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Variations of Minor elements during MIS3a in the glacial tills at Mt.Yulong, South-eastern Tibetan plateau

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Several profiles of glacial varve sediments in Mt.Yulong (27°7'43"N, 100°14'53"E) were found and sampled recently, where is the lowest latitude alpine glacier-covered area in the region of south-eastern Tibetan Plateau influenced by South Asian monsoon. High resolution X-ray fluorescence (mXRF) was firstly applied to observe and describe these sediments in details, and the varve sediments are dated between 31620±180 and 38230±380BP determined by 14C dating [U+FF0C] corresponding to Marine Isotope Stage 3a(MIS3a). Minor elements in the glacial till can be related to precipitation amount because this kind of accumulation is strongly affected by monsoon rainfall in the region. 4 general circle variations have been identified in the varve sediments. The changes of analyzed lithogenic elements [U+FF08] Ga, Si, Fe [U+FF0C] Sr [U+FF0C] Zr [U+FF09] in the sediments show distinct centennial to millennial variable features during MIS3a. Principal components analysis of our geochemical dataset suggests a close link between high Rb/Sr ratio, Mn/Fe ratio and Zr abundance in the deposition that could be dealing with both chemical weathering process and hydrological process.

Key Words: Minor elements, MIS 3a, Glacial till, Mt.Yulong, South-eastern Tibetan plateau;