Ground Motion Simulation Considering the Causative Fault of the Gyeongju earthquake, using EXSIM

<table>
<thead>
<tr>
<th>Fault parameters</th>
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<tbody>
<tr>
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<tr>
<td>Length [km]</td>
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<td>Width [km]</td>
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<td>Strike [°]</td>
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<td>Dip [°]</td>
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<tr>
<td>Slip [m]</td>
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<td>Rupture length [m]</td>
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<td>Rupture width [m]</td>
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Seismic Safety Evaluation Procedure for NPP sites in South Korea

- **Seismic hazard analysis**
  - Earthquake source: capable fault
  - Seismogenic source: a well-defined tectonic structure or simply a large region of diffuse seismicity.

- **Seismic hazard evaluation**
  - The causative fault of the Gyeongju earthquake can be regarded as a well-defined tectonic structure.
  - Procedure for determining design earthquake (DE) in NPP sites in South Korea:
  1. Determine DS of NPP sites, considering all seismic sources within a certain radius from NPP sites is essential.
  2. Establish seismic and tectonic hazard of each NPP site.
  3. In order to determine DS at a site, the effects of factors that greatly affect the level of acceleration spectrum amplitude in high-frequency ranges are examined.

Seismic Safety Evaluation Procedure for NPP sites in South Korea

- **Ground motions at a site from each seismic source**
  - Site-specific ground motions.
  - Site response analysis at a site.
  - Maximum ground motions.

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Conclusion, Application, Limitation, and Reference

- **Conclusion**
  - The Gyeongju earthquake, a well-recorded case of instrumental and simulated ground motions at the site of interest by the stochastic and empirical Green's function methods assuming Mw 6.0, 6.5, 7.0 at the maximum potential on the causative fault.
  - Further in-depth study including sensitivity analysis for various parameters should be conducted using more recorded data.
  - Application
  - Derivation of preliminary ground motion evaluation result of the site considering causative fault of significant magnitude using the stochastic and empirical Green's function methods.
- **Limitation**
  - The probable site response coefficient should be replaced with the measured one.
  - The seismic hazard assessment should be considered in a reasonable way.
  - The stochastic simulation should be conducted in consideration of the causative fault.
  - Site-specific ground motions at the site of interest should be evaluated using the stochastic and empirical Green's function methods.

- **Reference**