SSP/RCP-based scenarios for CMIP6

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Summary

- Defined scenario architecture for cooperation among 3 WGs and three important research question (IAV/IAM/ESM perspective):

  Land use effect (question #1)

  Effect short-lived climate forcers / aerosols (question #2)

  Overshoot (question #3)

  Impacts of mitigation and adaptation policies on costs / benefits (also compared to baseline) (question #4).
2. Critical questions

How much can we use pattern scaling in looking into these questions?

How different do scenarios have to be to make a difference (John Mitchell rule)?
Summary

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  - Land use effect (question #1)
  - Effect short-lived climate forcers / aerosols (question #2)
  - Overshoot (question #3)
  - Impacts of mitigation and adaptation policies on costs / benefits (also compared to baseline) (question #4).

Idealised experiments
With dedicated MIPs?

Scenario matrix
Assume that we use different combinations of ESMs (selected in the right way)

<table>
<thead>
<tr>
<th>Forcing level (W/m²)</th>
<th>SSP1</th>
<th>SSP2</th>
<th>SSP3</th>
<th>SSP4</th>
<th>SSP5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4.5</td>
<td></td>
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<td></td>
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<tr>
<td>6.0</td>
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</tr>
<tr>
<td>8.5</td>
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Decide which scenarios make most sense:
1. Enough along the NZ/EW axis
2. Enough baseline/mitigation scenario pairs
3. An overshoot scenario
4. 8-12 scenarios?
Process

- Final decisions summer next year?
- Before that discussion in ESM /IAM / IAV community about this approach
- Spring next year workshop on pattern scaling (establish working group?)
- Work with MIPs on land use/sulphur on scenario definition for idealised runs.