



(CR)<sup>2</sup>

Centro de Ciencia  
del Clima y la Resiliencia



# Aprendiendo de los anillos de los árboles y el cambio climático

Rocío Urrutia-Jalabert  
Valdivia, 22 de Junio 2021

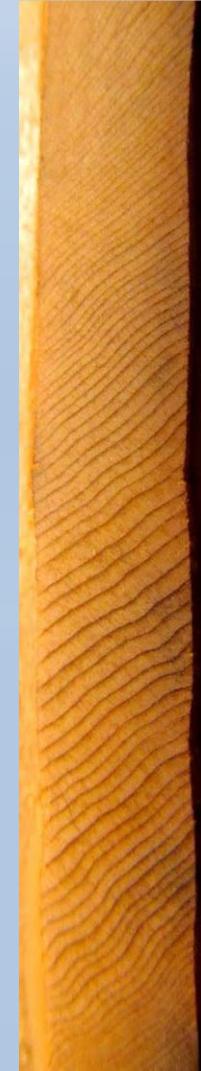
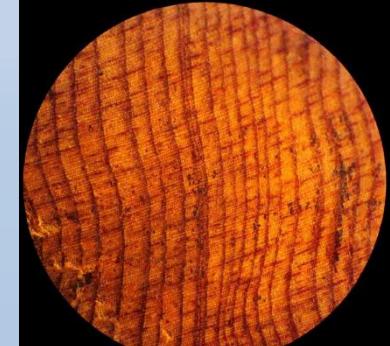
A photograph of a dense forest. In the foreground, the textured bark of a large tree is visible, covered in green moss. Sunlight filters through the dense canopy of leaves above, creating bright highlights and deep shadows. The forest floor is partially visible with some low-lying plants and fallen branches.

# Indice

- Dendrocronología
- Cómo el cambio climático está afectando el crecimiento de los bosques?



# Dendrocronología

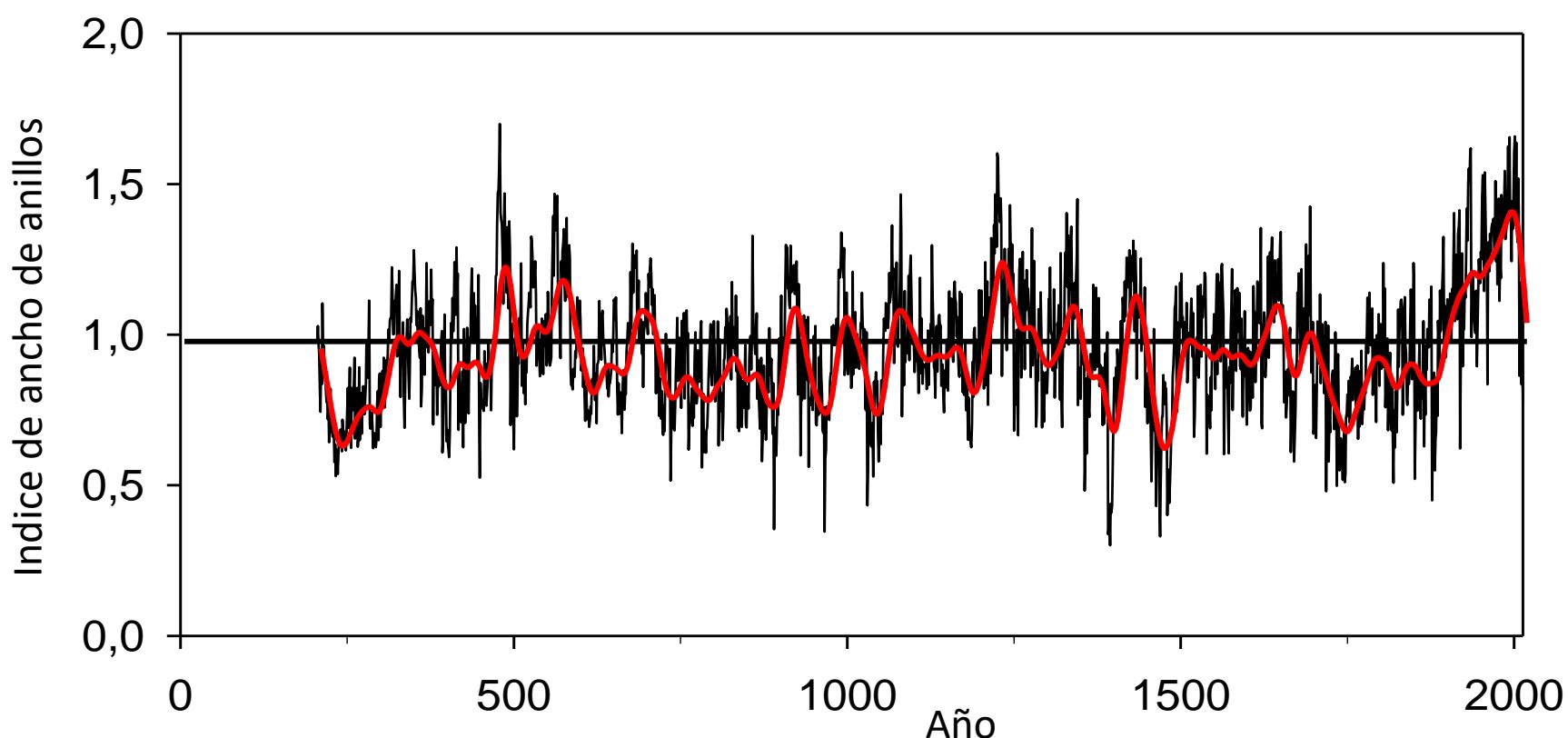
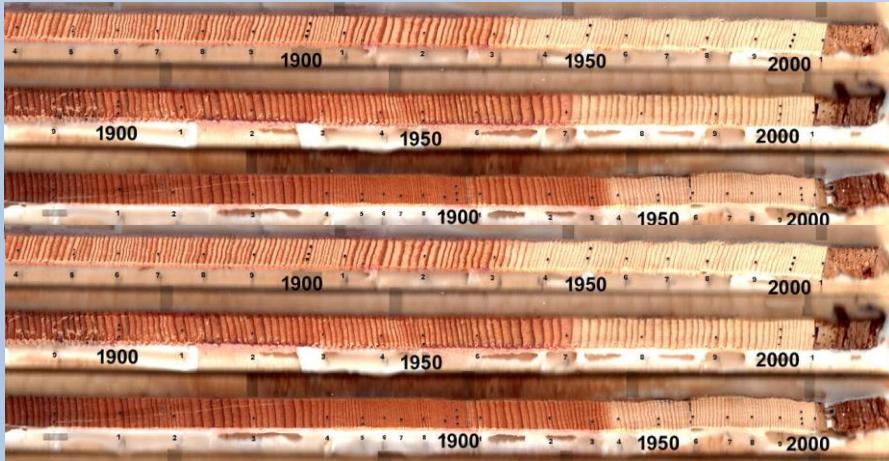


Ciencia que, mediante los anillos de crecimiento, se ocupa del fechado y reconstrucción de eventos tales como incendios, vulcanismo, terremotos, fenómenos climáticos, entre otros.

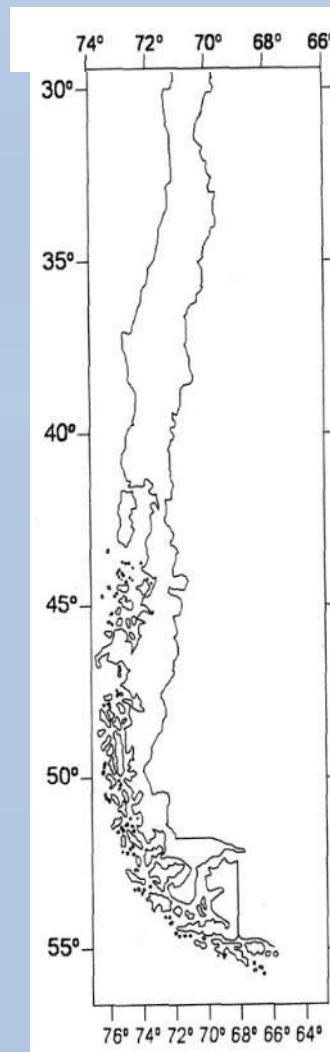
# Cómo se obtienen y procesan las muestras?



# Cronología de ancho de anillos



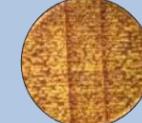
# Principales especies usadas en estudios dendrocronológicos en el centro y sur de Chile



*Austrocedrus chilensis (AC)*  
Ciprés de la Cordillera



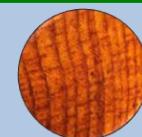
*Nothofagus pumilio (NP)*  
Lenga



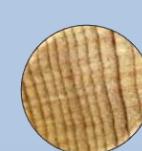
*Araucaria araucana (AA)*  
Araucaria



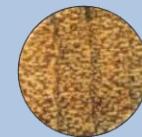
*Fitzroya cupressoides (FC)*  
Alerce



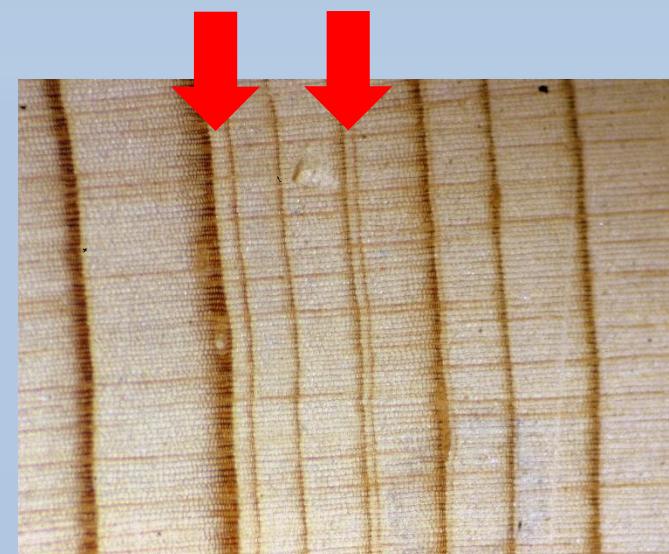
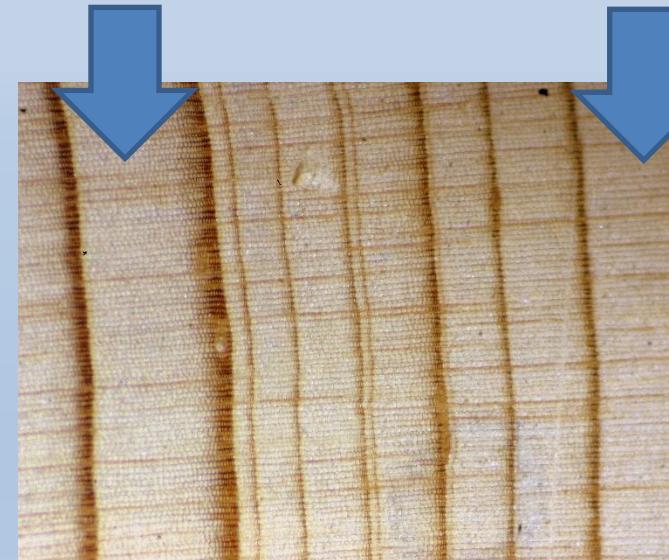
*Pilgerodendron uviferum (PU)*  
Ciprés de las Guaitecas



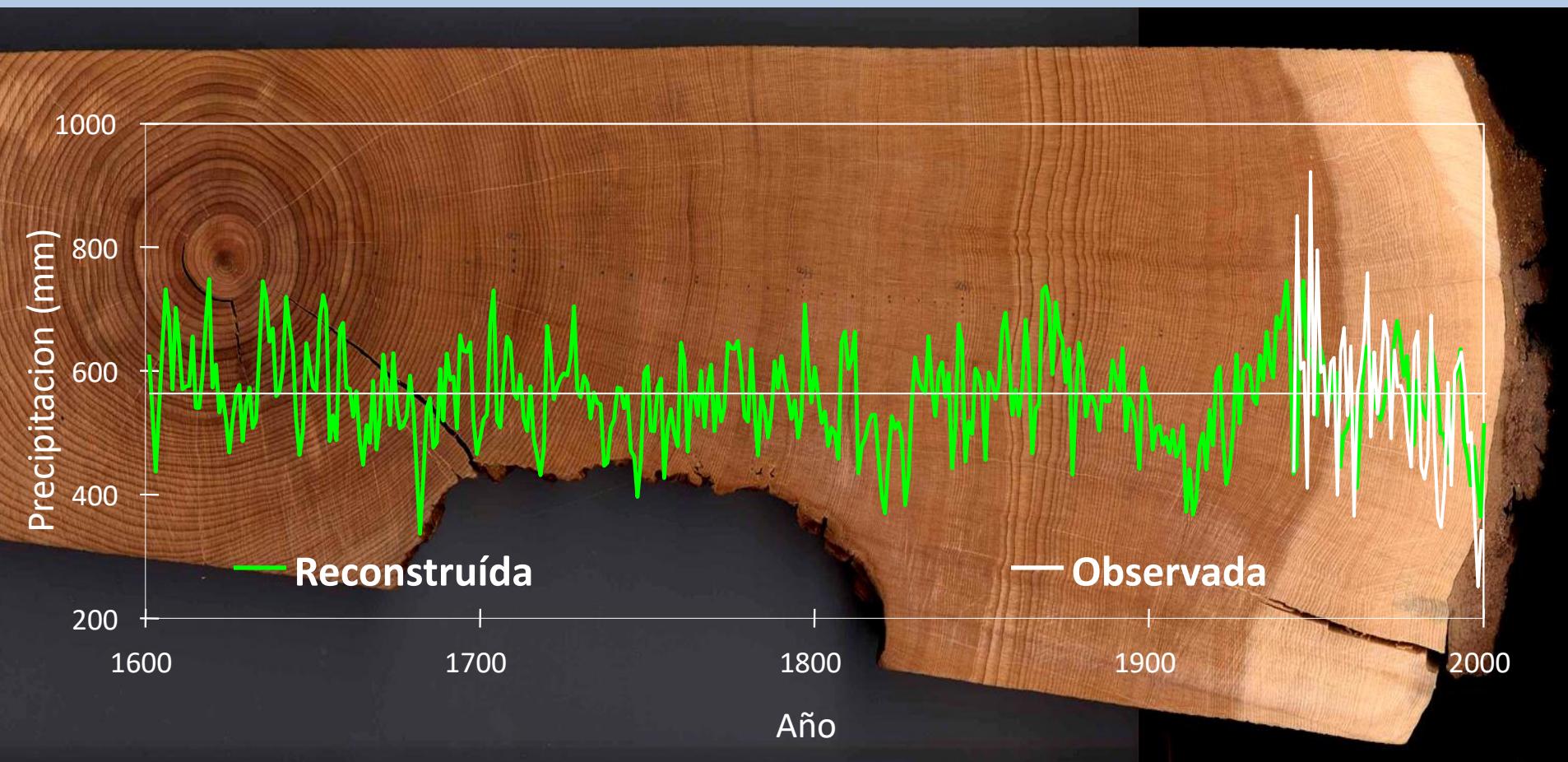
*Nothofagus betuloides (NB)*  
Coihue de Magallanes



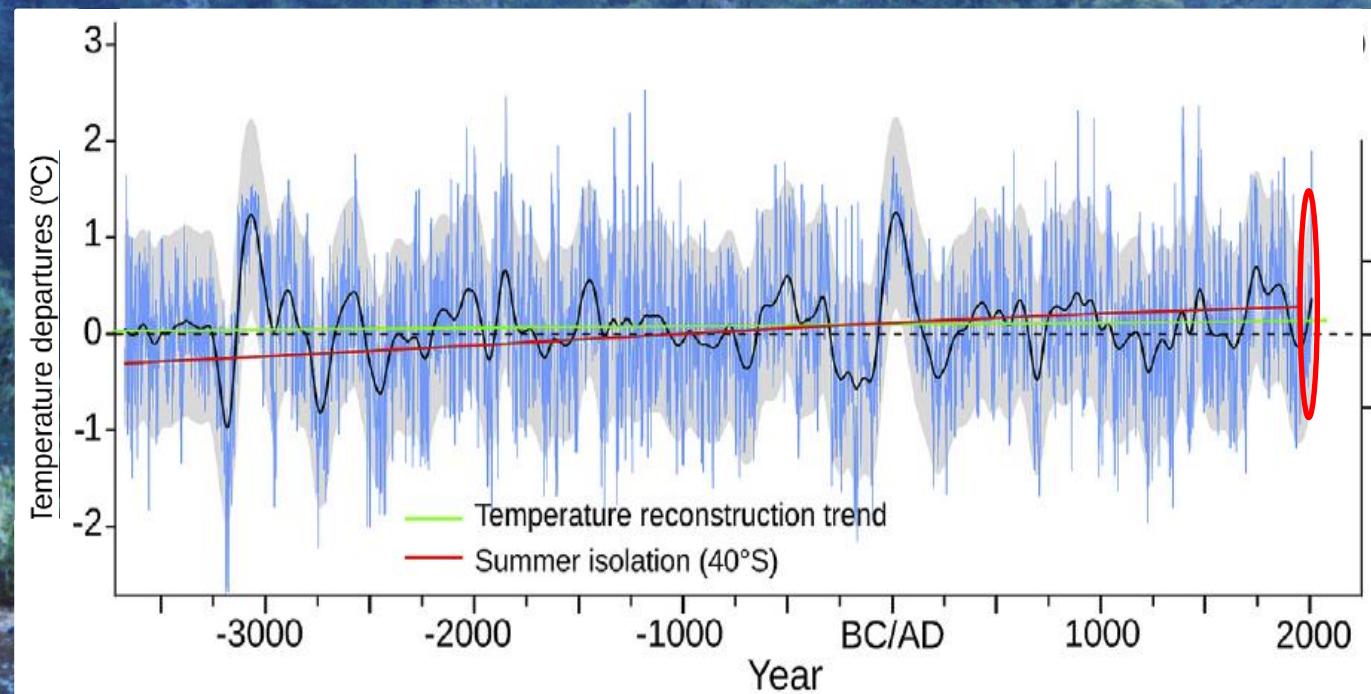
# Reconstrucciones climáticas



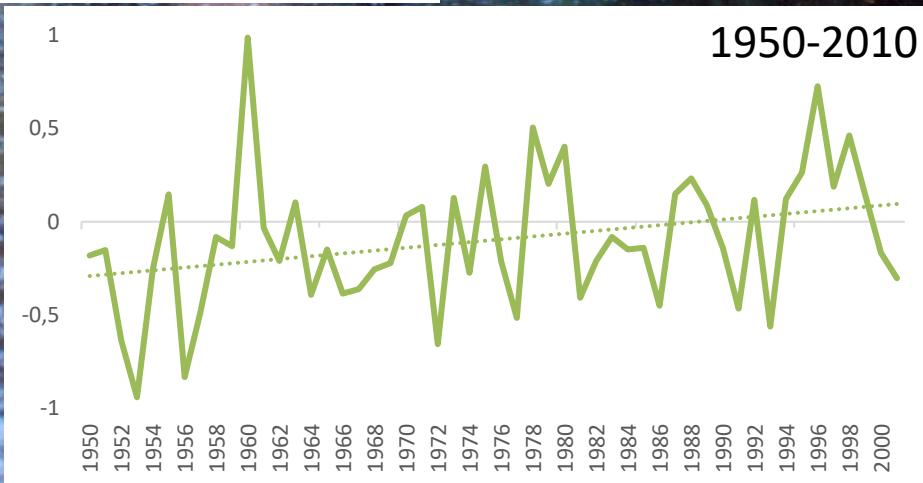
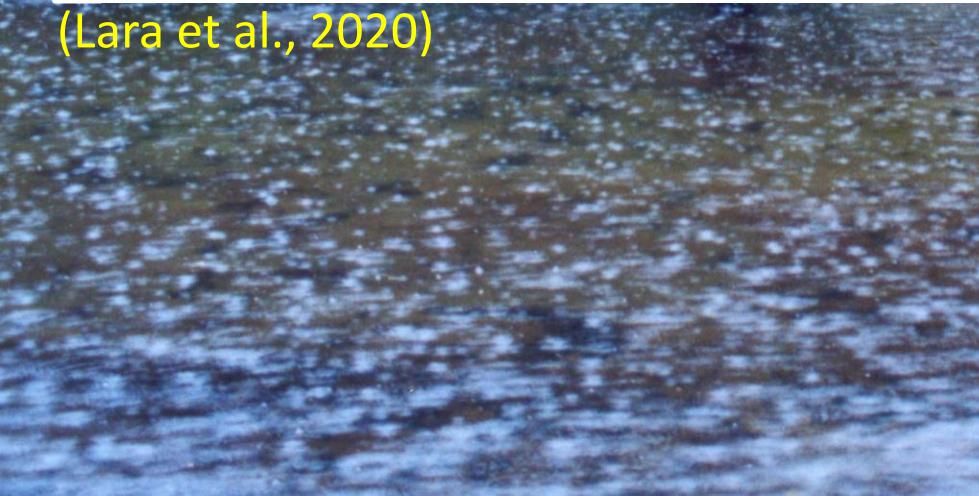
# Reconstrucciones climáticas



# Reconstrucción de la temperatura de verano para los últimos 5680 años



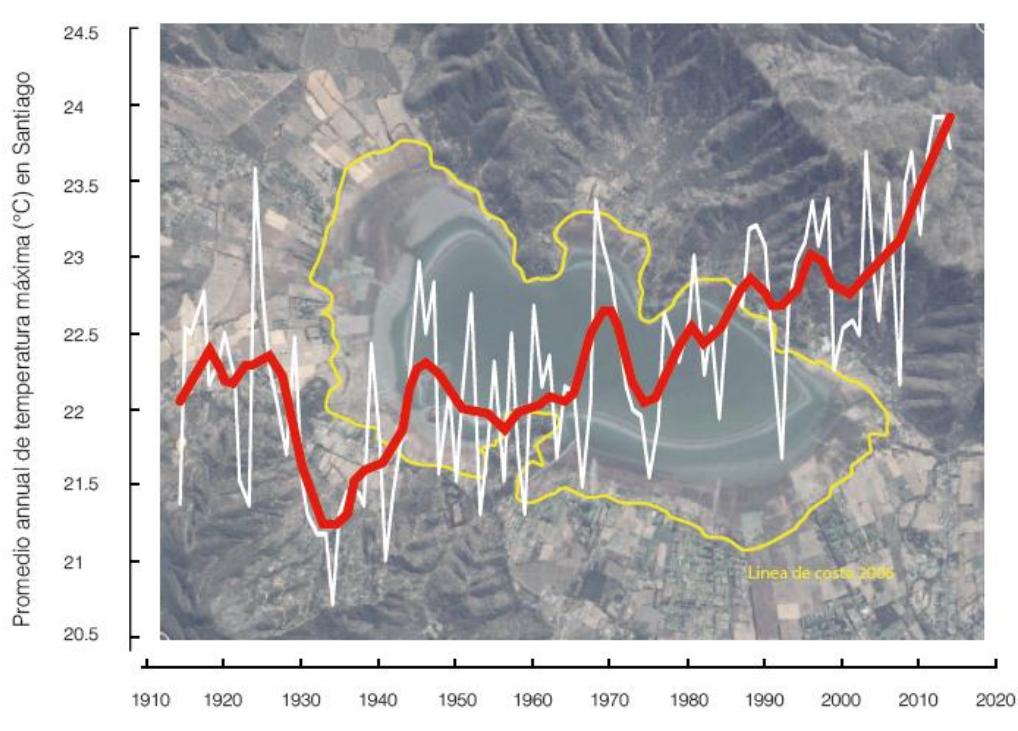
(Lara et al., 2020)



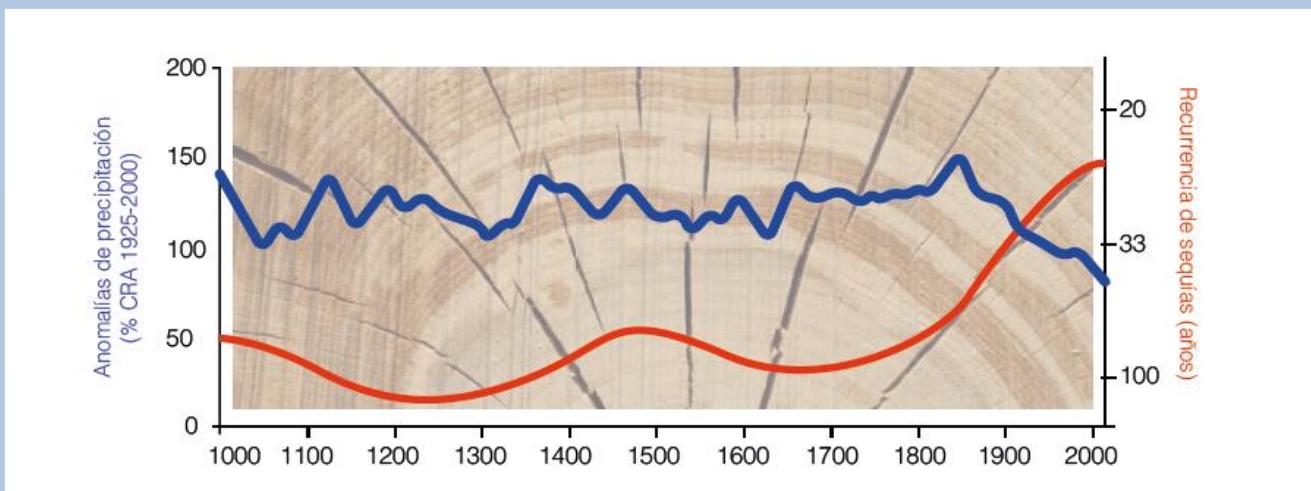
A scenic view of a forested mountain slope. A dirt road winds its way through the dark, volcanic-looking ground. In the middle ground, a small campsite is visible with several colorful tents (yellow, blue, white) set up. The forest consists of tall, thin coniferous trees, likely native to the region. The sky is clear and blue.

**¿Qué les está pasando a nuestros bosques  
nativos hoy con el cambio climático?**

# Cambios en el clima en las últimas décadas



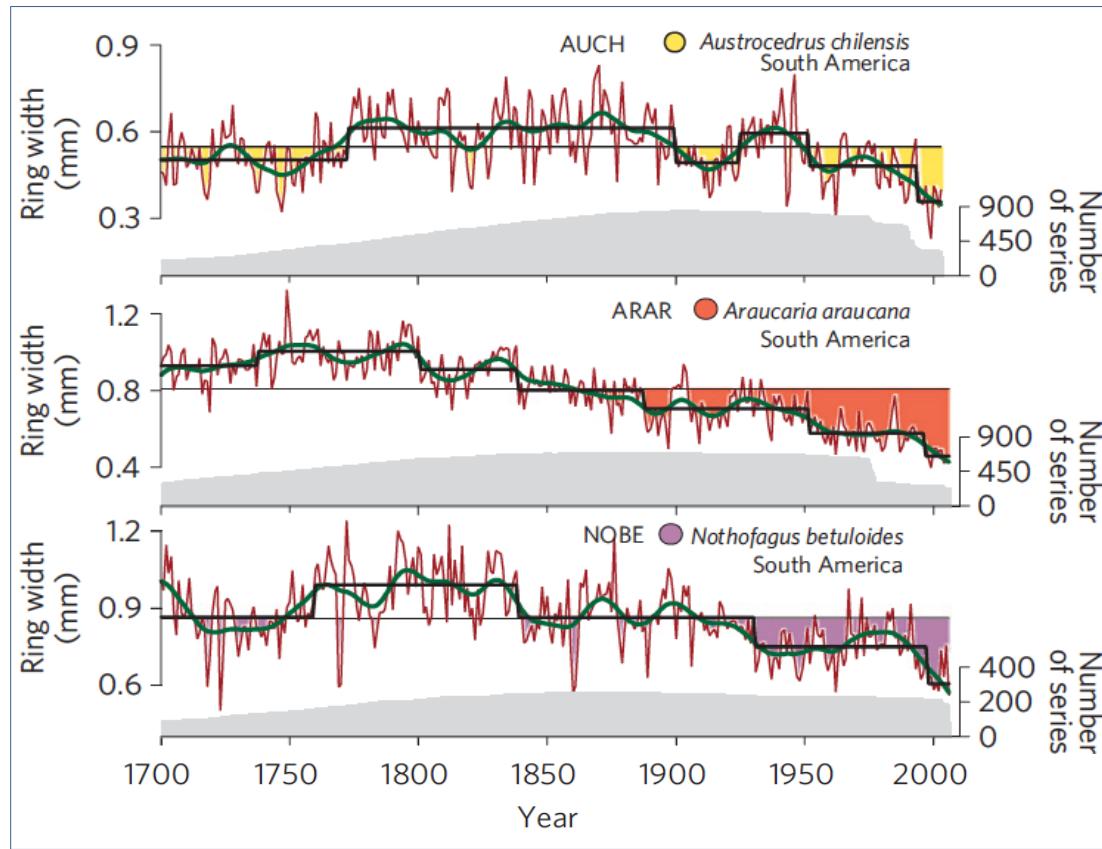
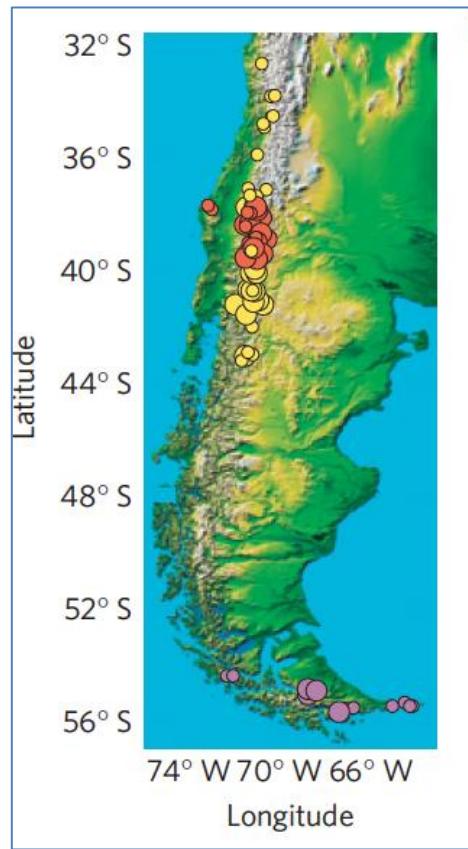
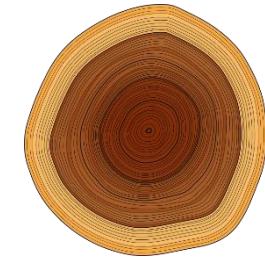
Temperatura



Precipitación



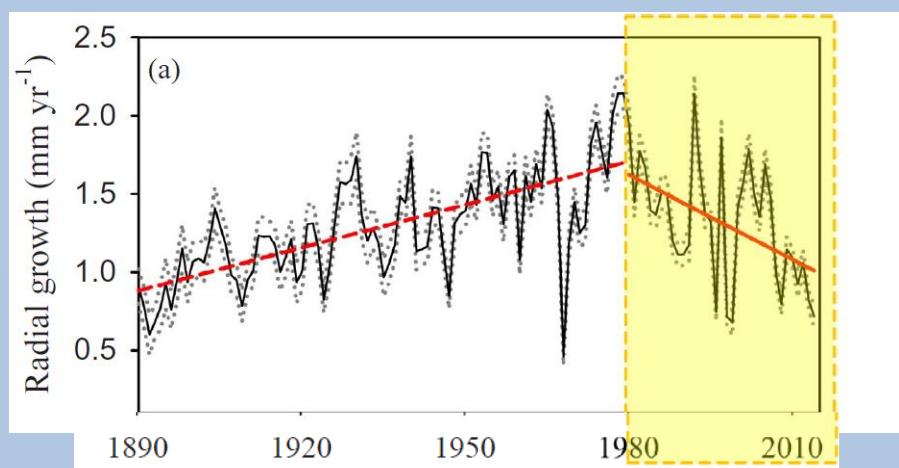
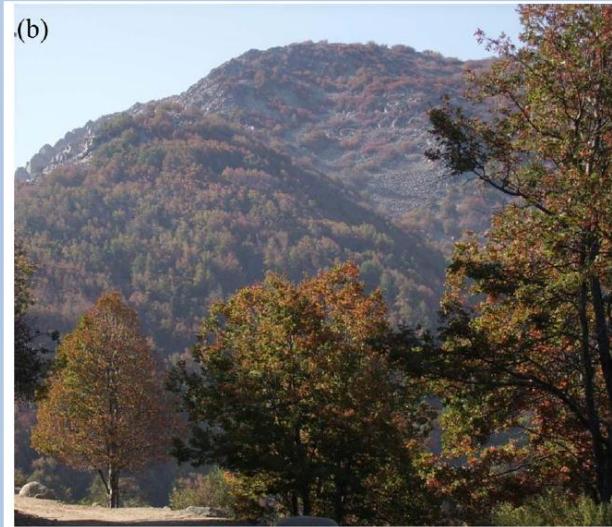
# Patrones en el crecimiento de árboles en Chile y Argentina



Villalba et al., 2012

# Bosques de Roble del norte

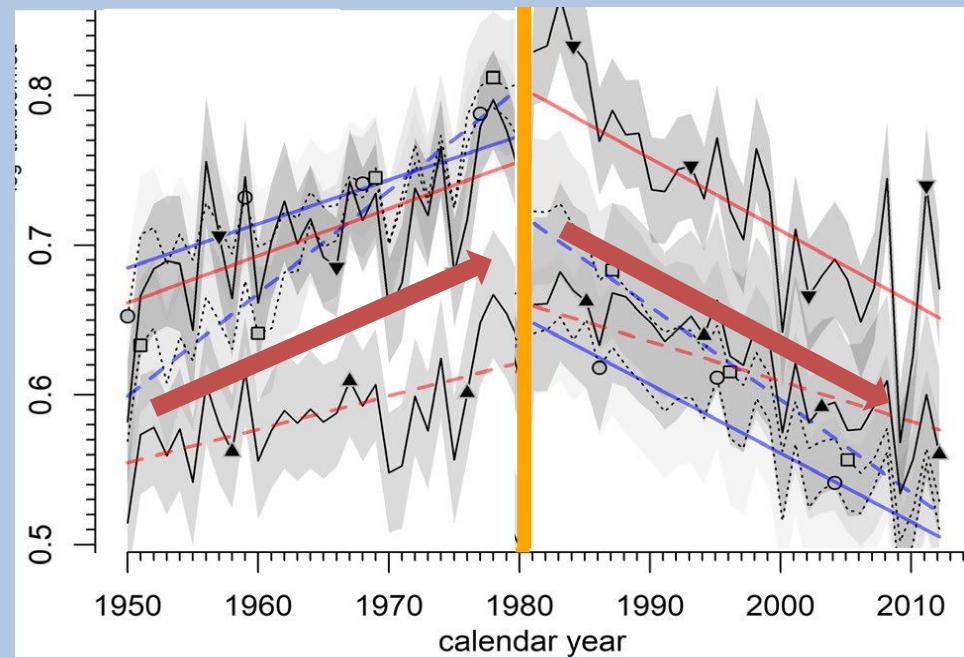
*Nothofagus macrocarpa*



Venegas-González et al., 2018

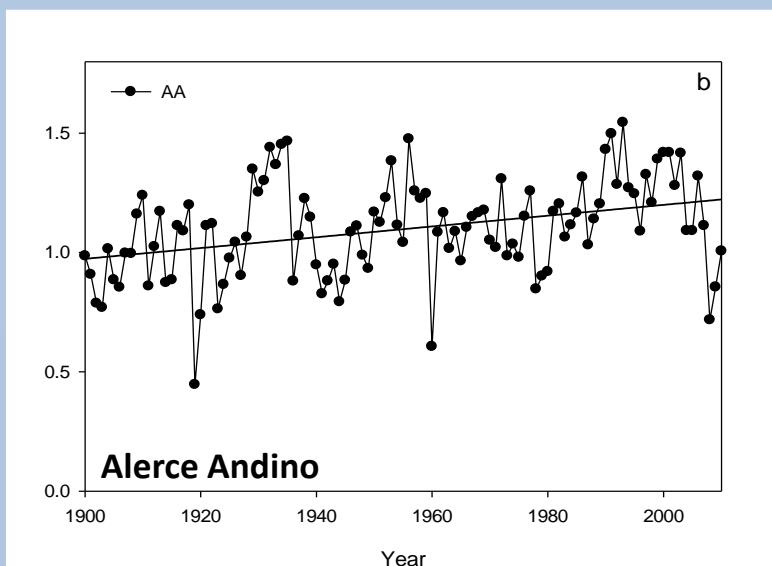
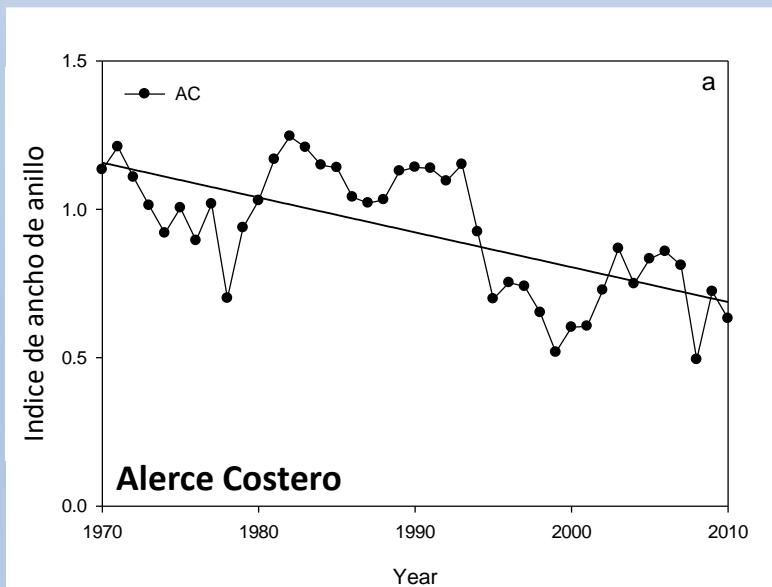
# Bosques de Lenga

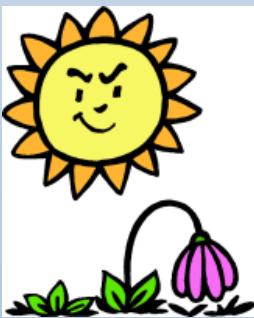
*N. pumilio*



Fajardo et al., 2019

# *Fitzroya cupressoides* (Alerce)





**Alerce  
Costero**



**Alerce  
Andino**



# Mensajes finales

- Los anillos de los árboles son muy útiles para comprender y dimensionar los cambios climáticos que estamos viviendo
- También son útiles para evaluar los impactos que estos cambios están teniendo sobre los bosques y su capacidad de capturar carbono



A photograph of a snowy landscape. In the foreground, there is a rocky, uneven ground with some sparse vegetation and a single wooden post standing vertically. Behind the post, a dense line of tall, dark green coniferous trees stands against a bright, overcast sky. The scene is covered in a layer of snow, with snowflakes visible in the air and on the ground. The overall atmosphere is cold and wintry.

Gracias