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Can we recognize post-fire erosion in deep time?

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Post-fire erosion has been widely reported following many recent fires. Reports have indicated that erosion and subsequent sedimentation rates may be increased 30 fold. Evidence of post-fire erosion events have also been widely reported in the historical record yet such events has not been reported in the Pre-Quaternary fossil record. This may not only be a result of sedimentologists not being aware of the phenomenon but also from the fact that there are no clear guidelines for the recognition of the deposits from such events. The occurrence of macroscopic charcoal in sediments that show evidence of unusual characteristics with respect to background sedimentation, combined with evidence of rapid sedimentation, may all provide some criteria for the recognition of post-fire erosion events. Such events may have an impact not only on the sedimentary system but may affect the living biota as well as providing a mechanism for burying large quantities of inert carbon. Examples from the late Devonian/ Early Carboniferous (Mississippian) of Svalbard, the mid Mississippian of Ireland and Scotland, the Pennsylvanian of North America, the Permian of Australia, the Middle Jurassic of England and the early Cretaceous of England and Canada will all be used to indicate criteria by which such deposits may be recognized.