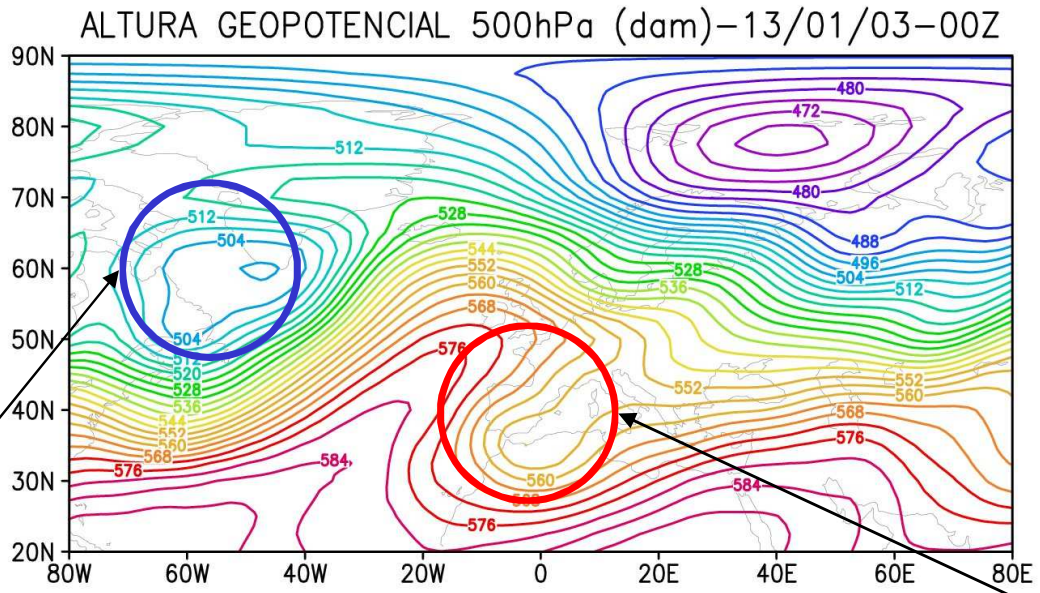
- Variación de la distribución horizontal de presión con la altura

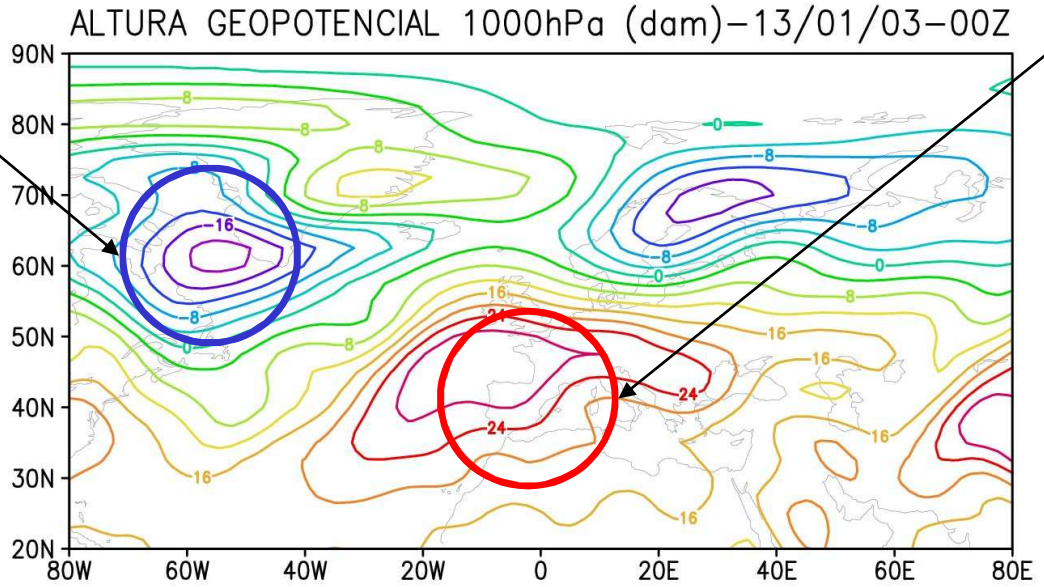
- Variación del viento geostrófico con la altura: viento térmico

- Atmósfera barotrópica y baroclínica

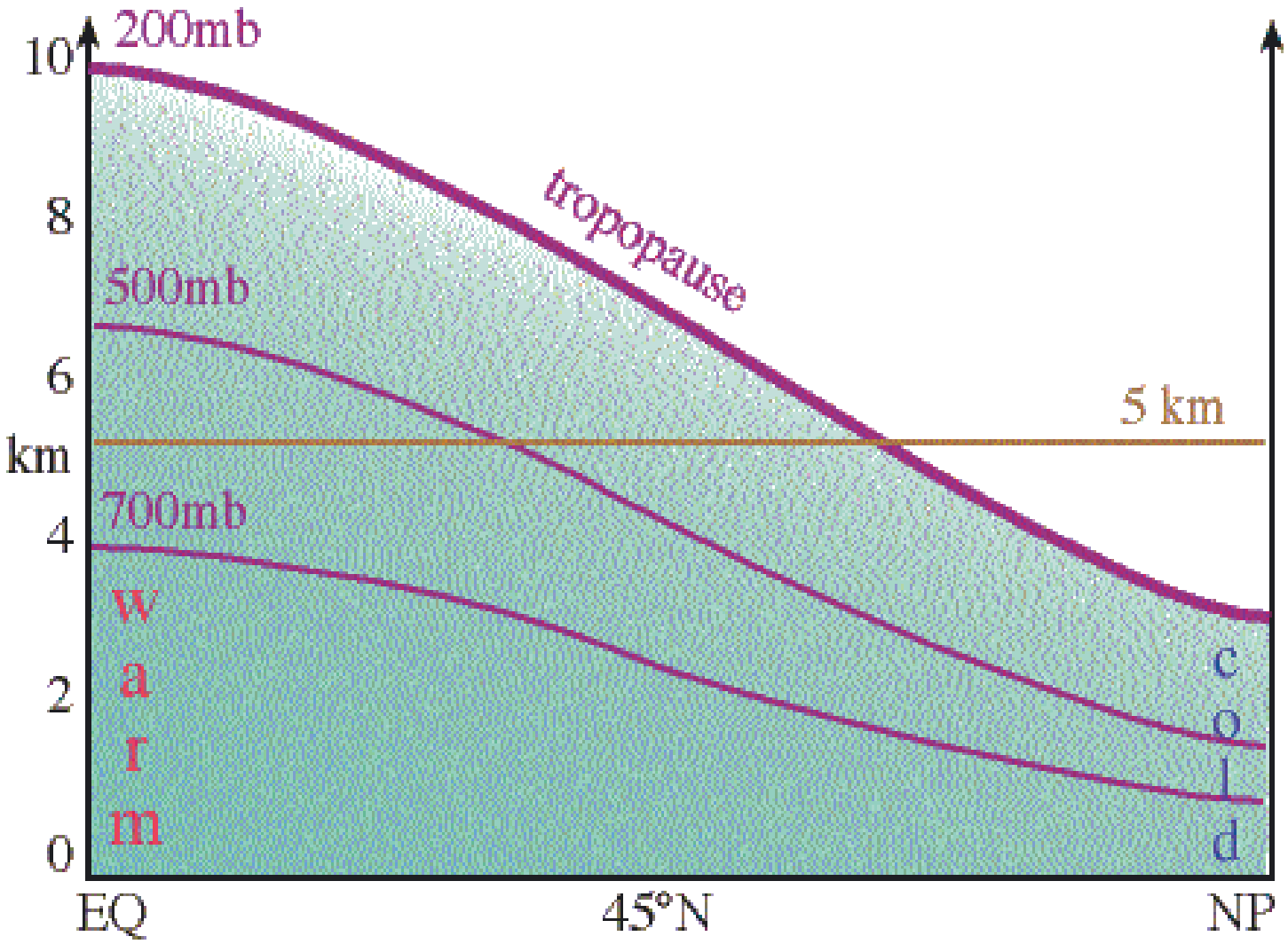
- Corriente en chorro

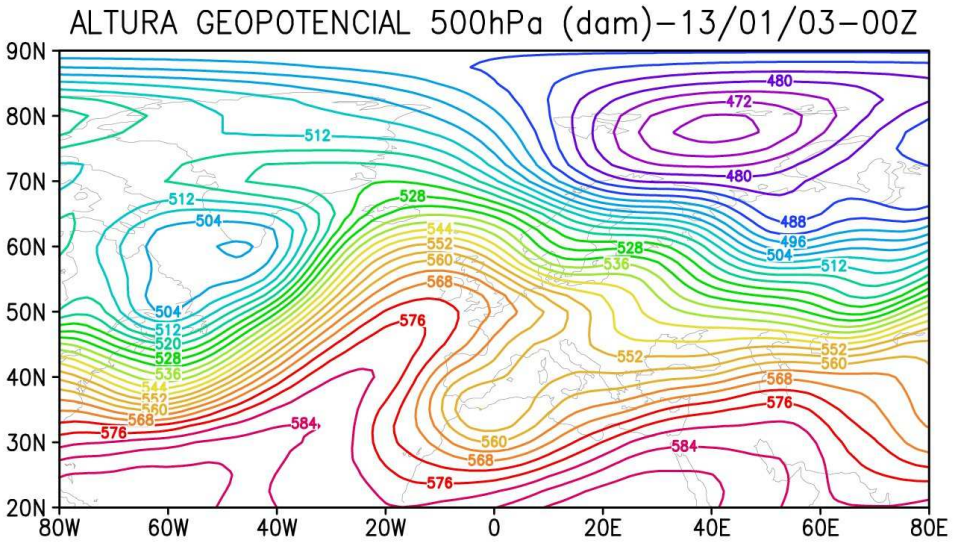
Baja **fría**

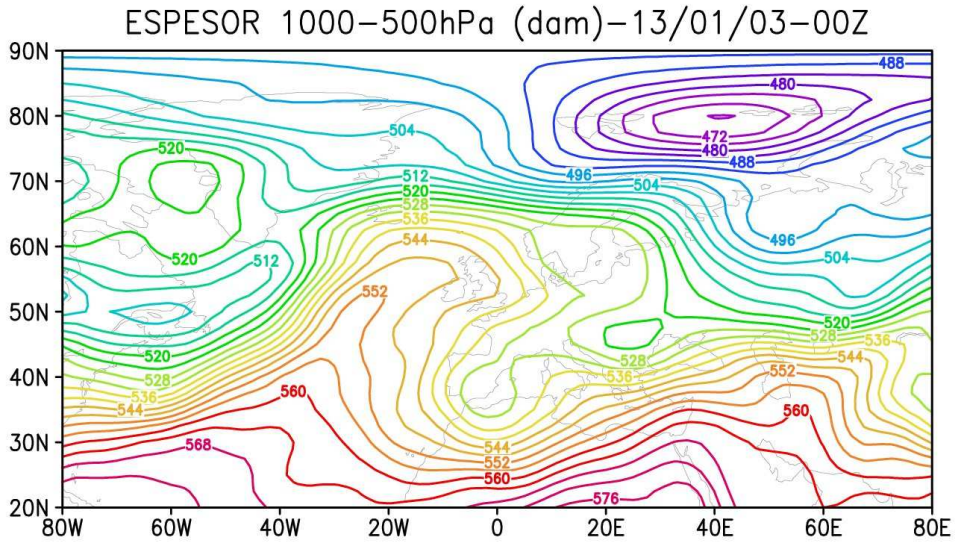


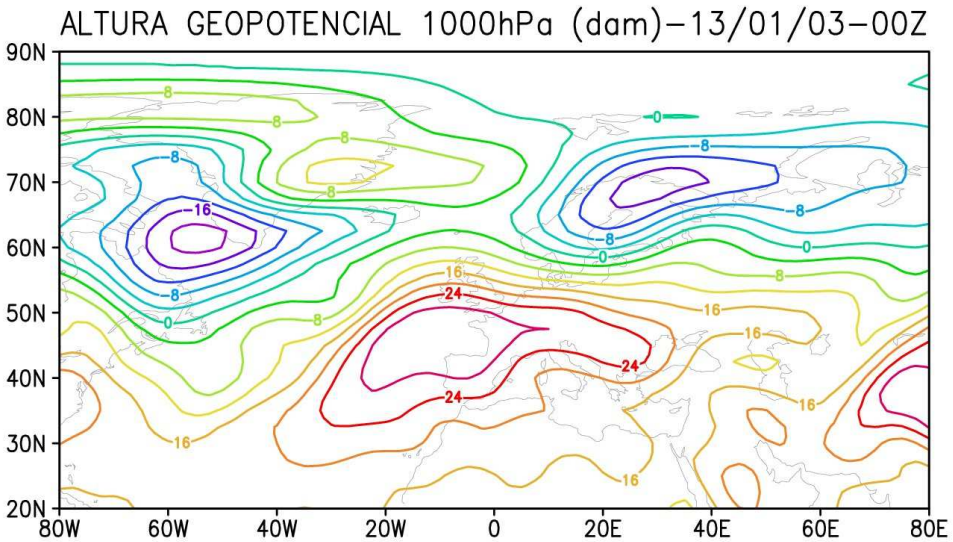


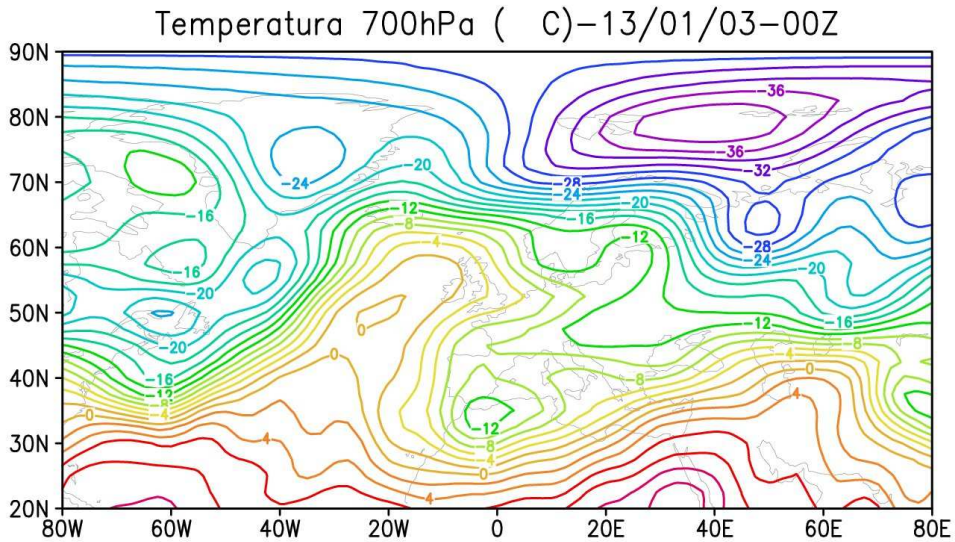
Anticiclón **frío**

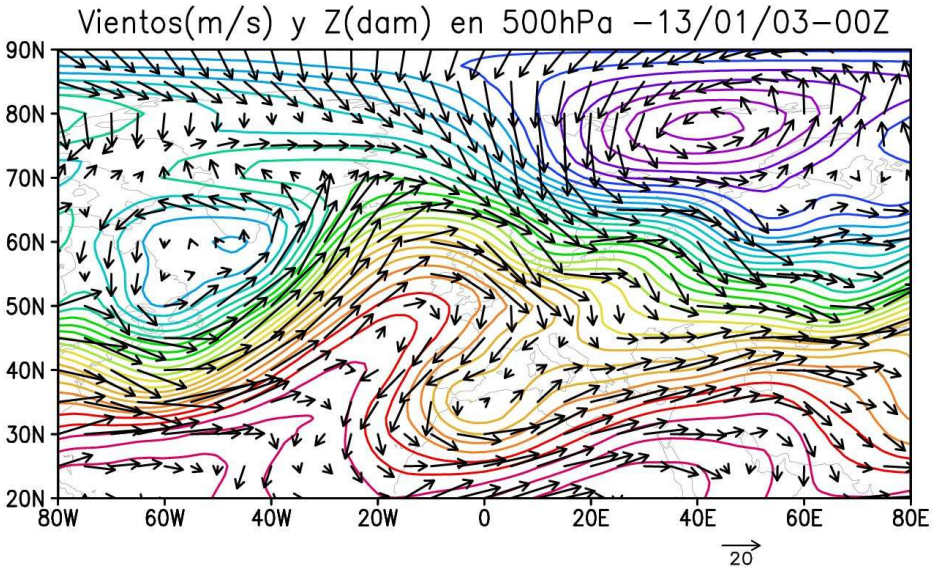

200mb
10
8
500mb
6
km
5 km
700mb
4
w
a
r
m
2
0
tropopause
c
o
l
d
EQ
45°N
NP

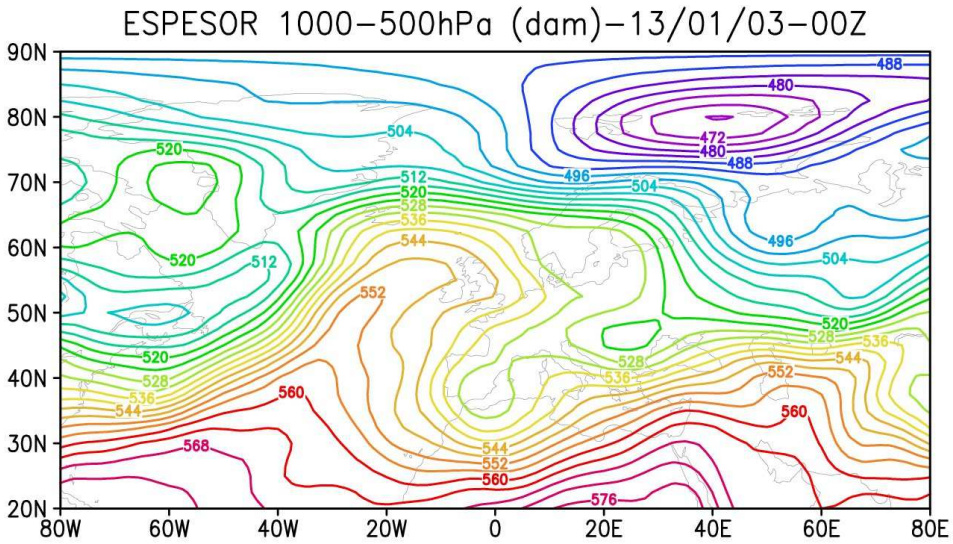

ALTURA GEOPOTENCIAL 500hPa (dam)–13/01/03–00Z
90N
80N
70N
60N
50N
40N
30N
20N
80W
60W
40W
20W
0
20E
40E
60E
80E

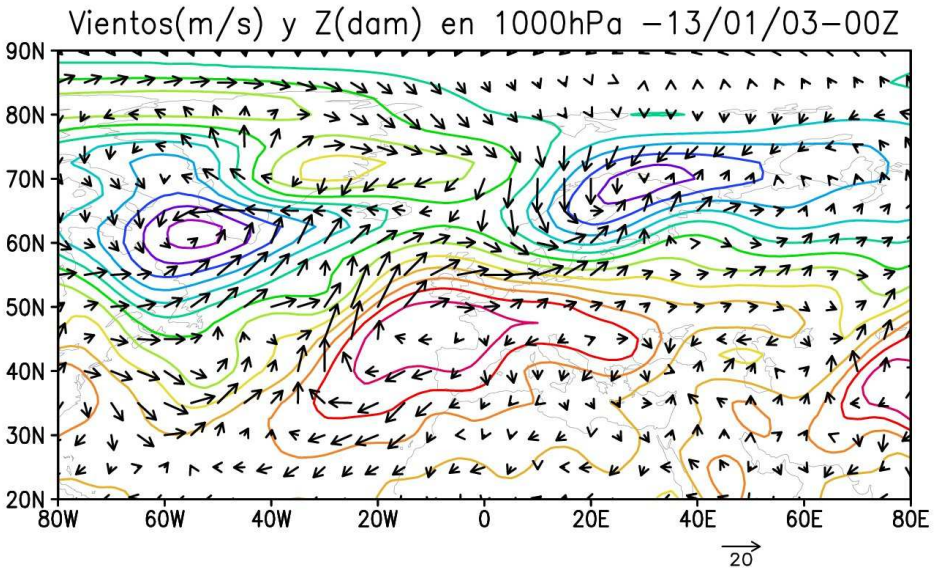

ESPESOR 1000–500hPa (dam)–13/01/03–00Z
90N
80N
70N
60N
50N
40N
30N
20N
80W
60W
40W
20W
0
20E
40E
60E
80E

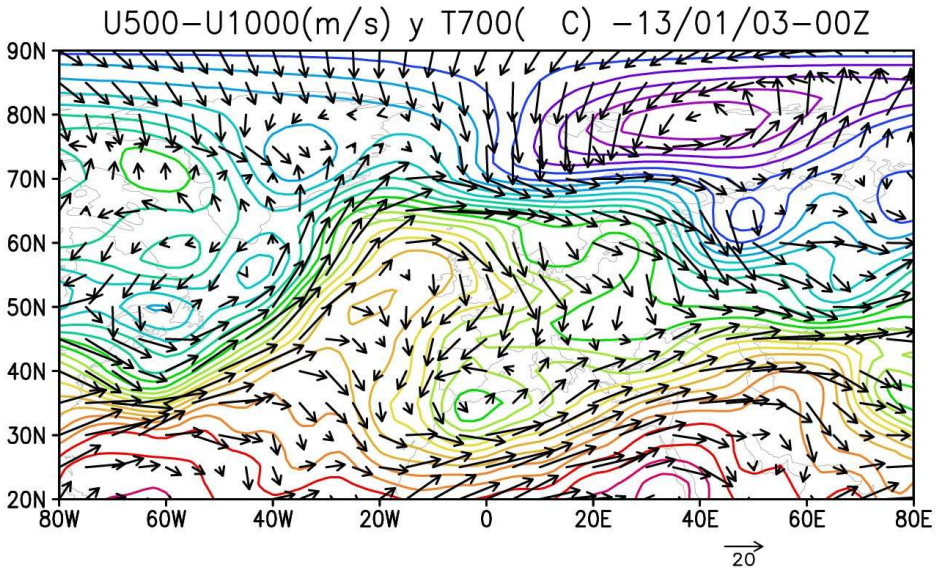

ALTURA GEOPOTENCIAL 1000hPa (dam)–13/01/03–00Z
90N
80N
70N
60N
50N
40N
30N
20N
80W
60W
40W
20W
0
20E
40E
60E
80E


Temperatura 700hPa (C)–13/01/03–00Z
90N
80N
70N
60N
50N
40N
30N
20N
80W
60W
40W
20W
0
20E
40E
60E
80E


Vientos(m/s) y Z(dam) en 500hPa −13/01/03−00Z
90N
80N
70N
60N
50N
40N
30N
20N
80W
60W
40W
20W
0
20E
40E
60E
80E
20

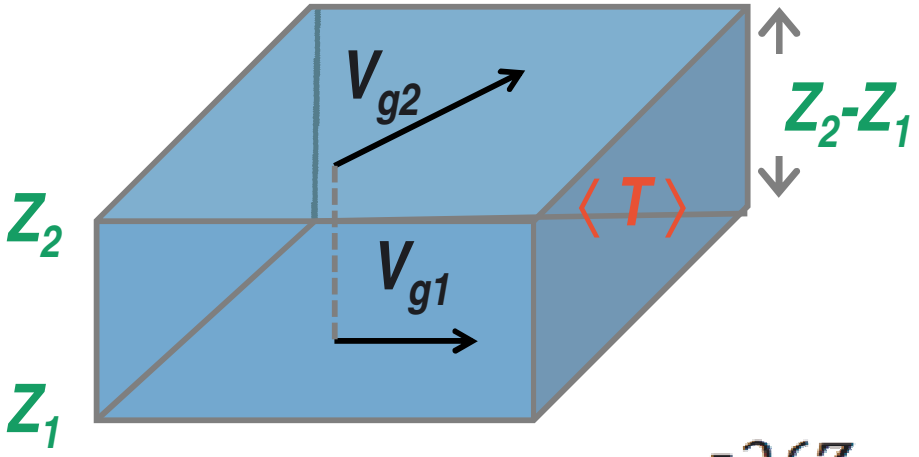

ESPESOR 1000−500hPa (dam)−13/01/03−00Z
488
480
472
504
520
512
496
528
536
544
552
560
568
576


Vientos(m/s) y Z(dam) en 1000hPa −13/01/03−00Z
90N
80N
70N
60N
50N
40N
30N
20N
80W
60W
40W
20W
0
20E
40E
60E
80E
20


U500−U1000(m/s) y T700(C) −13/01/03−00Z
90N
80N
70N
60N
50N
40N
30N
20N
80W
60W
40W
20W
0
20E
40E
60E
80E
20

$$\frac{\partial Z}{\partial p} = -\frac{1}{\rho g_0} = -\frac{RT}{g_0 P} \longrightarrow Z_2 - Z_1 = \frac{R}{f g_0}\langle T\rangle \ln\frac{p_1}{p_2}$$

Espesor del estrato $\propto$ Temperatura media



Viento térmico

$$u_T = u_{g2} - u_{g1} = -\frac{g_0}{f}\left[\frac{\partial(Z_2 - Z_1)}{\partial y}\right]_p = -\frac{R}{f g_0}\left[\frac{\partial\langle T\rangle}{\partial y}\right]_p \ln\frac{p_1}{p_2}$$

$$v_T = v_{g2} - v_{g1} = +\frac{g_0}{f}\left[\frac{\partial(Z_2 - Z_1)}{\partial x}\right]_p = +\frac{R}{f g_0}\left[\frac{\partial\langle T\rangle}{\partial x}\right]_p \ln\frac{p_1}{p_2}$$

módulo $|\boldsymbol{V}_T| = \frac{R}{f g_0}\nabla_p\langle T\rangle \ln\frac{p_1}{p_2}$

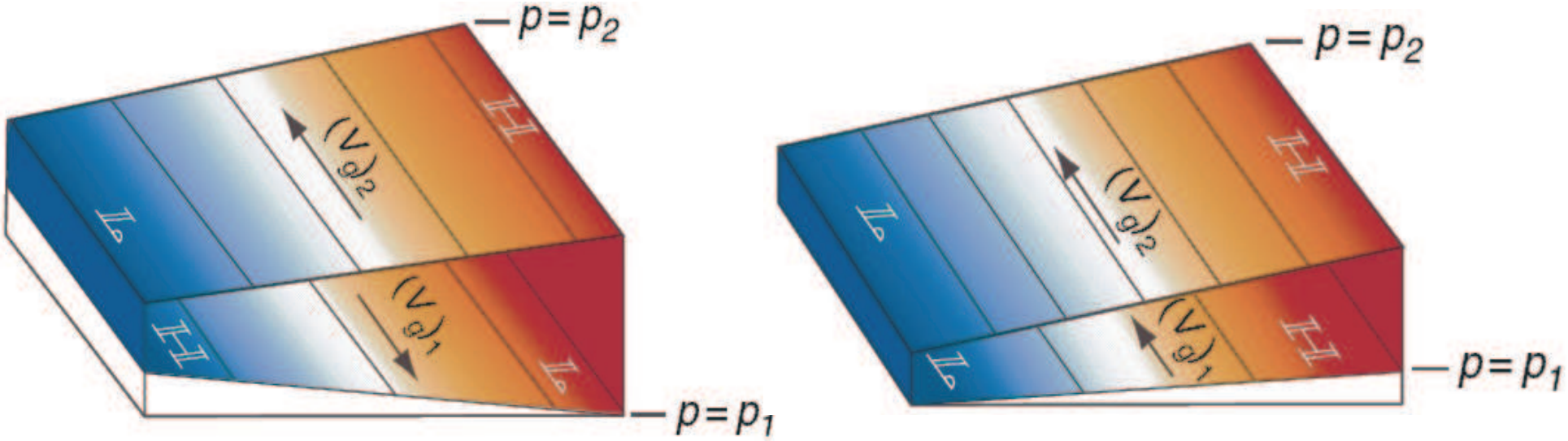
Paralelo a las isotermas, dejando a la derecha la T más alta

Atmósfera barotrópica $\rho = \rho(p)$

superficies isobáricas → isotermas → $\nabla_p\langle T\rangle=0$ → $V_T=0$

Atmósfera barotrópica equivalente

isohipsas ≡ isotermas → V_g y V_T paralelos a ambas



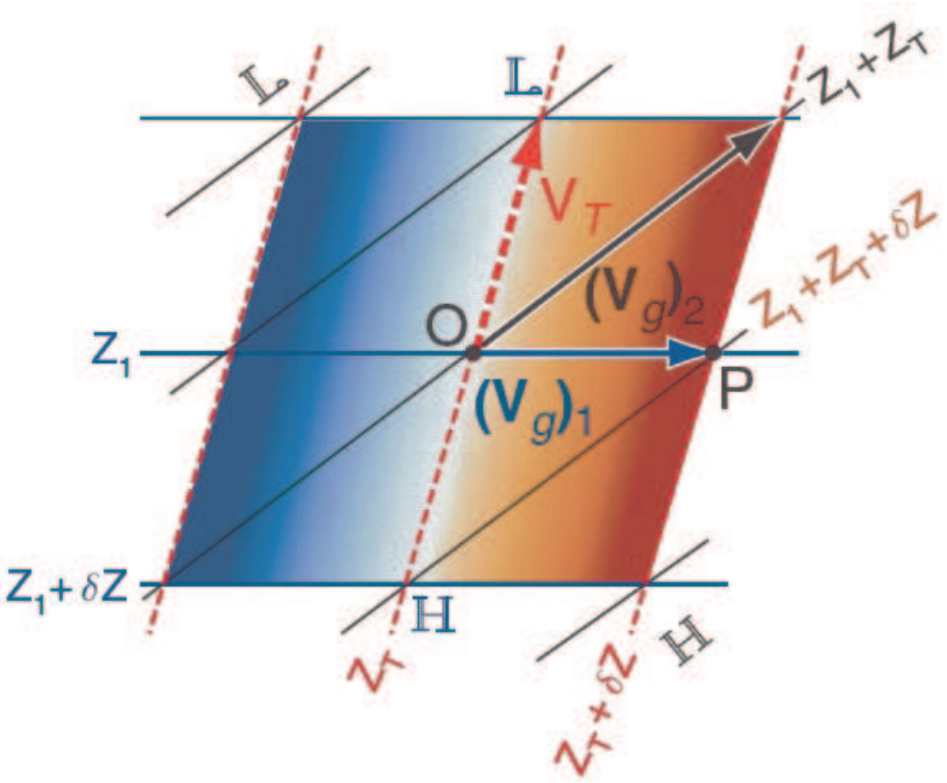
En estos dos casos, no hay advección térmica

$$-\boldsymbol{V}_g \cdot \nabla_H T = 0$$

Atmósfera baroclínica $\rho = \rho(p,T)$

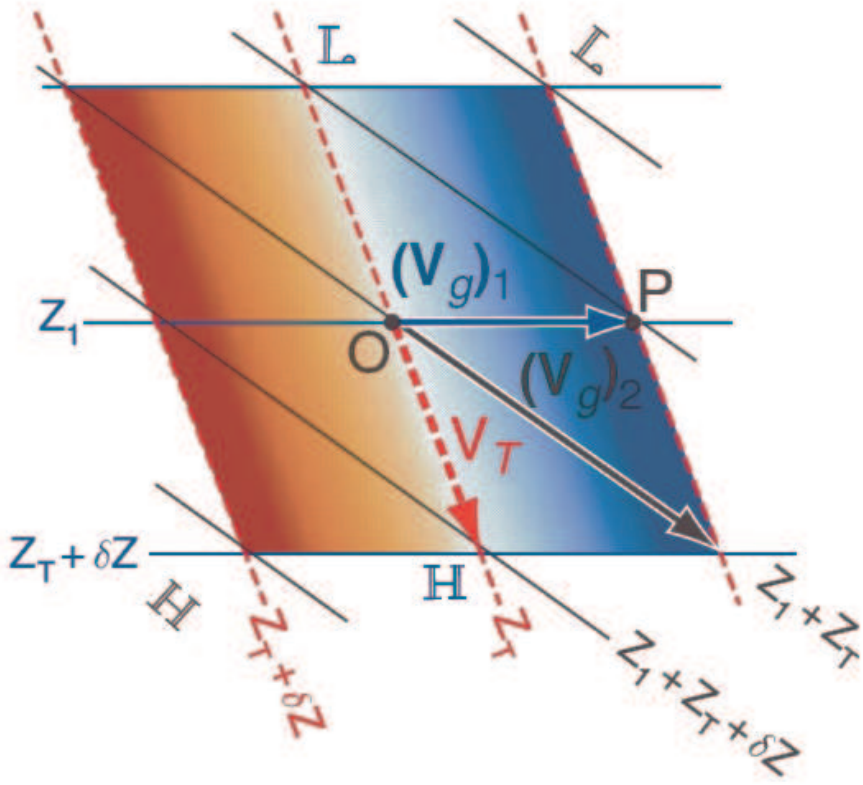
isohipsas ≠ isotermas → V_g y V_T no paralelos → advección térmica

Fría



$$-\boldsymbol{V}_g \cdot \nabla_H T < 0$$

Cálida

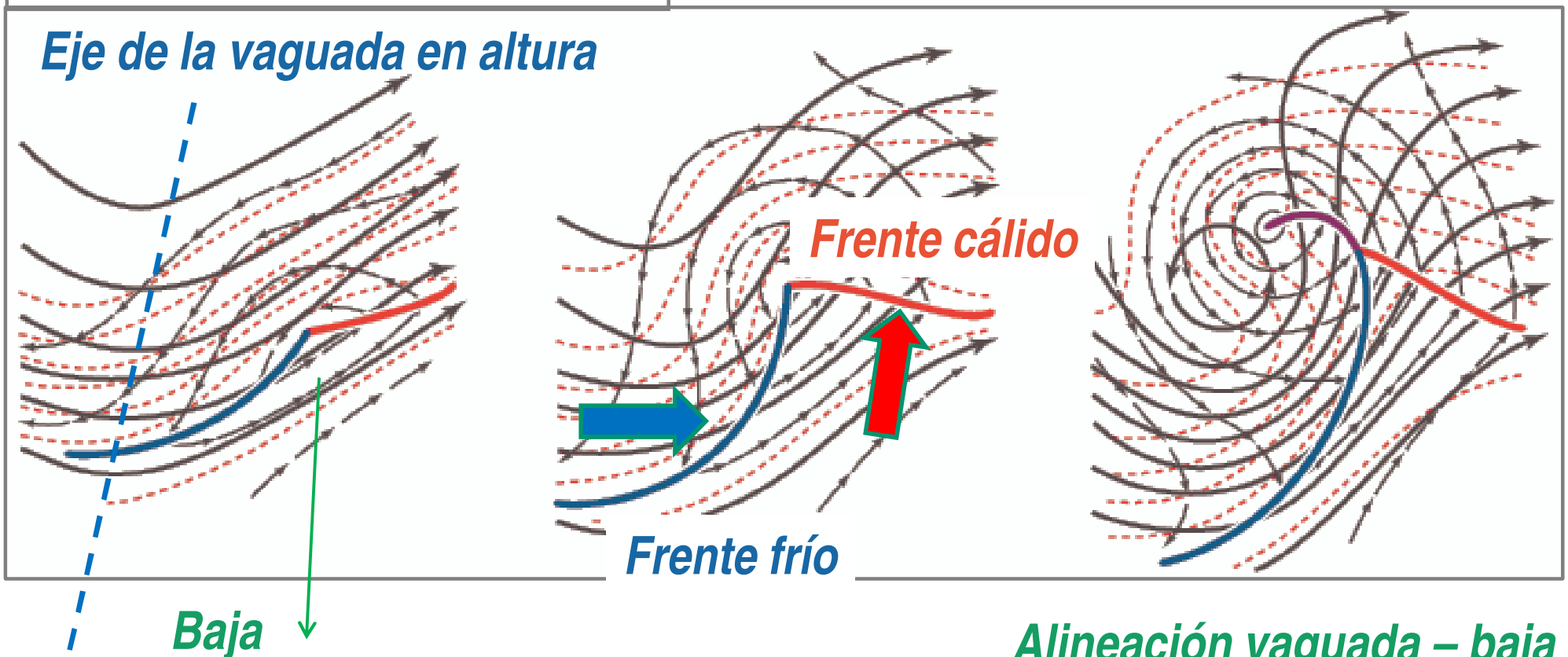


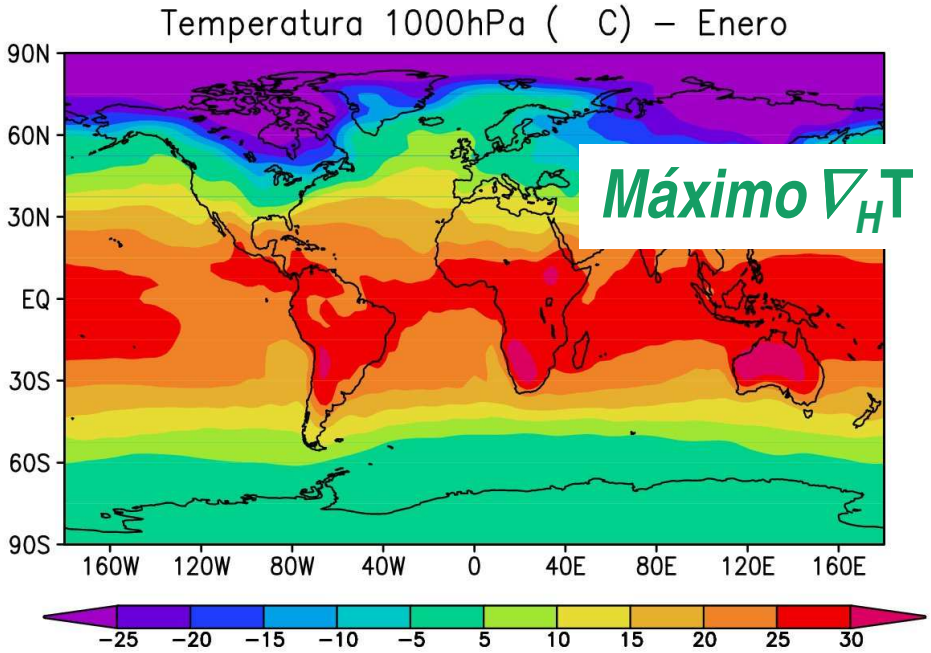
$$-\boldsymbol{V}_g \cdot \nabla_H T > 0$$

Atmósfera baroclínica $\rho = \rho(p,T)$

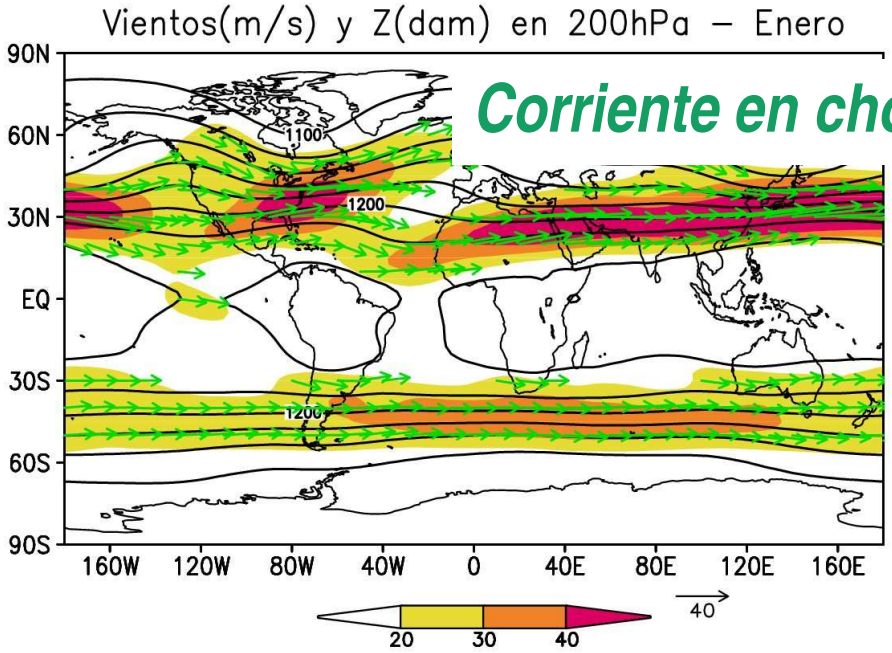
isohipsas ≠ isotermas → V_g y V_T no paralelos → advección térmica

Inestabilidad baroclínica





Máximo $\nabla_H T$



Corriente en chorro