



## Reply to Karaoğlu and Erkül's comment on: "Paleomagnetic evidence for an inverse rotation history of Western Anatolia during the exhumation of Menderes core complex"



Bora Uzel<sup>a,\*</sup>, Cornelis G. Langereis<sup>b</sup>, Nuretdin Kaymakci<sup>c</sup>, Hasan Sözbilir<sup>a</sup>,  
Çağlar Özkaymak<sup>d</sup>, Murat Özkaptan<sup>c</sup>

<sup>a</sup> Dokuz Eylül University, Department of Geological Engineering, TR-35160 İzmir, Turkey

<sup>b</sup> Utrecht University, Fort Hoofddijk Paleomagnetic Laboratory, 3584-CD Utrecht, The Netherlands

<sup>c</sup> Middle East Technical University, Department of Geological Engineering, TR-06531 Ankara, Turkey

<sup>d</sup> Afyon Kocatepe University, Department of Geological Engineering, TR-03200 Afyon, Turkey

### ARTICLE INFO

#### Article history:

Received 18 June 2015

Accepted 5 July 2015

Editor: A. Yin

In their comment, Karaoğlu and Erkül (2015) raise a number of points that mainly deal with the tectono-magmatic evolution of western Anatolia, while the purpose of our paper (Uzel et al., 2015) was primarily to report a large new paleomagnetic data set and a critical review of published paleomagnetic data. This has resulted in a new database that constrains the (rotational) tectonic evolution of the region in time and space. The commenters, however, emphasize the other types of data that we have omitted, neglected or not discussed, and that should have been included in our paper. This is trivial since our paper has passed EPSL's peer review and has already been published. Rather than commenting on what we *should* have written, we encourage the authors to write a paper on their own vision on western Anatolia. Naturally, they should feel free to incorporate our new data.

In summary, we feel that most points raised by Karaoğlu and Erkül are not relevant, and derive in part from them being unfamiliar with the fundamental processes of slab detachment and slab window (Wortel and Spakman, 2000), and subduction-transform edge propagator (or STEP fault; Govers and Wortel, 2005). For example, they ignore that the structural contours of the top of the

Aegean Slab and the edge of the torn African Slab (as provided by Biryol et al., 2011) coincide – on the surface – with the İBTZ (our Fig. 8). Hence, we feel this comment on our paper is not worth a response on the same scale.

### References

- Biryol, C.B., Beck, S.L., Zandt, G., Özacar, A.A., 2011. Segmented African lithosphere beneath the Anatolian region inferred from teleseismic P-wave tomography. *Geophys. J. Int.* 184, 1037–1057.
- Govers, R., Wortel, M.J.R., 2005. Lithosphere tearing at STEP faults: response to edges of subduction zones. *Earth Planet. Sci. Lett.* 236, 505–523. <http://dx.doi.org/10.1016/j.epsl.2005.03.022>.
- Karaoğlu, O., Erkül, F., 2015. Comment on "Paleomagnetic evidence for an inverse rotation history of Western Anatolia during the exhumation of Menderes core complex" by Uzel et al. *Earth Planet. Sci. Lett.* 415, 108–125.
- Uzel, B., Langereis, C.G., Kaymakci, N., Sözbilir, H., Özkaymak, Ç., Özkaptan, M., 2015. Paleomagnetic evidence for an inverse rotation history of Western Anatolia during the exhumation of Menderes core complex. *Earth Planet. Sci. Lett.* 414, 108–125.
- Wortel, M., Spakman, W., 2000. Subduction and slab detachment in the Mediterranean–Carpathian region. *Science* 290, 1910–1918.

DOI of original article: <http://dx.doi.org/10.1016/j.epsl.2015.01.008>.

DOI of comment: <http://dx.doi.org/10.1016/j.epsl.2015.07.009>.

\* Corresponding author. Fax: +90 2324127300.

E-mail address: [bora.uzel@deu.edu.tr](mailto:bora.uzel@deu.edu.tr) (B. Uzel).

<http://dx.doi.org/10.1016/j.epsl.2015.07.015>

0012-821X/© 2015 Elsevier B.V. All rights reserved.