



## **Preliminary comparison of the methane absorption latitudinal distribution on Saturn's disk near zero tilt of the rings in 1995 and 2009.**

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The study of the methane absorption bands variations on disks of Jupiter and Saturn has a long history in Fessenkov Astrophysical Institute beginning of 1960-th. From 1995 the CCD-cameras are using for planetary photometry and spectrophotometry and in the last years these observations served as a part of the ground based astrophysical accompaniment of "Cassini" space mission to Saturn. The methane absorption as well as other optical properties of Saturn's visible atmosphere and clouds cover shows clearly expressed North-South asymmetry even at the time of the "edge-on" rings and equator orientation. During this event in 1995 we have found that the CH<sub>4</sub> absorption bands are significantly more intense at the temperate latitudes of S-hemisphere in comparison with N-hemisphere.. During next years till 2008 the latitudinal absorption distribution was changing according the changes of the equator tilt and for Southern temperate latitudes there was noted a regular increase of the methane bands intensity. . The CH<sub>4</sub> 725 nm band depth changed from 0.53 in 1995 to 0.74 in 2007-2008. but next growth of the absorption was finished in the beginning of new observational season 2008-2009. Last observations were accomplished 13-14.12.2008 and 5-6.01.2009.by consequent zonal scanning of Saturn's disk . Each series consisted of 80-90 CCD-spectra. The spectra of central meridian of Saturn were recorded also. The view of the latitudinal variations of the methane absorption is not simply reciprocal to observed in 1995 as it may be waiting. The CH<sub>4</sub> band 725 nm shows near symmetric distribution in both hemispheres . Weaker absorption bands 619 nm and 670 nm do not show that symmetry and they are stronger in the Northern hemisphere. More detailed study of these peculiarities is in progress. Preliminary the structural atmospheric changes, which are imaging in the methane absorption variations, may be connected with nonsimilar insolation regimes near 1995 and 2009 because the heliocentric longitudes and distances of Saturn from the Sun were significantly different in that times.