Revision of the late Famennian miospore zonation scheme in eastern Belgium, correlation with the conodont zonation and consequence for intercontinental correlations

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The *Diducites versabilis-Grandispora cornuta* (VCo) Zone was defined by Streel *et al.* (1987) as an Oppel Zone i.e. a zone characterized by an association or aggregation of selected miospore species of restricted and largely concurrent range. Judgement may vary as to how many and which of the selected diagnostic taxa need to be present to identify the zone (Hedberg 1976). The VCo Zone was defined by the first appearance of *Grandispora cornuta* and *Rugospora radiata* (then *flexuosa*) in the Upper Famennian of the Ourthe Valley sections in Eastern Belgium. A major problem had arisen with regard to the use of *Rugospora radiata* as a zonal index species for the VCo Biozone, because of difficulties in discrimination between *R.radiata* and the morphologically similar late Frasnian-early Famennian taxon *Rugospora bricei* Loboziak & Streel (1989). These identification difficulties resulted in the older stratigraphical extension of the VCo Zone range in some regions. Consequently, a morphological redefinition of *Rugospora bricei* and *R. radiata* is presented here, which permits a redefined *R. radiata* to be used to mark the base of a new *Rugospora radiata* (Rad) interval zone which coincides with the former base of the VCo Zone.

A detailed morphological analysis of the VCo zonal species *Grandispora cornuta* and other related *Grandispora* species is presented from new material obtained from the Namur and Dinant synclinoria in Belgium and old published material. This analysis allows a clearer distinction of *Grandispora cornuta* from the similar and more abundant *Grandispora tamarae,* a species known to first appear in the Late Frasnian. A new *Grandispora cornuta* (Cor) Interval Zone is defined with its base corresponding to the top of the *radiata* (Rad) Interval Zone and its top corresponding to the base of the overlying *Apiculiretusispora verrucosa-Vallatisporites hystricosus* (VH) Oppel Zone as defined by Maziane *et al*. (1999). The VH Oppel Zone is here subdivided into two interval zones, the *verrucosa* Interval (Ver) Zone and succeeding *hystricosus* Interval (Hys) Zone. These four successive miospore interval zones are here correlated with the Upper Famennian *trachytera* to Middle *expansa* conodont zones known in the Ourthe Valley. In addition, palynological correlations of these miospore interval zones between Western Europe, Eastern America and Western Gondwanan regions are attempted.

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High resolution miospore stratigraphy of the Upper Famennian of eastern Belgium, and correlation with the conodont zonation

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