

2014 PROGRESS REPORT OF THE JOINT DEVONIAN-CARBONIFEROUS BOUNDARY GSSP REAPPRAISAL TASK GROUP

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Introduction and general activities

The Devonian-Carboniferous (D-C) boundary task group is conducting paleontological and multi-disciplinary research on several continents. During the fiscal year, the group continued with its primary tasks (see Richards & task group, 2010; Aretz, 2011) – the search for a suitable criterion for redefinition of the D-C boundary and the hunt for a suitable section for the GSSP. Studies by Ji *et al.* (1989) and subsequent analysis (Kaiser, 2009) demonstrated severe problems exist with the D-C boundary GSSP (Paproth *et al.*, 1991) at La Serre Hill, France. The boundary at La Serre is currently defined by the first occurrence of the conodont *Siphonodella sulcata* (Huddle, 1934) in the lineage *Siphonodella praesulcata* Sandberg, 1972 to *S. sulcata*.

The task group on the Devonian-Carboniferous boundary was not very active in the last fiscal year, mainly due to the important work load of the task-group members including the task-group leader. However, individual members continue to work and publish results of their research. These are important contributions, since it will help the task group to progress in the next years. The task group agreed during the workshop at Erfoud, Morocco in 2013 to compile detailed data sets for the best boundary sections throughout the world and to start to correlate these sections. This aim for 2014 was not achieved, but it remains the prime target and duty for the next year since it is the basis for any successful work in the future.

Reports from Task-Group members

Barry Richards (Calgary, Canada)

Richards & colleagues (Mark Schmitz and Vladimir Davydov at Boise State, Idaho; Jeffrey Over at SUNY-Geneseo, New York; Tim Hartel, Calgary) continued studies of the upper Famennian to lower Tournaisian (includes Exshaw and Bakken formations) in the Western Canada Sedimentary Basin (WCSB) (Richards *et al.*, 2002) and adjacent Montana to see if the main events in the multi-phase Hangenberg Event Interval (Kaiser *et al.*, 2008), can be more precisely located in the region using a multidisciplinary approach combining U-Pb radiometric dating (Thermal Ionization Mass Spectrometry CA-TIMS), stable carbon isotope chemostratigraphy ($\delta^{13}\text{C}$), conodont biostratigraphy, and magnetic susceptibility. Activities included continued processing of volcanic ash collected from the Exshaw and Banff during previous years for U-Pb dating and the additional sampling of the Exshaw black shale at three outcrop sections (Jura Creek, Mount Rundle, and Highway 3 at Crowsnest Lake) in the southern Canadian Rockies for stable carbon isotope ($\delta^{13}\text{C}$) chemostratigraphic and magnetic susceptibility studies. Samples have been submitted from the three sections for stable carbon isotope studies but the analyses require completion to determine the location of the typical positive ($\delta^{13}\text{C}$) excursion at the onset of the Hangenberg Event.

References

ARETZ, M. (2011): Report on the workshop of the task group for defining the Devonian-Carboniferous Boundary. — *Subcommission on Devonian Stratigraphy Newsletter*, **26**: 18–20.

- HUDDLE, J.W. (1934): Conodonts from the new Albany Shale of Indiana. — *Bulletins of American Paleontology*, **21**(72): 1–136.
- JI, Q., WANG, Z., SHENG, H., HOU, J., FENG, R., WEI, J., WANG, S., WANG, H., XIANG, L. & G. FU (1989): The Dapoushang section an excellent section for the Devonian-Carboniferous Boundary stratotype in China. — *Science Press*, Beijing, China, 148 p.
- KAISER, S.I. (2009): The Devonian/Carboniferous boundary stratotype section (La Serre, France) revisited. — *Newsletters on Stratigraphy*, **43**: 195–205.
- KAISER, S.I., STEUBER, T. & R.T. BECKER (2008): Environmental change during the Late Famennian and Early Tournaisian (Late Devonian-Early Carboniferous): implications from stable isotopes and conodont biofacies in southern Europe. — *Geological Journal*, **43**: 241–260.
- PAPROTH, E., FEIST, R. & G. FLAJS (1991): Decision on the Devonian-Carboniferous boundary stratotype. — *Episodes*, **14**: 331–336.
- RICHARDS, B.C. & task group (2010): Report of the joint Devonian-Carboniferous Boundary GSSP reappraisal task group. — *Newsletter on Carboniferous Stratigraphy*, **28**: 26–30.
- RICHARDS, B.C., ROSS, G.M. & J. UTTING (2002): U-Pb geochronology, lithostratigraphy and biostratigraphy of tuff in the Upper Famennian to Tournaisian Exshaw Formation: evidence for a mid-Paleozoic magmatic arc on the northwestern margin of North America. *In*: HILLS, L.V., HENDERSON, C.M. & E.W. BAMBER (eds.), *Carboniferous and Permian of the World*. — *Canadian Society of Petroleum Geologists, Memoir* **19**: 158–207.
- SANDBERG, C.A., STREEL, M & R.A. SCOTT (1972): Comparison between conodont zonation and spore assemblages in the Devonian-Carboniferous boundary in the western and central United States and in Europe. Septième Congrès International de Stratigraphie et de Géologie du Carbonifère, Krefeld 1971. — *Compte Rendu*, **1**: 179–203.

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