Abstract Gudrun Thäter

The roots of the Boussinesq approximation extend down to the end of the 19th century.
On the one hand It is well-known since it is widely used and on the other hand it is a nice and well understood model at the intersection of several and divers mathematical and engineering fields.
Nevertheless, its justification from the point of view of continuum mechanics was missing until 1996 when Rajagopal, Ruzicka & Srinivasa derived the Oberbeck-Boussinesq approximation from the full thermodynamical theory for Navier-Stokes fluids by introducing a new method of treating the constraint of mechanical incompressibility.
This information is indispensable to find the limits of the model and gives the direction for possible generalizations for other configurations.