

# Late Pleistocene to Holocene glacial, periglacial and paraglacial geomorphology of the upper Río Limarí basin (30-31° S) in the Andes of central Chile

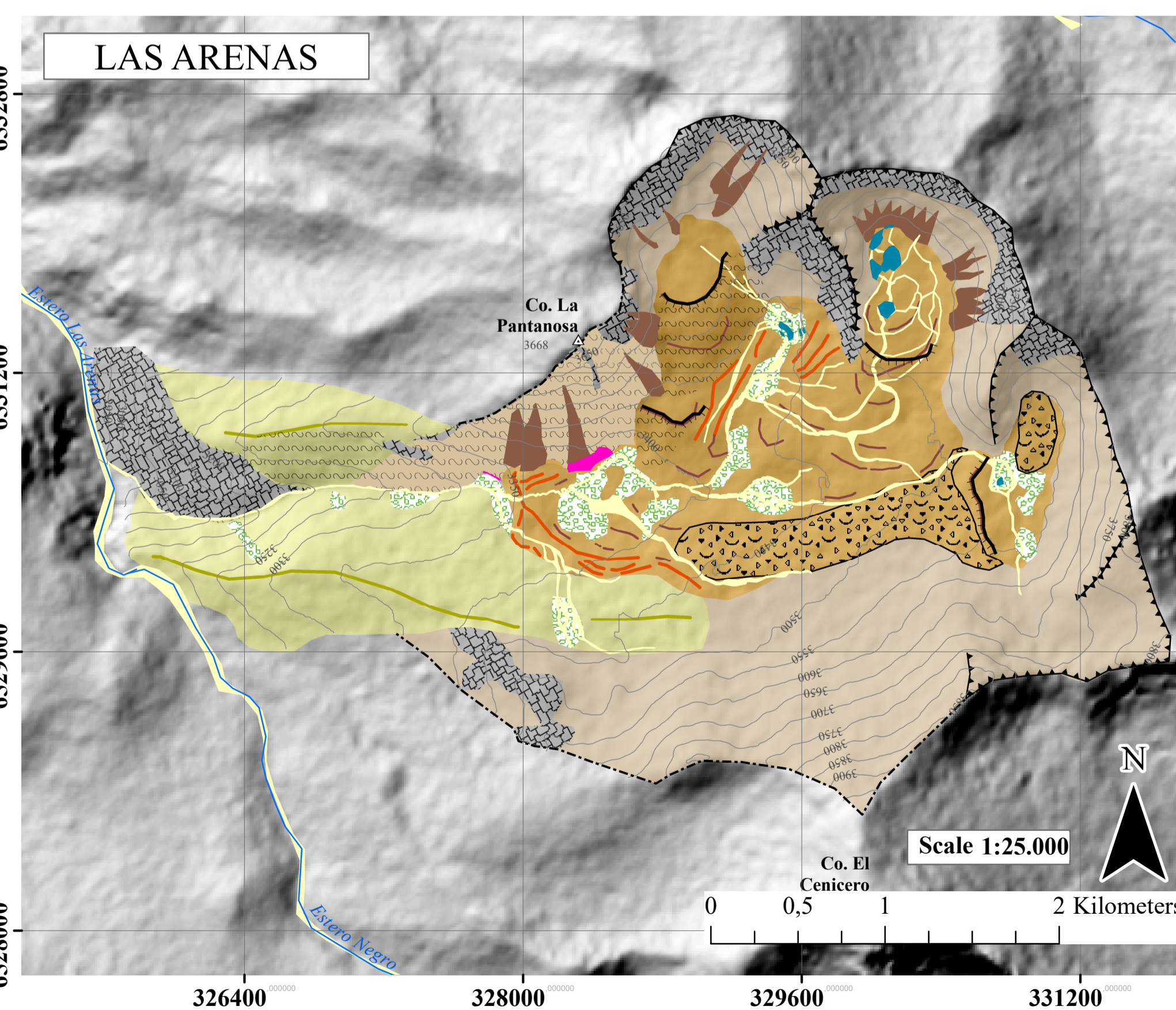
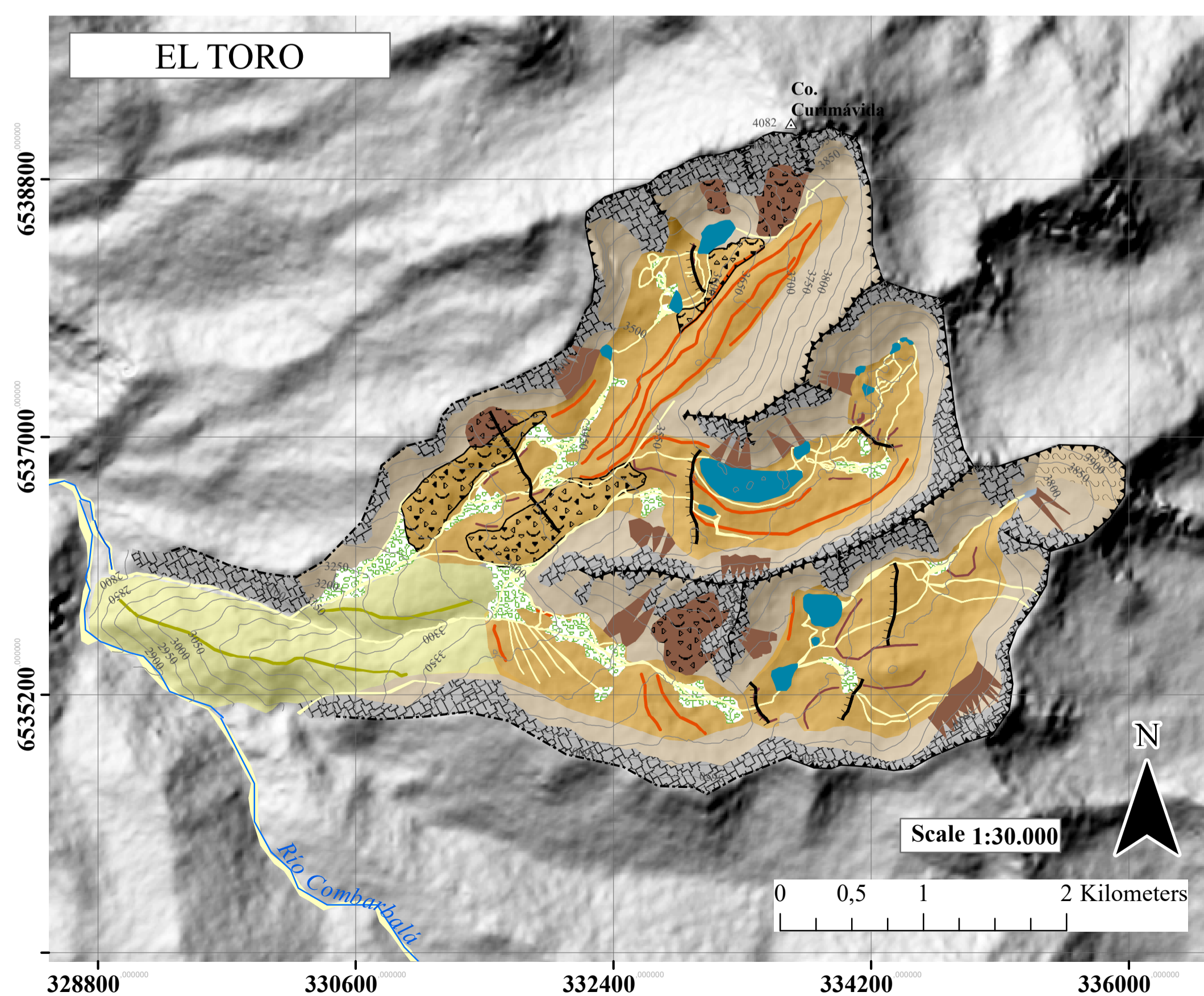
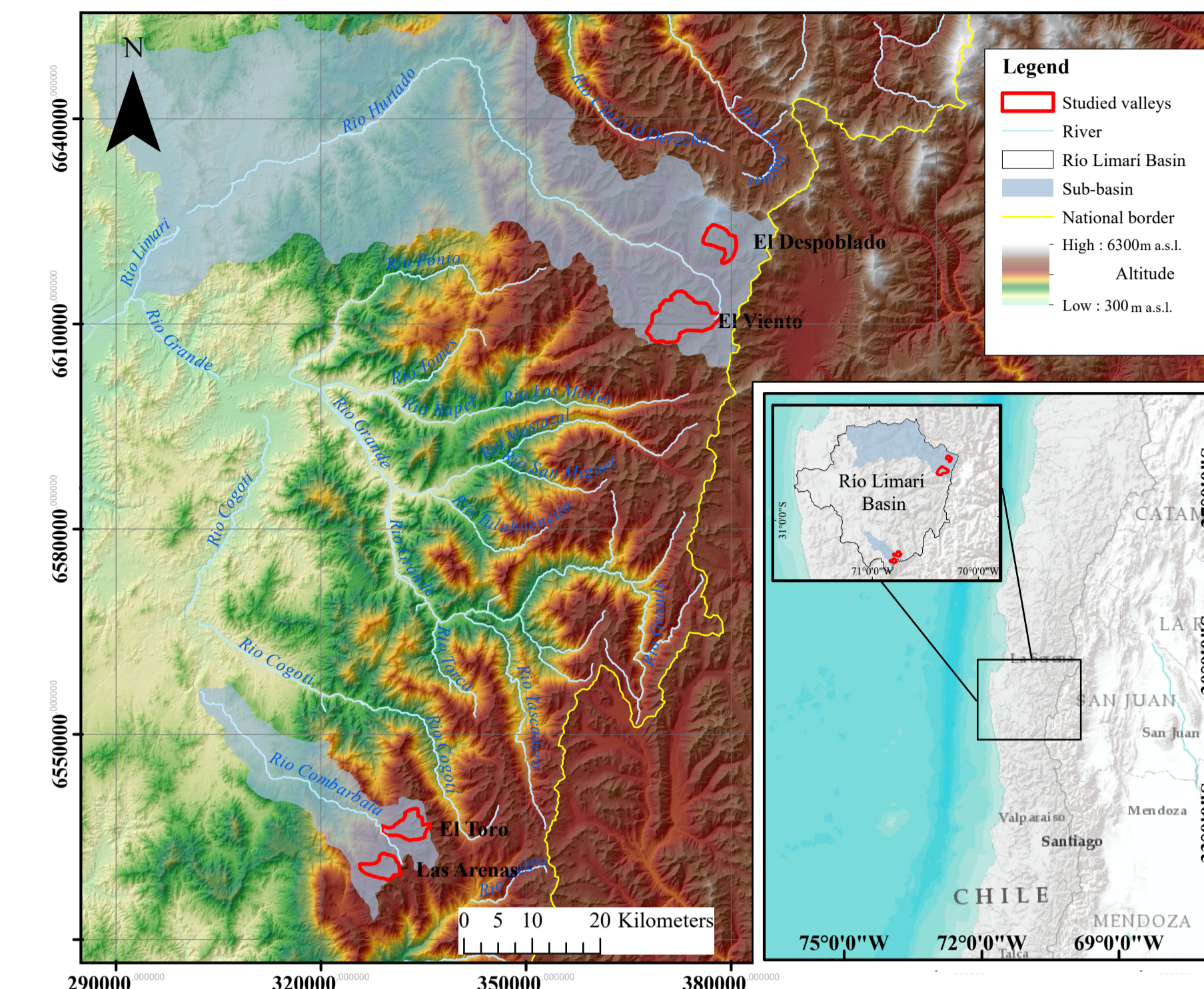
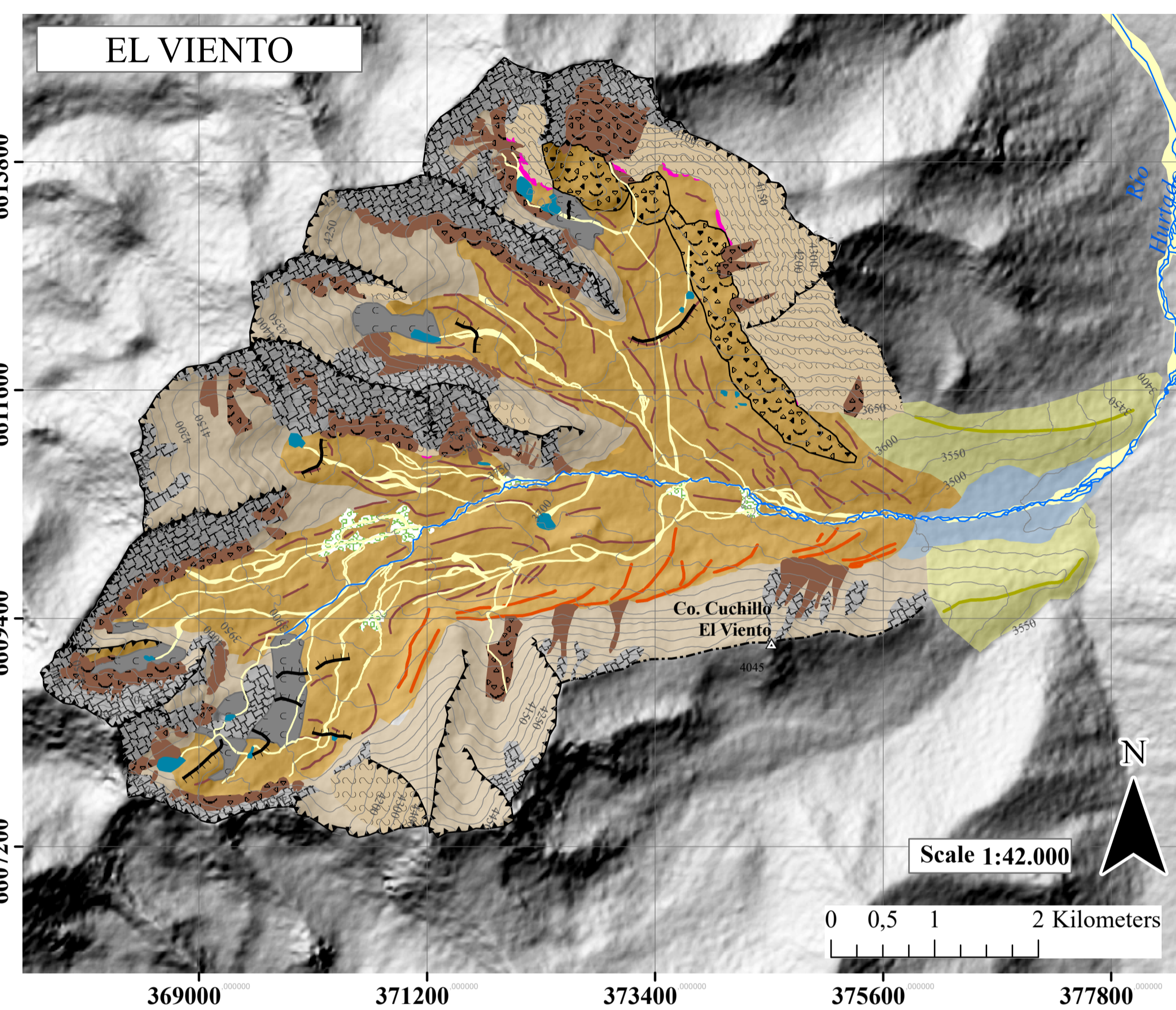
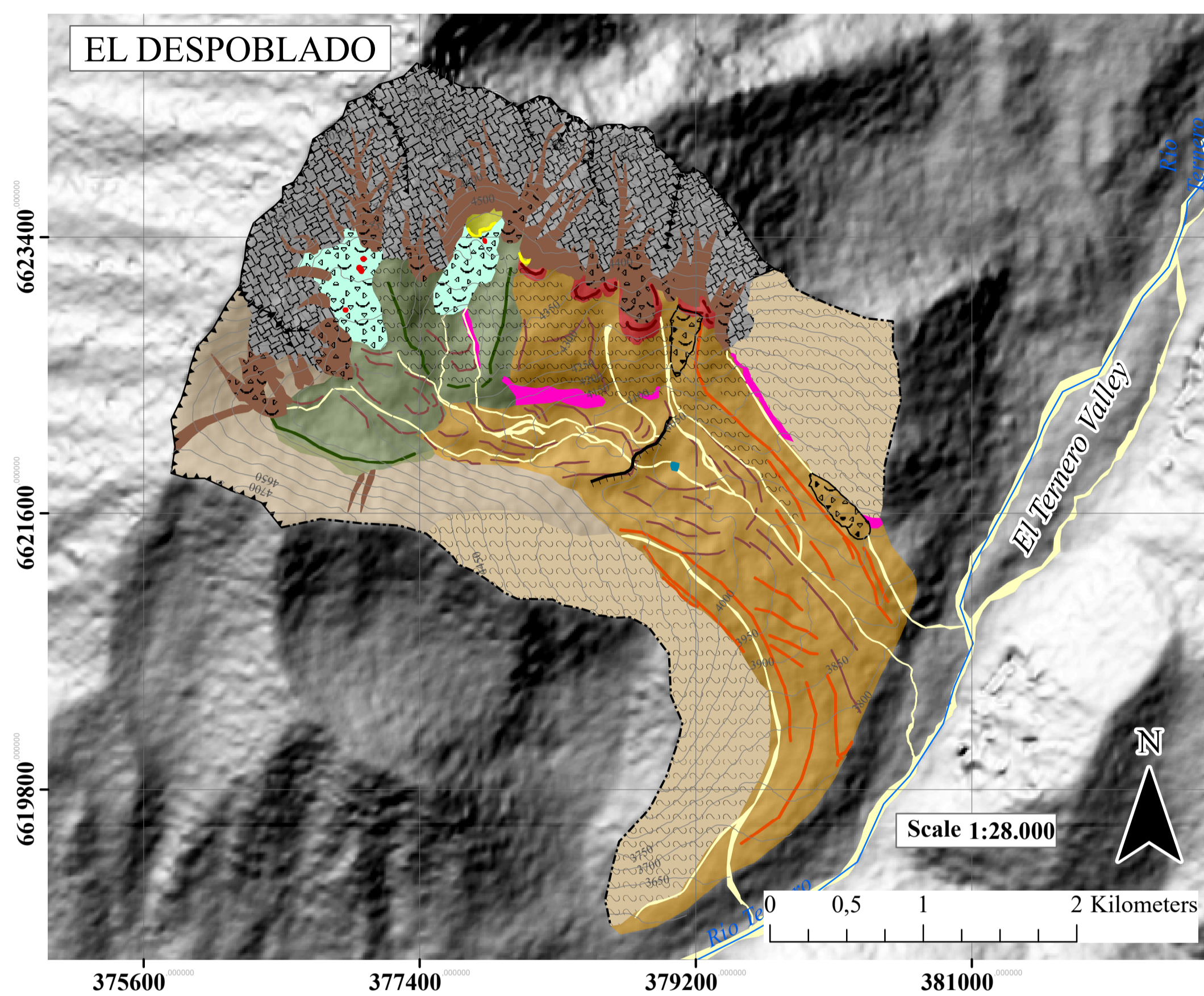
JAVIERA CARRAHA<sup>1,2</sup>, JUAN-LUIS GARCÍA<sup>1,2</sup>, SAMUEL U. NUSSBAUMER<sup>3</sup>, HANS FERNÁNDEZ-NAVARRO<sup>4</sup>, ISABELLE GÄRTNER-ROER<sup>3</sup>

<sup>1</sup>Instituto de Geografía, Facultad de Historia, Geografía y Ciencia Política, Pontificia Universidad Católica de Chile, Av. Vicuña Mackenna 4860, Macul, Santiago, Chile, jpcarraha@uc.cl

<sup>2</sup>Centro UC Desierto de Atacama, Pontificia Universidad Católica de Chile, Santiago, Chile.

<sup>3</sup>Department of Geography, University of Zurich, Zurich, Switzerland.

<sup>4</sup>Instituto de Ciencias Agroalimentarias, Animales y Ambientales (ICA3), Universidad de O'Higgins, San Fernando, Chile.



**Legend**

Glacial landforms	Periglacial landforms	Paraglacial landforms	Other
Cirque	Cirque rock glacier	Lobated or tongue-shaped rock glacier located in the cirques.	Lake
Aretes	Talus rock glacier	Rock glacier formed from detrital accumulations at the base of slopes.	Mountain meadow
Ice-scoured bedrock	Valley rock glacier	Lobated or tongue-shaped rock glacier that develop parallel to the axis of valleys.	River bed
Glacial outwash plain	Gelifluction lobes	Lobes, usually tongue-shaped, formed by downslope displacement of soils due to freeze-thaw action.	Rock walls
Ridges	Protalus lobe	Lobes that originate at the foot of a slope by the stacking of gelifluction deposits. Their origin could also be related to debris slides over snowbanks.	Detrital slopes
Moraine ridge I	Thermokarst	Collapse depressions caused by the melting of ice.	Escarpment
Moraine I	Debris cones	Accumulation of gravitational debris on steep rock slopes. They are structured as cones or coalescences of debris cones.	Contour (50m)
Moraine ridge II			
Moraine II			
Moraine ridge III			
Moraine III			
Moraine ridge IV			
Moraine IV			
Moraine ridge V			
Moraine V			