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# **National Commission for Stratigraphy Belgium**

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**NCS meeting report 05/12/2022**

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# 1 Administrative section

The Chair opens the meeting at 10h10.

## 1.1 Presence list

**Present:** Bernard Mottequin (BM, President), Kris Welkenhuysen (KW, Secretary, Webmaster), Michiel Duser (MD), Alain Herbosch (AH), Jacques Verniers (JV), Marie Coen-Aubert (MC).

**Excused:** Katrien De Nil (KD), Vanessa Heyvaert (VH), Jonathan Michel (JM), Edouard Poty (EP), Kris Piessens (KP; invited), Frieda Bogemans (FB), Stephen Louwye (SL), Bernard Delcambre (DB), Johan Yans (JY).

## 1.2 Approval of the previous meeting report

The report of the end 2021 meeting, available on the website, did not raise any remarks and is approved.

## 1.3 Approval of the agenda

The agenda is approved.

# 2 Reports of the subcommissions

## 2.1 Lower Palaeozoic (JV)

### Activities

Two meetings at the GSB in Brussels on 29 June and 4 December 2022.

### Publications (submitted or accepted)

MORTIER, J., VANMEIRHAECHT, J., HARPER, D., STORCH, P., ZALASIEWICZ, J., VAN DEN HAUTE, P., DECKERS, J., MESTDAGH, J., PILLE, T., VERNIERS, J. (submitted 1 febr. 2022). Stratigraphy and biostratigraphy with chitinozoans of the uppermost Ordovician and Silurian of the Condroz Inlier. *Memoirs of the Geological Survey of Belgium*. (The publication of reworked and updated PhD of Jan Mortier, 2014).

CANDELA, Y. & MOTTEQUIN, B., 2022. Tremadocian and Floian (Ordovician) linguliformean brachiopods from the Stavelot–Venn Massif (Avalonia; Belgium and Germany). *Geologica Belgica*, 25(1-2), 1-15.

HERBOSCH, A. & BOULVAIN, F. (accepted) Chap. 8.1 Ardenne In *Geology of the Central European Variscides and its Avalonian-Cadomian precursors* (U. Linnemann, Editor).

LEFEBVRE, B., ÁLVARO, J.J., CASAS, J.M., GHIENNE, J.J., HERBOSCH, A., LOI, A., MONCHERET, E., VERNIERS, J. VIDAL, M., VIZCAINO D. & SERVAIS, T. (accepted). The Ordovician of the Variscan Chain in Belgium, France, western and northeastern Germany. Special Publication of the Geological Society. (of London) by Harper & Servais.

Publication in progress? of Michiel Arts (ULiège with MSc student 2021, M.C. Da Silva, F. Boulvain, X. Devleeshouwer, BGS) on the results of sedimentological, geochemical studies in the Tihange section, on the Ordovician-Silurian transition.

### Plans for 2023

Herbosch et al. (manuscript nearly finished, for submission to *Geologica Belgica*). Synthesis on the Mousty Formation: the state of the art.

JV continues on the revision of the Silurian in Belgium, 20 years after the 2002 synthesis, for *Geologica Belgica* with two manuscripts. 1. The Silurian formations (in “2002 article” style with new dating, sections, ...). 2. State of art on the Silurian of Belgium including a new biostratigraphy with chitinozoans (the article requested for the medaille Van den Broeck).

### Members

As mentioned in previous years, only two members are mostly active (Alain Herbosch and Jacques Verniers). All other members worked to some degree in previous years on the Lower Palaeozoic.

## 2.2 Devonian (MC)

Pierre Bultynck (1938–2022) passed away on 27<sup>th</sup> November. Pierre was a well-known and respected palaeontologist at the RBINS and professor at KU Leuven. He was an eminent specialist in Devonian conodonts and greatly contributed to the knowledge of the Devonian of Belgium, France, Spain and Morocco. He was an active member of the International Subcommittee on Devonian Stratigraphy, of which he was chairman

between 1997 and 2005. As chairman of the Belgian National Commission on Stratigraphy, he edited with Léon Dejonghe the special volume of *Geologica Belgica* entitled 'Lithostratigraphic scale of Belgium' (2002).

The revision of the lithostratigraphic scale of the Devonian is currently in progress thanks to the joint work of MCA, Julien Denayer and BM. Numerous problems are encountered regarding the Lower Devonian and the Famennian (e.g. lack of complete sections).

MD mentions that work is ongoing by KW and Xavier Devleeschouwer to publish a report by Cornet on the Heibaart 1 well as Professional Paper. He suggests the engagement of the subcommission for additional support.

#### Publication

Boulvain, F., Demaude, N., Toussaint, F. & Coen-Aubert, M., 2022. Frasnian reef mounds in the Durbuy-Bomal area (eastern border of the Dinant Synclinorium, Belgium). *Geologica Belgica*, 25(1-2), 17-30.

## 2.3 Carboniferous (BM, on behalf of EP)

Within the framework of the revision of some sections located in the eastern part of the Visé sedimentation area, dark shales previously assigned to the Chokier Formation (Namurian A according to the traditional subdivision) were studied from the palynological point of view. Based on analyses carried out by Cyrille Prestianni, these alleged Namurian shales were transferred to the middle shaly member of the Aisemont Formation (Upper Frasnian). Such discoveries should be incorporated into the future revision of the geological map. Investigations were also carried out in the vicinity of Visé to find the black shale outcrops which had yielded a well-preserved early Namurian fauna (e.g. shrimps, fishes, conulariids), without success, as all these outcrops have disappeared.

Several online meetings of the joint working group of the international Devonian and Carboniferous subcommissions were held this year in order to find a new criterion for defining the Devonian–Carboniferous boundary as the previous one, namely the FAD of the conodont *Siphonodella sulcata*, is not applicable in all shallow-water environments and almost all the deep ones. The new criterion adopted is the boundary between the top of the Hangenberg Sandstone episode, which saw the end of the mass extinction of Devonian faunas, and the base of the sediments which saw the onset of the radiation of Carboniferous faunas and new taxa, including among others *Protognathodus kockeli*, *Acutimitoceras*, foraminifera of zones DFZ8-MFZ1 and corals of the zone RC1. The objectives for 2023 are to establish which sections ideally meet these criteria in order to select those that could potentially serve as new stratotypes and parastratotypes. Some Belgian sections are serious candidates for this new definition of the D/C boundary.

MD mentions that VPO funds a project on the revision of the Dinantian in the Campine Basin. The contract was won by Panterra, with the involvement of Rudy Swennen, Philippe Muchez and Luc Hance. The latter revises the biostratigraphy based on foraminifera, which is expected to be ready early 2023.

## 2.4 Permian-Triassic-Jurassic (MD)

There are several proposals on the website for some time that have not received any comments. They can be moved to unit descriptions.

Research on the PTJ in Belgium is a rather complex situation. It is present in the Campine Basin and the Lorraine, but its essence lies outside Belgium. Therefore, most work is done in France, Germany and the GD Luxembourg.

#### Members

Members that have confirmed their engagement in the subcommission: Steve Gruslin, Vincent Debbaut, Michiel Duser, Frédéric Boulvain, Robert Colbach, Jonathan Michel, Ben Thuy, Roby Weis, Dominique Delsate, Bernard Lathuilière, Jef Deckers.

#### Publications

##### Belgium

Three geological maps of the Walloon Region containing PTJ deposits have been published in 2022: Nobressart-Attert, Assenois-Anlier and Habay-la-Neuve-Arlon-Sterpenich.

##### Grandcourt Formation (Luxemburg equivalent)

Gruslin, S., Hennebaut, T. & Tirone, M., 2022. How to ensure better consideration and mitigation of the shrinkage-swelling risk of clays? *European geologist*, 53, 20-28.

*Comparison between the Lower Triassic formations and the facies known from Germany*

Dittrich, D., Colbach, R. & Feist-Burkhardt S., 2022. Oberer Buntsandstein und Unterer Muschelkalk der Kernbohrung Reisdorf – Stratigraphie, Lithofazies und Palynologie mit Rückschlüssen auf die Paläogeographie. *Bulletin du Service géologique du Luxembourg*, 21, 1-128.

Dittrich, D., 2022. Der Untere Muschelkalk im Raum Godendorf – Kersch – Udelfangen/Südeifel : Bio- und Ichnofazies, Litho- und Sequenzstratigraphie. *Mainzer Geowissenschaftliche Mitteilungen*, 50, 135-200.

#### **Palaeontology**

Weis, R., Thuy, B. & Garbay, L., 2022. Le circuit géologique Giele Botter (Differdange-Pétange) – une vitrine à ciel ouvert du géopatrimoine des Terres Rouges luxembourgeoises. *Bulletin de la Société des naturalistes luxembourgeois*, 124, 179-189.

Fischer, V., Laboury, A., Bernacki, K., Garbay, L., Gillen, Y., Rollinger, C., Thill, A., Weis, R. & Thuy, B., 2022. A fragmentary leptonechid ichthyosaurian from the lower Pliensbachian of Luxembourg. *Palaeontologia Electronica*, 25, a24.

Laboury, A., Bennion, R.F., Thuy, B., Weis, R. & Fischer, V., 2022. Anatomy and phylogenetic relationships of *Temnodontosaurus zetlandicus* (Reptilia: Ichthyosauria). *Zoological Journal of the Linnean Society*, 20, 1-23.

Greenfield, T., Delsate, D. & Candoni, L., 2022. Toarcibatidae fam. nov., a replacement for the unavailable name *Archaeobatidae* Delsate & Candoni, 2001 (Chondrichthyes, Batomorphii). *Zootaxa*, 5195(5), 499-500.

#### **Activities**

- Reporting of temporary outcrops via the Walloon geological map website, adding to the knowledge of the PTJ formations (Steve Gruslin).
- Hydrogeology in the Triassic and Jurassic of Luxembourg, and study of the environmental impact of a geothermal project in the Buntsandstein and Permian of southern Luxembourg (Vincent Debbaut).
- Study and reinterpretation of some boreholes in the Triassic coastline facies (Muschelkalk and Buntsandstein) in the Luxembourg Gutland between Ettelbruck and the Belgian-Luxembourg border (Petra Münzberger, Geological Survey of Luxembourg).
- Mapping work in the Triassic of the Luxembourg Gutland, Diekirch sheet, (Jean-Frank Wagner, University of Trier, in collaboration with the Geological Survey of Luxembourg).
- Ongoing work mainly concerns vertebrates from the Rhetian and Toarcian of Lorraine in Belgium, France and the GD Luxembourg (Dominique Delsate).
- Ongoing research on the Triassic and Jurassic fossils of the Greater Region. Organisation of a large excavation in the Bascharage paper shale in May 2022. The aim of this excavation was to systematically deconstruct the fossil lagerstätte of the paper shale of the region in order to have 1) a systematic, complete and stratigraphically coherent inventory of the fauna, 2) a litho- and biostratigraphic profile of the lower part of the paper shale, 3) an exhaustive geochemical sampling of the succession (Natural History Museum of Luxembourg).

#### **Flemish region**

As for publications, a report will be published soon on the new 3D model of the Permo-Triassic and lower Jurassic in the Campine Basin by VITO. This was part of a larger mapping excursion that included the suprajacent upper Westphalian. This model was made for the Flemish Government (Bureau for Environment and Spatial Development).

A paper is being revised that was submitted earlier this year (in *Journal of Structural Geology*) on “New 3D fault model for eastern Flanders (Belgium) providing insights on the major deformation phases in the region since the late Paleozoic”. This paper includes a discussion/review on the Permian to Jurassic tectonic activity in the Campine Basin, with some seismic figures as well as a log correlation panel of the Permo-Triassic. We hope that this will be published online in the beginning of next year. Once accepted, the log-correlation panel of the Permo-Triassic in the Campine Basin could be of added value to the website of the NCS.

#### **Future work**

- Harmonisation of the common Belgian and Luxembourg formations (or at least a correlation).
- The Natural History Museum of Luxembourg aims to revisit the Triassic bone bed of Medernach for systematic research. This might be an occasion to publish in *Geologica Belgica*.

## **2.5 Cretaceous (MD)**

For eastern Belgium, no real work has recently been done on stratigraphy, mostly on palaeontology. Especially John Jagt is very active; MD proposed him for the André Dumont medal. There is an active amateur working

group active in the BE-NL Maastricht area. Because of ageing, MD suggests the idea of publishing a synthesis of general knowledge for preservation.

The Maastricht area is also proposed as a Unesco Geopark.

There is no update on activities in the Mons Basin.

## Publications

### *Stratigraphy*

Vancoppenolle, I., J. Vellekoop, M. Doubrawa, P. Kaskes, M. Sinnesael, J.W.M. Jagt, P. Claeys & R.P. Speijer, 2022. The benthic foraminiferal response to the mid-Maastrichtian event in the NW-European chalk sea of the Maastrichtian type area. *Netherlands Journal of Geosciences*, 101: e12, 16 pp, 11 figs, 2 tables, pls 1-3. <https://doi.org/10.1017/njg.2022.10>

Vellekoop, J., P. Kaskes, M. Sinnesael, J. Huygh, T. Déhais, J.W.M. Jagt, R.P. Speijer & Claeys, P., 2022. A new age model and chemostratigraphic framework for the Maastrichtian type area (southeastern Netherlands, northeastern Belgium). *Newsletters on Stratigraphy*, 55 (4): 479-501, 6 figs, 1 table. Stuttgart <https://doi.org/10.1127/nos/2022/0703>

Natuurhistorisch Museum Maastricht; (J. Jagt), 2022. Ouderdom Maastrichtse gesteenten nauwkeurig ontrafeld. *Geo.brief, Nieuwsbrief van KNGMG en NWO-ENW*, 4/2002: 9-11.

### *Werkgroep Krijt en Vuursteeneluvium*

Indeherberge, L.; Strijbos, V.; Goffings, L., 2021. Uit het veldwerk in het Boven-Krijt en vuursteeneluvium. *Werkgroep Krijt en Vuursteeneluvium*, 17 p. (overview of activities in 2021, pdf in bibliographical database on the geology of Belgium at GSB)

### *Paleontology*

Mironenko, A.A., J.W.M. Jagt & E.A. Jagt-Yazykova, 2022. An unusual conchorynch from the upper Maastrichtian of the southeast Netherlands and the distinction between nautiloid and ammonoid conchorynchs (Mollusca, Cephalopoda). *Cretaceous Research*, 130: 105037, 9 pp., 6 figs, 2 tabs. Amsterdam <https://doi.org/10.1016/j.cretres.2021.105037> [<http://zoobank.org/urn:lsid:zoobank.org:pub:73R6A68A-D058-4325-88C0-DC3DE263E6F0>]

Fraaije, R.H.B., B.W.M. van Bakel, J.W.M. Jagt, S. Charbonnier, G. Schweigert, G. Garcia & X. Valentin, 2022. The evolution of hermit crabs (Crustacea, Decapoda, Anomura, Paguroidea) on the basis of carapace morphology: a state-of-the-art report. *Geodiversitas*, 44 (1): 1-16, 12 figs. Paris <https://doi.org/10.5252/geodiversitas2022v44a1> [<http://zoobank.org/urn:lsid:zoobank.org:pub:6A4424D0-DEFD-4783-9B75-24AC2C7829F7>]

Jagt, J.W.M., M.J.M. Deckers & E.A.P.M. Nieuwenhuis, 2022. Opmerkelijke Luiks-Limburgse Krijtfossielen. Deel 46. De kunst van het kopiëren bij tweekleppigen. *Natuurhistorisch Maandblad*, 111 (4): 103-106, 7 figs. Maastricht

Jagt, J.W.M. & W.W. Schwarzahns, 2022. Verkiezelde gehoorsteentjes (otolieten) leiden tot een nieuwe kijk op beenvissen uit het Krijt van Maastricht en omgeving. *Grondboor & Hamer*, 76 (2): 50-57, 6 figs, 2 tabs. Utrecht

Tshudy, D., M. Hyžný, M. Kočová Veselská & J.W.M. Jagt, 2022. Taxonomic revision of the extinct clawed lobster genus *Oncopareia* Bosquet, 1854 (Decapoda, Astacidea, Nephropidae). *Palaeontologia Electronica*, 25 (2): a20, 31 pp., 14 figs. London <https://doi.org/10.26879/1190>, [www.palaeo-electronica.org/content/2022/3628-lobster-genus-oncopareia](http://www.palaeo-electronica.org/content/2022/3628-lobster-genus-oncopareia)

Hof, C.H.J., R.H.B. Fraaije, B.W.M. van Bakel & J.W.M. Jagt, 2022. Early “spearing” stomatopod claws from the Maastrichtian type area. In: Zamora, S., F.A. Ferratges, A. García-Penas & M. Aurell (eds). 8th Symposium on fossil decapod crustaceans, Zaragoza, Spain. *Abstracts Book – Field Guidebook. Palaeontological Publications*, 1: 61-62, 2 figs. Sociedad Española de Paleontología, Madrid.

Hyžný, M., M. Kočová Veselská, J.W.M. Jagt & D.M. Tshudy, 2022. *Oncopareia*: a convoluted story of an extinct lobster with pectinate claws. In: Zamora, S., F.A. Ferratges, A. García-Penas & M. Aurell (eds). 8th Symposium on fossil decapod crustaceans, Zaragoza, Spain. *Abstracts Book – Field Guidebook. Palaeontological Publications*, 1: 63-65, 1 fig. Sociedad Española de Paleontología, Madrid.

Jagt, J.W.M. & E.A.P.M. Nieuwenhuis, 2022. Opmerkelijke Luiks-Limburgse Krijtfossielen. Deel 47. Opvallend versierde mantelschelpen. *Natuurhistorisch Maandblad*, 111 (8): 216-219, 4 figs. Maastricht

Jagt, J.W.M. & M.R. Cooper, 2022. New late Maastrichtian trioniid bivalves from the south-east Netherlands, pp. 197-199. In: Jagt, J.W.M., E. Jagt-Yazykova, I. Walaszczyk & A. Żylińska (eds). 11th International Cretaceous Symposium, Warsaw, Poland, 2022, August 22-26, Abstract Volume. Warszawa, Faculty of Geology, University of Warsaw.

Jagt, J.W.M. & M.J.M. Deckers, 2022. ‘Changing of the guard’ amongst echinoids in the upper Maastrichtian of the south-east Netherlands: *Echinocorys* out, *Hemipneustes* in, pp. 199-200. In: Jagt, J.W.M., E. Jagt-Yazykova, I. Walaszczyk & A. Żylińska (eds). 11th International Cretaceous Symposium, Warsaw, Poland, 2022, August 22-26, Abstract Volume. Warszawa, Faculty of Geology, University of Warsaw.

Schwarzahns, W.W. & J.W.M. Jagt, 2022. Silicified bony fish otoliths from the Vaals Formation (lower Campanian) of Vaals-Eschberg, the Netherlands. *Cretaceous Research*, 139: 105312, 12 pp. 5 figs, 1 table <https://doi.org/10.1016/j.cretres.2022.105312>

[<http://zoobank.org/urn:lsid:zoobank.org:pub:83935243-3AA7-421D-AADB-FEC3AA91F098>]

- Jagt, J.W.M., G.C.H. Cremers, P.H.M. van Knippenberg & E.A.P.M. Nieuwenhuis, 2022. Opmerkelijke Luiks-Limburgse Krijtfossielen. Deel 48. Een buitengewone slakkensoort. *Natuurhistorisch Maandblad*, 111 (10): 263-267, 9 figs. Maastricht
- Jagt, J.W.M., B.J. Boekschoten, R.H.B. Fraaije, E.A. Jagt-Yazykova, A.S. Schulp & J.J.W. Wallaard, 2022. Een paleobioloog gaat met pensioen, oftewel 'Eric en het grote fossielenboek'. *Grondboor & Hamer*, 76 (5): 266-275, 12 figs, 2 tabs, Utrecht
- Jagt, J.W.M., M.R. Cooper & E.A. Jagt-Yazykova, 2022. The youngest Trioniida (Mollusca, Bivalvia) of Europe, including new genera and species from the type area of the Maastrichtian Stage. *Neues Jahrbuch für Geologie und Paläontologie Abhandlungen*, 306 (1): 13-28, 10 figs, 2 tabs. Stuttgart <https://doi.org/10.1127/njgpa/2022/1094>
- Jagt, J.W.M., M.J.M. Deckers, R.H.B. Fraaije, B.W.M. van Bakel & J.J.W. Wallaard, 2022. Opmerkelijke Luiks-Limburgse Krijtfossielen. Deel 49. Een echte killer onder de krabben. *Natuurhistorisch Maandblad*, 111 (x): xx-xx, 7 figs. Maastricht
- Benito, J., Kuo, P.-C., Widrig, K.E., Jagt, J.W.M. & Field, D.J., 2022. Cretaceous ornithurine supports a neognathous crown bird ancestor. *Nature*, <https://doi.org/10.1038/s41586-022-05445-y>
- Jagt, J.W.M., 2022f. Polytychoceratinae. In: *Arbeitskreis Paläontologie Hannover* (ed.). *Fossilien aus dem Campan von Hannover*, 4. erweiterte Auflage .....: xx-xx, 7 figs. Hannover
- Schneider, C., J.W.M. Jagt & R. Krupp, 2022. Seelilien (Crinoidea). In: *Arbeitskreis Paläontologie Hannover* (ed.). *Fossilien aus dem Campan von Hannover*, 4. erweiterte Auflage .....: xx-xx, xx figs. Hannover
- Neumann, C., J.W.M. Jagt, P. Girod & R. Krupp, 2022. Seesterne (Asteroidea). In: *Arbeitskreis Paläontologie Hannover* (ed.). *Fossilien aus dem Campan von Hannover*, 4. erweiterte Auflage .....: xx-xx, xx figs. Hannover
- Jagt, J.W.M. & P. Girod, 2022. Schlangensterne (Ophiuroidea). In: *Arbeitskreis Paläontologie Hannover* (ed.). *Fossilien aus dem Campan von Hannover*, 4. erweiterte Auflage .....: xx-xx, 8 figs. Hannover
- Jagt, J.W.M., ..... , 2022. Cirripedia. In: *Arbeitskreis Paläontologie Hannover* (ed.). *Fossilien aus dem Campan von Hannover*, 4. erweiterte Auflage .....: xx-xx, x figs. Hannover
- Jagt, J.W.M., R.H.B. Fraaije, B.W.M. van Bakel & U. Frerichs, 2022. Zehnfußkrebse (Decapoda, Astacidea und Brachyura). In: *Arbeitskreis Paläontologie Hannover* (ed.). *Fossilien aus dem Campan von Hannover*, 4. erweiterte Auflage .....: xx-xx, xx figs. Hannover

### *Geoheritage*

- Collet, H.; Collin, J.-P., 2022. Carrières souterraines de Spiennes. Les premiers "mineurs" néolithiques qui exploitaient le silex. *Eco Karst*, N° 127 - 1er trimestre 2022: 14-18
- Lahaye, M., M. Duser, J.W.M. Jagt, P. Kisters, T. Berto, V. Cnudde, C.W. Dubelaar & T. De Kock, 2022. The transversal heritage of Maastricht Stone, a potential global heritage stone resource from Belgium and the Netherlands. *Geoheritage*, 14: 49, 15 pp., 9 figs, 1 tab. <https://doi.org/10.1007/s12371-022-00683-y>
- Vellekoop, J., P. Kaskes, M. Sinnesael & J.W.M. Jagt, 2022. An update on the Maastrichtian Geoheritage Project, pp. 352-353. In: Jagt, J.W.M., E. Jagt-Yazykova, I. Walaszczyk & A. Żylińska (eds). 11th International Cretaceous Symposium, Warsaw, Poland, 2022, August 22-26, Abstract Volume. Warszawa, Faculty of Geology, University of Warsaw.

### *Physical properties of chalk / quarry stability*

- Georgieva, Temenuga (2022). "Tectonique et sédimentation à la limite Crétacé-Tertiaire dans le Bassin de Mons. Etudes des phosphatières souterraines de la Malogne. : Mémoire de Licence, ULB". Unpublished master thesis, ULB / UMONS. Jury: S. Vandycke.
- Geremia, D., David, C., Descamps, F., Menendez, B., Barnes, C., Vandycke, S., Dautriat, J., Esteban, L., & Sarout, J. (10 March 2021). Water-induced damage in microporous carbonate rock by low-pressure injection test. "Rock Mechanics and Rock Engineering, 54", 5185-5206.
- Wattier, M.-L., Vandycke, S., Bergerat, F., Wertz, P., Mohammad, S., & Tshibangu, K. (09 October 2021). "Comparison of roughness indices on chalk and sandstone fractures". Paper presented at EuroEngeo, Athens, Greece.
- Geremia, D., David, C., Zhengissov, A., Menendez, B., Barnes, C., Vandycke, S., Descamps, F., Dautriat, J., Esteban, L., & Sarout, J. (15 February 2021). "Chemical degradation from water injection in critically stressed carbonate rock". Paper presented at 12th European Geothermal PhD Days, Cergy, Paris, France.
- Colloques et congrès scientifiques/Communication publiée dans un périodique
- Geremia, D., David, C., Georgieva, T. D., Descamps, F., Vandycke, S., Menendez, B., & Barnes, C. (2021). "Influence of the water table oscillation on the mechanical and petrophysical properties of chalk". Paper presented at 15èmes journées d'étude des milieux poreux (JEMP), Strasbourg, France.
- Georgieva, T. D., Descamps, F., Vandycke, S., Ajdanlijsky, G., & Tshibangu, K. (2021). "Geomechanical evaluation of an abandoned chalk mine using in-situ measurements". Paper presented at EuroEngeo, Athens, Greece.



- Geremia, D., David, C., Barnes, C., Menendez, B., Dautriat, J., Esteban, L., Sarout, J., Vandycke, S., & Descamps, F. (2021). "Laboratory experiments of water injection coupled with ultrasonic monitoring reveal wave-induced fluid flow in microporous carbonate rock". Paper presented at EGU General Assembly 2021, virtual, Unknown/unspecified.
- Geremia, D., David, C., Georgieva, T. D., Descamps, F., Vandycke, S., Menendez, B., & Barnes, C. (26 October 2021). "Influence of the water table oscillation on the mechanical and petrophysical properties of chalk". Poster session presented at 15èmes journées d'étude des milieux poreux (JEMP), Strasbourg, France.
- Wattier, M.-L., Vandycke, S., Bergerat, F., Wertz, P., Mohammad, S., & Tshibangu, K. (08 October 2021). "Comparison Of Roughness Indices On Chalk And Sandstone Fractures". Poster session presented at EuroEngeo, Athens, Greece.
- Graveleau, F., Antoine, P., Jomard, H., Camelbeeck, T., Lecocq, T., Manchuel, K., Averbuch, O., Laurent, A., Meilliez, F., Beccaletto, L., Chanier, F., Watremez, L., Gaullier, V., Laurencin, M., Duperré, A., Vandycke, S., Arroucau, P., Bergerat, F., & Loch, J.-L. (14 September 2021). "Activities of the RESIF-ATS-FACT group for Northern France region R7 to improve the knowledge on potential active fault". Poster session presented at Workshop 'active Tectonics and dating', Praz-sur-Arly, France.
- Dupont, N. (2021). "Analyse de la structure du socle paléozoïque hainuyer. Implications sur les propriétés des réservoirs profonds". Unpublished doctoral thesis, Université de Mons. Jury: Kaufmann, O. (Promotor), Baele, J.-M. (Promotor), Vandycke, S., Kaufmann, O., Baele, J.-M., Hennebert, M., Lacquement, F., Averbuch, O., & Chenillot, R.

## 2.6 Paleogene-Neogene (KW, on behalf of KD)

- Brussels Formation: The proposal text was submitted to the NCS. The formulated remarks are being processed. The final text is expected soon, which will be submitted for formalisation.
- Neogene stratigraphy: The discussion document for the revised Neogene stratigraphy (full interval) is online. Input was expected by 31/10. Remarks will be discussed in the subcommission meeting on 9/12, after which it will be submitted as proposal to the NCS.
- The event presenting the new Neogene stratigraphy, organised on 19/05 at the RBINS by VPO, UGent and GSB was successful.
- Rupel Group: A revision of the Rupel Group is in progress.

The PN subcommission convenes on 9/12, a detailed update will follow.

## 2.7 Quaternary (KW, on behalf of FB)

There were no activities in 2022.

## 3 Website (KW)

The use of the website is stable compared to last year, with about 7000 unique users, 12000 sessions and 24000 page views. The average session lasts 2.5 minutes.

The new NCS website is under development, which provides a chance to revise the current info on the existing site. Based on a discussion with KD regarding the ongoing Paleogene and Neogene revision, a proposal is made for providing info on the website. This also has consequences on how proposal documents should be delivered. It is proposed that a unit description on the website consists of two parts:

- The summarised info, displayed on the website; this info is immediately visible. It has a limited length and there are no pictures, references or annexes.
- The full info, as a downloadable pdf with link on the unit page. This file starts with the summarised info, followed by a full description, similar to the LIS file structure. Such file can include references, a picture section at the end and annexes. This file has its own authors, thus can be cited which provides recognition and incentive.

This updated structure might engage less active subcommissions to review the sometimes outdated info on the website. This proposal was received well, but will need to be discussed within the subcommissions. Information will be distributed to the subcommissions in order to provide input to the NCS by the next meeting.

In some projects, e.g. H30, there is some discussion on the rules and procedures of stratigraphic unit naming and use in text (e.g. capitals, plural). The ICS provides clear guidelines, it is proposed that these become more visible clearly linked on the NCS website. Regarding language matters, ICS guidelines only apply to English. In order to avoid chaos, it is proposed that for Belgian stratigraphy, these rules also apply to Dutch, French and German. These proposals are accepted.



A way of posting stratigraphically interesting pictures on the website in a dynamic way is explored. Direct posting on unit pages can be difficult as it requires a high degree of certainty on the content, and in principle it also requires a new formalisation of the description. As an alternative, a social media hashtag feed on the news page would be possible. Posting with e.g. a #StratigraphyBelgium would result in posts being picked up. This is technically easy, but a social media account is needed.

## 4 Lithotectonic units (KW on behalf of KP)

The lithotectonic working group was approved on the annual meeting of 2021, initiated by the GSB (Kris Piessens). In order to select members, and discuss the purpose and activities of the group in a wider community, the strategy was to kick-off with an open half-day workshop. Organisation for this started early Summer 2022, and speaking slots were confirmed by GSB and VITO.

Since the relevance of this group is intimately linked to the mapping projects of the Walloon Region, including the ongoing harmonisation of these maps, the workshop scheduled for autumn/winter 2022 was postponed to early 2023 to allow for a top-down approval for speaker participation by the Geological Survey of Wallonia. Getting them on board from the very start is important enough to delay the start of the lithotectonic working group.

The international (European) context in mean time continues to evolve positively. The Horizon Europe project GSEU (Geological Service for Europe) has officially started on 01/09/2022, with one work package focussing on the creating lithotectonic maps and vocabularies. This project builds on the earlier H2020 project GeoConnect<sup>3d</sup>. Following these projects, a paper relevant to the lithotectonic group has recently been submitted by Belgian authors.

## 5 AOB

From 11-13/07/2023 the 4<sup>th</sup> International Congress on Stratigraphy Strati2023 will take place in Lille. There will be a field trip on the Cenozoic of Flanders and one on the Devonian-Carboniferous of Belgium.

Next meeting is scheduled for June, to allow for a quick response to ongoing activities.

The Chair closes the meeting at 11h40