

CAETS Activities of Interest – October 2015

“Activities of Interest” are topics of a recently completed study or activity in which you believe other member academies may be interested and you would willingly share your experience (LIMIT 3).

5Nov2015

Argentina, ANI

a) Presentation of Awards.

- Honor Awards to engineers with a long and outstanding professional career recognized by their colleagues.
- Incentive Awards to top graduates from the country’s Engineering Faculties and Institutes.

b) Issues of interest on certain matters of particular concern for the Argentine society:

- Argentina’s deficient situation related to lack of investment in Infrastructure, regarding transportation:

- Roads and Highways
- Railways

- Argentina’s deficient situation related to lack of investment in energy production, regarding all possible sources:

- Hydraulic
- Nuclear
- Non-conventional

Australia – ATSE

Measuring & promoting Research-Industry Engagement ATSE has developed a suite of activities and proposal to enhance research translation and research-industry engagement with a view to boost the commercial returns from Australian research. Two activities are:

1. **Research Engagement in Australia (REA)** – a new metric to be applied across Australian Universities. ATSE has completed a Government funded Report and is currently testing the REA metric in a pilot study in all Queensland and South Australian Universities as a first step in seeking full implementation alongside the Government’s current ERA (research excellence metric using predominantly citations) The Pilot results will be published soon (end October/early November 2015).

2. **Industry Mentoring Network in STEM (IMNIS)** ATSE is running a pilot scheme for Industry mentoring STEM based PhD students with a view to enhance PhD students’ exposure to and experience of Australian industry to both enhance their opportunities in later employment options, enhance their relationships with industry as a researcher and broaden the linkages between university research and Australian innovation.

Gender Equity in STEM ATSE – in partnership with the Australian Academy of Science – launched in September the **Athena SWAN** pilot program aimed at boosting and measuring the participation of women in science, technology, engineering, maths and medicine employment in higher education and research. The Athena SWAN program is a UK-tested evaluation and accreditation framework that is being adapted for Australia. In an enormous vote of confidence – in both the need for this program and the respect in which it will be held – more than 30 Australian research organisations have signed up for the pilot. The Launch was hosted by federal Parliamentarians who support Science and women in Science.

Belgium – BACAS

1. Biomedical engineering

The National Committee Biomedical Engineering, in co-operation with the Belgian federation of manufacturers, importers and distributors of medical aid material (UNAMEC) and the federation of Belgian Enterprises V.B.O. (Healthcare Belgium) is preparing a report, titled: “Biomedical engineering: spearhead technology of modern health care”.

2. Being a university professor in 2015

The academic landscape has changed a lot during recent years: the task of professors has become far more complex than it was for their predecessors 30 years ago. Therefore the Royal Belgian Academy has decided to create a working group in order to study what the major challenges are today for professors in order to make them fulfilling the expectations from society.

3. Nutrition and health

A working group with members of both the French and Dutch speaking Belgian academies is exploring the strong relationship between food quality, eating behavior and health.

4. Climate change

The class of society and technology of the French-speaking Académie Royale de Belgique (ARB) started up a working group on this worldwide area of concern. In the same field a separate working group on energy storage and renewable energy sources would be set up.

5. Internet, big data, social networks versus privacy

A new working group is due to start its research concerning the impact of the “new” media on privacy. Big data in health care will get special attention in a separate group.

6. Climate change: how to make the best of it (case study: water supply)

The mission of yet another thinkers’ program is about “humanity’s resilience facing the climate change challenges”. The idea is not to deny the threats of climate change nor to give a stage to non believers concerning greenhouse effects, but to explore how humanity can tackle the negative effects of climate change, and what kind of opportunities might come out of these challenges. Foreign experts and scientists will be invited to share their views with Flemish authorities and researchers, taking worldwide water supply as a case.

7. Impact of robotization and automation on employment in Flanders

This new working group will focus on the impact of automation and robotization on employment in the manufacturing industry and the services sector in Flanders.

8. STEM (science, technology, engineering and mathematics) in high school

Too few students graduating from high school choose scientific studies when going to university: one of the reasons seems to be the poor preparation of students in high school as far as scientific and technological fields are concerned. Therefore, a number of high schools decided to offer a new field of study, with much more emphasis on science, technology, engineering and mathematics. Some pedagogues think “arts” should also be part of such a package and therefore they propose “STEAM” instead of “STEM”. A working group is in the process of investigating the potential of STEM or STEAM studies.

Czech Republic – EACR

Energy

Engineering Academy of the Czech Republic has been paying a special attention to the field of Energy. Since 2012 EA CR has been organizing series of workshops bringing together experts from the field of Power Engineering, Environmentalists and representatives of the state administration. The last workshop from these series organized in 2015 dealt with "Blackouts and the Renewable sources of Energy". The workshop responded to the pressing problem of the dynamic stability of the electrical transmitting network with the high proportion of renewable sources and reviewed technical means how to deal with this problem.

Participation in the Euro-CASE platforms

Engineering Academy considers participation in Euro-CASE platforms a very significant part of its activities. As a small Academy with no direct government support EA CR is not able to launch large projects and solve important problems of Engineering with the necessary complexity. On the other hand it can contribute to the work of platforms with findings from specific domestic conditions. At the same time it can benefit from the work of the platform and apply the project outcomes in the Czech Republic. In 2014/2015 Engineering Academy of the Czech Republic actively participated in two Euro-CASE Platforms – Innovation and Engineering Education.

Innovation

Engineering Academy of the Czech Republic organized a workshop "Financing Innovation in the Czech Republic". The workshop took place in Prague on 14 October 2014 with the participation of the Platform Chairman Björn O. Nielsen (IVA) and Ian Ritchie (RAE). Discussion concentrated on the recommendations of the platform Position document "Financing Innovation" and reviewed specific conditions for the financing Innovation in the Czech Republic.

Engineering Education

Engineering Academy of the Czech Republic organized an International workshop "Engineering Education". The workshop took place in Prague on 28 May 2015 with the participation of platform members and number of guests from the Czech Republic and abroad. The workshop was focused on the issues of transformation and innovation of the Engineering Education to excite interest of students in studying technical disciplines.

Support of conferences

Engineering Academy of the Czech Republic supported number of prestigious conferences from field of chemical, mechanical and material Engineering in 2014 and 2015.

Denmark ATV

Recent and on-going activities of interest of the Danish Academy of Technical Sciences (ATV) include:

- **ATV's Technology Day:** As a new strategic initiative, ATV will organise an annual "Technology Day" with international high-level speakers and focus on the newest technological developments. The first conference of its kind will be held on 23 November 2015.

- **New strategy and a more agile organisation:** ATV has developed a new strategy which aims at making the organisation more focused, transparent, and agile, while increasing ATV's ability to influence decision-makers. As part of the new strategy, the Academy's operating groups are transformed into five flexible and cross-disciplinary theme groups.
- **Educational needs in the knowledge-based manufacturing industry.** ATV organises four dialogue meetings on the topic this autumn, and a report with recommendations is expected for publication in early 2016.

Japan – EAJ

1. Recommendation on “Importance of Maintenance Management System for Infrastructures”
2. Recommendation on “Countermeasures to address issues on radiation-tainted water in the TEPCO Fukushima No.1 Nuclear Power Plant”
3. Organizational changes were undertaken from this year: Standing committees on Technology Policy, International Affairs and Publicity were replaced by mission-based steering committees to enable swifter decision-making and to promote young researchers in chairing those committees.

Korea – NAEK

NAEK is celebrating 20th Anniversary on October 14, 2015. On its celebration, NAEK reassures the role of engineering academy in society that bring together technological excellence and industrial innovation for the benefit of society.

At the 20th Anniversary Conference, National Vision for 2035 will be announced which highlights innovation in industrial strategies and government policies, innovation in engineering and science education, and to expand and create technology embedded culture.

We also organizes EnGenius Day, which exhibits a new technologies out of laboratories(robot, drone, fuel cell, electronics automobile, 3D printing, etc), plays IT magic show, mentoring program such as talk to CEO.

On the same week, The 5th Australia-Korea Innovation Workshop will be held which targets young engineers aged of 30-40 who are seeking for the best model realizing research outcomes to business innovation. It focuses on new technologies of Autonomous Vehicles, Wearable Smart Devices, and Personalized Health Care.

Norway NTVA

- 1, The future of the ocean economies.
- 2, Safety and threats concerning extreme climate conditions and disasters in our natural environment.
- 3, Energy supply and climate policy - challenges and possibilities

Spain – RAI

The main activities of RAI are oriented to promote the sustained growth through engineering education, research, creativity and innovation. These activities are grouped in three areas:

- Recognitions and Awards.

As part of the Academy objectives regarding the promotion of the engineering, different recognition events are regularly held, such as:

- Award to the Spanish company “SENER” for its achievements in the area of engineering and technological innovation.
- Promotion awards for stimulation of the best young researchers in Spain.
- Academy-Industry interactions.

As part of the Academy mission, regular sessions are held with the participation of national and foreign experts from industry and university, presenting their views on matters of relevant interest. Here below, a non-exhaustive list of the sessions held on 2014 is included here below:

The Royal Academy of Engineering of Spain has organized more than 30 seminars, conferences and other different events. Due to their relevance, the following should be highlighted:

- ✓ Lecture “Photons and neurons: other doors to the perception”.
- ✓ Seminar “Innovation and entrepreneurship: perspectives for a new age”.
- ✓ Seminar “Engineering and high competition. America’s Cup: a case study”.
- ✓ Course “Data engineering”.
- ✓ Round table “Global heating consequences”.
- ✓ Seminar “Supercomputing: a tool for the Engineering of the future”.
- ✓ Workshop “Smart cities, Security, Privacy and Digital Trust”.
- ✓ Seminar “Maritime Engineering: the Spanish harbours approach”.
- ✓ Lecture “Displacement structure of matrices: fundamentals and applications”.
- ✓ Lecture “Frontiers of the Supercomputing”.
- ✓ Lecture “What has changed in Europe after the European Research Area and times of increased uncertainty?”
- ✓ Lecture “Water wave mechanics and coastal engineering”.
- ✓ Seminar “Energy, Engineering and Industry”.

- Dictionary of Engineering.

RAI has been involved in the elaboration of an updated Engineering Dictionary in the Spanish language.

During 2014, once reached the last stages of the project, the dictionary has been presented to representatives of Spanish Administration along with the most relevant institutions and companies.

The project will be continued with the prospection of the likely necessity to complete the dictionary with the terms used in other Spanish speaker countries.

- Commemoration of RAI’s XX anniversary.

The RAI has celebrated on 2014 the 20th anniversary of its creation.

Considering this reason, a set of events were scheduled by different cities around Spain with the clear target of getting closer the Engineering and the Spanish society.

A set of lectures, debates, media interviews, etc. were performed to demonstrate the important proximity of the Engineering to the citizens' day life and the service approach that the RAI is offering to the Spanish Society.

Sweden – IVA

- The need for more Engineers. How to create an interest for science and technology among the young.
- Energy efficiency and Safe and sustainable energy at a competitive price

Switzerland SATW

1. Cyber security

- A public workshop is held in 2015 addressing the feasibility of “Swiss made” secure ICT and cloud services. Invited speakers are going to present their views and experiences as a basis for a question and discussion panel.
- SATW is co-organizer of “Swiss Cyber Storm 2015”, the International IT Security Conference. The emphasis of the conference lies on cyber attacks and defence and is aimed at decision makers and IT security professionals.
- SATW is collaborating with the European Network and Information Security Agency enisa to recruit Swiss cyber talents who will compete against teams of five European countries at the European Cyber Security Challenge.
- Publication of an information booklet for the broad public and politicians, whose aim is to clarify seven central questions regarding secure data handling.
- A team of SATW experts is drawing up the landscape of Swiss cyber security research.

2. Lack of qualified personnel in engineering and IT-based professions

- Carrying out of seven successful TecDays, an all-day event at selected high schools that allows students to engage and discuss with renowned researchers and leading personalities in technology.
- Publication of three further issues of the youth magazine Technoscope.
- Collaboration with the youth-oriented website for science and technology “Simply Science” supported by the Swiss Federal Government.
- Continuing support of the website www.educamint.ch (MINT meaning STEM in English), a web platform for posting materials and excursion ideas for teachers.
- Organization of the 8th annual SATW symposium on STEM education. This year's edition focuses on extracurricular STEM-activities and resulting aspects of quality control.

3. Advanced Manufacturing Initiative

- SATW is active in the formation of a consortium consisting of representatives from industry and universities. The aim is to lay the foundation for a national technology hub with an emphasis on additive manufacturing.
- A team of SATW experts is drawing up the landscape of Swiss advanced manufacturing research activities.

4. Communication of the opportunities and risks of advanced technologies

- SATW published its first foresight report (Technology Outlook) in March. It is addressed at decision makers in politics and industry, identifies technological advances of economic and societal relevance for Switzerland and lists the strengths of and opportunities for the workplace Switzerland.

5. Gerontechnology

- SATW participated in the Swiss-Dutch Innovation 2015 on active living.