or

$$\psi\left(\frac{a^2}{r'}\right) = -\psi(r')\left(\frac{\frac{\partial f}{\partial r}}{\frac{\partial f_1}{\partial r}}\right)_{r=a}\left(\frac{r'}{a}\right)^2.$$

This indicates that

$$M = \int_a^\infty \psi(z')\left[f(r^2, r'^2, rr') - \left(\frac{\frac{\partial f}{\partial r}}{\frac{\partial f_1}{\partial r}}\right)_{r=a} f_1\left(r^2, \frac{a^4}{r'^2}, \frac{a^2}{r'}\right)\right] dr'.$$

Analogous transformations are made for all integrals with respect to r'; however, since $\left(\frac{\frac{\partial f}{\partial r}}{\frac{\partial f_1}{\partial r}}\right)_{r=a}$ is a function not only of φ' and λ' but of φ and λ, the solution of this hold only for the local problem, when φ and λ in this factor can be considered equal to φ_0 and λ_0, i.e., constant.

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LITERATURE CITED

[1] Diubiuk, A. F. "K gidrodinamicheskomu prognozu baricheskogo i kinematicheskikh polei (Kratkosrochnyi prognoz pogody)" (The hydrodynamic forecast of pressure and kinematic fields (Short-range weather forecasting), Akademiia Nauk SSSR, Doklady, 123(2), 1958.