

INTERNATIONAL UNION OF GEOLOGICAL SCIENCES

INTERNATIONAL COMMISSION ON STRATIGRAPHY

SUBCOMMISSION ON NEOGENE STRATIGRAPHY SNS

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SUBCOMMISSION ON NEOGENE STRATIGRAPHY

ANNUAL REPORT

1994

1. NAME OF CONSTITUENT BODY

Subcommission on Neogene Stratigraphy (SNS)

2. OVERALL OBJECTIVES

The task of the Subcommission, as it is felt by its present chairman, is to clarify and precise the existing stratigraphic subdivision of the Neogene, which was very wavy and contradictory in the sixties and early seventies, but stabilized in the late seventies, and was widely adopted since the eighties, with just one exception (see below). Since stability in stratigraphic nomenclature is a must, a consistent international usage of a stratigraphic subdivision for more than 15 years is considered a good test for its validity.

The enclosed figure reproduces the frontispice of NEOGENE NEWSLETTER N. 1, with the chronostratigraphic scheme recommended. This scheme uses classical stage names, deeply rooted in the international literature, and a new stage, the GELASIAN, recently proposed (by Rio et al., 1994) as a third subdivision for the Upper Pliocene.

The present SNS chairman hopes, before her mandate expires (very soon, in 1996) to be able to present as frontispice for NEOGENE NEWSLETTER N. X a scaled Neogene time scale, instead of a pigeon-hole type as the present one, possibly accompanied by four or five proposed (if not yet formally voted) GSSPs. Indeed, precise definitions in the

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CHAIRMAN M. B. CITA
SECRETARY J. HALMAI

NEOGENE NEWSLETTER N.1

SYSTEM	SERIES	STAGES
NEOGENE	PLIOCENE	L GELASIAN
		M PIACENZIAN
		E ZANCLEAN
	MIOCENE	WG
		L MESSINIAN
		TORTONIAN
		M SERRAVALLIAN
		LANGHIAN
		E BURDIGALIAN
		AQUITANIAN
WG		

MILANO, JULY 1994

field are not sufficient for the Neogene, since worldwide correlatability is continuously tested by new acquisitions of continuous marine sections from the world oceans, at the most extreme latitudes (see point 5).

3. ORGANIZATION

SNS is a Subcommission of the Commission on Neogene Stratigraphy.

Membership - Chairman: M. B. Cita, Italy
 vice-chairman: F. Steininger, Austria
 Secretary: J. Halmai, Hungary
 29 Voting Members
 22 Corresponding Members

Members have been selected for their expertise in various field of stratigraphy (for instance, planktonic foraminiferal biostratigraphy, micromammal stratigraphy, nannofossil biostratigraphy, stratigraphy) more than for their regional expertise, which is expressed elsewhere (see below). Members are from a variety of countries, where Neogene sediments are well expressed, including Japan, China, Russia, Argentina, USA, New Zealand and, of course, European countries.

The backbone of the Neogene Subcommission is represented by the so-called REGIONAL COMMITTEES, some of which are very active and organize international congresses with hundreds of participants. The most active are the Regional Committee on Mediterranean Neogene Stratigraphy and the Regional Committee on Pacific Neogene Stratigraphy (see annexes 1 and 2). Other regional committees are the Atlantic one and the Nordic one. Chairman and eventual vice-chairman of the Regional Committees are ex-officio members of SNS, and secretaries are ex-officio corresponding members. This accounts for the large number of members of SNS, probably the largest of all subcommissions.

Besides regional committees, the Subcommission has WORKING GROUPS, appointed temporarily to solve specific scientific problems. One such WG has been appointed at the IX RCMNS Congress (Barcelona, 1990), called "Pliocene time-scale Working Group", had a very precise mandate: to clarify the time-scale to be used for the Pliocene or, in other words, to revise the numerical ages to be attributed to the magnetic reversals recorded in the Pliocene. Appointed chairman was W. A. Berggren (foraminiferal biostratigraphy). Appointed members (all of excellent scientific stature) were Shackleton (isotopic stratigraphy), D. Kent and Langereis (paleomagnetic stratigraphy), F. Hilgen (cyclostratigraphy), M. Raymo (paleoceanography), I. Raffi (nannofossil biostratigraphy) and Obradovich (radiochronometry).

Deadline for the submission of the report was one year. The final report is still unpublished now, after years of internal and external revisions, because the chairman did not stick to the mandate, but expanded the topic to chronostratigraphy and beyond. Anyway, the results of such an effort will appear in the open literature soon, and will represent a valuable contribution.

A very special Working Group concerns the Palaeogene/Neogene boundary. Established in 1976 as an independent body of ICS and chaired since the beginning by F. Steininger, it is now connected with SNS, after the re-organization of ICS. It is close to the termination of its mandate, since all the WG members seem to agree in proposing a section in northern Italy which seems to be suitable for a GSSP.

A Working Group which so far did not behave as a real WG, but as a very small group of scientists interested in a specific scientific theme, is the Miocene/Pliocene Working Group, chaired by R. H. Benson. A workshop is planned for 1995 (see below) where three possible candidate areas will be discussed for a future GSSP.

4. EXTENT OF NATIONAL/REGIONAL/GLOBAL SUPPORT OF PROJECTS

The present level of funding of the Subcommittee by ICS is so low, that we can hardly consider "seed money" what we get, and cannot even cover the mailing costs.

THERE IS NO OFFICIAL FUNDING TO SNS BESIDES IUGS (through ICS).

Funds necessary to carry out the various organizational items (see budget) are made available usually to chairmen (of Subcommittee, of Regional Committees, of Working Groups) by their own local funding agencies, not always in an open form. This is a disadvantage, since it prevents a good VISIBILITY of the activities of the Subcommittee. Moreover, Stratigraphy is generally underfunded worldwide nowadays, especially in the well developed countries, where the cost/benefit approach prevails, and stratigraphy is not considered as paying off.

The results obtained in the current year (see below) result from the free contributions of a few dedicated scientist of high international standard.

IUGS cannot complain about the slowness of the progress, and it is a nonsense to expect rapid advancement when no dedicated funds are available, especially for field work. In a very few instances we are able to provide the field geologists with the necessary funds.

The level of sophistication of the research carried out in ODP-related projects is such that in order to obtain comparable results, projects worth millions of dollars should be funded, which is not the case.

5. INTERFACE WITH OTHER INTERNATIONAL PROJECTS

SNS interacts with two major international projects by means of its bureau, voting members and/or corresponding members; i. e.

- a) The International Geological Correlation Programme (IGCP), and
- b) The Ocean Drilling Program (ODP)

- a) Of the various IGCP Projects presently funded those those actively interfacing with SNS are basically three, as follows:

IGCP 326 (1992- 96) "Oligocene/Miocene Transition in the Northern Hemisphere" where vice-chairman prof. Fritz Steininger is actively working,

IGCP 329 (1992-96) "Neogene of the Paratethys", which is an ideal continuation of IGCP 25, closely related and interconnected with RCMNS,

IGCP 355 (1993-97) "Neogene Evolution of Pacific Ocean Gateways", the successor of IGCP 246, closely related to RCPNS.

- b) The Ocean Drilling Program, in its present configuration, is proposal-driven, with the scientific objectives of the various drilling legs being focussed and evaluated by a limited number of "Thematic panels". One of the thematic panels is dedicated to the Ocean History, and stratigraphy plays a fundamental role in it. In the last several years entire drilling legs have been dedicated to "Neogene Transects", with each drillsite being continuously cored two or three times to guarantee a full, complete recovery of sediments that are subject to multidisciplinary and interdisciplinary study by the best specialists in the world (including biostratigraphers, paleomagneticians, isotopic stratigraphers).

Leg 115, with multiple sites across a depth transect in the Mascarene Plateau (equatorial Indian Ocean),

Leg 130, with a depth transect across the Ontong-Java Plateau (equatorial west Pacific),

Leg 138 (eastern equatorial Pacific Neogene Transect),

Leg 154, with a depth transect across the Ceara Rise (west equatorial Atlantic),

are examples of these scientific expeditions, which are fundamental for the improvement of the Neogene stratigraphy, now seen in three dimensions, with large latitudinal variations.

Figure 2 is just an example of what biostratigraphers are doing in terms of correlation. Calcareous nannofossils prove the best tool for this kind of exercise.

Planned future legs include an east-west transect across the Mediterranean, which will be crucial for testing the Pliocene/Pleistocene stratigraphy, and a second leg dedicated to unravel the Neogene history of the northern North Atlantic. SNS scientists take an active part in this fundamental scientific program in various forms: by creating drilling proposals, by serving as shipboard scientists on the JOIDES RESOLUTION, by putting their experience at disposal for the synthesis of the analytical data.

6. ACCOMPLISHMENTS AND PRODUCTS GENERATED IN 1994

- a) Distribution of a questionnaire among SNS members with the aim to revitalize the Subcommittee. The attempt has been successful.
- b) Creation and distribution of NEOGENE NEWSLETTER N. 1, which contains a number of informative and updated articles dealing with Neogene stratigraphy and principles. 200 copies have been distributed so far. Well received, according to the comments received.

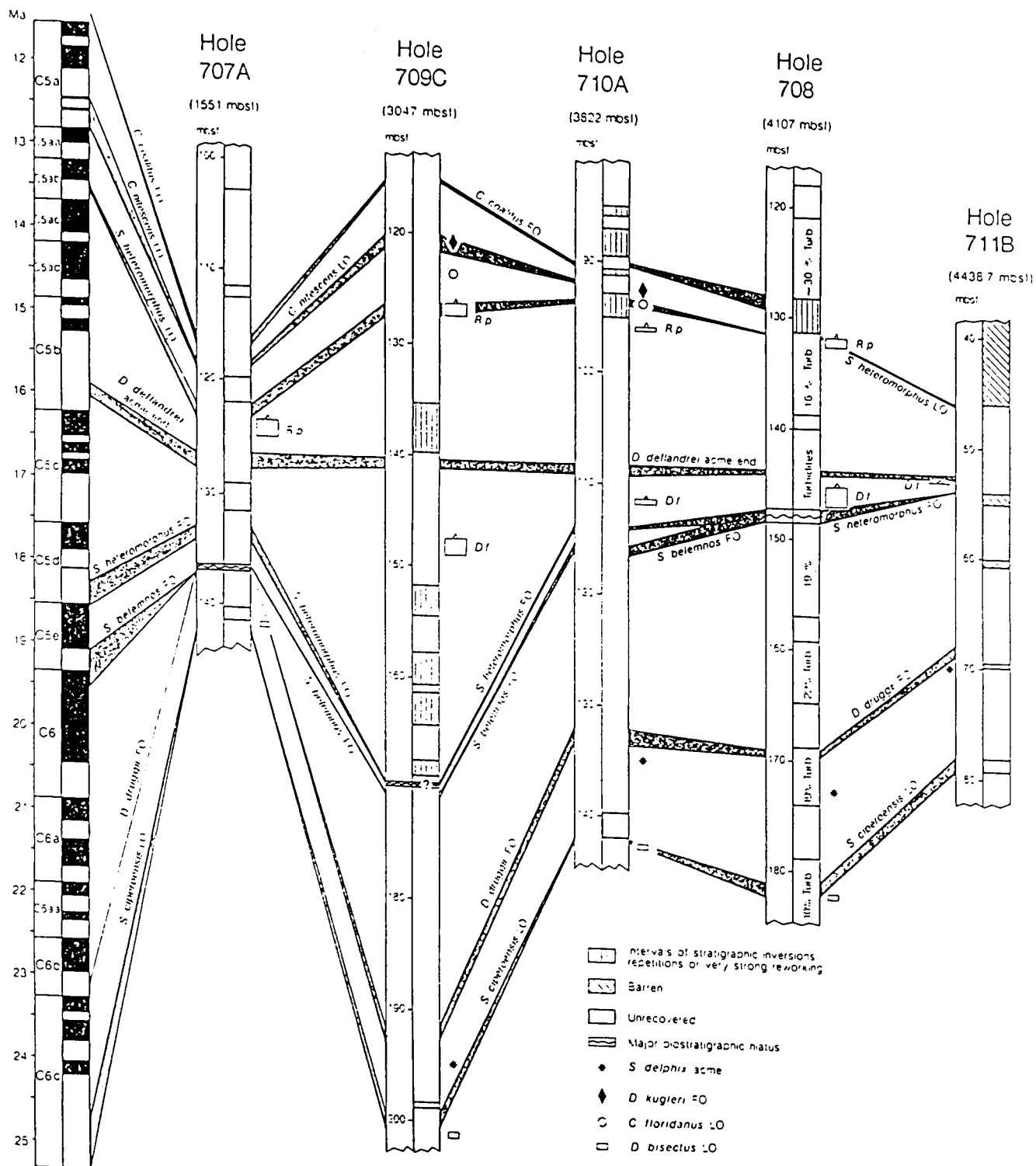


Fig.2. Early-middle Miocene correlations among CBT sites. Major stratigraphic features and main biostratigraphic events are shown. *R. p.* = *Reticulofenestra pseudoumbilicus*; *D. f.* = *Discoaster formosus* (after Rio et al., 1990).

- c) Preparation of several articles for the volume MIS (Miocene Integrated Stratigraphy), coordinated by G. Odin, A. Montanari and R. Coccioni. This volume is part of the activities of the Subcommission on Geochronology, but it is strongly interconnected with SNS, since it presents a STATE OF THE ART of Miocene integrated stratigraphy (biostrat., palcomagnetic strat., radiochronology). Some of the sections illustrated that contain direct, radiometrically dated points, are potential candidates for GSSPs for Miocene stages.
- d) Interim colloquium of RCMNS at Rabat (Morocco) on "Neogene basin evolution and tectonics in the Mediterranean area"
- e) Interim colloquium of RCMNS at Marseille (France) on "Miocene reefs and carbonate platforms"
- f) Workshop on "Marine sections from the Gulf of Taranto (southern Italy) usable as potential stratotypes for the GSSP of the Lower, Middle and Upper Pleistocene"
This workshop was co-sponsored by SNS, by AIQUA (Italian Association for the study of the Quaternary) and by the Quaternary Working Group of the Italian Commission of Stratigraphy, all of these bodies chaired by the undersigned.
Originally planned as an Italian initiative, it became broader in its purpose, and international, as a result of recent changes occurred in the Quaternary Subcommission of ICS (= INQUA Stratigraphic Commission), and the expressed intention to change the formally approved GSSP in the Vrica section.

7. WORKPLAN FOR 1995

Besides the activities planned by the Regional Committees (see enclosures 1 and 2), the SNS workplan for 1995 is centered on GSSPs for the system and intersystem boundaries. From top to bottom,

Pliocene/Pleistocene GSSP

SNS has a very strong position on this point, and this position is shared by the Paleogene Subcommission.

The GSSP at Vrica has been defined according to ICS rules, after ten years (1974-1984) of extensive research. It has been voted and approved first by INQUA, then by ICS and IUGS. In the subsequent ten years (1984-1994) additional integrated researches in the Vrica section and in the parallel Singa sections proved beyond any doubt the world-wide correlability of the GSSP.

To abandon this GSSP will cast serious doubts on the credibility of ICS that sets up very rigid rules, and then breaks them.

This position will be presented and expressed at the INQUA Congress (Berlin, August 1995).

Miocene/Pliocene GSSP

A workshop is planned in Bucharest during the X RCMNS Congress (September, 1995). Conveners are R. H. Benson, WG chair and M. B. Cita, SNS chair.

Three sections will be presented as possible candidates:

- a) a section in Sicily, where the Miocene/Pliocene boundary stratotype has been proposed in 1972, but never voted. This boundary is widely accepted and adopted in the international literature,

- b) a section on the Atlantic coast of Morocco, where Benson and co-workers concentrated their efforts,
 - c) a section on the Atlantic coast of southern Spain.
- No final decision is expected, also because deep-sea drilling in the Mediterranean in 1995 (ODP Legs 160-161) will provide new information crucial to the problem.

Oligocene/Miocene (or Paleogene/Neogene) GSSP

A final decision is expected.

8. ANTICIPATED WORKPLAN FOR 1996 AND BEYOND

It is anticipated that critical intervals for the definition of several Miocene and Pliocene stages will be ready for proposing GSSPs in the late nineties.

Professor M. B. Cita (University of Milano), SNS chair, proposed to convene, along with professor Pinxiang Wang of the University of Shanghai (SNS voting member) a symposium during the XXX IGC to be held in Peking in 1996 on the theme "INTERACTION OF GLOBAL TRENDS AND REGIONAL EVENTS IN THE NEOGENE STRATIGRAPHIC RECORD". An announcement and call for papers was published on NEOGENE NEWSLETTER N.1, distributed in late July, 1994. Several invited talks of excellent level are already guaranteed.

The mandate of SNS chair expires in 1996.

In order to continue the work undertaken and to improve and complete the chronostratigraphic subdivision of the Neogene, the best candidate should be:

a) a very active scientist of high international reputation; b) possibly followed by a strong school of young scientists; c) possibly specializing in the fossil group with the greatest correlation potential in the Neogene (i. e. calcareous nannofossils); d) with broad experience in various geographic areas; e) used to work in team with palaeomagneticians, sequence stratigraphers, isotopic stratigraphers, paleoceanographers, but also, f) interested in classical stratigraphy. Among the voting members of SNS such a scientist does exist. His name is Domenico Rio. He is professor of Micropalaeontology at the University of Padova. He is my nominee.

9. FINANCIAL STATEMENT FOR 1994 (in US dollars)

CARRY-OVER FROM 1993
1994 IUGS SUBVENTION

0
1288

COMMENT ON FINANCIAL STATEMENT

The contribution has been subdivided as follows:

a) 888	to	SNS CHAIR
b) 150	to	RCMNS
c) 100	to	RCPNS
d) 100	to	RCANS
e) 50	to	RCNNS

As of to-day, financial statements have been received from the first three bodies. In all three cases extra funds were necessary to carry out the activities.

No reports were received to-date from two RC and from the WG, but it is save to say that the sum requested one year ago for the planned activities was realistic.

SNS CHAIR (Milan)	<u>INCOME:</u>	
	from ICS	888
	from OTHER SOURCES	4012
		<hr/> 4900

<u>EXPENDITURES:</u>	
newsletter reproduction	400
editorial assistance	2500
travel	1500
communication expenses	500
	<hr/> 4900

RCPNS (Shizuoka)	<u>INCOME:</u>	
	from ICS	100
	from OTHER SOURCES	2200
		<hr/> 2300

<u>EXPENDITURES:</u>	
communicatio expenses	300
travel	2000
	<hr/> 2300

RCMNS (Montpellier)	<u>INCOME:</u>	
	from ICS	200
	from OTHER SOURCES	850
		<hr/> 1050

<u>EXPENDITURES:</u>	
communication expenses	50
travel	1000
	<hr/> 1050

TOTAL EXPENDITURES	8250
TOTAL INCOME	1288
EXCESS OF EXPENDITURES OVER ICS INCOME	6962

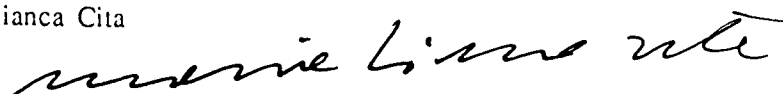
10. BUDGET FOR 1994 (in US dollars)

INCOME:	
REQUEST FROM CHAIR (also for WGs and RCs)	6000
REQUEST FROM RCMNS (see enclosure)	2000
REQUEST FROM RCPNS (see enclosure)	1500
	<hr/> 9500
CARRY-OVER FROM 1994	0
EXPENDITURES:	
ORGANIZATION:	
a) Benghazi Interim-colloquium (January 1995)	
b) Berlin INQUA Congress (August 1995)	
c) Bucharest X RCMNS Congress (September 1995)	
d) Miocene/Pliocene Boundary Workshop	3500
PREPARATION AND DISTRIBUTION OF NEWSLETTER	4000
GENERAL EXPENSES	2000
	<hr/> 9500

ALLOTMENT REQUESTED FROM ICS FOR 1995 \$ 3000

NAME OF CHAIRPERSON: Maria Bianca Cita

SIGNATURE OF CHAIRPERSON:



DATE: October 18, 1994

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