SUBCOMMISSION ON CRETACEOUS STRATIGRAPHY

ANNUAL REPORT **2007**

1. TITLE OF CONSTITUENT BODY and NAME OF REPORTER

International Subcommission on Cretaceous Stratigraphy (SCS)

SUBMITTED BY
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2. OVERALL OBJECTIVES, AND FIT WITHIN IUGS SCIENCE POLICY

- *To facilitate international communication in all aspects of Cretaceous stratigraphy and correlation*
- *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 substage level and intervals of disagreement, marking boundaries that are defined by a GSSP.*

3. ORGANIZATION

SCS is a Subcommission of the International Commission on Stratigraphy.

Membership:	Chair:	Prof. Isabella Premoli Silva, Italy
	Vice Chair:	Dr. Irek Walaszczyk, Poland
	Secretary:	Dr. Silvia Gardin, France

There are an additional 15 Voting Members of the Subcommission, from all the continents. Over 130 Cretaceous scientists from all over the world and in many different disciplines belong to one or more of the 9 Stage Working Groups of the SCS still active, or to the Kilian Group. All WG members are treated as Corresponding Members of the Subcommission. Effectively, anyone with interest and expertise that can contribute to our objectives is welcome to do so. ***The great bulk of the Subcommission's work is carried out by these Working Groups***.

3a. Officers for 2008-2012:

Chair:	Prof. Isabella Premoli Silva (Milan, Italy)
Vice-Chair:	Dr. Irek Walaszczyk (Warsaw, Poland)
Secretary:	Dr. Silvia Gardin (Paris, France)

Include WEB address for Subcommission site; and indication of contents

4. INTERFACES WITH OTHER INTERNATIONAL PROJECTS

The Subcommission has liaised with successive meetings of the *International Cretaceous Symposium*, which until 2004 have been promoted by the German *Subkommission für Kreide-Stratigraphie*. The SCS has now taken over the responsibility for selection of future venues, though the successful applicants will organize individual congresses. At the seventh Congress held in Neuchâtel, Switzerland, in September 2005, it was decided that the *8th International Cretaceous Symposium* will be convened in Plymouth, UK, in 2009 by Prof. Malcom Hart.

The Subcommission will organize a session at 33rd Iinternational Geological Congress in Oslo, 2008.

The Subcommission also liaises closely with the Subcommission on Jurassic Stratigraphy, especially over the definition of the Jurassic/Cretaceous boundary.

When appropriate, the Subcommission liaises also with IGCP projects. In particular, a strong liason was established by our collegues from Japan with IGCP 434 – "Land-ocean interaction of carbon cycle and bio-diversity changes during the Cretaceous in Asia" (Project Leader H. Hirano), the new IGCP 507 – "Cretaceous paleoclimatology", and IGCP Project 506 - Marine and Non-marine Jurassic: Global correlation and major geological events (Project Co-Leader W. Wimbledon).

ICS has always been directly or indirectly linked to big international Project as ODP and IGCP.

5. CHIEF ACCOMPLISHMENTS AND PRODUCTS IN 2007

General Contributions

Of general interest to the Cretaceous Subcommission is the paper by J.M. McArthur and co-authors on "Palaeotemperatures, polar ice-volume, and isotope stratigraphy (Mg/Ca, δ18O, δ13C, 87Sr/86Sr): The Early Cretaceous (Berriasian, Valanginian, Hauterivian), published in 2007 in Palaeo 3 (v. 248).

A review the Tithonian-Valanginian stratigraphy of Kyuquot Group exposed at Grassy Island, off west coast of Vancouver Island, British Columbia, was recently undertaken. About 350 stratigraphically-constrained fossil collections have been made at Grassy Island since the 1950s, primarily by George Jeletzky (deceased 1988) in the 1950s and 1960s. Molluscan biostratigraphy provided by these collections (primarily buchiid bivalves) will be integrated with ongoing studies of foraminifers, radiolarians, calcareous nannofossils, and dinoflagellates from the section, along with stable isotopes, to better characterize this J/K boundary section. Some of the data are now in press

and will be published in 2008.

Grey, M., Haggart, J.W., Jeletzky, J.A. , 2007.Uppermost Jurassic (Tithonian) to Lower Cretaceous (Valanginian) section at Grassy Island, west coast Vancouver Island, British Columbia. Geological Survey of Canada, Open File 5666, 52 p.

The Kilian Group (Lower Cretaceous Ammonite Working Group).

The current Lower Cretaceous standard ammonite zonation was established during the 1st International Workshop of the "Kilian Group" (Lower Cretaceous Ammonite Working Group) in Lyon (July 2002) and summarized by Hoedemaeker and Reboulet (reporters) et al. (2003). It was completely adopted by Gradstein et al. (2004), editors of "A Geological Timescale 2004".

During the 2nd international meeting of the "Kilian Group", held in Neuchâtel (Sept. 2005), the zonation of the Berriasian, Valanginian, Hauterivian and Albian stages was not discussed, but several amendments were introduced to the Barremian and Aptian stages (Reboulet & Hoedemaeker, reporters, 2006, Cret. Res., v. 27).

Following the decision taken at Neuchâtel, proposing to organize several workshops to work on the zonation of a particular stage/substage or on the boundary of some stages/substages, the 1st workshop, held in Lyon (Nov. 2005), was dedicated to the Aptian zonation. The discussion mainly focused on the ammonite faunal turnovers and the Lower/Middle Aptian (Bedoulian/ Gargasian) boundary in relation to the position of the Furcata Zone.

The 2nd Workshop of the Kilian Group, chaired by Stéphane Reboulet with the participation of the French members, was held in Digne-les-Bains (Mai 2007), for discussing the Hauterivian – Barremian zonation.

The zonal scheme, established at Neuchâtel in 2005 (Reboulet, Hoedemaeker et al., 2006), has been discussed from the **Radiatus** (base Hauterivian**)** to the **Sarasini** (top Barremian) zones. The main points of the discussion were about the zones located on both parts of the Lower-Upper Hauterivian (Cruasense and Sayni zones), the Hauterivian/Barremian (Ohmi, Angulicostata, Hugii and Cassida zones) and Lower/Upper Barremian (Darsi, Ouachensis, Uhligi and Vandenheckii zones) boundaries.

The proposals of changes concern (3 points):

(1) The uppermost Hauterivian and the Ohmi/Angulicostata zone.

J. Vermeulen suggested to divide this biostratigraphic interval into two zones: the Seitzi (with the Seitzi and Ohmi subzones) and Mortilleti (with the Mortilleti and Picteti subzones) zones.

For other members, the "Ohmi" zone could be defined by the appearance of *P. seitzi*, that is by the appearance of the genus *Pseudothurmannia*. The "Ohmi" zone would be divided in three subzones: Seitzi, "Ohmi" and Mortilleti. This last one includes the Mortilleti and Picteti horizons.

(2) The Compressissima zone could be divided into two subzones: Fallax and Defayae.

(3) The Upper Barremian zonation.

D. Bert and G. Delanoy proposed a new ammonite zonal scheme based on their study of the Upper Barremian ammonite turnovers (Bert, Delanoy and Bersac, *in prep*.).

For all participants, **the base of the Vandenheckii zone** would be used to characterize the base of the Upper Barremian.

All participants agreed to consider the Feraudianus biostratigraphic unit as the third subzone of the **Sartousiana zone**. Most participants considered the Sarasini biostratigraphic unit as a subzone of the **Giraudi zone**. In this case, the Upper Barremian could be divided into three zones

(Vandenheckii, Sartousiana and Giraudi), each of them including three subzones. This new zonal scheme would correspond to the ammonite turnovers. For Vermeulen, the Upper Barremian is composed by four zones: Vandenheckii, Sartousiana, Giraudi and Sarasini. **These results must be considered as a proposals which will be discussed again during the next international meeting of the Kilian's group (Vienna, mid-April 2008).**

Bert, D., Delanoy, D. and Bersac, S. Propositions pour un nouveau découpage bio-zonal ammonitique du Barrémien supérieur (in preparation).

Reboulet, S. and Hoedemaeker, P.J., (reporters) *et al*., 2006. Report on the 2nd International Meeting of the IUGS Lower Cretaceous Ammonite Working Group, the "Kilian Group" (Neuchâtel, Switzerland, 8 September 2005). *Cretaceous Research*, 27: 712-715.

The Berriasian GSSP and the J/K boundary.

The Chair of the newly formed Berriasian Working Group, W. A. P. Wimbledon, called the first meeting that was held in Bristol (UK) the 8th July 2007 and hosted within the IGCP 506 Symposium on " Marine – Non Marine Jurassic: Global correlation and major geological events" at Bristol (UK), thanks to Prof. Sha Jingeng, co-leader of the project.

At IGCP 506 Symposium some oral presentations and posters concerned specifically the Jurassic-Cretaceous transition in marine settings from Arctic, Boreal, Eastearn Europe, and Tethys regions, thus of interest of the working group. As premise to the official meeting, the chairman of the WG presented an exhaustive overview on the correlation problems, criteria for selecting a useful boundary level, and then choosing a GSSP.

In preparation to the meeting, the Chairman sent a letter to the WG members suggesting to concentrate on useful correlations and not historical preoccupations such as old zonal definitions. On this an agreement was reached at the plenary meeting in Bristol.

Particularly, all attendees agreed to try to identify useful biological datums and other events so as to make use of these as effective tools for interregional correlation. There was a total consensus that initially there is a need to concentrate on markers at or about the base of the Grandis (Jacobi +Grandis subzones) zone. All presents voted to maintain continuity in this way. Moreover, some colleagues, who could not attend the WG meeting, independently agreed strongly with this by letter. Other written comments from WG members, on the unsuitable nature as a GSSP of the Berrias section were not discussed, but they will be considered later in prospective of GSSP.

So, for the moment, all other potential levels have been formally put to one side. If the WG fails to find something useful and widespread in this chosen interval (correlatives of topmost Tithonian (Durangites)-top Grandis subzone), then the WG will look to another level. This hopefully opens the door for concentration on practical and effective correlations.

A second decision was to work in regional groups (N. Sea basin, Russian platform, S. England, Italy, S. France, Carpathians, etc.) to develop charts with datums/markers. The following colleagues were identified to lead a group on each area, as follows: Russian platform - Viktor Zakharov; North Sea Basin - Oscar Abbink; Italy - Elisabetta Erba; north Africa - Mabrouk Boughdiri; middle Europe - Josef Michalik; S. France - Luc Bulot; Russian far east - Eugenia Bugdaeva; China - Sha Jingeng; S. Britain-N. France – W. Wimbledon; more to follow. These groups will each present a report to the next WG meeting.

The Working Group is scheduled to meet in Marseilles next April to discuss and finalise ideas

on useful J/K boundary markers. The meeting will be held at the University of Provence on 12-13 April, 2008, followed by two days (14-15 April) of optional field trips. Dr. Luc Bulot has kindly agreed to make the local arrangements.

Base Valanginian GSSP.
The activities in 2007 concentrated on the section at Montbrun-les-Bains (S. France) that was logged again in more detail by Bulot and Reboulet in order to provide a reliable correlation to the Sr and 13C curves established by McArthur et al. (2007, see above). For the same section detailed data of ammonites, calpionellids, and calcareous nannofossils (unpublished) are also available. In the alternate section at Rio Argos (Spain), orginally studied by Ph. Hoedemaeker and revised by Aguado et al. (2000, Cret. Res., v. 21), althought richer in ammonites, the calpionellid record is "weak" compared to Montbrun-les-Bains, mainly for preservation problems. Being the Chairman of the Valaginian WG, Luc Bulot, deeply involved also in problems concerning the Berriasian and J/K boundary, the GSSP proposal will be not submitted probably until the end of 2008.

Base Hauterivian GSSP.
Luc Bulot has now received the various contributions from colleagues who have been analysing data from the intended GSSP at La Charce, France. He is collating the data to send to P. Rawson so that he can then put the whole draft report together, then send it to the chair of the group, Joerg Mutterlose, for him to check and send to members of the WG. The whole procedure is expected to be completed and the report sent to Voting members within the next 6 months.

Base Barremian GSSP.
The Spanish colleagues (led by Miguel Company) have prepared data on the proposed section in Spain and as far as the chair, P. Rawson, knows it is more or less complete. Beginning in December after returning from Argentina, Peter Rawson will put the whole draft report together expecting to submit the GSSP proposal over the next year.

Base Aptian GSSP.
A wealth of data have been added and published in 2007 by our French collegues on the stratotype sections of Bedoulian and Gargasian substages including revised biostratigraphies, $\delta^{13}C$ curve and cyclostratigraphy (published mainly in Notebooks on Geology). A memoire edited by Moullade et al., synthetysing all the gathered data is in press in Notebooks on Geology (on-line). However, as magnetic signature in the French stratotype sections cannot be detected, the correlation to the base of magnetic chron M0, recommended at the 1995 Brussels Meeting for identifying the base of the Aptian, is still prevented. A formal proposal is expected soon by the chair of the WG.

Base Albian GSSP.
A new version of the formal proposal has been prepared early in 2007 by J. Kennedy and distributed to the members of the WG for comments. Although the Chairman, M. Hart, has received only few answers so far, the proposal will be soon sent to Voting Members for approval and hopefully publication in 2008.

Base Coniacian GSSP.

New studies of sections in southern England (Bridgewick Pit, Downley, Shoreham Cement Works Quarry), eastern England (Kiplingcotes Station Quarry, Arras Road Pit), Germany (Salzgitter-Salder Quarry, a potential candidate GSSP for the Coniacian Stage) and central Poland (Slupia Nadbrzena, another potential candidate GSSP), have enabled a re-evaluation and refinement of the inoceramid biostratigraphy of the higher part of the Upper Turonian and the Turonian/Coniacian boundary transition. The inoceramid record at Slupia Nadbrzena, below the terminal Turonian entry of *Cremnoceramus*, is shown to be more complete than at the Salzgitter-Salder Quarry. In fact, a new inoceramid event (*Inoceramus lusatiae* Event) identified at Slupia Nadbrzena is inferred to be present at the Sonnenberg Quarry, Waltersdorf, the type locality of *Inoceramus lusatiae*, as well as of *I. glatziae* and *Cremnoceramus waltersdorfensis*, and it is possibly represented in the condensed Navigation Hardgrounds in southern England. The absence of this event at Salzgitter-Salder suggests a significant hiatus preventing to recommend this section as a GSSP for the Coniacian (a "negative" report on the Salzgitter-Salder section is in preparation).

Consequently, a new section has been considered, the Pueblo section (Colorado), which spans the whole Turonian as well as the transition to the Coniacian. In Fall 2007 the chair, Irek Walaszczyk, sampled the Pueblo section for istopes and microfossils and made further collections of inoceramids, ammonites, and of *Didymotis*. In addition, he made further collecting in the nearby Wagon Mound/ Springer section. The study of the new materials is underway.

The report on the Pueblo section will be completed by Jim Kennedy (ammonites), Jackie Lee (nannofossils), Danuta Peryt (foraminifera), Silke Voigt (isotopes) and Walaszczyk (inoceramids). It is expected to be ready late Winter or early Spring.

Moreover, another section, the Hot Springs Trail in Texas, was recently proposed by Dee Ann Cooper and co-authors as a possible candidate for the base of the Coniacian. According to Irek Walaszczyk, the Turonian part is paleontologically quite well documented, but no convincing fossil from the Coniacian have been detected suggesting that the Coniacian part may be not very fossiliferous. This section will be considered after the full data-set will be made available to the WG.

Base Santonian GSSP.

The special issue concerning the Santonian from the Bilbao meeting 2002 has been finally published in Cretaceous Research (2007, v. 28/1, 11 contributions). On the basis of this issue, the candidate sections for the Santonian GSSP are Olazagutia (Spain) and Ten Mile Creek (US). In fact, according to Hampton et al. (2007), the Seaford Head section (UK) is no longer a candidate GSSP for the base of the Santonian. In addition, in 2007 a thorough study on Ten Mile Creek section was published by Gale et al. in Acta Geologica Polonica (v. 57/2), that updates the previous study by Howe et al. (2007, special issue). In particular, Gale et al. provided, aside micro- and macrofossil precise identifications and distributions, a detailed isotopic curve that contains several of the isotopic events identified by Jarvis et al. (2006, Geol. Mag., v. 143).

In September 2007 the Chairman, Marcos Lamolda, produced a report (rather synthetic) on the basis of available data (mainly published in the special issue). The report emphasizes the merits of the Olazagutia section versus those of Ten Mile Creek section resulting in the identification of the former as the best of the candidates. According to the Chairman, this choice follows the line of the ICS 2002 annual report for the Santonian, in which "The Olazagutia section near Bilbao (Spain) is the leading candidate for the GSSP section". The report, in which the Olazagutia section, in the eastern border of the Cantera de Margas, is proposed as the Santonian Stage GSSP, was distributed for consideration to the Santonian Working Group. However, the report was strongly contested by several Santonian WG

members and specialists, because (1) the presentation of the two candidate sections was not objective and very much in favor of Olazagutia; at Olazagutia (2) the only horizoned *Magadiceramus* records (incomplete and poorly preserved specimens) are c. 30 m below the entry of *Cladoceramus*, and (3) no Coniacian ammonites are recorded, and the Santonian ammonite record starts 33 m above the boundary.

In the next few months the Chairman will produce a full proposal with all the commments received in the first round to be submitted to the Voting Members for the final approval and hopefully publication on Episodes.

Publications

Dhondt, A. V., Lamolda, M. A., Pons, J. M., 2007. *Stratigraphy of the Coniacian–Santonian transition*, Meeting organised by the Santonian working group of the Subcommission on Cretaceous Stratigraphy. Bilbao, Spain, 13–17 September 2002. Cretaceous Research 28, 1–4.

Gale, A. S., Kennedy, W. J., Lees, J. A., Petrizzo, M. R., Walaszczyk, I., 2007. Integrated study (inoceramid bivalves, ammonites, calcareous nannofossils, planktonic foraminifera, stable carbon isotopes) of the Ten Mile Creek section, Lancaster, Dallas, north Texas, a candidate Global boundary Stratotype Section and Point for the base of the Santonian Stage. Acta Geologica Polonica 57, 113–160.

Gallemí, J., López, G., Martínez, R., Pons, J. M., 2007. Macrofauna of the Cantera de Margas section, Olazagutia: Coniacian/Santonian boundary, Navarro-Cantabrian Basin, northern Spain. Cretaceous Research 28, 5–17.

Gallemí, J., López, G., Martínez, R., Pons, J. M., 2007. Macrofauna of the Villamartín section: Coniacian/Santonian boundary, North Castilian Platform, Burgos, Spain. Cretaceous Research 28, 93–107.

Hampton, M. J., Bailey, H. W., Gallagher, L. T., Mortimore, R. N., Wood, C. J., 2007.The biostratigraphy of Seaford Head, Sussex, southern England; an international reference section for the basal boundaries for the Santonian and Campanian Stages in chalk facies. Cretaceous Research 28, 46–60.

Howe, R. W., Sikora, P. J., Gale, A. S., Bergen, J. A., 2007. Calcareous nannofossil and planktonic foraminiferal biostratigraphy of proposed stratotypes for the Coniacian/Santonian boundary: Olazagutia, northern Spain; Seaford Head, southern England; and Ten Mile Creek, Texas, USA. Cretaceous Research 28, 61–92.

Kopaevich, L. F., Beniamovski, V. N, Sadekov, A. Yu., 2007. Middle Coniacian–Santonian foraminiferal bioevents around the Mangyshlak Peninsula and Russian Platform. Cretaceous Research 28, 108–118.

Lamolda, M. A., Paul, C. R. C., 2007. Carbon and oxygen stable isotopes across the Coniacian/Santonian boundary at Olazagutia, northern Spain. Cretaceous Research 28, 37–45.

Lamolda, M. A., Peryt, D., Ion, J., 2007. Planktonic foraminiferal bioevents in the Coniacian/Santonian boundary interval at Olazagutia, Navarra province, Spain. Cretaceous Research 28, 18–29.

Melinte, M. C., Brustur, T., Jipa, D., Szobotka, S. A., 2007. Upper Cretaceous Red Beds in the Romanian Carpathians: a tool for climatic changes. Eitura Eikon, Cluj-Napoca, 125 pp.

Melinte, M. C., Lamolda, M. A., 2007. Calcareous nannofossil biostratrigraphy of the Coniacian/Santonian boundary interval in Romania and comparison with other European regions. Cretaceous Research 28, 119–127.

Peryt, D., Lamolda, M. A., 2007. Neoflabellinids (benthic foraminifers) from the Upper Coniacian and Lower Santonian at Olazagutia, Navarra province, Spain; taxonomy and correlation potential. Cretaceous Research 28, 30–36.

Toshimitsu, S., Hasegawa, T., Tsuchiya, K., 2007. Coniacian–Santonian stratigraphy in Japan: a review. Cretaceous Research 28, 128–131.

Walaszczyk, I., Cobban,W. A., 2007. Inoceramid fauna biostratigraphy of the upper Middle Coniacian–lower Middle Santonian of the Pueblo Section (SE Colorado, US Western Interior). Cretaceous Research 28, 132–142.

Base Campanian GSSP.

The paper on the base of the Campanian at the Waxahachie dam spillway section (northcentral

Texas), prepared by Jim Kennedy on the basis of the data partially assembled by late Jack Hancock, was revised, submitted and accepted for publication on Cretaceous Research. Galley-proofs are expected at the end of November 2007. The problem concerning who owns the land where the Texas section is situated is still unsolved.

The other possible candidate section, west of Seaford Head (Sussex, England), was studied by Hampton and co-authors and the data are now published in Cretaceous Research (2007, special issue, see above).

Gale A. S., Hancock J. M., Kennedy W. J., Petrizzo M. R., Lees A. J., Walaszczcyk I., and Wray D. S. (in press). An integrated study (geochemistry, stable oxygen and carbon isotope, nannofossils, planktonic foraminifera, inoceramiid bivalves, ammonites, and crinoids of the Waxahachie Dam Spillway, north Texas: a possible boundary stratotype for the base of the Campanian. Cretaceous Research.

6. CHIEF PROBLEMS ENCOUNTERED IN 2007

The need nowadays for a high-resolution framework to be exportable worlwide resulted in the necessity of re-visiting several candidate sections, already studied paleontologically, by implementing multiple biostratigraphies and stratigraphic tools other than fossils, profoundly affected by bioprovincialism in several intervals, like magnetostratigraphy, stable isotope stratigraphy, etc. To co-ordinate the work of several scientists from different subdisciplines was not an easy task and delay in submitting GSSP proposals was inevitable.

7. SUMMARY OF EXPENDITURES IN 2007 (ANTICIPATED THROUGH MARCH 2008):

I. INCOME

ICS subvention for 2007	Euro 0,000

Total income	Euro 0,000

II. EXPENDITURE

Contribution for the J/K meeting, Bristol (650 £)	Euro 983.06
Chairman (IPS) participation (travel, lodging) to the J/K meeting, Bristol	Euro 513.17
Office (chair & secretary) expenses	Euro 400.00

Total expenditure	Euro **1796.237.**

8. WORK PLAN, CRITICAL MILESTONES, ANTICIPATED RESULTS AND COMMUNICATIONS TO BE ACHIEVED NEXT YEAR (2008):

Membership of Cretaceous Subcommission.

The present Chair, I. Premoli Silva, and ViceChair, I. Walaszczyk, have been re-elected almost

unanimously for the 2008-2012 term, with >60% of the votes.
The Voting Membership of the Cretaceous Subcommission will be renewed during the next few months. In fact, the mandate for 5 of them will expire in 2008. Nominations have already been requested.
The Corresponding Membership of the Berriasian - J/K boundary WG is now in action.

Meetings

- The 2nd meeting of the Berriasian and J/K boundary WG is planned for 12-13 April, 2008 in Marseille, France.
- The 3rd International Meeting of the Kilian Group is planned for 15-18 April, 2008 in Vienna.
- 33° Geological Congress, August 2008, Olso: ICS Symposium on "Stratigraphic subdivisions of the Cretaceous System: State of the Art". (Conveners: I. Premoli Silva, F. Surlyk & I. Walaszczyk).

Work Plan and anticipated Results

- To bring recommendations for 8 of the remaining GSSPs to ICS as soon as possible, and before the 33° IGC in Olso.
- To advance considerably on definition of criteria for identifying the base of the Berriasian and the J/K boundary.

9. BUDGET AND ICS COMPONENT FOR 2008

Office expenses (Fax, phone, postage etc)	Euro 300
Support to participants to the J/K Marseille Meeting	Euro 500
Contributions to help costs of participants to 33° IGC in Olso	Euro 2,000

Total estimated expenditure	**Euro 2,800**

10. SUMMARY OF CHIEF ACCOMPLISHMENTS OVER PAST FIVE YEARS (2003-2007)

See Accomplishments in ICS Annual Reports 2003 to 2007 (above) for additional details.

- Renewed research by WG members (resulting in a great number of publications, still ongoing), based on research needs pinpointed by the 1995 Brussels and 2005 Neuchâtel meetings.
- Completion of 2 GSSP proposals: Cenomanian (ratified 2002) and Turonian (ratified 2003).
- Presentation of the latest results to *7th International Cretaceous Symposium*, Neuchâtel, Switzerland. September 4-9, 2005.
- Workshop on the Aptian ammonite zonation, held in Lyon (Nov. 2005) focused the discussion mainly on the ammonite faunal turnovers and the Lower/Middle Aptian (Bedoulian/ Gargasian) boundary in relation to the position of the Furcata Zone.
- Set up of the renewed Working Group on the Berriasian GSSP and the J/K boundary, chaired by W.A.W. Wimbledon (Dec. 2006-Spring 2007).
- Workshop on the Hauterivian-Barremian zonation, held in Digne-les-Bains (Mai 2007), from the

Radiatus (base of the Hauterivian) to the **Sarasini** (top of the Barremian) zones.

- First official meeting of the renewed Working Group on the Berriasian GSSP and the J/K boundary, chaired by W.A.W. Wimbledon in Bristol (July 2007).

The Chair and/or Vice Chair represented the SCS at:

SCS session at *32nd International Geological Congress*, Florence, August 2004

SCS meeting during the *7th International Cretaceous Symposium*, Neuchâtel, Switzerland, September 2005

1st meeting of the *Berriasian and J/K boundary Working Group*, Bristol (UK), July 2007

11. OBJECTIVES AND WORK PLAN FOR NEXT 4 YEARS (2008-2012)

Meetings

April 2008 – 2nd official meeting of the Berriasian and J/K boundary WG is planned in Marseille, France

April 2008 - Workshops of the Kilian Group in Vienna.

August 2008 - the Subcommission will organize a session on "Cretaceous Stage boundaries and Correlations" at 33rd International Geological Congress in Oslo.

2009 - 7th International Cretaceous Symposium, Plymouth (UK)

Details of other meetings are not yet available.

Objectives

- To bring recommendations for 8 of the remaining GSSPs to ICS as soon as possible, and before the 33° IGC in Olso (2008).
- To advance considerably on definition of criteria for identifying the base of the Berriasian and the J/K boundary.
- To communicate the results as widely as possible.
- To develop new directions for the Subcommission as GSSP proposals are completed. Specifically, future objectives will concern the subdivision of stages, with definition of substages and related GSSPs.

Work Plan

2008 - Finalize proposals for the base of Valanginian, Hauterivian, Barremian, Aptian, Albian, Coniacian, Santonian, and Campanian

2009 - Finalize proposal for the base of Berriasian (Jurassic/Cretaceous boundary)

2010 to 2012 – Definition of substages.

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

Subcommission officers (with addresses)

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