

INTERNATIONAL UNION OF GEOLOGICAL SCIENCES (IUGS)

Reporting Format for Subcommittee on Triassic Stratigraphy (STS). of the International Commission on Stratigraphy (ICS), 1998

1. Name of Constituent Body

Subcommittee 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	
		Carnian	<u>>230 MA</u>
	Middle	Ladinian	
		Anisian	
		Olenekian	
	Lower	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 astrocylostratigraphy 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.

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. Sequence stratigraphy as correlation tool. Climatic evolution and modelling.

4. Organization (broad description)

STS is a Subcommittee of the Commission on Stratigraphy.

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

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25 other voting members

60 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 the voting members is being sent separately by the Secretary.

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 (mostly IGCP 359).
- Cooperation with the PANGAEA Project.
- Cooperation with the Peri-Tethys Programme.
- Cooperation with Shallow Tethys Programme.

7. Chief Accomplishments and products generated in 1998

- a) Continuous discussion on Triassic problems, annotated bibliography, with reports published in *Albertiana* Nr. 20 & 21.
- b) Continuous discussion on Stage boundaries. Pre-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.
- c) Substantial advancements in the magnetostratigraphic scale.

8. Chief Problems Encountered in 1998 (if any)

- a) The ballot for the GSSP at the base of Triassic has been delayed because of the Dalakong affair.
- b) The possible selection of a GSSP of the Olenekian in Siberia seems to be ruled out for several years.
- c) The selection of the GSSP of Anisian and Ladinian 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 1999

- a) *P/T boundary.* The *ad hoc* Working Group largely preferred the section of Meishan (China) as standard and a repeated ballot gave positive answer largely above the 60% required. However, due to the political problems arose with the Dalakong diplomatic incident and because Meishan is in area still closed to foreigners, the final postal ballot amongst Voting Members cannot be sent out. Moreover, several Members state that they will vote against Meishan, if the consequences of the Dalakong incident are not settled and the collected material given back to the scientists that made the field work. Prof. Yin Hongfu is very actively following this issue with Chinese authorities and he hopes to be successful within a few months. Might a IUGS Board statement help on this point?
- b) *base of Olenekian.* The Vice President Y. Zakharov accepted to lead a *ad hoc* WG. He badly need money and the support by the STS is too small. However, due to the internal situation in Russia, it would be very difficult to organise research and field trip in North Siberia. Also it would be almost impossible for everybody to visit the area in the next few years. Consequently, during the Halle meeting, the STS decided to stop to search for a GSSP in Siberia. Instead fairly good

opportunities seems to exist in the Prymorie and Prof. Zakharov is now in charge to propose a GSSP in the area near Vladivostok.

- c) *base of Anisian*. Suitable sections are very difficult to be found. The Chios (Greece) section has been shown to be incomplete for small condensation near the boundary. During the Halle meeting a proposal to use this section due to the political difficulties for other sections was rejected. Because a consensus grows around the section of Desli Caira in Dobrugea (Romania), the chairman officially asked the Rumanian Committee of Geology to preserve this section and to ask prof. E. Gradinaru to illustrate its ammonoid content. Prof. Gradinaru and the Rumanian Committee proposed to organise a Field Workshop in Dobrugea in May-June 2000, during which the candidate section will be visited. Since conodonts are already partially studied and the magnetostratigraphy already proved to work in this section, it was proposed to the Rumanian colleagues to have a WG on the conodonts, to solve the taxonomic problems still pending, before the Field-Workshop. Gradinaru accepted and so we hope to be able to resample the section next spring and to arrive to the workshop with conodont, magneto- and isotope (C and Sr studied in Lausanne by a Ph.D. student of Past President A. Baud) stratigraphies already completed. It takes a long time, but this seems the best solution. Nor Nevada or Himalaya have sufficiently good sections and moreover these sections doesn't allow physical stratigraphy studies due to later heating.
- d) *base of Ladinian*. A pre-postal ballot for the selection of the position of the boundary has been mailed to some 40 scientists known to be involved in the problem. About 30 answers have been received and the preferences are rather sparse. However the preference for the boundary at the ammonoid *E. curionii* FAD received the 43% of preferences. A drawback of this choice is the not very significant change in the conodont evolution. GSSP choice is also still pending, but the magnetostratigraphy of the Felsőors section (Hungary), proved to be not sufficiently reliable. Also the Bagolino candidate section is remagnetised as well other physical stratigraphy searches are not possible. Instead important advances have been obtained in the Dolomites, where several sections are now correlatable bed by bed by means of conodonts, magnetostratigraphy and volcanic tephra. A continuous coring through the boundary interval was performed at M. Seceda in summer 1998, financially supported by the Province of Bolzano. Should be the next year the year of the final definition? I strongly hope so, and I am working for.
- e) *base of Carnian*. The Italian WG published on Albertiana 21 the documentation for the candidate GSSP located at Stuoires in Dolomites, historical type locality of the Cordevolian substage. The candidate sections have been visited during the field meeting of the 2-5 July 1998. Unfortunately, due to the funding refused by the Italian National Council, it was not possible to invite people from Eastern countries. A full account of this proposal is now in press on the Rivista Italiana di Paleontologia e Stratigrafia. The proposal to lower the traditional boundary find several opponents. But I hope that a convenient solution may be obtained.
- f) *base of Norian and Rhaetian*. Ad hoc WG to be created, but not within the scope of the present Board.

General comment. My goal is to have the 5 of the 7 GSSP of Triassic defined, as well as the magnetostratigraphic scale. I will leave to the next Chairman of the STS the pleasure to define the GSSP of the Norian and the Rhaetian. I am hardly working to this objective

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.

- Refinements are still pending, like the central part of the Illyrian substage of the Anisian. Additional sampling has been done in Bulgaria to solve this point. The situation in Albania stopped the field work, but there is hope to resume the field work in June 1999.
- As far the Upper Triassic is concerned, the situation is as follows:

There is a very detailed magnetostratigraphy, well constrained to the astrocylostratigraphy scale from an indefinite point of Carnian up to the top of Rhaetian in the Newark-type lacustrine basins of the North American side of the Atlantic. 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. Sampling has been done during the 1998 field season in Sicily (Italy), in a marine succession with intermediate sedimentation rate. A very good reference section (Pizzo Mondello) spanning through the Carnian-Norian boundary has been obtained. The laboratory work in Zurich is just finished and we are waiting for the results.

As final comment I may affirm that a sufficiently good magnetostratigraphic scale for the Triassic is now available, even if minor refinements are still pending.

- b) Publication of *Albertiana* 22 & 23. *Albertiana* is a very valuable forum for the Triassic scientists. During 1998 delays in the scheduled issue time occurred. The Editor, Hans Kerp from Muenster, asked for an help. After a long lasting search (hopefully e-mail do exists!), Mike Orchard from Vancouver offered his help in revising papers from non-English people. Also, to reduce costs, the annotated literature is reduced to a list of titles, because more people has now access to electronic database. Also some experiments are in progress to have *Albertiana* also on-line. Most of the cost will continue to be supported by the Utrecht University as well as the mailing.

During the 1998 two meetings have been organised:

- a) the meeting on the Carnian GSSPs held in Dolomites from 2 to 5 July 1998, following the field excursion of the ECOS VI which gathered conodont workers from many countries outside Europe and visited several classical Triassic localities of the Southern Alps
- b) During the International Conference on Epicontinental Triassic held in Halle, the STS had its general assembly (the 23 of September, 1998, 4.00 p.m.).

10. Potential funding sources outside IUGS

For *Albertiana* newsletter, informal funding by Utrecht University can 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 start to experiment to convert *Albertiana* in a WEB site, but this will further enhance the separation between on-line departments and the others.

11. Financial statement for 1998

USD

1. Income

a) 1997 ICS subvention to Albertiana	580.-
b) 1997 ICS subvention to the Chairman	290.-
2. Expenditures	
a) Subcommission on Triassic Stratigraphy	
Contribution to printing of Albertiana:	580.-
b) Financial support for administration, postage and WG news:	<u>110.-</u>
Total expenses	690.-
Balance: Income /expenditures	+ 180.-

I would ask to be able to keep this money in order to help in the organization of the Rumanian workshop on the Anisian Boundary.

12. Budget 1999

1. Income	
1999 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 partecipants to the Field Workshop in Dobrugea	<u>250.-</u>
Total expenses	1000.-

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

Signature :

Maurizio GAETANI

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