|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Variable influence on process** | | | **Process influence on variables** | | |
| **Influence present? (Yes/No Description)** | **Time period/Climate domain** | **Handling of influence (How/If not - Why)** | **Influence present? (Yes/No Description)** | **Time period/Climate domain** | **Handling of influence (How/If not - Why)** |
| Temperature in bedrock | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Groundwater flow | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Groundwater pressure | Yes | Excavation/operation | Included in the model as fracture pore pressure. | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Gas phase flow | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Repository geometry | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Fracture geometry | No | Excavation/operation | See Section 4.3. | Yes | Excavation/operation | Scope and extent of fracturing in near-field rock evaluated from stress results and observations from the APSE experiment. Handling of EDZ effects based on schematic assignment of transmissivity value to fictitious tunnel floor fracture. |
| Temperate | Temperate | Scope and extent of fracturing in near-field rock evaluated from stress results and observations from the APSE experiment. |
| Periglacial | Periglacial | Risk of hydraulic fracturing evaluated from stress results. |
| Glacial | Glacial | Evaluated from stress results, including risk of hydraulic fracturing. |
| Rock stresses | Yes | Excavation/operation | Site-specific rock stresses and excvation technique (mechanical versus drill & blast). | Yes | Excavation/operation | No handling. Output from model shows that stress relaxation effects of fracturing are limited to small volumes. |
| Temperate | Thermal stresses calculated in model. | Temperate |
| Periglacial | Stresses calculated in model. | Periglacial |
| Glacial | Stresses at repository depth from ice/crust/ mantle model, (Lund et al. 2009). Otherwise same as for temperate period. | Glacial |
| Matrix minerals | Yes | Excavation/operation | Site-specific rock mechanics property data. | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Fracture minerals | Yes | Excavation/operation | Neglected. Covered by strength ranges applied in fracturing assessment. | Yes | Excavation/operation | Not considered. New fractures will contribute an insignificant portion of the total fracture area. |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Groundwater composition | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Gas composition | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Structural and stray materials | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Saturation | Yes | Excavation/operation | Neglected; effect is negligibly small. | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |