

some of the correlation tools has been ongoing, but I do include a summary of the current status for this proposal on page 15 and I ask *Permophiles* readers to send comments to Shuzhong Shen and myself by April 15, 2011. Work is also progressing on the other remaining GSSP proposals (base-Sakmarian and base-Kungurian) and my goal is to be able to announce at the IGC meeting in Brisbane that “the Permian GSSP process is complete”. You can expect two issues of *Permophiles* in 2011.

My annual report to ICS was submitted December 4, 2010 and is included in this issue. The time scale at the back of this issue on page 33 is modified from the previous issue and this is the current version planned for the next Global Time Scale book, but there may be a few revisions yet.

Our most important meeting this year will be the International Congress on the Carboniferous and Permian, Chaired by Zhong Chen and held at Perth, Australia this July. Information about the meeting can be found in this issue or by visiting the website at www.iccp2011.org/. Abstract deadline is April 1, 2011. There are some excellent sessions and fieldtrips planned! We will have a business meeting at ICCP and one item will be information about the nomination procedure for the next executive. I will be retiring from the Chair position at the Brisbane IGC meeting in 2012.

REPORTS

SUBCOMMISSION ON PERMIAN STRATIGRAPHY ANNUAL REPORT 2010

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 Subcommission’s primary objective is to define the series and stages of the Permian, by means of internationally agreed GSSP’s, and to provide the international forum for scientific discussion and interchange on all aspects of the Permian, but specifically on refined regional correlations.

Fit within IUGS Science Policy: The objectives of the Subcommission 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. Establishment of framework and systems to encourage international collaboration in understanding the evolution of the Earth during the Permian Period.

3. ORGANIZATION

The Subcommission has an Executive consisting of a Chairman, a Vice-Chairman, and a Secretary; all three are Voting Members of the Subcommission. There are sixteen total Voting Members representing most regions of the world where Permian rocks are exposed. The objectives of the Subcommission are pursued by both stratigraphic and thematic Working Groups that are retired upon completion of their directed task. For example, the Working Groups on the Carboniferous-Permian Boundary, on the Guadalupian stages (Middle Permian), on the base-Lopingian boundary (base-Wuchiapingian Stage), and on base-Changhsingian have been retired upon the successful establishment of their defining GSSP’s and ratification by IUGS. The current working groups include the following: 1. Cisuralian stages, 2. Continental Permian, 3. Transitional biotas as gateways for global correlation, 4. Neotethys, Paleotethys, and S. China Correlations, and 5. International Lopingian Working Group.

3a. OFFICERS FOR 2008-2012:

Chair: Professor Charles M. Henderson, University of Calgary

Vice-Chair: Dr. Vladimir Davydov, Boise State University

Secretary: Dr. Shuzhong Shen, Nanjing Institute of Geology and Palaeontology

SPS website is located at www.nigpas.ac.cn/permian/web/index.asp. This site includes all back issues of *Permophiles* in downloadable PDF format (#1 in 1978 to #54 December 2009). A link

to *Permophiles*/Permian research has also been established at www.ucalgary.ca/conodont/spis.

4. INTERFACES WITH OTHER INTERNATIONAL PROJECTS

SPS interacts with many international projects on formal and informal levels. SPS has taken an active role on the development of integrated chronostratigraphic databases by participating with CHRONOS and PALEOSTRAT (now GeoStratSys), which are NSF funded initiatives. Vladimir Davydov and Walter Snyder are concentrating on developing their system to include improved taxonomic dictionaries, database sharing and manipulation with GeoStratSys. SPS is also involved in a NSFC supported study comparing the Proterozoic-Cambrian transition with the Permian-Triassic transition.

5. CHIEF ACCOMPLISHMENTS AND PRODUCTS IN 2010

GSSPs: Progress was made on the three remaining Lower Permian (Cisuralian) stage GSSPs including base-Sakmarian, base-Artinskian, and base-Kungurian. We have decided to change the section and point for the base-Sakmarian to the Usolka section and a proposal will be voted on in 2011. The Kondurovsky section failed to reproduce the requisite conodont results and problems about the evolution of *Sweetognathus merrilli* were

discussed during ICOS2009. Fortunately, the Usolka section had been fully worked up as a potential parastratotype and we have excellent carbon isotope, U-Pb isotopic ages and abundant conodonts to define the boundary. A penultimate proposal for the base-Artinskian is appearing in *Permophiles* 55. At both of these sections the Sr isotopes of conodonts have also been shown to be an accurate correlation tool. The SPS community will be invited to give input on the Artinskian proposal and based on that input a revised proposal will be submitted to SPS voting members in April 2011 for voting. Finally, it was decided that the Mechetlino section in Russia is not satisfactory for a GSSP – samples did not yield conodonts, zircons are all reworked, and the rocks are too deeply weathered to produce meaningful carbon isotopic values. Two sections in the United States, which have already been extensively studied are now being considered as potential GSSPs using the same point (FAD of *N. pnevi*); these include the Cassia Mts in southern Idaho and Rockland sections in northern Nevada. Detailed samples were collected in early July 2010 by Bruce Wardlaw, Charles Henderson, Vladimir Davydov and Mark Schmitz at the Rockland section. Conodonts, fusulinids and Sr isotopes for these samples will form the basis to make a GSSP preliminary proposal during the winter 2011 and a workshop is planned in early June (see budget request).

Publications: The December 2010 issue of *Permophiles* (#55) was produced online during the Fall of 2010 and will be distributed as a pdf document to a mailing list of 280. Owing to reduced submissions SPS is producing only one issue in 2010 (#55), which will go online in late December 2010. We have a complete series of *Permophiles* on our website (1978 to 2009).

Meetings: The SPS conducted a business meeting in association with the ICS business meeting in Prague, Czech Republic during late May 2010.

Membership: There were no changes to the membership in 2010. We have 17 voting members representing Argentina (1), Australia (2), Canada (1), China (3), France (1), Germany (1), Italy (1), Japan (1), Russia (3), and United States (3). We also have five honorary Members.

6. CHIEF PROBLEMS ENCOUNTERED IN 2010

There were no major problems in 2010, but progress is slow owing to the voluntary nature of most of this work and minimal financial support.

7. SUMMARY OF EXPENDITURES IN 2010:

INCOME

University of Calgary (1): \$2084.00

NIGPAS (2): \$2,000.00

ICS (3): \$ 2,700.00

TOTAL: \$6784.00 (quoted in US\$ using 0.99 as the conversion from Canadian\$). (1) University of Calgary support from NSERC grant to Charles Henderson for travel to ICS workshop and Wells Nevada for fieldwork. (2) NIGPAS (Nanjing Institute of Geology and Palaeontology) support from NSF-C grant to Shuzhong Shen for travel to ICS workshop. (3) ICS allocation to SPS \$1500 and \$1200 for travel to ICS workshop..

EXPENDITURES

Printing, Mailing, and Web support *Permophiles*: \$250.00

Travel costs to Prague \$4603.50.00 (Henderson and Shen)

Travel costs for *Permophiles* Production: \$0

Travel costs for Wells Nevada fieldwork \$1930.50

TOTAL: \$6784.00 (quoted in US\$)

BALANCE: \$0.00

8. WORK PLAN, CRITICAL MILESTONES, ANTICIPATED RESULTS AND COMMUNICATIONS TO BE ACHIEVED NEXT YEAR (2011):

1. Production of *Permophiles* #56 in Calgary during summer 2011.

2. Vote on base-Artinskian in April 2011.

3. Vote on base-Sakmarian in 2011.

4. Workshop for base-Kungurian in Boise Idaho and Wells Nevada.

4. SPS business meeting during ICCP meeting in Perth Australia during July 2011.

5. Production of *Permophiles* #57 in China late 2011 or early 2012.

6. Completion of new GSSP proposal for base-Kungurian by September 2011.

My major goal is to complete the GSSP process for the Permian stages prior to the IGC in Brisbane in August 2012.

9. BUDGET AND ICS COMPONENT FOR 2010 EXPENDITURES

We have sufficient leftover funds for the minor cost of website and printing. The primary budget request for 2011 is for a workshop at Boise Idaho with field excursion to the Rockland Section near Wells Nevada. This workshop is essential if we are to convince the international Permian community that the Rockland section is appropriate for the base-Kungurian GSSP. This is the biggest hurdle confronting SPS because we have rejected a long viewed potential section in Russia. This workshop is essential for SPS to complete the GSSP process before IGC in 2012. Financial support is necessary to bring at least 3 foreign researchers (at least one from Russia) to Boise Idaho by paying for airfare and subsidizing accommodation (\$5000). Other SPS members will be invited, but subsidies will be limited (\$1000). Workshop will be conducted over two days at Boise State University in early June 2011 with fieldtrip to the potential GSSP field site. Fieldtrip costs will include vehicle rentals and 2 night's accommodation in Wells Nevada (\$2000) for the group. Samples can be collected by participants. Workshop at Boise State will include presentations and viewing of conodonts and fusulinids as well as the isotope labs of Mark Schmitz. SPS Executive will attend using their research funding. They will also attend the ICCP meeting in Perth in July 2011 using their own funds.

TOTAL 2009 BUDGET \$8,000.00

Income

Support for trip to Boise from University of Calgary (Henderson; NSERC) \$750.00

Support for trip to Boise from NIGPAS (Shen; NSF-C) \$2,000.00

Support from Boise State (Davydov; NSF) \$250.00
Requested ICS contribution (1) \$5,000.00

TOTAL BUDGET REQUEST (ICS) \$5,000.00

10. REVIEW CHIEF ACCOMPLISHMENTS OVER PAST FIVE YEARS (2006-2010)

The SPS has approved the general divisions of the Permian and has now had 6 GSSP's ratified by ICS and IUGS (Asselian, Roadian, Wordian, Capitanian, Wuchiapingian, Changhsingian).

Proposals for the latter two stages were published in Episodes in 2006. Support for documentation (fieldwork and publications) of the various chronostratigraphic methods for the establishment of the GSSP's has been the most outstanding and differentiating character of this Subcommittee. Substantial work has been conducted toward producing excellent proposals for the remaining stages. *Permophiles* has become an internationally respected newsletter and bears an ISSN designation (1684-5927) and is deposited in the National Library of Canada; nine issues were published during the five year period.

11. OBJECTIVES AND WORK PLAN FOR NEXT 2 YEARS (2010-2012)

The primary objectives are to complete the GSSP's for the last three GSSP's (Sakmarian, Artinskian, and Kungurian. We will produce one or two issues of *Permophiles* each year depending on input. We anticipate the following schedule:

1. Vote on base-Artinskian in April 2011.
2. Vote on base-Sakmarian in 2011.
3. **Workshop** to decide feasibility of base-Kungurian. Boise State University in June 2011.
4. Business meeting at International Congress on Carb and Permian July 2011; Perth Australia.
5. Production of *Permophiles* 56 and 57.
5. Election process for new executive including SPS Chair to take effect at IGC, Brisbane 2012.

Once the GSSP process is completed SPS will shift focus toward three directions beginning in 2012:

1. correlations into continental deposits,
2. correlations across provincial boundaries and within the Tethys region,
3. detailed documentation of the geologic evolution of the Earth during the Permian with respect to the established chronostratigraphic framework.

12. WEBSITE STATUS AND ACTIVITIES:

SPS website is located at www.nigpas.ac.cn/permian/web/index.asp. This site is updated regularly and includes all back issues of *Permophiles* in downloadable PDF format (#1 in 1978 to #54 December 2009) as well as other information about SPS activities including annual reports, membership.... Shuzhong Shen at Nanjing China maintains the site and Henderson and Shen both have administrator rights.

13. FOUR YEAR SUMMARY OF ACTIVITIES:

GSSP's: The base-Wuchiapingian and base-Changhsingian

(Upper Permian or Lopingian Series) GSSPs were published in Episodes (volume 29, No. 3&4) in 2006. Progress was made on the three remaining Lower Permian (Cisuralian) stage GSSPs including base-Sakmarian, base-Artinskian, and base-Kungurian. An international field excursion was conducted in early July 2007 (reported in *Permophiles* #49; p. 4-6) and samples for carbon isotopes, geochronology and biostratigraphy were collected and have now been processed. The geochemical samples will provide further correlation potential for the proposed GSSPs; these materials are being analyzed at Boise State University and the Nanjing Institute of Geology and Palaeontology. The biostratigraphy samples will determine reproducibility of GSSP definitions. Decisions have been made on the basis of this new work and this is described above in section 5. The most significant decision was to reject the base-Kungurian section at Mechetlino. Detailed samples were collected at the Rockland section in Nevada and a workshop is proposed to consider the feasibility of this section.

Publications: The June 2006 issue of *Permophiles* (#47) was produced at Nanjing China during June 2006 and distributed as a pdf document to a mailing list of 280. The December 2006 issue of *Permophiles* (#48) was produced at the University of Calgary during November 2006 and distributed as a pdf on our website. We now have a complete series of *Permophiles* on our website (1978 to 2006). The June 2007 issue of *Permophiles* (#49) was produced at Nanjing China during June 2007 and distributed as a pdf document to a mailing list of 280. The December 2007 issue (#50) was produced in January 2008 after a field excursion to Australia. June 2008 issue (#51) was produced in Calgary in July 2008. December 2008 (#52) was produced online in January 2009 and #53 was produced in July 2009 in Calgary and #54 was produced online. We now have a complete series of *Permophiles* on our website (1978 to 2009).

Meetings: The SPS conducted one business meeting at the 2nd International Palaeontology Congress in Beijing, China in June 2006. The SPS conducted one business meeting at the XVI International Congress on the Carboniferous and Permian in Nanjing, China in June 2007 and is reported in *Permophiles* #49. Business meetings were held in Sydney Australia (January 2008; *Permophiles* #50) and IGC in Oslo (August 2008). In 2009 business meetings were held in Trelew Argentina and at ICOS2009 in Calgary. A business meeting was held at Prague, Czech Republic in late May 2010 during the ICS workshop.

Membership: Two changes were made to voting membership in 2006. Dr. John Utting retired as a voting member and was named by the SPS Executive as a Honourary Member given his long service to SPS (past Secretary) and distinguished research record in Late Paleozoic palynology. Dr. Lucia Angiolini was nominated by the executive to fill this vacancy. This increased the membership from Europe bringing it more in line with other major regions. Secondly, we sadly lost our distinguished colleague and friend Professor Jin Yugan who died in June 2006 (see *Permophiles* 48 for a tribute). His was a very distinguished career in Late Paleozoic paleontology and service including as a past-Secretary and past- Chairman of SPS. He has been replaced as a voting member by Professor Yue Wang. There were no changes to the membership in 2007, but as noted in the 4 year summary we have made several changes over the past four years. In addition,

the current executive will continue for a second term. We currently have 16 voting members representing Australia (2), Canada (1), China (3), France (1), Germany (1), Italy (1), Japan (1), Russia (3), and United States (3). We also have five honorary Members. No changes in 2008. In 2009 we added one new voting member, Dr. Nestor R. Cuneo from Argentina to add to our complement noted above. There were no changes to the membership in 2010.

Summary (2006-2010): Two GSSP proposals for the base-Wuchiapingian (also base-Lopingian Series) and base-Changhsingian were prepared, voted, ratified and published in Episodes during the past four years. Significant progress has been made on the last three Cisuralian GSSP proposals for the base-Sakmarian, base-Artinskian, and base-Kungurian stages. An international workshop was conducted in July 2007 to determine reproducibility and accessibility as well as collect new geochemical data. During the reporting period, *Permophiles* #47 to #54 have been produced with #55 to come later this year. In addition, a website was constructed and hosted by the Nanjing Institute of Geology and Palaeontology during the reporting period. Among other items, this website has pdf versions of all issues of *Permophiles* dating back to #1 in 1978.

APPENDIX

Officers and Voting Members as of November 2010

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