

1. NATURAL DATA

Fo: Import: C = C(x) Uncertainty C: +/- 0.003

2. MODEL

PARAMETERS TO DETERMINE THE DIFFUSIVITY

T(°C): 1000 s(T): 5 P(Pa): 2000000 log(P02 -atm-)

NNO = 2

[100] (°): 90 [010] (°): 90 [001] (°): 0

BOUNDARY AND INITIAL CONDITIONS

k,f(x) C(x,t=0): 0.726 plot

k,f(t) C(x,min,t): 0.733

k,f(t) C(x,max,t): 0.726

NUMERICAL SCHEME

Xmax (μm): 70.806

Dx (μm): 17.7015

time iterations: 600

Dt (s): 400000

CFL: 0.33 (Dt * D / Dx^2 < 0.5)

COMPUTE

3. TIME RANGE

tmax (days): 2778

tmin (days): 4.63

PLOT: C=C(x)

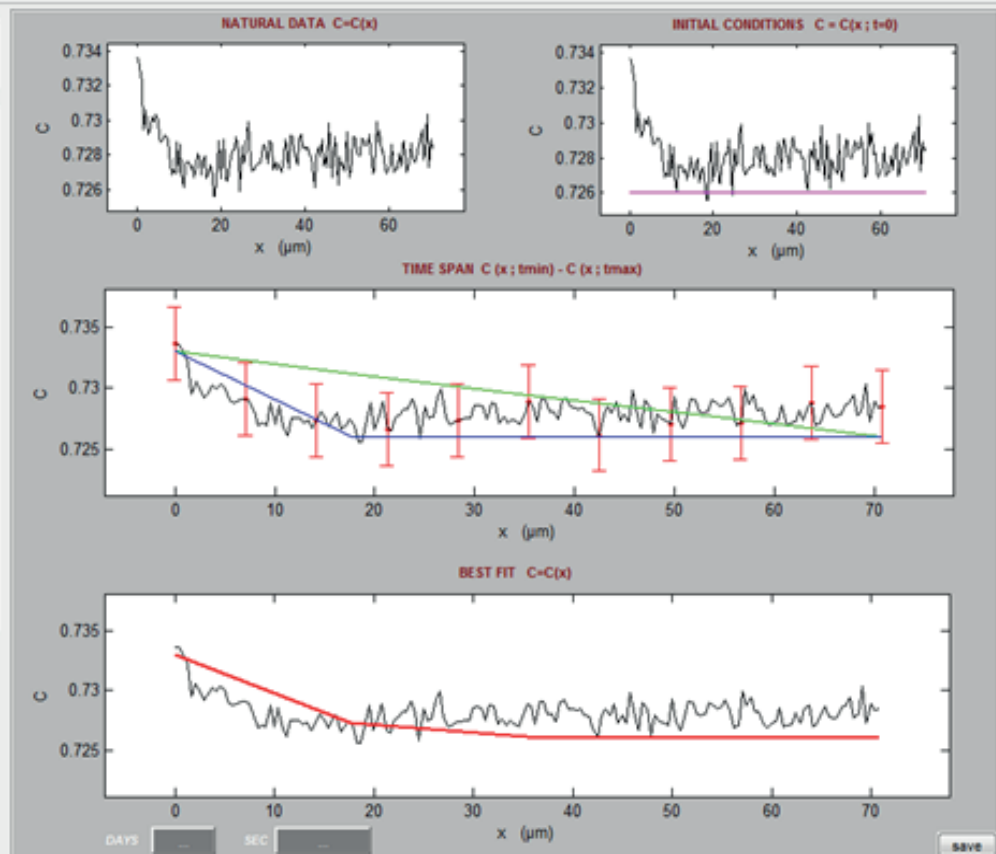
4. BEST FIT

run Discrepancy (%) 9

stop Time (days): 23.15

reset Error (days) - 10.93

save Error (days) + 11.07



Supplementary figure 2: Olivine diffusions profiles for sample 15_SSH7B_ol02, using diffusion of Forsterite (using the Diapra program (Girona and Costa, 2013). The estimated diffusion timescale for this reverse zoning is 23 days.