Carboniferous (Dinantian) stratigraphy in 3 deep boreholes from the Dublin Basin, Ireland

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Abstract

Abstract: In recent years, the Carboniferous rocks of Ireland have become the main target for deeper geothermal exploration (Pracht et al. 2021). This transition from shallow (< 100m) to deep (> 500m) drilling by the Geological Survey of Ireland provides an excellent opportunity to re- evaluate some of the established stratigraphy. The 'Grangegorman' borehole was drilled on the campus of Dublin City University near the centre of Dublin and the Dublin Basin. It penetrated 998m of lower Viséan basinal limestone and mudstone. Two deep boreholes were drilled on the northern shelf/basin margin in the townlands of 'Attymany' and 'Streamsford', southeast of the town of Athenry. Here c.200m to 476m of basinal limestone overlay 177m to c.700m ramp and shelf limestone in which they terminate.

The Dublin Basin s.l. as we see it today (**Figure 1**, the grey coloured areas)) consists of an assemblage of variously named basins, sub-basins and troughs separated by structural highs and platforms. They are the result of the break-up of the Tournaisian carbonate ramp (Strogen et. al. 1996).or obvious reasons, the shallow marine platforms have received most attention. The stratigraphy of the various basins itself has received little attention, and our understanding of basin geometry, subsidence rates and evolution is largely based on extensively studied research 'hotspots', such as Navan and Tynagh.

Keywords: Ireland, Carboniferous, Mississippian, Dinantian, Dublin Basin, stratigraphy, deep boreholes

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