



## **Vertical distribution of molecular hydrogen in the troposphere over southwestern part of Siberia**

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Study of annual and long-term vertical distribution of molecular hydrogen has been done based on the data of airborne sounding carried out from 1997 to 2010. It is shown, that concentration of hydrogen for this period varied in the range from 391 to 597 ppb. Maximum in the annual behaviour of H<sub>2</sub> mixing ratio was observed from March to May (depending on the height), and minimum - in late autumn, in November. The minimal vertical gradient of the hydrogen concentration is observed in February and matches 2 ppb/km, and maximal gradient of 8 ppb/km in November. In autumn, it reaches 23 ppb/km in the 2-km lower tropospheric layer. There is no definite trend in the long-term variation of H<sub>2</sub> mixing ratio. It is possible to isolate two maxima in 1998 and 2008 and one minimum in 2001. As a whole, concentration of hydrogen, both within one year, and in a long-term cut, grows with height that allows proposing a hypothesis about a stratospheric source of hydrogen in the troposphere

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