

# SUBCOMMISSION ON NEOGENE STRATIGRAPHY

ANNUAL REPORT 2008

## 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](http://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 2008-2012:

**Chair:** Frits Hilgen, Utrecht, The Netherlands

**Vice-Chairs:** Francisco Javier Sierro, Salamanca, Spain  
David Hodell, Cambridge, UK

**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 2008

A short paper about the formal definition of the Serravallian GSSP is in press in *Episodes*.

An integrated stratigraphic study is being 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. The La Vedova section has been studied in detail and an astronomical tuning is established. The study of the downward extension is part of the 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.

SNS was heavily involved in the debate on the formal definition and status of the Quaternary. Several papers were published by a core group of its members to express the general viewpoint of the Neogene community and presented at the 33<sup>rd</sup> IGC in Oslo.

#### 6. CHIEF PROBLEMS ENCOUNTERED IN 2008

A remaining problem is the possible lack of suitable sections in the Mediterranean for defining the Burdigalian 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.

Following problems with the SNS website, an updated and revised website became fully operational in the beginning of 2008.

#### 7. SUMMARY OF EXPENDITURES IN 2007:

<b>Credit on Nov 2007</b>	<b>Euro</b>	<b>3836,84</b>
Contribution 2008 ICS to SNS	Euro	+933,88
33 <sup>rd</sup> IGC Oslo Hilgen	Euro	-760,84
33 <sup>rd</sup> IGC Oslo Turco	Euro	-523,89
Contribution 2007 ICS difference	Euro	-48,33
<b>Credit on Nov 2008</b>	<b>Euro</b>	<b>3428,60</b>

## **8. WORK PLAN, CRITICAL MILESTONES, ANTICIPATED RESULTS AND COMMUNICATIONS TO BE ACHIEVED NEXT YEAR (2009):**

Continuing research on suitable sections and/or cores for defining the remaining GSSPs of the Langhian and Burdigalian. Following results of a detailed study of the downward extension of La Vedova section, it will be examined whether this section remains a good candidate for the formal definition of the Langhian GSSP. Although calcareous microfossil preservation is not perfect, the section is suitable for establishing a high-resolution integrated magnetostratigraphy and a calcareous plankton biostratigraphy. Following the successful tuning of the La Vedova section, an attempt will be made to tune the downward extension using geochemical element analysis in combination with the detailed lithological log. If the section is considered less suitable for defining the Langhian GSSP, a pilot study may be carried out on alternative sections on Sardegna.

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 (2004-2008)**

*See Accomplishments in 2008 (above) for additional details.*

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

2008

Integrated stratigraphic studies of the La Vedova section and its downward extension by Italian and Dutch research teams, the latter section being the prime candidate for defining the Langhian GSSP. Revision and update of SNS website. Publication of several papers on the definition and status of the Quaternary and Neogene. Preparation of a "Neogene" proposal for the formal ICS voting procedure on the Quaternary-Neogene issue.

## **11. OBJECTIVES AND WORK PLAN FOR NEXT 2 YEARS (2009-2010)**

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 define this GSSP 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 2009. Writing of proposals for the Langhian and Burdigalian GSSPs in 2009-2010.

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**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](mailto:fhilgen@geo.uu.nl)

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**Now at:** University of Cambridge, UK

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***List of Voting Members***

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