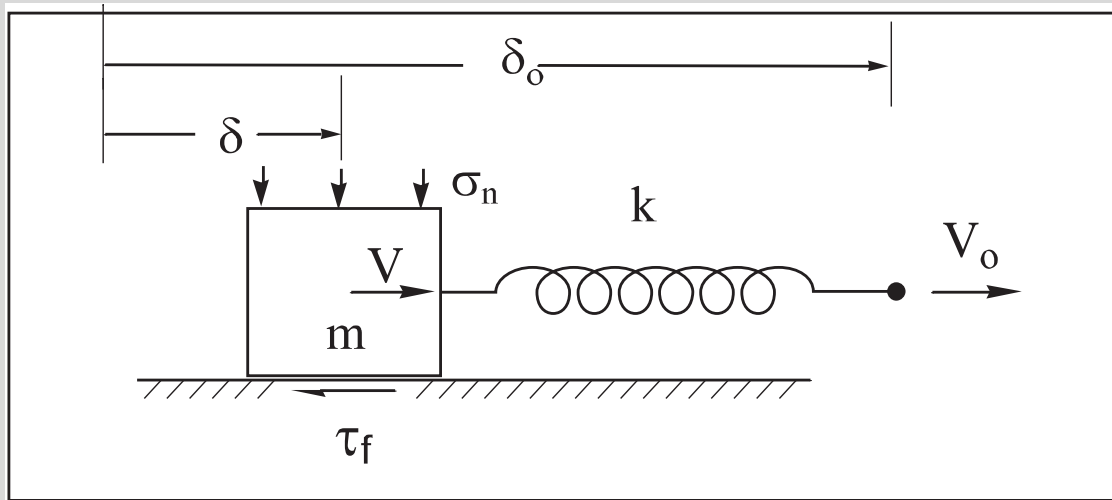


An aerial photograph of a wetland or marsh area. The landscape is a mix of dark, saturated soil and lighter, possibly drier or more mineral-rich areas. There are several interconnected water channels and a central pond. The overall appearance is that of a complex hydrological system. A semi-transparent grey box is overlaid in the center of the image, containing the text '1 - D Spring - slider model' in red, bold font.

**1 - D Spring - slider
model**



Numerical Method: RK SS



$$m \ddot{\delta} = k (\delta_0 - \delta) - \tau_f + \Delta\tau, \quad \Delta\tau(t) \text{ perturbazione}$$

$\tau_f = \text{resistenza di attrito}$

Reologia: attrito rate- and state-dependent

$\theta(\Phi)$ = variable di stato della superficie, $V = \dot{\delta}$ velocità

A - Ruina-Dieterich

$$\tau_r = \tau_* + \theta + A \ln \left(\frac{V}{V_*} \right)$$

$$\frac{d\theta}{dt} = -\frac{V}{L} \theta + B \ln \frac{V}{V_*}$$

B - Dieterich - Ruina

$$\tau_r = \tau_* - A \ln \left(\frac{V_*}{V} \right) + B \ln \left(\frac{\Phi V_*}{L} \right)$$

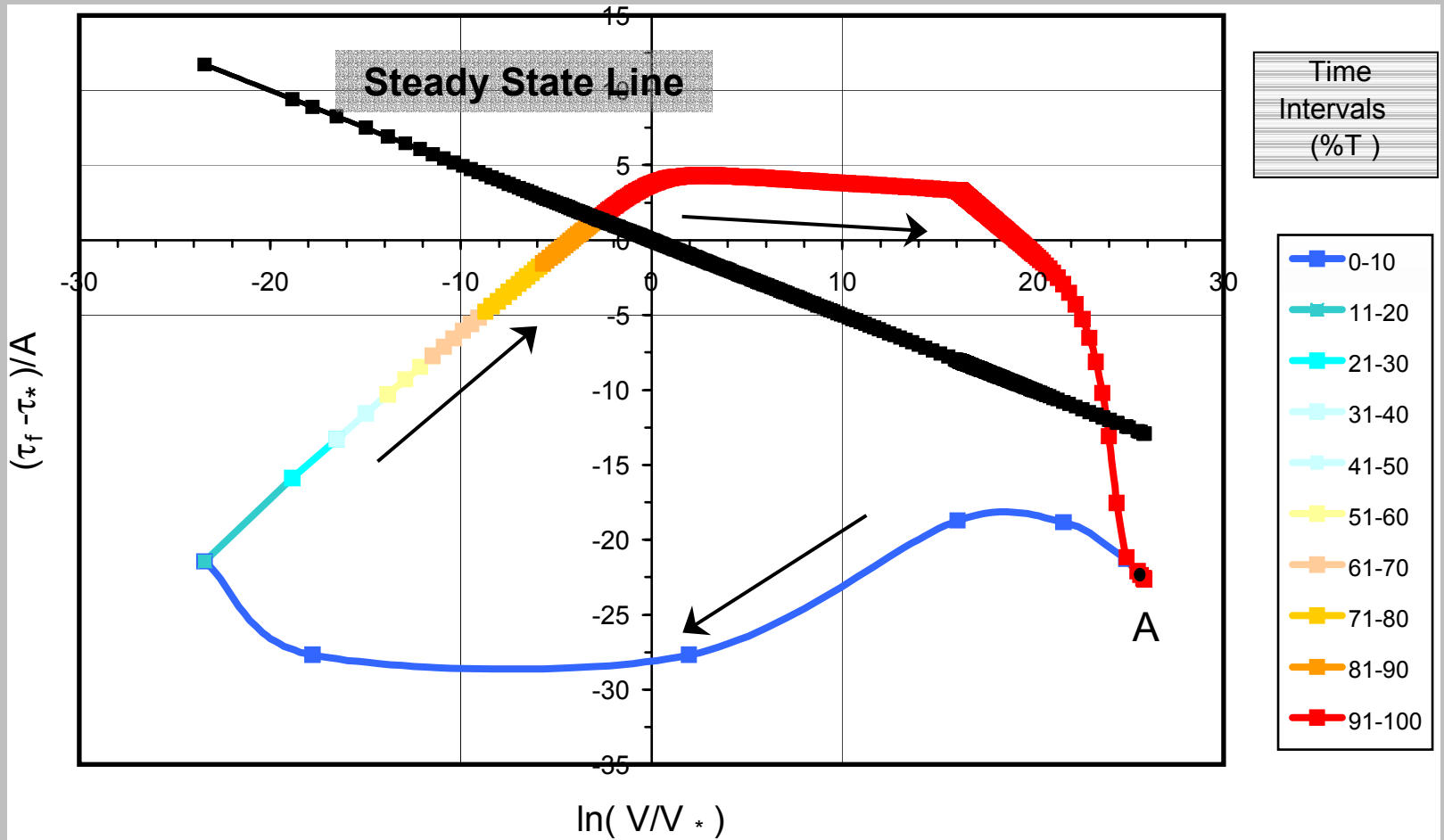
$$\frac{d\Phi}{dt} = 1 - \frac{\Phi V}{L}$$

Stato del sistema: $(v(t), d(t), t_f(t))$
o condizioni mecc. faglia

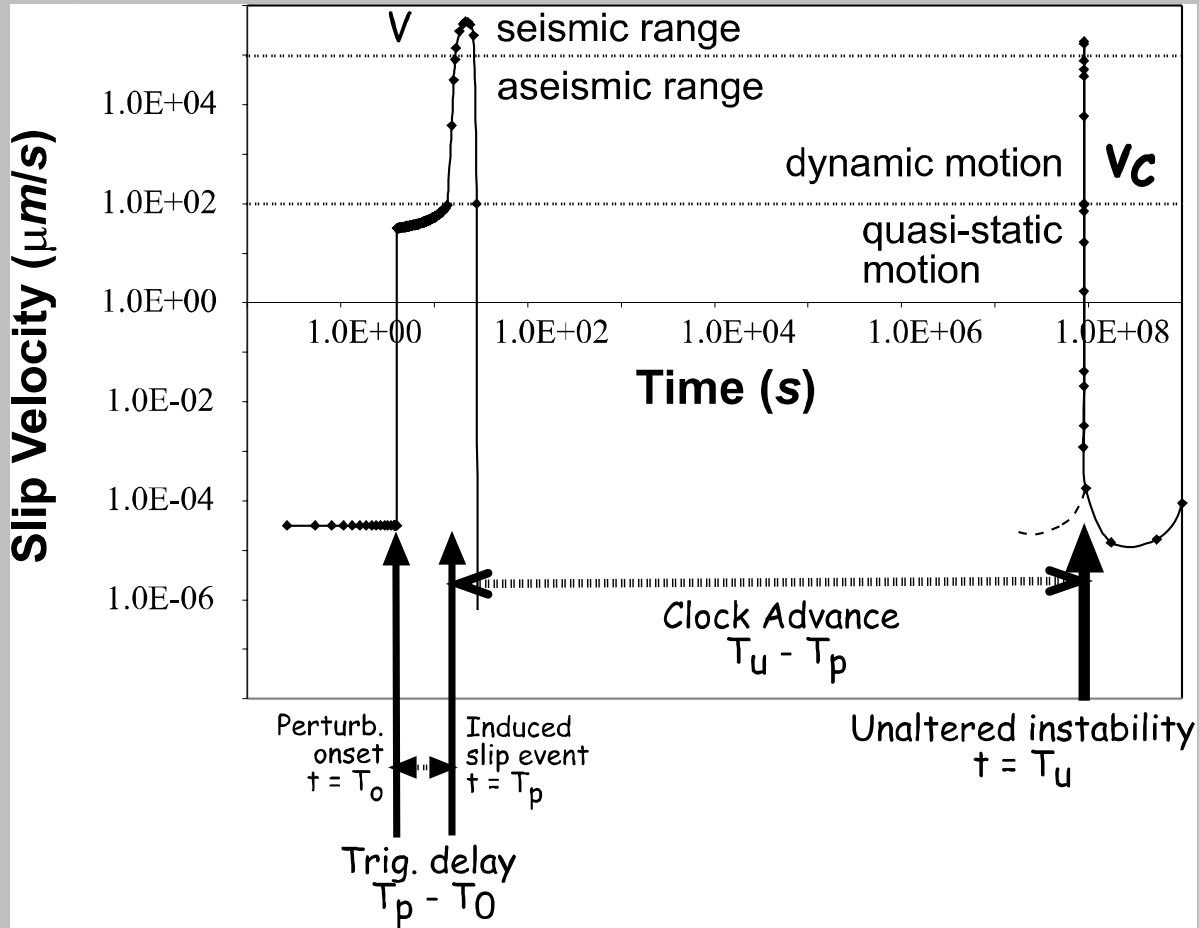
approx. q. statica
 $V < V_c = 0.1 \text{ mm/s}$

$(v(t), t_f(t))$

Fault seismic cycle modeling



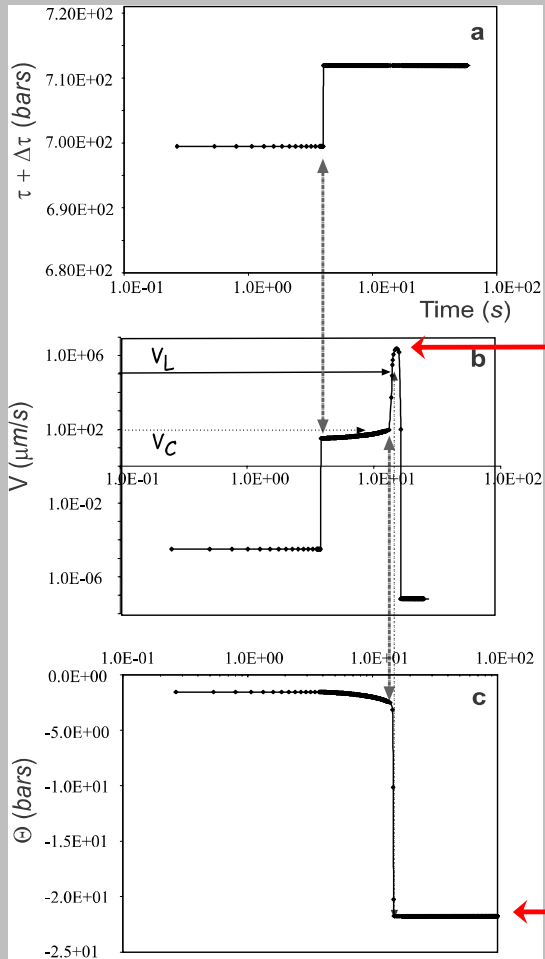
Analytical stress perturbations



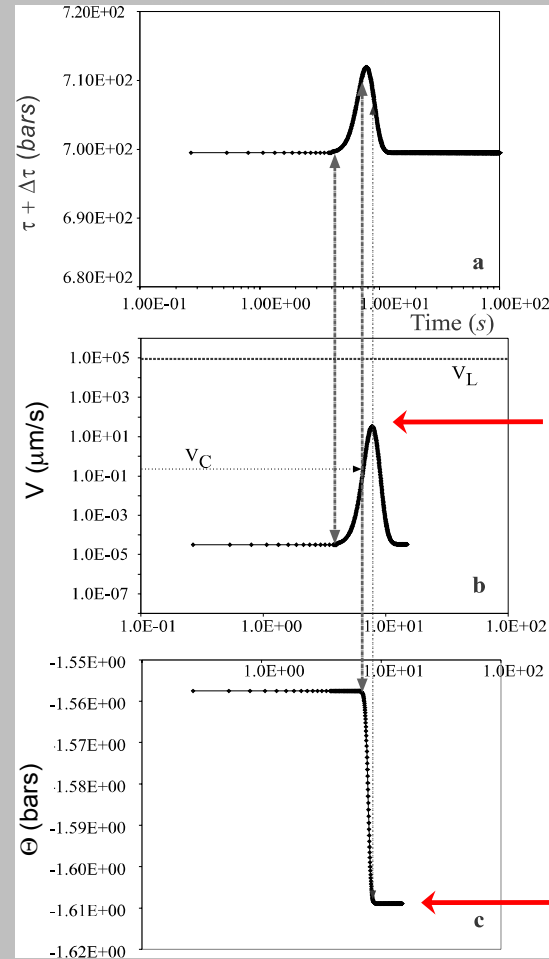
Analytical stress perturbations

The step and the pulse #1

Step

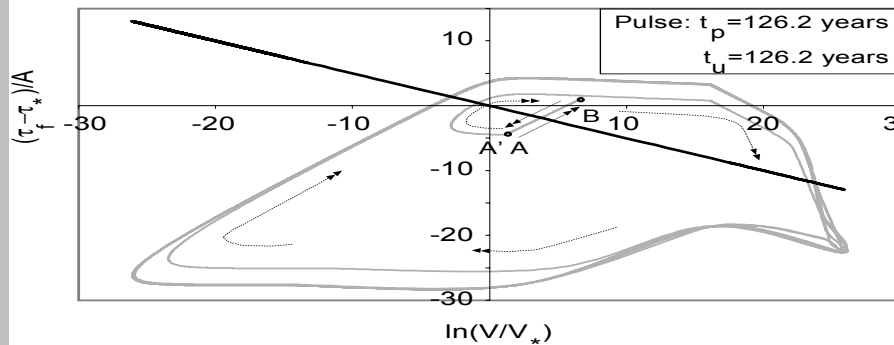
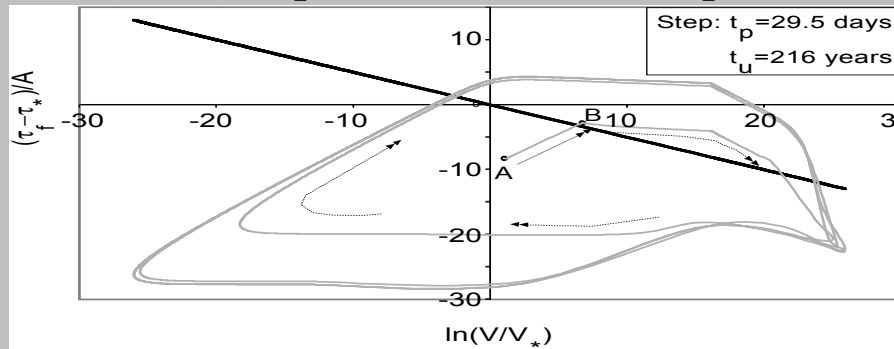


Pulse



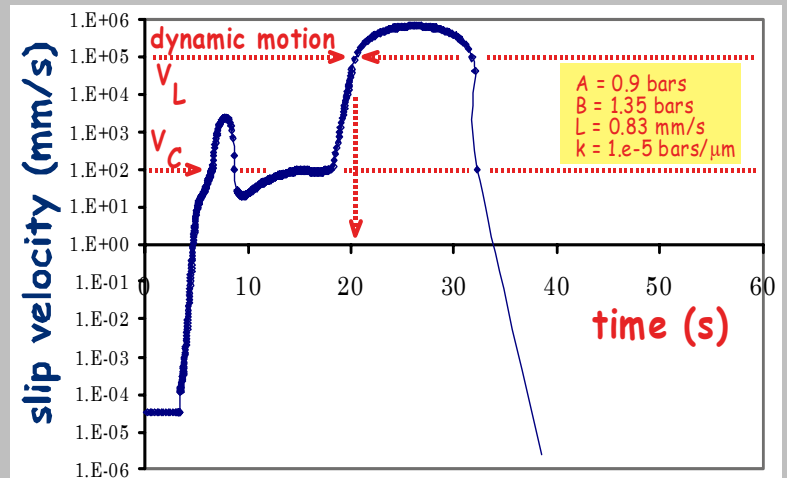
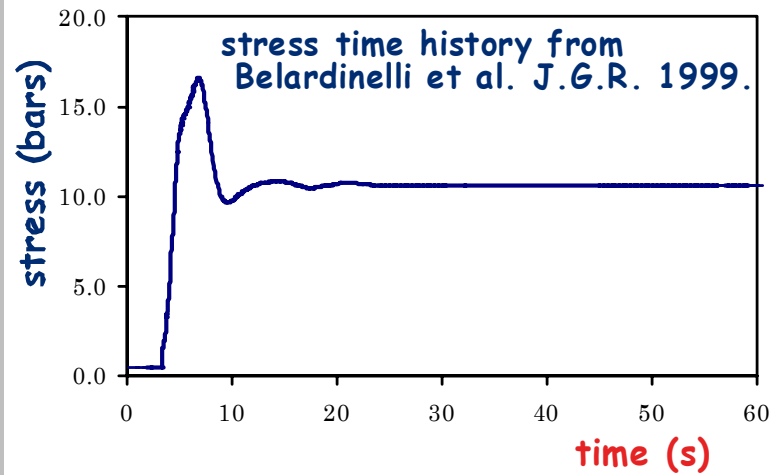
Analytical stress perturbations

The step and the pulse #2



Realistic stress perturbations

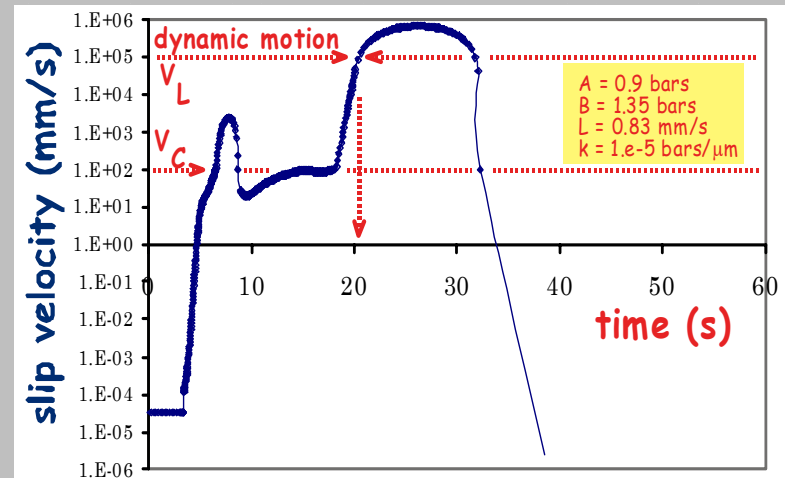
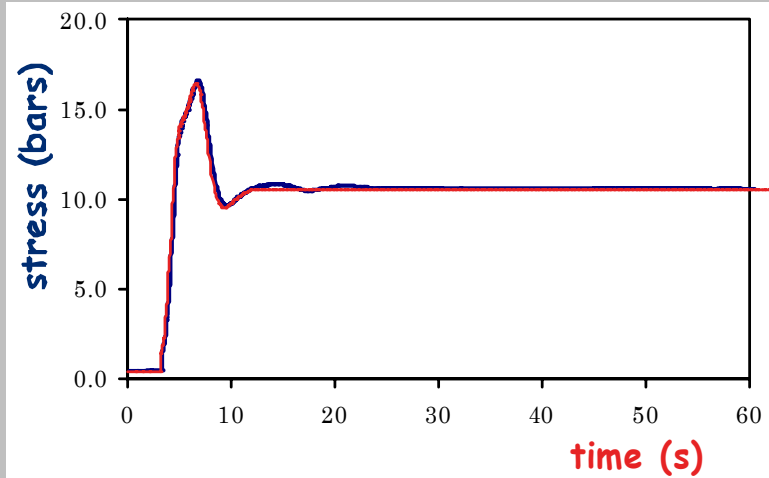
Syntetic seismograms #1





Realistic stress perturbations

Syntetic seismograms #2



This slide is empty intentionally.

