

5: 09:25-09:30. Recent glacier changes and their main climatic forcings across the Andes

¹Mariano Masiokas

¹*Instituto Argentino de Nivología, Glaciología y Ciencias Ambientales, IANIGLA, CCT CONICET Mendoza*

contact: mmasiokas@mendoza-conicet.gob.ar

Abstract

The Andes Cordillera extends for 8,000 km from ca. 11°N in northern Colombia and Venezuela to ca. 55°S in southern Chile and Argentina. Along this extensive latitudinal range, this region portrays an impressive variety of topographic and climatic conditions that result in extensive areas covered by seasonal snow, numerous tropical and extratropical glaciers, and many mountain permafrost landforms. This great variety of features makes the Andean cryosphere the most diverse on Earth. In this brief overview, we will discuss the recent, widespread glacier shrinkage and ice mass loss that has been documented throughout the Andes by numerous studies using remote sensing products and/or field measurements. We will also discuss recent assessments that have characterized the main topographic and climatic variables affecting the glacier distribution and mass balance changes in the Andes. These studies show contrasting influences of the different forcings affecting glacier behavior at different latitudes. Understanding these contrasting influences is relevant for the proper modeling and assessment of the glacier-climate relationships in different sectors of the Andes, and can provide a basic framework to better understand the impacts of climate change across the western portion of South America.