

SUBCOMMISSION ON NEOGENE STRATIGRAPHY

ANNUAL REPORT 2007

1. TITLE OF CONSTITUENT BODY and NAME OF REPORTER

Subcommission on Neogene Stratigraphy (SNS)

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2. OVERALL OBJECTIVES, AND FIT WITHIN IUGS SCIENCE POLICY

The SNS is the primary body responsible for providing optimum clarity and stability in the Neogene Chronostratigraphic Scale by selecting and defining Global Stratotype Sections and Points (GSSPs) for Series and Stages.

3. ORGANIZATION

The SNS is a subcommission of the ICS, founded in 1971. Reference is made to the annual report of 1995 for a brief historical resume of the SNS. The subcommission has four regional committees (Mediterranean, Pacific, Atlantic and Nordic) and keeps close contacts with the Russian Neogene Commission chaired by Prof. Yuri B. Gladenkov. Apart from the executive bureau, the SNS has 17 voting members and 38 corresponding members (*see Appendix for full list of officers and voting members*). The SNS has presently one active working group for defining the GSSP remaining for the Langhian and Burdigalian chaired by Isabella Raffi. The SNS web site (www.geo.uu.nl/SNS) is used for news release and contains the following sections: Home, News, Board, Members, Newsletters, GSSP's, and Links.

3a. Officers for 2004-2008:

Chair: Frits Hilgen, Utrecht, The Netherlands

Vice-Chairs: Francisco Javier Sierro, Salamanca, Spain
David Hodell, Florida, USA

Secretary: Elena Turco, Parma, Italy

Support for the SNS comes from the Chairman's Institute in the Netherlands (Faculty of Geosciences, Utrecht University). This institute also hosts the SNS web-site.

4. INTERFACES WITH OTHER INTERNATIONAL PROJECTS

There is a close link with (I)ODP because of its important role in the development of integrated time scales for the Neogene, in testing the global correlation potential of bio-events, and in a better understanding of climate and ocean history during this time span.

5. CHIEF ACCOMPLISHMENTS AND PRODUCTS IN 2007

The proposal for the Serravallian GSSP to be defined at the base of the Blue Clay Formation in the Ras il Pellegrin section on Malta, coincident with the younger end of the major mid-Miocene (Mi-3b) oxygen isotope event and relatively close to the *Sphenolithus heteromorphus* LO, previously considered as prime guiding criterion for the boundary was formally ratified by the IUGS. A short paper about the Serravallian GSSP will be published in *Episodes*.

A pilot study has been carried out on the downward extension of the La Vedova section near Ancona (central Italy), one of the most promising potential boundary stratotype sections for defining the Langhian GSSP. This study is also part of an ongoing Italian research project (PRIN 2006 - prot. 2006047534 - "In search of the Global Stratotype Sections and Points of the Burdigalian and Langhian Stages and paleoceanographic implications") directed at defining the remaining GSSPs (Langhian, Burdigalian) in the Neogene.

6. CHIEF PROBLEMS ENCOUNTERED IN 2007

An important signaled problem is the possible lack of suitable sections in the Mediterranean for defining the Burdigalian GSSP now that the La Vedova section might be suitable for defining the Langhian GSSP. This is certainly the case if we prefer to have the Burdigalian GSSP defined in astronomically tuned deep marine sections that underlie the geologic time scale. The alternative option to have this boundary defined in ODP cores is being seriously considered by the Working Group on the Langhian and Burdigalian GSSPs.

Serious problems were also encountered in maintaining the SNS website. The first unfortunate problem were a number of successive webmasters that changed job position soon afterwards. The other more serious problem is the fact that the new version of Windows Internet Explorer does not support frames anymore. As a consequence, the SNS website can not be opened with Explorer but the site can still be visited using Mozilla Firefox and other browsers. This problem is presently being solved by the GeoMedia facilitating office for cartography and graphic assistance of the Faculty of Geosciences of the Utrecht University, and an updated and revised SNS website will again be fully operational before the end of the year.

7. SUMMARY OF EXPENDITURES IN 2007:

Credit on Nov 2006	Euro	3502,59
Contribution 2007 ICS to SNS	Euro	+751,17
Working visit Italy	Euro	-416,92
Credit on Nov 2007	Euro	3836,84

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

Continuing research on suitable sections and/or cores for defining the remaining GSSPs of the Langhian and Burdigalian. Following a pilot study, a more detailed study of the La Vedova section, a potential candidate for the Langhian GSSP, is foreseen. Although calcareous microfossil preservation is not perfect, the section is suitable for establishing a high-resolution magnetostratigraphy and a calcareous plankton biostratigraphy. A pilot study will be carried out on alternative sections located on Sardegna.

By the end of 2008 it will be clear whether the La Vedova section is a suitable section for defining the Langhian GSSP and can be proposed as such. Special attention will thereby be paid to the magnetostratigraphy and magnetostratigraphic calibration to the polarity time scale, the calcareous plankton biostratigraphy and the astronomical tuning of the section. The Italian project on this older interval of La Vedova is linked to ongoing Dutch PhD research directed at the interval between 13.5 and 15.5 in the same section.

In absence of suitable Mediterranean sections for defining the Burdigalian GSSP, the option to formally designate this boundary in an ODP core will be seriously explored.

9. BUDGET AND ICS COMPONENT FOR 2008

Organization workshop on base-Langhian and base-Burdigalian Euro 1500
Optional: Fieldtrip to the La Vedova section (base-Langhian) Euro 1500

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

See Accomplishments in 2007 (above) for additional details.

2003

Ratification by IUGS of Tortonian GSSP at the midpoint of the sapropel of basic cycle 76 in the Monte dei Corvi section (northern Italy).

2004

Publication of a revised Neogene Time Scale (Lourens et al., 2004 in Gradstein et al., 2004. Geologic Time Scale 2004. Cambridge University Press, ~500 pages).

2005

Selection of the Ras il Pellegrin section on Malta as the most suitable (Mediterranean) section to define the Serravallian GSSP and the mid-Miocene Mi-3b oxygen isotope event as prime guiding criterion for the boundary. Preparation of the Serravallian GSSP proposal.

2006

Serravallian GSSP proposal was sent out to SNS voting members; a quorum of about 86% was reached and all votes were positive except for one which was positive but with reservations. Submission of revised proposal to ICS and acceptance of proposal by ICS with a 83% majority. Submission of the Serravallian GSSP proposal to IUGS for formal ratification.

2007

Ratification of the Serravallian GSSP proposal by the IUGS. Pilot study of the La Vedova section, a candidate section for the Langhian GSSP. Revision and update of SNS website.

11. OBJECTIVES AND WORK PLAN FOR NEXT 2 YEARS (2008-2009)

Organization of a workshop on the selection of boundary criteria and sections for defining the 2 remaining stage boundaries in the Miocene, namely the base-Langhian and the base-Burdigalian. A potentially suitable section in the Mediterranean region that may serve as Langhian GSSP has been identified (La Vedova). Crucial questions to be addressed during the workshop are: 1) is La Vedova suitable to be proposed as Langhian GSSP, and 2) should we abandon the ambition of having the Burdigalian GSSP directly tied within an astrochronologic framework in order to have the GSSP defined in a Mediterranean landbased section, or should we have this GSSP defined in drilled ODP sequences at Ceara Rise or any other tuned sequence drilled by (I)ODP.

Selection of most suitable section/ODP core and guiding criteria for defining the Langhian and Burdigalian GSSPs in 2008. Writing of proposals for the Langhian and Burdigalian GSSPs in 2008-2009.

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

Subcommission officers

Chairman: Frederik J. Hilgen, Faculty of Geosciences, Utrecht University, P.O. Box 80021, 3508 TA Utrecht, The Netherlands, e-mail: fhilgen@geo.uu.nl

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