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GEOMORPHOLOGICAL PROCESSES IN THE ALA ARCHA NATIONAL PARK (KYRGYZSTAN, TIAN SHAN RANGE)

ABSTRACT: RUIZ-FERNÁNDEZ J. & OLIVA M., *Geomorphological processes in the Ala Archa National Park (Kyrgyzstan, Tian Shan Range).* (IT ISSN 0391-9838, 2019).

The Ala Archa National Park includes a wide range of geomorphological processes and landforms from the lowlands to the highest peaks. Here, we examine the distribution of geomorphological processes and landforms in the central part of the Tian Shan mountain range, Kyrgyzstan. Late Pleistocene glaciers shaped the landscape of the highest lands and left a moraine complex (M1) at the foot of the Ala Archa area at an elevation of 1580 m. The process of deglaciation followed different stages that favoured the individualization of glaciers within their respective valleys, with several moraine complexes (M2 and M3) distributed at elevations between 1680 and 3900 m. Today, debris-covered glaciers and rock glaciers constituted the lowest parts of the current glaciers, with their fronts located between 3350 and 3670 m. All these glacial features are being intensely reshaped by periglacial, alluvial and mass wasting processes on the steep slopes of this valley. The wide variety of landforms and sedimentary records existing in the area allows inferring a sequence of several environmental and climatic stages since the Late Pleistocene. Finally, the distribution of present-day geomorphological processes and active landforms identified in the Ala Archa National Park allowed establishing four morphodynamic belts: montane forests (<2000 m), subnival (2000-2800 m), nival (2800-3200 m), cryonival (>3200 m, excluding glaciated areas), and glacial (>3350 m between the glacier fronts and the highest peaks).

KEY WORDS: Tian Shan, Ala Archa National Park, Geomorphology, Quaternary.

INTRODUCTION

National Parks stand as protected areas which aim at preserving both the geomorphology and geology (geodiversity) as well as wildlife (biodiversity) (Gray, 2011). In the context of mid-latitude mountains, many of these protected natural spaces correspond to high mountain areas, whose ecosystems and cultural and historical heritage must be preserved for future generations (Panizza & Piacente, 2003; Gómez-Ortiz & *alii*, 2013).

In certain mountainous countries of Central Asia, the number of protected natural spaces – especially of National Parks – is still scarce, particularly when the large extent of this mountainous sector, as well as its great natural heritage are taken into account. However, in line with an important effort aimed at openness and modernisation, some countries from this region are changing lately their policies regarding nature protection, instituting new protected natural spaces at a fast pace. This is the case of Kyrgyzstan, where there are 13 National Parks (5 of them very recently instituted, between 2009 and 2016), in addition to many other protected areas under forms such as Nature Reserve, Nature Monument, etc. Nevertheless, in many cases, the listing under the form of National Park has been linked – especially in the past – more to recreation and leisure activities due to their being close to major population centres than to the real protection of their geoecological heritage (Shokirov & *alii*, 2014). This is the case of the Ala Archa National Park, whose geodiversity has barely been studied so far, and has only been analysed through thematic approaches (e.g. Aizen & *alii*, 2007a; Zaginaev & *alii*, 2016) or marginally within the context of broader works (e.g. Koppes & *alii*, 2008; Xu & *alii*, 2010).

With the aim of complementing the existing partial knowledge up to now on the geomorphology of the Ala Archa National Park and enhancing the need to preserve its geoecological heritage, this article focuses on the study of the distribution of the existing geomorphological landforms and processes in this National Park, as well as its past and current dynamics, which allows us to infer the environmental and climatic conditions that shaped the configuration of this Central Asia high mountain landscape.

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