Caption of Movie1: The movie about the temperature (color) and velocity (arrows) fields at *Ra*=108 and *Pr*=0.01 in the LSC-controlled regime obtained (left) in the smooth cell and (right) in the rough cell with *h*=0.05 (the *Nu*-reduction regime).

Caption of Movie2: The movie about the temperature (color) and velocity (arrows) fields at *Ra*=108 and *Pr*=0.4 in the corner-LSC-competition regime obtained (left) in the smooth cell and (right) in the rough cell with *h*=0.0833 (the *Nu*-enhancement regime).

Caption of Movie3: The movie about the temperature (color) and velocity (arrows) fields at *Ra*=108 and *Pr*=100 in the plume-controlled regime obtained (left) in the smooth cell and (right) in the rough cell with *h*=0.0417 (the *Nu*-enhancement regime).

Caption of Movie4: The movie about the temperature (color) and velocity (arrows) fields near the center of the lower plate. The data are obtained in the rough cell with *h*=0.0625 at *Ra*=108 and at (left) *Pr*=1 and (right) *Pr*=100.