Soret instability in an anisotropic porous medium with temperature-dependent viscosity

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The effect of temperature-dependent viscosity on thermohaline convection in a Boussinesq fluid saturating an anisotropic porous medium is investigated, taking into account the effect of the process of thermal diffusion which is a cross-diffusion phenomenon (Soret effect). The variation in viscosity has mixed results in the setting up of convection currents, either by delaying or advancing it. This depends on various significant factors, namely, (i) the mode by which convection is encouraged to set in, whether stationary or oscillatory, (ii) the magnitude of the Soret parameter and (iii) the anisotropy parameter of the Soret effect.

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