

## ***Interactive comment on “The Cretaceous and Cenozoic tectonic evolution of Southeast Asia” by S. Zahirovic et al.***

**C. Gaina (Editor)**

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I. I am a bit concerned about some of your figure quality, they look a bit fuzzy, sometimes too cluttered and inconsistent, and some figure captions need work.

Figure 1. General –the figure has a low resolution (for example in comparison to figure 2) , some labels are difficult to be read, please choose an appropriate font. Interpreted oceanic features: what is the criteria for showing isochrones in the Philippine Sea only, and fracture zones for the rest of oceanic area – please explain (and add a symbol in the legend for isochrones).

Figure 4 This can be replaced to a reference to previous papers that already used this methodology.

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Figure 5 Colour scales are too small; please add a white box behind them so one can read the values. The three figures on the right should have the same scale (if you want to make a point with this comparison).

Figure 6 The vertical gravity gradient doesn't show much – maybe you should try and enhance it somehow, the way it is now – the only lineaments are observed in the free air gravity (by the way, is it free air ?). You should say why you think a lithospheric scale feature is visible in the free air gravity; also please label the Billiton Depression.

Figure 7 I find this figure a bit misleading (as also pointed out by Rev. 1). Figure caption says: “Triassic and Jurassic fossil occurrences with coloured stars representing 24 fossil genera found on Borneo . . . Well-I can see only 2 genera on Borneo, and what is more interesting – none of the most pervasive genera that are documented on mainland (like *Cladoplebis* and (possible) *Todites*-hard to match the colours from the legend and the map. I am not sure you are making a point with this figure, I would suggest to remove it or modify it in such a way that it will be useful (and properly describes what is about).

Figure 8 Again, I do agree with Rev. 1, and I have to ask for the figure caption of figure 8 to be clarified. Oroclinal bending does not involve only rotation, and one has to specify more clearly here that is the paleomagnetic data and the SSW-NNE curved lineations seen in the gravity south (and southwest) of Borneo that are used for deriving the paleo-position and trajectory of Borneo (because there are other lineations seen east of Borneo and if taken together with the lineations S and SW Borneo they may show indeed a pattern of oroclinal bending !). Again, the lineations on the vertical derivative of gravity cannot be distinguished on the grey palette you have chosen. In addition, one cannot see the Lee and Lawver (1995) reconstructed outline-please try with another colour.

Figure 9 Please indicate a legend for present day coastline (I advise to choose another colour than black), tectonic block/terrane boundaries and plate boundaries.

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Figure 10 Again – the colour palette is not very relevant! The so-called “the interior surface of the slabs” is very confusing, and the smooth transition between light orange and yellow makes it very difficult to distinguish between different slabs (at least in the MIT-P model).

Figure 11 You have the location of profiles in this figure as well, why referring to Fig. 10 for that? Have you used the same colour scheme for both tomographic models?

Figure 12 Labels on lower figure (cross-sections) are too small! Please add a legend explaining the colours.

Figure 13 A This is a paper that (mainly) discusses tectonic reconstructions, therefore please make an effort and be consistent! The plate IDs and colours should illustrate blocks that had an independent history at times described in the manuscript, it is a disadvantage (and distracting) to assign too many colours. I hope this can be fixed for this figure and the subsequent figures that are using the same scheme. Please reformulate the second sentence something like this: A three or four digit code (the so-called Plate ID) is assigned to each tectonic block (illustrated in this figure by different colours); these codes are used by GPlates. . .

Figure 13 B. Figure caption: Lines 12-14 –is this interpretation from this study? If not, please give reference. Line 27 – Please explain what “High resolution” means. Is this high-resolution based on data sampled at the same high-resolution?

Figure 15 –please make this figure Figure 1B

Figure 17A I am not sure what is the point of this figure since all these elements are already shown in Fig. 1. And I cannot see any legend for the age-coded tectonic regime.

Figure 17B. This figure should be presented before Fig. 13. The colour scheme of age-coded basins is not compatible with the ages of oceanic crust. The formation of P-IBM at 55 Ma was already postulated by Hall et al., 2003 – see comment from Figure

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13B.

Figure 18. The location of these wells (or the region shown in the inset figure) should be added on a map like the one in Figure 1 (or at least values for latitude and longitude should be visible).

II. If the authors want to highlight the connection between the inception of westward subduction that led to the opening of the Philippine Sea (at 55 Ma) and the new age of Emperor-Hawaiian “bending” (that is 47.5 Ma according to Connor et al., 2013) by bringing other type of evidence to the table (not sure if Fig. 18 is also meant to help with this), then the whole argument started at page 26 has to be a bit more structured and go beyond the speculation that it has to be related to “increasing westward slab pull acting on Pacific crust 4 due to subduction at the Izu-Bonin-Mariana Trench from ~55 Ma”.

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Interactive comment on Solid Earth Discuss., 5, 1335, 2013.

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