



# International Commission on Stratigraphy Subcommission on Quaternary Stratigraphy

ANNUAL REPORT 2020

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

Subcommission on Quaternary Stratigraphy (SQS)  
Reporting Officer: Jan Zalasiewicz, 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. An account of SQS progress and plans is currently in press with the INQUA Newsletter, to help the exchange of information.

### 3a. Nominated Officers for 2020-2024 period:

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Vice-Chair (website): Professor Martin J. Head

#### 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. Funding to assist with a field workshop intended to inaugurate new research on the Gelasian GSSP has been obtained from INQUA. The Anthropocene Working Group was awarded Euro 800 000 from the Haus Kulturen der Welt, Berlin to facilitate the administration and analysis of potential candidate GSSPs. Analyses of candidate sites is now in progress, although variably delayed by the Covid-19 pandemic.

#### 5. CHIEF ACCOMPLISHMENTS AND PRODUCTS

1. Approval and ratification of the Chibanian Stage and Middle Pleistocene Subseries by GSSP at the Chiba section, Japan.

2. Ratification 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; the Middle Pleistocene Subseries (see above); and the Upper/Late Pleistocene, at the rank of subseries/subepoch, with a base presently undefined but provisionally dated at ~129 ka.

3. Suganuma, Y., Okada, M., Head, M.J., Kameo, K., Haneda, Y., Hayashi, H., Irizuki, T., Itaki, T., Izumi, K., Kubota, Y., Nakazato, H., Nishida, N., Okuda, M., Satoguchi, Y., Simon, Q., Takeshita, Y., In press. Formal ratification of the Global Boundary Stratotype Section and Point (GSSP) for the Chibanian Stage and Middle Pleistocene Subseries of the Quaternary System: the Chiba Section, Japan. *Episodes*.

4. Head, M.J., Pillans, B., Zalasiewicz, J.A. and the ICS Subcommittee on Quaternary Stratigraphy. 2020 online. Formal ratification of subseries for the Pleistocene Series of the Quaternary System. *Episodes*.

5. Syvitski, J., Waters, C.N., Day, J., Milliman, J.D., Summerhayes, C., Steffen, W., Zalasiewicz, J., Cearreta, A., Galuszka, A., Hajdas, J., Head, M.J., Leinfelder, R., McNeill, J.R., Poirier, C., Rose, N.L., Shotyk, W., Wagnreich, M. And Williams M. 2020. Extraordinary human energy consumption and resultant geological impacts beginning around 1950 CE initiated the proposed Anthropocene Epoch. *Communications Earth & Environment* **1**, 32, doi.org/10.1038/s43247-020-00029-y.

6. Zalasiewicz, J., Bertini, A., Zhou, L. and Head. M. In submission. The Quaternary in the Geological Time Scale: An update. *INQUA Newsletter*.

## 6. SUMMARY OF EXPENDITURE IN 2020

See below.

## 7. SUMMARY OF INCOME IN 2020

Euro 800,000 over 2 years (2019, 2020) awarded to Anthropocene Working Group by the Haus Kulturen der Welt, Berlin, for ongoing analysis of candidate stratotypes. Otherwise, no income except ICS payment of US \$2000 for sampling of the type Gelasian.

## 8. BUDGET REQUESTED FROM ICS IN 2020

ICS income for type Gelasian rolled over until 2021, due to pandemic.

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

- The priority for SQS is 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 developed for these potential candidates during the coming year. The Upper Pleistocene Working Group is being reformed under the co-convenership of Martin Head.
- A field workshop on the Neogene–Quaternary boundary and Gelasian GSSP, originally meant to be held in Palermo in June, 2020. This workshop will inaugurate a multidisciplinary multi-year research program to re-investigate the Gelasian type section.
- The SQS website is being updated under the direction of Martin Head as Vice-Chair with explicit responsibility for this task.

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

- Develop and submit a GSSP proposal for definition of the Upper/ Late Pleistocene and its respective Stage/Age.
- Analyse candidate GSSPs for the Anthropocene, and submit a proposal for formalization to the SQS
- Re-investigate the GSSP for the Gelasian Stage (and Lower Pleistocene Subseries, Pleistocene Series, Quaternary System) at Monte San Nicola, Sicily.
- Explore the possibility of a second stage for the Middle Pleistocene, based around the increasingly well-recognized Mid-Brunhes Transition.
- 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:

Jan Zalasiewicz, Chair SQS; Adele Bertini, Secretary SQS, Liping Zhou, Vice-Chair SQS, Marin Head, Vice-Chair SQS.

23rd November, 2020

## 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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## List Of Working (Task) Groups and their Officers

### *SQS Working Group on the “Anthropocene”*

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Resignations in this reporting year comprised Mike Ellis, Cath Neal and Alex Wolfe. New members, taken on for candidate GSSP expertise, are Andy Cundy, Han Yongming, Francine McCarthy, Yoshiki Saito, Simon Turner and Jens Zinke

#### *Working Group on the Middle/Upper Pleistocene Subseries Boundary*

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No change in membership from 2018.