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## PP025-01 - A wet basin during dry times: a new Pliocene lake record from the Afar region, Ethiopia (Invited)

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Thursday, 10 December 2020



13:30 - 13:34

Lake records are critical archives for studying the climate and ecological history of Africa, but our ability to use them depends on their identification in the geologic record. We investigated a newly identified paleolake system exposed in the Godaya Valley in the Woranso-Mille study area, in the Afar region of Ethiopia. The > 55m-thick lacustrine-deltaic sequence,  $\geq 3.804 \pm 0.013$  to  $3.777 \pm 0.014$  Ma, extends from the base of local exposures up to a sequence of pyroclastic rocks, which is then capped by the basalts of the Am-Ado Plateau. There is remarkable lithologic continuity of the lake deposits across > 4 km of exposures; aerial extent of outcrop indicate that the lake was at least 9 km<sup>2</sup> and > 6-8 m deep. Delta lobes entered the lake from the northwest, similar to the current orientation of the modern Godaya River that flows east from the Ethiopian highlands. High sedimentation rates, Gilbert-type delta foresets, and the presence of debris flows suggest a rapidly filling basin surrounded by steep, nearby topography that is distinct from other Pliocene lake systems identified in the Afar.  $\delta^{13}\text{C}_{28\text{acid}}$  values of *n*-alkanoic acids derived from plant wax and pollen markers for Somalia-Masai shrubland/grassland indicate that vegetation in the catchment was dry C<sub>3</sub>-dominated



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