Lagos volcánicos

Sensores del pasado… centinelas del futuro

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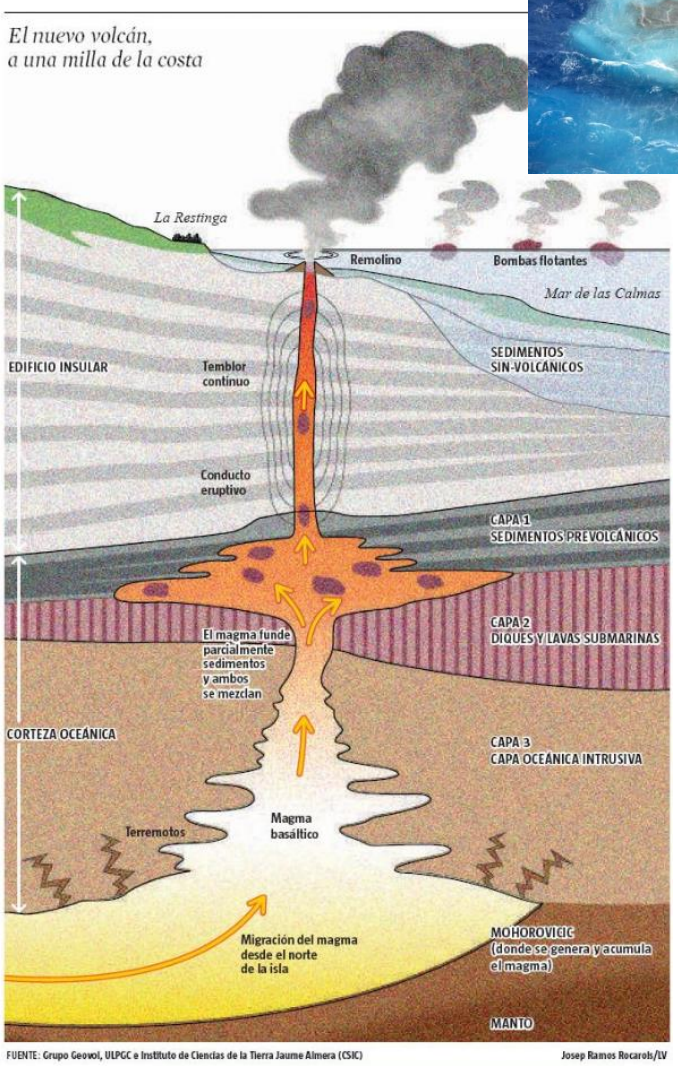
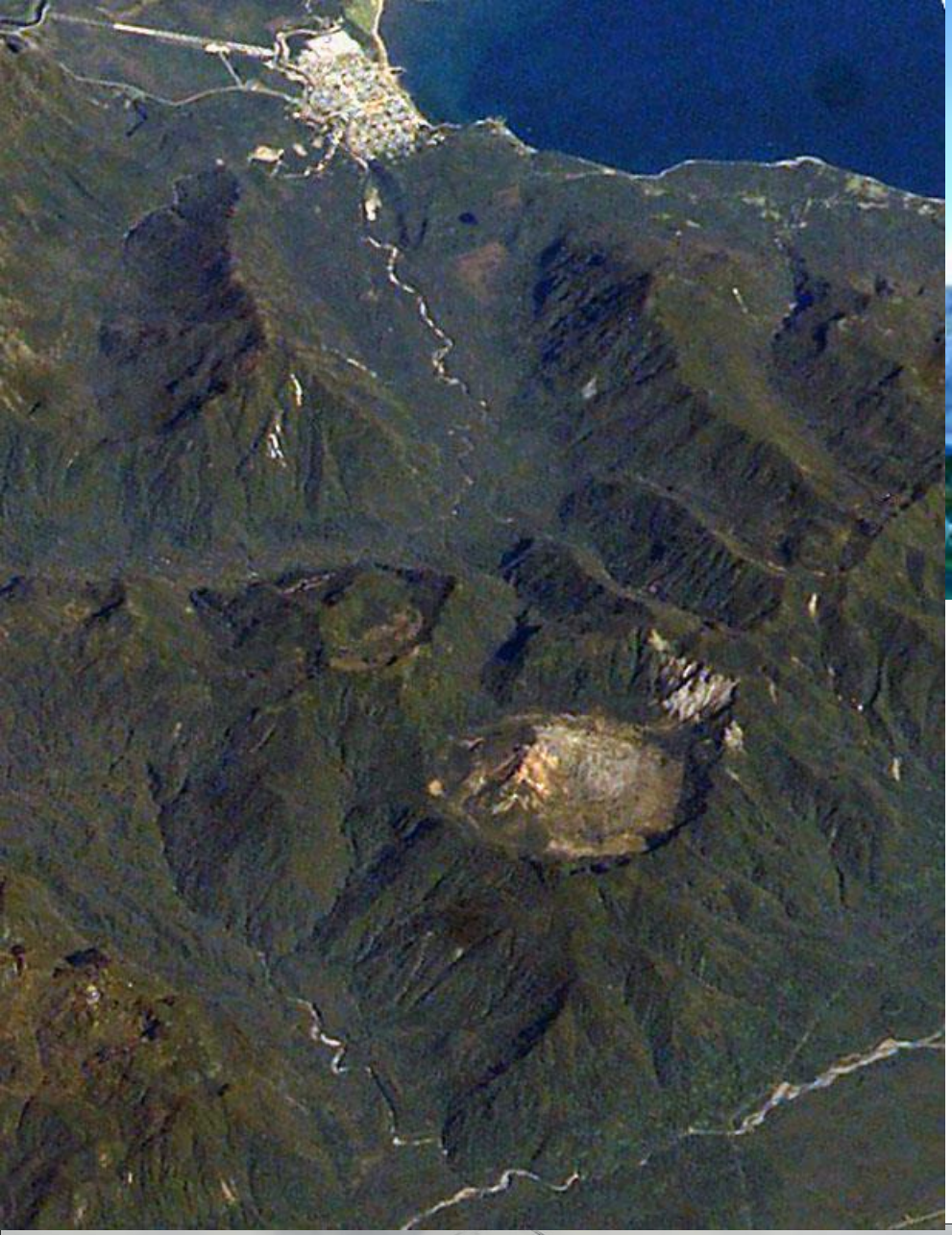
DE ECONOMÍA
Y COMPETITIVIDAD

75 AÑOS
CSIC


THE Sun
I want to see my Experian credit report because:
CreditExpert
NEWS
Got a story? Text:
MYSun
Volcano fear hits Tenerife
BRITS off to Tenerife are being warned of the danger of a massive volcano eruption.
Experts are worried about "semi-volcanic activity" in 12,200ft Mount Teide – Spain's highest peak.
Tenerife, largest of the Canary Islands, does not have
RELATED STORIES
Angry volcano blows its top


El nuevo volcán, a una milla de la costa
La Restinga
Remolino
Bombas flotantes
Mar de las Calmas
EDIFICIO INSULAR
Temblor continuo
SEDIMENTOS SIN-VOLCÁNICOS
Conducto eruptivo
CAPA 1 SEDIMENTOS PREVOLCÁNICOS
CAPA 2 DIQUES Y LAVAS SUBMARINAS
El magma funde parcialmente sedimentos y ambos se mezclan
CORTEZA OCEÁNICA
CAPA 3 CAPA OCEÁNICA INTRUSIVA
Terremotos
Magma basáltico
Migración del magma desde el norte de la isla
MOHOROVICIC (donde se genera y acumula el magma)
MANTO
FUENTE: Grupo Geovol, ULPGC e Instituto de Ciencias de la Tierra Jaume Almera (CSIC)
Josep Ramos Rocarols/LV

Erupciones… terremotos….clima



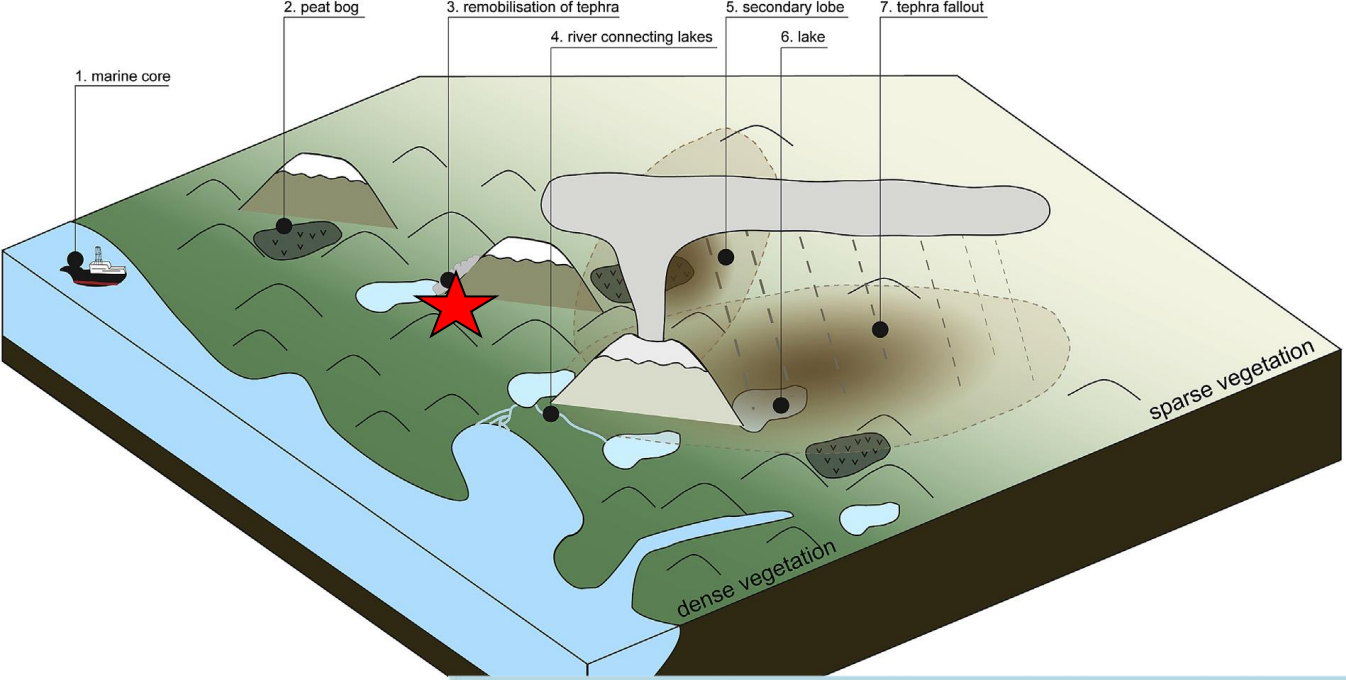
Erupción Chaitén 2008

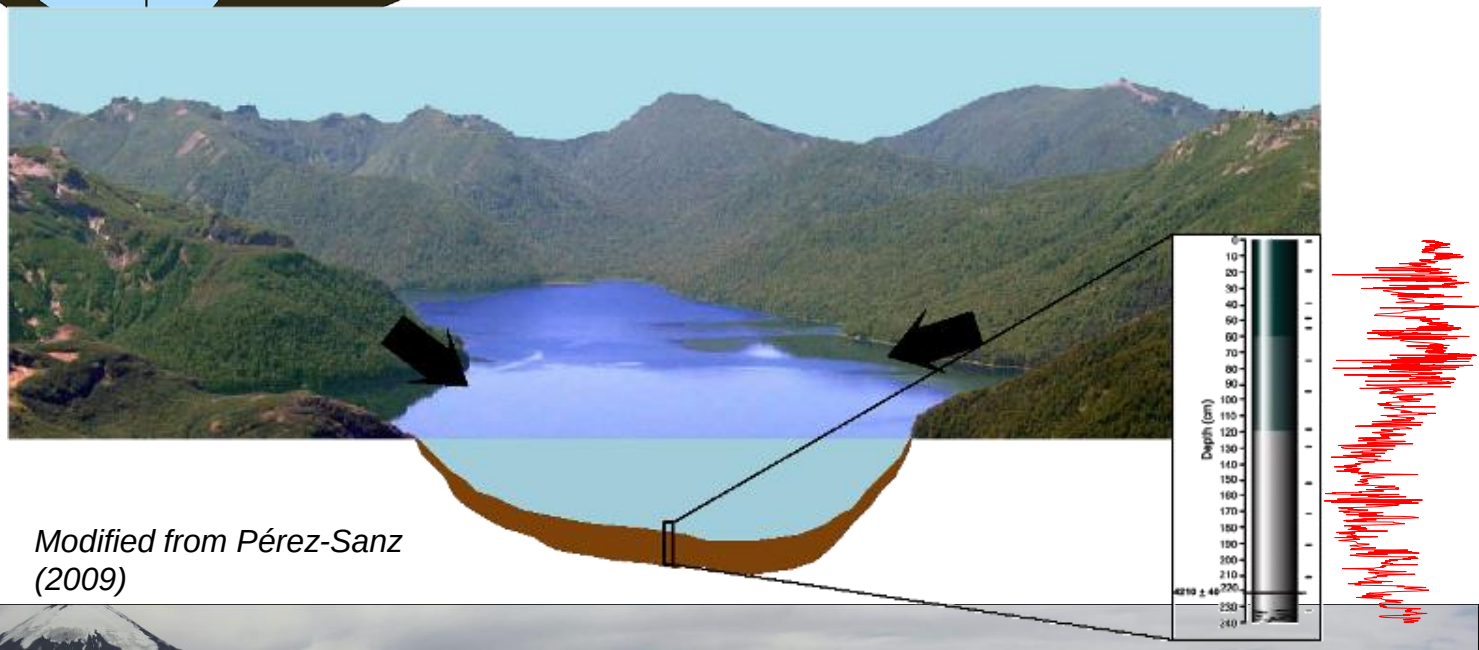
Nos preocupa el futuro….

- ¿cuándo será la nueva erupción?
- ¿Y la carga de aerosoles en la atmósfera…?
- ¿tienen los volcanes un impacto en el clima?

Hay que mirar al pasado….

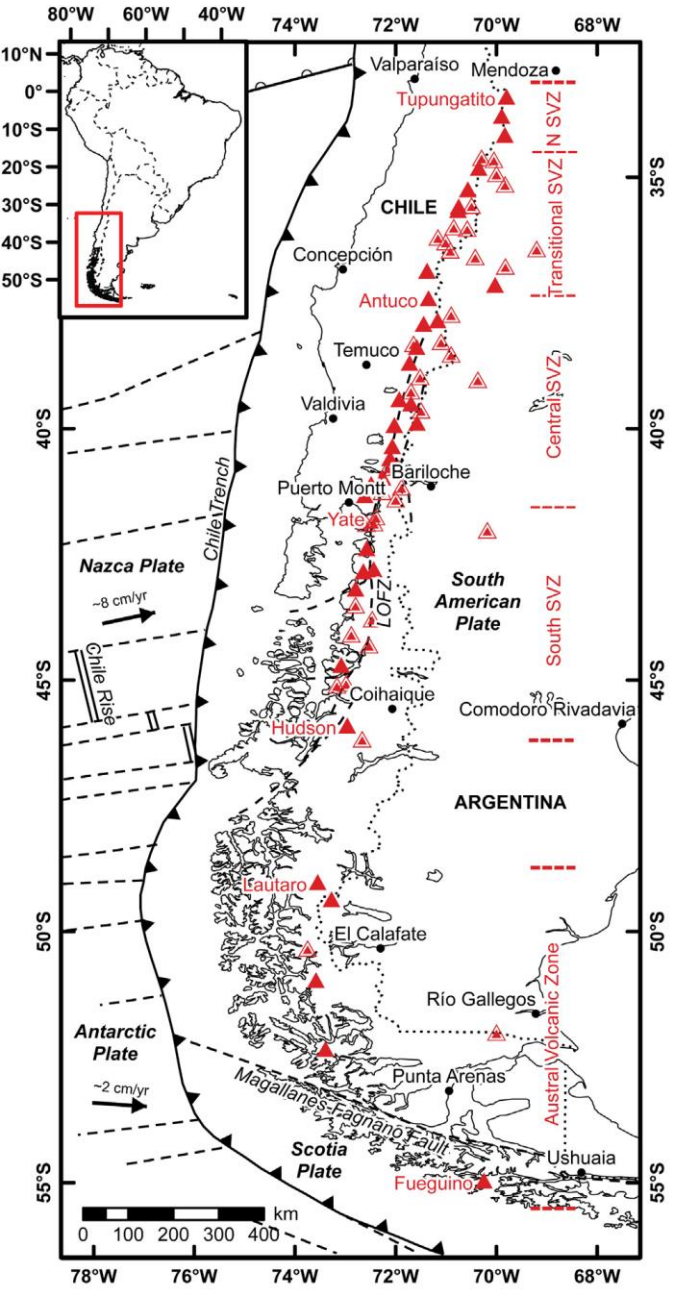
Los lagos….
escribas del pasado

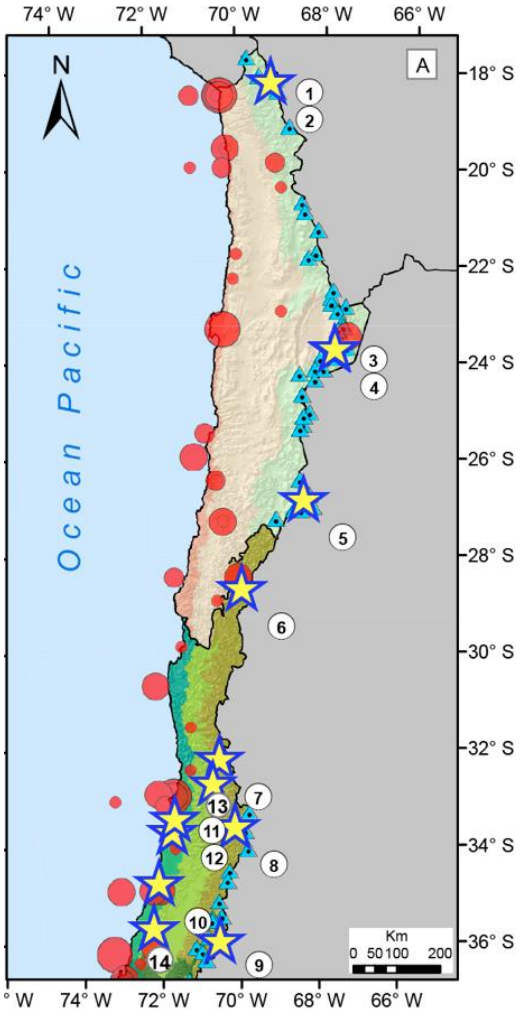


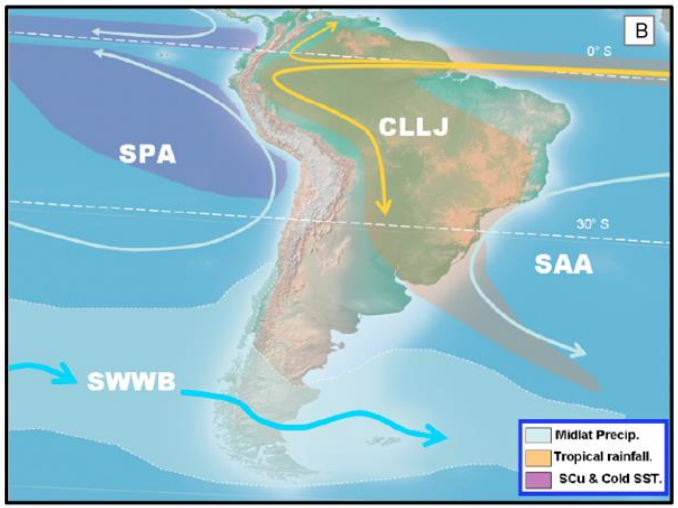


Modified from Pérez-Sanz (2009)

Una de las zonas geológicamente más activas del Planeta







LAKES HOLOCHILL PROJECT

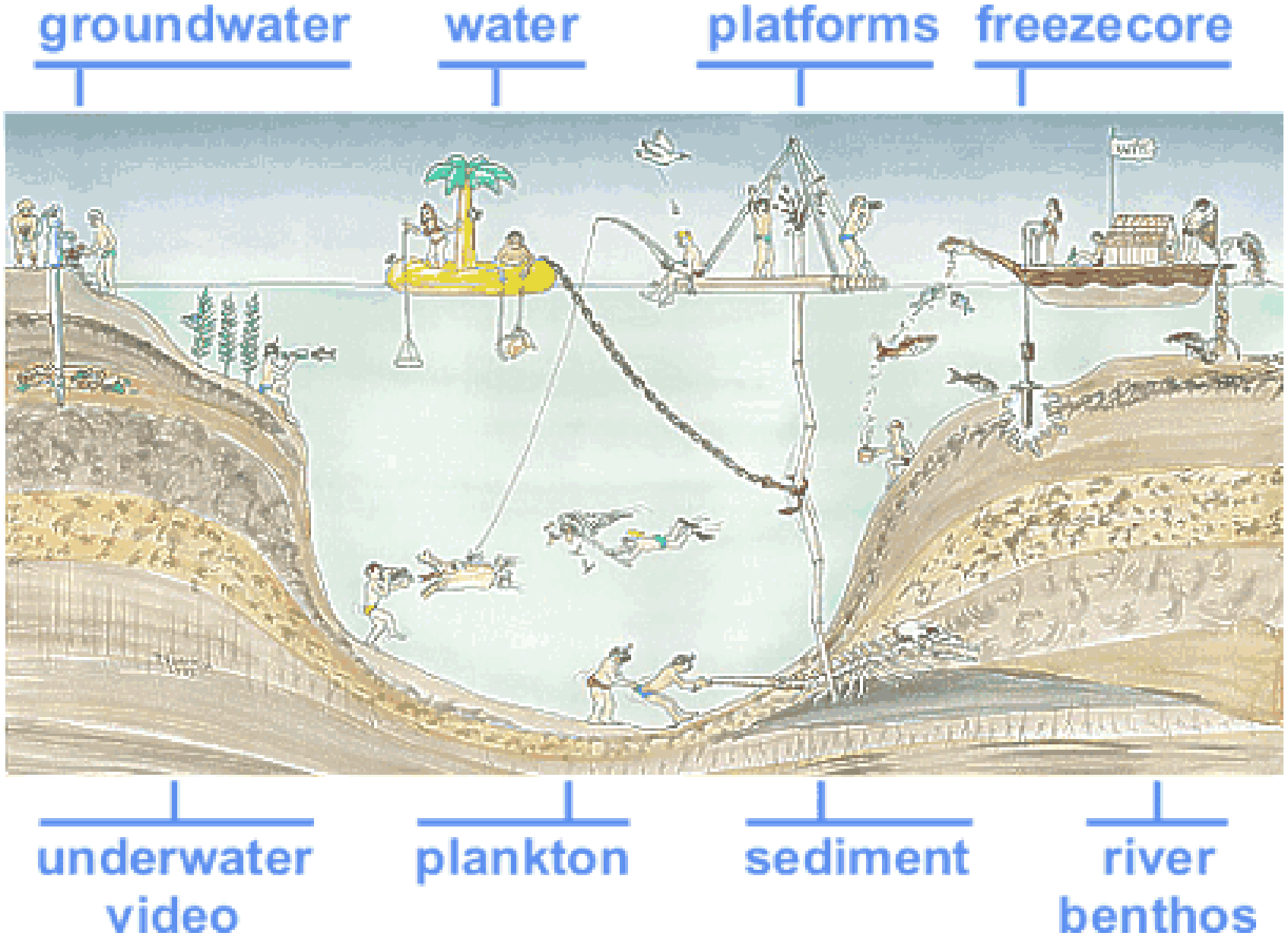
1 Lake Chungará
2 Lake Cotacotani
3 Lake Miñiques
4 Lake Miscanti
5 Lake Verde
6 Lake Grande
7 Lake Chepical
8 Lake Lo Encañado
9 Lake El Maule
10 Lake Vichuquén
11 Lake Matanzas
12 Lake El Peral
13 Lake Copin
14 Ciénaga de Name

EARTHQUAKES (Ms)
7,5 - 7,7
7,7 - 8,0
8,0- 8,5
8,5 - 9,5
VOLCANOS

TROPICAL AND SUBTROPICAL CLIMATE

Coastal desert climate
Continental desert climate
High Andean desert climate
Coastal Mediterranean climate
Continental Mediterranean climate
High Andean Mediterranean climate

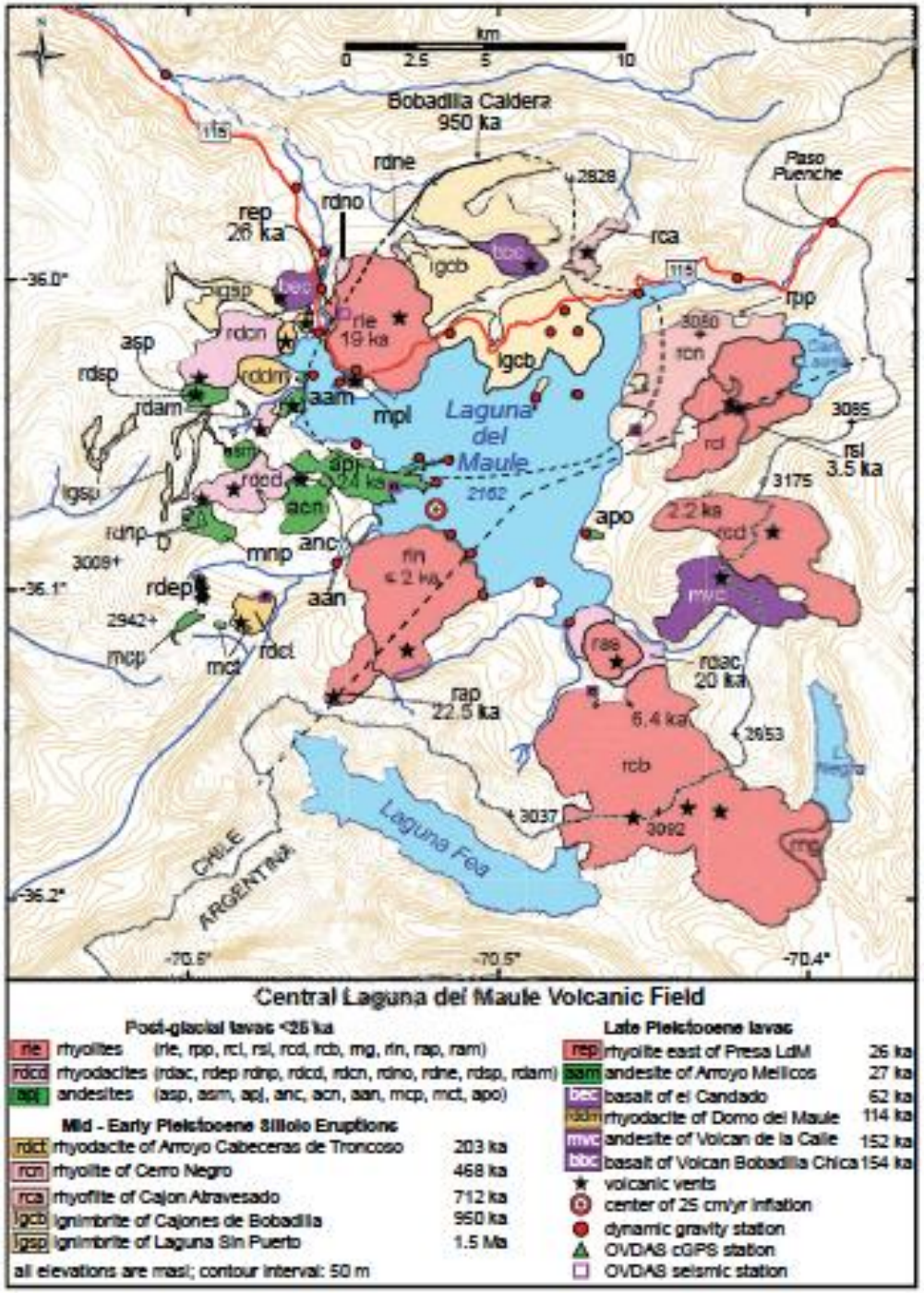
¿como obtener los sondeos




No sé si va a caber…


DONGFANG


¡ Esto nos pasa por no aparcar en zona azul !
CASE
CASE



Central Laguna del Maule Volcanic Field

Post-glacial lavas <25 ka

- rle rhyolites (rle, rpp, rcl, rsl, rcd, rcb, mg, rin, rap, ram)
- rdcd rhyodacites (rdac, rdep rdnp, rdcd, rdcn, rdno, rdne, rdsp, rdam)
- apj andesites (asp, asm, apj, anc, acn, aan, mcp, mct, apo)

Mid - Early Pleistocene Sillolo Eruptions

rdct	rhyodacite of Arroyo Cabeceras de Troncoso	203 ka
rcn	rhyolite of Cerro Negro	468 ka
rca	rhyolite of Cajon Atravesado	712 ka
igcb	ignimbrite of Cajones de Bobadilla	950 ka
igsp	ignimbrite of Laguna Sin Puerto	1.5 Ma

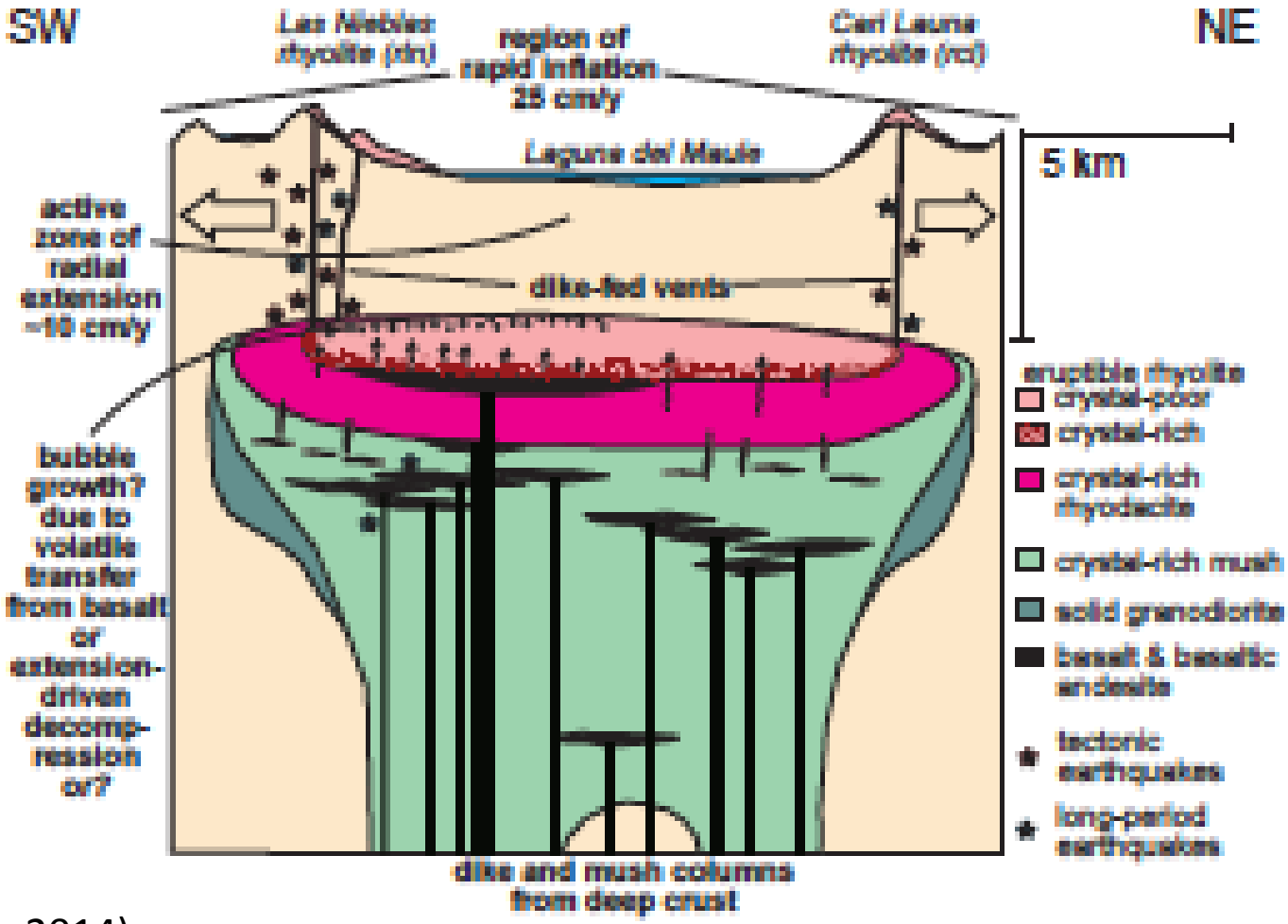
all elevations are masl; contour interval: 50 m

Late Pleistocene lavas

rep	rhyolite east of Presa LdM	26 ka
aam	andesite of Arroyo Mellicos	27 ka
bec	basalt of el Candado	62 ka
rdm	rhyodacite of Domo del Maule	114 ka
mvc	andesite of Volcan de la Calle	152 ka
bbc	basalt of Volcan Bobadilla Chica	154 ka

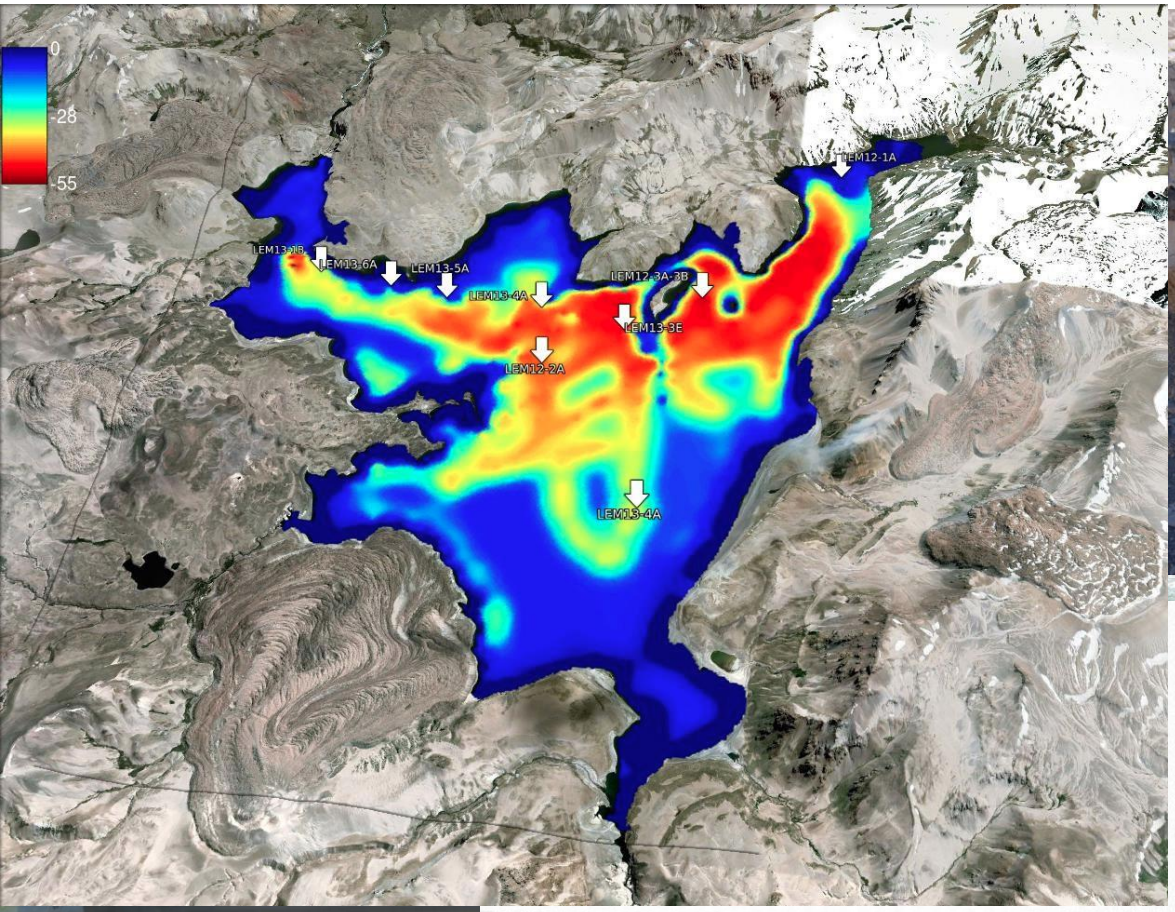
- ★ volcanic vents
- ◎ center of 25 cm/yr inflation
- ● dynamic gravity station
- ▲ OVDAS cGPS station
- □ OVDAS seismic station

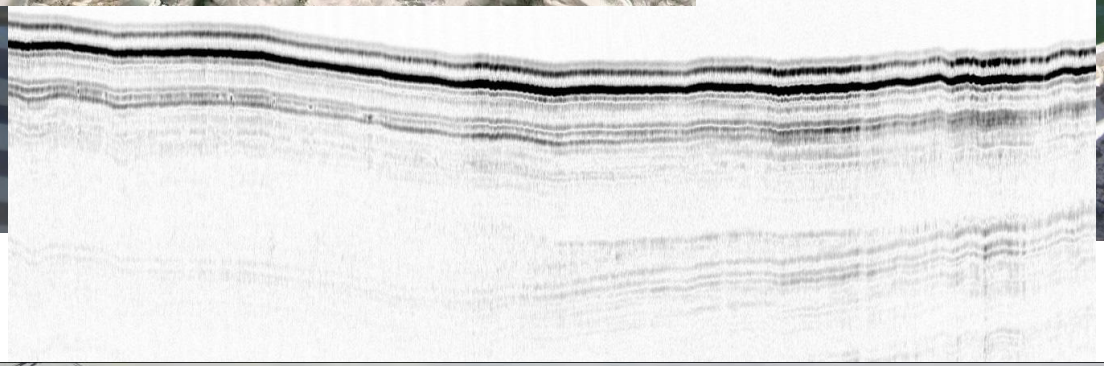
La “olla a presión” de El Maule



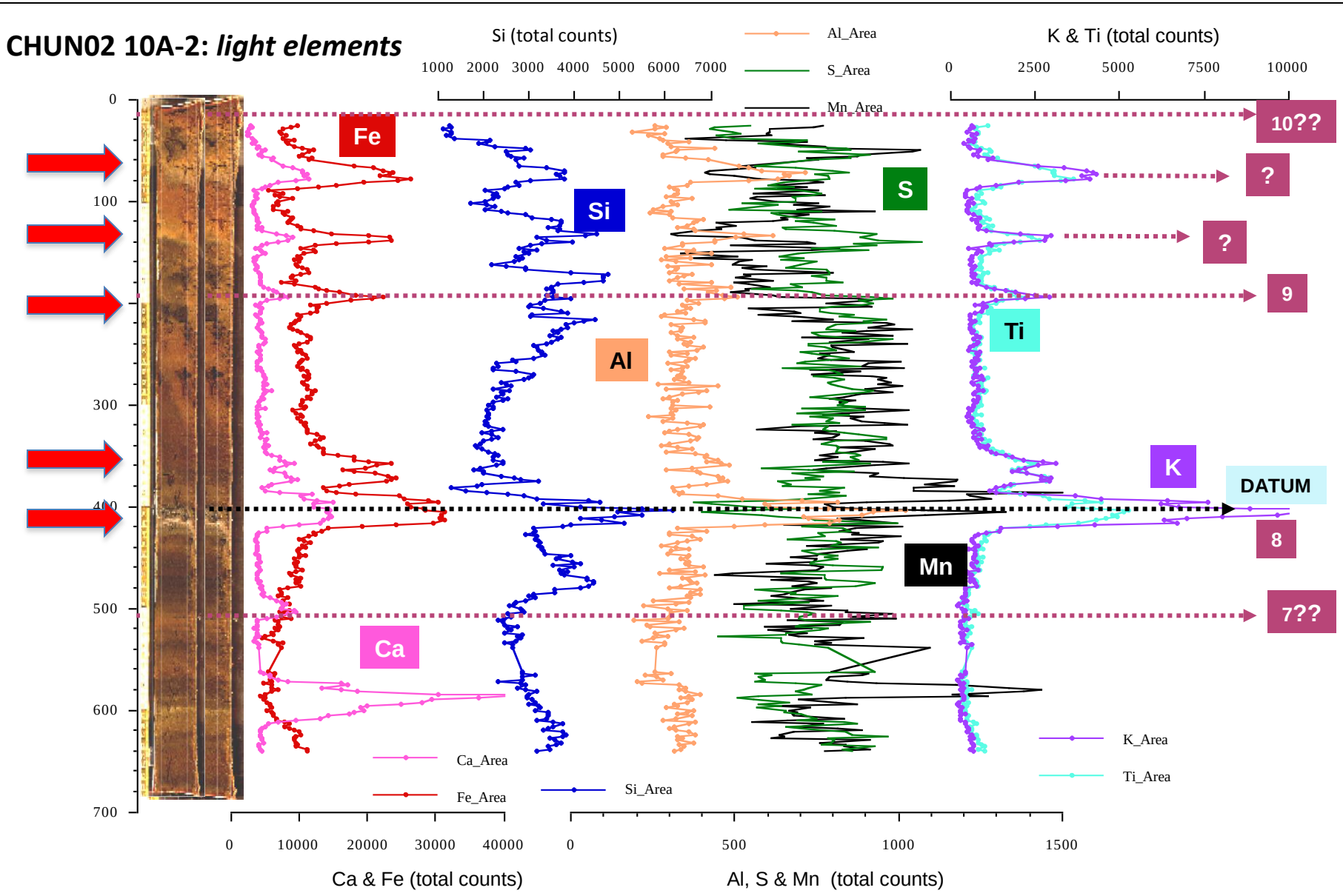
(Singer et al., 2014)

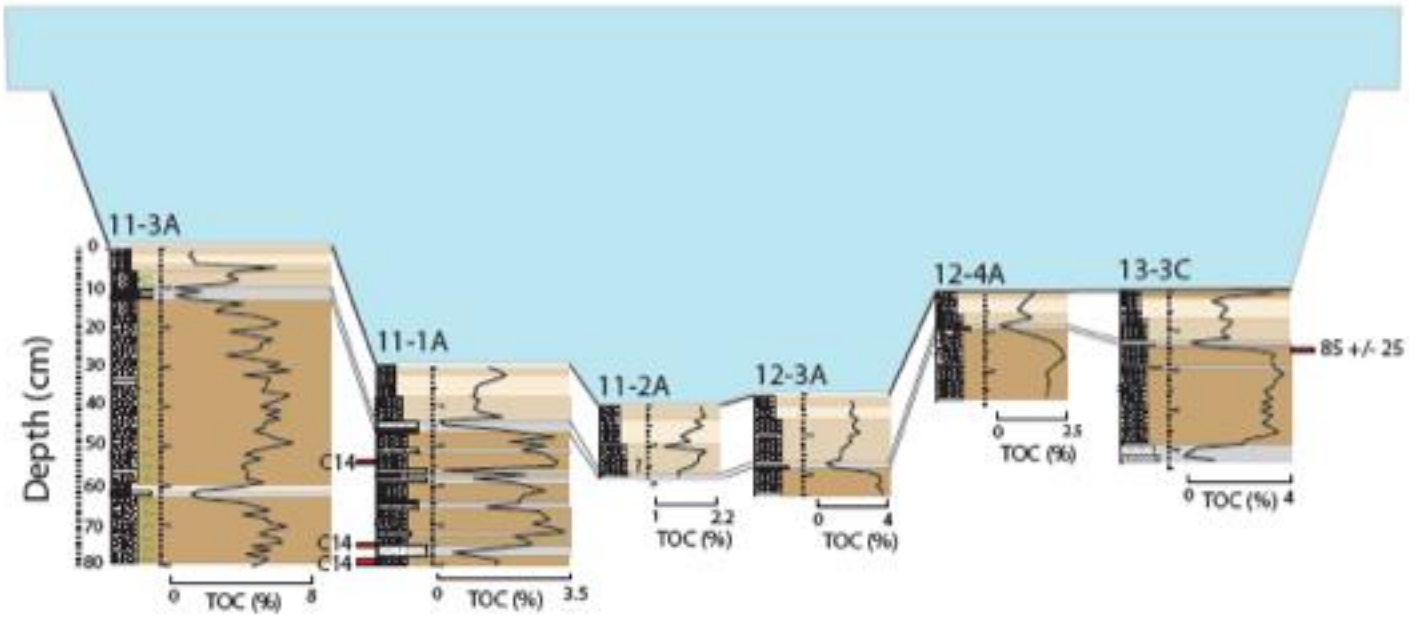

Con lo bien que estaba
yo en el Pirineo…


0
-28
-55
LEM13-3B
LEM13-6A
LEM13-5A
LEM13-4A
LEM12-3A-3B
LEM13-3E
LEM12-2A
LEM12-1A
LEM13-4A

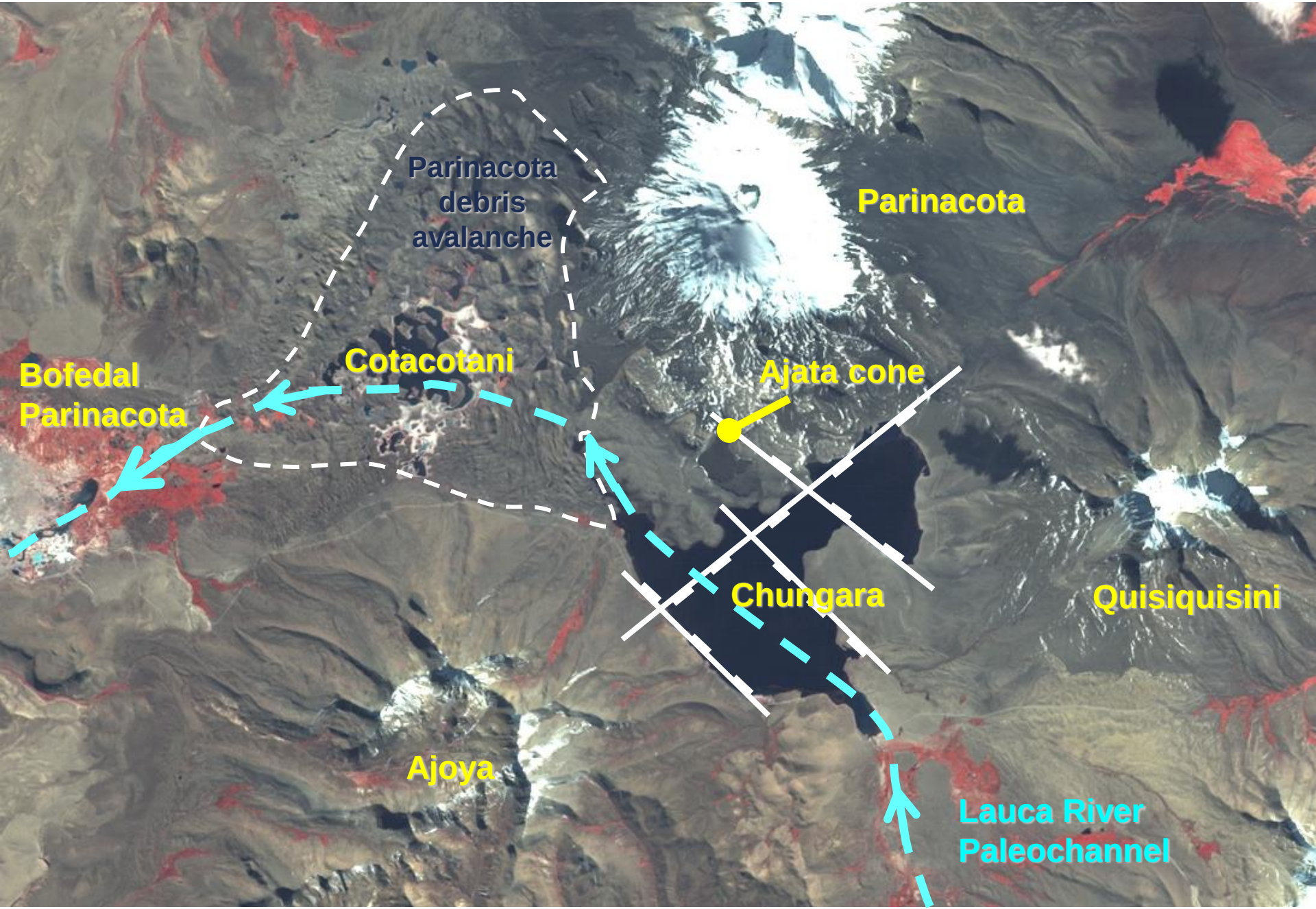


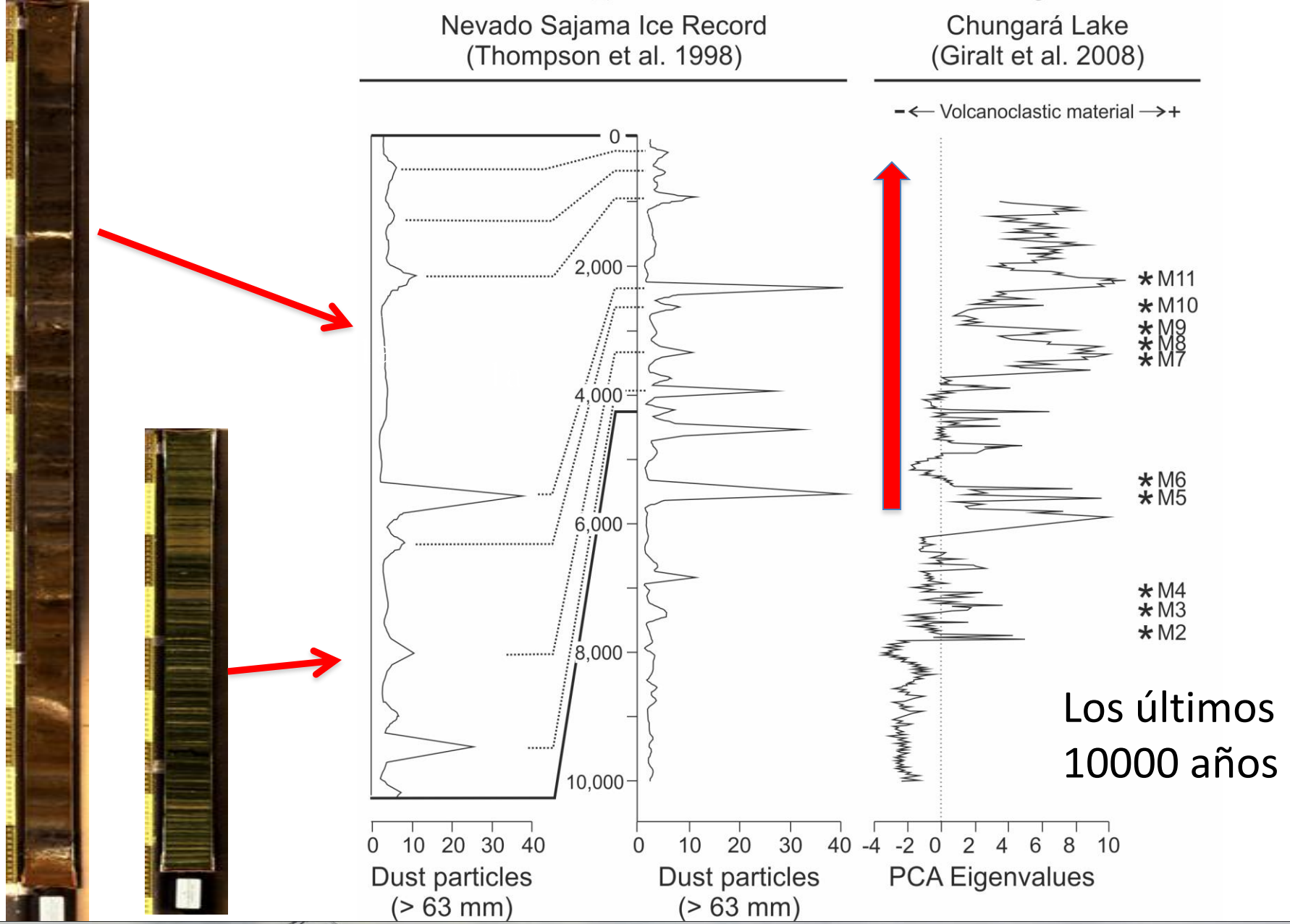
¿Dónde están las cenizas volcánicas?



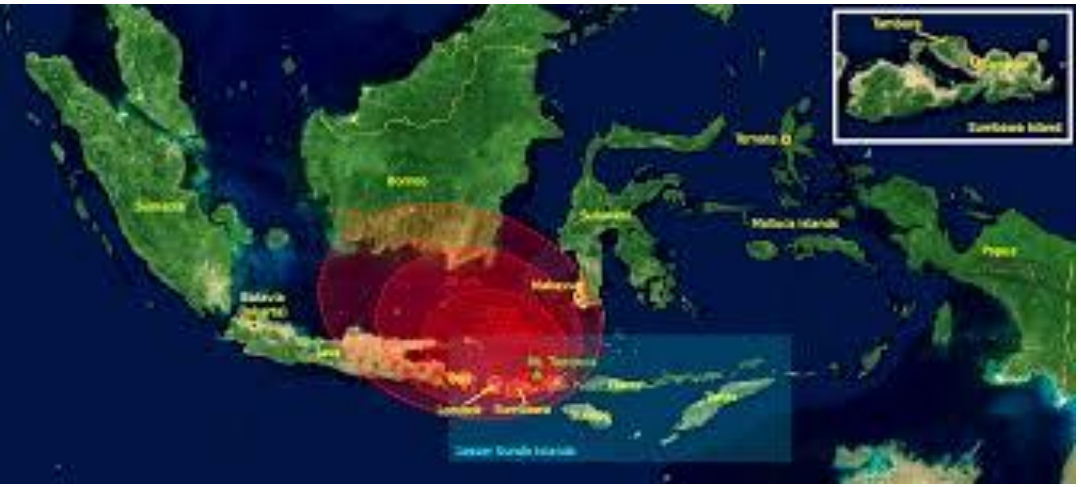


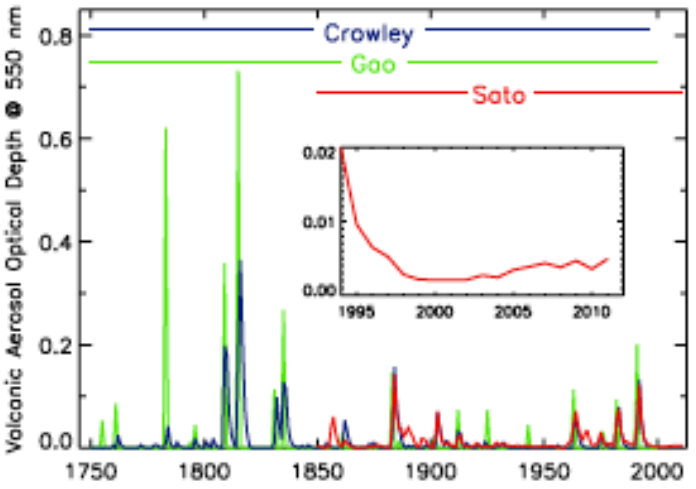
Los últimos 1000 años


Parinacota
debris
avalanche
Parinacota
Cotacotani
Bofedal
Parinacota
Ajata cone
Chungara
Quisiquisini
Ajoya
Lauca River
Paleochannel


Nevado Sajama Ice Record
(Thompson et al. 1998)
Chungará Lake
(Giralt et al. 2008)
Volcanoclastic material
0
2,000
4,000
6,000
8,000
10,000
M11
M10
M9
M8
M7
M6
M5
M4
M3
M2
0 10 20 30 40
Dust particles
(> 63 mm)
0 10 20 30 40
Dust particles
(> 63 mm)
-4 -2 0 2 4 6 8 10
PCA Eigenvalues
Los últimos
10000 años

Aerosoles y clima

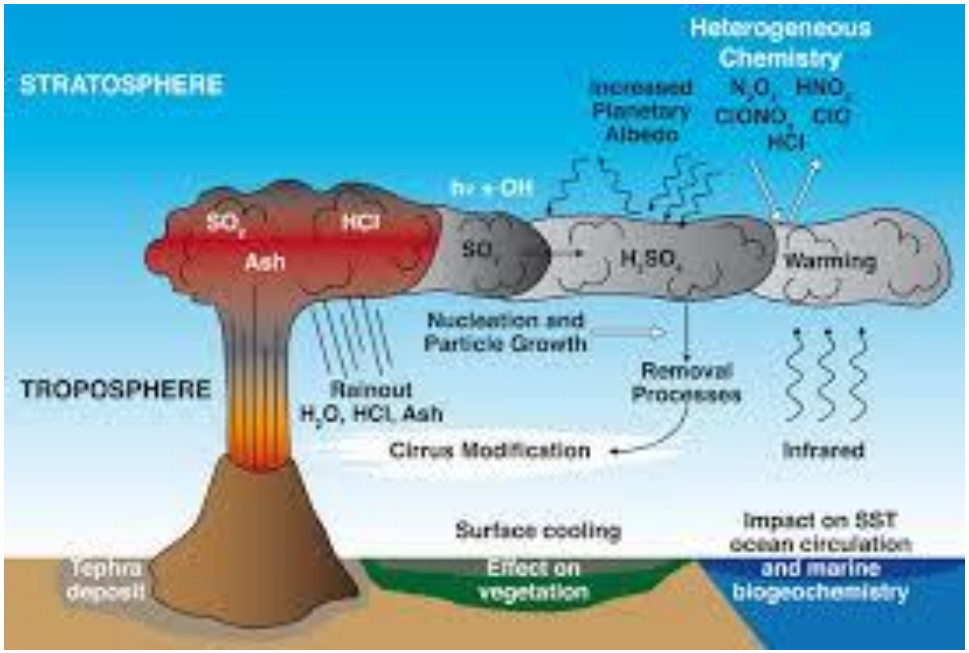




El año sin verano (1816):

Erupción del Tambora

Calentamiento global



Escribas y Centinelas

Lago Chungará
(Chile)

Radiotelescopio Arecibo
(Puerto Rico)

mirando al futuro....

¡Gracias!

¡Sin Ciencia no hay Futuro!