The cGAN model is defined in the same way for both notebooks. The difference lies in the reading of the tfrecords, from which a tf dataset is made. In the folder nb\_make\_tfrecords the producing of this tfrecords was discussed, as well as how they are uploaded to Kaggle.

Here the Kaggle link is used to retrieve the tfrecords, while they are in the cloud via Kaggle. By this, it is possible to use TPU which is ~8 times faster than GPU. TPU can be enabled by Edit > Notebook Settings > TPU.

The difference in the two Notebooks is how the tfrecords are read. This differ per represenation, either amplsope, a ratio or ratioslope. The notebook called ‘cGAN\_tpu\_amsplope’ uses the ampslope representation. The notebook ‘cGAN\_tpu\_ratio’ can use the a ratio or the ratioslope image. Search for “#uncomment for A\_ratio representation” and uncomment these cells if a ratio is preferred. If ratioslope is preferred, comment the a ratio and uncomment the cells with “# uncomment for ratioslope representation

”.

The ampslope has three bands; one sar amplitude image at time 1,

one sar amplitude image at time 2 and one slope image.

This image is paired to a masked image, called Y, which defines the landslide shape (if present, otherwise it is a plain black image).

The a ratio has one band; it is a log-based amplitude ratio over images before and after the event over the time span of a month. These images before and after have been averaged. The a ratio has subsequently been masked by a slope image.

The ratioslope has two bands; the a ratio and one slope image.

This image is paired to a masked image, called Y, which defines the landslide shape (if present, otherwise it is a plain black image).

The cGAN will make a model, and save these. It will also save a source, generated target and target images during every 10 epochs. It will also save the loss functions and the mIoU (mean Intersection over Union) as a learning curve. The loss and mIoU are saved into text files, which can be made into plots showing them as a learning curve by the notebooks in folder ‘nb\_validate\_results’