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Authors

Casassa, Gino
Krabill, W
Rivera, A
[et al.](#)

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S01.06**The Patagonian ice fields: an updated assessment of sea level contribution**

Gino Casassa(1), W Krabill(2), A Rivera(0), J Wendt(1), A Wendt(1), P López(1), F Bown(1), E Rignot(0), R Thomas(0), J Yungel(6), J Sonntag(6), E Frederick(6), R Russell(6), M Linkswiler(6), A Arendt(7), K Steffen(8)

(1) CECS, Valdivia, Chile

(2) Code 972, NASA-GSFC/WFF, Wallops Island, Virginia, USA

(3) University of Chile, Santiago, Chile

(4) School of Physical Sciences, University of California, Irvine, California, USA

(5) JPL, Pasadena, California, USA

(6) EG&G, NASA-GSFC/WFF, Wallops Island, Virginia, USA

(7) Geophysical Institute, University of Alaska, Fairbanks, Alaska, U

(8) CIRES, University of Colorado, Boulder, Colorado, USA

The Northern and Southern Patagonia icefields (NPI and SPI) of southern South America have a total area of approximately 17,000 km², constituting the largest temperate glacier system in the southern hemisphere. Snow precipitation can exceed 10 m/y water equivalent (w.e.) due to westerly air flow, with an important east-west gradient. In the lower reaches ablation can be larger than 10 m/y w.e., with abundant calving on fjords and freshwater lakes. The vast majority of the outlet glaciers show strong retreat and thinning in the ablation areas over the past century (Rignot et al., 2003), which can be largely explained by regional atmospheric warming. However, until now the data of the accumulation areas are insufficient for deriving the mass balance in the upper plateau. Here we compare new laser altimetry data of October 2008 with earlier data of November/December 2002 collected by airborne missions performed by NASA/CECS/Armada de Chile. The laser data are supplemented by the 2000 Shuttle Radar Topography Mission (SRTM) information and by 1975 and 1995 cartographic data of Chile. The data will allow to determine if thickening is occurring in the accumulation areas, as reported for example by Moeller et al. (2007) for Gran Campo Nevado, Patagonia, and if the rate of thinning at low elevations has experienced recent increases. As a result the contribution of the Patagonian icefields to sea level rise will be reassessed.