

**SUBCOMMISSION ON PERMIAN STRATIGRAPHY
ANNUAL REPORT 2018**

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 multidisciplinary (biostratigraphical, geochronologic, chemostratigraphical, magnetostratigraphical etc.) 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 GSSPs where appropriate and related to a hierarchy of units to maximize relative time resolution within the Permian System; and 2, establishment of framework and systems to encourage international collaboration in understanding the evolution of the Earth and life during the Permian Period.

3. ORGANISATION-Interfaces with other international project/groups

SPS interacts with many international projects on formal and informal levels. Shuzhong Shen, as one of the principal proposer, we are applying for funding from various resources in China to support the Deep Time Digital Earth (DDE) program. The current sponsors of the DDE proposal include the following IUGS constituent groups (affiliated international organizations and national members). These members will serve as founding members to support this proposal. This type of initiative could also provide an opportunity for partnership with regional and international associations of universities, publishers and datacenters.

List of members supporting the initiative:

International Commission on Stratigraphy (ICS)
International Association of Paleontology (IAP)
International Association of Sedimentologists (IAS)
International Association for Mathematical Geosciences (IAMG)
China Geological Survey (CGS)
British Geological Survey (BGS)
Russian Geological Research Institute
Commission on the Management & Application of Geoscience Information
American Association of Petroleum Geologists

International Association on the Genesis of Ore Deposits
Commission for Geological Map of the World
International Association of Geomorphologists

3a. Nominated Officers for 2016-2020 period:

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4. EXTENT OF NATIONAL/REGIONAL/GLOBAL SUPPORT FROM SOURCES OTHER THAN IUGS

SPS chair Shuzhong Shen organized an international cooperative project on the correlation of the Guadalupian Series between South China and Mt. Guadalupe in Texas, USA, which is supported by NSFC.

A Strategic Priority Research Program "Processes and Mechanisms of Organismal and Environmental Evolution during the Critical Intervals in Earth History" led by Shuzhong Shen has been approved by Chinese Academy of Science (2018-2023). With the national team of more than 200 expert scientists in collaboration with numerous oversea scientists in synthetic stratigraphy, paleontology, sedimentology, geochemistry, geochronology and big data analysis and modeling, this program adopts interdisciplinary approaches to addressing major issues about evolution of life on earth from both temporal and spatial perspectives.

5. CHIEF ACCOMPLISHMENTS AND PRODUCTS IN 2018

A formal proposal of the Sakmarian-base GSSP was submitted to International Commission on Stratigraphy, which was approved by 100% in ICS. This proposal then was submitted to IUGS on June 30, 2018 and formally ratified by IUGS EC on July 21, 2018.

A volume of Special Publication (*The Permian Timescales*. Geological Society, London, Special Publication **450**) has been published by Lucas, S.G. and Shen, S.Z. (2018). This volume reviews the state of the art of the Permian timescales of the SPS including geochronology, high-resolution biostratigraphy based on various fossil groups (conodonts, fusulinids, brachiopods, plant fossils, radiolarians etc.), magnetostratigraphy etc. and a latest Permian timescale is also presented.

A Special Issue on Integrative Stratigraphy and timescale of China has been published on Science China Earth Sciences (Shen and Rong, edited, 2019) now. This issue includes 13 periods and summarized the advances in stratigraphy and timescale from Ediacaran to Quaternary in China during the last two decades.

One regular issue of *Permophiles* (Issues 66) and a supplementary issue of *Permophiles* for the 8th Brachiopod Congress (66-Suppl. Issue) have been published in 2018. They are all available on the SPS website (<http://permian.stratigraphy.org/pub/pub.asp>).

6. SUMMARY OF EXPENDITURES IN 2018

We received a budget \$3000 from ICS a few days ago. As planned in the 2017 annual report, this money was mainly pre-used for supporting the publication of *Permophiles*, and SPS Chair to meet SPS secretary Lucia Angiolini Milano in September, 2018 to edit *Permophiles*.

7. SUMMARY OF INCOME 2018

An amount 2195 Euro was allocated from ICS.

8. BUDGET REQUESTS FROM ICS IN 2019

We apply for 5000US\$ from ICS for SPS activities in 2019. SPS Chair Shuzhong Shen will attend the 3rd International Congress on Stratigraphy (STRATI 2019, 2-5 July, Milano, Italy) and the International Congress on Carboniferous and Permian (ICCP, July 29-August 2, 2019, Cologne, Germany). Two SPS business meetings have been planned respectively during these two meetings. We will use a part of the money to support SPS voting members and young scholars recommended by SPS voting members to attend these two meeting.

We will also start to prepare the Artinskian and Kungurian GSSPs.

9. WORK PLAN, CRITICAL MILESTONES, ANTICIPATED RESULTS AND COMMUNICATIONS TO BE ACHIEVED NEXT YEAR

The primary objectives are to complete the remaining two GSSPs (Artinskian and Kungurian stages) and re-define/study the three GSSPs of the Guadalupian Series (Roadian, Wordian and Capitanian). The Russian Stratigraphic Committee has excavated the Dalny Tukas (Artinskian-base) and Mechetlino Quarry (Kungurian-base) sections as well. The next target of SPS is to publish the Sakmarian GSSP paper and complete the proposal for these remaining two Cisuralian GSSPs.

The priority of 2019 for GSSP is to:

- 1) Completing the Artinskian-base GSSP proposal for discussion and voting in SPS;
- 2) intensively study and clarify the problems in the three defined Guadalupian GSSPs;
- 3) Working on the replacement candidate section for the Lopingian-base GSSP at Penglaitan, South China.

10. OBJECTIVES AND WORK PLAN FOR NEXT 4 YEARS (2019-2022)

- 1) SPS Chair Shuzhong Shen together with Junxuan Fan of the GBDB group is actively involved in organizing the IUGS Recognized Big Science Program "Reconstruction of Paleo-

geography and Deep Time Big Data (DDE Program)". The main purpose and mission of DDE Program are to provide a dynamically linked, paleogeologically- and paleogeographically-referenced (spatially and temporally) digital earth database so a researcher, teacher or student can not only access the comprehensive datasets, but also analyze the data spatially, temporally and genetically. A formal proposal has been submitted to IUGS EC. This plan will be finally decided in the IUGS EC meeting held in February, 2019 in Beijing

- 2) Publishing the revised version of the proposals, organizing the field excursions and establishing the remaining two GSSPs for the Cisuralian.
- 3) Continue to work on the Guadalupian GSSPs and global correlation for chemostratigraphy and geochronologic calibration. Publish the official papers for the three Guadalupian GSSPs.

Officers and Voting Members since August, 2016

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