Responses to the Comments of the Reviewers

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Last interglacial sea-level proxies in the Korean Peninsula

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1 Overview

Firstly, we greatly thank Drs. Colin V. Murray-Wallace, Craig Sloss, Dan Muhs, and Anonymous Referee for deep insights and constructive review with helpful comments. We have done our best to revise the manuscript according to their corrections and comments. The original comments from the reviewers are in *italics*, our responses are in standard font, and modifications on the revised manuscript are shown in blue text.

2 Responses to the comments of Anonymous Referee #1 (RC1)

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The authors summarized published papers and unpublished materials (both in English and Korean) and carefully re-evaluated the validity of the MIS 5e sea-level indicators and dating results along the coastline of Korean Peninsula. This study provides an comprehensive and standardize database of MIS 5e sea level along the coastline of Korean Peninsula, and provides evidence of differential neotectonism on the peninsula since MIS 5e.

Response: We are so grateful for the anonymous referee's comments. They carefully reviewed our manuscript and provided constructive and helpful comments. Their minor corrections on the manuscript were almost accepted in the revised manuscript. The followings are in response to their comments in sequence.

2.1 One scientific issue

One scientific issue should be clarified is the sea-level elevations determined by the sea-level indictors along western coastline of Korean Peninsula. Based on Table 3 and Figure 15, some terrestrial limit records and sea level indicators reach over +5 m. How do authors determine the MIS 5e sea levels are between +2 and +5 m?

Response: The reviewers are correct that there are some sea-level indicators (SLI) and terrestrial limiting records (TL) reaching over +5 m. Specifically, we have 3 SLI at Wando-Sinji 3 (WALIS LUM ID #464: +6.1 m), and Sacheon-Daepodong (WALIS LUM ID #460: +6 m; #461: +6 m) in the western and southern areas (Table 3 and Figs. 2 and 7). We also have the lowest TL of Haenam-Ijin-ri 3 (WALIS LUM ID #467: +5.4 m) and the lowest SLI of Wando-Sinji 1 (WALIS LUM ID #462: +2.8 m) in the western areas. In the eastern area, we didn't consider LIG sea-level elevation data because of neotectonic uplift since MIS 5e. To address this comment, we changed the text to suggest MIS 5e sea levels lie between +3 and +6 m in the revised manuscript, strictly based on the SLI and TL data, discarding our previous intuitive height of 2 to 5 m. As follows in Abstract section: "~ LIG sea-level records on the west coast of the Korean Peninsula are found at heights of between +3 and +6 m and include marine and terrestrial elevation-limiting records as well as true sea-level indicators." As follows in Concluding remarks section: "~ LIG sea levels appear to be well constrained to between +3 and +6 m by marine limiting records, sea-level indicators, and terrestrial limiting records along the west coast of the Korean Peninsula ~."

2.2 Revising some figures and figure captions

I also suggest the authors to revise some figures and figure captions, such as the meaning of red circles in Figures 2, 3, and 7, and use different legends for different sea-level indicators on these figures/maps.

Response: We revised all figures and figure captions that they had commented on. You could refer to 2.3 to 2.5 sections.

Some specific comments listed below:

2.3 Figures 2 and 7

Figure 2: what do those red circles mean? Sample sites or sample sites with OSL/paleomagnetic-based ages? I noticed the caption in Figure 12: 'Red circles indicate the sampling areas for LIG ages in Fig. 2'. Please clarify.

Response: We used an inverted triangle legend for the terrestrial-limit site. The following sentences were added in the caption of Figure 2: Red circles represent sea-level indicator locations based on OSL ages with exception of the Pohang-Masan-ri area which has an additional paleomagnetic-based age. An inverted triangle shows the location of a terrestrial-limiting point. Age data can be found in Table 3. Bathymetric contour inveral is in meters. In Figure 7, the following sentence was added in the figure caption: A red circle represents the location of sea-level indicator while blue triangles and brown inverted triangles represent marine-limiting and terrestrial-limiting site

locations, respectively. Age data can be found in Table 3. Bathymetric contour interval is in meters. The subsite names of sample sites were added in the revised Figure 2, which accords to those in Table 3 and the open-access spreadsheet (Ryang and Simms, 2021).

2.4 Figure 3

Figure 3: Geumgok-ri 1105GG is the original ID of the sample site (based on the open access spreadsheet), but this ID was not mentioned in Table 3 or anywhere in the article.

Response: We corrected Geumgok-ri 1105 GG to Geumgok-ri 1 and 2 in Figure 3, which accords in the subsite name in Table 3 and the open-access spreadsheet (Ryang and Simms, 2021).

2.5 Figure 4

Figure 4: 114 ± 7 ka and 127 ± 12 ka are marked in red. What does that mean? Please clarify in the caption.

Response: A sentence was added in the figure caption as follows: Two ages in red indicate LIG ages (WALIS LUM ID #449 and #450 in Table 3).

2.6 Line 221 and 222

Line 221 and 222: The abbreviation SWSH and d_b show up first time. I suggest describe the full name in the text (e.g. line 234) even though the authors have referred Table 1 in line 203.

Response: The sentence was rewritten as follows: where U_l represents the upper limit of the modern analog landform's elevation, L_l represents the lower limit of the modern analog landform's elevation, SWSH represents storm wave swash height, and d_b represents the breaking depth. Each of these values was obtained from local sources (Table 1). In addition, the sentence in Line 219 was rewritten as it follows: Where E represents the elevation of the sea-level indicator, RWL represents the reference water level, and δ_{RSL} accounts for the uncertainties in the paleo RSL (Rovere et al., 2016).

2.7 Line 283

Line 283: I suggest to refer Table 3 when mentioning subsites. I cannot find those subsites on Figure 2. Is it possible to put all subsite names on figures?

Response: We put all subsite names in Table 3 on Figures 2 and 7 as a set of the site and subsite names such as Gangneung-Saemokee, Uljin-Hujeong, and Sacheon-Daepo-dong.

2.8 Line 298, 308, 315, 324-325, 333, 337, 345, 360, 365, 374, 381, 388-389

Line 298, 308, 315, 324-325, 333, 337, 345, 360, 365, 374, 381, 388-389: Same comments for line 283.

Response: Same responses for 2.7 section.

2.9 Line 397

Line 397: Same comments for line 283, and refer Figure 6?

Response: Same responses for 2.7 section and we corrected the box name of 'Fig. 6' to 'Fig. 7' in the western area on Figure 1.

2.10 Line 409

Line 409: Same comments for line 397.

Response: Same responses for 2.7 section.

2.11 Figure 11

Figure 11: (1) what does the yellow area mean? (2) The order of the middle three cores, 'from west to east', is 15DH-C03, 11YG-C1, and 11YG-C4. However, on the map (i.e. Figure 7), the order of these three cores from west to east is 11YG-C1, 11YG-C4, and 15DH-C03. (3) What and where are 'WD1 & SJ' on the map (i.e. Figure 7)? (4) Please clarify why the ages are marked in red in the caption.

Response: (1) A sentence was added in the figure caption as follows: Orange shading highlights the correlation of LIG deposits across the 6 coastal cores and Wando outcrop sections.

(2) We changed 'West' and 'East' to 'Seaward' and 'Landward', respectively.

(3) We changed 'WD1 & SJ' and 'Wando-Sinji 1 and 3', which accords in the subsite name in Table 3, Figure 7, and the open-access spreadsheet (Ryang and Simms, 2021).

(4) A sentence was added in the figure caption as follows: Ages in red indicate LIG ages (WALIS LUM ID #470 to #491 in Table 3).

2.12 Line 621

Line 621: Based on Table 3 and Figure 15, some terrestrial limit records and sea level indicators reach elevations of over +5 m. How do authors determine the LIG sea levels are between +2 and +5 m?

Response: Same responses for '2.1 One scientific issue' in the upper Main discussion and comments.

3 Responses to the comments of Dr. Craig Sloss (RC2)

Citation: https://doi.org/10.5194/essd-2021-205-RC2

The authors present a comprehensive and extremely detailed MIS 5e sea-level for the Korean Peninsula. The MS is well written and well presented. I have no additional conceptual comments that have not been raised by RC1. My comments are minor and on the PDF attached. I commend the authors on an excellent piece of work.

Response: We deeply thank Prof. Craig Sloss for reviewing and his comments. We have done our best to revise the manuscript according to his corrections and comments. We have provided a reply by subject to the comments in the attached document. Although we have revised the manuscript according to most of his comments, some suggestions could not be revised as follows:

3.1 Commented [Line 33, 61, 65, and many lines]: *S.J. Choi, 2019; G.Y. Lee and Park, 2019, S.H. Yoon and Chough, 1995, S.W. Kim, 1973,* etc.

Response: In Korea, many people have the same surnames such as Choi, Lee, Yoon, and Kim. Our paper has about 30 first authors who have the same surname in our references. Korean readers, as well as international readers, will confuse cited authors while reading the manuscript if given name initials are not provided. Therefore, we prefer including given name initials to help distinguish authors (and sources) in the case where multiple references contain the same surname.

3.2 Commented [Line 139]: *opps there it is, ignore but still on what??*; [Line 186]: *What about the Amino Racemization?*

Response: We inserted the following sentence in Line 148 on the revised manuscript: However, due to inadequate descriptions of the sampled materials and age dating techniques within the original papers, the two ages were not included in our dataset shown in Table 3 or in the open-access spreadsheet (Ryang and Simms, 2021).

Although S.G. Choi (1993; 1996) insisted that the fluvial terrace fills with LIG ages correspond to the shoreline angles of nearby marine terraces, he did not present any scientific evidence for such in his papers. Thus, we include his contribution only as historically published data. This work presented the first two numerical LIG ages for coastal areas of the Korean Peninsula, but the ages were not included in Table 3 or in the open-access spreadsheet (Ryang and Simms, 2021). This is why we did not introduce the amino acid racemization method in the 3.3 Dating techniques section. You could refer to 4.2.13 section.

3.3 Commented [Line 185]: *any faunal elements?*

Response: Unfortunately, faunal elements were not described and studied in the original paper.

4 Responses to the comments of Editor Dr. Colin V. Murray-Wallace and Reviewer Dr. Dan Muhs (EC1)

Citation: https://doi.org/10.5194/essd-2021-205-EC1

4.1 Editor Colin V. Murray-Wallace's comments

Thanks for the opportunity to review the Korean Peninsula manuscript for the WALIS volume. I confess that I do not know exactly where to put my review of this paper using the links below... I can't find precisely where "official" reviewers put their comments. I have never used the Copernicus system before and so this is ignorance on my part, I recognize. Sorry!

So, I am going to take the easy way out here and simply send my comments to you guys, the editors. I took the PDF of the manuscript and recreated it in Microsoft Word so that I could do tracked changes and comments. That is what is attached here. I hope this is satisfactory.

The text below is from a reviewer (Dr Dan Muhs; United States Geological Survey) who has made valuable comments which will enhance the submission. In addition, I will attach a marked up copy of the original manuscript annotated by Dr Muhs. I should be grateful if you can address all the comments. It is a very interesting manuscript and by addressing all the comments, the work will be enhanced in terms of general clarity. I agree that a key point relates to the caption for Figure 6.

My main criticism, and it is an important one I think, is in the caption to Figure 6. I have never encountered a situation in the field that looks like the one figured there and which their equations (1) and (2) are based on. That point needs to be addressed.

Other than that, most of the other comments, though numerous, are pretty minor, and should be able to be fixed fairly easily, I should think.

Response: We cordially appreciate the comments by Drs. Colin V. Murray-Wallace and Dan Muhs. They meticulously reviewed our manuscript and provided insightful and helpful comments. Their main criticism on the caption of Figure 6 is right. We had an error in drawing the schematic diagram, so Figure 6 was redrawn as follows adding draped aeolian sands and nonmarine deposits over the marine deposits and paleo wave-cut platform. You could refer to 4.2.11 section. The followings are in response to their comments in sequence.
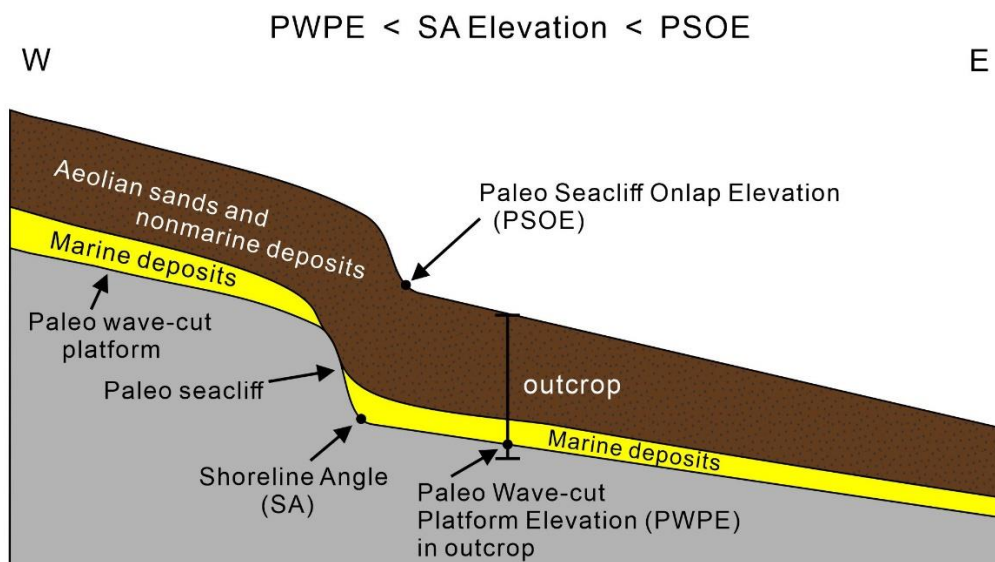
Figure 6: A schematic marine terrace commonly occurring along the eastern Korean Peninsula. Note that the shoreline angle (SA) elevation is between the paleo wave-cut platform elevation (PWPE) measured in outcrop and the paleo seacliff onlap elevation (PSOE) measured in surface topography.

4.2 Reviewer Dan Muhs' comments

4.2.1 Commented [MDR1]: *The Kopp et al. study contains a complex mix of tectonically active and stable coasts, dated and undated coasts, etc. The first real recognition of the higher-than-present LIG sea level was H.H. Veeh, in his 1966 JGR paper (and actually, not much has changed since that groundbreaking paper).*

Response: Thanks for your comments, we cited Veeh's (1966) JGR paper.

4.2.2 Commented [MDR2]: *What do you mean by "compaction" here? Sediment compaction?*

Response: It is rewritten to "sediment compaction".

4.2.3 Commented [MDR3]: *Are these marine sands and gravels? Terrestrial? Both?*

Response: It is rewritten to "~ unconsolidated marine and aeolian sands and well-rounded beach gravels ~".

4.2.4 Commented [MDR4]: *Very nice map!*

Response: Thank you for your comments. It was modified after Chough et al. (2000; 2004) and Cummings et al. (2016).

4.2.5 Commented [MDR5]: *Also a very nice map, but I suggest that here, as in later figures, use WHITE for land (as you did in Figure 1) and use BLUE (whether one shade or more) for the ocean.*

Response: We redrew Figure 2 referring to the drawing style in Figure 1.

4.2.6 Commented [MDR6]: *No need for the second sentence (legend is understood). Can you state what the contour interval is? Also, if you make the terrace shades partially transparent, readers can see the contour lines.*

Response: We deleted the second sentence and stated the contour interval of 10 m in the captions of Figures 3, 4, and 5. Unfortunately, we could not make the terrace shades partially transparent because the figure was covered by the terrace shades in the original paper.

4.2.7 Commented [MDR7]: *Please give the contour interval on this map.*

Response: We stated the contour interval of 10 m in the caption of Figures 3 to 5 as follows: The topographic contour interval is 10 meters.

4.2.8 Commented [MDR8]: *I do not see the "palaeo-beach pebble gravel" unit in either section. For the NQ t1 terrace, what is the yellow unit?*

Response: We found that marks of the paleo-beach pebble gravel were covered by the green and blue shades in the

columnar sections when it was modified. We corrected it. For the NQt$_1$ terrace, a sentence was added in the figure caption as follows: Sites YH09 and YH10 in the NQt$_1$ terrace (yellow) were dated to 0.09±0.01 ka and 0.11±0.01 ka by OSL, respectively (J.H. Choi et al., 2009).

4.2.9 Commented [MDR9]: *say either "aeolian sand" [deposits] or "dunes" [landforms], but not both. Same comment for the next sentence.*

Response: The word 'dunes' was deleted in the two sentences.

4.2.10 Commented [MDR10]: *How about showing a photograph of these terraces?*

Response: Unfortunately, the original paper of J.H. Choi (2009) in Quaternary International does not show any photograph of these terraces.

4.2.11 Commented [MDR11]: *A major concern here (and this applies to equations (1) and (2), which you discuss later. As you show here, the "Paleo Seacliff Onlap Elevation" is indeed a maximum-limiting elevation for the shoreline angle elevation, complemented by the minimum-limiting platform elevation. However, I have never seen a situation in the field that looks like this. What you have shown here is what appears to be a marine deposit of ONE age draped over wave-cut platforms of TWO ages, including the paleo-sea cliff itself. In 40 years of studying marine terraces on three continents and many islands, I have never encountered such a situation. Now, it is very common for NON-marine deposits to be draped over two or more platforms and the intervening paleo-sea cliff, but not this. What is usually found, however, is a paleo-sea cliff back a platform, and the maximum-limiting elevation is the lowest exposed bedrock elevation on that paleo-sea cliff. That measurement, plus the elevation of the lower wave-cut platform will indeed bracket the elevation of the shoreline angle if it is not exposed.*

Response: Thank you so much for your kind and detailed comments. Your comments on the overlying deposits are right. We had an error in drawing the schematic diagram, so Figure 6 was redrawn adding draped aeolian sands and nonmarine deposits over the marine deposits and paleo wave-cut platform. In our study area, unfortunately, the paleo-sea cliff back a platform was rarely exposed due to a gradual topographic slope. However, seismic profiles on land showed a subsurface paleo-sea cliff, not exposed on the surface (Figure 5; J.W. Kim et al., 2007a). Thus, we had no choice to use the lowest exposed bedrock elevation on the paleo-sea cliff but should use the paleo seacliff

onlap elevation (PSOE) in Figure 6 and equations 1 and 2. You could refer to 4.1 section.

4.2.12 Commented [MDR12]: *The same comment as before: make the land white and the ocean blue.*

Response: We redrew Figure 7 referring to the drawing style in Figure 1.

4.2.13 Commented [MDR13]: *Here you need to state that the tops of the fluvial terrace fills have elevations that correspond to (i.e., can be traced to) the shoreline angles of marine terraces nearer to the coast. Otherwise, there is no confidence that the fluvial terraces are eustatically controlled.*

Response: Although S.G. Choi (1993; 1996) insisted that the fluvial terrace fills with LIG ages correspond to the shoreline angles of nearby marine terraces, he did not present any scientific evidence of the correspondence in his papers. Thus, we include his contribution only as historically published data. This work presented the first two numerical LIG ages for coastal areas of the Korean Peninsula, but the ages were not included in our dataset of Table 3 and the open-access spreadsheet (Ryang and Simms, 2021). A sentence was added as follows: However, due to inadequate descriptions of the sampled materials and age dating techniques within the original papers, the two ages were not included in our dataset shown in Table 3 or in the open-access spreadsheet (Ryang and Simms, 2021). You could refer to 3.2 section.

4.2.14 Commented [MDR14]: *Please don't use the phrase "age dating", which is redundant.*

Response: We corrected the phrase.

4.2.15 Commented [MDR15]: *Here, and throughout the manuscript, please delete all occurrences of the phrase "absolute age" and instead please use the term "numerical age", which is preferred by geochronologists.*

Response: We changed the phrase "absolute age" to "numerical age" throughout the revised manuscript.

4.2.16 Commented [MDR16]: *Are there no marine fossils in the marine terrace deposits of the Korean Peninsula anywhere? Is there no possibility of amino acid geochronology? If that is the case, you need to state this.*

Response: Unfortunately, we are not aware of any geochronological studies of the marine fossils in the marine terrace deposits of the Korean Peninsula.

4.2.17 Commented [MDR17]: *For equations (1) and (2), please see the comment made in the caption for Figure 6. This is a MAJOR issue.*

Response: You could refer to 4.2.11 section for Figure 6.

4.2.18 Commented [MDR18]: *For the age uncertainties, are these ONE sigma or TWO sigma? This needs to be stated explicitly.*

Response: We inserted 'error range' of ± 1σ SE or ± 2σ SE into the last column of age uncertainty of Table 3, and the corresponding error range was written in each cell of the age uncertainty.

4.2.19 Commented [MDR19]: *I believe you said all this earlier.*

Response: We wrote this already as the first sentence in the 2.2 Overview section. This sentence is restated for the 4.1 and 4.2 sections.

4.2.20 Commented [MDR20]: *Again, are these ONE sigma or TWO sigma errors? You need to be clear about this before going into all the site-specific details of the ages.*

Response: We inserted 'error range' of ± 1σ SE or ± 2σ SE into the last column of age uncertainty of Table 3, and the corresponding error range was written in each cell of the age uncertainty. We also inserted the following sentence at the end of 3.3.1. Optically stimulated luminescence subsection: the error range had ± 1σ SE or ± 2σ SE according to measurement methods.

4.2.21 Commented [MDR21]: *Here, and in the previous paragraphs, why do you say this? Obviously, there has been uplift…some readers are going to be confused by this discussion and assume you really think that sea level during the LIG was actually this high.*

Response: We rewrote these sentences in terms of the SA elevation in subsites of Gangneung-Anin, Donghae-Eadal-dong, Pohang-Yonghan-2, Pohang-Masan-ri, and Gyeongju-Jinri. Table 2 and Figure 14 were also revised.

4.2.22 Commented [MDR22]: *What sort of shells? Marine? Is this the only place they are found?*

Response: Unfortunately, the few shell fragments are too small in both size and quantity to identify in the core.

4.2.23 Commented [MDR23]: *Any geochronology on these shells? Any indications of paleozoogeography that could be useful checks on the OSL ages?*

Response: Unfortunately, no paleontological descriptions and studies are using the shell beds in the original paper.

4.2.24 Commented [MDR24]: *"swaley" is not a word*

Response: The phrase 'faint swaley cross-bedding' was rewritten to 'swaley cross strata'. From page 643 of AGI's 4th edition of the Glossary of Geology: "swaley cross strata: cross strata resembling hummocky cross strata but dominated by concave-up strata deposited in swales instead of by convex-up strata deposited on hummocks."

4.2.25 Commented [MDR25]: *What species of oysters? Any useful paleozoogeographic information?*

Response: Unfortunately, no paleontological descriptions and studies are using the oysters in the original paper.

4.2.26 Commented [MDR26]: *Why not give some specific examples and some possible uplift rate calculations? For example, in the Subsite Yonghan-2 site of the Pohang area, it looks like the NQt3 terrace has a shoreline angle elevation of ~35 m above sea level and dates to MIS 5e. Using a suite of possible LIG paleo-sea levels (+3 m, +6 m, +9 m, etc.), you could present a range of possible uplift rates. Is NQt1 Holocene? If so, is that a storm deposit or a coseismically uplifted terrace?*

Response: For the NQt_1 terrace, a sentence was added in Figure 4 caption as follows: YH09 and YH10 sampling sites in the yellow NQt_1 terrace were dated to 0.09 ± 0.01 ka and 0.11 ± 0.01 ka by OSL, respectively (J.H. Choi et al., 2009). At the end of the 5.1 Uplift section, we wrote a paragraph for the uplift rate contents adding Eq. (12) and Table 4: We estimated rates of tectonic uplift of the marine terraces along the east coast of the Korean Peninsula using Eq. (12) and the five shoreline angle elevations listed in Table 2.

$$\text{Uplift Rates (m/ka)} = \frac{(Elevation\ of\ SA - MHHW - Assumed\ LIG\ Sea\ Level)}{Age} \tag{12}$$

where SA represents the elevation of the shoreline angles and MHHW represents the mean higher high water at the subsites. The ages of the deposits associated with each of the SA can be found in Table 4. From Eq. 12, we arrive at uplift rates of 0.189 ± 0.031 m/ka, 0.195 ± 0.037 m/ka, 0.251 ± 0.024 m/ka, 0.172 ± 0.024 m/ka, and 0.198 ± 0.024 m/ka for Gangneung-Anin, Donghae-Eodal-dong, Pohang-Yonghan-2, Pohang-Masan-ri, and Gyeongju-Jinri, respectively, if assuming a LIG RSL of +3 m for the Korean Peninsula, and 0.166 ± 0.030 m/ka, 0.171 ± 0.035 m/ka, 0.228 ± 0.022 m/ka, 0.146 ± 0.023 m/ka, 0.174 ± 0.022 m/ka, respectively, in the case of a +6 m LIG RSL for the Korean Peninsula (Table 4). The error ranges were calculated based on both the range of SA elevations and the age uncertainty (Table 4). The uplift rates for the northern and southern regions of the east coast are sufficiently different as to suggest differential uplift across the region (Table 4; Fig. 2).

Table 4. Uplift rates based on the elevation of the shoreline angles listed in Table 2 and LIG RSLs of +3 m and +6 m, respectively, along the east coast of the Korean Peninsula.

Site	Subsite	Sample latitude (°)	Sample longitude (°)	Shoreline angle elevation (m)	± Error range (ka)	Mean higher high water (MHHW) (m)	WALIS LUM ID	Age (ka)	± Age uncertainty (ka)	In case of LIG RSL +3 m		In case of LIG RSL +6 m	
										Uplift rate (m/ka)	± Error of uplift rate (m/ka)	Uplift rate (m/ka)	± Error of uplift rate (m/ka)
Gangneung	Anin	37.7401	128.9716	27.5	2.5	0.09	436	129.0	8.0	0.189	0.031	0.166	0.030
Donghae	Eodal-dong	37.5657	129.1181	28	2	0.07	438	128.0	14.0	0.195	0.037	0.171	0.035
Pohang	Yonghan-2	36.1085	129.4230	35	0	0.09	450	127.0	12.0	0.251	0.024	0.228	0.022
Pohang	Masan-ri	36.0152	129.4826	23.5	1.5	0.09	451	119.0	8.0	0.172	0.024	0.146	0.023
Gyeongju	Jinri	35.6827	129.4686	28	1	0.05	457	126.0	10.0	0.198	0.024	0.174	0.022

4.2.27 Commented [MDR27]: *These are not really "relative sea levels," they are present elevations of marine terraces.*

Response: To address this comment, we revised Table 2 and Figure 14 in terms of the SA elevations as follows. We also rewrote the related sentences in subsites of Gangneung-Anin, Donghae-Eadal-dong, Pohang-Yonghan-2, Pohang-Masan-ri, and Gyeongju-Jinri.

Table 2. Summary of shoreline angle elevations along the east coast of the Korean Peninsula.

No.	Site	Subsite	Sample latitude (°)	Sample longitude (°)	Landform Type in Table 1	Shoreline angle elevation (m)	± Error ragne (m)	Measured elevation of paleo wave-cut platform (PWPE) (m)	Measured elevation of paleo seacliff onlap (PSOE) (m)	Topographic elevation range of paleo-shoreline deposits (m)	Reference
1	Gangneung	Anin	37.7401	128.9716	1	27.5	2.5	21.1	30	20~30	S.Y. Lee et al., 2015
2	Donghae	Eodal-dong	37.5657	129.1181	1	28.0	2.0	26.0	30	25~30	S.C. Hong, 2014
3	Pohang	Yonghan-2	36.1085	129.4230	1	35.0	-	34.4	?	?	J.H. Choi et al., 2009
4	Pohang	Masan-ri	36.0152	129.4826	1	23.5	1.5	22.0	25	10~25	J.W. Kim et al., 2005b
5	Gyeongju	Jinri	35.6827	129.4686	1	28.0	1.0	27~29	45	30~45	J.W. Kim et al., 2007a

4.2.28 Commented [MDR28]: *I am puzzled here. The entire paper is on the subject of LIG sea level and your summary of it all is two sentences? Why not say something about the range of ages you have and compare them to U-series-dated and OSL-dated marine deposits elsewhere?*

Response: The section title of LIG sea-level fluctuation means fine-scale sea-level fluctuations during LIG, which shares the common section title in many papers of the WALIS special issue. We think our data in the Korean Peninsula are too coarse to constrain fine-scale fluctuations in LIG sea levels.

4.2.29 Commented [MDR29]: *You still haven't said whether these errors are one sigma or two sigma, so this discussion is not going to be easy to interpret, I'm afraid.*

Response: We inserted 'error range' of $\pm 1\sigma$ SE or $\pm 2\sigma$ SE into the last column of age uncertainty of Table 3, and the corresponding error range was written in each cell of the age uncertainty.

4.2.30 Commented [MDR30]: *Rephrase, removing "distorted" and "contamination", please.*

Response: We removed them in the revised manuscript.

4.2.31 Commented [MDR31]: *What do you mean by "coined"?*

Response: The word was rewritten to 'initiated'.