AN UPDATED GLACIAL AND PERIGLACIAL INVENTORY OF THE RIO MENDOZA BASIN IN THE CENTRAL ANDES OF ARGENTINA (1:250,000)

Lead Authors: Laura Zalazar, Lidia Ferri, Mariano Castro and Silvia Delgado

Scientific Direction: Lydia Espizua, Dario Trombotto and Juan Carlos Leiva

Contributing Authors: Ricardo Villalba, Mariano Masiokas, Pierre Pitte, Lucas Ruiz, Daniel Falaschi and Gabriela Lenzano

Instituto Argentino de Nivología, Glaciología y Ciencias Ambientales (IANIGLA), Mendoza, Argentina.

Contact: ing@mendoza-conicet.gob.ar

We present an updated glacial and periglacial inventory of the Río Mendoza Basin in the Andes of central Western Argentina based on ASTER and ALOS scenes from 2009, 2010 and 2011. Clean ice and perennial snowfields were identified by an automatic extraction technique whereas debris-covered glaciers and rock glaciers were manually digitized on the screen. We identified 1,611 glacial and periglacial landforms that cover a total area of 570.67 km$^2$ distributed between 2,958 m a.s.l. and 6,900 m a.s.l.. The results were validated through several field campaigns performed in different sectors of the basin in the summer of 2012. Different glaciers and rock glaciers were surveyed in order to check their location, current state, and primary classification. The field surveys were complemented with photographs and GPS data. A comparison with a previous inventory of this basin based on aerial photographs from 1963 (Corte and Espizua 1981) shows an important recession of clean-ice glaciers, which is not as evident on debris-covered glaciers and rock glaciers. This new inventory of the Río Mendoza Basin will be part of the National Glacial and Periglacial Inventory of Argentina which is currently under way under the coordination of IANIGLA.

Financial support for this work was provided by the Secretaría de Ambiente y Desarrollo Sustentable, Gobierno de Mendoza and the Secretaría de Ambiente y Desarrollo Sustentable de la Nación, República Argentina. Images were provided by GLIMS (Global Land Ice Measurements from Space), CONAE (Comisión Nacional de Actividades Espaciales) and JAXA through the collaborative project Developing a glacier inventory in the Argentinean Andes using high resolution ALOS (Advanced Land Observing Satellite) data. The inventory and maps were entirely developed using open source software.