

Interactive comment on “Hydrogeological settings of a volcanic island (San Cristóbal, Galapagos) from joint interpretation of airborne electromagnetics and geomorphological observations” by A. Pryet et al.

Anonymous Referee #2

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This work investigates the hydrogeological model of San Cristóbal Island on the base of 3-D resistivity model and geo-morphological observations. The paper is very well written; it presents an exciting data set, contain relevant results, and satisfies all usual publication criteria.

I have only few minor suggestions on results and interpretation: Fig 1: Could you indicate the same locations in Fig 1.and in Fig 5 (it's EPO and PBZ in Fig1 and “San Joaquin” and “El Junco” in Fig 5)?

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L.11 9671: The resistivity of unit 3 is indicated as 10-40 Ohmm; in caption to Fig 4 it is 10-70 Ohmm.

Fig. 5: Four cross-sections in the NS direction seem to show a more homogeneous resistivity distribution between the windward and leeward sides than the 3-D model (in Fig 5 and in supplementary material). At least at shallow depths, the resistivity along these profiles is shown with green colour everywhere; therefore, it does not exceed 200 Ohmm even on the northern side. The 3-D model however indicates systematically > 1000 Ohmm in direct vicinity at both sides of the NS profiles. How can this difference be explained?

L. 18 9672: The resistivity contrast between the northern and southern sides of the Island are interpreted in terms of weathering difference and not as result of different water saturation. I agree with authors that this latter hypothesis is not compatible with the resistivity values of unit 6 (perched aquifer) and of the spring water. I think however that the saturation degree could explain the difference between the resistivity of the unit 2 and 7 (>400 Omm and 100-400 Ohmm respectively). A significant difference in water saturation seems very probable, taking into account huge precipitation difference between the northern and southern sides.

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