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We welcome your contributions, your letters, comments, answers and advices to improve our communication as we move forward.

Notes from the SPS Chair

Shuzhong Shen

Time is flying. The Chinese New Year of the Rooster is coming quickly and this makes me busy in many end-year things. I wish our colleagues of the Permian community a wonderful 2017.

Thanks Lucia for organizing this issue. I have no much to say. We will send the Sakmarian proposal to all voting members for voting recently. However, I hope the proposal can be improved a little bit more before it can be voted. The other two Cisuralian GSSP candidate sections (Artinskian and Kungurian) have been excavated by our Russian colleagues. I herein call all colleagues again who are interested in working the GSSP candidate sections. SPS has a little money to support any activity related to the GSSP work.

Recently, the base of the Guadalupian Series in South China has been precisely calibrated by the high-precision U-Pb IDTIMS date (272.95 ± 0.11 Ma) based on the ash beds from the Kuhfeng Formation in South China (Wu et al., 2017). Thus, the new dates suggests that the Guadalupian Series in South China had a total duration of 13.85 ± 0.52 myr given a Guadalupian-Lopingian boundary (GLB) age of 259.1 ± 0.5 Ma (Shen et al., 2010; Zhong et al., 2014). The international Stratigraphic Chart will be updated in the next version.

There are very little data about the Permian in Myanmar. From last year, my colleagues and I have been to the Shan State of Myanmar twice and investigated the whole Permian. We have numerous discoveries of various fossils including fusulinids, forams, corals and brachiopods. In addition, Lower carboniferous brachiopods and conodonts, and abundant Ordovician brachiopod faunas and O-S graptolites have been collected too (see a cover photo). We hope we will publish those results shortly.

Shen, S. Z., Henderson, C. M., Bowring, S. A., Cao, C. Q., Wang, Y., Wang, W., Zhang, H., Zhang, Y. C., and Mu, L., 2010, High-resolution Lopingian (Late Permian) timescale of South China: *Geological Journal*, v. 45, no. 2-3, p. 122-134.

Wu, Q., Ramezani, J., Zhang, H., Wang, T. T., Yuan, D. X., Mu, L., Zhang, Y. C., Li, X. H., and Shen, S. Z., 2017, Calibrating the Guadalupian Series (Middle Permian) of South China: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 466, p. 361-372.

Zhong, Y. T., He, B., Mundil, R., and Xu, Y. G., 2014, CA-TIMS zircon U-Pb dating of felsic ignimbrite from the Binchuan section: Implications for the termination age of Emeishan large igneous province: *Lithos*, v. 204, no. 0, p. 14-19.

SUBCOMMISSION ON PERMIAN STRATIGRAPHY

ANNUAL REPORT 2016

1. TITLE OF CONSTITUENT BODY AND NAME OF REPORTER

International Subcommittee on Permian Stratigraphy (SPS)

Submitted by:

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2. OVERALL OBJECTIVES, AND FIT WITHIN IUGS SCIENCE POLICY

Subcommission Objectives: The Subcommittee's primary objective is to define the series and stages of the Permian by means of internationally agreed GSSPs and establish a high-resolution temporal framework based on geochronologic and chemstratigraphical approaches, and to provide the international forum for scientific discussion and interchange on all aspects of the Permian, but specifically on refined intercontinental and regional correlations.

Fit within IUGS Science Policy: The objectives of the Subcommittee involve two main aspects of IUGS policy: 1. The development of an internationally agreed chronostratigraphic scale with units defined by GSSP's where appropriate and related to a hierarchy of units to maximize relative time resolution within the Permian System; and 2. The establishment of framework and systems to encourage international collaboration in understanding the evolution of the Earth during the Permian Period.

3a. CHIEF ACCOMPLISHMENTS AND PRODUCTS IN 2015

A field excursion to the potential GSSP sections in southern Urals, Russia was organized during the ICCP 2015 in Kazan. Some SPS voting members attended the field excursion guided by the Russian colleagues. After the field excursion, a special SPS workshop was held to discuss the advantages and disadvantages of the potential GSSP sections. Most of the voting members agreed that the Sakmarian-base GSSP section at Usolka is good. However, the potential GSSP candidates for the base of the Artinskian and Kungurian stages are not well exposed, thus, both sections need to be excavated. The Russian colleagues organized a team in August, 2016 to dig two long trenches to make the strata of the Dalny Tulkas and Mechetlino Quarry sections fully outcropped now. The proposals of these two potential GSSPs will be prepared after the Sakmarian-base GSSP proposal is voted.

A revised and updated proposal of the Sakmarian-base GSSP has been published in *Permophiles* (2016, Issue 63). A group email was sent to all SPS voting members for one-month discussion before we organize a formal proposal for the subcommission. We have received a couple of comments and suggestions how to improve the proposal. We have also received a few comments about which

conodont lineage to choose for the definition of the Sakmarian-base GSSP.

3b List of major publications of subcommission work (books, special volumes, key scientific paper)

Three issues of *Permophiles* (Issues 61-63) have been published since June, 2015. They are all available on the SPS website (<http://permian.stratigraphy.org/pub/pub.asp>).

An updated Permian timescale has been published in these issues of *Permophiles*. A special issue titled "The Permian Timescale" has been organized by Spencer Lucas and Shuzhong Shen. More than ten papers have been available online. This will be published on the Special Publications of the Geological Society of London in early 2017.

3c. Problems encountered, if appropriate

We have encountered problems that discrepancies in conodont taxonomy and selection of the index species of the two proposals for Sakmarian-base and Artinskian-base GSSPs are present.

We also met a problem for the Lopingian-base GSSP which will be flooded after a dam established in 5 years for electronic power in the downstream of the Hongshui River in Guangxi, South China. We have extensively discussed with the local government and a detailed plan for searching the replacement of the GSSP section nearby the GSSP has been made. Field work to search replacement section in South China was carried out too during 2016.

4a. OBJECTIVES AND WORK PLAN FOR NEXT YEAR (2017)

The primary objectives are to complete the last three GSSPs (Sakmarian, Artinskian, and Kungurian stages). An updated proposal for the Sakmarian-base potential GSSP has been completed (see *Permophiles* 63). This proposal will be revised again after the one-month discussion during all SPS voting members. The Russian Stratigraphic Committee has excavated the Dalny Tukus and Mechetlino Quarry sections, then the SPS will organize an international joint field excursion to collect various samples in those sections.

4b. Specific GSSP Focus for 2017

The priority of 2017 for GSSP is to publish and send the updated Sakmarian-base GSSP proposal for discussion and voting in SPS.

5. SUMMARY OF EXPENDITURES IN 2016

We received an allocated budget 3000\$ from ICS this year, of which 2850 US\$ arrived at the SPS account after a bank processing fee was deducted. As planned in the 2015 annual report, this money was mainly used for supporting the SPS chair to go to Cape Town, South Africa to attend the ICS workshop during the 35th IGC, which was not enough.

6. BUDGET REQUESTS AND ICS COMPONENT FOR 2017

1. The Dalny Tukus and the Mechetlino Quarry sections for the Artinskian and Kungurian GSSPs have been excavated by the Russian colleagues. So, we plan to call all voting members for a field excursion on the three potential GSSP sections in southern Urals to collect samples. We will use a

part of the 2017-year budget to support any voting member to go to southern Urals (3000US\$).

2. A third field excursion for the three GSSPs of the Guadalupian Series in the Guadalupe National Park will be organized in 2017. This field excursion will be specially planned for working the three problematic Guadalupian GSSPs (1000US\$).
3. SPS secretary Lucia Angiolini will be invited to Nanjing to edit the next *Permophiles* (1000US\$).

In total: US\$5000

APPENDICES

7. CHIEF ACCOMPLISHMENTS OVER PAST FIVE YEARS (2011-2016)

- 1) A new SPS website has been established.
- 2) Three GSSP bronze markers have been placed on the GSSPs in the Guadalupe National Park in USA.
- 3) A high-resolution timescale of the Permian system has been significantly refined (see SPS webpage Permian Timescale, also *Permophiles* 63).
- 4) Significant progress on the Sakmarian-base and Artinskian-base GSSP candidates has been made. Proposals for voting have been published and extensively discussed.
- 5) Two monuments have been built and a protected area has been established at Penglaitan, Laibin, Guangxi Province, China for the Wuchiapingian-base GSSP.
- 6) Ten formal issues and three supplementary issues of *Permophiles* have been published since 2010.
- 7) A Working Group on the Carboniferous-Permian transition between marine and non-marine sequences has been organized in 2015.

8. OBJECTIVES AND WORK PLAN FOR NEXT 4 YEARS (2016-2020)

- 1) Publishing the revised version of the proposals, organizing the field excursions and establishing the three (at least two) GSSPs for the Cisuralian.
- 2) Continue to work on the Guadalupian and global correlation for chemostratigraphy and geochronologic calibration. Publish the official papers for the three Guadalupian GSSPs.
- 3) Searching the replacement of the Lopingian-base GSSP nearby the stratotype section at Penglaitan, Guangxi, South China because the original will be flooded in 5-10 years by a dam for electronic power.

9. ORGANIZATION AND SUBCOMMISSION MEMBERSHIP

9a Names and Addresses of Current Officers and Voting Members

Five SPS voting members were replaced after August, 2016. We welcome Golubev, V.K., Mike Stephenson, Spencer Lucas, Mark Schmitz and Yichun Zhang become new SPS voting members, and we also thank Vladimir Davydov, Clinton Foster, Galina Kotlyar, Xiangdong Wang and Bruce Wardlaw for their great contributions to the SPS.