AGU FALL MEETING
San Francisco | 12–16 December 2016

PP21C-2296: Paleoenvironmental significance of Holocene widespread deposition of continental carbonates in Serra da Bodoquena, West-central Brazil

Tuesday, 13 December 2016
08:00 - 12:20
Moscone South - Poster Hall

Continental carbonates are used in paleoenvironmental reconstructions in several parts of the world. Tufas and unconsolidated micrites can provide valuable information about the environmental conditions during the period of deposition. When the deposits are discontinuous, their presence is evidence of a wet period with conditions that are favourable to deposition; the deposits can be a record of the hydrologic systems and paleoclimate of the period of deposition. Discontinuous periods of deposition could also indicate changes in hydrological conditions that were independent of changes in climate, such as by temporary activity of springs or changes in a river's position. Deposits of continental carbonates in Brazil are rare, but in the State of Mato Grosso do Sul, there are extensive deposits, especially in the Serra da Bodoquena karst area, which form expansive plains of unconsolidated micrite and phytohermal fluvial tufa. These deposits are collectively called the Serra da Bodoquena Formation. New radiocarbon and OSL ages confirm the Holocene as the age of The Serra da Bodoquena Formation which shows periods of more extensive deposition than today. Well-dated deposits of unconsolidated micrites from paleolakes indicate a deposition that occurred approximately 6,500 to 2,000 years BP. These deposits can be identified by their smooth textures, as compared to surrounding karst areas. Over the paleolake deposits, there are phytohermal tufas that can be identified adjacent to present-day fluvial channels, presenting irregular winding arcs and relict fluvial channels. These arcs correspond to the edges of ancient tufa dams. One ancient and inactive dam have radiocarbon ages between 680 and 895 cal years AD. Apparently, there was a distinct lack of deposition between approximately 2,000 and 1,270 years BP, after which the deposition is continuous. Younger radiocarbon ages of 670 to 550 cal years BP are found in terrace tufa deposits (present-day river channel). This work was supported by FAPESP (São Paulo Research Foundation, grant #14/14433-9) and CNPq (Scholarships).

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