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Speleothems and Past Climate Record from Himalaya and Meghalaya, India

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The speleothems (cave deposits) are located in the Himalaya and Meghalaya, which falls in the monsoon dominated northern and northeastern regions of India [Figs.;1,2]. Speleothems may serve as proxy indicators of paleoclimate, and provide information on annual temperature, rainfall and atmospheric circulation. Himalayan and Meghalayan speleothems have provided significant paleoclimate records based on oxygen isotopes and microfacies of growth layers (Figures1,2). The Inertropical Convergence Zone (ITCZ) over the Lesser Himalayan caves in Uttarakhand suggest that the precipitation is decreased southwards and it was located during wetter and warmer season.[2.3.4] The stalagmite from the Mustos cave in the Meghalaya (Fig. 2 below) shows the variation in the oxygen isotope values from -5 ‰ (VPDB) to -7 ‰ (VPDB) and the carbon isotope values vary from -0.5 ‰ (VPDB) to -3.6 ‰ (VPDB). The variation of $\delta^{18}\text{O}$ in stalagmites is related to the $\delta^{18}\text{O}$ values in the precipitation and the amount of precipitation during the monsoon season. A comparison of speleothem paleoclimate record from India has been done with other tropical monsoonal and subtropical regions of the northern and southern hemisphere.



The strength of the atmospheric circulations associated with Intertropical Convergence Zone (ITCZ) has been discussed.

[1] Tewari V.C.(2011) Jour. Indian Geol. Cong.,3 (1), 87- 104.

[2] Tewari V.C.(2013) In : *Proceedings of Selected Topics in Earth System Sciences*, 31-39

[3] Fleitmann et.al.(2007) *Quat.Sci, Rev.*, 26 (1) , 170-188

[4] Jaiswal, Jooly.(2015) In: 30th Himalaya-Karakoram–Tibet Workshop,Dehradun, India,201-202

