This manuscript attempts to explore Si isotope dynamics of groundwater collected from Rottnest Island, Australia to quantify dissolved Si flux and its isotope composition ($\delta^{30}Si$) in the marine SGD component from coastal limestone aquifers. Authors claim that Si released by dissolution of lithogenic materials (paleosols) followed by its adsorption on Fe-Al (oxyhydroxides) is the key mechanism fractionating Si isotopes in shallow and relatively fresh groundwaters, while deep samples are affected by seawater mixing. Thus, Si isotope compositions of the sampled groundwater reflect the degree of aquifer-water interaction depending on groundwater residence time and local hydrogeology. The dataset has major analytical and interpretation issues.

Accuracy and precision of Si isotope measurements are ensured from $\delta^{30}Si$ of -1.52 ± 0.12 per mil determined for IRMM-018a (n=5). However, for accurate Si isotope results, each sample is analyzed generally a minimum of three times as blank-standard-blank-sample-blank-standard and the average $\delta^{30}Si$ composition along with uncertainty (2s) is reported, which is not the case here. Given a single measurement for each sample, higher uncertainty of the order of 0.3-0.5 per mil is expected.

Samples are collected in two different seasons (Sep. 2014 and Mar 2015) but there is no mention of seasonality on the measured data.

Neither the reduction potential nor DO/Fe-Mn redox pairs are shown to reject the dissolution of Fe-Mn-Al oxyhydroxides in groundwater.

Labels are wrong in Fig. 1c (1-90 repeated) and Fig. 5. Labels as mentioned somewhere in the text do not match with Table 1.

Dissolved Si and $\delta^{30}Si$ of fresh groundwaters show a significant positive correlation, which indicates a dominating physical mixing/diffusion control on the Si isotope budget also supported by the narrow spatial extent of groundwaters collected from vertical depths <1 m only dispersed over 1-2 km. Overlapping wide variations in dissolved Si and $\delta^{30}Si$ of groundwater from intermediate depths further corroborates this idea.

Leaching experiments of rock and surface soil samples with 0.5 M HCl do not account for the preferential Ca dissolution from carbonates as silicate dissolution is a much slower process.

Fig 2a is redundant. Club spatial distributions of TDS and dissolved Si in Fig. 5

Fig. 3b: Low $\delta^{30}Si$ in deep and saline groundwaters than expected from the seawater mixing (not shown) between 5-90 and seawater suggests in situ release of lithogenic Si (low $\delta^{30}Si$).

Fig. 5 High and low $\delta^{30}Si$ values are seen for groundwater collected near and away from the Salt lakes located on eastern side of the island. This hints at the probable mixing between a significant in situ release of lithogenic Si (low $\delta^{30}Si$) and low Si (high $\delta^{30}Si$) in seepage waters of the salt lakes. The salt lake waters and sediment porewaters should also be measured.

Fig. 6: It has been used to show older groundwaters contain high $\delta^{30}Si$ due to more preferential removal of lighter isotopes on Fe-Al oxyhydroxides. However, the groundwater 25-90 has the lowest $\delta^{30}Si$ (1.72) and much lower ^{3}H (0.04) among older deep water. This misleading figure contradicts Fig. 3b indicating in situ release of lithogenic Si (low $\delta^{30}Si$).

Section 5.4: The additional source of Si (high $\delta^{30}Si$) from the salt lakes excluded in this study can potentially bias dissolved Si isotope composition for the marine SGD component.

Table A2. Replace this table with Box plots of saturation indicies calculated for all samples and include Fe-Mn-Al minerals.

Suggestions and editorial corrections:

Do not club multiple parenthesis.

Conservative mixing is misleading due to in situ Si release and thus change it to theoretical mixing.

Line 118: delete space after “stabilized”

Line 131: add cm after “18.2 megaOhm”

Line 147: add Si after 28 and 29

Line 285: Delete “and northwestern”

Line 327 and elsewhere: change “rock-water” to “aquifer-water”