1086-86-2046 **Ludmila Bourchtein*** (ludmila.bourchtein@gmail.com), Rua Anchieta 4715, bloco K, ap.402, Pelotas, RS 96015-420, Brazil, and **Andrei Bourchtein**. *On well-posed problems in adjustment of atmospheric data.*

An adjustment of the initial data for atmospheric models usually leads to a system of time-independent partial differential equations, which express the physical balance conditions. A general problem in solving such diagnostic relations is non-ellipticity of the differential systems for some atmospheric conditions that does not allow us to formulate well posed boundary value problems. The classical example of the nonlinear balance equation for the middle troposphere can illustrate this situation: this equation is elliptic for unknown pressure and given stream function, but it is of the Monge-Ampere type if the pressure is given and stream function is to be found. In the latter case, the equation loses ellipticity under certain condition on the Laplacian of the pressure function, which corresponds to impossibility to solve boundary-value problem for the balance equation in the regions with strong anticyclonic formations. In this study, we present the ellipticity conditions for more complex differential systems of nonlinear adjustment. Based on these results, we show distribution of non-elliptic regions in the gridded data of the actual atmospheric fields for different forms of the balance equations. (Received September 24, 2012)