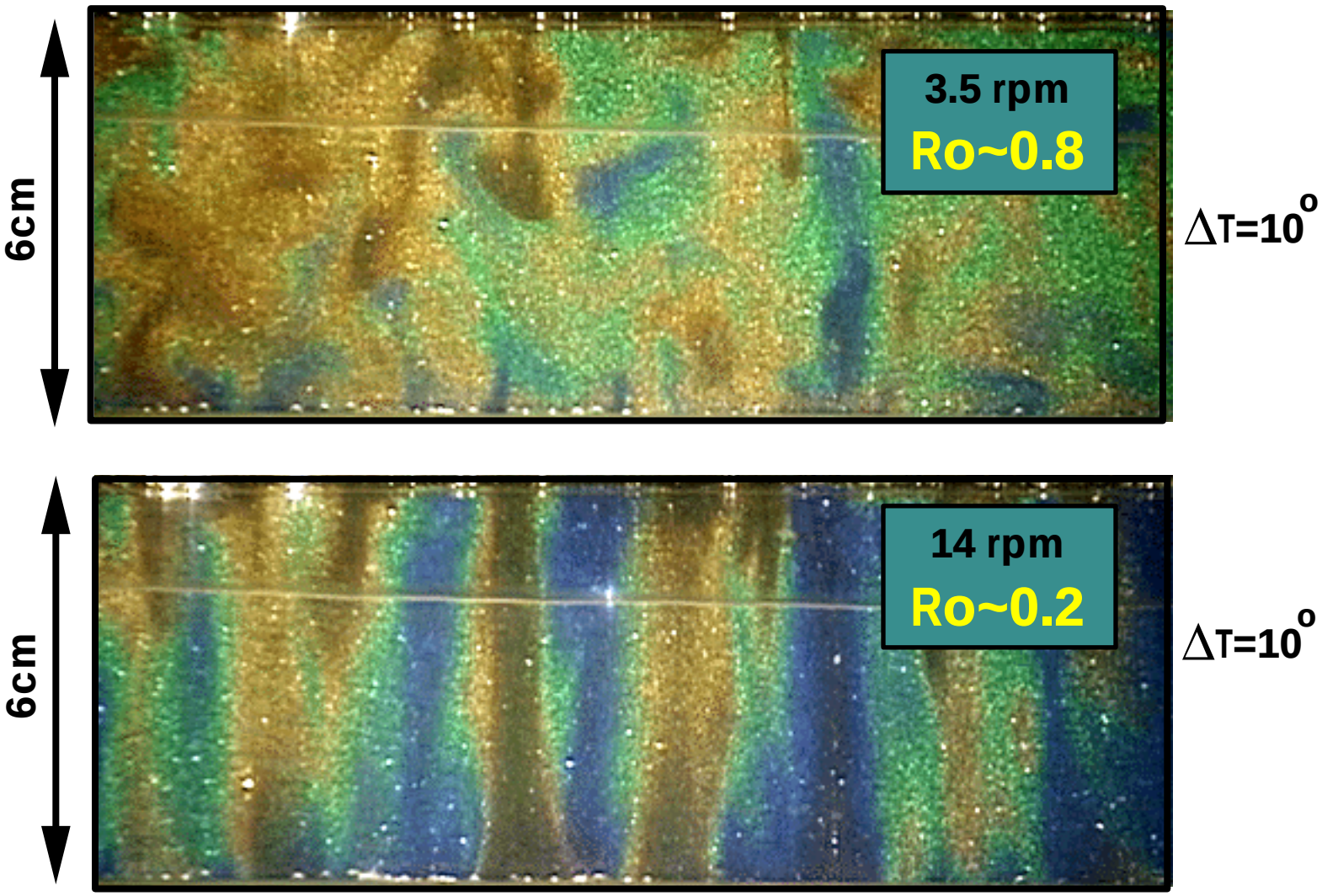
Rotating Convection

In the presence of sufficiently large background rotation, convective turbulence is organised into Taylor columns (see lab L2).



Experiments by S. Sakai, et al. http://dennou-k.gaia.h.kyoto-u.ac.jp/library/gfd_exp/

Transition is determined by 'convective Rossby number':

$$Ro = f^{-1}/(h/W) = (Ra/(Pr\,Ta))^{1/2}$$

where $W = (g\,h\,\alpha\,\Delta T)^{1/2}$ (~ 'free fall' vertical velocity)

and $Ta = (f\,h^2/\nu)^2$ (the "Taylor number")