2013 WORK PLANS FOR DEVONIAN-CARBONIFEROUS BOUNDARY TASK GROUP

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During the November 1st, 2012 - October 31st, 2013 fiscal year, the primary tasks for the D-C Boundary task group will be the location of a suitable event marker to define the boundary and the discovery of a suitable section for the GSSP. A biostratigraphic analysis by Ji Qiang and his colleagues (Ji *et al*., 1989) and further work (Kaiser, 2009) indicates that there are problems with the D-C Boundary GSSP (Paproth *et al*., 1991) at La Serre, France and the conodont lineage used for boundary definition.

Considerable progress has been made on re-evaluating the lineage containing the current D-C boundary marker, the FAD of the conodont *S. sulcata*. Additional study of the lineage is required, however, and the task group plans to complete that work shortly. In the La Serre section, Corradini and Kaiser (2009) identified seven morphotypes in the transition from *S. praesulcata* to *S. sulcata*. Conodonts within the transition are reworked and no correlation exists between the stratigraphic level and individual morphotypes. The task group plans to determine if any correlation between the morphotypes and stratigraphic level exists in other D-C boundary sections, where reworking is not an issue.

Several task-group members have been studying the taxonomic and phylogenetic problems within the protognathodid conodont lineages (Corradini *et al*., 2011). Four species of *Protognathodus* are known from the relevant time span: *Protognathodus meischneri*, *P. collinsoni*, *P. kockeli* and *P. kuehni.* Presently favoured for boundary definition are the first occurrences of *P. kockeli* from *P. collinsoni* and *P. kuehni* from *P. kockeli.* The SCCS executive has asked the conodont specialists to evaluate the utility of using the lineages for boundary definition by studying them in their best D-C boundary sections.

If the FAD of *S. sulcata* is retained for boundary definition, a suitable section for the GSSP is required because work at La Serre (Ji *et al*., 1989; Kaiser, 2009; Corradini and Kaiser, 2009) indicates the lack of a phylogenetic transition from *S. praesulcata* to *S. sulcata* in that section. In addition, the section is not suitable because the first occurrence of *S. sulcata* occurs immediately above an abrupt facies change (ooid grainstone on sandy shale) that is probably erosional. Because of the potential break, task-group members are completing sedimentologic assessments of that contact and the entire section.

At recent meetings, it has been proposed that the task group consider using some component of the multiphase Hangenberg Event Interval (Kaiser *et al*., 2008) for boundary definition. Markus Aretz has asked members to prepare for the D-C boundary workshop in Morocco from (March 22nd – 29th, 2013; see circular in v 30 of Newsletter on Carboniferous Stratigraphy), by developing precise correlation charts for their regions of study showing the biostratigraphic, geochemical and depositional events within the Hangenberg Event.

Several of the D-C boundary projects that are planned for next four to five years are outlined below. 1) Vladimir Pazukhin along with Yuriy Gatovsky and Lyudmila Kononova (Moscow State University) plan to complete a monograph on the conodont biostratigraphy of D-C boundary interval in the Ural Mountains of Russia. The study will consider the interval from the Famennian *marginifera* Zone into the Tournaisian *isosticha* Zone. 2) Chinese colleagues along with the SCCS executive and task-group leaders initiated a re-assessment of the best D-C boundary sections in China by visiting the Dapoushang section (Ji *et al*., 1989) in southern Guizhou Province during the November 22nd - 29th 2010 SCCS workshop and field meeting. 3)

Task-group member Jiri Kalvoda and colleagues from the Czech Republic are conducting a multidiscipline project to study the D-C Boundary interval in Western and Central Europe including the La Serre section. The project's principal goal is the correlation of evolutionary changes in foraminifer and conodont faunas in the D-C Boundary interval with a high-resolution stratigraphic framework arising from multidiscipline stratigraphic-paleoenvironmental analysis. Anticipated benefits of the project for the ICS and SCCS are a better understanding of the *S. praesulcata - S. sulcata* lineage and whether or not it is suitable for definition of the D-C Boundary GSSP. Other conodont lineages relevant to the boundary (protognathodids lineages) will also be evaluated. The resulting high-resolution stratigraphy will be used to test the isochroneity of the events within the Hangenberg Event Interval and contribute to a better correlation between basinal and shallow-water successions. 4) In western Canada, Barry Richards intends to continue ongoing studies of the latest Famennian to early Tournaisian Exshaw Formation (see Richards *et al*., 2002) and its correlatives to see if the main events in the multi-phase Hangenberg Event Interval can be more precisely located in the formation by using a multidisciplinary approach that includes radiometric dating. The work is part of a broader investigation intended to access the hydrocarbon resources of the interval and will include examination of coeval correlatives (including Bakken Formation) in adjacent areas. 5) Carlo Corradini has several ongoing projects related to the D-C boundary study in various part of northern Gondwana. In Sardinia (Italy) the Monte Taccu section has been resampled, and a new section has been measured in the Clymeniae limestone of the southwestern part if the island. Further studies of D-C sections are being conducted in Iran (collaboration with A. Bahrami) and in the Montagne Noire of France. 6) Thomas Becker (Münster) and his research group plan to continue their investigation of the D-C boundary transition in Morocco, particularly at the Lalla Mimouna North section at the northern margin of the Maider region, SE Anti-Atlas Mountains. They are preparing the field guide for the spring 2013 field symposium that will be held in Morocco (The Devonian and Lower Carboniferous of northern Gondwana; March 22nd – 29th, 2013). The full set of conodont identifications from samples collected during 2011 and 2012 will be included in the Field Guide as an update to the preliminary reports in the SCCS and SDS Newsletters (Becker *et al*., 2011; 2012).

It is anticipated that the results from recent D-C boundary investigations that will be presented at the Morocco workshop in March 2013 will determine the future steps and directions of the task group's work in the next years. The primary task of the group remains, however, to locate either a suitable event horizon or a suitable event in a biological lineage to define the D-C boundary.

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