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Article 4: The formation mechanism of substance boundary layers / 物质在各形态中的分层与边界形成机制

Author: Liu Huan(1983-), Master of Science (First Class Honours, 2009), The University of Auckland.

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Abstract

The formation process of boundary layers in nature is discussed by this article, illustrated by an example of polar particles' aggregation.

Key words: Boundary Layer Formation, Troposphere and Stratosphere, Thermal Layers in Water, Lithologic Stratification, Polarity of Particles.

Discussion

In the three-dimension materials' space, the boundaries commonly exists among the materials of solid state, liquid state or gas state. For example, atmosphere is divided into troposphere and stratosphere by the clear boundary layer between both [1]; the water temperature is divided into different thermal layers along the depth of a lake by the clear boundary between water layers [2]; apparent lithologic stratification is segregated by the geological boundary between them [3].

The formation of substance boundary: the polarity of polar molecules and atoms (or the induced van der Waals force of non-polar molecules and atoms) leads to the symmetrical arrangement between positive and negative poles, which results in two kinds of effects on the magnetic moment: firstly, the symmetrical arrangement between positive and negative poles enhances the polarity/magnetic moment of the aggregated substances. The theory of magnetic materials' formation is discussed in another paper [4]. The magnetic flux transmits between the positive and negative poles of the whole aggregated substances, and the middle layer between the positive and negative poles of the whole aggregated substances becomes a neutral substance boundary. Then the enhanced polarity tends to absorb more substances with polarity, aggregating into thicker layers, which further enhances the polarity of the whole substances. With accumulation, this neutral substance boundary in the middle of the whole aggregated substances becomes the obstacle stopping the polar substances from the transmission through it, resulting in different substance layers.

It is to further discuss that the boundary layers in the atmosphere, ocean and geology layers of our earth planet also become the equipotential line layers of our planet, and the generated equipotential shielding effect causes charged substances in the outer spaces to conduct relative motion parallel to the stable boundary layers (such as stratosphere in atmosphere), while the breaking of boundary layers tends to result in the convection motion vertical to the boundary layers (such as troposphere in atmosphere). This formation process is also applicable on the stars or other planets, which has been discussed in my another article [5].

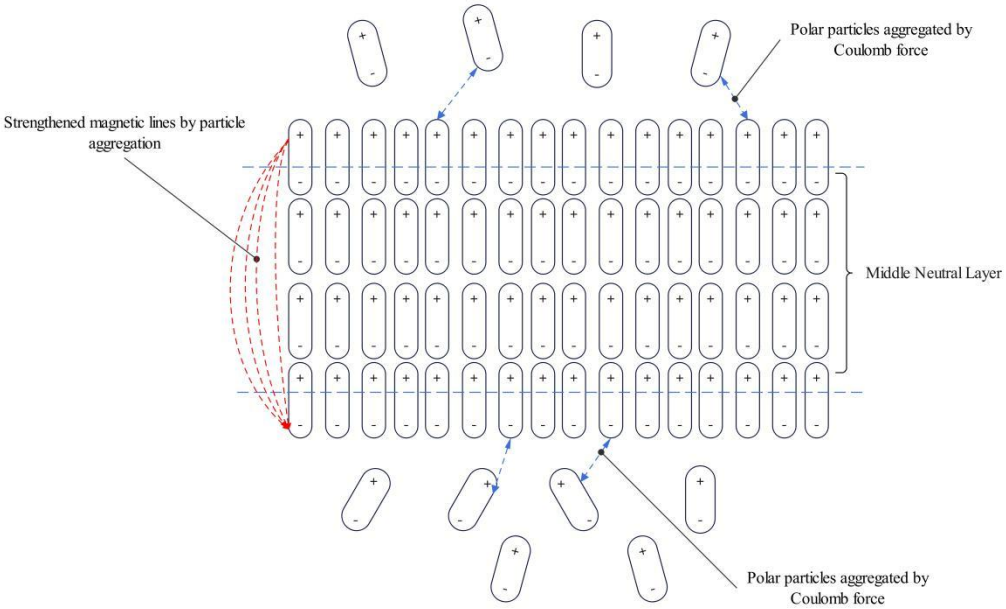

Figure 1. Boundary layer formation process due to the polar particles aggregated by Coulomb force.

As illustrated by Figure 1, the polar particles are aggregated by Coulomb force, and the positive poles are connected with negative poles, which tends to form symmetric arrangement between positive and negative poles. When the polar particles are aggregated in this way, the magnetic lines of the whole aggregated substance are strengthened, continuously absorbing more polar particles into aggregation process. The middle layer of the whole aggregated substance tends to be neutralized due to the connection between positive and negative poles, which usually results in equipotential shielding effect and becomes the obstacle stopping the polar substances from the transmission through it. With the accumulation of this aggregated process, boundary layers tend to be formed in nature.

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