Some tectonic faults are documented to release strain in form of segmented earthquakes, when only a part of the fault fails at a given time, being followed by a rupture of another part of the fault years to tens of years later. In this thesis, our aim is to explain such behaviour using an idealized dynamic-fault model governed by a laboratory derived friction law. To this end, we □rst give an overview of a class of rate-and-state friction (RSF) laws, commonly used in modelling of seismic cycles. We perform numerical tests on a spring slider model using the most recent version of the RSF law proposed by Nagata et al. (2012) to better understand its features. Performing extensive numerical experiments with velocity-strenghtening and velocity-weakening zones of varying sizes along an in□nite two-dimensional vertical fault, we □nd examples of the earthquake segmentation.