

# SUBCOMMISSION ON NEOGENE STRATIGRAPHY

## ANNUAL REPORT 2009

### 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 21 voting members and 35 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 2009**

A short paper about the formal definition of the Serravallian GSSP following ratification by IUGS has finally been accepted for publication in *Episodes* and will still be published this year (Hilgen et al., 2009).

An integrated magnetostratigraphic and calcareous plankton stratigraphic study has been carried out on the downward extension of the La Vedova section near Ancona (central Italy) which is one of the most promising, potential boundary stratotype sections for defining the Langhian GSSP (Iaccarino et al., 2009). The La Vedova section itself has been studied in detail and an astronomical tuning has been established (Hüsing et al., 2009). An alternative section to define the Langhian GSSP is St. Peter's Pool located on Malta for which a preliminary astronomical tuning and astrobiochronology was introduced ((Mazzei et al., 2009; Lirer et al., 2009). Both sections were presented in considerable detail at the RCMNS congress in Naples (2-6 September). The study of these sections 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 and Burdigalian) in the Neogene.

In the aftermath of the debate and formal decision on the definition and status of the Quaternary, members of SNS were heavily involved in the publication of several papers to express the general viewpoint and concern of the Neogene community (Aubry et al., 2009; McGowran et al., 2009; Van Couvering et al., 2009).

#### **6. CHIEF PROBLEMS ENCOUNTERED IN 2009**

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 an astronomically tuned deep marine section in the Mediterranean that directly underlies the geologic time scale. The alternative option to have this boundary defined in (I)ODP cores is being seriously considered by the Working Group on the Langhian and Burdigalian GSSPs, and a decision about this issue will probably be made in 2010.

The other main problem is the outcome of the ICS vote on the Quaternary issue and the formal ratification by IUGS which is considered unacceptable by many SNS members.

## 7. SUMMARY OF EXPENDITURES IN 2009:

<b>Credit on Nov 2008</b>	Euro	<b>3428,60</b>
Contribution 2009 ICS to SNS	Euro	+1394,84
RCMNS Napels Hilgen	Euro	-879,98
Episodes article costs	Euro	-191,73
Banking costs	Euro	-12,88
<b>Credit on Nov 2009</b>	<b>Euro</b>	<b>3738,85</b>

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

The study of the two potential boundary stratotype sections of La Vedova and St. Peter's Pool for defining the Langhian GSSP will be continued. Continuing search for suitable sections and/or cores for defining the Burdigalian GSSP. 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 2009

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 (2005-2009)

*See Accomplishments in 2009 (above) for additional details.*

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 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. Potentially suitable sections in the Mediterranean region that may serve as Langhian GSSP have been identified (La Vedova; St. Peter’s Pool). Crucial questions to be addressed during the workshop are: 1) which section is most suitable to be proposed as Langhian GSSP, 2) which prime guiding criterion should be selected, and 3) 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 before 2012. Writing of proposals for the Langhian and Burdigalian GSSPs in 2010-2012.

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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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***List of Voting Members***

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