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Interactive comment on "Characterization of hydrochars produced by hydrothermal carbonization of rice husk" *by* D. Kalderis et al.

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Dear Referee, we would like to thank you for your efforts to improve the manuscript. Please find below our reply to each specific comment.

1. Page 660 - line 25 At temperatures below 300°C water is fairly incompressible, which means that pressure has little effect on the physical properties of water, provided it is sufficient to maintain a liquid state. This pressure is given by the saturated vapour pressure, and can be looked up in steam tables (15.5 bar required at 200°C and 85.8 bar at 300°C). It has been well established that the solubilities of many organic substances in subcritical water is mostly affected by the temperature changes and pressure has only a minor effect (Solubility of polycyclic aromatic hydrocarbons in subcritical water from 298 K to 498 K, Miller, D.J., Hawthorne, S.B., Gizir, A.M., Clifford,

A.A., Journal of Chemical and Engineering Data, 43(6),1998, 1043-1047 - Hydrothermal liquefaction of biomass: A review of subcritical water technologies, Saqib Sohail Toor, Lasse Rosendahl, Andreas Rudolf, Energy 36 (2011) 2328-2342). However, the behavior of the biomass itself (in terms of expansion) in subcritical conditions is still under investigation.

2. Page 661- line 10 Rice husk was impregnated with distilled water in order to break down the cellulosic structure of the feedstock material and 'wet' it before treatment, since it exhibited hydrophobic properties.

3. Page 661 - line 15 Yes, the time required for the stainless steel reactor to reach the required temperature was 20 and 30 minutes for 200 and 300°C, respectively. In low residence times (2 hrs), this heating up time may play a role in the kinetics of biomass conversion, however, at higher residence times (6, 8, 12, 16 hrs or longer), the effect of the heating up time is expected to be very low.

4. Page 664 - line 9 Corrected

5. Page 666 - line 2 Corrected

6. Page 667 - lines 18-20 No attempt was made to study the exact mechanism of the conversion of rice husk to hydrochar. This would require a full analysis of the liquid and gaseous by-products produced during treatment, which was beyond the scope of this study. A comprehensive general review of the mechanisms involved in the hydrothermal treatment of biomass is given by Toor et al. 2011 - please see reference above.

7. Page 674 - Figure 1 Corrected

Interactive comment on Solid Earth Discuss., 6, 657, 2014.