

**1. NATURAL DATA**

File:  Import: C = C(x) Uncertainty C: +/-

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**2. MODEL**

**PARAMETERS TO DETERMINE THE DIFFUSIVITY**

T(°C):  s(T):  P(Pa):

NVO =

[100] (°):  [010] (°):  [001] (°):

**BOUNDARY AND INITIAL CONDITIONS**

C(x,t=0):

C(xmin,t):

C(xmax,t):

**NUMERICAL SCHEME**

Xmax (μm):

Dx (μm):

time iterations:

Dt (s):

CFL:

( $Dt \cdot D / Dx^2 < 0.3$ )

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**3. TIME RANGE**

tmax (days):

tmin (days):

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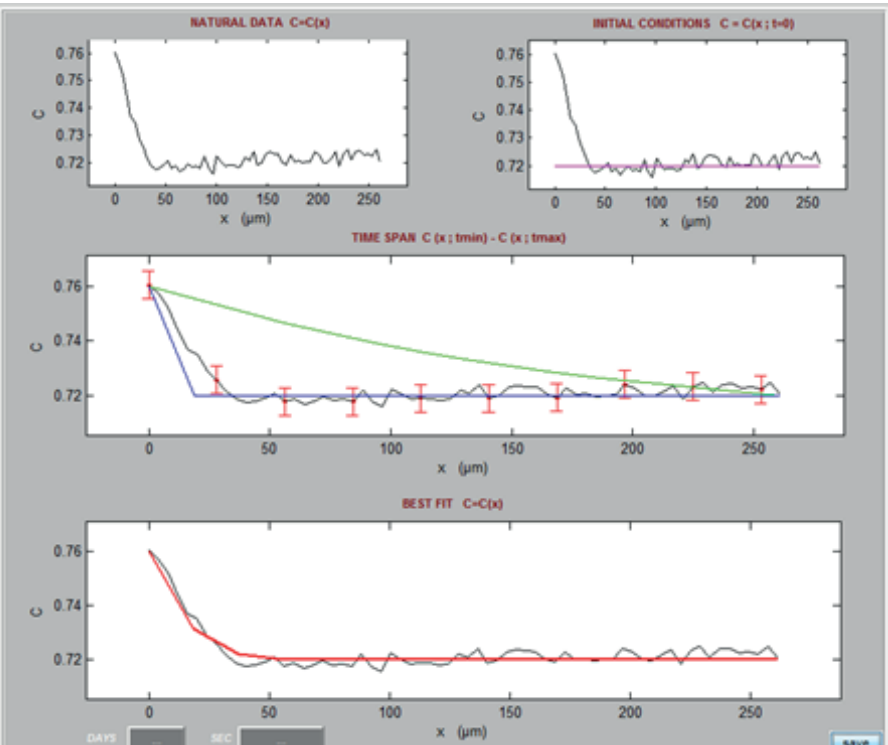
**4. BEST FIT**

Discrepancy (%):

Time (days):

Error (days) - :

Error (days) + :



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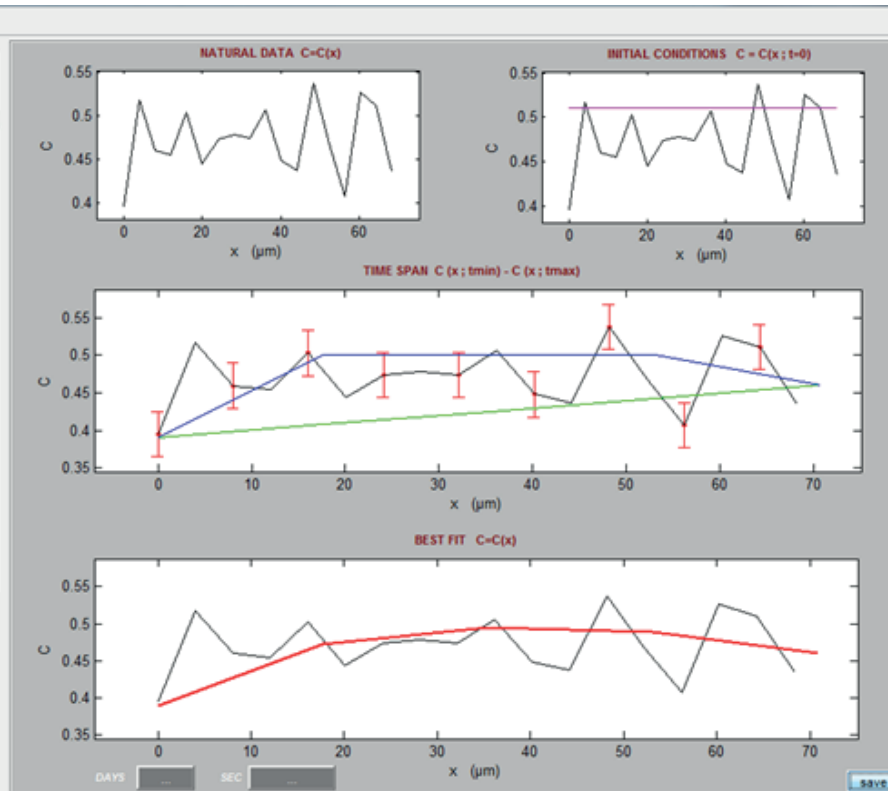
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Supplementary figure 1: Olivine diffusions profiles for sample 15\_SSH7B\_ol02, using diffusion of Forsterite (top) and Maganese (bottom) using the program Diapra (Girona and Costa, 2013). The estimated diffusion timescales give 42 and 32 days respectively for this reversely zoned Olivine.