

## 1. TITLE OF CONSTITUENT BODY and NAME OF REPORTER

Subcommission on Cretaceous Stratigraphy (ISCS)

Maria Rose Petrizzo, Chair; Michael Wagreich and James Haggart, Vice-chairs; Francesca Falzoni, Secretary  
25 November, 2016

## 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 subdivision 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 directly or indirectly linked to important international Projects such as IODP, IGCP, Mesozoic Planktonic Foraminifera Working Group, and ICDP (International Continental Scientific Drilling Project).

### 3a. Nominated Officers for 2016-2020:

Chair: Maria Rose Petrizzo

Vice-Chairs: Michael Wagreich and James Haggart

Secretary: Francesca Falzoni

In addition, there are 19 Voting Members of the Subcommission, 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 great bulk of the Subcommission's work is carried out by the Working Groups. Therefore, anyone with interest and expertise that can contribute to our objectives is very welcome to join us. The Stage Working Groups of the SCS are: Berriasian, Valanginian, Hauterivian, Barremian, Aptian, Albian, Coniacian and Campanian.

All WG leaders (chairs) and members are treated as Corresponding Members of the Subcommission.

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

The Subcommission had strong links with IGCP projects. IGCP 609 "Climate-environmental deteriorations during greenhouse phases: Causes and consequences of short-term sea-level change" had its 4th meeting in Cape Town, South Africa, at the International Geological Congress, August 31 to September 1, 2016. The session was a combined effort of IGCP 609, IGCP 608, and the ICDP Songliao Lake Drilling Project with the title "Cretaceous sea-level changes and Asia-Pacific Cretaceous Ecosystems (IGCP 609, IGCP 608, ICDP Songliao basin).

## 5. CHIEF ACCOMPLISHMENTS IN 2016

### • WORKING GROUPS ACTIVITIES TOWARDS THE DEFINITION OF THE GSSPs Campanian GSSP

In 2016, we published a paper on the carbon isotope stratigraphy and cyclostratigraphy of the Santonian (Thibault et al. 2016), which permits precise correlation between the planktonic foraminiferal zonation of the Tethyan Realm (Gubbio) and the Boreal Realm (Europe, USA) chalk successions, which yield the characteristic Late Santonian crinoids *Uintacrinus* and *Marsupites*, also known from India, Madagascar and Australia. The Santonian-Campanian Boundary Event, a positive excursion in d13C, comprises two separate peaks (a, b). The summit of the lower of these, a, coincides with the extinction of *Marsupites*; the higher, b, encompasses the range of *U. anglicus* at Seaford Head in the UK. The last occurrence (LO) *M. testudinarius*/top of peak a is precisely coincident with the base of nannofossil zone UC13 at Gubbio. The base of magnetochron C34R, and the LO of *Dicarinella asymetrica*, are nearly coincident, and occur approximately 3m above carbon isotope peak a at Gubbio. We therefore now know the relative positions of many of the proposed markers for the base Campanian, and need to select the most appropriate of these as a boundary marker. The most likely outcome will be a choice of GSSP as the base of C34R at the Bottaccione Gorge, Gubbio.

- Thibault, N., Jarvis, I. Voigt, S., Gale, A.S., Attree, K & Jenkyns, H.C. 2016. Astronomical calibration and global correlation of the

Santonian (Cretaceous) based on the marine carbon isotope record. *Paleoceanography*, 31, doi:10.1002/2016PA002941.

### Santonian GSSP inaugurated at Olazagutia, Spain

November 27, 2015 was a special day for the International Commission on Stratigraphy (ICS) and the International Union of Geological Sciences (IUGS). A new Global Stratotype Section and Point, an international geostandard, was formally inaugurated: the GSSP that defines the base of the Santonian Stage (Upper Cretaceous Series, Cretaceous System), and it is located in a quarry at Olazagutia, in Navarra, Spain. This quarry is owned by the company Cementos Portland Valderribas, and is actively worked. Following negotiations, the company transferred to the government of Navarra the part of the quarry with the GSSP.

The Instituto Geológico y Minero de España (IGME) and the Government of Navarra placed a fence around the wall of the quarry with the GSSP and erected a plaque and educational panels. The ceremony began with signing of a formal agreement that guarantees that the GSSP will be preserved and will remain accessible to scientists wishing to study it. More than 30 persons attended the ceremony, including Manuel Ayerdi Olaizola (Deputy President of the Government of Navarra), Jorge Civis Llovera (Director of IGME), Jose Antonio Garcia Martinez (representative of Cementos Portland Valderribas), and Stan Finney (Chair of ICS). The ceremony included the placing of a 'golden spike' in the section at the level of the boundary. Everyone in attendance took part in hammering in the spike. Of most importance, the efforts of the Santonian boundary working group of the ICS Subcommission were recognized. The working group was represented by Prof. Josep Pons of the University of Barcelona. It was a special day for those of the working group who had investigated the section at Olazagutia and prepared the formal proposal that was approved by the Subcommission on Cretaceous Stratigraphy and the IUGS, and then ratified by the IUGS Executive Committee. Prof. Jose Calvo (IUGS Secretary General), attended the ceremony and participated in the driving of the 'golden spike'. The base of the Santonian Stage is now marked by a symbol for the 'golden spike' on the ICS International Chronostratigraphic Chart.

FROM the IUGS E-Bulletin No. 114 - November 2015, <http://iugs.org/>

### Coniacian GSSP

Additional studies have been carried out on the Salzgitter Salder (northern Germany) and Slupia Nadbrzezna (central Poland) sections, formal candidate composite GSSP section. In 2016 a succession in the Big Bend National Park (SW Texas, Hot Spring section) earlier proposed by R. Cooper and D.A. Cooper as a potential stratotype candidate for the base of the Coniacian has been restudied. The succession is well-exposed and richly fossiliferous, however, its final evaluation and proposal as possible candidate must be preceded by the microfossil and isotope studies.

- Cooper, R.W., Cooper, D.A., Stevens, J.B., Stevens, M.S., Cobban, W.A. and Walaszczyk, I. 2017. Cenomanian through Santonian (Upper Cretaceous) succession at the southern end of the Western Interior Seaway; the Boquillas Formation of the Big Bend National Park, Texas. *Acta Geologica Polonica*, 67 (1), in press.
- Olde, K., Jarvis, I., Pearce, M., Walaszczyk, I. and Tocher, B. 2016. Organic-walled dinoflagellate cyst records from a prospective Turonian - Coniacian (Upper Cretaceous) GSSP, Slupia Nadbrzezna, Poland. *Cretaceous Research* 65 (2016) 17-24.

### Albian GSSP

The GSSP for the base of the Albian was ratified by IUGS in April 2016. The article submitted to *Episodes* has been accepted and it will be published in early 2017.

W.J. Kennedy, A.S. Gale, B.T. Huber, M.R. Petrizzo, P. Bown, H.C. Jenkyns. The Global Boundary Stratotype Section and Point (GSSP) for the base of the Albian Stage, of the Cretaceous, the Col de Pré-Guittard section, Arnayon, Drôme, France. *Episodes*, accepted.

### Aptian GSSP

The Aptian WG has not been active in 2016 and no formal meetings have been organized. The Chair has been collecting literature on Aptian stratigraphy to build a comprehensive picture of the events supporting and implementing the WG decisions published in 1996. An updated list of the WG is in progress.

### Barremian GSSP

During 2016 we have continued working on the Río Argos section (candidate GSSP of the Hauterivian-Barremian boundary). The formal proposal in progress will include data on biostratigraphy (ammonites,

calcareous nannofossils, and benthic and planktonic forams), stable isotopes stratigraphy, organic matter and cyclostratigraphy. We plan to complete it by the first half of 2017 and, subsequently, to send it to the members of the Barremian WG for discussion and voting. Besides, we have sampled two complementary sections covering the whole Barremian stratigraphic interval (Arroyo Gilico and Barranco de Cavila sections) to analyse the variations of the magnetic susceptibility signal in order to calibrate the duration of the stage. Samples are now being processed and we hope to publish the results by the end of 2017.

Papers relevant to the Hauterivian/Barremian and the lower/upper Barremian boundaries published in 2016:

- Afghah M., Abtahiyan A.R., Saberi A. 2016. Foraminiferal biostratigraphy of Early Cretaceous (Hauterivian-Barremian) sediments of the Zagros basin (SW of Iran). *Journal of African Earth Sciences* 121, 42-55.
- Baraboshkin E.Y. 2016. Excursion 4. Cretaceous deposits in the Kacha river valley. Lower Cretaceous sections. In: Reference sections of the Cretaceous System of the Mountain Crimea. Guidebook of the Field Excursions of the 8th All-Russian meeting (Simferopol, 2016), 36-45.
- Lukeneder A., Soták J., Jovane L., Giorgioni M., Savian J.F., Halászová E., Reháková D., Józsa Š., Kroh A., Florindo F., Sprovieri M. 2016. Multistratigraphic records of the Lower Cretaceous (Valanginian-Cenomanian) Puez key area in N. Italy. *Palaeogeography, Palaeoclimatology, Palaeoecology* 447, 65-87.
- Satolli S., Turtù A. 2016. Early Cretaceous magnetostratigraphy of the Salto del Cieco section (Northern Apennines, Italy). *Newsletters on Stratigraphy*, 49, 361-382.
- Scott R.W. 2016. Barremian-Aptian-Albian carbon isotope segments as chronostratigraphic signals: Numerical age calibration and durations. *Stratigraphy* 13, 21-47.

### Hauterivian GSSP

The Hauterivian WG has not been active in 2016 and no formal meetings have been organized.

### Valanginian GSSP

The WG has not been active in 2016 and no formal meetings have been organized. Miguel Company (Granada University, Spain) and Stéphane Reboulet (Lyon University, France) are the new chairs of the Valanginian WG since mid-October 2016 after Luc Bulot resigned in his role of chair. The current list of the group (30 members, see the 2004 SCS Annual Report) is now 12 years old and it can be considered out of date. The new chairs will reorganize the activities with respect to the recent works published on the Valanginian and invite active specialists of main fields of stratigraphy (paleontology, isotope stratigraphy, magnetostratigraphy, etc.) who will help to prepare or read proposals and vote upon them.

### Berriasian (J/K boundary) GSSP

Much exploration and research is in progress amongst members in most countries (USA, Canada, Mexico, Argentina, Morocco, Tunisia, Iraq, Spain, France, UK, Slovakia, Czech, Poland, Bulgaria, Hungary, Ukraine, Russia, China, Australia). Work on radiometric dating is being undertaken in Mexico and on the non-marine of China. New fieldwork has been undertaken in the 2016 documenting the Tithonian-Berriasian boundary interval, its biotas, multiple fossil groups, and magnetostratigraphy, and several key papers have been published. Fieldwork included continuing documentation of outcrops (Les Combes, Beaume) and new work (Charens, Tre Maroua) in SE France, southern Ukraine (Theodosia, Velikiy Kamenets) and the Czech Republic (Kurovice, Stramberk), with continuing magnetostratigraphic studies in Tunisia (Beni Kleb) and Mexico (Mazatapec).

One major working group meeting was held in May 2016 (Slovakia) at the Smolenice Castle of the Slovak Academy of Sciences. This was held jointly with the Polish Jurassic meeting, and that collaboration was a most successful one. The discussion at Smolenice focussed on the best amongst several putative J/K markers. The discussion led us to have a formal vote on the selection of a primary marker for the base of the Berriasian Stage. Thus, a postal ballot was held in June 2016, and the group considered a paper that discussed the issues and put forward a proposal that the base of *Calpionella alpina* Subzone (that is the turnover from a *Crassicollaria*-dominated fauna to one dominated by small *C. alpina*, plus *C. parvula* and *T. carpatica*, in mid-M19n.2n) be chosen as the primary marker for the stage base. Of those voting (only 7 did not vote), a 76% majority voted in favour of the proposal. Therefore, the base of the *C. alpina* Subzone was agreed as the primary marker. Numerous sites have been studied as we have recorded J/K fossil ranges calibrated with magnetostratigraphy, all directed at identifying a viable GSSP section.

Key publications published in 2016 (plus some from 2015, not listed in the 2015 ISCS report):

- Benzaggagh, M., Homberg, C., Schnyder, J., Ben Abdesselam-Mahdaoui, S.B. 2015. Description et biozonation des sections de crinoïdes saccocomidés du Jurassique supérieur (Oxfordien-Tithonien) du domaine téthysien occidental. *Annales de Paléontologie* 101, 95-117.
- Frau, C., Bulot, B.G., Wimbleton, W.A.P. 2015. The Upper Tithonian Himalayitidae Spath, 1925 (Perisphinctoidea, Ammonitina) from Le Chouet (Drome, France): implications for the systematics. *Geologica Carpathica* 66, 117-132.
- Frau, C., Bulot, B.G., Reháková, D., Wimbleton, W.A.P. 2016. The revision of the ammonite index species *Berriasella jacobi* Mazenot, 1939 and its consequences for the biostratigraphy of the Berriasian Stage. *Cretaceous Research* 66, 94-114.
- Frau, C., Bulot, B.G., Wimbleton, W.A.P., Ifrim, C. 2016. Systematic palaeontology of the Perisphinctoidea in the Jurassic/Cretaceous boundary interval at Le Chouet (Drome, France), and its implications for biostratigraphy. *Acta geologica Polonica* 66, 157-177.
- Grabowski, J., Lakova, I., Petrova, S., Stoykova, K., Ivanova, D., Wojcik-Tabol, P., Sobien, K., Schnabl, P. 2016. Palaeomagnetism and integrated stratigraphy of the Upper Berriasian hemipelagic succession in the Barlya section, Western Balkan, Bulgaria: implications for lithogenic input and palaeoredox potential. *Palaeogeography, Palaeoclimatology, Palaeoecology* 461, 156-177.
- Hoedemaeker, P.J., Jannsen, N.M.M., Casellato, C.E., Gardin, S., Rehákova, D., Jamrichova, M. 2016. Jurassic-Cretaceous boundary in the Río Argos succession (Caravaca, SE Spain). *Revue de Paleobiologie* 35, 111-247.
- López-Martínez, R., Barragán, R., Reháková, D., Martini, M., Eguilez de Antunano, S. 2015a. Calpionellid biostratigraphy, U-Pb geochronology and microfacies of the Upper Jurassic-Lower Cretaceous Pimienta Formation (Tamazinchale, San Luis Potosí, central-eastern Mexico). *Boletín de la Sociedad Geológica Mexicana* 67, 75-86.
- López-Martínez, R., Barragán, R., Reháková, D. 2015b. Calpionellid biostratigraphy across the Jurassic/Cretaceous boundary in San José de Iturbide, Nuevo León, north eastern Mexico. *Geological Quarterly* 59, 581-592.
- Matya, B.A., Wierzbowski, A. 2016. Ammonites and ammonite stratigraphy of the uppermost Jurassic (Tithonian) of the Ozadow-Brezniki quarry (central Poland). *Volumina Jurassica* XIV, 85-122.
- Michalík J., Reháková D., Grabowski J., Lintnerová O., Svobodová A., Schlägl J., Sobieň K., Schnabl P. 2016. Stratigraphy, lithological and magnetic proxies of the Jurassic/Cretaceous boundary interval in the Pieniny Klippen Belt (Western Carpathians Slovakia). *Geologica Carpathica* 67, 303-328.
- Pandey, B., Pathak, D.B. 2015. Status of the Indian Early Cretaceous ammonoid record in light of recent observations in the Spiti Valley, Himachal Himalaya. *Himalayan Geology* 36, 1-8.
- Riccardi, A. 2015. Remarks on the Tithonian-Berriasian ammonite biostratigraphy of west central Argentina. *Volumina Jurassica* XIII, 32-52.
- Rogov M.A., Alifirov A.S., Igolnikov A.E. 2015. Revised ammonite succession of the Upper Volgian of Nordvik section: zonal boundaries and uncertainties. 70-76 In: The International Scientific Conference on the Jurassic/Cretaceous boundary. September 7-13, 2015, Samara (Russia). Togliatti: Kassandra.
- Sano, S-I., Iba, Y., Shinji, I., Asai, H., Dzyuba, O.S. 2015. Preliminary report of earliest Cretaceous belemnites from Japan and their palaeogeographic significance. *Journal of the Geological Society of Japan* 125, 71-79.
- Satolli, S., Turtu, A., Donatelli, U. 2015. Detailed magnetostratigraphy of the Salto del Cieco section (Northern Apennines, Italy) from the Pliensbachian to Jurassic/Cretaceous boundary. *Newsletters on Stratigraphy* 48, 153-177.
- Satolli, S., Turtu, A. 2016. Early Cretaceous magnetostratigraphy of the Salto del Cieco section (Northern Apennines, Italy). *Newsletters on Stratigraphy* 49, 361-382.
- Schnabl, P., Pruner, P., Wimbleton, W.A.P. 2015. A review of magnetostratigraphic results from the Tithonian-Berriasian of Nordvik (Siberia) and possible biostratigraphic constraints. *Geologica Carpathica* 66, 489-498.
- Shurygin, B., Dzyuba, O.S. 2015. The Jurassic/Cretaceous boundary in northern Siberia and Boreal-Tethyan correlation of the boundary beds. *Russian Geology and Geophysics* 56, 652-662.
- Svobodova, A., Kostak, M. 2016. Calcareous nannofossils of the Jurassic-Cretaceous boundary strata in the Puerto Escaño section (southern Spain) - biostratigraphy and palaeoecology. *Geologica Carpathica* 67, 223-238.
- Vasicek, Z., Skupien, P. 2016. Tithonian-early Berriasian perisphinctoid ammonites from the Stramberk Limestone at Kotouc Quarry near Stramberk, Outer Western Carpathians (Czech Republic). *Cretaceous Research* 64, 12-29.
- Wimbleton, W.A.P., Mohialdeen, I.M.I., Andreini, G., Reháková, D., Stoykova, K. 2016. Jurassic /Cretaceous boundary beds in Kurdistan - a preliminary note on wider correlations. 269-276 In: Special Issue – GeoKurdistan II. *Journal of Zankoy Sulaimani Part A*.
- Yilmaz, I.O., Altiner, D., Ocakoglu, F. 2016. Upper Jurassic–Lower Cretaceous depositional environments and evolution of the Bilecik (Sakarya Zone) and Tauride carbonate platforms, Turkey. *Palaeogeography, Palaeoclimatology, Palaeoecology* 449, 321-340.

## KILIAN Group

The current Lower Cretaceous standard ammonite zonation was established during the 5<sup>th</sup> International Workshop of the Kilian Group in Ankara (Turkey, 31<sup>st</sup> August 2013) and published by Reboulet et al. (2014). It has been adopted by Ogg et al. (2016) in the last Geologic Time Scale. During the Kilian Group meeting, the standard zonation which is the zonal scheme of the West Mediterranean province, was calibrated with different ammonite zonal schemes of the Boreal, Austral and Central Atlantic realms for some stratigraphic intervals.

- Ogg, G.O., Ogg, G.M., Gradstein, F.M., 2016. A Concise Geologic Time Scale, Cretaceous, Elsevier, p. 167-186.
- Reboulet, S., Szives, O., (reporters), et al. (17 co-authors), 2014. Report on the 5<sup>th</sup> International Meeting of the IUGS Lower Cretaceous Ammonite Working Group, the Kilian Group (Ankara, Turkey, 31st August 2013). *Cretaceous Research* 50: 126-137. <http://dx.doi.org/10.1016/j.cretres.2014.04.001>

## 6. SUMMARY OF EXPENDITURE IN 2016:

No expenditure in 2016

## 7. SUMMARY OF INCOME IN 2016:

ICS Subvention for 2016	£ 0
Carried forward (2015)	£ 2512.37

## 8. BUDGET FROM ICS IN 2016-BUDGET REQUEST FOR 2017

Contribution towards cost of building the website and its maintenance	500 Euro
Contributions to support participation of members to the Cretaceous Symposium 2017	8500 Euro
Contribution to support laboratory costs for thin-section (Berriasian WG)	1000 Euro
Contribution to fieldworks/working group meetings (all WG)	5000 Euro
TOTAL estimated expenditure in 2017	15000,00 Euro

## 9. WORK PLAN, CRITICAL MILESTONES, ANTICIPATED RESULTS AND COMMUNICATIONS TO BE ACHIEVED NEXT YEAR (2017):

### • ADDITIONAL STUDIES, FIELD WORK TO FINALIZE THE GSSP PROPOSALS

#### Campanian GSSP

Restudy of the Bottaccione section, to provide a detailed lithological log and to identify the precise sample positions of published magneto- and biostratigraphical datasets, and take photographs of the boundary succession, in order to write a GSSP proposal.

#### Coniacian GSSP

Restudy of the Salzgitter Salder section, northern Germany (candidate composite GSSP section). Resampling of the El Rosario section (NE Mexico), which was recently proposed as a candidate GSSP section (Ifrim et al. 2014). Further works in the Big Bend National Park (SW Texas) a companion section to El Rosario. Meeting of the WG at the Cretaceous Symposium 2017 in Vienna.

#### Albian GSSP

Finalization of the official steps required for the protection and easy accessibility of the GSSP site. Contact needs to be made with the local authorities of Commune of Arnayon (Département of Drôme) southeast France.

#### Aptian GSSP

Plan for 2017 comprise the preparation of the state of the art of the knowledge of integrated stratigraphy for the base of the Aptian and for substage definition, and of synthesis paper(s) for candidate stratotype sections. Finalization of the WG list of members and organization of a meeting to discuss events and candidate stratotype sections.

#### Barremian GSSP

The formal proposal for the stratotype candidate Río Argos section will be completed and sent to the members of the Barremian WG for discussion and voting before being submitted to the Subcommission. The two complementary sections (Arroyo Gilico and Barranco de Cavila sections) sampled in 2016 will be studied to analyse the variations of the magnetic susceptibility signal in order to calibrate the duration of the stage. Results will be possibly published by end 2017.

#### Hauterivian GSSP

The WG is currently in a major reorganization phase toward the preparation of the GSSP proposal.

#### Valanginian GSSP

The work plan for the next 3 years is to write the proposals for the two potential candidates: the Vergol (Montbrun-les-Bains, SE France; Blanc et al., 1994) and Barranco de Canada Luenga (Céhegín, Caravaca, Spain; Aguado et al., 2000) sections. The proposal will be sent to the members of the WG for discussion and voting. An Upper Valanginian GSSP will be discussed as well.

#### Berriasian (J/K boundary) GSSP

Fieldwork will continue in 2017 on the French and Czech sites, and new fieldwork investigating magnetostratigraphy and ostracods will begin on the non-marine Purbeck of southern England. We plan a

workshop on the J/K boundary at the Cretaceous Symposium in Vienna. Moreover, in Vienna the Berriasian WG will begin consideration and discussion of the best contenders for a GSSP, based on current fieldwork and site documentation, and discuss planning for two meetings already proposed for 2018: Nanjing (China) and Prague (Czech Republic). By the end of 2017, it is planned that the Berriasian WG will be in a position to suggest a prospective Berriasian GSSP, write a proposal to be considered by group members at the Prague meeting in 2018.

- **SUBCOMMISSION WEBSITE**

A new website of the Cretaceous Subcommission will be built in early 2017. We plan to construct a user-friendly platform that can be updated by officers and working group leaders allowing easy communication among members and a prompt update of progresses and news.

- **FUTURE MEETINGS**

The 10th International Symposium on the Cretaceous System is scheduled for August 21-25, 2017 and will be held in Vienna, Austria, organised by Prof. M. Wagreich and Benjamin Sames and colleagues from Vienna (webpage: <https://10cretsymp.univie.ac.at/>).

The symposium will include sessions on each stage (and substages) of the Cretaceous, led by the chairs of the WG and/or by the officers of the subcommission. This will also enable the chairs of the WG to organize working group meetings dedicated to intensive and productive discussions on each stage and substage boundaries and definitions.

The symposium will also include meetings of the IGCP 609 and IGCP 608 groups.

The next meeting of the Kilian Group is planned on Sunday 20<sup>th</sup> August 2017 in the Natural History Museum of Vienna, together with the 10<sup>th</sup> International Symposium on the Cretaceous, Vienna 21-26 August 2017.

#### Potential funding sources external to IUGS

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

#### 10. OBJECTIVES AND WORK PLAN FOR NEXT 4 YEARS (2016-2020)

- 2017-2019: Inauguration of the Albian GSSP.
- 2017-2019: Finalization of the proposals by the Working Groups for the base of the Berriasian and the J/K boundary, base Valanginian, base Hauterivian, base Barremian, base Aptian, base of the Coniacian, base Campanian. Voting by members of the Working Groups to select a single GSSP candidate section.
- 2019-2020: Submission of the proposals GSSP candidate sections approved by the Working Groups to the Cretaceous Subcommission Voting Members, then submit it to ICS, and possibly to Episodes for publication.
- 2017-2020: Continue to work and preparation of proposals for the definition of substages for discussions at the forthcoming meetings: 10<sup>th</sup> International Symposium on the Cretaceous (Vienna 21-26 August 2017), STRATI 2019- 3<sup>rd</sup> International Congress on Stratigraphy (Milan, Italy, July 2019), 36<sup>th</sup> International Geological Congress (Delhi, India, 2-8 March 2020).

## APPENDIX [Names and Addresses of Current Officers and Voting Members)

### Nominated officers

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

Vice-Chair: Michael Wagreich, [michael.wagreich@univie.ac.at](mailto:michael.wagreich@univie.ac.at) - Department of Geodynamics and Sedimentology, Center for Earth Sciences, University of Vienna, Althanstrasse 14, Vienna, A-1090, Austria, Phone: 0043-1-4277-53465

Vice-Chair: James Haggart, [jhaggart@nrcan.gc.ca](mailto:jhaggart@nrcan.gc.ca) - Geological Survey of Canada, 1500-605 Robson Street, Vancouver, British Columbia V6B 5J3, Canada, Phone: 1-604-666-8460

Secretary: Francesca Falzoni, [francesca.falzoni@unimi.it](mailto:francesca.falzoni@unimi.it) - Dip. Scienze della Terra “A. Desio”, Università degli Studi di Milano, via Mangiagalli 34, 20133 Milano, Phone: +39-0250315563.

### List of Voting Members

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de Souza Carvalho Ismar, [ismar@geologia.ufrj.br](mailto: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](mailto: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](mailto: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..

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