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ANNUAL REPORTS

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BELGIAN NATIONAL SCIENTIFIC COMMITTEES



Académie royale des Sciences, des Lettres
et des Beaux-Arts de Belgique



Koninklijke Vlaamse Academie van België
voor Wetenschappen en Kunsten

RASAB vzw/asbl

The Royal Academies for Science and the Arts of Belgium - RASAB vzw/asbl

BELGIAN NATIONAL SCIENTIFIC COMMITTEES
ANNUAL REPORTS 2021

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INTRODUCTION

The National Scientific Committees' missions are the promotion and coordination of various scientific disciplines in Belgium, mainly seen in an international context. The creation of a national committee is subject to the existence of an international scientific union affiliated to ISC or a scientific body of ISC (scientific committees, special committees, etc.) concerning the same scientific discipline.

The National Scientific Committees work under the patronage of the *Académie royale des Sciences, des Lettres et des Beaux-Arts de Belgique*¹ and the *Koninklijke Vlaamse Academie van België voor Wetenschappen en Kunsten*², gathered in RASAB.

The committees are subject to regulations adopted by the Belgian Academies of Sciences and Arts.

The list of the members of the Belgian Scientific Committees can be found on RASAB's website: www.rasab.be.

¹ www.academieroyale.be

² www.kvab.be

NATIONAL COMMITTEE FOR ANTARCTIC RESEARCH

INTERNATIONAL UNION: SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH (SCAR)

1. Introduction, mission, goals

The BNCAR is the official representing body of Belgium within SCAR (Scientific Committee on Antarctic Research). This implies that BNCAR members participate, when appointed, to the bi-annual meetings of SCAR as national delegate(s) or member(s) of one of the 3 SCAR Standing Scientific Groups (Geosciences, Life Sciences and Physical Sciences) or of other SCAR Standing Committees (e.g. Antarctic Geographic Information). They also contribute to the inter-sessional activities of these Scientific Standing Groups. BNCAR contributes to establish the Belgian annual report to SCAR and responds to particular information requests from SCAR. It also gives advice or responds on matters raised within international bodies such as the ATCM (Antarctic Treaty Consultative Meeting) and its CEP (Committee for Environmental Protection), CCAMLR (Convention for the Conservation of Antarctic Marine Resources), CCAS (Convention for the Conservation of Antarctic Seals), EPB (European Polar Board). Finally, BNCAR has as mission to promote (Belgian) Polar Science at an international level.

2. Meetings of the Committee

Given the COVID-19 situation, we did not have in-person meetings at the Academy in 2021. However, we had several online meetings, mostly related around two topics, (i) the deployment and future initiatives of the new vessel BELGICA for work in the Arctic region, and (ii) the application for membership to IASC (International Arctic Science Committee), which is the Arctic counterpart of SCAR. As BNCAR is in its terms of reference bipolar, the recent evolution is a unique opportunity to officialize the Belgian polar interests. Besides the Arctic, BNCAR also participated in the SCAR Delegates Meeting, which was held online in March 2021.

Development of Arctic component to the activities of BNCAR:

[a] BELGICA

The new vessel BELGICA opens up new opportunities for research activities. While the vessel is not ice-strengthened, it may reach coastal areas of Greenland in summer. Future missions will be organized in the Arctic.

[b] Application for International Arctic Science Committee - IASC membership from Belgium: expression of interest

For historical reasons, Belgian polar research has traditionally focused on Antarctica. Belgian polar research began at the end of the 19th century with the Belgica expedition of Adrien de Gerlache (1897-1899) and their first overwintering in the pack ice of the Bellinghousen Sea. Belgium was also one of the original signatories of the Antarctic Treaty and operated the

King Baudouin Station from 1958 to 1967 and again the Princess Elisabeth Station since 2009 in Dronning Maud Land, East Antarctica. However, during the last few decades this initial focus on Antarctica has gradually shifted to also include the Arctic. For a large part these Arctic activities involve the same groups and often the same approaches than had been successfully applied in the Antarctic for a much longer time. Today, at least 12 research groups based at almost every Belgian university are active in Arctic research. Their activities cover a wide variety of disciplines and subjects, involving both field and laboratory studies, and including a very significant contribution from geophysical and biogeochemical modelling. Funding largely comes from the National Fund for Scientific Research (FNRS – Fonds National de la Recherche Scientifique), the Research Foundation Flanders (FWO - Fonds voor Wetenschappelijk Onderzoek-Vlaanderen), ERC (European Research Council) and from participation of Belgian research teams in EU FP7 and H2020 funded projects within the EU Polar Cluster such as APPLICATE (Advanced Prediction in Polar regions and beyond: modelling, observing system design and Linkages associated with a Changing Arctic climaTE), PROTECT (PROjecting sEa-level rise: from iCe sheets to local implicaTions) and Nunataryuk (focusing on permafrost). Many Belgian Arctic researchers are experts with an international reputation in the fields of the atmosphere, the cryosphere, and marine and terrestrial environments. The Appendix gives more details on the activities of the research teams and their recent publications pertaining to the Arctic. Besides purely scientific activities, Belgian scientists and science administrators also play active roles in organizations and projects on science coordination such as the European Polar Board (EPB) and EU-PolarNet (Connecting Science with Society, funded by the EU), both of which have a strong Arctic component.

The Belgian application is also timely in view of the recent launch of the new RV Belgica. While this new research vessel is not a fully-fledged icebreaker, it has been designed to be able to also operate in Arctic waters, for instance in the East Greenland Sea. It is our expectation that Belgian membership of the International Arctic Science Committee will help to make us more visible at the international scale and foster networking to a much larger extent than is hitherto the case. A successful outcome of our application is also expected to play a role in consolidating our research within Belgium and generate interest for a nationally funded research program on the Arctic to be set up by the Belgian Science Policy Office (BELSPO). The Belgian Arctic research community is ready for membership and is looking forward to being able to contribute to standing IASC Working Groups wherever appropriate and useful.

3. General Assembly of the Scientific Union

SCAR delegates meeting: March 2021 (online)

The SCAR delegates meeting that was cancelled in 2020 due to the pandemic, was held online in March 2021. The delegate's meeting was attended by Prof. Frank Pattyn (delegate) and Dr. Anton Van de Putte (alternate delegate). During the meeting, a new SCAR president was elected, Prof. Yeandong Kim of the Republic of Korea. Three new SCAR programmes were also presented and accepted during the meeting. Several BNCAR researchers are involved and will become involved in these programmes that treat subjects of climate change and the role of the Antarctic ice sheet herein, as well as Antarctic and Southern Ocean conservation from an ecological perspective:

- INStabilities & Thresholds in ANTArctica (INSTANT) ;
- Integrated Science to Inform Antarctic and Southern Ocean Conservation (Ant-ICON) ;
- Near-term Variability and Prediction of the Antarctic Climate System (AntClimNow).

The impact of COVID-19 on science activities was also discussed. As in many research domains, but for Antarctic activities in particular, polar research is highly impacted due to delays in expedition preparation and international dependencies.

4. Other Activities

Several online activities were organized by APECS, the Association of Polar Early Career Scientists. Despite the COVID restrictions, APECS has been particularly active in promoting polar research to a wider (especially young) audience.

5. Future perspectives

We will closely follow up the Belgian membership to IASC, which would lead have BNCAR evolve into a truly Belgian Polar Research platform. In 2022, we will discuss the further implications once the membership to IASC has been finalized.

Possible General Assemblies of the Scientific Union in 2022

SCAR 2022 OSC and XXXVII SCAR Meetings in India (moved online). Business meetings will be held 27-29 July 2022, followed by the SCAR Open Science Conference (OSC) on 1-10 August 2022. The SCAR delegates meeting will take place in presence on 5-7 September 2022 in India.

Other meetings:

- SCAR Biology Symposium 2023 - date to be confirmed (July 2023)

- SCAR 2024 Chile (Pucón)
- SCAR 2026 Norway (Oslo)

NATIONAL COMMITTEE FOR ASTRONOMY

INTERNATIONAL UNION: INTERNATIONAL ASTRONOMICAL UNION (IAU)

1. Introduction, mission, goals

The prime goal of the committee is to coordinate the participation of Belgian astronomers in the activities of the International Astronomical Union (IAU), and in the triennial IAU General Assembly in particular. The committee also serves a role in the dissemination within the Belgian community of developments within other international organisations to which our country participates, such as ESA, ESO, and the journal *Astronomy and Astrophysics*. Finally, the meetings also offer opportunities to react together on matters affecting various astronomical activities in Belgium among which access to new research facilities and public outreach.

2. Meetings of the Committee

The BNCA gathered twice in 2021: on 20 January 2021 and on 21 June 2021. Both meetings were held remotely due to the COVID-19 situation. Recurrent topics of discussion during these meetings were IAU matters, ESO matters, ESA matters, the Astronomy & Astrophysics Board, which are addressed in the sections below.

3. General Assembly of the Scientific Union

No General Assembly in 2021.

4. Other activities

[a] IUA matters

In response to the 2020 call, the BNCA received 3 applications for IAU Individual Membership, by Krishna Prasad Sayamanthula, Francis Verbeeck and Nitin Yadav. All candidates were accepted.

A virtual partial General Assembly took place in August 2021 prior to the Busan (South Korea) regular one, which was postponed to 2022 due to the covid pandemic. During this partial GA, the national delegates (A. Jorissen for Belgium) voted electronically on the usual matters (resolutions, budget, election of members of different committees...).

[b] European Southern Observatory - ESO matters

ESO matters were reported to the BNCA by C. Waelkens in January and by E. Jehin (new Belgian representative at the ESO council) in June. Among the topics that were discussed this year:

- The ESO Council has unanimously approved the extension of Prof. Xavier Barcons as Director General of ESO for the period 1 September 2022 to 31 August 2026.
- Covid-19 has continued to have a strong impact on all ESO work. The return to normal operations is still not known and will depend on local conditions.
- A new document about “The ESO Values” has been written and the ESO strategy (2021-2030) paper has been published in 2021.
- It was noticed that there are less and less Belgian employees at ESO.

[c] European Space Agency - ESA matters

ESA matters were reported to the BNCA by W. Verschueren, the Belgian representative and elected chair at the ESA Science Programme Committee. He discussed the latest developments concerning the different ESA Pro- grammes:

- Josef Aschbacher has taken office as new ESA Director General and has published his vision document “ESA Agenda 2025”.
- The Science Programme has obtained the special authorization to use part of the budget of 2023-2024 already in 2022. The ARIEL mission (atmospheres of exoplanets) has been adopted. The ENVISION mission to Venus is selected as Medium-mission M5. This mission has a Belgian PI instrument for atmospheric chemistry. The proposed scientific themes for the large missions are the Moons of the giant planets, the characterization of temperate exoplanets, the galactic ecosystem with NIR astrometry, the gravitational waves and the CMB spectroscopy and polarization.
- The Space Exploration Programme contains technology developments and the preparation of missions to the Moon and Mars, including the EXOMARS-2022 rover mission, the Mars Sample Return mission, and the preparations for Moon exploration (assembly of a lunar gateway, European astronaut on the Moon, in-situ research).
- The Space Safety Programme sees the continuation of the Belgian involvement with the LAGRANGE mission (monitoring of the Sun-Earth line and development of space weather applications and services led by Belgium) and the HERA mission (strong Belgian industrial participation and Belgian PI of the gravimeter instrument).
- The PRODEX Programme runs 85 projects. A new envelope is expected at the Ministerial Council end 2022 for 2024-2026; BELSPO aims at the same yearly budget level of 25 MEUR.

[d] Astronomy and Astrophysics (A & A)

Matters related to A&A were reported by R. Van der Linden, the Belgian delegate in the A&A Board. The Board has decided to create an A&A award that will be given to the best PhD and young post-doctoral works published in Astronomy & Astrophysics. The announcement has been issued and will be promoted in several forthcoming international conferences.

[e] Miscellaneous matters

A new BNCA website, developed by UGent, has been released, it is available at <http://www.bnca.be>.

The BNCA website is available at <http://www.bnca.be>.

FNRS and FWO both agree to represent the entire Belgian community at the European Astrobiology Institute and

at ASTRONET respectively. This marks a positive end to a long-standing issue.

The work-in-progress status of the Belgian Astronomical Society that BNCA agreed to create has been presented and discussed. The creation of a vzw / asbl requires to define legal statutes. It is decided to establish a working group (R. Alvarez, M. Baes, A. Jorissen, K. Kolenberg, G. Rauw) that will propose a consolidated version of the statutes to the committee.

The Belgium-India partnership continues with the selection of 3 Belgian applications by the Belgian committee of allocating time for the Devasthal Optical Telescope for Cycle 2021-C1. A discussion about issuing a new call for bilateral collaboration has been started with Indian colleagues, and it was suggested to include other fields in space research.

The BNCA is concerned of the possible effects of massive satellite constellations on optical and radio observations from Earth. The President has exchanged with the contact person at Belspo about the dark skies preservation problem resulting in three documents that have been shared with the BNCA members. The interest to write a “carte blanche” to be published in newspapers is presented and agreed.

NATIONAL COMMITTEE BELQUA (QUATERNARY RESEARCH)

INTERNATIONAL UNION: INTERNATIONAL UNION FOR QUATERNARY SCIENCE (INQUA)

1. Introduction, missions, goals

BELQUA is the Belgian contact for INQUA, the International Union for Quaternary Science. The purpose of BELQUA is to support and increase the visibility of Belgian research on various aspects of the Quaternary period, either conducted in Belgium or by Belgian scientists abroad. BELQUA also aims to encourage young researchers and to promote scientific communication. It covers all research fields related to Quaternary science.

2. Meetings of the Committee

[a] Meeting of the NC on 02/06/2021 (online)

The online BELQUA NC meeting in June 2021 was attended by 10 out of the 14 active NC members. The main achievements and conclusions of the meeting were as follows:

- The organisation of a special BELQUA session during the 7th Geologica Belgica symposium (15-17 September) was discussed. The symposium will be organised at the Africa Museum in Tervuren. Nathalie Fagel will convene the special session and will summarize the activities of BELQUA during a short presentation preceding the session.
- The organisation of the second BELQUA training school was discussed. In 2019, a training school was organized on dating the Quaternary by several BELQUA members. This training school has received very good feedback from several participants and it was therefore decided to organise a second school in 2022. The organisation will be led by Veerle Vanacker. The topic will again be on dating the Quaternary. It will be a four day's event (Tuesday-Friday) in early October. The training school will be hosted at the academy and the planning and concept will remain the same as that of the previous one. However, if possible, more time could be foreseen for the practical exercises. It will provide lectures and practical exercises on radiocarbon dating, dendrochronology, varve counting, thermoluminescence and optically stimulated luminescence dating, electron spin resonance dating, U/Th dating and speleothem dating, cosmogenic nuclide dating, and age-depth modelling.

The organisation of the yearly BELQUA workshop in 2022 was discussed. It was agreed that Vanessa Heyvaert and Bea Decupere will organise the workshop. They already prepared the workshop in 2020 which was cancelled due to COVID-19.

[b] Meeting of the NC on 19/11/2021 (online)

The online BELQUA NC meeting in November 2021 was attended by 9 out of the 14 active NC members. The main achievements and conclusions of the meeting were as follows:

- Nathalie Fagel gives an overview of the special session organized during the 7th Geologica Belgica symposium. The session was attended by 30-40 participants. BELQUA was presented during a short presentation. Particularly early career scientists attended the session. They will be contacted and asked whether they are interested to be subscribed to the BELQUA email list.
- The organisation of the yearly BELQUA workshop is discussed. Because the situation related to COVID-19 is still unclear, it was decided to aim for the organisation of a physical meeting but be flexible to shift it to an online event. The keynote speaker (Prof. Sue Dawson) will be contacted, and a doodle poll will be sent to the NC members for finding a suitable date in March 2022.
- An invitation was received from the Association française de étude du Quaternaire for co-sponsoring their workshop in 2022. Because our funds are limited, it was decided not to co-sponsor this event and rather organise our own workshop in March (see above).
- Veerle Vanacker gives a state of the affairs of the organisation of the training school. Several colleagues who gave lectures during the previous workshop are now retired. The topics for which lecturers need to be found were identified. For each of these topics several international experts were proposed. Veerle Vanacker will contact these experts and ask whether they are happy and available to give a lecture (and/or hands-on workshop) during the training school.
- The election of the new board and committee in March 2022 was prepared. The president will contact all members and ask whether they are willing to be a NC member for the next four years.

3. General Assembly of the Scientific Union

There was no general assembly of INQUA in 2021. The next general assembly will be organised in 2023 during the INQUA conference in Italy. Information from INQUA (e.g. the Newsletter, and the table of contents of its journal 'Quaternary International') was distributed via the BELQUA e-mail list.

4. Other activities

No additional activities took place in 2021 due to the measures taken to reduce the spread of COVID-19.

5. Future perspectives

- Preparation of a BELQUA workshop aimed at MSc and PhD students (March 2022).
- Organisation of the second training school on dating the Quaternary (October 2022).

NATIONAL COMMITTEE FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY

INTERNATIONAL UNION: INTERNATIONAL UNION OF BIOCHEMISTRY AND MOLECULAR BIOLOGY (IUBMB)

1. Introduction, mission, goals

The goal of the “Belgian Society for Biochemistry & Molecular Biology” is to promote research in the field of Biochemistry and Molecular Biology, by organizing meetings, participating at meetings, sponsoring meetings and inviting outstanding internationally renowned scientists. It also disseminates information to the community on national and international events, access to funding for PhD, Postdoc positions and mobility for junior as well as more senior scientists. The society also promotes participation to international committees and federations (e.g. FEBS, IUBMB, ...).

Because of the increasingly interdisciplinary nature of the biological sciences, the society strives to increase cross disciplinary meetings, symposia together with sister societies and other National Committees.

Because of the common goals, the members of the National Committee on Biochemistry and Molecular Biology are also member of the board of the Belgian Society of Biochemistry and Molecular Biology and as such are actively involved in the preparation and organization of all the activities of this Society and of the National Committee and often of others as well.

2. Meetings of the Committee

The Covid-19 pandemic, with its cohort of ever changing national and international sanitary restrictions did not allow the society to the organize meetings, symposia, and other face to face activities in 2021.

Furthermore, the board members were all under heavy academic overload complying with the increased workloads of teaching with the mixed face-to-face and virtual teaching obligations.

We therefore are hoping that 2022 will now allow us to organize events in the course of 2022. We will be holding another board meeting in February or March in this respect.

The Society held a board meeting on 9 December 2021 to get the Society back on track.

First two new board members were elected to represent the universities of Antwerp and KULeuven, for which the positions were vacant.

The basis for new activities to initiate as of 2022 and the “upgrading” of the Societies activities to respond to changes in the scientific community were discussed and several ideas were put forth to

develop in the next few months. Initial plans to organize a meeting in 2022 were made and initiate the organisation of a Biochemical Joint meeting with National Biochemical Societies from neighboring countries (through the FEBS3+ Resource Tool (The FEBS3+ Meetings programme was established to support Scientific Meetings organized in collaboration by 3 (or more) FEBS Constituent Societies³).

3. General Assembly of the Scientific Union

Jason Perret represented the Belgian Biochemical Society as the Belgian Delegate to the FEBS 61st Council meeting (October 21st, 2021)

4. Other activities

[a] January 2021 20th, 25th & 26th (Wrap-up 21 May): Jason PERRET was part of the evaluation committee, as the international expert, for the Portuguese Agency for Higher Education Evaluation (A3E) to assess the PhD programme on Chemical and Biological Sciences University of Trás-os-Montes and Alto Douro (UTAD)

[b] May 2021 Thursday 20th: Jason PERRET attended the 5th Biochemistry Education Ambassador - EduCom Meeting (Program Annex 1), representing the Belgian Biochemical Society and giving a talk on using Onenote for interactive remote oral exams.

[c] June 2021 Tuesday 15th & Wednesday 16th: Jason Perret participated as an invited speaker to the FEBS Young Scientist Forum (YSF) Virtual Meeting and gave a talk followed by a practical workshop on *“Value of a Well-Run Lab Book”*.

[d] July 2021 Wednesday 7th: Jason Perret chaired a session at the FEBS 45th Congress during the Special Session on Education (talk *“The postdoc experience - hopes, fears, expectations and reality”* by *Geula Hanin, UK*).

[e] November 2021 Thursday 11th & Friday 12th: Jason Perret gave a talk, as an invited speaker and animated a practical session during the workshop held online on *“Education Workshop on Excellent Lab Book for an Excellent Career”*.

[f] December 2021 Friday 10th & Saturday 11th: Jan Gettemans gave an invited talk at the *“Virtual International Symposium on Immunoanalytical Technologies for Environmental Monitoring and*

³ <https://www.febs.org/our-members/support-for-members-of-constituent-societies-events/guidelines-for-febs3-meetings/>

Human Health (Beijing), entitled *“Incorporation of the non-canonical amino acid Azido-Phe in nanobodies: strategy and purpose”*, organized by prof. Ting Xiu (College of Resources and Environmental Sciences, China Agricultural University, China).

[g] November 2021: Monday 15th – Friday 20th: Geert-Jan Graulus attended the virtual TERMIS World conference (Tissue Engineering and Regenerative Medicine International Society).

NATIONAL COMMITTEE FOR BIOMEDICAL ENGINEERING

INTERNATIONAL UNION: INTERNATIONAL UNION FOR PHYSICAL AND ENGINEERING SCIENCES IN MEDICINE (IUPESM).

1. Introduction, missions, goals

Biomedical Engineering is the multidisciplinary field concerning Engineering research, developments and applications in (bio)medicine.

The Belgian National Committee on Biomedical Engineering aims to bring together the Belgian academics, students, researchers and professionals, active in the broad field of biomedical Engineering.

The aims of the National Committee are:

- Stimulating scientific and educational interactions
- Linking with international organizations and societies
- Representation of the Belgian academic point of view
- Setting up a forum for interested students and professionals.

2. Meetings of the committee

Meeting: June 25th, October 27 (online)

- Various other meetings in smaller groups between the vice-chairs, secretary, youngster committee have been held to discuss about the alternatives for the organisation of the national day. After many interactions and online questionnaires, it was decided to postpone the ND-BME to May 2022 or December 2022.
- Preliminary program for the ND-BME has been discussed in detail. See details below.
- Topics of the 25/06/2021 meeting.
 1. Debriefing of the online conference of the National Day of BME of 2020
 - a. 379 registrations, 76% of respondents attended all sessions during the online event. The conclusion was that a large majority liked the online event, but the survey also learned us that almost 80% wanted to have again a physical full-day event! Other minor questions have been analyzed during the survey with e.g. important findings:
 - i. The introduction of e.g. video abstracts is very attractive.

- ii. More topical sub-groups of presentations, in order to have focused sessions
 - b. “GOLD” status sponsoring from three companies
- 2. Impact of European University Alliances for the domain of BME
- 3. International conference organisations in Belgium. Two proposals have been
- 4. discussed
 - a. EMBEC-2026 in Gent, Belgium
 - b. WC-2028 in Brussels, Belgium

The NCBME opted for the latter organisation, as the EMBEC conference was the last time organized in Belgium, Antwerp in 2008. The last time the WC has been organized in Belgium was 1963, and 2028 looked very attractive to organize again the conference in Europe. 2028 is also an interesting year as that year the EC will launch the new EU framework program in Brussels for the period 2028-2034. An excellent coincidence to promote from the capital of Europe this new framework program with special attention to the field of BME and Medical Physics.

3. General Assembly of the Scientific Union

No General Assembly in 2021.

4. Other activities

[a] Belgian Day on Biomedical Engineering

Due to the corona pandemic the organisation of this annual contact forum could not be held. It was originally planned at the end of November 2021, then postponed to February 15th, 2022, but again has been cancelled.

A new date will be discussed during the first meeting of February 15th. Proposals are for May 2022 or December 2022

[b] Collaboration with beMedTech

Thanks to the collaboration with beMedTech, an evaluation of the complete biomedical engineering sectoral presence: in education, in research, and in the professional context has been continued. MedTechFlanders was founded in July 2015 and enlarged membership of start-ups and scale-ups in the medical device industry (representing more than 200 companies).

[c] Liaison with worldwide societies/activities:

- Contacts between the National Committee, the International Federation IFMBE, the Union (IUPESM) and ISC and EAMBES
 - via Marc Nyssen. (fellow of the International Academy for Biomedical Engineering), member of the ISC “World Data System Scientific Committee);
 - via Johan Stiens within the EU-framework Eutopia with the Prof. Dr. Leandro, Pecchia of the University of Warwick, President-elect of EAMBS, Treasurer of IFMBE, Secretary-General of IUPESM.
- Contacts between the National Committee and EAMBES (European level umbrella organisation) via Jos Vander Sloten, EAMBES fellow.
- Contacts between the National Committee and MedTech Flanders via Pascal Verdonck.
- Contact between the National Committee and beMedTech, the professional umbrella association, with industry members of the biomedical sector via Pascal Verdonck.
- Contact between the National Committee and IEEE-EMBS (the IEEE Engineering in Medicine and Biology Society) and its Benelux chapter via Sabine Van Huffel.

[d] Submission of a bid for the organisation of the World Conference on Medical Physics and Biomedical Engineering in 2028 in Brussels.

As discussed during the NC-meeting, one of the future goals was to unite all the expertise in the domain of Biomedical Engineering in Belgium and to advertise it to the rest of the World as a centre of excellence by submitting a bid to host the organization of the World Conference on Medical Physics and Biomedical Engineering in 2028 in Brussels. This WC is organized only every 3 years by the IUPESM, the International Union of Physical and Engineering Sciences in Medicine, which itself is a member of the International Science Council (since 2018) of the United Nations.

IUPESM organizes this triennial conference as co-organization of the IFMBE, International Federation of Medical and Biological Engineering and the IOMP, international Organization on Medical Physics. This can be considered as one of the largest gatherings of medical physicists and biomedical engineers in the world.

The bid was co-submitted by the BSMBEC-NCBME, the BHPA (The Belgian Hospital Physicists Association, <https://www.bhpa.eu/>) and the IEEE-EMBS-Benelux, <http://www.embs-chapter.be/>. The following years we will defend the bid for the organisation of the WC-2028 in Belgium. The proposed location for the conference in Brussels is the Square, where we target to accommodate +2000 participants.

5. Future perspectives

The committee aims at expanding the involvement of students and of captains of industry in the Committee's future activities.

As there are now 5 Master programs in Biomedical Engineering (UGent/VUB, KU Leuven, ULB, UCL, ULiège), the Committee aims to become the meeting place for communication between these programs (also for the PhD's linked to the master programs), in order to strive to a full recognition of the title “Master of Science in Biomedical Engineering”.

Keeping in contact with the alumni. A “Youngsters Board” was set up successfully in 2010 and was fully operational since 2011 and renewed in 2015, 2016, 2018, 2019, 2020 and 2021.

The members of the “Youngsters Board”:

- Dries Hendriks (general coordinator)
- Virginie Otlet (finance)
- Jonathan Dan (website)
- Tim Bombarna
- (Social media & PR)
- Mojtaba Barzegari (Scientific coordinator)
- Sophie Bekisz (Secretary)
- Alexandra Titz (Social media & PR)
- Gilles Decroly (Practical Coordinator)
- Mahta Mazloumi (Scientific coordinator)

6. Clarification of abbreviations

- IFMBE: International Federation for Biomedical Engineering: the “World Federation”
- IUPESM “International Union for Physics and Engineering Sciences in Medicine”, the UNION of which the IFMBE is 1 of the 2 components.
- EAMBES: European umbrella association, regrouping societies and teaching/research departments
- ESEM: European Society for Biomedical Engineering
- EAMBES: European Alliance for Medical and Biological Engineering and Science
- ISC: International council of scientific unions (links with national Academies)
- IEEE: Institute of Electrical and Electronic Engineers
- EMBS: Engineering in Medicine and Biology Society

NATIONAL COMMITTEE FOR BIOPHYSICS

INTERNATIONAL UNION: INTERNATIONAL UNION FOR PURE AND APPLIED BIOPHYSICS (IUPAB)

1. Introduction, mission, goals

The Committee for Biophysics is an extension of the Belgian Biophysical Society. Its aim is to promote biophysics in Belgium (mainly through the organisation of scientific events), to represent Belgium at EBSA meetings and to be a point of contact for our colleagues abroad. The interests of its members include protein folding and misfolding, biomolecular dynamics, biomechanics, advanced imaging methods, among others. Both theoretical and experimental approaches are considered.

2. Meetings of the Committee and the Belgian Society

Dates: 9 December 2021

Main conclusions:

- Despite covid we managed to organise several well attended activities including a series of webinars which turned out to be particularly fruitful as we also managed to attract new attendees. We'll continue with webinars in 2022.
- Discussion of upcoming events for 2022 (see below).
- We'll have to organise an election of a new board by the end of 2022 as the current board's term ends in December 2022. We'll strive to achieve a better gender balance, a wider reach of biophysical topics and strengthen the links with scientists in industry.

3. General Assembly of the Scientific Union

No General Assembly in 2021, due to covid-19.

4. Other activities

We had a successful webinar series on various biophysical aspects of covid-19, the annual protein folding meeting in Liège and the membrane proteins meeting in Namur. All events attracted a good number of participants.

5. Future perspectives

The following meetings will be organized in 2022 (depending on the covid situation):

- A workshop on protein structure prediction and deep learning techniques with a critical assessment of the usefulness, the challenges, and a SWOT of the different methods. The prediction of complexes and the implementation of this techniques in protein engineering could also be part of the programme. We'll organise this workshop early 2022 as a series of weekly webinars.
- Annual folding meeting on 2 September in Liège.
- A 1- or 2-day Belgian biophysics meeting at the Academy in autumn 2022. The aim would be to have nice view on the biophysical landscape in our country and reach out to scientists who normally wouldn't attend our events.
- We will also support a 2-day workshop on Engineering of Functional Surfaces (EnFI) at the University of Maastricht.

NATIONAL COMMITTEE FOR CHEMISTRY

INTERNATIONAL UNION: INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY (IUPAC)

1. Introduction, mission, goals

The National Committee for Chemistry represents Belgian scientists carrying out their research in the field of pure and applied chemistry. It is made up of active members in the industrial and academic world, as such there are representatives of professional societies, education regardless of its degree level and the chemical industry. The committee is set up on a parity basis from a linguistic point of view and meetings take place in English.

Chemistry is the science which is at the center of many other fields such as life sciences, materials etc. Chemistry is also a vital industrial activity for our country both economically and socially. We meet its actors in schools, colleges, universities, companies, SMEs, multinationals, start-ups, collective research centers, regional administrations, European institutions ... They are represented by associations such as learned societies (KVCV, SRC), Jeunesses Scientifiques, Jeugd, Cultuur en Wetenschap, the “Chemistry Olympiads”, Mémosciences or “professional” and lobbying organizations such as, among others, Essenscia and CEFIC.

The role of the National Chemistry Committee is to promote and coordinate for Belgium the study of the various scientific disciplines in the field of chemistry, to catalyze contacts and collaboration between chemistry and other disciplines, to promote IUPAC (International Union of Pure and Applied Chemistry) in Belgium and to represent Belgian chemists in IUPAC.

2. Meetings of the Committee

During the first online meeting on 12 May 2021, the resignation of Christian Vandercammen and Robert Schoonheydt was noted, and their replacement was discussed (preferable at least one new member should be employed in the chemical industry). The theme of the science day for pupils selected for the second rounds of the Science Olympiads, originally scheduled in May 2020, was fixed as “Science for the citizens” and possible lecturers were discussed. It was proposed to contact the Youth Division of both KVCV and SRC for suggestions for flash presentations by young speakers. The date and location of the event were fixed (23 April 2022, Academy Palace Brussels) and L. Van Meervelt will submit an application for funding by the Fonds Ernest Solvay. R. Cornelis gave an update of the IUPAC activities and will represent Belgium at the virtual IUPAC General Assembly meetings on 13, 14 and 15 August 2021.

The online meeting of the Committee on 21 December 2021 started with approval of the nominations of Alain Collas (Janssen Pharmaceutica) and Laurent Provins (UCB) as new members. A provisional timetable of the science day on 23 April 2022 was discussed (proposed speakers F. Fierens, S. Caluwaerts and B. Meseure, Y. Alexiou and B. Van Tiggelen, K. Janssens. Funding by the Fonds Ernest Solvay was confirmed as well as the presence of the XperiLab.be truck. Further news from IUPAC and the virtual General Assembly was given by R. Cornelis. A fully revised on-line edition of the IUPAC Gold Book (term definitions) is underway by specialists from all Divisions and Committees.

All members receive electronic copies of Chemistry International (appears 4x/year) with the latest news from IUPAC (provided by R. Cornelis) with the request to distribute the issues further at their institutions.

3. General Assembly of the Scientific Union

The next IUPAC General Assembly will take place in The Hague (20-25 August 2023).

4. Other activities

Given the pandemic the science day ‘Science for the citizens’ originally scheduled in May 2020 has been postponed first to 2021 and later to 2022.

R. Cornelis is past president of division VII Chemistry and Human Health of IUPAC. Paul Baekelmans is member of the Committee on Chemistry and Industry of IUPAC.

In 2021 B. Van Tiggelen has published two articles in the IUPAC journal Chemistry International (book review The Periodic System: The (Multiple) Values of an Icon, and interview of Ted Becker about restructuring IUPAC at the turn of the 20th century).

5. Future perspectives

The committee wishes to continue its efforts to further promote IUPAC in Belgium at universities and high schools, as well as to participate in the projects and events organised by IUPAC.

The committee will promote chemical sciences to pupils of secondary schools by the organization of a science day “Science for the citizens” on 23 April 2022 in collaboration with the Science Olympiads and other partners.

NATIONAL COMMITTEE FOR CRYSTALLOGRAPHY

INTERNATIONAL UNION: INTERNATIONAL UNION OF CRYSTALLOGRAPHY (IUCr)

1. Introduction, mission, goals

Crystallography is the study of the atomic and molecular structure of diverse substances using microscopy and diffraction techniques in order to understand the relationship between atomic structure and properties of these materials.

The objectives of the National Committee of Crystallography are to promote collaboration in crystallography, to contribute to all aspects of crystallographic research, to catalyze the relations of crystallography to other sciences, to promote crystallography for the general public, and to represent Belgian crystallographers in international associations such as ECA and IUCr.

The committee has its own web site⁴ which is administered by Johan Wouters, and organizes an annual crystal growing competition for pupils at secondary schools and a biannual Belgian Crystallography Symposium BCS. Furthermore, the committee has a sub-committee on crystal growth.

2. Meetings of the Committee

The first meeting took place on 3 March 2021 as an online meeting. The last practical tasks for the Belgian Crystallography Symposium BCS-11 (17 March 2021) were reviewed (introduction speakers, members judging panel poster presentations and flash presentations, ...). Only a small number of schools took effectively part in the Belgian Crystal Growing Competition 2021. Some arrangements for judging the submitted crystals were discussed. Due to the COVID-19 pandemic no lectures in the context of 'Invite a crystallographer' have been organised. Dominique Maes has reported on the delay of the activities of the Subcommittee for Crystal Growth (International Workshop on Crystal Growth of Organic Material rescheduled on 17-21 September 2022 and Solvay workshop on Nucleation delayed to 7-9 December 2022). The Belgian representation for the IUCr General Assembly Meeting in Prague (shifted to August 2021) was agreed (Y. Filinchuk, chair, and J. Hadermann). Finally, the composition of the committee was confirmed and a new executive committee was elected (president J. Hadermann, vice-president B. Vertruyen, secretary L. Van Meervelt, adjunct-secretary J. Wouters).

During the second meeting on 13 October 2021 (again online due to pandemic) an evaluation of the online edition of the Belgian Crystallography Symposium BCS-11 was made (17 March 2021).

⁴ sites.google.com/site/xallobe

The technical support by UNamur was highly appreciated by the 120 registered participants, as well as the scientific level of the lectures, poster and flash presentations. In preparation of the 2022 edition of the Belgian Crystal Growing Competition the time schedule was confirmed. One lecture 'Invite a crystallographer' was planned (D. Maes, Sint-Barbaracollege Gent). The laureates of the 2020-2021 edition of the crystal growing competition have received a voucher for a similar lecture. The other prizes will be awarded during the ceremony of the 2022 edition. Members of the Subcommittee on Crystal Growth announce that the Solvay Workshop "Crystallization of organic molecules: from 2D to 3D" will take place 21-23 March 2022. Y. Filinchuk has reported on the meetings of the IUCr General Assembly, and the European Crystallographic Association Council Meetings held in August 2021.

3. General Assembly of the Scientific Union

The hybrid General Assembly meetings of the IUCr took place on 14-22 August 2021. For Belgium these meetings were attended by Y. Filinchuk (present in Prague) and J. Hadermann (online participation) as Belgian delegates and L. Van Meervelt as General Secretary and Treasurer.

The next General Assemblies will be held during the IUCr Meetings in Melbourne (2023) and Calgary (2026).

4. Other activities

The National Committee of Crystallography has organized in 2020-2021 with support of both academies and sponsor Acros Organics the twentieth edition of the Crystal Growing Competition for pupils of the secondary schools (see web site <http://chem.kuleuven.be/bcc/>). For this edition participants should grow co-crystals of α -D-glucose and sodium chloride. Only a limited amount of crystals has been submitted and the laureates have been announced in September on the website. The official prize awarding ceremony will take place simultaneously with that of the 2022 edition.

The National Committee of Crystallography has organized on 17 March 2021 the Eleventh Belgian Crystallography Symposium BCS-11 as an online event (more details in Appendix).

Until the end of August 2021, Frédéric Hatert was member of the IUCr Commission Inorganic and Mineral Structures and Joke Hadermann was consultant of the IUCr Commission Aperiodic crystals and Electron Crystallography. Luc Van Meervelt has participated as General Secretary and Treasurer to the meetings of the IUCr Finance Committee and IUCr Executive Committee (on-line meetings).

Since September 2021 the following Belgian scientists are member of an IUCr commission:

- Aperiodic crystals – Joke Hadermann (consultant)
- Crystallographic nomenclature – Luc Van Meervelt
- Crystallography in art and cultural heritage – Koen Janssens
- Electron crystallography – Dirk Van Dyck (consultant), Joke Hadermann (consultant)
- Journals – Luc Van Meervelt
- Mathematical and theoretical crystallography – Joke Hadermann

L. Van Meervelt continues as member of the IUCr Finance Committee.

Dominique Maes is member of the Executive Committee of the International Organization for Crystal Growth.

Yaroslav Filinchuk is chair of the Special Interest Group on Crystallography under Extreme Conditions of the European Crystallographic Association.

5. Future perspectives

- Organisation of the interrupted twenty-first Belgian Crystal Growing Competition in 2022 (see chem.kuleuven.be/bcc)
- Organisation of the 12th Belgian Crystallography Symposium BCS-12 (2023)
- Organization Solvay workshop “Crystallization of organic molecules: from 2D to 3D” (21-23 March 2022, Brussels) by subcommittee on crystal growth.
- Organization of International Workshop on Crystal Growth of Organic Materials CGOM (17-21 September 2022, Brussels) by subcommittee on crystal growth
- Organization Solvay workshop “Nucleation: multiple pathways, multiple outcomes” (7-9 December 2022, Brussels) by subcommittee on crystal growth.

NATIONAL COMMITTEE FOR GEODESY AND GEOPHYSICS

INTERNATIONAL UNION: INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS (IUGG)

1. Introduction, mission, goals

The BNCGG serves as a link between IUGG and the Belgian scientists working in the fields of Geodesy and Geophysics. This activity reaches a climax every four years at the IUGG general assembly. The BNCGG is then charged to propose to the Academy the national delegates to IUGG and to its eight Associations:

- International Association of Cryospheric Sciences (IACS);
- International Association of Geodesy (IAG);
- International Association of Geomagnetism and Aeronomy (IAGA);
- International Association of Meteorology and Atmospheric Sciences (IAMAS);
- International Association of Hydrological Sciences (IAHS);
- International Association of the Physical Sciences of the Ocean (IAPSO);
- International Association of Seismology and Physics of the Earth Interior (IASPEI);
- International Association of Volcanology and Chemistry of the Earth Interior (IAVCEI).

In the meantime, the BNCGG organizes regularly conferences by known Belgian or foreign scientists.

The BNCGG tries also to encourage the participation of young scientists to the IUGG General Assemblies by attributing grants.

Belgium was among the 9 countries that established the International Union of Geodesy and Geophysics (IUGG) on July 28, 1919 in Brussels. The Belgian National Committee for Geodesy and Geophysics (BNCGG) was created shortly after in 1921. The running expenses were covered until 1950 by the National Cartographic Institute and later on by Royal Academy of Belgium, now split into the "Koninklijke Vlaamse Academie van België voor Wetenschappen en Kunsten" and the "Académie royale des Sciences, des Lettres et des Beaux-Arts de Belgique".

In parallel with the BNCGG, exists since 1955 an "Association sans buts lucratifs de droit belge" called "Comité National Belge de Géodésie et de Géophysique, Bruxelles". It is charged to administrate the finances of the Committee.

2. Meetings of the Committee

The traditional annual BNCGG General Assembly has been held on January 21 Through WEBEX. The GA was preceded by a presentation by Dr. Eric Pottiaux (ROB).

Presentation by Dr. Eric Pottiaux, Royal Observatory of Belgium – Solar-Terrestrial Centre of Excellence (STCE). Title: " GNSS for Meteorology and Climate: Review and Perspectives "

Atmospheric water vapour is a key parameter in meteorology and climate as it strongly influences atmospheric dynamics and the hydrologic cycle through surface evaporation, latent heat transport and diabatic heating, and is, in particular, a source of clouds and precipitation. It is also the most important natural greenhouse gas and is responsible for the largest known feedback mechanism for amplifying climate change. However, atmospheric water vapour is highly variable, both in space and in time, and measuring it remains a demanding and challenging task.

If Global Navigation Satellite Systems (GNSS), such as the American system GPS (Global Positioning System) and its European counterpart Galileo, have been primarily designed with the mission to provide users with Positioning, Navigation, and Timing (PNT) services, they are also capable of remotely sensing the atmospheric water vapour. By using GNSS data recorded in permanently observing stations, one can derive the atmospheric water vapour (albeit the use of meteorological variables) at high temporal resolution and under all weather conditions. In addition, the number of permanent GNSS stations has significantly increased over the last two decades, with today about 5000 GNSS stations in Europe. GNSS has thus gradually become an important source of information for European weather forecast centres. Today, GNSS meteorology is a mature technique with products being assimilated operationally in Numerical Weather Prediction (NWP) models. Still, concurrent progresses in the geodetic and meteorological communities over the past decade, opened space for the development of new and enhanced GNSS products to contribute improving weather forecasting. This includes products representing the asymmetry of the atmospheric water vapour distribution, water vapour maps, and real-time products for nowcasting of severe weather.

Aside from these latest developments in GNSS meteorology, the use of GNSS for climate research also gained interest recently in Europe. Indeed, with 24+ years of continuous observations in some of the GNSS permanent stations, on-going GNSS reprocessing efforts using state-of-the-art models will provide consistent time series of atmospheric water vapour content which are reaching the "maturity age" of 30 years typically requested for climate research. However, even with a careful reprocessing, inconsistencies in the GNSS time series due e.g. to instrumental and environmental changes at GNSS stations may remain, and make climate trend analysis challenging. A homogenisation process of these time series is thus necessary and a benchmarking activity of

existing statistical homogenisation methods has been carried out in Europe. While waiting for these new reprocessed time series, the current length of the GNSS-derived time series already allows the evaluation of re-analysis and of climate models such as it was done in the CORDEX.be project or with the ALARO-0 model.

In this presentation, we review the progresses made in and the status of using GNSS for meteorology and climate, highlighting the challenges and pitfalls, and outlining the major steps remaining ahead.

3. General Assembly of the Scientific Union

No IUGG General Assemblies were organized in 2021.

- Carine Bruyninx participated to the IAG Scientific Assembly (virtual), June 28 – July 2, 2021 and co-chaired the session “Regional reference frames and networks”.
- Carine Bruyninx participated to the EUREF 2021 Symposium (virtual), May 26 – 28, 2021, co-chaired the session “Networks: EPN, UELN, Densification” and organised the splinter meeting “Toward FAIR GNSS data”.
- Carine Bruyninx, as national representative to the IAG, participate to the meeting of the IAG Council on Sept. 30, 2021 (virtual).
- Thomas Lecocq has been confirmed as the Belgian Titular Member for the European Seismological Commission for the two administrative periods covering 2020 and 2022 (Letter sent 10 Feb. 2021).
- A.C. Vandaele, as Vice-chair of the ICPAE committee (sub-committee of IAMAS), participated to the ICPAE activities (setting-up of a regular webinar, proposition of a session during the 2023 IUGG General Assembly, search for new members).

4. Other activities

Due to COVID, no other meetings were organized in 2021.

5. Future perspectives

[a] The next BNCGG General Assembly is planned on Thursday January 20, 2022

[b] The next European Geophysical Union (EGU) conference will be held in May 2022.

[c] The next American Geophysical Union (AGU) Fall meeting is planned in December 2022 in Chicago, USA.

[d] Some Association meetings which were supposed to be organized in 2021 were postponed to

2022 and 2023:

- IAVCEI meeting, Rotorua, New Zealand, POSTPONED, 30 January – 3 February 2023
- IAHS meeting, Montpellier, France, POSTPONED, 29 May- 3 June 2022
- IUGG General Assembly will be held in 2023 in Berlin; ACV is organizing a ICPAE Session

NATIONAL COMMITTEE FOR GEOGRAPHY

INTERNATIONAL UNION: INTERNATIONAL GEOGRAPHICAL UNION (IGU)

1. Introduction, mission, goals

The objectives of the Geography Committee are similar to those of the other national committees: to promote the quality of teaching and research and to establish close collaborations with the best representatives of the discipline at the international level.

During its regular meetings, it carefully monitors the development of course programs, teaching methods and methods, inspection standards, scientific investigation techniques and methods of funding research. When it deems it necessary, the Committee intervenes with the authorities concerned, to avoid or limit certain excesses or to promote promising initiatives.

At the international level, the Committee's mission is to ensure the best contacts with foreign geographers. Every four years, an official representative of Belgium, a member of the Committee, actively participates in the deliberations and votes of the General Assembly of the International Geographical Union, thus maintaining the historical links between Belgium and this international institution. It was in Antwerp that the very first international geography congress was held in 1871. It was in Brussels in 1922 that the International Geographic Union was founded. Professor Michotte was elected general secretary of the Union in 1938. He was succeeded by Mrs. Lefèvre who then became vice-president of the U.G.I. On the occasion of international congresses organized by the Union, the Committee takes care to disseminate reasoned inventories of Belgian geographic research and geographic presentations of Belgium.

The committee also has three sub-committees:

- The National Committee has continuously published the Atlas of Belgium since 1948, first on paper and today in digital format. To this end, he established the Permanent Commission for the Atlas of Belgium.
- The Cartography and Geographic Information Systems (GIS) sub-committee is made up of representatives of public organizations and the academic world with a geographic profile, active in the field of cartography and geographic information. This committee represents Belgium in the International Cartographic Association (ICA) and regularly organizes activities promoting cartography and GIS in Belgium, aimed at both professionals and general public.

- The geomorphology subcommittee (Belgian Association of Geomorphologists) represents Belgium with the International Association of Geomorphologists (IAG / AIG).

2. Meetings of the committee & activities

The National Geography Committee met 3 times in 2021, on the following dates:

- February 6, 2021 (by videoconference)
- June 05, 2021 (by videoconference)
- October 16, 2021 (by videoconference)

A new meeting plan has also been established: 2 meetings by videoconference, during the week at the beginning and end of the calendar year and a face-to-face meeting in May or June.

The main topics discussed during the various meetings are:

[a] Position of geography in secondary schools

As part of the reform of the program on both the Dutch and French-speaking sides, as well as the reform of initial teacher training on the French-speaking side, the committee was particularly attentive to developments. It was a place of information and exchange, but also a relay for various mobilizations aimed at maintaining a sufficient contribution of geography to the training of young people.

Currently, the standards are in the process of being approved (even if on the French-speaking side they are still the subject of numerous comments, as well as by the umbrella organization of Catholic education in Flanders, on which a decision of the Council of State is expected) and the organizing authorities have begun to translate them into programmes. It should be noted that the teacher associations, permanent guests at the CNG, are beginning to develop tools to support teachers in the field in implementing the new orientations.

[b] Evolution of the training offer in universities

During 2021, the Committee took stock at each meeting of the progress of the implementation of the reforms of the initial training of teachers in geography, both on the Dutch-speaking and French-speaking side.

[c] Doctoral schools

The situation of doctoral schools is markedly different for Dutch-speaking and French-speaking universities. For the former, doctoral schools are organized by university, with geographer doctoral

students most often found in natural science schools. In the French community there is a transversal structure organized by discipline and not by university.

In 2018, at the request of the Committee, French-speaking colleagues set up a doctoral school to have a training offer, but also to increase the visibility of geography with the FNRS (representation with the commissions). Activities will begin as soon as face-to-face activities are possible. The survey carried out in early 2021 among doctoral students highlighted their interest in discussion and exchange activities as well as dealing with aspects of valorization more than in training on scientific publication or dissemination *sensu stricto*. The program will therefore be designed to take these demands into account.

[d] BeGeo Annual Geographical Information Congress

The National Geographic Institute organizes BeGeo annually, a national congress with a trade fair devoted to geographic information, bringing together public authorities, the private sector and the world of research. Via the cartography and GIS sub-committee, the National Committee is called upon both to contribute to the conference program and to promote the participation of university students. This event took place on October 21, 2021 (see <https://www.begeo2021.be/>).

[e] Geography magazines published in Belgium

The Belgeo review is co-edited by the national committee. From an administrative point of view, it is a *de facto* association between the Geographical Committee and the Royal Belgian Geographical Society. All the articles can be consulted on <https://journals.openedition.org/belgeo/> The bulletin of the Geographical Society of Liège can be consulted on <https://popups.uliege.be/0770-7576/index.php>.

In addition, all issues of the "historical" journals of the Royal Belgian Geographical Society, SOBEG and the journal *De Aardrijkskunde* were scanned. The files were entrusted to the Royal Library, which put them online in their research and consultation tool (Belgica periodicals).

[f] Cartography-GIS subcommittee, the Atlas Commission of Belgium and the geomorphology subcommittee

The NGC took note of the reports of the Cartography-GIS Sub-Committee, the report of the Belgian National Atlas Commission and the report of the Geomorphology Sub-Committee.

[g] Communication policy

The committee has continued to consider on its communication (site & social media). The committee's website is a priority and must be a gateway to geography in Belgium, and easily

updated. Other Facebook / LinkedIn channels) will be considered after the website.

The proposed structure for the committee's website: after choosing the language, a landing page with the "cobblestones" referring to the 6 sections, inspired by the Royal Geographical Society website:

1. News and events: Belgian Geographical Days, Mapathon,...
2. Geography, a key to our future (what is geography / a look more essential than ever / geography at school / geography in higher education / geography, a profession)
3. Geographers in action (portraits / case studies): to use different portraits and popularization tools produced in Belgium (short summary and references to the full version).
4. Resources: Atlas of Belgium / Belgian / BSLg / VLA and Fegepro journals / Ruimte en Maatschappij / Agora / scans from the Royal Library
5. The national committee: missions / composition / sub-committees
6. Organizations: VLA / FEGEPRO / SRBG / SGLg / IGNB / OSGeo Belgium...)
7. International cooperation

Unfortunately, the Covid crisis and professional overload prevented the chairman of the committee from moving forward on this file in 2021.

[h] Monitoring of the valuation of diplomas on the job market

The National Geography Committee officially contacted Talent (recruitment body mandated by the Brussels administration) to express its surprise at the fate reserved for geographers in a Brussels-Mobility recruitment procedure for a data-analyst, excluding geographers. This seems to reflect a certain ignorance of the training profile of geographers, straddling "natural" and "human" sciences but undeniably including a real dimension of data processing, shared with other sections of the Faculty of Sciences. He testified to the fact that many geographers hold positions of data-analyst, data-scientist, data-achitect or methodology in regional and federal administrations. Alongside these substantive arguments, we asked why, in terms of form, almost all branches of the Faculty of Science (Chemical Sciences, Biological Sciences, Biotechnology, Biochemistry, Mathematics, Statistics, Physics, Computer Science, Geology) or even other faculties (sociology) are among the titles giving access to selection, and not the degree in Geographical Sciences. An incomplete response (and testifying to poorly motivated choices) was received, but it seems that the committee's action had the merit of internally questioning the procedures and choices made by this administration. The committee continues to monitor published job offers and therefore continues to monitor these issues.

3. General Assembly of the Scientific Union

The IGU congress (Istanbul 2020 postponed to 2021) finally took place in a remote form: <https://igu-online.org/34th-international-geographical-congress/>.

Nathalie Lemarchand (Vice-President of the IGU, France) has been appointed as our point of contact with the IGU Steering Committee. The teacher. Holy Barcus is the new IGU Treasurer.

Our colleague Frédéric Dobruszkes (ULB) has taken over the presidency of the UGI transport geography commission. And our colleague Philippe De Maeyer has been vice-president of the International Cartographic Association since 2020

4. Other activities

In line with the reflections on the reorganization of activities in the context of a pandemic, and this in order to establish the scientific and academic legitimacy of the fieldwork, it is proposed to make it the theme of the next Belgian Geographers Days (which should ideally be organized in Namur).

5. Future perspectives

In 2021, the committee will work primarily:

1. The establishment of a new website
2. Monitoring the reforms of compulsory education and initial teacher training
3. To update the Atlas of Belgium and to write comments, in particular to support the making of new school books, but also with a view to feeding a publication on the geography of Belgium for the centenary of the IGU.

NATIONAL COMMITTEE FOR GEOLOGICAL SCIENCES

INTERNATIONAL UNION: INTERNATIONAL UNION OF GEOLOGICAL SCIENCES (IUGS)

1. Introduction, mission, goals

The National Committee of Geological Sciences forms part of the "Classe des Sciences de l'Académie royale de Belgique" and the "Klasse der Wetenschappen van de Koninklijke Academie van België". The mission of the committee is to promote geology and to co-ordinate at a national and international level, the activities of the geological departments that are present in the different Belgian academic and scientific institutions. Members of the committee also act as representatives of Belgium in the International Council of Scientific Unions (ICSU). At present, the national committee co-ordinates the activity of a number of commissions and working groups such as the National Commission on Stratigraphy (sub-divided in specific sub commissions) and the Working group on Structural Geology. The National Committee of Geological Sciences of Belgium has close relationships with the International Union of Geological Sciences (IUGS), which is also a member of ICSU. The IUGS is a non-governmental organization that promotes and encourages the study of geological problems, especially those of worldwide significance.

2. Meetings of the committee

Dates: 10 May & 29 November 2021,

Due to Covid19 circumstances meetings were for the second consecutive year held online.

Internal regulations of NCGS:

Since 2018 the composition of the Committee and the board significantly changed. In 2021 ample time was taken in both meetings to discuss and update the internal regulations where mission, goals and tasks of the NCGS are update and defined.

The President addresses a general question regarding the added value of NCGS relative to the goals of f.e. Geologica Belgica. Based on that question, the main goals and specificities of the NCGS can be listed. As the society, Geologica Belgica (GB) primarily focusses on its scientific role within Belgium, the NCGS primarily has a coordinating role inside Belgium and towards the international geological community (notably IUGS, UNESCO, ICS). Accordingly, NCGS plays a key role as a coordinator and platform of information exchange. As all the Belgian regions and geological surveys work slightly differently, NCGS is maybe the only national geological authority.

Based on the discussions, the board members modified the 'Internal Regulation' and submitted the proposition to the committee members.

Promotion of Geology/Geosciences in Belgium:

During 2021 different initiatives have been taken and supported to promote Geology in Belgium.

- 'Geology and our Modern Society' (opinion piece to be published in Belgian Press beginning of 2022): Geology student numbers at Belgian universities have suffered a significant decrease in recent years. The NCGS supported the initiative to submit an opinion piece to the Belgian Press (both in Dutch, French and English) to emphasize the relevance of Geology to support a sustainable global society. The 'Opinion Piece' will be signed by many professionals in Geological researchers and educators.
- The committee is very concerned about the evolution of the museal diffusion of geology, in particular about the fundamental aspects of geology like mineralogy, paleontology, petrography and field work. Some initiatives are being taken in order to strengthen the contact with principal geological museums in Belgium.

3. General Assembly of the Scientific Union

No General Assembly in 2021.

4. Other activities

- In 2022, the Geological Survey of Belgium (GSB) celebrates its 125th year. Because of the pandemic situation, the anniversary of the Geological Survey of Belgium (planned on the 18-19th of January 2022) will be postponed to later this summer. Further information will be made available later. The GSB will feed Twitter, Instagram, and Facebook networks to promote the Earth Sciences to reach the younger generations for one year, which is supported by NCGS.
- The NCGS website and management of this in close collaboration with the portal of RBINS still needs to be established. A meeting about this issue is planned for early 2022.

NATIONAL COMMITTEE FOR LOGIC, HISTORY AND PHILOSOPHY OF SCIENCES

INTERNATIONAL UNION: INTERNATIONAL UNION OF HISTORY AND PHILOSOPHY OF SCIENCE (IUHPS)

1. Introduction, mission, goals

According to the mission of the National Committees, as stipulated in the Royal Decree of 2 April 1979, the National Committee aims to promote and coordinate research activities on Logic, History and Philosophy of Science in Belgium, primarily with regard to the international representation of Belgian scholarship in the International Council of Scientific Unions.

The National Committee is the Belgian member of the International Union of History and Philosophy of Science (IUHPS), both of its Division for History of Science and Technology (DHST) and its Division of Logic, Methodology and Philosophy of Science (DLMPS).

In practice, the main goals of the National Committee include:

1. To represent Belgian scholarship on the international level by being present as a member or spokesperson with international organizations (IUHPS, European Society of History of Science).
2. To coordinate Belgian scholarship by setting up collaborations and joint projects with other institutions (National Centre for the History of Science [KBR], Gewina [Belgian Dutch Society for the History of Universities and Science], BSLPS [Belgian Society for Logic and Philosophy of Science]).
3. To promote the integration of historical and philosophical studies of science.
4. to promote general interest in the history of (Belgian) science, and to disseminate the results of contemporary scholarship to a wider audience.

2. Meetings of the Committee

The Committee met on 29/03/2021, 07/05/2021 and 16/06/2021. Main points on the agenda for the meetings were:

29/03. Organisation ESHS Brussels 2022: Budget, website, venue, keynotes, dinner, social events, new members NC, varia

07/05. Updates ESHS, composition and membership NC

16/06. presentation of candidate-members, vote, expressions of gratitude to Carmélia and Geert, varia.

3. General Assembly of the Scientific Union

The general assembly of the DLMPST was held in Prague in 2021. The National Committee was represented there by Brigitte van Tiggelen.

4. Other activities

[a] Preparation: Digital Public History for the “Day of Contemporary History”, organised by the Belgian Society for Modern History

Eva Schalbroeck’s proposal for a panel with Jolien Gijbels (KU Leuven), Yoanna Alexiou (ULB), Sophie Richelle (ULB), and Fien Danniau (UGent) was accepted in 2020. It was indefinitely postponed due to the covid pandemic. In 2021 Hannes Van Engeland successfully resubmitted this proposal with a slightly altered panel (Hannes taking the place of Eva and Alessio Rocci (ULB) taking the place of Yoanna Alexiou). The panel was presented in [Eupen on 26 May 2022](#).

[b] Preparation: ESHS Brussels 2022

Thanks to Brigitte van Tiggelen, the biennial conference of the European Society for the History of Science (ESHS) will be held from 7 to 10 September 2022 in Brussels and will be organised from within the National Committee. The conference theme is “Science Policy and the Politics of Science”. The conference is planned as a physical, in-person event. More info can be found on the website: <https://eshsbrussels2022.com/>. This prestigious event will also be an ideal opportunity to showcase Bestor to a larger, international audience.

[c] Young Researcher’s Days VII

On 23 and 24 September 2021 the National Committee for Logic, History and Philosophy of Science and the Belgian Society for Logic and Philosophy of Science (BSLPS) organised the Seventh edition of the Young Researcher Days. The event was held online due to the Covid-pandemic. Once again, YRD7 was a co-organisation of Steffen Ducheyne, Steven Vanden Broecke, and Peter Verdée, in which the NC collaborated fruitfully with [BSLPS](#).

As with the last edition (2017), the quality of paper proposals was high, allowing a total of 20 young researchers to present their work.

To maximize the attractiveness of YRD6, three keynote speakers were invited, each addressing one of the three core sub-disciplines of YRD6: Sara Miglietti (The Warburg Institute, London) for history of science, Hanne Andersen (Department of Science Education, University of Copenhagen), Gillian Russell (Dianoia Institute of Philosophy, Australian Catholic University) for logic of science. The keynote speakers actively participated during many of the papers and question rounds.

YRD continues to address a real need in the *science studies*-community of Belgium and beyond for more collaboration and interaction among young researchers working at different institutions. Two critical remarks are in order:

- (1) Local historians of science have become unconcerned with the other subdisciplines in the humanities that study science (e.g., philosophy or logic of science). For the time being, there appears to be no road back for them.
- (2) As was also the case at YRD6, supervisors and senior researchers were conspicuously absent from YRD, despite repeated calls to participate. It would appear that the very need that YRD seeks to solve is of limited practical interest to senior scholars in Belgium (with the exception of the organisers).

5. BESTOR⁵

[a] Introduction

Bestor is an online database and platform for the history of Belgian science since 1800. It is developed both for consultation by the general public and as a research instrument for scholars and students. Bestor provides material for historical research or inquiries, in addition to functioning as a forum for news, events, and publications. As such, Bestor promotes general and scholarly interest in the history of modern Belgian science. The database is created with MediaWiki software (version 1.28.0.).

In this database, Bestor presents articles on, among others, Belgian scientists, scientific institutions and sites, scholarly societies, journals, prizes, collections, and memorable events, both in French and in Dutch. The articles are connected via links, stories, and portal pages, enabling the visitor to explore the networks between people, institutions, places, and societies. Primary and secondary sources which can generally be browsed in the Belgian Royal Library (KBR) and in university libraries are presented in the article's reference list. As such, Bestor records offer the reader a treasure of

⁵ www.bestor.be

material which is often hard to find with a few clicks. Records are updated in accordance with recent research.

The information presented in Bestor is assessed by a small team of collaborators, in addition to members of the National Committee for Logic, History and Philosophy of Science (NC) and individual collaborators from different fields of expertise, such as historians and scientists, under the direction of the NC. Support and housing facilities are provided by the Koninklijke Vlaamse Academie van België voor Wetenschappen en Kunsten (KVAB), the Académie royale des Sciences, des Lettres et des Beaux-Arts de Belgique (ARB), and the overarching Royal Academies for Science and the Arts of Belgium (RASAB). The Bestor database is physically located on the server of the Faculty of Arts of the KU Leuven, where technical maintenance is executed. Bestor is supported by an annual subsidy of Belspo, which it has generously received since 2008.

Staff and management

Since January 2021 Hannes Van Engeland has been employed part-time to support Bestor and to help organise the 2022 conference of the European Society for the History of Science (ESHS), which the National Committee organises in Brussels in September 2022. In view of his considerable workload, Hannes Van Engeland was put on a full-time contract since early November 2021. In 2022 a project manager will be hired to assist Hannes and the National committee with the organisation of this landmark conference in history of science.

For the most part of 2021 Prof. Dr. Geert Vanpaemel (KU Leuven) functioned as the coordinator of the project. Since his retirement, scientific directorship of Bestor has been transferred to Prof. Dr. Joris Vandendriessche (KU Leuven).

The management of the organisation of the ESHS conference has been in the hands of a local organising committee. This committee primary consists of members of the national committee. In a first stage it consisted of Brigitte Van Tiggelen, Kenneth Bertrams and Hannes Van Engeland. It was later extended to include Steffen Ducheyne, Denis Diagre and Elisabeth Moreau (ULB), Jip Van Besouw (VUB) and Cornelis-Jan Schilt (VUB). In 2022 this committee will also include the aforementioned project manager.

General

The first months of 2021 were focused on Bestor entirely, Hannes did important maintenance and made translations. The pages that were selected to be translated were selected in interaction with Prof. Dr. Geert Vanpaemel. Work was started to make an index of all pages on Bestor, offering an overview of all pages on the database in both Dutch and French. To facilitate social media posts

that highlight existing content on Bestor, a calendar was made with all important events by date in Belgian history of science on the database. Hannes build on this calendar each month. Its purpose is twofold: it will serve as a useful tool for future popularisation and communication, and, over time, it will allow for a “on this day in Belgian science” section on the mainpage of the site.

Since April 2021 preparations started for the organisation of the ESHS-conference. A detailed report on the activities performed for the organisation for this conference can be found below, but to give a general idea of milestones reached: a provisional budget and programme was made, sponsors were contacted, a venue was found, Brigitte Van Tiggelen assembled a scientific committee and calls for proposals were sent out and communicated in multiple mailing lists by the end of 2021.

Highlighting existing content

Hannes Van Engeland continued the effort to highlight existing content on the website and social media. He, for example, took various scientific anniversaries and contemporary affairs, such as the pandemic, as an opportunity to share existing notes and stories. He corrected errors and added images along the way (rather than in a systematic manner). The Twitter and Facebook feed give an overview of the material put in the spotlight.

New pages and translation

In 2021 one new story has been written by Geert Vanpaemel, a new note on the philosopher of science Jean Ladrière has been written by Hannes Van Engeland.

A total of 236 pages were created on Bestor in 2021. This high number can be explained by the fact that most of these pages were translations of short pages on Bestor from Dutch to French or from French to Dutch.

Apart from this, Hannes has translated 43 pages to English. In case a French or Dutch counterpart to the translated page was missing, the Dutch/French page was translated simultaneously with the English translation. The English translations are not yet available online but they are stored as text files on three locations: on the computer in the office of Bestor, on Hannes Van Engeland’s personal laptop and on an external back-up USB stick. Once the English version of Bestor is launched, with the support of the IT-service of the KU Leuven (where the Bestor database is physically located), these files will be plugged in and made available.

The Dutch version of Bestor grew with 136 new pages, all of them were translations from French to Dutch of small pages made by Hannes Van Engeland.

The French version of Bestor grew with 100 new pages, this consisted of: translations of 80 ‘small’ pages and 16 large pages by Hannes Van Engeland from Dutch, and 4 translations of large pages made by the students of the ateliers de traduction, Faculté de Traduction et d’Interprétation – UMONS. The four notes that were translated by UMONS students are the following:

- Commission pour la Protection des Indigènes
- Rodhain (Alphonse Hubert Jérôme)
- Mottoulle, Léopold
- Leo Hendrik Baekeland (1863-1944)

Communication

Social Media

Efforts were made to post multiple times a week on Facebook and Twitter. In 2021 we slowly saw events being organised again, so these were advertised too. Most social media posts were posts that highlighted content from our database linked to a specific event that happened a relevant period of time ago. To further enable such posts for the future, a calendar has been developed that contains all events on our database for each specific date.

Special effort was made to advertise relevant (digital) content from partners, such as Cultuurgeschiedenis.be (KU Leuven), Pyramids & Progress (VUB), the Sarton Centre for History of Science (UGent), the National Centre for the History of Science and Gewina. Special social media accounts were made to communicate news (calls, deadlines etc.) for the ESHS conference but these messages were also shared by the social media of Bestor.

Facebook posts were usually longer versions of Tweets. We saw the largest growth in followers on Twitter with 41 new followers and 26 new page likes on Facebook. This can be explained by the fact that our Twitter account was started up more recently than our Facebook account. The most successful posts on both social media still rely on posts being shared by our followers.

Website

Special effort was made to update the frontpage with ‘news items’ on a regular basis. We promoted events taking place related to Belgian history of science and regularly updated the list with new publications.

If substantial new pages were available in a language due to a recent translation, this was also communicated in the section “new notes”.

Newsletters

One newsletter containing a new story and note, and news items was sent in 2021. The newsletter was written by Hannes Van Engeland under the supervision of Geert Vanpaemel.

- French version: <https://mailchi.mp/985d4521d97d/bestor-bulletin-1-19228494>
- Dutch version: <https://mailchi.mp/8d33b2a888c6/bestor-bulletin-1-19229782>

Another newsletter on Solvay is set to appear in the fall of 2022.

CNHS/NCGW-Bestor exhibit

As mentioned above, the ESHS conference will be a perfect occasion to showcase Bestor to a larger, international audience. To do this an exhibit in collaboration with the CNHS/NCGW has been set up.

The National Centre for the History of Sciences (In FR: National d’Histoire des Sciences – CNHS and in NL: National Centrum voor de Geschiedenis van de Wetenschappen – is a bilingual non-profit organisation subsidized by the Brussels region and hosted at the Royal Library) will have an exposition with large panels(posters) on the ESHS conference theme during the ESHS conference. The expo will be based on pages taken from Bestor and link to these pages via a QR-code on the panels. After the conference the exhibit can be further used by the CNHS/NCGW to further promote Bestor as well.

A working group has been set up to coordinate this expo, it is a collaboration between members of the organising committee of the ESHS conference and members of the CNHS/NCGW. Its members are Denis Diagre, Sophie Glansdorff, Elisabeth Moreau, Kenneth Bertrams, Anne-Catherine Dumont and Hannes Van Engeland.

Maintenance

During the first half 2021 Hannes has straightened out the homepage: He fixed some broken links on the homepage, added frames to compartmentalise the homepage a bit which allows for a better overview, and ensured that the NL and FR homepages resemble each other as best as possible.

Apart from that, an index of all pages on Bestor has been made and there now is a complete overview of all pages and which pages are only available in French or Dutch. During the making of the index, Hannes has made minor but necessary changes to a lot of pages (2285 in total: 1176 pages were edited on the Dutch version of Bestor and 1119 pages were edited on the French version of Bestor). Most of these changes were the fixing of hyperlinks and the linking of French and Dutch versions of pages if these were not yet linked.

[b] Activities planned for 2021 and 2022

A new website

As mentioned above, Bestor is planning to change and improve its digital policy and infrastructure during 2021 and 2022. Obtaining a website and a new host institution for Bestor's data is key to achieve this. Since 2008 Bestor has been hosted on the server of the Faculty of Arts of the KU Leuven. The costs are covered by the budget which Prof. Dr. Geert Vanpaemel receives from the KU Leuven. The ICT team of the Faculty of Arts of the KU Leuven is responsible for updates and maintenance. Bestor's dependency on this ICT team has two considerable negative consequences. Firstly, the KUL Arts Team is too busy to implement highly necessary updates, such as a new skin (see above). Secondly, this regulation is tied up with Prof. Dr. Geert Vanpaemel's KU Leuven position, which came to an end in October 2021 upon his retirement. The role of Prof. Dr. Geert Vanpaemel has luckily been taken over by Prof. Dr. Joris Vandendriessche but a long-term solution remains needed.

Plans to change this situation are based on discussions held by Prof. Dr. Geert Vanpaemel, Eva Schalbroeck, and Virgile Royen in early 2020, the *Visietekst* which Lyvia Diser left us upon her departure, and the NC's discussions during its meetings on 19/09/2019 and on 14/11/2019. A quick and short-term solution consisted of finding another KU Leuven Arts academic who would continue to allow Bestor to host its data on the KU Leuven server. This role has fortunately been filled by Prof. Dr. Joris Vandendriessche but a long-term and effective solution which would put an end to the current unpractical double structure – data hosted with the KU Leuven, but workers dependent on the Academies – and thus the solution we are most partial to would be to transfer the data from the KUL Arts Servers to those of the Academies. This would allow Bestor to be covered by the ICT Team of the Academies, with which it can collaborate far more easily to implement changes and updates.

To implement this solution, the KVAB and ARB need to be on board. Two members of the NC, who in principle agree with Bestor's request, met with the national secretaries of the KVAB and ARB to explain and defend it and gauge the opinion of their ICT teams, as the transfer is a considerable challenge, not only from a technical but also from an organisational point of view. They are

confronted with several questions: would it be better to transfer the data to one overarching server or to split it between the French-speaking and the Dutch-speaking server? Who will be responsible for the maintenance and updates? Can the academies' server contain the considerable amount of data which Bestor has (in large part due to the images in the database)? Do their teams have the time and the skills required to update and maintain both a website and the encyclopedia? The questions will also be discussed by the NC. In addition to answering these questions, the NC and the academies will need to reach a hosting agreement about issues, such as data security, privacy, and intellectual property.

This proposed data transfer would be an ideal opportunity to make some much-needed changes to our increasingly outdated digital infrastructure, in particular the abovementioned improvements to the look and user-friendliness of the website. In addition to obtaining a new interface to improve attractiveness and visibility, we also need one which works better for Bestor's role as a news platform, network, and forum. The current main page is based on a standard template with many columns which is hard to modify quickly, precisely what is required if we want to add news daily. Bestor also urgently requires new MediaWiki extensions, which will improve the searchability of the database. To find a record, readers now need to type in exact search strings. A search engine with advanced search options, tagged records, and a 'did you mean' option, would allow them to find records far more easily. This would also allow us to better respond to the fact that many people actually land on Bestor via a general search engine, such as Google. To gain more newsletter subscribers, we would like to install a pop-up window, inviting a first-time reader to subscribe to the newsletter. Such a pop-up widget exists in Mailchimp, but as it has to be programmed in the database's code, its installation needs to be part of a larger update.

The most effective solution would be the creation of a new website that is not in MediaWiki format. We would keep the database in its MediaWiki format and link it with this new website, which would allow us to implement all the above-mentioned improvements. The result would be a neat, visually attractive, and user-friendly website with a homepage which contains a search engine, providing access to the MediaWiki database, news, a subscription pop-up, links to the newsletters, our Facebook page and Twitter account, alongside links to Bestor content. We are now awaiting advice from the Academies' ICT Team on the server transfer and our wishes for the website. When we have heard back from them, we plan to organise a meeting between them and the ICT Team of the Faculty of Arts of the KU Leuven.

However, for the time being, some minimal changes will be implemented in cooperation with the KU Leuven ICT-team to allow us to showcase a smartphone performant and more user-friendly version of Bestor in English during the ESHS conference. After the conference the more practical and permanent changes will be made.

A new language, English, for a broader target audience

In 2021, we wish to make further progress in making Bestor content available in English. Our statistics show that 20% of our readers come from non-French or non-Dutch speaking countries. Providing English content would not only allow us to cater to these readers and allow us to significantly enlarge our audience. It would also enable us to showcase the history of Belgian sciences, something which is a real object of interest abroad thanks to Belgian innovations and colourful figures, and the important scholarship produced about it. Our plan is to link a new website to translations of our news platform, our portals, newsletters and records which we believe an English-speaking audience will want to read. As mentioned above, translations are well underway.

Creating new records

Bestor remains committed to creating new records and writing new stories in 2022. Three new records have been scheduled for 2022:

- Kenneth Bertrams will write a note (and possibly a story) on the Commission for the Relief of Belgium
- Hannes Van Engeland will write a note on Ernest Solvay
- Hannes Van Engeland will write a story on the organisation of the first Solvay conferences.

In addition to this, the translation effort will also ensure that notes translated in English will also be added to the Dutch/French version if the note in question is missing in either of the languages in our database.

Translations

In 2021-2022, Bestor will continue and further increase its translation efforts. We will maintain our collaboration with Mons University, of which we recently received four translations.

Moreover, an index has been made of all notes in Dutch, French and English, this allows us to have a clear overview on which notes need further translation (in Dutch, French or English), and which English notes already have been translated. Furthermore, this has allowed a better integration of the French and Dutch sites. Systematic translations to English have started, the notes in the category history of science, have all been translated. These translations are not public yet but will be plugged in when the English version of Bestor is launched. When, in translating to English, a Dutch or French translation also seems needed, these are translated as well.

NATIONAL COMMITTEE FOR MATHEMATICS

INTERNATIONAL UNION: INTERNATIONAL MATHEMATICAL UNION (IMU)

1. Introduction, mission, goals

The National Committee aims at stimulating and coordinating in Belgium research in mathematics, both in *pure mathematics* and *applied mathematics*, including *education in mathematics*. In fact, the distinction between pure and applied mathematics is not always easy to make and there are increasingly many interactions. Speaking of pure mathematics, we think of algebra, geometry, analysis, logic, combinatorics, topology, set theory... and often applications to mathematical physics! Applied mathematics consist among others of numerical analysis, statistics, treatment of signals; the use (and the necessity of creating new) advanced mathematics is currently expanding and covers areas such as econometrics and finance, theoretical informatics, bio-mathematics...

One of the main goals of the committee is to form a bridge between the International Mathematical Union (IMU) and the Belgian scientists who work in the area of Mathematics. As such we choose the delegates that represent Belgium at the General Assemblies of the IMU and suggest their names to both Academies. Together with the Belgian Mathematical Society we take care of informing the Belgian mathematical community by means of the “Newsletter of the Belgian Mathematical Society and the National Committee for Mathematics”.

The National Committee consists of 16 members, with linguistic parity. Its members are chosen, taking into account a good gender representation, a well-balanced participation of the different universities, and a good representation of the different important mathematical domains

2. Meetings of the Committee

Zoom meeting, March 24, 2021.

3. General Assembly of the Scientific Union

The next general assembly of the IMU is in 2022; the previous was in 2018.

4. Other activities

- The newsletter appeared five times.
- There was an electronic discussion about attracting new members, and replacing the ICMI representative, Paul Igodt. It was finally agreed that Karl Grosse-Erdmann, Quentin Menet, Yves-Caoimhin (Yvik) Swan and Sonja Hohloch accepted to become members of the National Committee. Ann Doods accepted to replace Paul Igodt as representative in ICMI. There were no other activities.
- There was an initial plan for a physical meeting in memory of Alain Verschoren, but the COVID situation did not allow for that to happen.

5. Future perspectives

For the moment we are, just as last year, waiting how the COVID-19 situation will develop before making plans for new activities. Most members still have their hands full with alternative teaching and coaching PhDs.

NATIONAL COMMITTEE FOR MECHANICS

INTERNATIONAL UNION: INTERNATIONAL UNION OF THEORETICAL AND APPLIED MECHANICS (IUTAM)

1. Introduction, mission goals

The Committee aims at promoting the Mechanical Engineering through inter-university Students and Staff exchanges, organization of a bi-annual National Congress of Theoretical and Applied Mechanics, organization of a Doctoral School (GrasMech), development of relationships with European and International Mechanical Engineering non-profit associations or initiatives (ECCOMAS, EURASEM, IUTAM, IACM...) and awarding the (Belgian) “best thesis” in Mechanical Engineering on an annual basis.

2. Meetings of the Committee

[a] January 30, 2021

Main conclusions:

- NCTAM Best PhD Award: Establishing a short list of 5 candidates for the Best Thesis Award (out of 11 applicants).
- Discussion about the organization of a (one-day) NCTAM Conference in the Academy Palace.

[b] February 27, 2021

Main conclusions:

- Selection of the laureate of the NCTAM Best PhD Award 2020. Dr. Denis-Gabriel Caprace (UCLouvain – Université Catholique de Louvain) has been selected as the laureate of the NCTAM Best PhD Award 2020 (<https://nctam.org/award/>). He was also selected as candidate for the ECCOMAS Award.
- Further discussion about the organisation of a (one-day) NCTAM Conference in the Academy Palace. –

[c] Due to COVID-19, the NCTAM Conference has been cancelled. More information via www.nctam.be.

3. General Assembly of the Scientific Union

The General Assembly of IUTAM met remotely by electronic means on 22 and 25 August 2021, at the virtual ICTAM 2020+1. The virtual meeting was organized via the ZOOM online platform by ICTAM 2020+1 President Alberto Corigliano, with the technical support of AIM-Group IT staff in Milan and chaired by IUTAM President Norman Fleck. The meeting went smoothly, without major connection problems reported.

The agenda of the virtual meeting included:

- brief reports by the President and Secretary-General,
- decisions on matters regarding adhering organizations,
- election of the new IUTAM Treasurer,
- discussion on legal issues,
- report by the IUTAM Diversity Working Group.

The new Treasurer takes office on November 1, 2021, and corresponding changes will be introduced to the IUTAM website at the end of October. The next GA meeting will take place in Cambridge, UK on 21-24 August 2022. <https://iutam.org/publications/annual-reports/>

4. Other activities

None other activities due to COVID-19.

5. Future perspectives

- The organization of annual (one-day) NCTAM Conferences
- The organization of more GRASMECH Courses

NATIONAL COMMITTEE FOR MICROBIOLOGY

INTERNATIONAL UNION: INTERNATIONAL UNION OF MICROBIOLOGICAL SOCIETIES (IUMS)

1. Introduction, mission goals

The Committee for Microbiology represents Belgian scientists conducting research in the field of biological sciences in the work of the International Union of Microbiological Societies (IUMS).

2. Meetings of the Committee

In 2021, the NaCoMi didn't organise regular meetings due to the COVID-19 pandemic, which hindered physical meetings. The latest objective of the committee taken in early 2020, was to organise an outreach initiative to spread information on the importance of microorganisms in daily life. Due to the COVID-19 pandemic no initiatives have been taken.

3. General Assembly of the Scientific Union

No General Assembly in 2021.

4. Other activities

[a] Annual symposium of the Belgian Society for Microbiology Friday, March 12, 2021, Brussels. Under the auspices of NaCoMi, the Belgian Society for Microbiology organised an online Symposium and General Assembly of the BSM. Title of the Symposium: Microbial resources and challenges for science and society. For further details see Introductory slides_2021 (belsocmicrobio.be).

[b] Activity at ICSP

Report of activities of ICSP (International Committee on Systematics of Prokaryotes). P. De Vos is the Belgian representative of this committee (<https://www.the-icsp.org/icsp-members>). ICSP is part of the Bacteriology & Applied Microbiology (BAM) division of IUMS, of which RASAB NaCoMI is member.

The minutes of the meetings are available for interested members of NaCoMi via P. De Vos on demand (Paul.devos@UGent.be). In brief, the most important decisions concerned apart from administrative matters are:

- Discussion and approval of Opinions. As a result of Requests for opinions, these opinions concern real or presumed anomalies of bacterial taxonomic matters (e.g. availability of type strains, nomenclatural spellings and priorities etc). The opinions will be published in the course of 2022 in the International Journal of Systematics and Evolutionary Microbiology (IJEM).
- ICSP discussed and voted on proposals to introduce a new category in bacterial systematics “The Phylum”. So far, although phyla were already used widely, this category above ‘Class’ was not formally proposed in the International Code for Prokaryotes. After the necessary changes in the Code, the nomenclatural consequences are important and the new names of the Phyla are listed in NCIMB (<https://ncbiinsights.ncbi.nlm.nih.gov/2021/12/10/ncbi-taxonomy-prokaryote-phyla-added/>) and in the IJSEM.
- Installation of a discussion platform (Slack Platform) for interested microbiologists mainly concerning taxonomic questions. 2021 was used as testing phase. Once the platform is in use, members of NaCoMi will be informed.
- In the same context of the work of the ICSP, the Subcommittee on the ‘Taxonomy of the phototrophic bacteria’ has met in August 2021. The NaCoMI member Prof. Annick Wilmotte published as Secretary of the Subcommittee, the minutes in IJSEM (DOI 10.1099/ijsem.0.005212)

5. Future perspectives

The following plans for 2022 are on the table:

- Planning of online meeting of NaCoMi in relation to activities of the BSM (Belgian Society for Microbiology)
- Planning on outreach, agreed upon for 2020, is now foreseen for 2022/2023.
- Report on the activities of the ICSP (International Committee on Systematics of Prokaryotes).
- Follow up of FEMS activities.
- As soon as allowed by reduced COVID-19 sanitary precautions, NaCoMi will meet in person in Brussels at the Palace of the Academies to resume its normal activities and meetings.

NATIONAL COMMITTEE FOR PHYSICS

INTERNATIONAL UNION: INTERNATIONAL UNION FOR PURE AND APPLIED PHYSICS (IUPAP)

1. Introduction, mission, goals

The Belgian National Committee on Pure and Applied Physics has been created by the Royal Academies for Science and the Arts of Belgium (RASAB). It contributes to the promotion and coordination of Belgian activities concerning Pure and Applied Physics. At the international level it ensures Belgium's representation in IUPAP, the International Union for Pure and Applied Physics. Its activities can be followed on its website⁶.

2. Meetings of the Committee

Meetings were held on March 11, 2021 via Teams and on September 9, 2021 at the Palace of the Academies and via Teams. The main points of these meetings were:

- The 2021 colloquium
- Promoting Belgian physics research.
- New members of the Committee
- Nominations for IUPAP commissions.

3. General Assembly of the Scientific Union

Due to the Covid-19 pandemic, the general assembly of IUPAP, initially planned for October 2020, had been delayed to October 2021 (Geneva and by internet) and membership in IUPAP commissions had been extended by one year.

The 30th General Assembly of IUPAP was held online, from October 20 to 22, 2021. A preparatory meeting of the Executive Council and Commission Chairs took place on October 15, also online. Liaison chairs from member countries were invited to this preparatory meeting. R. Sporken participated in both meetings. Some points on the agenda were i.a.:

- Approval of the strategic plan. The document had been submitted to all member organizations and countries. A draft proposal had been discussed by the Belgian National Committee for Pure and Applied Physics.
- Membership dues remain unchanged for the next three years (2021, 2022 and 2023).

⁶ <https://sites.google.com/site/physbel/>

- Establishment of IUPAP as an Association under Swiss Law and having its seat in Geneva, approval of new Statutes and Bylaws.
- Nomination of Commission members. Nominations of the following Belgian members were approved: Margriet Van Bael (C5), Barbara Clerbaux (C11), Conny Aerts (C19) and Gian Marco Rignanese (C20).
- Organization of several events linked to the IUPAP Centenary celebrations and to the International Year of Basic Sciences for Sustainable Development (July 2022 – July 2023).
- Nine resolutions were approved, including endorsement of 2025 as the International Year of Quantum Science and Technology, promotion of Gender Inclusion and Diversity and recommendations on Open Science.

4. Other activities

[a] The colloquium on "Gravitational Waves and Exoplanets"

The colloquium, initially planned for March 27, 2021, has been postponed to April 2, 2022, because of the Covid-19 pandemic. All invited speakers have confirmed their participation. The organisation is expected to be somewhat more complicated due to sanitary restrictions, especially regarding catering. It may also be necessary to limit attendance. This may make the colloquium more expensive. Grant applications have been submitted to the usual sponsors; new sponsors are yet to be found.

[b] Research in Physics in Belgium:

The report on Quantum Physics and Technology in Belgium has been updated. It is currently being reviewed by members of the Committee and will be published shortly on the website of the Committee and through Belgian Physical Society. Updated reports on Statistical Physics and on Development of Physics in developing countries Educational Physics and Statistical Physics are expected for 2022.

[c] A delegation of the Committee participated in the EPS Historic Site award ceremony at UCLouvain on October 12, 2021, honoring the Cyclotron Hall as the birthplace of post-accelerated radioactive ion beams for nuclear and astrophysics research.

5. Future perspectives

In 2022, the central activity will be the colloquium on "Gravitational Waves and Exoplanets. Decisions will be made regarding replacement of one member of the committee. NCPAP will continue its efforts for promoting the Physics Research Activities in Belgium via the reports on Research in Physics in Belgium and the expansion and continuous updating of the calendar of events.

NATIONAL COMMITTEE FOR PHYSIOLOGY AND PHARMACOLOGY

INTERNATIONAL UNION: INTERNATIONAL UNION OF PHARMACOLOGY (IUPHAR)

& INTERNATIONAL UNION OF PHYSIOLOGICAL SCIENCES (IUPS)

1. Introduction, mission, goals

The goal of the Committee is to organize national and international scientific meetings in which Belgian Physiologists and Pharmacologists (and eventually their guests) can present and bring up for discussion the results of their recent research in the fields of Physiology and Pharmacology.

2. Meetings of the Committee

[a] April 30th, (Spring Meeting 2021 online)

[b] November 26th, (Autumn Meeting 2021 online)

3. General Assembly of the Scientific Union

No General Assembly in 2021.

5. Future perspectives

[a] 39th Congress of the International Union of Physiological Sciences (IUPS). Date: Saturday, May 7, 2022, to Wednesday, May 11, 2022. Location: Beijing, China

[b] World Congress of Basic and Clinical Pharmacology. Date: Sunday, July 2, 2023, to Friday, July 7, 2023. Location: Glasgow, Scotland (moved from 2022 to 2-7 July 2023)

NATIONAL COMMITTEE FOR PSYCHOLOGICAL SCIENCES

INTERNATIONAL UNION: INTERNATIONAL UNION OF PSYCHOLOGICAL SCIENCE (IUPsyS)

1. Introduction, mission, goals

The goal of the Committee being to undertake, promote and coordinate psychological scientific research, focusing in particular on long term, intercollegiate or interdisciplinary projects and to serve psychological scientific interests in Belgium from a national as well as an international point of view.

2. Meetings of the Committee

Meetings were held on January 16, 2021, and on May 6, 2021. Because of the pandemic conditions, these meetings were held online.

3. General Assembly of the Scientific Union

Belgium had two representatives in the general assembly: One nominated by the Belgian Association for Psychological Science, the other by the National Committee. The fact that Belgium had two representatives from two different institutions brought about difficulties in the past as only one representative was acknowledged on the IuPsyS website. The situation of Belgium has now been clarified: the two Belgian Institutions which contribute to IuPsyS (i.e., BAPS and RASAB) are now recognized on the IuPsyS website. This is a huge progress, although the specific roles of BAPS and RASAB in IUPsyS will need to be clarified.

The general Assembly of IUPsyS (July 19-21, 2021) was held online because of the COVID-19 pandemic. Frank Van Overwalle was our delegate.

5. Other Activities

[a] RASAB Symposium: The committee organizes bi-annual symposia. The last symposium took place on May 7th, 2018, at the Academy, and was titled “Windows on brain plasticity” (Organizer: Pr. Philippe Peigneux). The next symposium was planned in 2020 but has been postponed to a yet undefined date because of the COVID pandemic situation. The committee largely favors an on-site (rather than online) symposium, and the COVID-19 situation currently prevents the committee from scheduling an on-site symposium. It will most probably be held in Spring 2023. The committee has

however already approved the topic and planning of this symposium. It will be on burnout and organized by Moïra Mikolajczak.

Current planning of the “Burnout” RASAB symposium:

1. Historical/civilizational evolutions that led to increased visibility of burnout (Anna Katharina Schaffner; Historian; University of Kent, UK)
2. Job burnout: knowns and unknowns (Wilmar Schaufeli, Utrecht University, The Netherlands)
3. Parental burnout: knowns and unknowns (Moïra Mikolajczak, UClouvain, Belgium)

Lunch break (with poster session* for doctoral students)

4. The burned-out brain (Ivanka Savic, Karolinska Institutet, Sweden; also affiliated to UCLA, USA)
5. Cross-cultural variations in burnout and implications for prevention (Prof. Lode Godderis, KULeuven and Pr Isabelle Roskam, UClouvain, Belgium, both yet to be contacted)
6. Flash-talk session for post-doctoral students*
7. Panel discussion among speakers and with the audience

* open to submissions on both burnout and fatigue

[b] Best Master Thesis Award: The committee also assists, every year, the Belgian Association for Psychological Science in selecting the recipient of its “Best Master Thesis Award”. The 2021 competition is now completed. A jury composed of Pr. Philippe Peigneux, Pr. Eva Van den busshe, Pr. Johan Wagemans and Pr. Axel Cleeremans (president) selected the Masters thesis composed by Sandra INVERNIZZI : “Comparaison des liens thématiques et taxonomies dans le paradigme de Jacoby et Whitehouse chez des patients atteints de la maladie d’Alzheimer à un stade débutant » (Supervisors: Prof. I. Simoes Loureiro, Prof. L. Lefèbvre).

The 2022 competition is now underway and a new jury will be appointed during the next committee meeting.

5. Future perspectives

No new initiatives are currently planned beyond the continued involvement of the committee in its current activities, namely (1) communicating with the IUPsyS and with the Belgian Association for Psychological Science (BAPS), (2) organizing the next symposium, planned for 2023, and (3) handling the BAPS Best Thesis Award.

Other new initiatives are not considered for the immediate future given the current pandemic situation.

NATIONAL COMMITTEE FOR RADIO-ELECTRICITY (URSI)

INTERNATIONAL UNION: INTERNATIONAL UNION OF RADIO SCIENCE (URSI)

1. Introduction, mission, goals

The activities of the Belgian URSI Committee pertain to radio-electricity. The main goal of the committee is to promote and to help coordinating for Belgium the scientific activities of its members in this field. The committee normally meets regularly at the Academy or, since 2019, also via electronic meeting tools and video-conferencing.

The Committee also normally organizes yearly, in collaboration with the Netherlands URSI committee, an 'URSI Benelux Forum' where young *doctorandi* have the opportunity to present their research and to exchange their scientific and technical experience. Members of the committee represent Belgium in different instances and scientific commissions of the international URSI union, the secretariat of which is hosted in Ghent, with Peter Van Daele as Secretary-General.

2. Meetings of the Committee

Just as in 2020, the activities of the committee have seriously been impacted by the COVID-19 pandemic with restrictions on physical meetings and traveling. During 2021, again no formal meetings took place of the Belgian URSI Committee apart from some video meetings, informal meetings and contacts between some of the members.

These informal contacts focused on the following issues:

- Celebration of the 100th anniversary of URSI which originally included the organization of special sessions at the URSI Flagship meetings as well as the preparation of a book on the 100 years of URSI. The celebrations were also intended to include a special symposium addressing a topic of wider interest: "Radio Science for a Sustainable and Changing World - The last and the next 100 years" but the, originally delayed in 2020, it was finally decided by the URSI Board to cancel this symposium in view of the pandemic and to concentrate on the organization of the special sessions at the GASS as well as the book on 100 years of URSI.
- Special sessions were originally scheduled at the URSI General Assembly 2020 in Rome, with a Public Lecture by our Honorary Member Prof. André Vander Vorst on the history of URSI. As the URSI General Assembly 2020 in Rome was finally reduced in format to a 100% virtual event with only presentations by Young Scientists and participants in the Student Paper Competition, this public lecture was also cancelled. In view of the continuing pandemic in 2021, the URSI General Assembly was held in August 2021 in Rome using a hybrid format. The Public Lecture

by our colleague was unfortunately not retained in the program as travel restrictions inhibited Prof. Vander Vorst to travel to Rome and both the Local Organizing Committee as well as the URSI Board preferred an on-site presentation. The Public Lecture focused on some historic aspects of the life and work of Marconi. In view of the 100 year anniversary of the International Union, other historic sessions were also organized with both on-site as well as online participations and presentations.

- Since the decision was taken to produce a book on the “100 years of URSI” in 2019, our Committee, under the guidance of Prof. André Vander Vorst has been very active in preparing the contribution from our National Committee to this book. Besides the contribution by Prof. André Vander Vorst covering the activities of the Belgian URSI Committee, the introduction to the book has been prepared by Prof. Paul Lagasse, our honorary member and predecessor as URSI Secretary General. This introduction covers an historic overview of the early years of URSI based on the archives at the URSI Secretariat. The book was on display available at the URSI General Assembly in Rome and at the time of writing, the book is being printed and will be ready for distribution shortly. It can be ordered for download (for free) or in printed version (hard cover, against payment of minimal costs)
- Already announced in 2020 but not yet formally implemented:
 - Retirement of Jean-Claude Jodogne. Dr. Jodogne has been an active member of our Committee during many years and has been actively contributing to the activities within the area covered by URSI Commission G.
 - A proposal is made to add a new member and more specifically the nomination was received to accept Dr. Tobias Verhulst (IRM-KMI-RMI Dourbes). At the next meeting, this nomination will be discussed.
- Preparation of the URSI GASS 2021 conference. This preparation constitutes of proposals for scientific sessions as many of our committee members are acting as convenors of the sessions, as well as the submission of scientific papers. Several of our members are also part of the Technical Programme Committee and are involved in reviewing the submitted papers.
- Preparation of the AT-AP-RASC 2022 conference: In view of the travel restrictions regarding entering Australia, the Local Organizing Committee, supported by the URSI Board decided to cancel the URSI Asia-Pacific Radio Science Conference (AP-RASC 2022), scheduled on 21-25 August 2022, Sydney Australia and to rework the format of the of the upcoming 3rd URSI Atlantic Radio Science Conference (AT-RASC 2022), 29 May – 4 June 2022, Gran Canaria, Spain into a hybrid format. This opened the way to merge both Flagship meetings into a single event: URSI AT-AP-RASC 2022, to remain in Gran Canaria on the proposed dates. This single event in a hybrid format was chosen to allow the worldwide URSI community to participate in this

conference. It is expected that participants from Europe and North America will be able to travel and participate on-site, while Asia-Pacific participants will join the conference on-line. The Belgian URSI committee are actively involved in the definition of the technical sessions and several members act as conveners or members of the Scientific Organizing Committee. Shortly after the URSI General Assembly 2021 in Rome, the paper submissions for the AT-AP-RASC 2022 were opened.

3. General Assembly of the Scientific Union

URSI Flagship meetings in 2021:

[a] Overall statistics

The URSI GASS 2021 took place in a hybrid format in Rome from 28 August – 8 September.

In total 1692 papers were accepted with authors/co-authors from 74 countries and were used to compose in total 524 (sub-)sessions. Each of these (sub-)sessions were made of each up to 3 papers to ease the online participants. This is a considerable increase with respect to the previous edition held in August 2017 in Montreal, Canada. which welcomed 1483 submissions from 56 countries/regions.

[b] Participation from Belgium

Out of the accepted papers, 16 papers have a first author from Belgium:

- “Empirical Channel Modeling for WBANs at sub-6 GHz and Millimeter-Waves Reza Aminzadeh, Ghent University – imec, Belgium
- “Personal Distributed Exposure Meters for the mm-Wave Band” Reza Aminzadeh, Ghent University – imec, Belgium
- “How much power is radiated by the BRAMS transmitter? And with what pattern?” Michel Anciaux, Royal Belgian Institute for Space Aeronomy, Belgium
- “Inter-hemispheric comparison of the ionosphere-plasmasphere system at mid-latitudes.” Nicolas Bergeot, OMA, Belgium
- “Ionosphere-Plasmasphere TEC Climatology over Antarctica” Nicolas Bergeot, OMA, Belgium
- “Prediction of Mars’ Ionosphere Impact on Radio-Science Experiment.” Nicolas Bergeot, OMA, Belgium
- “Plasmasphere observations with Cluster data supplemented with data from the Dynamics Explorer-1 and Van Allen Probes missions” Fabien Darrouzet, Belgian Institute for Space Aeronomy, Belgium

- “RF energy harvesting for LoRaWAN operation” Joseph Finnegan, Aloxy, Belgium
- “Half-Mode Substrate Integrated Waveguide Leaky-Wave Antenna Based on a Dielectric Layer with Periodic Perforations” Kamil Kapusuz, Ghent University, Belgium
- “In memory of Jean Van Bladel”
- Paul Lagasse, URSI secretariat, Belgium
- “Meteoroid trajectory and ionization retrieved using BRAMS data” Hervé Lamy, Royal Belgian Institute for Space Aeronomy, Belgium
- “The Earth's Plasmasphere: Pending Questions and Issues” Joseph Lemaire, Royal Belgian Space Aeronomy Institute, Belgium
- “Analysis of Capacitive Wireless Power Transfer SIMO Systems based on the Duality Principle” Ben Minnaert, Odisee University College of Applied Sciences, Belgium
- “Space weather models for the solar wind and the plasmasphere” Viviane Pierrard, Royal Belgian Institute for Space Aeronomy, Belgium
- “On the quality of automatic scaling of digital ionograms: DPS-4D/ARTIST-5 performance at a mid-latitude location” Stanimir Stankov, Royal Meteorological Institute, Belgium
- “Design and Verification of IR-UWB Localisation Sensor Node with Cavity-Backed Textile Antenna” Jo Verhaever, Ghent University, Belgium

Besides these 16 accepted papers with a Belgian 1st author, 9 more papers have Belgian scientists as co-author.

Two papers with a Belgian 1st author were withdrawn by the author and 3 papers were rejected.

[c] Participation from Belgium in the URSI Young Scientists Awards

As an international union, URSI maintained its well-known Young Scientists programme at the URSI General Assembly in Rome. From the 16 papers with a Belgian 1st author, 1 applied for a Young Scientist Award:

- "Half-Mode Substrate Integrated Waveguide Leaky-Wave Antenna Based on a Dielectric Layer with Periodic Perforations", Kamil Kapusuz, Ghent University, Belgium";

And was selected and awarded with an URSI Young Scientist award. A recorded presentation of this paper will become available on the URSI website.

[d] Upcoming Flagship Meetings:

Due to the worldwide COVID-19 pandemic, the scheduling of the URSI Flagship meetings has been changed as follows:

- 2021: The General Assembly 2021 took place in Rome from 28 August till 4 September (see above)
- 2022: The 3rd URSI Atlantic Radio Science Conference (AT-RASC 2022) will be merged with the AP-RASC 2022 conference into a single AT-AP-RASC 2022 conference which will take place in Gran Canaria, Spain, during the period 29 May – 3 June 2022. At the moment of writing, a few days prior to the paper submission deadline, in total 553 papers are submitted of which 13 have a 1st author from Belgium and an additional 25 with Belgian co-authors.
- 2023: In August 2023, the URSI GASS will be held in Sapporo, Japan and this will then be back on the year-long triennial schedule on which URSI Flagship meetings have been organized.
- 2024: The 4th URSI Atlantic Radio Science Conference (AT-RASC 2024) will take place in the period May – August 2024, location still to be defined.
- 2025: URSI Asia Pacific Radio Science Conference (AP-RASC 2022) is moved to 21-25 August 2025, Sydney Australia
- 2026: During its meeting at the occasion of the URSI General Assembly in Rome, URSI Council voted to hold its 2026 General Assembly in Krakow, Poland during the month of August.

4. Other activities

After the URSI Benelux Forum 2019 organized by Prof. Peter Van Daele on 3 December 2019 in Brussels at the Royal Academy on the theme "Interaction with your environment through Radio Science ", and in view of the pandemic, no URSI Benelux Forum was organized in 2020 nor in 2021. The next Benelux Forum will be organized by the Dutch URSI Committee, originally on 3 February 2022, but in view of the current restrictions in the Netherlands, the date is postponed to 18 March 2022 in Eindhoven.

The URSI Benelux Forum always aims at encouraging doctoral and young postdoctoral researchers to present their research and results to a wider public. Through the diversity of topics being presented at the forum, just like with URSI Flagship meetings, interdisciplinarity and contacts with fellow researchers are basic parts of the meeting, and consequently this can only be achieved by on-site meetings.

5. Future perspectives

The URSI Benelux Symposium was last held in 2019 in Brussels, so consequently the next event is scheduled to be hosted in the Netherlands. In 2020 and in 2021, no symposium took place, but now

preparations were ongoing to re-initiate the Benelux Symposium initially on 3 February 2022, but now postponed to 18 March 2022 in Eindhoven, the Netherlands,

It is also the clear intention to re-start the regular meetings of the Belgian URSI Committee. In first instance, in view of the restrictions still present, these meetings will be organized online and will, as usual, consist of both an administrative part as well as a scientific presentation.

Members of the Belgian URSI community have actively submitted in the papers to the next upcoming URSI Flagship meeting, i.e. the AT-AP-RASC 2022 to be held in Gran Canaria.

Members of the Belgian URSI Committee are also actively involved in the organization of sessions at all of the upcoming URSI Flagship meetings.

NATIONAL COMMITTEE FOR SOIL SCIENCES

INTERNATIONAL UNION: INTERNATIONAL UNION OF SOIL SCIENCES (IUSS)

1. Introduction, mission, goal

The NCSS was set up in 2002, following long lasting activities of the Soil Science Society of Belgium (established in 1924) and with the purpose to bring soil science to the attention of the broader public with particular focus of the young people. This original mission of SSSB/NCSS is more relevant now than ever: soil and soil suitability comes daily in the media and in the public debate: soil as an ultimate powerhouse and store for carbon sequestration to check climate change; trade-offs between food production versus agro-fuels; the preservation of our pristine soils; the conservation of our soil heritage; the rehabilitation of marginal lands and the remediation of polluted soils. The NCSS is the representative organization for all soil scientists active in Belgium and is the official Belgian representative into the International Union of Soil Sciences (IUSS). The mission of SSSB/NCSS aim to gather all actors of the soil science community in Belgium. The society informs these actors of soil-related challenges and opportunities, recent developments and contributes to the preservation and enhancement of soil resources for future generations. The SSSB provides networking opportunities between different disciplines of the soil science community and between universities, government agencies and companies in order to promote a transdisciplinary approach to soil science with special attention to young talent. We are a bridge between employees and job seekers. The society is also the first contact point for international exchange on soil-related topics.

2. Meetings of the committee

- Regular board meeting on November 26th 2021 (online) to discuss the organization of SSSB events with regard to COVID19 pandemic in 2022.
- The Executive Committee had one additional ad hoc meeting on June 15th 2021 so as to make a close follow-up on the National Committee's agenda with particular attention to discuss organization of 2021 SSSB events and transition of the society to a v.z.w./a.s.b.l. ²
- All other initially foreseen meetings of the committee to be organized jointly with special events (DYSS, excursions) postponed due to COVID19 measures.

Main conclusions: the NCSS has virtually met two times to figure out how to handle the COVID19 situation, while keeping SSSB members posted with regard to the organization of the events.

3. General Assembly of the Scientific Union

- J. Meersmans organized on the EUROSIL 2021 conference “the Soil Science Interdisciplinary Grant for Early Career Researchers and Professionals” in collaboration with researchers from Cranfield University (UK), Lancaster University (UK), Edge Hill University (UK), Wageningen University (Netherlands); Technical University of Munich (Germany).
- K. Vancampenhout is member of the IUSS for the Board and also a key person in the European Confederation of Soil Sciences which was organizing the Eurosoil meeting in 2020.

4. Other activities

Continuation of our special annual activities, planned to mark the International Decade of the Soil under the IUSS:

- The Day of the Young Soil Scientist programmed to cover “the future of Soil Science” (<http://www.soilbelgium.be/?p=3752>) but was suspended due to COVID19 measures and postponed to Spring 2022. The Executive Board very much appreciated all the good work done by the Young Soil Scientist organizational committee. A new timing is to be set at forthcoming SSSB board meeting in January 2022.
 - An initially planned international excursion to Burgundy (France) has again been suspended and postponed till Spring 2022 due to the COVID situation; the date will have to be solidified. Bruno Delvaux previously went two times on the foreseen field sites with French colleagues to prepare sites and accommodation.
 - An initially planned excursion in Herentals foreseen for September by K. Vancampenhout (forest soil profiles) was unfortunately not allowed to be organized under COVID regulations.
 - On 25th of November the annual SSSB Thematic day was organized on the theme ‘Detection, monitoring and management of soil structure and compaction’. Aside from one keynote speaker, there were three more oral presentations and six poster presentations with short oral pitch presentation. The event was initially planned as a meeting in person at the Academy of Sciences on November 25th but had to be last-minute migrated to a fully online alternative again because of the Covid crisis. Nevertheless there was a good show up with 31 attendees. The book of abstracts and presentation recordings and posters are online available at http://www.soilbelgium.be/?page_id=3914

- Communicating through our dedicated website where anything happening in the field of soil science, e.g. a PhD defence, is timely announced so that interested people can participate. ☑ Scientific session proposals IUSS/EGU meetings:
 - For the forthcoming EGU 2022 General Assembly: session SSS5.7 From source to storage - understanding soil organic matter cycling in space and time using molecular tools (K. Vancampenhout co-convener)
 - 22nd World Congress of Soil Science - Glasgow 2022 (22wcss.org)- K. Vancampenhout is convening a session
- Ad hoc efforts by SSSB to reach out to the general public:
 - SSSB executive board nominated Pr. Jozef A. 'Seppe' Deckers as an Honorary Member of IUSS, Pr. Deckers has been elected during the IC IUSS meeting: <https://www.iuss.org/organisation-people/people/iuss-honorary-members/>.
 - Active Twitter and LinkedIn group has been launched to communicate about the latest SSSB and soil news.

5. Future perspectives

After two years of limited activity as a result of cancelled events and the SSSB board's decision to not organise only fully online SSSB-events in 2021 the NCSS now has the ambition to organize 6 core activities in 2022:

- 2 Board Meetings are scheduled for January 2022 online & November 2022 at RASAB, depending on COVID19 measures.
- A Day of the Young Soil Scientist, foreseen for Spring 2022.
- The 2nd Agrogeophysics seminar on March 11th, organized by Sarah Garré and Ellen Van De Vijver
- An international excursion on 'Soil and Wine' in Spring in France, organized by Bruno Delvaux (UCLouvain).
- An excursion to Luxembourg on September 9th with visits to 4 soil profiles, organized by Simone Marx.
- Thematic Day 2022 – A Thematic day on soil health indicators in November/December. The selected topic is in line with the new proposal for EU soil legislation, and will therefore be very relevant for administrations, policy, and NGO's. H. Briec and J. Meersmans are taking action to compile an organizing committee thematic day.

INTERNATIONAL SCIENTIFIC UNIONS

The conditions for the foundation of a National Committee is the existence of an international scientific union which is a member of the Internationale Science Council - ISC or a member of a scientific institution of ISC (scientific committees, special committees, etc.) in the same scientific discipline. All Belgian national committees are members of one or more international organizations in which they represent Belgium.

National Committees	Internationale unions
1) Antarctic Research	Scientific Committee on Antarctic Research www.scar.org
2) Astronomy	International Astronomical Union (IAU) http://www.iau.org
3) Biochemistry and Molecular Biology	International Union of Biochemistry and Molecular Biology (IUBMB) www.iubmb.org
4) <i>Biological Sciences*</i>	International Union of Biological Sciences (IUBS) www.iubs.org
5) Biomedical Engineering	International Federation for Medical and Biological Engineering (IFMBE) www.ifmbe.org International Union for Physical and Engineering Sciences in Medicine (IUPESM) www.iupesm.org

6) Biophysics	International Union of Pure and Applied Biophysics (IUPAB) www.iupab.org
7) Chemistry	International Union of Pure and Applied Chemistry (IUPAC) www.iupac.org
8) Crystallography	International Union of Crystallography (IUCr) www.iucr.org
9) Geodesy and Geophysics	International Union of Geodesy and Geophysics (IUGG) www.iugg.org
10) Geography	International Geographical Union (IGU) www.igu-net.org
11) Geological Sciences	International Union of Geological Sciences (IUGS) www.iugs.org
12) Logics, History and Philosophy of Science	International Union of History and Philosophy of Science (IUHPS), <ul style="list-style-type: none"> • Division of History of Science and Technology (IUHPS-DHST) • Division of Logic, Methodology and Philosophy of Science (IUHPS-DLMPS) www.dlmps.org
13) Mathematics	International Mathematical Union (IMU) http://www.mathunion.org
14) Mechanics	International Union of Theoretical and Applied Mechanics (IUTAM) www.iutam.net

15) Microbiology	International Union of Microbiological Societies (IUMS) www.iums.org
16) Physiology and Pharmacology	International Union of Physiological Sciences (IUPS) www.iups.org International Union of Pharmacology (IUPHAR) www.iuphar.org
17) Physics	International Union of Pure and Applied Physics (IUPAP) www.iupap.org
18) Psychological Sciences	International Union of Psychological Science (IUPsyS) www.iupsys.net
19) Quaternary Research (BELQUA)	International Union for Quaternary Research (INQUA) www.inqua.org
20) Radio-electricity	International Union of Radio Science (URSI) www.ursi.org
21) Soil Sciences	International Union of Soil Sciences (IUSS) www.iuss.org

- *Committees are currently inactive.*