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Correlation of Basal Cambrian Sandstones Across North America

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Correlation of Basal Cambrian Sandstones Across North America

A thin, widespread sequence of siliciclastic strata ranging from lower to upper Cambrian age overlies Precambrian crystalline and metamorphic basement rock bounded by the Great Unconformity. This sequence is mainly comprised of basal Cambrian sandstones which can be subdivided into three distinct suites of lithofacies transitioning in age across most of North America. From the west, which is most notable for the Tapeats sandstone of Arizona and Nevada, lies gravelly to boulder sized conglomerates directly overlying basement rock. Eastward, the lower to middle Cambrian consists of a variety of ledge-forming sandstones which contain various areas rich in cross bedded, as well as planar laminated or tabular formations. Further east the upper Cambrian contains a layer dominated by interbedded sandstones and shales. This three-part transitional sequence from lower to upper Cambrian age is well documented as part of the first great marine transgression of North America; however, correlation studies in order to trace the transgression's full geographical extent are sparse. Here, stratigraphic correlation charts from across North America are studied in order to more precisely match equivalent basal sandstones across the continent. Stratigraphic sections are studied, sketched, and correlated lithostratigraphically. Correlated units are then plotted into isopach maps in order to establish thickness change throughout the transgressive sequence. From these studies, it is apparent this Cambrian transgression may not be limited to the geographical extent of North America, but was likely a worldwide transgression as result of eustatic sea-level rise. This is consistent with chapters six through nine of Genesis in the Old Testament, which describes the events of a worldwide catastrophic flood, which would be well marked in geologic history by a worldwide marine transgression spanning most of the earth.