

**Table S1.** Processing parameters for each lake and date for atmospheric correction using C2RCC, C2X and C2XC-Nets.

Lake	Monitoring date	Mean temperature (°C)	Elevation (m a.s.l)
Lanahue	13/02/2018	21.68	8
	18/01/2022	21.00	
	22/02/2023	22.00	
	23/02/2023		
Villarrica	26/02/2019	18.53	215
	27/02/2019	18.88	
	10/02/2021	21.10	
	02/03/2021	17.62	
	03/03/2021	19.34	
	13/01/2023	21.03	
	02/02/2023	22.00	
	23/01/2024	23.08	
Panguipulli	30/01/2019	20.30	130
	25/02/2019	22.05	
	06/11/2021	14.90	
	11/03/2022	18.33	
	18/01/2023	21.25	