

INTERNATIONAL UNION OF GEOLOGICAL SCIENCES (IUGS)

Reporting Format for Subcommittee on Triassic Stratigraphy (STS) of the International Commission on Stratigraphy (ICS), 2000

1. Name of Constituent Body

Subcommission on Triassic Stratigraphy (STS).

2. Summary Table of the subdivision of the studied period.

No changes are under discussion for the Triassic Period, which remains as follows:

Triassic	Upper	Rhaetian	<u>201±2 MA</u>
		Norian	
	Middle	Carnian	<u>>230 MA</u>
		Ladinian	
		Anisian	
	Lower	Olenekian	
		Induan	<u>251±2 MA</u>

The geochronologic data are fairly well established for the boundaries of the Period.

The Carnian datum is obtained through the astrocyclostratigraphy in the Newark Basin. Instead is still debated if to accept the ages (around 241 MA, U-Pb on zircons) obtained near the Anisian - Ladinian boundary. These ages will greatly reduce the time span of the Anisian-Induan interval to about 10 My. In fact there are independent hints to assume a very short time for the Early Triassic, on the base of recovery of the vascular plants after the Permo/Triassic crisis. But this is still only a model.

3. Overall Objectives

Standing Objectives: Rationalization of world-wide (chrono) stratigraphical classification and correlation of the Triassic. Definition of Stages boundary. Selection of global stratotype sections. Correlation of Triassic sections.

New Objectives: Magnetostratigraphic scale for Triassic on marine rocks. Climatic evolution and modelling.

4. Organization (broad description)

STS is a Subcommittee of the Commission on Stratigraphy.

Officers (chairman, two vice-chairmen, secretary), voting members and corresponding members, editor of newsletter, representing a broad forum of specialised stratigraphical disciplines from those countries or regions where Triassic rocks are extensively studied in relation to fundamental and/or applied geological research. Participation in working groups on the Permian-Triassic, Triassic-Jurassic and Stages boundaries. Issue of a bi-annual STS newsletter: "Albertiana".

Chairman : M. J. Orchard, Geological Survey of Canada, Energy, Mines and Resources Canada, 101-605 Robson Street, Vancouver, B.C. V6B 5J3, Canada, e-mail: morchard@gsc.nrcan.gc.ca

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28 other voting members including

Past Chairman: M. Gaetani, Dipartimento di Scienze della Terra, via Mangiagalli 34, I-20133 Milano (Italy), tel .: 0039 02 23698 207, fax 0039 02 706 38 261, e- mail: maurizio.gaetani@unimi.it

63 corresponding members

An up-dated list of voting and corresponding members has been prepared by the Secretary G. Warrington and during the meeting of the STS in held in Halle (Germany, 23 September 1998) the composition of the STS has been updated. The list of all members is printed in Albertiana 22. The new chair has begun a major renewal of the STS membership that should result in a new slate of both voting and corresponding members; the intention to is also reduce the numbers of voting members to about 25 and retain only active corresponding members.

5. Extent of National/Regional/Global support

General support of Commission on Stratigraphy. Support, through not financial, of various national stratigraphical commissions, national geological surveys. Limited financial support of the Chairman's Department.

6. Interface with Other International Projects

- Continuous interrelation with IGCP projects related to Triassic research. At present there are no specific IGCP project related to the Triassic but the chair intends to put forward a proposal during 2001.
- Cooperation with the PANGEA Project.
- Cooperation with the Peri-Tethys Programme.
- Cooperation with Shallow Tethys Programme.

7. Chief Accomplishments and products generated in 1999

1. Following the dead-line for the ballot within the working group is fixed for the 31 December 1999 and immediately after, if the result will be positive, I will send out the ballot to the Voting Members.
2. Continuous discussion on Triassic problems, annotated bibliography, with reports published in Albertiana No. 24.
3. Continuous discussion on Stage boundaries. Postal ballot presently going on for the selection of the Meishan section as GSSP for the base of Triassic and hence of the Permian/Triassic boundary. Advancements for selections of 4 stage GSSP. Postal ballot within the ad hoc WG for choosing the biostratigraphic events to which establish the Anisian/Ladinian boundary.
4. Substantial advancements in the magnetostratigraphic scale.

8. Chief Problems Encountered in 1999 (if any)

- a) The ballot for the GSSP at the base of Triassic, delayed because of the Dalakong affair, was eventually sent out within the ad hoc WG, because the Chinese government assured clearance to access also to foreigners to the Meishan section.
- b) The possible selection of a GSSP of the Olenekian in Siberia being ruled out for several years, the research around Vladivostok should need an amount of money which is beyond the possibility of the STS. Apparently at present no Russians or scientists from hard currency countries seems to be able or willing to raise money for that task.

- c) The selection of the GSSP of Anisian, Ladinian and Carnian stages is delayed, but a solution seems to be possible.
- d) The STS budget allocated by the ICS is far too low to cover even the minimum expenses, needed to develop efficiently operating Working Groups meetings.

9. Comments on the GSSP situation and Work Plan for 2000

- 1) The **Permian/Triassic boundary is now fixed at the first appearance of *Hindeodus parvus* in the middle of bed 27, within the xxx Formation at Meishan**, s to allow also the free export of the collected samples.
- 2) **Base of Olenekian.** No chance to have the GSSP defined in the near future. The only valuable sections so far described are in the NE Siberia, impossible to visit due to the Russia internal situation or the sections near Vladivostock. Russian scientists ask for money to study in detail the appropriate sections in this latter area. Nobody in the West seems interested to find out this money.
- 3) **Base of Anisian.** Biostratigraphic, magnetostratigraphic and chemostratigraphic events are fairly well understood. Dr. Eugen Gradinaru is expected to organise a field meeting in Tulcea, Dobrogea, from 7- to 10 June 2000. I hope sufficient data will be available at that time to propose the section of Desli Caira as GSSP of the base of the Anisian. The matter depends in part on the work of the Romanian colleagues. I warmly hope it would be possible to arrive to the formal ballot towards the end of the next year.
- 4) **Base of Ladinian.** A ballot was done within the working group to select which of the three possible positions should be chosen. No definite majority for a single solution was obtained. Now a second ballot will be sent out for the two proposals who obtained more consensus. A composite section in the Southern Alps offers the whole set of requested data, but they are not present in a single one. We need one GSSP and also its auxiliary section. Definitive ballot next year, since no more field work or major lab work seems to be scheduled.
- 5) **Base of Carnian.** A formal GSSP proposal has been published for the classical section in the Dolomites, Prati di Stuares. Some objections are arising, supporting an Himalayan section in Spiti, but no serious willing to propose the Muth section as GSSP. Perhaps ballots within the next year.
- 6) **Base of Norian.** The next Chairman, Mike Orchard is planning to organise a WG on this boundary. The only new fact at my knowledge is the attempt to correlate through magnetostratigraphy the Newark limnic sections of the Eastern USA with the Tethyan section of Pizzo Mondello in Sicily.
- 7) **Base of Rhaetian.** No special activity, but future possibilities within the Continental Drilling Project (see Other Activities).

In summary 4 GSSP with possibility to be in an advanced process during next year and 3 with no firm schedule in the near future.

Other activities.

- a) *Magnetostratigraphic scale.* Several recent publications are dealing with magnetostratigraphy of Triassic. At least 80% of the whole section has been already characterised in marine rocks. Three scientist groups for marine rocks (Columbia Univ. NY, ETH Zurich, Paris VII) and one additional on non marine rocks (Albuquerque + Columbia) are presently active on this subject. The interval comprised from the upper part of the Lower Triassic to the whole Middle Triassic and the base of Carnian is covered in Western Tethys, with good biostratigraphic control. The basic magnetostratigraphic scale for this interval is achieved. An average reversal frequency of 3/MY has been observed. A paper, written by scientists from ETH Zurich, Columbia N.Y. and Milano is presently submitted and under revision dealing with the Late Carnian and Early Norian in Sicily, which also allow to check the magnetostratigraphy proposed for sections with very low sedimentation rates in Turkey.
- Refinements are still pending, like the central part of the Illyrian substage of the Anisian. The additional sampling done in Bulgaria actually shortened the gap, but rather disappointingly, still a

small interval is not documented. And all the very fossiliferous sections of Southern Alps and Bithynia in Turkey are remagnetised! The political situation in Albania stopped the field work, but we still hope to resume the field work. Last year I wrote the same statement and then the Kosovo war occurred. We are ready, the money is available, when the situation will be a bit more safe, we shall try to fill the gap in the Vermosh Zone of the Albanian Alps.

As far the Upper Triassic is concerned, the situation is as follows:

- There is a very detailed magnetostratigraphy, well constrained to the astrocyclostratigraphy scale from an indefinite point of Carnian up to the top of Rhaetian in the Newark-type lacustrine basins of the Atlantic side of North America. However, their biochronological calibration against marine scale is poor. On the opposite, the studies on the conodont controlled sections of Turkey, with very low sedimentation rates, gave results non correlatables to the Newark-type basins. The sampling done at Pizzo Mondello (Sicily, Italy) in a marine succession with intermediate sedimentation rate gave a very good reference section, spanning through the Carnian-Norian boundary. The magnetostratigraphy is calibrated with conodonts and the results of the first 141 m of the section have been submitted for printing.
 - A further development for the Upper Triassic Stratigraphy is linked to a very promising project, presently being prepared. As chairman of the STS, I was invited to attend the Workshop in Acadia University (Nova Scotia, Canada), June 1999. The project is provisionally named "Continental Drilling" and it is developed mostly by Paul Olsen and Dennis Kent (Columbia University). The aim is to have a continuous coring of selected basins, from Colorado Plateau, through the limnic basins of the East coast of North America up to the Fundy Basin. An equivalent paleolatitude is expected in a Morocco basin, and continuing along the same transect in Sicily. Another transect across paleolatitude will consider the Germanic Basin to end in Greenland. The final goal is to have a paleolatitudinal transect in the northern hemisphere, in which all the physical (including magneto- and astrocyclostratigraphy, and climatic variations) and biological tools may be combined in building an integrated stratigraphy of the Upper Triassic and the base of Jurassic. If the National Science Foundation will support this multi-year and very expensive programme, a serious advancement in the stratigraphy of the Upper Triassic should be obtained.
- b) Publication of *Albertiana* 22 & 23. *Albertiana* is a very valuable forum for the Triassic scientists. The Editor, Hans Kerp from Muenster, has now an help by Mike Orchard from Vancouver and Aymon Baud from Lausanne. Also, to cut costs, the annotated literature is reduced to a list of titles, because more people has now access to electronic databases. *Albertiana* is also on-line on the web site of the University of Muenster. Most of the cost will continue to be supported by the Utrecht University as well as the mailing.

During the 1999 no meetings were organised.

10. Potential funding sources outside IUGS

For *Albertiana* newsletter, funding by Utrecht University rise money. However, the *Albertiana* costs are increasing and the Utrecht University refuse to enlarge the subsidizing to expenses. Presently the year deficit is about \$ 2000 and subscription to members from hard currency countries are requested. To save money we decided to cut the annotated literature and to have *Albertiana* on a WEB site, but this will further enhance the separation between on-line departments and the others.

As far as the financial requests for the next year, I spent in 1999 only about 100 USD this year, because as I already wrote you last year, I am saving the money to support the participation to the Workshop in Dobrogea, next June 2000, to eventually arrive to the definition of the Anisian GSSP.

11. Financial statement for 1999 **USD**

1. Income	
a) 1998 ICS subvention to Albertiana	580.-
b) 1998 ICS subvention to the Chairman	700.-
2. Expenditures	
a) Subcommission on Triassic Stratigraphy	
Contribution to printing of Albertiana:	580.-
b) Financial support for administration, postage and WG news:	<u>100.-</u>
Total expenses	680.-
Balance: Income /expenditures	
	600
	+ 180 (reserve of the 1998 budget)

Consequently I have **780 USD** in order to help the organization of the Romanian workshop on the Anisian Boundary in Dobrogea.

12. Budget 2000

1. Income	
2000 ICS subvention	1000.-
2. Expenditures	
a) Subcommission on Triassic Stratigraphy	
Contribution to printing of Albertiana:	650.-
b) Financial support for administration, postage and WG news	100.-
c) Financial support to participants to the Field Workshop in Dobrogea	<u>250.-</u>
Total expenses	1000.-

ALLOTEMENT REQUESTED FROM ICS FOR 1999: \$ 1000.-

Signature :

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