

## **Deposition and deformation of the Punaschotter conglomerate in the Fiambalá basin, NW Argentina**

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A switch from fluvial to alluvial fan deposition has been observed in a number of basins worldwide 2-4 Ma, the causes of which are debated. In Northwest Argentina, the Fiambalá basin exhibits this  $\sim$ 4 Ma transition in the deposition of the Punaschotter conglomerate, which represents an alluvial fan environment. We examine the deposition of the Punaschotter conglomerate in detail, as it appears to vary in age by up to a hundred thousand years in the Fiambalá basin. By presenting new structural data through a geologic map and multiple balanced cross sections, we aim to determine the cause of variation in deposition of the Punaschotter conglomerate. We hypothesize four possible explanations for the spread in deposition ages: (1) varied internal deformation in different parts of the basin initiated localized deposition, (2) wide-spread fan outlet spacing and slow sedimentation resulted in older ages close to fan centers, and younger ages on fan peripheries, (3) stochastic erosion removed sections of older material, resulting in apparent younger ages, (4) the apparently multiple ashes that span the boundary are in fact a single ash that has been re-worked through the stratigraphic section and the variation in age is therefore an artefact. Preliminary results indicate strong differences in deformation patterns within the basin. Punaschotter bedding in the north is predominantly sub horizontal and has a transitional contact with the underlying Guanchin formation. Towards the south, the Punaschotter is heavily faulted and folded and has multiple unconformable contacts with the Tamberia formation, which is stratigraphically lower than the Guanchin formation.