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The gravitational field of a deformable body like the Earth or other celectial bodies

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First, we review the spatial "Eulerian" increments as well as the material "Lagrangean" increments of a vector-valued gravitational force field and the scalar-valued
gravitational potential field. Second, we use the linearized incremental gravitational field equations as well as its jump conditions at the interfaces to receive the proper general field equations which are similar to the Maxwell equations. Third, we review the multipole expansion of the incremental Eulerian potential over a reference configuration subject to a displacement vector field given in vector-valued functions R(l,m), S(l,m),T(l,m). Fourth, this expansion can be split into three constituents : (i) dilation multipoles, (ii) transport displacement multipoles and (iii) mass condensations on the surface S^2(R+) and the interior surfaces S(R(my)) for all my element of R-,R1, ...,R(M). Case Studies : (i) tidal force, (ii) centrifugal potential, (iii) loading forces (atmosphere, oceanic, topographic, processes at the core-mantle boundary) and (iv) surface or boundary tractions (atmosphere, horizontal, seismic, changes of the Earth‘s kinematical parameters) . The key reference is E.Grafarend, J.Engels, and P.Varga (JoG 72 (1997) 11-30.