

The Pliocene/Pleistocene boundary - A never-ending story

Following an apparently strong demand arising from the Quaternary community of INQUA, the International Union of Geological Sciences (IUGS) appointed an ad-hoc working group to discuss and decide on the possibility of revision of the already approved and ratified Pliocene/Pleistocene boundary (Vrica section, Calabria; Aguirre & Pasini, 1985; Bassett, 1985).

The working group met in Strasbourg during the 1997 EUG Congress and was composed by three people appointed by the International Commission on Stratigraphy (ICS) (G.B. Vai; N. Shackleton, and J. Van Couvering) and three by the INQUA Commission on Stratigraphy (acting as the ICS Subcommittee on Quaternary Stratigraphy) (T. Partridge, J.P. Suc, and T. van Kolfschoten) The working group was chaired by A.R. Palmer.

The working group discussed both on the general matter of the revision of ratified GSSPs, a problem never arose before, and on the specific problem of the Pliocene/Pleistocene boundary. The results of their discussion are summarized in the following report that the Chairman addressed to the IUGS soon after the meeting. The results achieved are self-evident and is not worth discussing them in detail. The practical consequence of their deliberation is that a postal ballot within all members of both the Quaternary and Neogene subcommission should be organized. In case of a qualified majority voting in favor of the possible change of the boundary, the matter will go further and be submitted to a vote by the Full Commission of ICS.

Following discussion with the ICS Bureau, it was decided that the postal ballot within the two subcommission will be organized by the Secretary General of ICS (O. Michelsen). SNS is offering all the requested help and advice for the organization of the ballot on a fair basis. We will keep you informed on this matter in the next issue of our Newsletter.

Report to the IUGS Executive

Results of the Plio-Pleistocene Boundary Working Group meeting
Strasbourg, France March 24-25, 1997

The Plio-Pleistocene Boundary Working Group, convened at the request of IUGS, included the following individuals:

A. R. Palmer (USA), Moderator
Tim Partridge (South Africa)
Nicholas Shackleton (U.K.)
Jean Pierre Suc (France)
Gian Battista Vai (Italy)
John Van Couvering (USA)
Thijs van Kolfschoten (Netherlands)

The four items listed below represent the results of about 10 hours of intense open discussion on the issues of possible movement of the GSSP for the base of the Pleistocene and on the general question of sharper guidelines for changing an established GSSP.

Item I represents unanimous agreement on a recommended set of revised and sharpened guidelines for IUGS and the International Stratigraphic Commission regarding any proposal to change a ratified GSSP.

Item II is the only motion regarding the proposal to change the position of the base of the Pleistocene on which a formal vote was taken.

Items III and IV are lists of agreements and concerns, also unanimously agreed on, that are related specifically to the problem of the Plio-Pleistocene boundary.

I. IUGS/ISC guidelines for re-opening a decision regarding stratigraphic or geographic relocation of a GSSP.

1. The bounding subcommissions must jointly vote, and agree by a normalized 60% majority of those voting, that a proposal for change of a GSSP should be submitted to the International Stratigraphic Commission (ICS).

2. The technical procedures for preparation of a case for change of a GSSP [document to be circulated; ballot organization; calendar; etc.] are to be conducted by the chairmen of the two bounding subcommissions in close collaboration.

3. The documents generated in (2) will be submitted to the Chairman of the ICS for circulation to the full voting membership of the Stratigraphic Commission for a formal vote.

4. The vote should consider:

- a. the arguments in the circulated documents;
- b. that the documents have significant international and interdisciplinary support;
- c. and that the concept of a GSSP, in the context of the ~~IGC~~^{ICS} guidelines, has been honored.

II. Working Group vote on the following motion:

That the proposal to change the base of the Pleistocene from the base of the Calabrian (Vrica) to the base of the Gelasian should be submitted to a vote of the full Stratigraphic Commission following the procedures listed above. FOR: 5 AGAINST: 2

III. Areas of agreement regarding the Plio-Pleistocene boundary

1. The GSSP at Vrica is internationally correlatable.
2. The GSSP at the base of the Gelasian is internationally correlatable.
3. The GSSP philosophy is the only acceptable boundary philosophy.
4. All GSSP boundaries should be in continuous marine sequences.
5. Climatic changes are reflected at the base of the Gelasian and at Vrica.
6. The Gelasian is a valid Stage.
7. Evidence for Northern Hemisphere Pliocene glaciers precedes the base of the Gelasian.

IV. Areas of concern regarding relocation of the GSSP marking the base of the Pleistocene.

1. A decision to change the boundary GSSP might set a precedent for chaos in stratigraphic nomenclature.
2. To continue the status-quo without submitting the proposal for change to the full Stratigraphic Commission might result in significant non-compliance from some groups.
3. A decision to change the boundary GSSP will affect almost all modern published geologic time scales.
4. A decision to change the boundary GSSP will affect calculations of sedimentation rates, paleogeography, sediment volumes, etc. for both Pliocene and Pleistocene.

Respectfully submitted: A. R. Palmer, Moderator,
March 28, 1997

