested in Research and Development (R&D) in the area of low-carbon technologies in the EU in the year 2007 alone.

Of this, 56% came from industry, a figure that rises to 69% when taking into account only non-nuclear low-carbon energy technologies. The report also shows that both corporate and public R&D investment is largely concentrated in just a few EU Member States.

The Reference Report is the result of research carried out by the JRC Institute for Prospective

Technological Studies (IPTS) and constitutes a snapshot of current industrial and public expenditure on R&D relating to the low-carbon energy technologies identified as a priority for the EU in the Strategic Energy Technology (SET) Plan. These technologies are: wind energy, photovoltaic energy, concentrating solar power (CSP), bioenergy, carbon dioxide capture and storage (CCS), smart grids, nuclear fission, hydrogen and fuel cells and nuclear fusion.



JRC Reference Report: R&D Investment in the priority technologies of the European Strategic Energy Technology Plan

DEVELOPMENT
CO-OPERATION<http://capacity4dev.ec.europa.eu/>**New website to help improve development co-operation**

On 16 October the European Commission launched Capacity4dev.eu, an interactive website aimed at improving Europe's development co-operation. Developed by the JRC Institute for Environment and Sustainability (IES) in close collaboration with the Commission's EuropeAid service, this web-based information system is set to become a key tool in facilitating technical cooperation between the European Institutions and stakeholders in developing countries.

The Capacity4Dev.eu platform is a virtual space where Commission staff, development practitioners, partner countries, Member States cooperation agencies, national and international donors, academic and civil society representatives can share ideas and knowledge and coordinate projects and strategies for the efficient implementation of EU development policies.

JRC-IES is also currently working on knowledge management tools to support the implementation of environmental policies in developing countries. Knowledge management is thought to be a key element for the sustainability of such actions in the different environmental areas and also contributes to transparency and visibility.



Scientists at JRC-IES have developed the new website

AGRICULTURE

<http://www.jrc.ec.europa.eu/rr>

New JRC report on agricultural risk management and insurance schemes

A new JRC Reference Report from the Institute for the Protection and Security of the Citizen (IPSC) provides an overview of agricultural insurance schemes, risk management systems and public intervention in EU Member States as well as Turkey and Croatia. It also evaluates the potential of index insurance schemes for crop risk management. The report should serve as a basis for discussing the integration of risk management tools within the EU's Common Agricultural Policy.

The Reference Report features a collection of information unpublished until now on risk management tools and

experiences in most EU Member States and Candidate Countries, including key technical details on reinsurance, triggers and deductibles.

It suggests actions such as facilitating or subsidising the composition of databases at farm-level, the provision of public reinsurance, partial subsidisation of national risk-management systems or the establishment of a common regulatory framework in order to encourage national insurance systems. However, it advises against a homogeneous "common insurance system" given the diversity of risks and socioeconomic circumstances across the EU.



JRC Reference Report: Risk management and agricultural insurance schemes in Europe

DISASTERS AND RESPONSE

<http://www.gdacs.org/>

Responding to disasters in Asia and Asia-Pacific

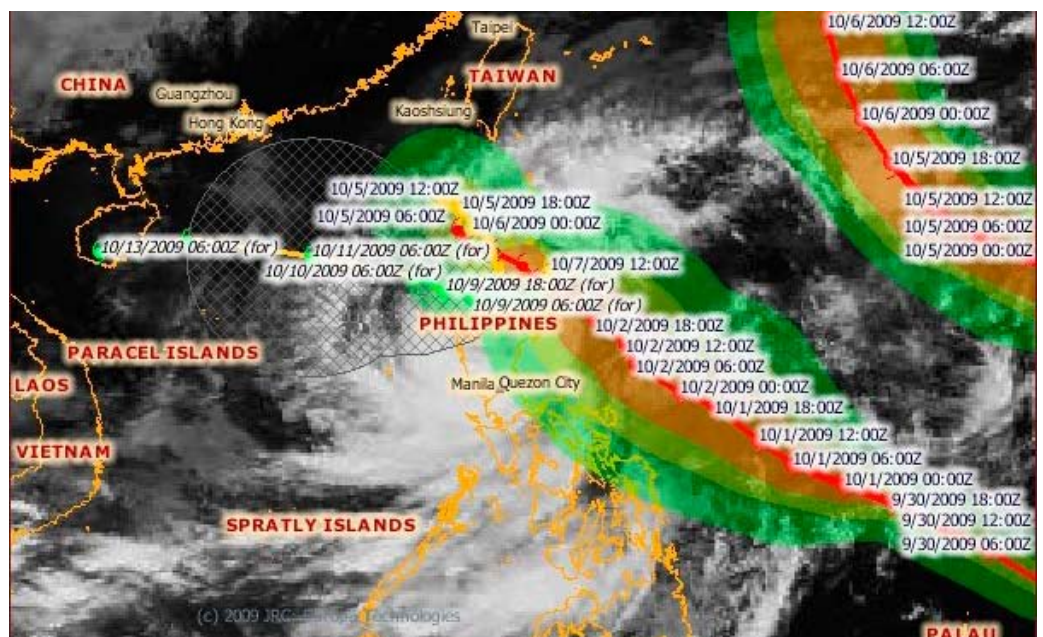
In the aftermath of a number of natural disasters that struck Asia and the Asia-Pacific region in September and October, the JRC's Institute for the Protection and Security of the Citizen (IPSC) has been supporting the European Commission's Monitoring and Information Centre (MIC) in coordinating a response from the EU.

The Global Disaster Alert and Coordination System (GDACS) has been closely following the recent tsunami in Samoa, the earthquake in Indonesia and the latest tropical cyclone in the Philippines. Updated information on all the events has been published on the GDACS website and alerts for the earthquake events in Indonesia were sent out via SMS, fax and email to 10 000 GDACS users. The JRC also delivered updated situation maps and analytical calculations of expected impact to the MIC and UN ReliefWeb.

GDACS is a web-based platform that combines existing web-based disaster information management systems with the aim of alerting the international community in case of major

sudden-onset disasters and to facilitate the coordination of international response during the relief phase of the disaster.

Closely supported by JRC-IPSC, the MIC is the operational heart of the Community Mechanism for Civil Protection. It serves as a communications hub at the centre of emergency relief operations, disseminates information on civil protection preparedness and supports co-ordination, facilitating the provision of European assistance.



Tropical cyclone Parma-09 over the Philippines (GDACS)

CLIMATE CHANGE

<http://ies.jrc.ec.europa.eu/climate-change>

JRC Greenhouse Gas lab joins Global Atmospheric Watch

The JRC Ispra greenhouse gas (GHG) monitoring laboratory, established by the Climate Change Unit of IES in 2007, and operated at the JRC Ispra site since then, has been included in the World Meteorological Organisation (WMO) 2009 world inter-comparison exercise for GHGs. The JRC GHG laboratory thus becomes part of the WMO/GAW (Global Atmospheric Watch) worldwide network of 44 GHG monitoring laboratories with a commitment to provide high quality atmospheric measurements to the global GHG modelling community.

The purpose of these inter-comparison exercises is to link the data sets of the individual laboratories to a common

calibration scale to ensure the highest possible GHG data quality as input for climate models. This should lead to improvements in the reliability and accuracy of model output in general, as well as in the reliability of results from inverse modelling and scenario studies, which are of great importance for policy makers.

IES climate change specialists Suvu Monni and Giacomo Grassi acted as the European Communities' experts on GHG inventory reviews under the UNFCCC (UN Framework Convention on Climate Change) in September. Reporting of the emissions during the commitment period under the Kyoto Protocol will begin next year.

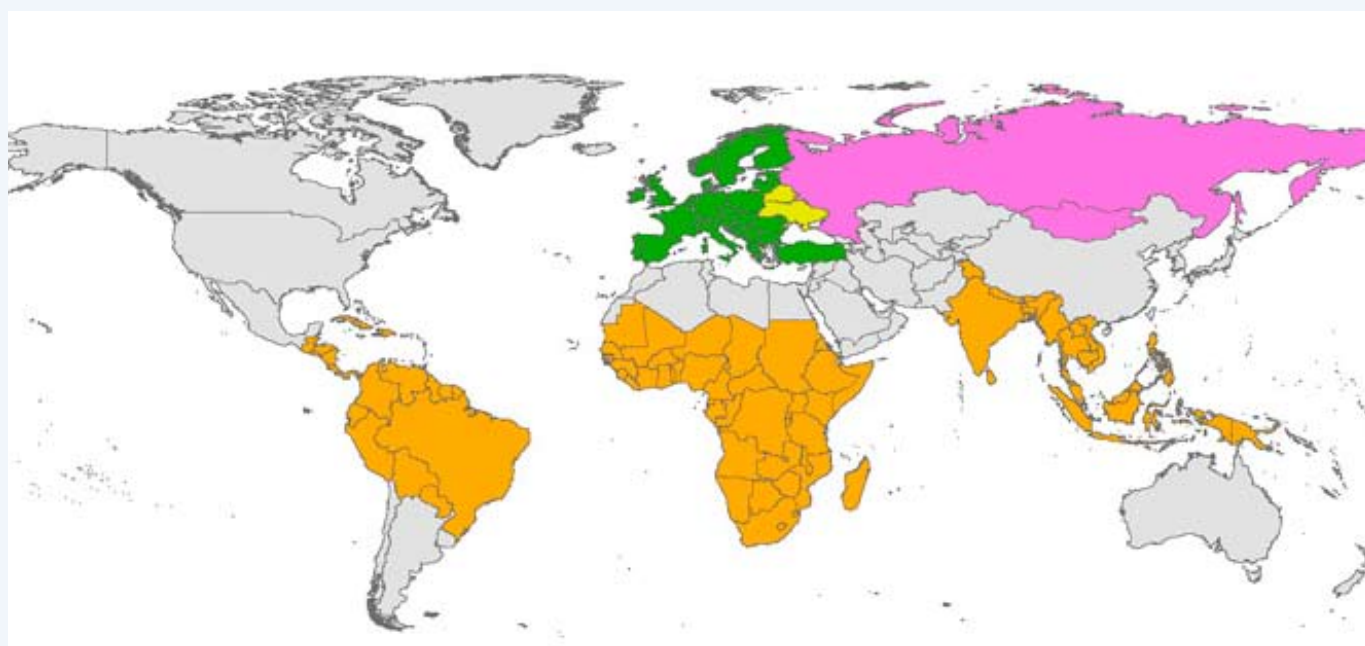
EARTH OBSERVATION

<http://forest.jrc.ec.europa.eu/forest-mapping>

Assisting UN global forest monitoring

The UN Food and Agricultural Organization (FAO) collects key information on forest resources for all nations worldwide through its Global Forest Resources Assessment 2010 (FRA-2010) programme. Part of FRA-2010 involves the Remote Sensing Survey (RSS) project which is carried out in collaboration with the JRC and regional/national organisations. The RSS is also able to support countries who want to develop or improve their national systems for monitoring deforestation, helping them to take part in international efforts of mitigation of climate change through the UNFCCC.

Scientists at the JRC IES are developing methods for monitoring forest cover resources from a global perspective. With the TREES-3, MONDE and FOREST projects, IES will produce estimates of tree cover changes at continental and regional levels covering the Tropics and Europe for the periods 1990-2000-2005 based on a systematic sample of satellite imagery at 30 m resolution. An operational system is being developed by the JRC for the processing and tree cover change assessment of this large set of multi-temporal imagery (e.g. 4 000 sample 20 km x 20 km sites for the tropics and 2 000 sample 10 km x 10 km sites for the European continent).



Regions covered by the JRC's monitoring system (orange: TREES-3 and MONDE projects in first phase; green and yellow: FOREST project; violet: TREES-3 project in second phase). FAO is processing the remaining countries to provide full global coverage.

HEALTH AND ENVIRONMENT

<http://pubs.acs.org/doi/full/10.1021/es9030479>**Home heating and air quality**

A study co-authored by JRC scientists examining the impact of residential heating on air quality in cities was selected as story of the month for the September edition of leading scientific journal *Environmental Science and Technology* (ES&T).

The study, entitled “Quantifying the Impact of Residential Heating on the Urban Air Quality in a Typical European Coal Combustion Region”, shows how household stoves and furnaces can, in certain areas in large numbers, constitute the primary source of surface air pollution, exceeding even that of traffic, industrial activities and coal-fired power plants.



Household stoves and furnaces can constitute the primary source of surface air pollution

European air quality limits were exceeded during episodes of pollution studied in Krakow, with air pollutants accompanied by high concentrations of azaarenes, known markers for inefficient coal combustion. The major culprit for extreme levels of pollution was demonstrated to be residential heating by coal combustion in small stoves and boilers, followed by road transport and industry.

The researchers carried out a case study in the Polish cities of Krakow (800 000 inhabitants) and Zakopane (28 000 inhabitants) – both of which are typical of a region dominated by coal-combustion – in collaboration with the Polish air-quality authorities. The aim was to quantify the impact on the urban air quality of residential heating by coal combustion in comparison with other potential pollution sources.

Junninen et al., *Environmental Science and Technology*, 2009, 43, 7964-7970.

NUCLEAR ENERGY

<http://www.jrc.ec.europa.eu/rr>**Geological disposal: technically ripe for implementation**

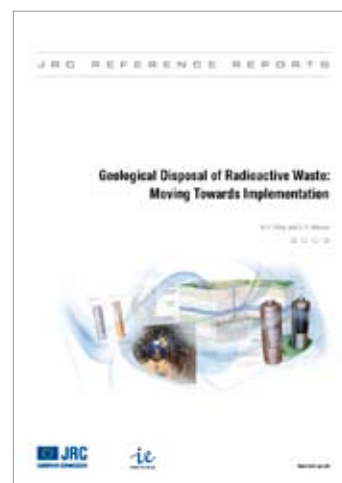
On 1 October the JRC published a Reference Report on the geological disposal of nuclear waste, offering an analysis of the scientific, technological and procedural state-of-the-art in the waste-disposal technique.

Entitled “Geological disposal of radioactive waste: moving towards implementation”, the JRC Reference Report identifies no major conceptual or research gaps concerning envisaged host rocks and repository systems (clays, hard rocks and

salt), concluding that the technique is technically ripe for implementation.

The report points out that regulatory approval – requiring an adequate set of regulations, criteria for evaluation and the enabling of regulators – and public acceptance remain the critical factor in any future implementation in Europe.

JRC Reference Report: *Geological disposal of radioactive waste: moving towards implementation*



INFORMATION SOCIETY

<http://sta.jrc.ec.europa.eu/>**Reconfigurable Radio System Testbed**

The JRC Institute for the Protection and Security of the Citizen (IPSC) has completed the development of a “Reconfigurable Radio System Testbed for Security Research”. The rationale and design of the platform is described a new technical report.

Technological progress in digital processing has opened the way to novel approaches to wireless communication platforms where most of the digital signal processing is done using software rather than hardware. Such systems have been known as Software Defined Radio (SDR) or Reconfigurable Radio Systems (RRS).

The report presents the technical challenges and implementation details in the development of the prototype and an overview of the capabilities of the commercially available Universal Software Radio Peripheral (USRP). The SDR/RRS platform used in the project is quite versatile and it can be used for a number of applications related to various wireless communication systems.

Reconfigurable Radio System Testbed for security research, EUR 23963

ENVIRONMENT

<http://www.atmos-chem-phys.org/9/issue18.html>

Impact of ship emissions on air pollution

A paper on the impact of ship emissions on air pollution over the Mediterranean Sea, authored by climate change specialists at JRC-IES, has been published in the September edition of Atmospheric Chemistry and Physics. Observations of air pollutants at surface level as well as from satellites were used in the study to assess the accuracy of the three most commonly used ship emission inventories. A main source of observations was the monitoring station placed on board a Mediterranean Cruise ship as part of a collaborative project between the JRC and the Costa Crociere cruise line.

Modelling results showed that close to the main shipping routes the impact of ship emissions on black carbon

at surface level varies between 10% and 50%, while in the case of ozone it is between 2% and 12%. The study also indicates that the climate forcing caused by one type of air pollution, namely ground level ozone, might be equal to up to 2/3 of that caused by carbon dioxide. This indicates the strong influence of conventional air pollution on climate, and the potential of using also air pollution policies to mitigate climate change.

Marmer, E., Dentener, F., Aardenne, J., Cavalli, F., Vignati, E., Velchev, K., Hjorth, J., Boersma, F. and Raes, F. (2009), "What can we learn about ship emission inventories from measurements of air pollutants over the Mediterranean Sea", *Atmospheric Chemistry and Physics*, 9, 6815-6831, 2009.

Ship emissions are thought to have a high impact on air pollution



ALTERNATIVE METHODS

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

Eye-irritation testing: OECD adopts JRC in vitro test guidelines

The OECD Council has adopted two test guidelines on in vitro alternative test methods for the corrosive and irritant effects of substances on the eyes of animals validated by the JRC's European Centre for the Validation Alternative Methods (ECVAM). The "Bovine Corneal Opacity and Permeability (BCOP) Test Method for Identifying Ocular Corrosives and Severe Irritants" and the "Isolated Chicken Eye (ICE) Test Method for Identifying Ocular Corrosives and Severe Irritants" were endorsed by the ECVAM Scientific Advisory Committee in 2007. Staff from ECVAM, part of the JRC's Institute for Health and Consumer Protection (IHCP) were involved throughout the OECD discussions on the two draft test guidelines, resulting in their revision and acceptance in under one year.

The application of the guidelines will contribute to the overall reduction of animals used in eye-irritation testing.

NUCLEAR MEASUREMENTS

<http://www.atmos-chem-phys.org/9/issue18.html>

Measuring a single uranium particle through TIMS

Scientists at the JRC Institute for Reference Materials and Measurements (IRMM) in September successfully carried out the first-ever measurements of single uranium particles through thermal ionisation mass spectrometry (TIMS). To carry out the measurements, uranium particles were transferred using a micro-manipulator mounted within a scanning electron microscope (SEM) onto a carburised filament placed in a specially constructed filament holder. By the application of the so-called carburisation technique, the ionisation efficiency for uranium isotope ratio measurements is increased so that single uranium particles could be analysed by TIMS.

The technique will be applied in the certification of uranium particle reference materials requested by the International Atomic Energy Agency (IAEA).



Pouring liquid nitrogen into the thermal ionization mass spectrometer (TIMS) at JRC-IRMM

CLIMATE CHANGE

<http://floods.jrc.ec.europa.eu/climate-change-impact-assessment>

Climate change impact on floods and droughts

JRC-IES floods specialists published two papers in the *Journal of Geophysical Research* in September.

“Flood hazard in Europe in an ensemble of regional climate scenarios” analysed changes in flood hazards in Europe by

examining extreme discharge levels as simulated by the LISFLOOD model when driven by an ensemble of climate simulations. In several major European rivers a consistent tendency toward a higher flood hazard was found in the majority of the model experiments.

“Impact of global warming on streamflow drought in Europe” compared low-flow predictions of a hydrological model driven by high-resolution regional climate simulations for the end of the previous century and for the end of this century based on the *SRES A2* greenhouse gas emission scenario. Streamflow droughts are expected to become more severe and persistent in most parts of Europe by the end of this century.



A consistent tendency toward a higher flood hazard was found in the majority of the model experiments

Rutger Dankers and Luc Feyen, “Flood hazard in Europe in an ensemble of regional climate scenarios” and “Impact of climate change on streamflow droughts”. *Journal of Geophysical Research*, 114, 2009.

AWARDS & PRIZES

Alpha immunotherapy

<http://eanm09.eanm.org/>

At this year’s Annual Congress of the European Association of Nuclear Medicine (EANM 2009), the JRC’s work in the field of alpha immunotherapy received special recognition. The presentation by Frank Bruchertseifer of the JRC Institute for Transuranium Elements (ITU) was nominated for the EANM 2009 Marie Curie Award and received the Eckert and Ziegler Award (Top 5 papers presented by young investigators below 38 years of age). The paper describes

and compares their therapeutic efficacy *in vitro* and *in vivo*. The *in vitro* study showed that both alpha emitters can overcome resistance to beta- and gamma radiation and chemotherapy in leukemia cells. However, it was found that the novel alpha emitter Th-226 was more efficient in cell kill than Bi-213. In an animal model the efficacy of Th-226 and Bi-213 for the treatment of bladder cancer was compared. The *in vivo* results also demonstrated a superior therapeutic efficacy of Th-226.

The study was conducted in collaboration between the alpha immunotherapy team at ITU, the JRC Institute for Health and Consumer Protection (IHCP), University Clinical Center Ulm and Technical University Munich.

The award also highlighted JRC-IRMM’s role as a worldwide provider and facilitator in the development, use, and harmonisation of validated analytical methods and laboratory quality assurance programmes and services, and the importance of the institute’s contributions to measurement data reliability.

Nuclear chemistry

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

JRC trainee Christian Ruff was awarded a poster prize from the German Society Chemistry during their annual meeting held in Frankfurt 31 August-2 September as leading author of the study “Interaction of Cm(III) with blood serum proteins studied by time resolved laser fluorescence spectroscopy”. The study was conducted as part of a collaborative project between JRC-ITU and the Institut für Nukleare Entsorgung at the *Forschungszentrum Karlsruhe* and is part of the diploma thesis Mr Ruff recently defended successfully at the University of Heidelberg.



The Cyclotron at JRC-IHCP allows production of a wide variety of radioisotopes

methods for the production of the alpha emitters Th-226 and Bi-213

Reference materials

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

Hendrik Emons from the Institute for Reference Materials and Measurements (IRMM) has received the International Association of Analytical Communities (AOAC) Reference Material Achievement Award for his work in the international metrology community.

UN CONFERENCE ON UNDERSTANDING DESERTIFICATION TRENDS

ARGENTINA

BUENOS AIRES, 22-24 SEP

<http://www.drylandscience.org>

The 1st United Nations Convention to Combat Desertification (UNCCD) scientific conference was held in conjunction with the UNCCD COP9 in Buenos Aires, and was co-organised by JRC Institute for Environment and Sustainability.

The conference highlighted the importance of implementing integrated methods for monitoring and assessing land degradation. It elaborated a set of recommendations for policy action and underlined the need for a holistic approach to understanding desertification processes and minimising their impact. A special session of the Conventions Committee on Science and Technology (CST) will be held in 2010 to review outcomes and recommendations from the conference.



Scientists at JRC-IES are studying land degradation and desertification processes

SET-PLAN CONFERENCE

2009

STOCKHOLM, 21-22 OCT

SE

<http://setis.ec.europa.eu/>

The SET-plan conference was organised by the Swedish Energy Agency in collaboration with the European Commission. Its primary objective was to discuss how to realise the goals of the Strategic Energy Technology-plan and its financing.



The JRC played an important role in the event by providing rapporteurs in the areas of Bio Energy, Carbon capture and Storage (CCS), concentrating solar power (CSP), energy efficient 'smart cities', photovoltaics and wind power. Giovanni De Santi, Director of the JRC Institute for Energy (IE), presented the SET Plan Information system (SETIS) at the Conference. He emphasised the importance of the contributions of the "SETIS Community", and highlighted the future developments of the Information system including the updated technology maps which will be available at the end of 2009.

TRAINING IN NUCLEAR SECURITY

DE

KARLSRUHE, 14-16 OCT

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

Illicit trafficking of nuclear and other radioactive material remains a cause for concern in Europe and a threat to our security. The recent survey on radiological vulnerability in the EU identified the need for training of first responders at the European level. The JRC was tasked by the European Commission's Directorate General for Justice, Freedom and Security to create a European Security Training Centre and to provide a training session demonstrating the JRC's capabilities. A seminar dedicated to the response to nuclear security incidents was held from 14-16 October at the JRC Institute for Transuranium Elements (ITU) in Karlsruhe. This followed the first pi-

lot session for training in the area of prevention and detection in nuclear security that was recently held by the Institute for the Protection and Security of the Citizen (IPSC) at the JRC Ispra site.

The seminar focused on nuclear forensic awareness and the development and implementation of a national response plan. Recognised as a centre of excellence by national and international authorities, the JRC-ITU has developed various methods that provide clues on the origin of intercepted material and its intended use. By tracing the origin of nuclear materials, future thefts or diversions can be prevented.



Nuclear forensics at JRC-ITU: operation of the micromanipulator system installed in the Scanning Electron Microscope (SEM) for the transfer of micrometer sized particles

FIRST JRC ANNUAL LECTURE AND EU-US SCIENCE FOR POLICY WORKSHOP

BE

BELGIUM, 28 OCT

<http://www.jrc.ec.europa.eu/lecture>

To mark the 50th anniversary of the inauguration of the European Commission's first research site in Ispra (Italy), the JRC developed a programme of events, ranging from organised



Alan Leshner gave the first JRC Annual Lecture in Brussels

discussions of the role of science in policy making to the launch of a new initiative: the JRC Annual Lecture. The events were organised in close partnership with the American Association for the Advancement of Science (AAAS).

The inaugural lecture was given on 28 October in Brussels by Dr Alan Leshner, Chief Executive Officer of the American Association for the Advancement of Science (AAAS) and Executive Publisher of the journal *Science*. Speaking to an audience of over 300 representatives from industry, science, business and policy making, Dr Leshner presented his views on international cooperation in science and technology under the title "Europe and the United States: A crucial moment for science cooperation". Dr Leshner dealt with the role of science as a tool to improve

international relations and to tackle new global challenges.

In the run-up to the lecture, a high-level workshop on science and policy making at the JRC Ispra site saw the international participation of prominent industry leaders, scientists and policy advisers. Participants included Mr Colin Challen, Member of the UK Parliament and Chairman of the All Party Parliamentary Climate Change Group, Dr David Goldston, Natural Resource Defense Council, Dr Hans-Olaf Henkel, former President of the Association of German Industry, Dr Paul Johnston, Head of Science, Greenpeace, Dr Jacqueline McGlade, Executive Director of the European Environment Agency, Dr Eugene Skolnikoff, Massachusetts Institute of Technology and Dr John Vassallo, Vice-President Microsoft, European Affairs and Chair of the American Chamber of Commerce in Brussels.

UPCOMING

ORGANIC FOOD AUTHENTICATION: CHALLENGE OR UTOPIA?

BE

GEEL, 30 NOV- 01 DEC

<http://irmm.jrc.ec.europa.eu/html/events/events/organic.htm>

The rapid development of the organic sector and the ever-increasing demand for organic products brings new challenges for the international organic food certification and guarantee systems. Organic produce remains amongst the most difficult to monitor and control. Currently, all that scientists can do is to test for what should not be there (e.g. chemical pesticide residues).

In this context, the development of a strategy to authenticate organic food products is highly desirable in support of the certification and inspection systems. By bringing together the main groups working in the field,

this workshop, organised by the JRC Institute for Reference Materials and Measurements (IRMM), will present a balanced overview of the state-of-the-art research in this area. Participants will have the opportunity to brainstorm and identify the best approaches for meeting the challenges of organic food authentication.

Increasing demand for organic products brings new challenges for the international organic food certification and guarantee systems



INTERNATIONAL COLLABORATION

<http://www.aaas.org>

JRC – AAAS Memorandum of Understanding

On 28 October, the JRC and AAAS signed a Memorandum of Understanding, with the aim of building trans-Atlantic cooperation in the form of information sharing between them, maximising public outreach initiatives and underpinning EU-US scientific ties through the creation of permanent contact points in the respective organisations.

In addition, the agreement aims to advance on issues such as science and

technology for safety, technology and sustainability, science engagement and other issues of mutual interest and concern. One area already identified is that of nuclear forensic technologies. Annual meetings between experts, workshops on the verification, compliance and monitoring tools for arms control and exchanges of information on new detection technologies for nuclear and radiological security are foreseen.

INTERNATIONAL COLLABORATION

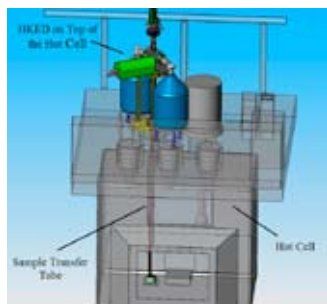
<http://ec.europa.eu/dgs/jrc/index.cfm?id=1700&>

Securing nuclear material in the Russian Federation

A fully computerised Nuclear Material Accountancy and Control (NMAC) system will soon be in place at the Russian Mayak reprocessing plant located in Ozersk in the Chelyabinsk region of Russia. The project for the system's conception and technical implementation, managed by the JRC in the framework of the European Commission's TACIS Programme, is the first of its kind for such a system in a Russian designed nuclear reprocessing facility. After validation, the complete system is likely to become a prototype for all Russian reprocessing plants, marking a significant step forward in Russian federation.

The JRC was assigned the technical responsibility of the MAYAK project based on its experience in providing scientific and technical support for safeguarding of reprocessing facilities. The project began in March 2006 under the TACIS nuclear safeguards programme implemented by the European Commission.

The nuclear installations of Mayak Production Association need to be modernised in order to comply with safeguards agreements pur-



suant to the Nuclear Non-Proliferation Treaty (NPT). New instruments, techniques and computerised systems have to be implemented to assure the quality of nuclear material accountancy and control requested by new Russian regulations at different stages of spent fuel reprocessing and production of plutonium dioxide and uranium final products.

JRC-IPSC and the JRC Institute for Transuranium Elements (ITU) are responsible for identifying the required equipment upgrades, the on-site factory testing and the associated operator training in the framework of the project. Its success is the result of a very close cooperation between the JRC and its Russian partners, notably the Mayak power plant and the Russian Methodological and Training Centre, established a decade ago in Obninsk with the support of the JRC.

K-edge densitometer for U and Pu concentration determinations of process solutions at Mayak RT-1 plant

INTERNATIONAL COLLABORATION

<http://www.nrc.gov/>

EU-US cooperation on nuclear safety

An updated version of the Euratom - US Nuclear Regulatory Commission (NRC) technical exchange and cooperation agreement in the field of nuclear safety research was signed on 30 September 2009 by JRC Director-General Roland Schenkel and NRC Chairman, Gregory B. Jaczko. The objective of the agreement is to strengthen cooperation in the field of nuclear safety to the benefit of both parties.

During the visit of the European delegation, the prolongation of the lifetime of the US nuclear power plants from 40 to 60 and even 80 years was discussed, along with harmonisation of the licensing process.

The JRC has long-standing experience in nuclear safety research, addressing both reactor safety and the safety of nuclear fuel itself. The JRC is involved in international cooperative efforts to advance nuclear reactor safety, notably including efforts through the *Generation IV International Forum*.

Commission representatives also conducted a number of meetings with the US Department of Energy, the US Department of State, the Department of Homeland Security, and the National Security Council, which were more focused on nuclear security and non-proliferation.



NRC Chairman Gregory B. Jaczko and JRC Director-General Roland Schenkel at the signing in Washington on 30 September 2009

INFRASTRUCTURE

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

Inauguration of refurbished linear accelerator at IRMM

On 12 October 2009, the refurbished Geel Electron Linear Accelerator facility (GELINA) was inaugurated by JRC Director-General Roland Schenkel. GELINA is used to measure very accurate neutron data for nuclear energy applications, including waste transmutation and innovative reactor systems.

The inauguration marked the end of a series of improvements made over several years, which have considerably improved the reliability of the system and the quality of the neutron beams produced. GELINA is now equipped with modern state-of-the-art systems adapted to the high demands of present-day neutron data experiments. This offers significant operational advantages such as increased throughput of neutron data measurements and more precise measurements.

JRC STAFF NEWS

<http://ec.europa.eu/dgs/jrc/index.cfm?id=279>



On 1 November, Director of the Institute for Reference Materials and Measurements (IRMM) Alejandro Herrero Molina is leaving the services of the Commission to enter retirement. Alejandro Herrero Molina has been with the Commission for over 22 years, most of which he has spent at the JRC. He has been the Director of IRMM since 2002.



With effect from the same date, Krzysztof Maruszewski will leave the "Programmes and Stakeholder Relations" Directorate, which he has

headed for almost three years, to succeed Alejandro Herrero Molina as Director of IRMM in Geel.



Also from 1 November, David Wilkinson will move from Ispra Site Directorate in Ispra, to become Director of "Programmes and Stakeholder Relations" in Brussels.

On 20 October, the European Commission agreed a reorganisation of the JRC's corporate services (Programmes and Stakeholder Relations, Resources, Ispra Site Management). The reorganisation, which will become effective on 1 January 2010, aims to streamline the JRC's horizontal services to increase their efficiency.

IMPRINT

The JRC Newsletter is a monthly publication intended to provide JRC customers, stakeholders and other interested parties with an overview of recent highlights from the JRC's scientific achievements, policy support, contributions to events and other news.

To subscribe to the electronic version of this newsletter, please visit www.jrc.ec.europa.eu/newsletter

Editor in chief: Krzysztof Maruszewski
Production team: Nadine Bähr, Boris Kandziora, Eamonn Prendergast, Caroline Megaloeconomou

www.jrc.ec.europa.eu — Contact: jrc-info@ec.europa.eu

Neither the European Commission nor any person acting on behalf of the Commission may be held responsible for the use to which information contained in this publication may be put, nor for any errors which may appear despite careful preparation and checking. This publication does not necessarily reflect the view or the position of the European Commission.

© European Communities, 2009

Picture credits: p. 5: William Vermeulen (rooftops)
p. 7: Selma Dredge
p. 8: Dr Zsolt Zatrok
p.9: Zsuzsanna Kilián



The mission of the Joint Research Centre (JRC) is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of European Union policies. As a service of the European Commission, the JRC functions as a reference centre of science and technology for the Union. Close to the policy-making process, it serves the common interest of the Member States, while being independent of special interests, whether private or national.