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## Retrieval of water vapor profile in the mesosphere from satellite ozone and hydroxyl measurements by the basic dynamic model of mesospheric photochemical system

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**Abstract.** We propose an indirect method for retrieving a number of significant minor gas constituents of the atmosphere. The technique is based on the use of so-called basic dynamic models of atmospheric photochemical systems simplified mathematically correctly in a special manner. It is applied to a mesospheric system describing day evolution of key minor gas constituents at these heights. We take as initial data experimental data of the CRISTA-MAHRSI satellite campaign of August 1997 during which ozone and hydroxyl ( $O_3$  and OH) concentrations were measured simultaneously. It is demonstrated that the use of the basic dynamic model allows retrieval of vertical distribution (within the 53–85 km range of heights) of water vapor concentration that is one of the control parameters of the mesospheric photochemistry.

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