1. Introduction

Coastal areas provide important services and functions for the economy. The damages caused by sea level rise (SLR) is considered as one of the sectors that can be substantially influenced by climate change. An economic assessment of SLR and its adaptation measures would be meaningful for the policymakers. We assess the global economic impacts of SLR based on Representative Concentration Pathways (RCPs) and Shared Socioeconomic Pathways (SSPs).

2. Methods

We assess the impact of SLR with Asia pacific Integrated Model/Computable General Equilibrium (AIM/CGE) based on the data from Tamura et al. (2019). The process is shown in Figure 1 and the data and the models are shown in Table 2 and Table 3.

3. Results

- Figure 2
  - The consumption change between SSPs is larger than one of RCPs.
  - Even if mitigation measures are successful, the consumption change occurs to some extent.

- Figure 3 and Figure 4
  - The consumption change is large in the regions which have many developing countries with a high percentage of the secondary industries.
  - Especially in these regions, the change without emergency cost is larger than one with emergency cost.

Table 1. Regional divisions

<table>
<thead>
<tr>
<th>Region</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>Rest of Asia</td>
</tr>
<tr>
<td>EU</td>
<td>Canada</td>
</tr>
<tr>
<td>Rest of EU</td>
<td>Brazil</td>
</tr>
<tr>
<td>Turkey</td>
<td>Rest of South America</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Former USSR</td>
</tr>
<tr>
<td>China</td>
<td>Middle East</td>
</tr>
<tr>
<td>India</td>
<td>North Africa</td>
</tr>
<tr>
<td>Japan</td>
<td>Sub-Saharan</td>
</tr>
<tr>
<td>Rest of East and South East Asia</td>
<td>The whole world</td>
</tr>
</tbody>
</table>

Table 2. Used data

<table>
<thead>
<tr>
<th>RCP</th>
<th>SSP</th>
<th>Terrain</th>
<th>Tide</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCP2.6</td>
<td>SSP1</td>
<td>ETOP01</td>
<td>TPX07.2</td>
<td>EM DAT</td>
</tr>
<tr>
<td>RCP4.5</td>
<td>SSP2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCP6.0</td>
<td>SSP3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCP8.5</td>
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</table>

Table 3. Used model

<table>
<thead>
<tr>
<th>GCM</th>
<th>CGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPSL_CM5A_LR</td>
<td>AIM/CGE</td>
</tr>
<tr>
<td>MRROC_ESM</td>
<td></td>
</tr>
<tr>
<td>NuESM1_M</td>
<td></td>
</tr>
</tbody>
</table>

4. Discussion and Conclusion

From these results, the following can be pointed out.
- $2^\circ C$ climate stabilization (RCP2.6) might not sufficient to prevent climate change damages.
- More stringent climate change mitigation would be better to be assessed.
- Countries with a high percentage of the secondary industry may suffer a large consumption loss and need to prepare for adaptation measures.