

INTERNATIONAL UNION OF GEOLOGICAL SCIENCES (IUGS)

Reporting Form for Constituent Bodies

2001

1. Title of Constituent Body

Subcommission on Triassic Stratigraphy (STS), International Commission on Stratigraphy (ICS).

2. Overall Objectives

Rationalisation of global chronostratigraphical classification.

Intercalibration of fossil biostratigraphies, integrated zonations, and recognition of global datums.

Establishment of magneto- and chemo-stratigraphic scales.

Definition of Stage boundaries and selection of global stratotype sections.

Correlation of Triassic rock successions and events, including marine to non-marine.

Climatic evolution and modelling.

3. Fit within IUGS Science Policy

The objectives satisfy the IUGS mandate of fostering international agreement on nomenclature and classification in stratigraphy; facilitating international co-operation in geological research; improving publication, dissemination, and use of geological information internationally; encouraging new relationships between and among disciplines of science that relate to Triassic geology world-wide; attracting competent students and research workers to the discipline; and fostering an increased awareness among individual scientists world-wide of what related programs are being undertaken.

4. Organisation (broad description)

STS is a Subcommission of the Commission on Stratigraphy.

Officers (chairman, two vice-chairmen, past chairman, secretary), web-master/ editor of newsletter, voting members, and corresponding members. These individuals represent a broad spectrum 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 Stage boundaries. Publication of a bi-annual STS newsletter *Albertiana* in both hardcopy and as a web release.

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

Vice Chairman: Yin Hongfu, China University of Geosciences, Yujiashan, Wuhan, Hubei, 430074, Peoples Republic of China. hfyin@cug.edu.cn

Vice Chairman: Y. Zakharov, Russian Academy of Sciences, Far East branch, Vladivostock, Russia: Russian Academy of Sciences, Prospect Stoletiya Vladivostoka 139, Vladivostok 22, 690022, Russia, e-mail: fegi@online.marine.su

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

Secretary: G. Warrington, British Geological Survey, Kinsley Dunham Centre, Keyworth, Nottingham NG1 5GG, U.K., e-mail: gwar@wpo.nerc.ac.uk

21 other voting members, total of 26.

Albertiana editor and Webmaster: Wolfram M. Kuerschner, Laboratory of Palaeobotany and Palynology, Utrecht University, Budapestlaan 4, 3584 CD Utrecht, The Netherlands.

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103 other corresponding members, total of 104.

5. Extent of National/Regional/Global support (extra-IUGS)

Support (non-financial) of the Chairman's Institute (GSC Vancouver), and of the Earth Science Sector of Natural Resources Canada.

Support (not financial) of various national stratigraphical commissions, national geological surveys.

General support of Commission on Stratigraphy.

6. Interface with Other International Projects

IGCP Project 458: **Triassic/ Jurassic Boundary Events**

IGCP Project, proposal pending: **Triassic time and trans-Panthalassan correlations**

Japan-New Zealand collaboration on **Southern High Latitude Radiolarian Faunas** (13 Universities)

US-China-Australia collaboration on: **Evaluation of Controls on Carbonate Platform Evolution and Architecture through Comparative Platform Analysis, Nanpanjiang Basin, South China.**

Co-operation with the **PANGEA** Project.

Co-operation with the **Peri-Tethys** Programme.

Co-operation with **Shallow Tethys** Programme.

7. Chief Accomplishments in 2001

Much of the year was taken up in re-organising the STS and laying the foundation for more inclusive and effective decision making, with a view to speeding up the process of GSSP definition.

The Chairman undertook a major renewal of voting and corresponding members during 2000-01. Voting membership was reduced from 31 to 26, by dropping 11 and adding 6. This was the first time that a significant turnover of voting members had been attempted, many of the voters having been in place since inception of the STS in the 1960s. New voters included the first representatives from South America and the first radiolarian specialist.

Total corresponding membership was increased significantly even though over 20 members were dropped. An effort was made to bring in representatives from under-represented regions, including Eastern Europe, E. Asia, South America, and Australasia.

The entire cast of STS members provided a synopsis of their Triassic research interests which will be published in *Albertiana* 26 (Fall 2001) and concurrently released on the web. This list will also identify Working Group chairs, four of whom were newly appointed; each stage boundary, as well as the Non-Marine Working Group, now has an individual to focus on the task at hand. Amongst the membership, the published research synopses will enable Chairs to more formally constitute a

working group. All have been asked to produce a list of participants and a short list of GSSP candidates.

Two issues of the STS newsletter *Albertiana* were published: 25 and 26.

The STS co-sponsored 2 international meetings, in Oman and China.

Progress on specific boundaries:

Base of the Triassic/ Induan. This boundary is now fixed and ratified at the first appearance of the conodont *Hindeodus parvus* in the middle of bed 27, within the Yinkeng Formation at Meishan, Changxing County, Zhejiang Province, South China. Yin Hongfu, the Chair of the working group convened an International Conference on the P-T boundary in Changxing during August 2001. The GSSP was celebrated with the unveiling of an impressive 9 m tall stele with a model of the index fossil at its apex. The Chinese hosts and invited guests, including 3 of the 5 STS executives and an ICS/ IUGS representative (R. Lane), were present alongside an impressive line-up of government dignitaries. The search for a non-marine auxiliary section proceeded apace with candidates from China and South Africa being documented.

Base of Olenekian. Sections in Russia, especially near Vladivostock, continue to pose problems, partly financial, for access and detailed study. Yuri Zacharov, the Chair of the WG, continues his work there in collaboration with Japanese geologists. Meanwhile, new candidates are now presented from China, and were visited during a field trip that followed the Changxing Symposium. Work is in its early stages but the fossil control is quite good and it is planned to continue multidisciplinary studies. A second area in Guizhou Province being studied by a joint Chinese-US-Australian group has also been suggested to have good potential.

Base of Anisian. Biostratigraphic, magnetostratigraphic and chemostratigraphic events are fairly well understood in the section at Desli Caira, in Dobrogea, Romania, which stands as the only well known candidate for the O-A GSSP. The field workshop organised in June 2000 by Dr. Eugen Gradinaru did not result in a formal proposal but it served to stimulate further work and there is now a clear commitment for a proposal to come forward in the Spring of 2002.

Base of Ladinian. Deliberations on this boundary ground to a halt some years ago with polarisation around alternate horizons at Bagolino in Italy and at Felsőors in Hungary. The Hungarian section is now beautifully prepared as a geotourist destination but the preferred level best developed there is not favoured by workers outside Hungary, although there are now new data on radiogenic dates and ammonoid stratigraphy to be published. A new WG Chair (A. Baud) has been appointed to carry the final decision forward next summer. It is hoped that it will be the next GSSP to be agreed.

Base of Carnian. There is a formal GSSP proposal for the section at Prati di Stuares in the Dolomites of northern Italy. Some of the fossil data from there is rather weak and much better successions are present in condensed sections in Spiti in the Himalaya, although access is not so good. New work underway in Nevada, USA should be of great importance too. Decisions on this boundary should probably be delayed for a while. M. Gaetani retains the Chairmanship of this WG.

Base of Norian. A new working group has been formed by the STS Chair, who has worked actively this last year with a multidisciplinary group on a section in British Columbia, Canada. The section lacks a preserved magnetic signal, but the fossil succession is superb. An alternate section in Pizzo

Mondello, Sicily is not so good paleontologically, but does have a magnetostratigraphic record that permits comparison with the non-marine Newark successions in eastern USA. The same is allegedly true of an unpublished section in Slovenia. The WG plans a busy schedule of workshops to try and resolve issues around this GSSP with a goal of 2004 for a decision.

Base of Rhaetian. A new WG is being organised by L. Krystyn.

8. Chief Problems Encountered in 2001 (if any)

Ongoing problems: difficulty for Russians to undertake necessary fieldwork on potential GSSP of the Olenekian near Vladivostok - lack of funds. A similar situation with participants from the former eastern block. It is envisaged that this problem will become more acute with the push toward GSSP definition. Working Group meetings and field trips are unlikely to be inclusive unless some member's costs are covered.

Fiscal restraint and new regulation on foreign travel in Canada has also made it more difficult for the Chair to fulfil his STS duties.

The Albertiana newsletter continues to be heavily subsidised by Utrecht University. The WEB-release is now reality, but hard copy is still offered and necessary for some. This issue may become more critical if, as expected, the activity of the STS increases and more contributions are offered.

9. Chief Products in 2001 (pubs. Maps)

Albertiana No. 25 (April), 54 pp.

Albertiana No. 26 (in press)

The STS co-sponsored:

The International Conference in Oman: Permo-Triassic deposits: from shallow water to base of slope; Abstract volume and field guides.

The International Symposium on the Global Stratotype of the Permian-Triassic boundary and the Paleozoic-Mesozoic events; Abstract volume and field guides.

10. Summary of expenditures in 2001

Mail out to STS membership	\$426.30
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11. Work Plan for next year

Field workshops are planned for July-August, 2002 in:

Bagolino, Italy - candidate for the Anisian-Ladinian boundary

Stoures, Italy – candidate for the Ladinian-Carnian boundary

Felsoors, Hungary – candidate for the Anisian-Ladinian boundary

Desli Caira, Romania – candidate for the Olenekian-Anisian boundary.

STS meeting in conjunction with that of Shallow Tethys in Budapest, Hungary 26-31 August. A business meeting will attempt to reach consensus on GSSPs for these boundaries. If successful, the proposition will go to a vote within STS next fall.

12. Critical Milestones to be achieved next year

Pre-conference excursion to view GSSP candidates in Italy and Hungary.
STS session on Middle Triassic boundaries at Shallow Tethys.
Post-conference excursion to view GSSP candidates in Romania.

13. Anticipated results/ products next year

Choice of **Olenekian-Anisian** boundary GSSP.
Choice of **Anisian-Ladinian** boundary GSSP.

14. Communication plans

The *Albertiana* web-site will be expanded to include more past issues of the volume as time permits. In addition it will become the main medium for news and announcements, and possibly for discussion groups. Links to related sites will be added.

15. Summary budget for next year

Contribution to production of <i>Albertiana</i> :	1000
Financial support for administration and communication:	500
Financial support to participants in Field Workshops:	3000*
Total expenses	4500

*this amount is set at a nominal amount considering previous levels of funding for subcommissions. However, it is unlikely to go far and any supplement would help.

16. Potential funding sources outside IUGS

Limited support from Chairman's institute, particularly through a 'Pathways' project on "*Triassic time and correlation.*"
Pending new IGCP Project proposed by Chairman on "*Triassic time and trans-Panthalassan correlation*"

17. Review Chief Accomplishments/Results over last 5 years (1997-2001)

Permian-Triassic boundary in China agreed and ratified.

Induan-Olenekian boundary working group established, 2 candidates identified and preliminary descriptions presented.

Field workshop in Romania to view Olenekian-Anisian boundary candidate, now characterised by ammonoid, conodont, chemo- and magneto-stratigraphic profiles.

Additional work done on 2 competing candidates for Anisian-Ladinian boundary in Italy and Hungary.

Field workshop in Italy to view Ladinian-Carnian boundary candidate. and publication of a comprehensive volume on its character and attributes.

New working group on Carnian-Norian boundary established. Data from 2 candidate sections in Canada and Sicily published.

New working group on Norian-Rhaetian boundary established.

Non-marine auxiliary GSSP sections identified.

18. Summarise anticipated objectives and work plan for the 5 years (period 2002-2006)

Year 1 (2002)

- X Field work in some key North American Triassic successions contributing data to boundary resolutions: Crittenden Springs, Fossil Hill, New Pass, Shoshone Mts.
- X Field workshop in Italy and Hungary, August 20-25th: Anisian-Ladinian boundary GSSP candidates at Bagolino, Italy and Felsoors, Hungary; Ladinian-Carnian boundary GSSP candidate at Prati di Stuares, Italy.
- X Special Session on Middle Triassic boundaries - joint meeting with Shallow Tethys, Budapest, Hungary, 26-31 August 2002.
- X Field workshop to Olenekian-Anisian GSSP candidate at Deli Caira, Romania, September 2002.
- X Triassic Symposium as part of the Paleontological and Biostratigraphic Congress, Corrientes Province, Argentina, October 2002.
- X Choice of **Olenekian-Anisian** GSSP candidate; proposal prepared.
- X Choice of **Anisian-Ladinian** boundary GSSP; proposal prepared.
- X Short list of Ladinian-Carnian boundary GSSP candidates.

Year 2 (2003)

- X Special Session on Upper Triassic events and boundaries - joint meeting with Geological Association of Canada, Vancouver, BC, 26-28 May, and IGCP project 486.
- X Field workshop on Carnian-Norian boundary GSSP candidate at Black Bear Ridge, northeast British Columbia, 29 May-2 June.
- X Field workshop on Carnian-Norian boundary non-marine auxiliary candidate at Petrified Forest Park, New Mexico, end May.
- X Field workshop on the base of Norian and Rhaetian, NW Moresby Island, Queen Charlotte Islands, British Columbia, Canada.
- X Special Session/ Field Workshop on the Lower-Middle Triassic of the U.S.A. - meeting with the Geological Society of America, Seattle, 2-5 November.
- X Special publication on Upper Triassic events and boundaries.

- X Short list of Carnian-Norian boundary GSSP candidates.
- X Choice of **Ladinian-Carnian** boundary GSSP; proposal prepared.

Year 3 (2004)

- X Field workshops on Upper Triassic GSSP candidates in Austria (Salzkammergut), Italy (Sicani-Lagronegro Basin, Pizzo Mondello), Turkey (Taurus Nappes), Silická Brezová, August.
- X Meeting with the STS as part of a proposed special session on “Triassic in the Tethys Realm”- 32nd International Geological Congress, Florence, Italy, 20-28 August 2004.
- X Special session/ workshop on Upper Triassic boundaries, IGC.
- X Short list of Norian-Rhaetian boundary GSSP candidates.
- X Short list of Induan-Olenekian boundary GSSP candidates.
- X Choice of **Carnian-Norian** boundary GSSP; proposal prepared.

Year 4 (2005)

- X ?Field workshop to Induan-Olenekian boundary GSSP candidates in Guizhou and Anhui provinces, China, and to South Primorye, Russia.
- X Special session/ conference workshop on Induan-Olenekian boundary, venue undetermined.
- X Choice of **Induan-Olenekian** boundary GSSP; proposal prepared.
- X Choice of **Norian-Rhaetian** boundary GSSP; proposal prepared.

Year 5 (2006)

- X Summary volume of all Triassic GSSPs.
- X Emphasis switches to choice of non-marine auxiliary sections.
- X Special volume on trans-Panthalassan Triassic terrane stratigraphies and correlation.

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