JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 99, NO. B10, PAGE 20,059, OCTOBER 10, 1994

Correction to "Physical model of source region of subduction zone volcanics" by J. Huw Davies and D. J. Stevenson

J. Huw Davies and Andrea Thornton
Department of Earth Sciences, University of Liverpool, Liverpool, England

David J. Stevenson
Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena

In the paper "Physical model of source region of subduction zone volcanics" by J. Huw Davies and D. J. Stevenson, (*Journal of Geophysical Research, 97* (B2), 2037-2070, 1992), expression (A1) in Appendix A is incorrect and should read

$$\frac{T_1-T_{1/2}}{T_{1/2}-T_0}=\frac{l_2}{\beta l_1}\Phi(\beta)\sqrt{\pi/4}, \qquad \text{(A1)}$$

where $\beta=\sqrt{V_0 l_2/2\kappa}$. Repeating the example in the appendix; i.e., where l_1=5 km, l_2=5 km V_0=7 cm/yr, T_1=1.0, T_0=0.0, and κ= 10^{-6} m^2 s^{-1}, we find that $T_{1/2}$=0.73. This shows that such a high velocity impinging on a stationary region can lead to high temperatures at the interface. In contrast, the mantle flow in a subduction zone impinges on a moving slab; it is the downward advection of cold lithosphere by the subducting slab that is critical in reducing the interface temperatue in this region. The above error does not affect any of the results or conclusions in the body of the paper, since the body of the paper is independent of Appendix A.

In section A.2 of Appendix A, the axis convention should read "the x axis is perpendicular to the slab (negative out into the wedge)".

Figure 7c has a younger oceanic plate than Figure 7d, so it is not strictly an enlargement of Figure 7d, as stated in the figure caption. The temperatures in the regions of interest, the slab-wedge interface and the mantle wedge, are virtually unaffected by the age of the subducting plate as stated in the paper. The temperature of the subducting plate though does depend upon its age, but since the temperatures in the slab were subsolidus, their exact values had no bearing on the discussion of magmatism and the conclusions.

We would like to acknowledge K. Bose, who pointed out the convention error in Appendix A.2 and the error in the figure caption of Figure 7.

(Received June 27, 1994)

Paper number 94JB01795.
0148-0227/94/94JB-01795$02.00