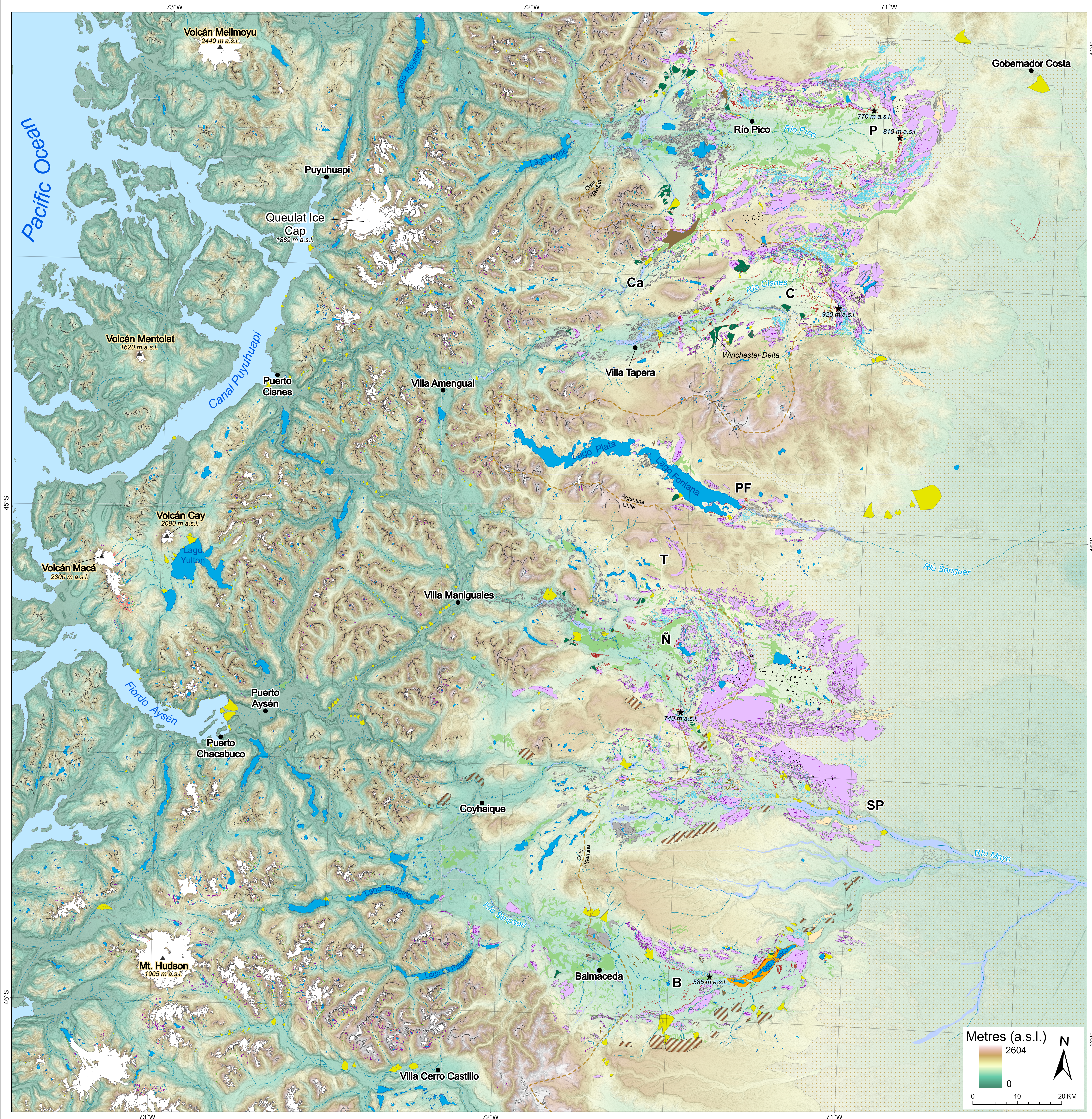


Glacial geomorphology of the former Patagonian Ice Sheet (44 – 46°S)

Emma-Louise Cooper^a, Varyl R. Thorndycraft^a, Bethan J. Davies^a, Adrian P. Palmer^a, and Juan-Luis García^b

^aCentre for Quaternary Research, Department of Geography, Royal Holloway University of London, Egham, United Kingdom, TW20 0EX. Email: emma.cooper.2013@live.rhul.ac.uk

^bInstituto de Geografía, Facultad de Historia, Geografía y Ciencia Política, Pontificia Universidad Católica de Chile, Avenida Vicuña Mackenna 4860, Macul, Santiago 782-0436, Chile.



Main Map: The glacial geomorphology of the former Patagonian Ice Sheet between 44 and 46°S: Modern ice extent: RGI v. 6.0, region 17 (Arendt et al., 2017). Outwash plains and rivers adapted from PATICE (Davies et al., 2020). **P:** Río Pico **Ca:** Río Caceres **C:** Río Cisnes **PF:** Lago Plata-Fontana **T:** El Toqui **N:** Lago Coyt/Río Nirehuao **SP:** Simpson/Paso Coyhaique, and **B:** Balmaceda outlet glaciers.

Methods

Mapping was undertaken by Emma-Louise Cooper in **ArcMap version 10.3.1**, and completed with **ArcGIS Pro**. The **Southern Hemisphere WGS-1984-UTM Zone 18S Projected Coordinate System** was used. Features were mapped on to an **ASTER (v.3) Digital Elevation Model (DEM)**, overlain with a Hillshade Digital Terrain Model and Slope model. **ESRI™ DigitalGlobe World Imagery** and **Sentinel-2** imagery were used to identify geomorphological landforms. Field surveys validated geomorphological interpretations at a number of locations. Map is presented at a 1:300,000 scale. Final map design was completed entirely in ArcGIS Pro.

Legend

Ice-marginal landforms

- Moraine complex or deposits
- Moraine ridges
- Trimlines
- Cirques

Subglacial landforms

- Crag-and-tails
- Glacially-scoured bedrock
- Glacial lineations
- Flutes

Glaciolacustrine landforms

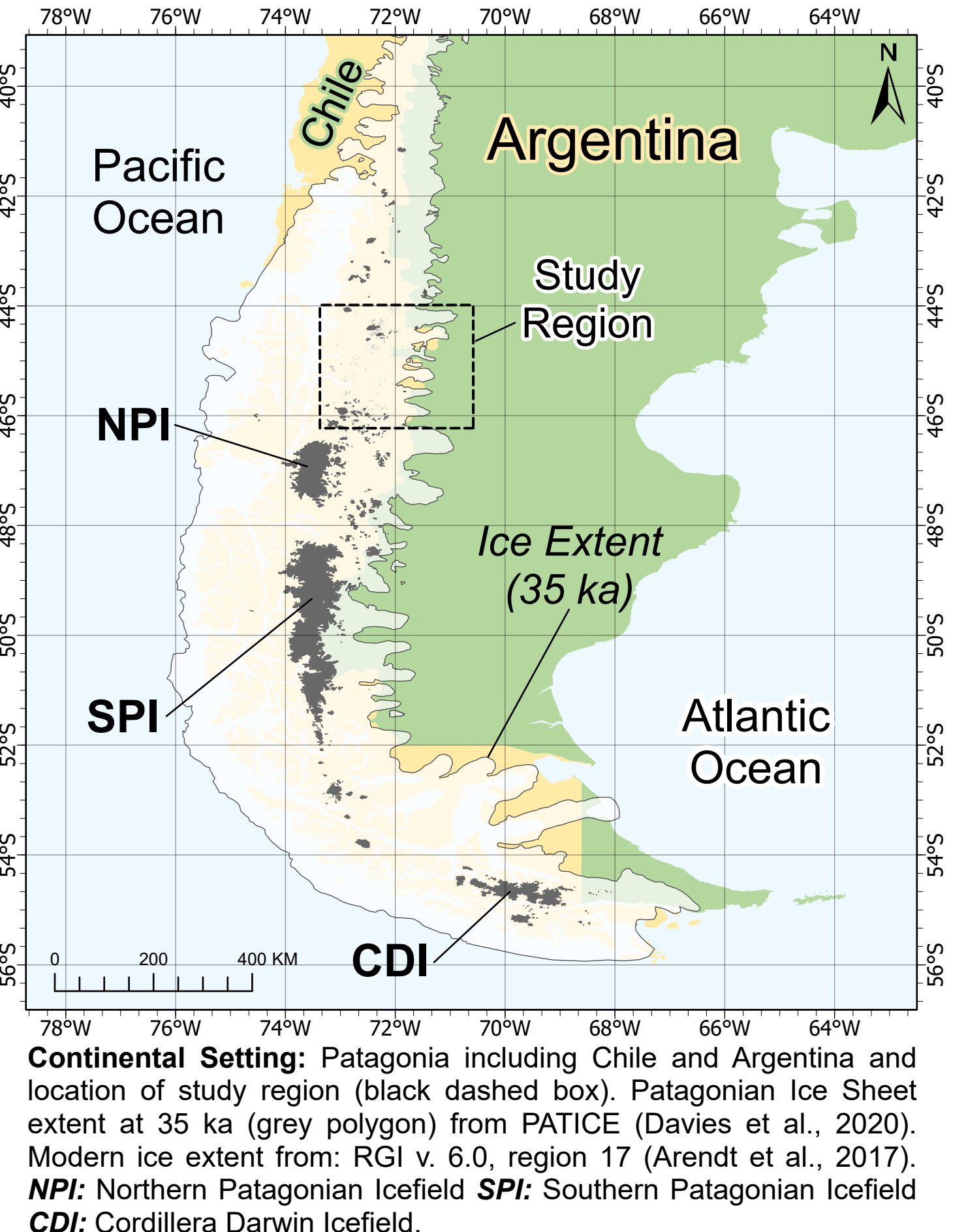
- Palaeolake shorelines
- Ice-contact fans
- Perched deltas
- Glaciolacustrine sediments
- Cols (m a.s.l.)

Glaciofluvial landforms

- Catastrophic flood landforms
- Proglacial outwash plains
- Proglacial outwash terrace
- Meltwater channel (<50m)
- Meltwater channel (50-150m)
- Meltwater channel (>150m)
- Kettle holes

Non-glacial landforms

- Fans and deltas
- Rivers
- Palaeochannels
- River terraces
- Major floodplains
- Lakes
- Ocean
- Landslides or Slumps
- Wetlands
- Modern glaciers
- Main volcanoes
- Towns
- National boundary



Continental Setting: Patagonia including Chile and Argentina and location of study region (black dashed box). Patagonian Ice Sheet extent at 35 ka (grey polygon) from PATICE (Davies et al., 2020). Modern ice extent from: RGI v. 6.0, region 17 (Arendt et al., 2017). **NPI:** Northern Patagonian Icefield **SPI:** Southern Patagonian Icefield **CDI:** Cordillera Darwin Icefield.