Ergo Training Manual (work in progress)

This is a Ergo Training Manual for the visiting students (Eujeong Choi and Jaebeom Lee) from S. Korea. This document can be a good starting base for the official manual.

Hazard

Background

- See Hazard Introduction for links to hazard attenuation information

Hands on with Ergo

Built-in Attenuation functions on Ergo

How to create a scenario earthquake UI

Create Ergo Input Dataset (ESRI Arc/Info Grid ASC format) from USGS shakemap data (by using QGIS)

Download

- Download the data from USGS shakemap (http://earthquake.usgs.gov/earthquakes/shakemap/)
  - Select a region (or network)
  - Select download link
  - Download GIS Files - Shape Files (ESRI shapefile format)
- Unzip the downloaded file

Rasterize (vector to raster)

- Since the data from USGS site is in vector format (polygons), it needs to be converted to ASC format for Ergo Input
- Open the shapefile (pga.shp) in QGIS (we will create PGA raster data)
- Rasterize the vector data by the menu: Raster - Conversion - Rasterize
  - Input file: the shapefile for conversion
  - Attribute field: Value
  - Output file: select Geotiff and give a name (extension: tif)
    - Note: current version of QGIS rasterizer can't support ASC format directly
  - Raster size
    - default: 3000, 3000
    - You can increase the size to decrease the file size (but sacrifice the accuracy)

Geotiff to ASC

- Convert the format from Geotiff to ASC by the menu: Raster - Conversion - Translate
  - Input layer: the geotiff layer you created from previous step
  - Output file: select Arc/Info Grid Ascii (ASC) and give a name

Importing Raster data as a hazard

- Convert USGS vector to raster and import into Ergo, see Importing ASCII Raster guide
- Use the imported hazard in an Ergo damage analysis (e.g. building damage analysis).

Adding Attenuation Model

- Create a new plugin for the attenuation model, add dependencies
- Create a new extension and generate the class for the new model
- Add plug-in to Ergo launcher to make new model available

Fragility

Background

- Bridge Fragility
  - Fragility Data overview
  - Fragility Mapping
- Building Fragility
  - Fragility Data overview
  - Fragility Mapping
- Pipeline Fragility
  - Fragility Data overview (see Ergo Technical Manual)
  - Fragility Mapping (see Ergo Technical Manual)

Hands on with Ergo

Create and Import Fragilities and Mapping

- Create building fragility dataset
- Import building fragility dataset
- Create building fragility mapping
- Import building fragility mapping
- Visualize imported fragility in Ergo

New Analysis

Background

- Analysis Framework Developers Guide

Hands on with Ergo

Create New Analysis

- Create a New Analysis
  - Create plugin
  - Create new analysis
  - Create new analysis task
  - Create analysis result type

Inventory

Background

- Bridges
  - Data format overview
- Buildings
  - Data format overview
- Pipelines
  - Data format overivew