



International Commission on Stratigraphy Subcommission on Quaternary Stratigraphy

ANNUAL REPORT 2019

1. TITLE OF CONSTITUENT BODY and NAME OF REPORTER

Subcommission on Quaternary Stratigraphy (SQS)
Reporting Officer: Martin J. Head, Chair SQS

2. OVERALL OBJECTIVES, AND FIT WITHIN IUGS SCIENCE POLICY

1. Chronostratigraphic subdivision of the Quaternary System/Period facilitated by the intercalibration of biostratigraphies, construction of integrated zonations, and recognition of global datum points, allowing correlation worldwide and between terrestrial and marine sequences.
2. Definition of Series/Subseries/Stage and, where appropriate Substage, boundaries through the selection of recommended GSSPs.
3. Promoting SQS's activities within the wider Quaternary geoscience community through publications, symposia, and the SQS website, and creating opportunities to study and compare stratigraphic sections by means of field meetings.
4. The objectives satisfy the IUGS mandate of fostering international agreement on nomenclature and classification in stratigraphy; facilitating international co-operation in geological research; improving publication, dissemination, and use of geological information internationally; encouraging new relationships between and among disciplines of science that relate to Quaternary geology world-wide; attracting competent students and research workers to the discipline; and fostering an increased awareness among individual scientists world-wide of those related programs being undertaken.

3. ORGANISATION - interface with other international projects / groups

SQS works closely with the International Union for Quaternary Research (INQUA), which represents and serves the interests of Quaternarists worldwide. INQUA provides advice and crucial feedback on the stratigraphic needs of the wider Quaternary community. Prof. Thijs van Kolfschoten is both a voting member of SQS and President of INQUA, allowing direct and rapid liaison with the SQS on stratigraphic issues.

3a. Nominated Officers for 2016-2020 period:

Chair: Professor Martin J. Head
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4. NATIONAL/REGIONAL/GLOBAL SUPPORT FROM SOURCES OTHER THAN IUGS

INQUA provides feedback and advice on SQS activities. INQUA's Stratigraphy and Chronology Commission (SACCOM) potentially offers modest financial support through its grants program, thereby assisting the work of SQS. A proposal for partial funding to assist with a field workshop intended to inaugurate new research on the Gelasian GSSP was submitted to SACCOM on November 1, 2019. The Anthropocene Working Group has been awarded Euro 1 000 000 from the Haus Kulturen der Welt, Berlin to facilitate the administration and analysis of potential candidate GSSPs. Analyses of sites is now in progress.

5. CHIEF ACCOMPLISHMENTS AND PRODUCTS

1. Proposal to approve definition of the Chibanian Stage and Middle Pleistocene Subseries by GSSP at the Chiba section, Japan – submitted to the ICS.

2. Proposal to approve formalization of the Lower/Early Pleistocene Subseries/Subepoch, comprising the Gelasian Stage/Age and the superjacent Calabrian Stage/Age, with a GSSP corresponding to that of the Gelasian Stage, the Pleistocene Series, and the Quaternary System. AND Proposal to approve formalization of the terms Upper/Late Pleistocene, at the rank of subseries/subepoch, with a base presently undefined but provisionally dated at ~129 ka – submitted to the ICS.

3. Zalasiewicz, J., Waters, C.N., Williams, M., and Summerhayes, C. (Eds.), *The Anthropocene as a Geological Time Unit. A Guide to the Scientific Evidence and Current Debate*. Cambridge University Press, Cambridge, U.K. 391 pp.: ISBN 9781108475235. Published 26 February, 2019. Editors and most contributors are members of the Anthropocene Working Group.

6. SUMMARY OF EXPENDITURE IN 2019

Partial support for Colin Waters* and Martin Head* to attend the STRATI Congress in Milan, 2019:

Colin Waters, GBP 261.85 = CAN 214.98

Martin Head, CAN \$1030.16 + 926.12 (airfare) + EUR 410.00 (registration) = CAN 1956.28 + 598.30 = CAN \$2554.58. Martin Head to claim CAN\$ 2000.00.

Partial support for Martin Head* to attend the INQUA Congress in Dublin, 2019:
Registration, Euro 495.00 = CAN\$ 722.35, accommodation, Euro 792 = CAN\$ 1155.76, airfare (Milan–Dublin), CAN \$132.70. Subtotal = CAN\$ 2010.81. Martin Head to claim CAN\$ 2000.00.

* = As detailed in the 2018 budget request.

TOTAL EXPENDITURE = CAN \$4214.98

7. SUMMARY OF INCOME IN 2019

Euro 1 million over 2 years (2019, 2020) awarded to Anthropocene Working Group by the Haus Kulturen der Welt, Berlin. Otherwise, no income except ICS payment of US \$4000 for 2019.

8. BUDGET REQUESTED FROM ICS IN 2019

Priority 1. Support for attendance by Martin Head (outgoing Chair, ICS) and Jan Zalasiewicz (incoming Chair, ICS) at the 36th IGC in Delhi, India, March 20120. Requested support, \$2330 for Martin Head and \$2120 for Jan Zalasiewicz. SUBTOTAL = \$4450.

Priority 2. Partial support for reinvestigation of Gelasian GSSP in Sicily: specifically the cost of hiring a backhoe for 1 day to dig a trench for sampling. Weathering is known to have affected the Monte San Nicola GSSP section, and a sampling trench 20 m in length with removal of a minimum of 0.5 m of overburden requires mechanical help. REQUESTED SUPPORT, \$2000.

TOTAL REQUESTED SUPPORT = \$6450.

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

- Assuming the Chiba proposal for the Chibanian Stage / Middle Pleistocene Subseries GSSP, currently under consideration by ICS, is approved and ratified, the priority for SQS will then be the selection of a GSSP for the Upper Pleistocene Subseries and its corresponding stage. Two potential candidates have already been identified (Fronte Section, Taranto, Italy; and an ice core in Antarctica). The aim is to have proposals submitted for these potential candidates during the coming year. The Upper Pleistocene Working Group will be reformed after 36 IGC under the co-convenership of Martin Head.

- A field workshop on the Neogene–Quaternary boundary and Gelasian GSSP is to be held in Palermo during the first week of June, 2020. This workshop will inaugurate a multidisciplinary multi-year research program to re-investigate the Gelasian type section.
- The SQS website will be updated under the direction of Martin Head as incoming Vice-Chair with explicit responsibility for this task.

10. KEY OBJECTIVES AND WORK PLAN FOR THE PERIOD 2016–2020

- Develop and submit GSSP proposal for definition of the Upper/ Late Pleistocene and its respective Stage/Age.
- Continue research on candidate GSSPs for Anthropocene.
- Re-investigate the GSSP for the Gelasian Stage (and Lower Pleistocene Subseries, Pleistocene Series, Quaternary System) at Monte San Nicola, Sicily.
- Continue to examine the fine-scale subdivision of the Quaternary.
- Continue to develop/update detailed correlation charts for the Quaternary (Cohen & Gibbard, 2019, *Quaternary International*, is the latest version).

Respectfully submitted:
Martin J. Head, Chair SQS
15th November, 2019

APPENDIX

Names and Addresses of Current Officers and Voting Members of SQS

Officers of SQS

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Other Voting Members of SQS

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Prof. Brent Alloway and Sune Olander retired/resigned from the SQS voting membership during the current reporting year. They will be replaced by Prof. Adele Bertini (Univ. Firenze, Italy) and Prof. Liping Zhou (Peking Univ., China) following the 36 IGC in March 2020.

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Names and Addresses of Officers of SQS for the 2020–2024 term

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Vice-Chair: Professor Liping Zhou
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Vice-Chair (Website): Professor Martin J. Head
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Secretary: Professor Adele Bertini
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The new executive of SQS was acclaimed by supermajority on October 16, 2019. There were no write-in candidates. Twenty ballot forms were returned. The secretary is appointed by the chair. Voting was as follows:

Zalasiewicz (Chair) 18 yes, 2 no
Zhou (First Vice-Chair) 17 yes, 1 no, 2 abstain
Head (Second Vice-Chair) 20 yes

List Of Working (Task) Groups and their Officers

SQS Working Group on the “Anthropocene”

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Secretary: Professor Colin Waters
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Full membership of the Working Group: Tony Barnosky (USA), Alejandro Cearreta (Spain), Paul Crutzen (Germany), Matt Edgeworth (UK), Erle Ellis (USA), Mike Ellis (UK), Ian Fairchild (UK), Agnieszka Gałuszka (Poland), Philip Gibbard (UK), Jacques Grinevald (Switzerland), Peter Haff (USA), Irka Hajdas (Switzerland), Martin J. Head (Canada), Juliana Assunção Ivar do Sul (Brazil), Catherine Jeandel (France), Reinhold Leinfelder (Berlin), John McNeill (USA), Cath Neal (UK), Eric Odada (Kenya), Naomi Oreskes (USA), Clément Poirier (France), Dan Richter (USA), Neil Rose (UK), William Shotyk (Canada), Will Steffen (Australia), Colin Summerhayes (UK), James Syvitski (USA), Davor Vidas (Norway), Michael Wagreich (Austria), Colin Waters (Secretary, UK), Mark Williams (UK), Scott Wing (USA), Alex Wolfe (Canada), Jan Zalasiewicz (Chair, UK), An Zhisheng (Xi'an) (China).

No new additions or resignations in this reporting year.

Working Group on the subdivision of the Holocene Series

Convener: Professor M.J.C. Walker
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Full membership of the Working Group: M. Berkelhammer (USA), S. Björck (Sweden), L.C. Cwynar (Canada), D.A. Fisher (Canada), A.J. Long (UK), J.J. Lowe (UK), R.M. Newnham (New Zealand), S.O. Rasmussen (Denmark), M.J.C. Walker (Convener, UK), and H. Weiss (USA).

This working group was disbanded in June, 2019 following the publication of Walker, M., Head, M.J., Berkelhammer, M., Björck, S., Cheng, H., Cwynar, L., Fisher, D., Gkinis, V., Long, A., Lowe, J., Newnham, R., Rasmussen, S., Weiss, H., 2019. Subdividing the Holocene Series/Epoch: formalisation of stages/ages and subseries/subepochs, and designation of GSSPs and auxiliary stratotypes. *Journal of Quaternary Science* 34(3), 173–186. The designation of auxiliary stratotypes completed the final task of the Working Group. Mike Walker was commended for his outstanding leadership.

Working Group on the Middle/Upper Pleistocene Subseries Boundary

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No change in membership from 2018. This working group will be reinvigorated in 2020 following the 36 IGC.

Working Group on the Lower/Middle Pleistocene Subseries Boundary

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Co-convener: Professor Brad Pillans

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(USA), Yusuke Suganuma (Japan), Charles Turner (UK), Chronis Tzedakis (UK), Thijs Van Kolfschoten (Netherlands).

No changes to the membership in 2019. The group will be disbanded when the Chibanian Stage / Middle Pleistocene Subseries GSSP is ratified.