

1. TITLE OF CONSTITUENT BODY and NAME OF REPORTER

Subcommission on Cretaceous Stratigraphy (SCS)

Maria Rose Petrizzo, Chair; Michael Wagreich, Vice-chair; Francesca Falzoni, Secretary

20 November 2021

2. OVERALL OBJECTIVES AND FIT WITHIN IUGS SCIENCE POLICY

- To establish a standard global stratigraphic subdivision and nomenclature for the Cretaceous, as part of the ICS standard global stratigraphic scale.
- To produce a stratigraphic table displaying agreed subdivisions to stage and substage level, marking boundaries that are defined by a GSSP.

3. ORGANISATION - interface with other international projects / groups

SCS has always been linked to important international Projects such as IODP, IGCP, Mesozoic Planktonic Foraminiferal Working Group, and ICDP (International Continental Scientific Drilling Project).

3a. Nominated Officers for 2020-2024:

Chair: Maria Rose Petrizzo; Vice-Chair: Michael Wagreich; Secretary: Francesca Falzoni

Voting Members are 18, from most continents. Over 150 Cretaceous scientists from all over the world and in many different disciplines belong to one or more of the Stage Working Groups and to the Kilian Group. The Stage Working Groups of the SCS are: Berriasian, Valanginian, Barremian, Aptian, and Campanian. All WG leaders (chairs) and members are treated as Corresponding Members of the SCS.

4. EXTENT OF NATIONAL/REGIONAL/GLOBAL SUPPORT FROM SOURCES OTHER THAN IUGS

The SCS has strong links with IGCP projects.

IGCP 679 Cretaceous Earth Dynamics and Climate in Asia (new in 2019, Project Leader Prof. Gang Li, China)

IGCP 710 Western Tethys meets Eastern Tethys (new in 2020, Project Leader Prof. Michał Krobicki, Poland)

IGCP 739 The Mesozoic-Palaeogene hyperthermal events (new in 2021, Project Leader Prof. Xiumian Hu, China)

5. CHIEF ACCOMPLISHMENTS IN 2021

• WORKING GROUPS ACTIVITIES TOWARDS THE DEFINITION OF THE GSSPs

Chairs and updated memberships of each WG are available at <http://cretaceous.stratigraphy.org/working-groups/>
Memberships are updated continuously by inviting active scientists who are willing to collaborate to the WG activities.

Campanian GSSP

The first draft of the GSSP proposal for the base of the Campanian Stage at the magnetic reversal C33r (221.6 m) (Maron and Muttoni 2021) in the Bottaccione section, Gubbio (Italy) circulated among WG members in August 2021. Responses were collected and the proposal is currently (November 2021) under revision prior to further circulation. The auxiliary sections include: 1) Seaford Head, UK (Thibault et al. 2016); 2) Postalm, Austria (Wolfgring et al. 2018); 3) Bocieniec, Poland (Dubicka et al. 2017) and 4) Smoky Hill, Kansas, USA (Kita et al. 2017). Correlation with the Tepeyac section in Mexico (Ifrim and Stinnesbeck 2021) is also discussed. Restudy of a previously proposed GSSP at Waxahachie (Texas), demonstrates the presence of a major hiatus in the succession (Gale et al. 2021).

Gale, A.S., Kennedy, W.J., Walaszczyk, I. (2021). Correlation of the late Santonian-early Campanian of Texas with the Anglo-Paris Basin and other regions. Newsletters on Stratigraphy 54, 433-460.

Ifrim, C., Stinnesbeck, W. (2021). Ammonoids and their biozonation across the Santonian-Campanian boundary in north-eastern Coahuila, Mexico. Palaeontologia Electronica, 24(3): a34. <https://doi.org/10.26879/1046>.

Maron, M., Muttoni, G. (2021). A detailed record of the C34n/C33r magnetozone boundary for the definition of the base of the Campanian Stage at the Bottaccione section (Gubbio, Italy). Newsletters on Stratigraphy 54, 107-122.

Coniacian GSSP

The GSSP proposal for the base of the Coniacian Stage in the Salzgitter-Salder section (Germany) was approved by SCS and ICS in early 2021, and ratified by IUGS on May 2021. Primary criterion is the appearance of the inoceramid *Cremnoceramus deformis erectus* at the base of bed 46, further information is included in the paper below:

Walaszczyk et al. (2022). The Global Boundary Stratotype Section and Point (GSSP) for the base of the Coniacian Stage (Salzgitter-Salder, Germany) and its auxiliary sections (Ślupia Nadbrzeżna, central Poland; Strleč, Czech Republic; and El Rosario, NE Mexico). Episodes, in press, <https://doi.org/10.18814/epiugs/2021/021022>.

Albian GSSP

Finalization of the official steps with the local authorities for the protection and easy accessibility of the GSSP site at Col de Pre-Guittard in the Commune of Arnayon (Département of Drôme) and planning of the official GSSP ceremony for the placement of the golden spike.

Aptian GSSP

The WG is evaluating two options: GSSP defined by (1) bio-, magneto- and chemostratigraphy at Gorgo a Cerbara (Italy), or by (2) ammonite stratigraphy and, hopefully, chemo- and magnetostratigraphy (historical stratotype for Bedoulian,

Cassis-La Bedoule, and, possibly, a new location in the Vocontian Trough). New preliminary data on magnetostratigraphy (statistical treatment of measurements with unclear pattern) from French ammonite-dated sections by C. Frau suggest that the base of CM0r is just below the base of the *I. giraudi* Zone, and it extends upward into the lower part of the *M. sarasini* Zone. If correct, the Barremian/Aptian boundary shifted into C34n, and the top of the *M. sarasini* zone falls near the negative C-isotope spike. This corresponds to an upward shift of the boundary by around 600 kyrs. Debatable remains the ammonite stratigraphy of the lowermost Aptian and C-isotope stratigraphy will need complete revision (if the ammonite and magnetostratigraphy turn out to be correct). In a first round of discussions most WG members agreed to choose a physical marker for the definition of the base of the Aptian (e.g. negative C-isotope spike at the base of OAE1a). Few ammonite experts prefer to keep ammonite stratigraphy as primary tool.

Barremian GSSP

The drafting of the formal proposal of the Río Argos section (Caravaca, SE Spain) as GSSP of the Barremian stage has been completed. The primary marker discussed and approved by the working group is the first appearance of the ammonite *Taveriaidiscus hugii*. The proposal includes data on biostratigraphy (mainly ammonites, calcareous nannofossils and foraminifera), chemostratigraphy (organic matter and stable isotopes) and cyclostratigraphy. Correlations are discussed and a new calibration of the Hauterivian/Barremian boundary against the magnetostratigraphic scale is proposed. The protection of the Río Argos section is ensured by the current urban planning regulations of the municipality of Caravaca, and its recognition at the regional and national level is also being processed. The proposal is currently (November 2021) in the final phase of internal review and will be sent to the members of the WG for discussion by the end of this year.

Hauterivian GSSP

The GSSP for the base of the Hauterivian Stage at the FO of the ammonite genus *Acanthodiscus* at La Charce (SE France) was ratified by IUGS in December 2019. The department and the municipality of La Charce established an exceptional and world-renowned geological interpretation circuit for the public and planned the official GSSP ceremony. Data on the GSSP section are published in the paper below:

Mutterlose, J., Rawson, P.F., Reboulet, S., with contributions by Baudin, F., Bulot, L., Emmanuel, L., Gardin, S., Martinez, M., Renard, M. (2021). *The Global Boundary Stratotype Section and Point (GSSP) for the base of the Hauterivian Stage (Lower Cretaceous), La Charce, southeast France. Episodes 44, 129-150.*

Valanginian GSSP

The WG approved the first appearance of the calpionellid *Calpionellites darderi* as the primary marker for the base of the Valanginian. Cañada Luenga (Cehegín, SE Spain) and Vergol (Montbrun-les-Bains, SE France) are considered as possible candidates for the GSSP. Integrated analyses of the Cañada Luenga section with biostratigraphic (ammonites, calpionellids and calcareous nannofossils) and magnetostratigraphic data are published. Preliminary data on the distribution of ammonites and calpionellids were published for the Vergol section. A complete cyclostratigraphic analysis is also available. Calpionellids are currently being studied. An integrated biostratigraphic study (ammonites and calcareous nannofossils) has been published:

Kenjo, S., Reboulet S., Mattioli, E., Maloueh, K. (2021). *The Berriasian–Valanginian boundary in the Mediterranean Province of the Tethyan Realm: Ammonite and calcareous nannofossil biostratigraphy of the Vergol section (Montbrun-les-Bains, SE France), candidate for the Valanginian GSSP. Cretaceous Research 121, 104738, <https://doi.org/10.1016/j.cretres.2020.104738>*

Berriasian (J/K boundary) GSSP

The new Berriasian WG started its work in February 2021 focusing on the organization of database and ideas concerning possible definitions and placing the Tithonian/Berriasian boundary, and its paleoenvironmental context.

The WG meets online approximately once a month, usually with two keynote talks and discussion as follows: 1st meeting (11.02.2021), Grabowski J.: *in the search of the J/K boundary stratotype: state of art – beginning 2021*; Aguirre-Urreta B.: *the J/K boundary in the Andes*. 2nd meeting (24.03.2021), Petrova S., Reháková D.: *Calpionellid evolution and biostratigraphy during the Late Jurassic – Early Cretaceous*; Grabowski J.: *My doubts about Tre Maroua section (previous WG proposal)*. 3rd meeting (27.04.2021), Rogov M.: *Boreal J/K boundary*; Li G.: *Jurassic/Cretaceous boundary in China*. 4th meeting (19.05.2021), Casellato C.E., Erba E.: 1) *Reliability of calcareous nannofossil events in the Tithonian – early Berriasian time interval: implications for a revised high-resolution zonation*; 2) *Jurassic/Cretaceous boundary interval: Palaeoceanography and Palaeoclimatology of the Tethys*; Szives O., Fözy I.: *New data from the Tithonian/Berriasian interval from Hungarian ammonitico rosso sections: problems and possibilities of ammonite zonations*. 5th meeting (22.06.2021), Price G.: *Stable isotopes across the Jurassic-Cretaceous boundary*; Grabowski J. (& Research Team): *Integrated stratigraphy of the Volgian section in the Polish Basin: implications for correlation with Tethys area and NW European basins*. 6th meeting (12.10.2021), Deconinck, J.-F.: *Clay minerals around the J/K boundary*; Grabowski J.: *WG after summer season: New activities and concepts*. The 7th meeting is scheduled for November 2021. The presentations and short reports of the meetings are archived and accessible only to WG members on a dedicated web page.

The WG does not plan to start investigations of new sections, given the huge amount of work performed by the previous WG that logged and established stratigraphic frameworks in many sections, mostly located in SE France, Italy, Spain, Slovakia, Hungary and Ukraine. We aim to re-investigate existing sections by applying new methods, and by using archival samples within a well-established stratigraphic context. Torre de Busi (Lombardy basin, Italy) is regarded as a promising

section with complete magneto-, carbon isotope and calcareous nannofossil stratigraphy, but slightly problematic calpionellid stratigraphy. A re-study of calpionellid stratigraphy at Torre de Busi was initiated in September 2021.

KILIAN Group

The WG was inactive in 2021.

- **ADDITIONAL ACTIVITIES**

Publication of a Cretaceous Research Virtual Special Issue titled “*Cretaceous integrated stratigraphy, greenhouse climate change and events*” edited by Petrizzo M.R., Wagreich, M., Falzoni F., and Haggart, J. The Special Issue collects papers presented in the Cretaceous Subcommission scientific session held at STRATI 2019 (Milano, Italy, July 2019). The special issue is available at <https://www.sciencedirect.com/journal/cretaceous-research/special-issue/10LTDCL3HZ0> and includes 11 papers published in 2020 and 2021.

6. SUMMARY OF EXPENDITURE IN 2021:

Contribution towards cost of maintenance of the website and/or publication fees of papers related to GSSPs	275.42 Euro
Contribution to the 5 stages Working Groups for fieldworks + analysis for the GSSPs	2750.00 Euro
Contribution for secretarial work	400.00 Euro
Bank fees for bank transfer	18.00 Euro
TOTAL expenditure in 2021 = 3443.42 Euro	

7. SUMMARY OF INCOME IN 2021:

ICS Subvention for 2021	US dollars 3000.00 = 2559.09 Euro
Budget surplus from 2020 carried forward in 2021	884.33 Euro
Total = 3443.42 Euro	

8. BUDGET REQUESTED FROM ICS FOR 2022:

Contribution towards cost of website maintenance and/or publication fees of papers related to GSSPs	400.00 Euro
Contribution to the stages Working Groups for fieldworks, analyses, meetings	2500.00 Euro
Contribution for secretarial work	400.00 Euro
Albian and Hauterivian GSSPs meetings with local authorities, official GSSPs golden spike ceremonies	1200.00 Euro
Contribution attendance cost of participants to the Cretaceous Symposium (Warsaw, 22-26 August 2022)	1500.00 Euro
TOTAL budget request from ICS in 2022= 6000.00 Euro	

9. WORK PLAN, CRITICAL MILESTONES, ANTICIPATED RESULTS AND COMMUNICATIONS TO BE ACHIEVED NEXT YEAR (2022):

- **STUDIES, FIELD WORK TO FINALIZE THE GSSP PROPOSALS**

Campanian GSSP

The WG will complete the review of the proposal for the Campanian GSSP by the end of 2021 and submit the revised proposal to SCS for voting in early 2022. Providing the Campanian GSSP is approved and ratified by IUGS, the WG will produce an article for Episodes in 2022.

Aptian GSSP

The discussion on the upward shift of the *M. sarasini* ammonite zone by around 600 kyr will continue. Other stratigraphies calibrated with ammonite stratigraphy will need revision, if they were correlated with magnetostratigraphically dated sections with the top of the *M. sarasini* zone corresponding to base of M0r. Helmut Weissert plans to visit Elisabetta Erba for in-depth discussions and decisions on next steps.

Barremian GSSP

The discussion and voting of the GSSP proposal by the members of the WG will take place during the first months of 2022. If approved, the proposal will be sent to SCS. If the proposal will be ratified by IUGS, a publication will be prepared with the most relevant data concerning the Hauterivian/Barremian boundary and the Río Argos section. Official contacts with the local authorities will also continue to increase protection and facilitate accessibility of the GSSP site.

Valanginian GSSP

The WG is currently studying the stratigraphic distribution of the calpionellids and the magnetostratigraphy of the Vergol section; the fieldwork was delayed due to the covid-19 crisis. This work should be finished during 2022 and results available by the end of the year. Pending studies will be completed by the end of 2022 with the proposal ready for circulation to the members of the WG. Once the decision has been made within the working group, the final proposal will be sent to SCS.

Berriasian (J/K boundary) GSSP

The WG attempts to decide which level (not yet the primary marker) will be the best choice for the J/K boundary definition. The base of the *Calpionella alpina* Subzone proposed as primary marker by the previous WG is very consistent and well documented in the pelagic and hemipelagic successions of the Tethys, but it may hardly be identified elsewhere. Thus, an effort should be made to seek for alternative stratigraphic levels more easily transferred to Boreal basins (NW Europe, Russia and Siberia) and South America. Our field of interest covers the interval from the lower part of the upper Tithonian (upper part of M20n) to the upper part of the lower Berriasian (base M17r).

A detailed integrated stratigraphic framework based on calpionellid and magnetostratigraphy in multiple sections with significant implementation of calcareous nannofossil stratigraphy is available from the base of the upper Tithonian to the Berriasian/Valanginian boundary of the western Tethys area. The WG will integrate these data with chemostratigraphy, climatostratigraphy (arid/humid cycles), eurybathic sea-level changes, astrochronology and radiometric dating. Preliminary data indicate that humid/arid cycles documented in the NW European basins with palynology, clay minerals and chemostratigraphy might be correlated with the excellent chronostratigraphic calibration of Tethyan sequences. However, paleoclimatic variations in the Tethyan sequences are not as well studied, owing to the deep marine paleoenvironment. Our plan is to supply more paleoenvironmental data from the Tethyan sections and to date more precisely the NW European sections. The recently discovered $\delta^{13}\text{C}_{\text{org}}$ excursion (VOICE event) in the upper part of the lower Tithonian (middle Volgian) in some Boreal sections (the South American sections – under study) seems promising. Astrochronologic and radiometric studies, quite advanced in the South American sections (Neuquen basin) are planned in the Tethyan successions. A special project application to ICS devoted to these topics will be considered after pilot investigations.

Kilian Group

The upper Aptian, lower-middle Albian zonal schemes will be in focus at the forthcoming Kilian meeting.

- **FUTURE MEETINGS**

- 2022 - 11th International Symposium on the Cretaceous (22-26 August 2022, Warsaw, Poland),

<https://www.cretaceous2022.com/>. The symposium originally scheduled for 2021 is postponed to 2022 due to covid-19 emergency and to avoid overlapping with other meetings. A Session on the progress on the Cretaceous GSSPs is planned. The Working Groups will meet during the Symposium. The Kilian WG meeting will take place on 21 August 2022, local organization by Izabela Ploch. A post-congress excursion led by J. Grabowski (chair of the Berriasian WG) through J/K boundary sections in Slovakia and Hungary is also organized.

Potential funding sources external to IUGS

The SCS does not envisage being able, as an organization, to obtain significant funding from outside IUGS/ICS sources. Some additional financial support beyond what is already committed could perhaps be obtained by individual members from their host institutions and/or their personal research funds.

10. KEY OBJECTIVES AND WORK PLAN FOR THE PERIOD 2020-2024

- Spring 2022: official ceremonies for the inauguration and placement of the golden spikes of the Albian and Hauterivian GSSPs.
- 2022: Finalization of the GSSP proposals for the base Barremian and base Campanian and vote within the WG.
- 2023: Finalization of the GSSP proposals for the base Valanginian and base Aptian and vote within the WG.
- 2022–2024: Research activities toward the preparation of the GSSP proposal for the base of the Berriasian Stage by the new Berriasian WG.
- 2022-2024: Continue preparation of proposals for the definition of substages for discussions at the forthcoming meeting: 11th International Symposium on the Cretaceous (Poland, 2022).
- 2022-2023. Vote by the SCS of the Barremian and Campanian GSSPs.
- 2023-2024. Finalization of the GSSP proposal for the base Berriasian and vote within the WG.
- 2023-2024. Vote by the SCS of the Valanginian and Aptian GSSPs.

APPENDIX [Names and Addresses of Current Officers and Voting Members]

Nominated officers

Chair: Maria Rose Petrizzo, mrose.petrizzo@unimi.it - Dip. Scienze della Terra “A. Desio”, Università degli Studi di Milano, via Mangiagalli 34, 20133 Milano, Italy, Phone: +39-0250315531

Vice-Chair: Michael Wagreich, michael.wagreich@univie.ac.at, - Department of Geology, University of Vienna, Althanstrasse 14, Vienna, A-1090, Austria, Phone: 0043-1-4277-53465

Secretary: Francesca Falzoni, francesca.falzoni1@gmail.com – Dip. Scienze della Terra, dell’Ambiente e delle Risorse (DiSTAR), Università degli Studi di Napoli Federico II, via vicinale cupa Cintia 21, 80126 Napoli, Italy.

List of Voting Members

Batenburg Sietske J., sbatenburg@ub.edu - University of Barcelona, Martí i Franqués, 08028 Barcelona, Spain, Phone: +34 698963831.

Bown Paul, p.bown@ucl.ac.uk - University College London, Gower Street, London, WC1E 6BT, UK, Phone: +44(0)20-7485-3257.

de Souza Carvalho Ismar, ismar@geologia.ufrj.br - Universidade Federal do Rio de Janeiro, CCMN – Igeo Av. Athos da Silveira Ramos 274, Cidade Universitária - Ilha do Fundão 21.941-916 Rio de Janeiro, RJ, Brasil, Phone: 21-3938-9405.

Galbrun Bruno, bruno.galbrun@upmc.fr - Université Pierre et Marie Curie, ISTeP, Institut des Sciences de la Terre-Paris, UMR-CNRS 7193, 4 place Jussieu, 75252 Paris CEDEX 5, France.

Granier Bruno, bgranier@univ-brest.fr - Département des Sciences de la Terre et de L’Univers, UFR Sciences et Techniques, Université de Bretagne Occidentale, 6 avenue, Le Gorgeu – CS 93837, F – 29238 Brest cedex 3, France.

Hasegawa Takashi, jh7ujr@staff.kanazawa-u.ac.jp - Department of Earth Sciences, Faculty of Science, Kanazawa University, Kakuma, Kanazawa, 920-1192 Japan. Phone: 076-264-6508.

Huber Brian T., HUBERB@si.edu - Department of Paleobiology, PO Box 37012, MRC-121, Smithsonian Institution, Washington, DC 20013-7012, Phone: 1-202-633-1328.

Jagt-Yazykova Elena, elenajagt@gmail.com - Opole University, Laboratory of Palaeobiology and evolution, Oleska str. 22, 45-052 Opole, Poland. Phone: +48 (77) 4527312.

Jarvis Ian, I.Jarvis@kingston.ac.uk - Department of Geography and Geology, Kingston University, London Penrhyn Road, Kingston upon Thames, London KT1 2EE, UK, Phone: +44 20 8417 2526.

Kawabe Fumihisa, fkawabe@aoni.waseda.jp - Ministry of Education, Culture, Sports, Science and Technology, Tokyo 100-8959, Japan.

Sageman Bradley, brad@earth.northwestern.edu - Department of Earth and Planetary Sciences, Northwestern University, 2145 Sheridan Road, Evanston, Illinois 60208-3130, U.S.A., Phone: +1-847-467-2257.

Sari Bilal, bilal.sari@deu.edu.tr - Dokuz Eylul University, Faculty of Engineering, Department of Geological Engineering, Tinaztepe Campus, 35160 Buca-Izmir, Turkey, Phone: +90.232.4127342.

Schioler Poul, poul.schioler@mgpalaeo.com.au 12 Summit Road, Fairfield, Lower Hutt 5011, New Zealand, Phone: +61 (0)8 9249 4628.

Vishnevskaya Valentina, valentina.vishnaa@mail.ru - Geological Institute of the Russian Academy of Sciences, Pyzhevsky per., 7, Moscow 119017, Russia, Phone: 7(495)959-0174.

Voigt Silke, s.voigt@em.uni-frankfurt.de - Institute of Geosciences, Goethe-University Frankfurt, Altenhöferallee 1, 60438 Frankfurt am Main, Phone: +49 (0)69798 40190.

Walaszczyk Irek, i.walaszczyk@uw.edu.pl - Faculty of Geology, University of Warsaw, Al. Zwirki i Wigury 93, 02-089 Warszawa, Poland, Phone: +48 22 5540482.

Wilmsen Markus, Markus.Wilmsen@senckenberg.de - Senckenberg Naturhistorische Sammlungen, Dresden, Museum für Mineralogie und Geologie Königsbrücker Landstrasse 159, 01109 Dresden, Germany. Phone: +49 +351-795841-4273.

Xi Dangpeng, xidp@cugb.edu.cn - China University of Geosciences, Xueyuan Lu 29, Beijing 100083, China, P. R., Phone: 0086-15810903538.

Working group leaders and corresponding members

CAMPANIAN WG

Chair: Gale Andy, Andy.Gale@port.ac.uk - School of Earth & Environmental Sciences University of Portsmouth Burnaby Building Burnaby Road Portsmouth PO1 3QL, Phone: +44-02392846127.

WG Members:

Batenburg Sietske, sietske.batenburg@earth.ox.ac.uk - Department of Earth Sciences, University of Oxford, Oxford, UK.

Chenot Elise, elise.chenot@u-bourgogne.fr - Biogéosciences, UMR 6282, CNRS, University of Bourgogne Franche-Comté, 6 boulevard Gabriel, Dijon F-21000, France.

Coccioni Rodolfo, rodolfo.coccioni@uniurb.it Dipartimento di Scienze della Terra, della Vita e dell'Ambiente, Università degli Studi di Urbino "Carlo Bo", Campus Scientifico "E. Mattei", 61029 Urbino, Italy.

Erba Elisabetta, elisabetta.erba@unimi.it - Dipartimento di Scienze della Terra "A. Desio", Università degli Studi di Milano, via Mangiagalli 34, 20133 Milano, Italy

Falzone Francesca, francesca.falzone1@gmail.com - Dip. Scienze della Terra, dell'Ambiente e delle Risorse (DiSTAR), Università degli Studi di Napoli Federico II, via vicinale cupa Cintia 21, 80126 Napoli, Italy.

Haggart James, jim.haggart@canada.ca - Geological Survey of Canada, 1500-605, Robson Street, Vancouver, British Columbia V6B 5J3, Canada.

Hasegawa Takashi, jh7ujr@staff.kanazawa-u.ac.jp - Faculty of Natural System, Institute of Science and Engineering, Kanazawa University, Kakuma, Kanazawa, 920-1192, Japan.

Ifrim Christina, Christina.Ifrim@geow.uni-heidelberg.de - Institut für Geowissenschaften, Ruprecht-Karls-Universität Heidelberg, Im Neuenheimer Feld 234, D-69120 Heidelberg, Germany.

Jarvis Ian, I.Jarvis@kingston.ac.uk - Department of Geography and Geology, School of Natural and Built Environments, Kingston University London, Penrhyn Road, Kingston upon Thames, London KT1 2EE, UK.

Jenkyns Hugh C., hugh.jenkyns@earth.ox.ac.uk Department of Earth Sciences, University of Oxford, South Parks Road, Oxford OX1 3AN, UK.

Kennedy Jim, Jim.Kennedy@oum.ox.ac.uk - Oxford University Museum of Natural History, Parks Road, Oxford OX1 3PW, UK.

Maron Matteo, matteo.maron@unimi.it - Dipartimento di Scienze della Terra "A. Desio", Università degli Studi di Milano, via Mangiagalli 34, 20133 Milano, Italy.

Muttoni Giovanni, giovanni.muttoni1@unimi.it - Dipartimento di Scienze della Terra "A. Desio", Università degli Studi di Milano, via Mangiagalli 34, 20133 Milano, Italy.

Petrizzo Maria Rose, mrose.petrizzo@unimi.it - Dip. Scienze della Terra "A. Desio", Università degli Studi di Milano, via Mangiagalli 34, 20133 Milano, Phone: +39-0250315531.

Premoli Silva Isabella, isabella.premoli@unimi.it - Dipartimento di Scienze della Terra "A. Desio", Università degli Studi di Milano, via Mangiagalli 34, 20133 Milano, Italy.

Sprovieri Mario, mario.sprovieri@iamc.cnr.it - Istituto per l'Ambiente Marino Costiero, Consiglio Nazionale delle Ricerche (IAMC-CNR), Capo Granitola, Campobello di Mazara (TP), Italy.

Thibault Nicolas, nt@geo.ku.dk - Department of Geography and Geology, University of Copenhagen, Øster Voldgade 10, 1350 Copenhagen C., Denmark.

Voigt Silke, s.voigt@em.uni-frankfurt.de - Institute of Geosciences, Goethe-University Frankfurt, Altenhöferallee 1, 60438 Frankfurt am Main, Germany.

Wagreich Michael, michael.wagreich@univie.ac.at - Department of Geology, University of Vienna, Althanstrasse 14, Vienna, A-1090, Austria.

Walaszcyk Irek, i.walaszcyk@uw.edu.pl - Faculty of Geology, University of Warsaw, Al. Zwirki i Wigury 93, 02-089 Warszawa, Poland.

APTIAN WG

Chair: Weissert Helmut, weissert@erdw.ethz.ch - Department of Earth Science, ETH-Z CH-8092 Zürich, Switzerland, Phone: +41 44 632 37 15.

Chair: Erba Elisabetta, elisabetta.erba@unimi.it - Dip. Scienze della Terra "A. Desio", Università degli Studi di Milano, via Mangiagalli 34, 20133 Milano, Phone: +39-0250315530.

WG Members:

Amodio Sabrina, sabrina.amodio@uniparthenope.it - Department of Science and Technology, Parthenope University of Naples, Napoli, Italy.

Baraboshkin Evgenij, ejBaraboshkin@mail.ru - Department of Regional Geology and Earth History, Geological Faculty M. V. Lomonosov Moscow State University, Moscow, Russian Federation.

Bodin Stéphane, stephane.bodin@geo.au.dk - Department of Geoscience, Aarhus University, Århus, Denmark.

Castro Jiménez José Manuel, secform@ujaen.es - Department of Geology, University of Jaén, Jaén, Spain.

Coccioni Rodolfo, rodolfo.coccioni@uniurb.it - Dipartimento di Scienze della Terra, della Vita e dell'Ambiente, Università degli Studi di Urbino "Carlo Bo", Urbino, Italy.

Company Miguel, mcompany@ugr.es - Departamento de Estratigrafía y Paleontología, Universidad de Granada, Granada, Spain.

Frau Camille, Camille_FRAU@hotmail.fr - Groupement d'Intérêt Paléontologique, Science et Exposition, 60 bd Georges Richard, 83000 Toulon, France.

Granier Bruno, bgranier@univ-brest.fr - Dépt. STU, Fac. Sci. Tech., UBO, CS 93837, F-29238 Brest, France, and Department of Ecology and Evolutionary Biology, The University of Kansas, 1200 Sunnyside Avenue, Lawrence,

Kansas 66045, USA.

Kuhnt Wolfgang, wk@gpi.uni-kiel.de - Institute of Geosciences, Christian-Albrechts-University, 24118 Kiel, Germany.
Moreno-Bedmar Josep Anton, josepamb@geologia.unam.mx - Instituto de Geología, Universidad Nacional Autónoma de México, Ciudad Universitaria, Coyoacán, México, Ciudad de México, C.P. 04510.

Moullade Michel, Michel.Moullade@unice.fr, Centre de Recherches Micropaléontologiques, Musée d'Histoire Naturelle, Nice, France.

Olierook Hugo, hugo.olierook@curtin.edu.au - Department of Applied Geology, Curtin University, GPO Box U1987, Perth, WA 6845, Australia.

Patrino Stefano, stefano.patrino@gmail.com - Petroleum Geo-Services (PGS), Weybridge, Surrey, UK.

Parente Mariano, maparent@unina.it - Dipartimento di Scienze della Terra, dell'Ambiente e delle Risorse, Università di Napoli Federico II, Napoli, Italy.

Premoli Silva Isabella, isabella.premoli@unimi.it - Dipartimento di Scienze della Terra "A. Desio", Università degli Studi di Milano, Milano, Italy.

Ruiz Ortiz Pedro Alejandro, ceactierra@ujaen.es - Department of Geology, University of Jaén, Jaén, Spain.

Skelton Peter, p.w.skelton@open.ac.uk - Department of Environment, Earth and Ecosystems, The Open University, Milton Keynes, UK.

Triantaphyllou Maria, mtriant@geol.uoa.gr - University of Athens, Department of Historical Geology-Paleontology, Panepistimiopolis 15784, Athens, Greece

Vahrenkamp Volker, volker.vahrenkamp@kaust.edu.sa - Ali Naimi Petroleum Engineering Research Center, Saudi Arabia.

BARREMIAN WG

Chair: Company Miguel, mcompany@ugr.es - Departamento de Estratigrafía y Paleontología, Facultad de Ciencias, Universidad de Granada, E-18002 Granada, SPAIN, Phone: +34-958242729.

WG Members:

Aguirre-Urreta, María Beatriz; aguirre@gl.fcen.uba.ar - Instituto de Estudios Andinos (UBA-CONICET), Universidad de Buenos Aires, Ciudad Universitaria, pabellón 2, 1428 Buenos Aires, Argentina.

Baraboshkin, Evgenij J.; Barabosh@geol.msu.ru - Geological Faculty, Moscow State University, 119992 Leninskie Gory, Moscow, Russia.

Bown, Paul R.; p.bown@ucl.ac.uk - Department of Earth Sciences, University College London, Gower Street, London WC1E 6BT, UK.

Erba, Elisabetta; elisabetta.erba@unimi.it - Dipartimento di Scienze della Terra, Università degli Studio di Milano, Via Mangiagalli 34, 20133 Milano, Italia.

Kakabadze, Mikheil V.; mishakakab@gmail.com - Djanelidze Institute of Geology, Polytkovskaja St. 5, 0186 Tbilisi, Georgia.

Melinte-Dobrinescu, Mihaela Carmen; melinte@geoecomar.ro - National Institut of Marine Geology and Geoecology, 23-25 Dimitrie Onciul Street, PO Box 34-51, 70318 Bucharest, Romania.

Mutterlose, Jörg; joerg.mutterlose@ruhr-uni-bochum.de - Institute for Geology, Mineralogy and Geophysics, Ruhr-Universität Bochum, Universitätsstr. 150, 44801 Bochum, Germany.

Premoli Silva, Isabella; isabella.premoli@unimi.it - Dipartimento di Scienze della Terra "A. Desio", Università degli Studi di Milano, Via Mangiagalli 34, 20133 Milano, Italia.

Rawson Peter, peter.rawson1@btinternet.com - Department of Earth Sciences, University College London, UK; Centre for Marine and Environmental Sciences, University of Hull, UK.

Sandoval, José; sandoval@ugr.es - Departamento de Estratigrafía y Paleontología, Facultad de Ciencias, Universidad de Granada, E-18002, Granada, Spain.

Tavera, José M; jtavera@ugr.es - Departamento de Estratigrafía y Paleontología, Facultad de Ciencias, Universidad de Granada, E-18002, Granada, Spain.

Vašíček, Zdeněk; zdenek.vasicek@ugn.cas.cz - Institute of Geonics of Academy of Sciences of the Czech Republic, Studentská 1768, CZ-70800 Ostrava-Poruba, Czech Republic.

Weissert, Helmut J.; helmi@erdw.ethz.ch - ETH Zürich, Dep. Earth Sciences, Sonneggstrasse 5, 8092 Zürich, Switzerland.

VALANGINIAN WG

Chair: Company Miguel, mcompany@ugr.es - Departamento de Estratigrafía y Paleontología, Facultad de Ciencias, Universidad de Granada, E-18002 Granada, SPAIN, Phone: +34-958242729.

Chair: Reboulet Stéphane, stephane.reboulet@univ-lyon1.fr - Laboratoire de Géologie de Lyon, CNRS-UMR 5276, Observatoire de Lyon, 2 rue Raphaël Dubois, Bâtiment Géode, Université Claude Bernard Lyon 1, 69622 Villeurbanne, FRANCE, Phone: +33(0)472446244.

WG Members:

Aguirre-Urreta María Beatriz, aguirre@gl.fcen.uba.ar - Instituto de Estudios Andinos (UBA-CONICET), Universidad de

Buenos Aires, Argentina.

Aguado Roque, raguado@ujaen.es - Departamento de Geología, Universidad de Jaén, Spain.

Baraboshkin Evgenij J., ejbaraboshkin@mail.ru - Geological Faculty, Moscow State University, Russia.

Bown Paul R., p.bown@ucl.ac.uk - Department of Earth Sciences, University College London, UK.

Erba Elisabetta, elisabetta.erba@unimi.it - Dipartimento di Scienze della Terra, Università degli Studi di Milano, Italia.

Ettachfini Mohssine, ettachfini@uca.ma - Département de Géologie, Université Cadi Ayyad, Marrakech, Morocco.

Galbrun Bruno, bruno.galbrun@upmc.fr - Institut des Sciences de la Terre Paris (ISTeP), UPMC Univ Paris 06, France.

González-Arreola Celestina, arreola@unam.mx - Instituto de Geología, Universidad Nacional Autónoma de México, México.

Kakabadze Mikheil V., mishakakab@gmail.com - Djanelidze Institute of Geology, Tbilisi, Georgia.

Klein Jaap, jaap.klein@zonnet.nl - Vinkeveen, The Netherlands.

Melinte-Dobrinescu Mihaela Carmen, melinte@geoecomar.ro - National Institut of Marine Geology and Geoecology, Bucharest, Romania.

Mutterlose Jörg, joerg.mutterlose@gmail.com - Institute for Geology, Mineralogy and Geophysics, Ruhr-Universität Bochum, Germany.

Premoli Silva Isabella, isabella.premoli@unimi.it - Dipartimento di Scienze della Terra, Università degli Studi di Milano, Italia.

Rawson Peter F., peter.rawson1@btinternet.com - Centre for Marine and Environmental Sciences, University of Hull, UK.

Tavera José M., jtavera@ugr.es - Departamento de Estratigrafía y Paleontología, Universidad de Granada Spain.

Vašíček Zdeněk, zdnek.vasicek@vsb.cz - Institute of Geonics of the Academy of Sciences, Ostrava-Poruba, Czech Republic.

Weissert Helmut, helmut.weissert@erdw.ethz.ch - Department of Earth Sciences, ETH Zürich, Switzerland.

BERRIASIAN (J/K BOUNDARY) WG

Chair: Grabowski Jacek, jacek.grabowski@pgi.gov.pl – Polish Geological Institute, National Research Institute, Warsaw, Poland, Phone: +48 22 45 92 350.

Secretary: Szives Ottilia, szives.ottilia@nhmus.hu – Department of Palaeontology and Geology, Hungarian Natural History Museum, Budapest, Hungary.

WG Members:

Aguirre-Urreta Beatriz, aguirre@gl.fcen.uba.ar – Department of Geological Sciences, University of Buenos Aires, Argentina.

Deconinck Jean-Francois, jean-francois.deconinck@u-bourgogne.fr – Université de Bourgogne, Dijon, France.

Erba Elisabetta, elisabetta.erba@unimi.it – Università degli Studi di Milano, Dipartimento di Scienze della Terra A. Desio, Milano, Italy.

Frau Camille, camille_frau@hotmail.fr - Groupement d'Intérêt Paléontologique, Science et Exposition, Toulon, France.

Li Gang, gangli@nigpas.ac.cn – Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, Nanjing, China.

Martinez Mathieu, mathieu.martinez@univ-rennes1.fr – Géosciences Rennes, Université de Rennes 1, France.

Matsuoka Atsushi, amatsuoka@geo.sc.niigata-u.ac.jp – Department of Geology, Niigata University, Niigata, Japan.

Michalik Jozef, Jozef.Michalik@savba.sk – Earth Science Institute, Slovak Academy of Sciences, Bratislava, Slovakia.

Mutterlose Joerg, joerg.mutterlose@rub.de – Institut für Geologie, Mineralogie und Geophysik, Ruhr-Universität Bochum, Germany.

Price Gregory, G.Price@plymouth.ac.uk – School of Geography, Earth and Environmental Sciences, University of Plymouth, UK.

Reháková Daniela, daniela.rehakova@uniba.sk – Faculty of Natural Sciences, Comenius University, Bratislava, Slovakia.

Rogov Mikhail, russianjurassic@gmail.com – Geological Institute, Russian Academy of Sciences, Moscow, Russia.

Schmitz Mark D., markschmitz@boisestate.edu. – Department of Geosciences, Boise State University, Boise, USA.

Schnabl Petr, schnabl@gli.cas.cz – Institute of Geology, Czech Academy of Sciences, Praha, Czech Republic.

KILIAN WG

Chair: Reboulet Stéphane, stephane.reboulet@univ-lyon1.fr - Laboratoire de Géologie de Lyon, CNRS-UMR 5276, Observatoire de Lyon, 2 rue Raphaël Dubois, Bâtiment Géode, Université Claude Bernard Lyon 1, 69622 Villeurbanne, FRANCE, Phone: +33(0)472446244.

Vice-chair: Jaap Klein, jaap.klein@zonnet.nl - Demmerik 12, 3645 EC Vinkeveen, The Netherlands.

Vice-chair: Josep A. Moreno-Bedmar, josepamb@geologia.unam.mx - Departamento de Paleontología, Instituto de Geología, Universidad Nacional Autónoma de México, Ciudad Universitaria, Delegación Coyoacán, CP 04510, México, D.F., Mexico.

Vice-chair: Peter Rawson, peter.rawson1@btinternet.com - Department of Earth Sciences, University College London,

Gower Street, London WC1E 6BT, UK, Centre for Marine and Environmental Sciences, University of Hull, Scarborough Campus, Filey Road, Scarborough YO11 3AZ, United Kingdom.

Vice-chair: Ottília Szives: sziveso@nhmus.hu - Hungarian Natural History Museum, Department of Paleontology, 1088 Ludovika ter 2, H-1431 Budapest, Hungary.

Vice-chair: Josep A. Moreno-Bedmar: josepamb@geologia.unam.mx - Departamento de Paleontología, Instituto de Geología, Universidad Nacional Autónoma de México, Ciudad Universitaria, Delegación Coyoacán, CP 04510, Ciudad de México, México.

WG Members:

Aguirre-Urreta Beatriz, aguirre@gl.fcen.uba.ar - Instituto de Estudios Andinos Don Pablo Groeber (UBA-CONICET), Universidad de Buenos Aires, Ciudad Universitaria, pabellón 2, 1428 Buenos Aires, Argentina.

Alsen Peter, pal@geus.dk GEUS, Voldgade 10, Copenhagen 1350, Denmark

Baraboshkin Evgenij J., ejbaraboshkin@mail.ru - Dept. Regional Geology and Earth History, Geological Faculty, Moscow State University, Vorobjovy Gory, Moscow, 119991 Russia. Phone: +7(495)939-49-32.

Barragán Ricardo, ricardor@geologia.unam.mx - Departamento de Paleontología, Instituto de Geología, Universidad Nacional Autónoma de México, Ciudad Universitaria, Delegación Coyoacán, CP 04510, México, D.F., Mexico

Bert Didier, paleo-db@orange.fr - Didier.BERT@le04.fr - Laboratoire du Groupe de recherche en paléobiologie et biostratigraphie des Ammonites, Bois-Mésanges, quartier Saint-Joseph, 04170 La Mure-Argens, France.

Bogdanova Tamara N., tnbogdanova@list.ru - Federal State Unitary Enterprise, "A. P. Karpinsky Russian Geological Research Institute", (FGUP "VSEGEI"), 74, Sredny prospect, 199106 St. Petersburg, Russia.

Bogomolov Yuri, 1957iori@mail.ru - Rustaveli, 13/12, 104, Moscow 127254, Russia.

Bulot Luc G., bulot@cerege.fr - lucgbulot@aol.com - Géologie des Systèmes Carbonatés, EA 4234, Université de Provence Aix-Marseille 1, Centre de Sédimentologie-Paléontologie, case 67, 3 place Victor Hugo, 13331 Marseille, France.

Company Miguel, mcompany@ugr.es - Departamento de Estratigrafía y Paleontología, Facultad de Ciencias, Universidad de Granada, Campus de Fuentenueva s/n, 18002 Granada, Spain.

Fózy István, fozy@nhmus.hu, semiformiceras@gmail.com - Hungarian Natural History Museum, Department of Paleontology, 1088 Ludovika ter 2, H-1431 Budapest, Hungary.

Frau Camille, Camille_FRAU@hotmail.fr - Groupement d'Intérêt Paléontologique, Science et Exposition, 60 bd Georges Richard, 83000 Toulon, France

González-Arreola Celestina, arreola@unam.mx - Departamento de Paleontología, Instituto de Geología, Universidad Nacional Autónoma de México, Ciudad Universitaria, Delegación Coyoacán, CP 04510, México, D.F., Mexico.

Hoedemaeker Philip, flip.hoedemaeker@naturalis.nl, National Museum of Natural History, P.O.Box 9517, 2300 RA Leiden, Netherlands

Idakieva Vyara, idakieva@gea.uni-sofia.bg - v_idakieva@mail.bg - Sofia University St Kliment Ohridski, Faculty of Geology and Geography, Department of Geology, Paleontology and Fossil Fuels, 15 Tzar Osvoboditel Bd, 1504 Sofia, Bulgaria.

Ivanov Marin, mivanov@gea.uni-sofia.bg - Sofia University St Kliment Ohridski, Faculty of Geology and Geography, Department of Geology, Paleontology and Fossil Fuels, 15 Tzar Osvoboditel Bd, 1504 Sofia, Bulgaria.

Kakabadze Mikheil V., mishakakab@hotmail.com - Djanelidze Institute of Geology, Polytkovskaja St. 5, 0186 Tbilisi, Georgia.

Latil Jean-Louis, g.r.e.g.b@wanadoo.fr - Le Maupas, 05300 Lazer par Lagagne, France.

Lukeneder Alexander, alexander.lukeneder@NHM-WIEN.AC.AT - Geological-Palaeontological Department, Natural History Museum, Burgring 7, A-1010 Vienna, Austria.

Matrion Bertrand, bertrand.matrion@sfr.fr - 26 avenue Jules Guesde, 10150 Pont Sainte Marie, France.

Mikhailova Irina A.; Department of Paleontology, Geological Faculty, Moscow State University, Vorobjovy Gory, 119899 Moscow, Russia.

Mitta Vasily, mitta@paleo.ru - Paleontological Institute of RAS, Profsoyuznaya 123, Moscow 117997, Russia.

Pictet Antoine, Chemin du Battoir 7, 1337 Vallorbe, Suisse.

Ploch Izabela, iplo@pgi.gov.pl - Polish Geological Institute, Geological Museum, Rakowiecka Str 4, PL-00-975 Warszawa, Poland

Raisossadat Seyed N., snaser_rais@yahoo.co.uk - Geology Department, Faculty of Science, Birjand University, PO Box 97175/615, Birjand, Iran.

Sandoval José, sandoval@ugr.es - Dpto Estratigrafía y Paleontología, Universidad de Granada, 18002 Granada, Spain.

Tavera José M., jtavera@ugr.es - Departamento de Estratigrafía y Paleontología, Facultad de Ciencias, Universidad de Granada, Campus de Fuentenueva s/n, 18002 Granada, Spain.

Vašíček Zdenek, zdenek.vasicek@vsb.cz - zdenvas@email.cz - Institute of Geonics, Academy of Sciences of the Czech Republic, Studentská 1768, 708 00, Ostrava-Poruba, Czech Republic.