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Adsorbophysical states and theoretical aspects for predicting surface mineral structures

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Traditionally we study surface mineral structures under temperature, irradiation, electric and magnetic fields conditions. We forgot, that adsorbophysical state in the gas-mineral systems are very common phenomena in the wide range of geological environments, and play significant role for predicting surface mineral structures.

In the presents of gas phase a micro- and nano- layer, which forms in the interface between the parent and product phase is initiated by adsorbophysical state and controlled by active surface centers of mineral.

So, the influence of adsorbophysical state on the surface mineral parameters and structures is the result of close connection between molecular processes in the adsorb (product) phase and in the mineral volume (parent phase).

The surface mineral replacement processes is part of this problem. The oxygen transformation from gas phase to product phase and then to parent phase is initiated by processes of surface reconstruction as the result of formation of defect (for example, during irradiation). In the processes of the surface reconstruction the oxygen of gas phase is able to concurrent with moving oxygen ions in the lattice in the moment of expansion of the position with advantageous energy.

There is the selectivity of the surface active centers to interaction with gas phase molecules. It is give possibilities to new perspective in the theory and apply mineralogy.