1040-35-68 **C L Frota*** (clfrota@uem.br), Universidade Estadual de Maringá, Departamento de Matemática, AV. Colombo, 5790, Maringá, Paraná 87020-900, Brazil, and **H R Clark**, **J Limaco** and **A T Cousin**. *On dissipative Boussinesq equation in a non-cylindrical domain.*

We consider the initial-boundary value problem for the one-dimensional in space dissipative Boussinesq equation in a noncylindrical domain of $\mathbb{R}^2$, namely

$$u_{tt}(x,t) - \Big(u(x,t) + u_t(x,t) + u^2(x,t)\Big)_{xx} + u_{xxxx}(x,t) = 0 \quad \text{in} \quad \widehat{\mathcal{Q}}, \tag{1}$$

$$u(\alpha(t),t) = u(\beta(t),t) = u_x(\alpha(t),t) = u_x(\beta(t),t) = 0 \quad \text{for} \quad t \geq 0, \tag{2}$$

$$u(x,0) = u_0(x);\ u_t(x,0) = u_1(x) \quad \text{for} \quad x \in [\alpha_0, \beta_0]. \tag{3}$$

Here α and β are real functions defined on $[0,\infty)$, $\alpha(0) = \alpha_0 < \beta_0 = \beta(0)$ and

$$\widehat{\mathcal{Q}} = \Big\{(x,t) \in \mathbb{R}^2 :\ \alpha(t) < x < \beta(t) \quad \text{and} \quad t \geq 0\Big\}$$

is a noncylindrical domain. The noncylindrical domain $\widehat{\mathcal{Q}}$ means that the beam at rest is model by the interval $[\alpha_0, \beta_0]$ and its ends change in time according the functions $\alpha(t)$ and $\beta(t)$, due for instance by a temperature variation. We prove the global solvability to this problem and the exponential decay for the associated energy as $t \to \infty$. (Received January 22, 2008)